ARCHIVE (Book 1/2)
Code Adoption Documents, Guidelines, Director's Rulings, Bulletins, Advisories, Director's Orders & Safety Orders

as of

May 5, 2020

Elevating and Amusement Devices Safety Program
Technical Standards and Safety Authority

This file contains documents (or regulatory instruments) that form part of Ontario's Elevating Devices Regulatory Landscape.

The documents enclosed as those which have been Archived due to to their age, being superseded by other documents or otherwise removed from the current ACTIVE Regulatory Documents Binder (ED-SKI).

The Archived Binder of Files has been split into 2 books (due to file size).
Archive Book 1 of 2 contains archived documents created after May 5, 1997.
Archive Book 2 of 2 contains archived documents created prior to May 5, 1997 and issued by the previous Ministry of Consumer and Commercial Relations (MCCR).

Technical Standards & Safety Authority		Archived Code Adoption Documents, Guidelines, Rulings, Bulletins, Advisories, Director's (Safety) Orders						
ID No.	Date	This achive contains historic information of various regulatory communucation tools that have been Archived for various reasons, including items that are > 7yrs Old, Superseded or otherwise moved from ACTIVE Status	ARCHIVE 1 or 2 of 2	Past Due	Superseded by	Compliance Due Date	Yrs Past Due	Yrs Old
ID No.	Date	CODE ADOPTION - ARCHIVE	Status1	Status2	Status3	Compliance By	Yrs Past Due	Yrs Old @ 2020-05-05
261-13-r1	Sep-15-13	CAD Amendment - 261/13-r1 - Adoption of A17.1-2010/B44-10	Archive 1/2		Superseded by Rev		0.00	6.66
261-13	May-01-13	CAD Amendment - 261/13 - Adoption of A17.1-2010/B44-10	Archive 1/2		Superseded by Rev		0.00	7.03
255-12	Sep-14-12	Construction Hoist CAD - Maintenance and Operator Logs	Archive 1/2		Superseded by CAD-261	2013-03-01	7.20	7.66
250-11	Nov-01-11	CAD Amendment - Adoption of A17.1-2010/B44-10	Archive 1/2		Superseded by CAD-261		0.00	8.53
246-11	Apr-25-11	Complete CAD Amendment and Adoption of Z98-07(Oct1,2011)	Archive 1/2		Superseded by Rev		0.00	9.05
239-09	Jun-21-10	Annual Testing of Firefighter's Emergency Operation	Archive 1/2		Superseded by Code		0.00	9.90
238-09	Jan-29-10	Adoption of CSA Standard B355-09, Lifts for Persons with Physical Disabilities	Archive 1/2		Superseded by CAD		0.00	10.29
225-07-r3	Mar-02-09	Adoption of ASME A17.1/CSA B44-07 Safety Code for Elevators and Escalators	Archive 1/2		Superseded by CAD		0.00	11.20
225-07-r2	May-13-08	Adoption of ASME A17.1/CSA B44-07 Safety Code for Elevators and Escalators	Archive 1/2		Superseded by Rev		0.00	12.00
225-07-r1	Nov-30-07	Adoption of ASME A17.1/CSA B44-07 Safety Code for Elevators and Escalators	Archive 1/2		Superseded by Rev		0.00	12.45
225-07	Jul-16-07	Adoption of ASME A17.1/CSA B44-07 Safety Code for Elevators and Escalators	Archive 1/2		Superseded by Rev		0.00	12.83
216-07	Sep-01-07	Adoption of Z185-M87(R2001), Z256-M87(R2006), A10.22-1990(R1998) w E/EE/PES requirements.	Archive 1/2		Superseded by CAD		0.00	12.70
213-07	Apr-10-07	Refurbishing of Type D Rack and Pinion Safeties	Archive 1/2		Superseded by CAD		0.00	13.10
212-07-r1	Mar-17-09	Oil Loss Monitoring for Hydraulic Elevators	Archive 1/2		Superseded by CAD-261 (2.9)		0.00	11.16
212-07	Jan-12-07	Oil Loss Monitoring for Hydraulic Elevators	Archive 1/2		Superseded by Rev		0.00	13.34
204-06	Jan-20-06	Adoption of A17.1S-2005 for MRL Elevators ONLY	Archive 1/2		Superseded by CAD		0.00	14.32
198-05	Jun-30-05	B44-04 Code Adoption	Archive 1/2		Superseded by CAD		0.00	14.87
186-03	Nov-01-03	Adoption of Z98S1-02 (Supplement #1) to CAN/CSA-Z98-01	Archive 1/2		Superseded by CAD		0.00	16.54
183-03	Dec-01-03	Adoption of B355-00 Supplement#1 - Lifts for persons with physical disabilities	Archive 1/2		Superseded by CAD		0.00	16.45
181-03	Jun-27-03	Adoption of B44-00 Update#1	Archive 1/2		Superseded by CAD		0.00	16.88
174-02	Feb-24-03	Adoption of B311-02 Code	Archive 1/2		Superseded by CAD		0.00	17.22
167-01	Dec-31-01	Adoption of CSA Z98-01 Passenger Ropeways Standard - New Edition	Archive 1/2		Superseded by CAD		0.00	18.37
161-01-r2	May-17-02	Adoption of B44-00 Code	Archive 1/2		Superseded by CAD		0.00	18.00
161-01-r1	Mar-07-02	Adoption of B44-00 Code	Archive 1/2		Superseded by Rev		0.00	18.19
161-01	Aug-16-01	Adoption of B44-00 Code	Archive 1/2		Superseded by Rev		0.00	18.75
157-01	Jan-10-01	Adoption of CSA B355-00	Archive 1/2		Superseded by CAD		0.00	19.35
141-98	Dec-30-98	Adoption of B44S2 – 98 Supplement No.2 to CAN/CSA- B44-94 Safety code for Elev.	Archive 1/2		Superseded by CAD		0.00	21.38
129-97	Apr-02-97	Adoption of Supplement #1 – 1997 to CAN/CSA-B44-94	Archive 2/2		Superseded by CAD		0.00	23.12
115-94	Nov-04-94	Adoption of CSA B444-94, Safety code for Elevators	Archive 2/2		Superseded by CAD		0.00	25.53
112-94-r2	Dec-06-94	Adoption of CSA B355-94 Lifts for Persons with Physical Disabilities	Archive 2/2		Superseded by CAD		0.00	25.45
112-94-r1	Nov-04-94	Adoption of CSA B355-94 Lifts for Persons with Physical Disabilities	Archive 2/2		Superseded by Rev		0.00	25.53
112-94	Apr-26-94	Adoption of CSA B355-94 Lifts for Persons with Physical Disabilities	Archive 2/2		Superseded by Rev		0.00	26.06
101- 93	Jan-13-93	Adoption of Supplement No. 1-92 to CAN/CSA-Z98-M91 Passenger Ropeways	Archive 2/2		Superseded by CAD		0.00	27.34
99-92-r4	Dec-30-98	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	Archive 1/2		Superseded by CAD		0.00	21.38
99-92-r3	Oct-20-98	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	Archive 1/2		Superseded by Rev		0.00	21.57
99-92-r2	Dec-02-94	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	Archive 2/2		Superseded by Rev		0.00	25.46
99-92-r1	Feb-10-94	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	Archive 2/2		Superseded by Rev		0.00	26.27
99-92	Oct-30-92	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	Archive 2/2		Superseded by Rev		0.00	27.55
98-92	Oct-13-92	Adoption of CAN/CSA-Z98-M91 Passenger Ropeways New Edition	Archive 2/2		Superseded by CAD		0.00	27.59
94-92r1	Jan-20-93	Adoption of Supplement No. 1-1992 to CAN/CSA-B44-M90 Safety Code for Elevators	Archive 2/2		Superseded by CAD		0.00	27.32
94-92	Jun-22-92	Adoption of Supplement No. 1-1992 to CAN/CSA-B44-M90 Safety Code for Elevators	Archive 2/2		Superseded by Rev		0.00	27.90
78-90-r5	Jun-22-92	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	Archive 2/2		Superseded by CAD		0.00	27.90
78-90-r4	May-27-91	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	Archive 2/2		Superseded by Rev		0.00	28.98
78-90-r3	May-23-91	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	Archive 2/2		Superseded by Rev		0.00	28.99
78-90-r2	Jan-17-91	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	Archive 2/2		Superseded by Rev		0.00	29.33
78-90-r1	Oct-22-90	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	Archive 2/2		Superseded by Rev		0.00	29.57
78-90	Jun-01-90	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	Archive 2/2		Superseded by Rev		0.00	29.96
57-87	Nov-16-87	Adoption of Supp.No.1 – 1987 to CAN3-B44-M85 Safety Code for Elevators	Archive 2/2		Superseded by CAD		0.00	32.51
50-87	May-06-87	Adoption of CAN/CSA Z256-M87 Construction Hoists	Archive 2/2		Superseded by CAD		0.00	33.04
46-87	Jan-15-87	Adoption of CAN/CSA-B355-M86 Elevating Devices for the Handicapped	Archive 2/2		Superseded by CAD		0.00	33.34
45-86	Dec-31-86	Adoption of Supp. No. 2-1986 to CAN3-Z98-M78 Passenger Ropeways	Archive 2/2		Superseded by CAD		0.00	33.38

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ID No.	**Date**	**This achive contains historic information of various regulatory communucation tools that have been Archived for various reasons, including items that are > 7yrs Old, Superseded or otherwise moved from ACTIVE Status**	**ARCHIVE 1 or 2 of 2**	**Past Due**	**Superseded by**	**Compliance Due Date**	**Yrs Past Due**	**Yrs Old**
31-86	Jan-15-86	Adoption of CAN3-B44-M85- Safety Code for Elevators	Archive 2/2		Superseded by CAD		0.00	34.34
27-85	Nov-10-85	Adoption of Supplement No.1-1984 to CAN3-Z98-M78 Passenger ropeways	Archive 2/2		Superseded by CAD		0.00	34.52
26-85-r1	Dec-27-85	Adoption of CAN3-B44-M85 Safety Code for Elevators	Archive 2/2		Superseded by CAD		0.00	34.39
26-85	Sep-10-85	Adoption of CAN3-B44-M85 Safety Code for Elevators	Archive 2/2		Superseded by Rev		0.00	34.69
21-85	Jan-04-85	Retainers Required on New Slide Landing Doors	Archive 2/2		Superseded by CAD		0.00	35.37
06-83	Oct-11-83	HW enclosure, landing door & platforms new rules	Archive 2/2		Superseded by CAD		0.00	36.61
05-83-r2	May-28-85	Testing of ski chair lift components & Non-Destructive Testing of Hauling Ropes	Archive 2/2		Superseded by CAD		0.00	34.98
05-83-r1	Sep-26-83	Testing of ski chair lift components	Archive 2/2		Superseded by Rev		0.00	36.65
05-83	Aug-24-83	Testing of ski chair lift components	Archive 2/2		Superseded by Rev		0.00	36.74
04-83-r2	Sep-20-83	Emergency power & special emergency service	Archive 2/2		Superseded by CAD		0.00	36.67
04-83-r1	Apr-14-83	Emergency power & special emergency service	Archive 2/2		Superseded by Rev		0.00	37.10
04-82	Mar-30-83	Emergency power & special emergency service	Archive 2/2		Superseded by Rev		0.00	37.14
ID No.	**Date**	**GUIDELINE Documents (Issued as: Guideline, Director's Order, Director's Ruling)**	**Status1**	**Status2**	**Status3**	**Compliance By**	**Yrs Past Due**	**Yrs Old @ 2020-05-05**
252-12-r1	Sep-03-19	Simplified Procedure to Correct / Revise a Registered Design Submission	Archive 1/2		Superseded by Rev		0.00	0.69
252-12	Mar-20-12	Simplified Procedure to Correct / Revise a Registered Design Submission	Archive 1/2		Superseded by Rev		0.00	8.15
251-11-r1	May-01-13	Alterations Guideline for CAD 261/13	Archive 1/2		Superseded by Rev		0.00	7.03
251-11	Feb-13-12	Alterations Guideline for CAD 261/13	Archive 1/2		Superseded by Rev		0.00	8.25
226-07-r1	Mar-02-09	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-07	Archive 1/2		Superseded by Rev		0.00	11.20
226-07	Nov-26-07	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-07	Archive 1/2		Superseded by Rev		0.00	12.47
224-07	Jun-25-07	Aging Ski Lift - Subsequent Engineering Assessments	Archive 1/2		Superseded by Rev		0.00	12.89
214-07	Jan-18-10	Incident Reporting Requirements for Z98 Passenger Ropeway Devices	Archive 1/2		Superseded by Rev		0.00	10.32
200-05	Sep-23-05	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-04	Archive 1/2		Superseded by Rev		0.00	14.64
164-02-r1	Dec-11-03	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-00	Archive 1/2		Superseded by CAD		0.00	16.43
164-02	May-01-02	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-00	Archive 1/2		Superseded by Rev		0.00	18.04
126-96	Aug-06-96	Adoption of CSA-Z98-96 Passenger Ropeways	Archive 2/2		Superseded by CAD		0.00	23.78
116-95-r1	Jul-30-96	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-94	Archive 2/2		Superseded		0.00	23.80
116-95	Feb-20-95	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-94	Archive 2/2		Superseded by Rev		0.00	25.24
48-87	Jan-30-87	General Variance to Freight Platform Lifts Limitations: Floor Penetration and Travel	Archive 2/2		Superseded by CAD		0.00	33.30
37-86	Apr-22-86	Section 58 (1) of O.Reg. 229/81 ……..	Archive 2/2		Superseded by CAD		0.00	34.08
ID No.	**Date**	**ENFORCEMENT POLICIES (issued as Interpretation Bulletin, Enforcement Procedure, Director's Order, Director's Ruling)**	**Status1**	**Status2**	**Status3**	**Compliance By**	**Yrs Past Due**	**Yrs Old @ 2020-05-05**
258-12	Dec-14-12	NTSD and NSM Independence (B44-10)	Archive 1/2			2012-03-01	8.20	7.41
242-10	Nov-01-10	Signing of log books	Archive 1/2		Superseded by CAD 261 (3.3.4)			9.53
241-10	Apr-09-10	Monthly Application of Friction Reducing Agents on Escalator & Moving Walk Skirts	Archive 1/2		Superseded by Code			10.10
149-99	Jul-30-99	Elevators in residential buildings altered to conform with the Ontario Fire Code	Archive 1/2		Superseded by CAD 277 (3.20)			20.80
234-09	Jun-11-09	Frequency of Plunger Gripper Inspection and Testing	Archive 1/2		Superseded by Code	2009-06-11	10.92	10.92
232-08-r1	Aug-01-12	Continuing Education Requirements for ED Mechanics	Archive 1/2		Superseded by Policy Doc			7.78
232-08	Nov-25-08	Continuing Education Requirements for ED Mechanics	Archive 1/2		Superseded by Rev.			11.47
231-08	Nov-27-08	Roof Top Access	Archive 1/2		Superseded by CAD 261 (2.12)			11.46
228-07 -r1	Dec-22-08	Activation of FEO on Alterations	Archive 1/2		Superseded by CAD			11.39
228-07	Oct-01-07	Activation of FEO on Alterations	Archive 1/2		Superseded by Rev	2007-10-01	12.62	12.62
222-07	Apr-23-07	TSSA Grounding and Bonding - Enforcement Procedure	Archive 1/2		Superseded by Code	2007-10-01	12.62	13.06
218-07-r1	Jan-11-11	TSSA Inspection Enforcement Procedures (3X fee)	Archive 1/2		Superseded by Fee Schedule			9.34
218-07	Dec-04-07	TSSA Inspection Enforcement Procedures (2X fee)	Archive 1/2		Superseded by Rev			12.44
199-06-r1	Jul-27-06	Pre-Inspection Checklist for Passenger and Freight Elevators	Archive 1/2		Superseded by Reg 209/01 s44(3)			13.80
199-06	Apr-03-06	Pre-Inspection Checklist for Passenger and Freight Elevators	Archive 1/2		Superseded by Rev			14.12
166-01	Dec-17-01	LULA Elevators & Long Apron Plates, Travel Restrictions: EnclosedVPL's & LULA	Archive 1/2		Superseded by CAD			18.41
155-00	Sep-26-00	Hydraulic Elevator Specification Sheet	Archive 1/2		Superseded			19.64
153-00	Mar-20-00	Electric Elevator Specification sheets – New format	Archive 1/2		Superseded			20.16
146-99	Mar-15-99	Revision to Design Submissions. Simplified Procedure	Archive 1/2		Superseded by 252-12			21.17
135-98	Oct-20-98	Inspection operation w/open door circuits (CSA/B44 3.12.1.4.4) - Procedures	Archive 1/2		Superseded by Code			21.57

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121-95	Aug-01-95	Step Fatigue Test for Escalators	Archive 2/2		Superseded by Code			24.79
120-95	Aug-01-95	Replacements of Seals of Components Previously Sealed by an Inspector	Archive 2/2		Superseded by CAD			24.79
117-95-r1	Mar-01-05	Guidelines for Reporting of Accidents/Incidents	Archive 1/2		Superseded by Reg			15.21
117-95	Aug-05-95	Guidelines for Reporting of Accidents/Incidents	Archive 2/2		Superseded by Rev			24.78
114-94	Jul-20-94	Inspection: By-Pass Switches and Door Monitoring System	Archive 2/2		Superseded by Code			25.83
113-94-r1	Oct-21-94	Door Monitoring System	Archive 2/2		Superseded by Code			25.57
113-94	Jul-20-94	Door Monitoring System	Archive 2/2		Superseded by Rev			25.83
111-93	Aug-13-93	Periodic Load testing of the Above Surface Passenger Ropeways	Archive 2/2		Superseded by CAD			26.76
96-92	Jun-22-92	Standardization of Spec .Sheet Entries for the New EDB Computer data bank	Archive 2/2		Superseded			27.90
95-92	Jun-22-92	Stop Switch on In-Car Emergency Operation Clause 3.12.15.8.2 (h)	Archive 2/2		Superseded by CAD			27.90
90-92	Feb-09-92	Escalator installation # Changes	Archive 2/2		Superseded by CAD			28.27
80-90	Oct-22-90	Revisions to Design Submissions Filed Prior to Registration	Archive 2/2		Superseded by CAD			29.57
74-89	Jan-11-89	Fire Rating of Oversized Hoistway Door Assemblies	Archive 2/2		Superseded by Code			31.35
64-88	Jun-03-88	Relocated Elevating Devices Licensing Procedure and Applicable Standards	Archive 2/2		Superseded by Reg			31.96
55-87	Dec-01-87	Reporting of Maintenance Contractors	Archive 2/2		Superseded by Reg			32.47
54-87	Dec-01-87	Reporting of Maintenance Contractors	Archive 2/2		Superseded by Reg			32.47
49-87-r1	Jun-24-87	Escalators Type Tests - Revised	Archive 2/2		Superseded by CAD			32.90
49-87	Mar-19-87	Escalators Type Tests and Certification in accordance with Clause 8.11* of CAN3-B44-M85	Archive 2/2		Superseded by Rev			33.17
47-87-r1	Nov-19-87	New Electric Elevators: Acceptance	Archive 2/2		Superseded by Code			32.50
47-87	Jan-19-87	New Electric Elevators: Acceptance	Archive 2/2		Superseded by Rev			33.33
43-86	Dec-01-86	Reporting of Maintenance Cont (Owner-contractors)	Archive 2/2		Superseded by DR55/87			33.47
42-86	Dec-01-86	Reporting of Maintenance Contractors	Archive 2/2		Superseded by DR54/87			33.47
41-86	Aug-01-86	New Fees under the Elevating Devices Act, Ontario Reg. 463/86	Archive 2/2		Superseded by Reg			33.80
39-86	Jun-13-86	Unauthorized Access to Elevator Hoistways and Car Tops	Archive 2/2		Superseded by Reg			33.93
35-86	Apr-22-86	New Fees Proposed Under the ED act	Archive 2/2		Superseded by Reg			34.08
33-86	Jan-20-86	Reporting of Maintenance Contractors	Archive 2/2		Superseded by DR43/87			34.33
32-86	Jan-20-86	Reporting of Maintenance Contractors	Archive 2/2		Superseded by DR42/87			34.33
30-85	Dec-10-85	1986 Updating of Registered Contractors Maintenance List - by Reg. 13 EDevices Act & Regs.	Archive 2/2		Superseded by DR32/86			34.44
29-85	Nov-15-85	Amendment to EDB Ruling #22/85 – Section 40 of O.Reg.803/82	Archive 2/2		Superseded by CAD			34.51
20-84	Dec-17-84	New Procedure for Reporting of Maintenance Contracts	Archive 2/2		Superseded by DR30/85			35.42
15-84	Nov-01-84	Temporary rules for automatic leveling on Vertical Platform "C"	Archive 2/2		Superseded			35.55
09-83	Dec-20-83	Accidents & incidents reporting Provision of testing equipment ED pre-examination	Archive 2/2		Superseded by Reg			36.42
02-82	Nov-24-82	Sprinklers in M/R	Archive 2/2		Superseded by Code	1983-05-23	36.99	37.49
ID No.	Date	ADVISORY Documents (issued as: Advisory, Information Bulletin, Safety Alert, Director's Ruling	Status1	Status2	Status3	Compliance By	Yrs Past Due	Yrs Old @ 2020-05-05
275-18-r1	Aug-31-18	Emergency Brake - Brake Lining Replacement	Archive 1/2		Withdrawn	-	-	1.70
275-18	Sep-12-18	Emergency Brake - Brake Lining Replacement	Archive 1/2		Superseded by Rev	-	-	1.66
263-13	Jun-07-13	Elevating Devices Owners Bulletin - Owner Responsibilities	Archive 1/2			-	-	6.93
262-13	Apr-19-13	Maintenance and repair of Elevating Devices by Qualified Mechanics	Archive 1/2			2013-04-19	7.07	7.07
259-12-r1	Jan-31-13	List of Data - Contractor Registration / Renewals (March 2013)	Archive 1/2	Compliance Past Due		2013-03-31	7.12	7.28
259-12	Dec-18-12	List of Data - Contractor Registration / Renewals (March 2013)	Archive 1/2	Compliance Past Due	Superseded by Rev			7.40
254-12	Apr-19-12	Operation and Maintenance Manuals for Existing Passenger Ropeways	Archive 1/2	Compliance Past Due	Superseded by CAD	2014-11-01	5.53	8.07
244-10	Apr-28-10	Maintenance and repair of Elevating Devices by Qualified Mechanics	Archive 1/2					10.04
243-10-r1	Mar-20-12	Buried hydraulic jacks with single bulkhead cylinders	Archive 1/2					8.15
243-10	Apr-09-10	Buried hydraulic jacks with single bulkhead cylinders	Archive 1/2		Superseded by Rev			10.10
237-08	Dec-23-08	Maintaining safe clearances around chair lift carriers	Archive 1/2					11.39
236-08	Dec-18-08	Structural failure due to water intrusion & ice expansion	Archive 1/2					11.40
227-07	Jul-03-07	Extension to Sheave Jammer Deadline	Archive 1/2	Compliance Past Due		2007-08-01	12.79	12.87
215-07	Aug-20-07	Outdoor Lifts for Persons with Physical Disabilities	Archive 1/2		Superseded by OESC	2007-08-20	12.73	12.73
208-06-r1	May-31-07	Examination and test of free-fall, overspeed, and uncontrolled low-speed protection devices	Archive 1/2		Superseded by Code	2006-07-27	13.80	12.96
208-06	Jul-27-06	Examination and test of free-fall, overspeed, and uncontrolled low-speed protection devices	Archive 1/2		Superseded by Rev	2006-07-27	13.80	13.80
203-06	Mar-02-06	Use of Shopping Carts on Moving Walks	Archive 1/2		Superseded by Code			14.20
197-06-r1	Dec-06-06	B355 Maintenance Requirements	Archive 1/2		Superseded by Code			13.44

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197-06	Mar-17-06	B355 Maintenance Requirements	Archive 1/2		Superseded by Rev			14.16
196-05	Apr-14-05	B44-00 Update#1 Requirements Related to 2.27.1 Emergency Communications	Archive 1/2		Superseded by Code			15.08
195-05	Jul-27-06	Examination, Test & Periodic Maint. of H/W Rope Gripper for ACO and UCM	Archive 1/2					13.80
187-04	Mar-31-04	List of Active Elevating Device Rulings and Bulletins as of March 2004	Archive 1/2		Superseded			16.12
176-02	Aug-18-03	Sealing of Components on all Elevating Devices excluding Passenger Ropeways	Archive 1/2		Superseded by Reg			16.74
175-02	Jun-23-03	Firefighter Emergency Operations [FEO], formerly 'SES'	Archive 1/2		Superseded by CAD			16.90
152-00	Mar-15-00	Elevating Devices Mechanics Certification Process/Due Diligence	Archive 1/2		Superseded by Reg			20.17
151-99	Nov-18-99	Potential Y2K Issues affecting Elevating Devices	Archive 1/2					20.49
139-98	Dec-04-98	CSA-B44 Code – Section 12 - Five Year Governor Pull-Through Force Tests	Archive 1/2		Superseded by Code			21.45
132-98	Jul-24-98	Maintenance and Repair of Elevating Devices by Qualified Mechanics	Archive 1/2		Superseded by Reg			21.81
131-98	Oct-20-98	(1) DO's Replacing DR's (2) List of Active / Cancelled Rulings	Archive 1/2		Superseded			21.57
127-96	Nov-20-96	Interpretation of DR #105/93 – Rules for fire retrofit residential building	Archive 2/2		Superseded by Code			23.49
124-96	Jan-31-96	Safety Alert – Maintenance Hazards on Escalators	Archive 2/2					24.29
119-95	Jul-18-95	Maintenance and Repair of Elevating Devices by Qualified Mechanics	Archive 2/2		Superseded by Reg			24.83
118-95	Jun-16-95	Fall Protection on Elevator Car Tops	Archive 2/2					24.92
100-92	Jun-24-94	Major Alteration Inspection Prior to return to Service	Archive 2/2		Superseded by Reg			25.90
89-92	Jan-14-92	New Fees – Regulation 2/92	Archive 2/2		Superseded			28.34
86-91	Oct-30-91	Work start date on major alterations to be reported to the Elevating Devices Branch	Archive 2/2		Superseded by 100/92			28.55
81-90-r1	Sep-28-93	Supervision of "Mechanics in Training"	Archive 2/2		Superseded by Reg			26.64
81-90	Nov-02-90	Supervision of "Mechanics in Training"	Archive 2/2		Superseded by Rev			29.54
77-90	May-01-90	Observation Elevators – Cleaning of Glass Enclosures	Archive 2/2		Superseded by CAD			30.05
76-90	May-01-90	Cleaning of Glass Enclosures on Observation Elevators	Archive 2/2		Superseded by CAD			30.05
75-90	Feb-22-90	Return to Service Following a Minor Alteration	Archive 2/2		Superseded by CAD			30.24
73-89	Aug-14-89	New Fees under the Elevating Devices Act, O. Reg. No. 451/89	Archive 2/2		Superseded			30.76
72-89	Jun-09-89	Maintenance Procedures	Archive 2/2		Superseded by Reg			30.94
70-89	Feb-23-89	Item 126 (Kinetic Energy) Spec. Sheet for Hyd. Elevators – Form #ID-29426 (Ed 11/88)	Archive 2/2		Superseded			31.23
66-88	Jun-27-88	Maintenance and Repair of Elevating Devices by Qualified Mechanics	Archive 2/2		Superseded by Reg			31.89
56-87	Nov-13-87	Oil Buffers Certification with C.3.3.5.10 of CAN3-B44-M87 required after January 1,1989	Archive 2/2		Superseded by Code			32.52
53-87	Nov-06-87	Concrete Foundations for New Passenger Ropeways	Archive 2/2		Superseded by Code			32.53
52-87	Jun-02-87	Elevators – Emergency Signal Devices Clause 3.13 of CAN3-B44-M85	Archive 2/2		Superseded by Code			32.96
51-87	Jun-02-87	New Hydraulic Elevators – Auxiliary Contact in Main Disconnect Switch	Archive 2/2		Superseded by Code			32.96
38-86	May-01-86	Section 40 – Compliance	Archive 2/2		Superseded by Code			34.05
28-85	Sep-11-85	Minor Type 'A' and Minor Type 'B' Submission and Inspection Rules	Archive 2/2		Superseded by Reg			34.69
23-85	Apr-16-85	Important Compliance with Section 59 of Ontario Reg. 229/81 s.58 Required	Archive 2/2		Superseded by Reg			35.09
22-85-r1	Aug-29-85	Important Section 40, Ontario Regulation 803/82 s.3-Compliance	Archive 2/2		Superseded by Reg			34.72
22-85	Apr-16-85	Important Section 40, Ontario Regulation 803/82 s.3-Compliance	Archive 2/2		Superseded by Rev			35.09
19-84	Nov-20-84	Speed Limits – Workman's Construction Hoists	Archive 2/2		Superseded			35.50
18-84	Nov-19-84	Safety Test Records – Section 23 of Ont. Reg. 229/81 – Req'mnts for inspection & testing	Archive 2/2		Superseded			35.50
08-83	Oct-24-83	Safe working practice on elevators	Archive 2/2					36.57
ID No.	Date	SAFETY ORDERS (Issued as: Directors Order, Director's Safety Order, Safety Alert, Director's Ruling)	Status1	Status2	Status3	Compliance By	Yrs Past Due	Yrs Old @ 2020-05-05
267-14	May-15-14	Retroactive Leveling Requirement for Passenger Elevators with Single Speed Control	Archive 1/2		Superseded by 269-17			5.99
260-14-r1	Apr-15-15	Apron Plate Safety Order	Archive 1/2	Compliance Past Due	Superseded by CAD-277 (3.10)	2016-06-30	3.87	5.08
260-14	Mar-17-14	Apron Plate Safety Order	Archive 1/2		Superseded by Rev	2016-03-31	4.12	6.16
253-12	Mar-12-12	Retroactive Interlock Requirements for Freight Platform Lifts and Material Lifts	Archive 1/2	Compliance Past Due	Superseded by CAD-261 (3.9)	2014-05-01	6.03	8.17
249-11	Oct-14-11	Cylinder Collar Welding on Lifts for Persons with Physical Disabilities	Archive 1/2	Compliance Past Due		2012-03-01	8.20	8.58
248-11	Apr-27-11	Pressure Sensor requirements for (B355) Vertical Platform Lifts	Archive 1/2	Compliance Past Due	Superseded by CAD	2012-01-31	8.28	9.05
247-11	Jul-07-11	Requirements for Maintenance and Testing of Escalator Brakes	Archive 1/2	Compliance Past Due	Superseded by CAD-261 (3.21)	2012-08-01	7.78	8.85
245-10	Dec-01-10	Installation or Upgrade of Car top Guardrails	Archive 1/2	Compliance Past Due	Superseded by CAD-250 (3.8)	2013-12-01	6.45	9.45
240-09	Dec-16-09	Raising the chair lift safety bar - continued data collection and monitoring	Archive 1/2	Compliance Past Due		2010-03-08	10.18	10.41
235-09	Jun-11-09	Motor Addition to Northern ERM Machines	Archive 1/2		Superseded by Code Req'mts	2009-09-01	10.70	10.92
233-08-r1	Feb-06-09	Data Collection and Monitoring	Archive 1/2	Compliance Past Due		2009-03-08	11.18	11.27
233-08	Nov-03-08	Data Collection and Monitoring	Archive 1/2	Compliance Past Due		2009-03-08	11.18	11.53

Technical Standards & Safety Authority		Archived Code Adoption Documents, Guidelines, Rulings, Bulletins, Advisories, Director's (Safety) Orders						
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229-07	Oct-10-07	Changes to Unloading Station on Chair Lifts	Archive 1/2	Compliance Past Due		2007-11-01	12.53	12.59
223-08-r1	Mar-04-08	Weld Inspection of Unitech / Lift Tech Elevators	Archive 1/2	Compliance Past Due		2008-11-01	11.53	12.19
223-08	Feb-01-08	Weld Inspection of Unitech / Lift Tech Elevators	Archive 1/2		Superseded by Rev	2008-11-01	11.53	12.28
221-07	Feb-16-07	Falling from Chair Lifts	Archive 1/2	Compliance Past Due		2007-03-01	13.21	13.24
220-07	Jun-22-07	Kone Escalator Brakes	Archive 1/2	Compliance Past Due	Superseded by CAD-277 (3.21)	2007-09-22	12.64	12.90
219-07	Oct-12-07	Hotel Fire code retrofit	Archive 1/2		Superseded by CAD-261 (3.20)			12.59
211-06-r2	May-01-07	Common FEO Key	Archive 1/2		Superseded by CAD	2008-01-01	12.37	13.04
211-06-r1	Nov-28-06	Common FEO Key	Archive 1/2		Superseded by Rev	2007-06-30	12.87	13.46
211-06	Jul-28-06	Common FEO Key	Archive 1/2		Superseded by Rev	2007-01-01	13.37	13.80
210-06	Jul-27-06	Replacement & NDT Inspection Requirements for Hangers and Chairs manufactured by BM Lifts Limited.	Archive 1/2	Compliance Past Due	Superseded by CAD-261 (5.20)	2006-11-01	13.53	13.80
209-06	Mar-10-06	NDT & Inspection Requirements for Hanger & Chairs manufactured by BM Lifts Ltd.	Archive 1/2		Superseded by Rev 210/06	2006-03-10	14.18	14.18
207-06-r1	Dec-05-06	Sheave Jammer Replacement Order	Archive 1/2	Compliance Past Due				13.44
207-06	Jul-27-06	Sheave Jammer Replacement Order	Archive 1/2	Compliance Past Due	Superseded by Rev	2007-08-01	12.79	13.80
206-07	Jan-11-07	O Thompson Controls - non compliance - redundancy and checking	Archive 1/2	Compliance Past Due		2007-06-30	12.87	13.34
193-05	Feb-08-05	ThyssenKrupp 340 M/C Brake Maintenance	Archive 1/2	Compliance Past Due	Superseded by CAD	2005-05-08	15.02	15.26
192-05-r2	Jul-27-06	ThyssenKrupp Sheave Jammer Inspection & Testing Requirements	Archive 1/2		Superseded by DO 207/06	2005-06-01	14.95	13.80
192-05-r1	Jul-15-05	ThyssenKrupp Sheave Jammer Inspection & Testing Requirements	Archive 1/2		Superseded by Rev	2005-06-01	14.95	14.83
192-05	Feb-23-05	ThyssenKrupp Sheave Jammer Inspection & Testing Requirements	Archive 1/2		Superseded by Rev	2005-06-01	14.95	15.22
191-05	Apr-15-05	Dover 105 Machine Brake - PDQ Motor Field Control Circuits	Archive 1/2	Compliance Past Due		2005-10-15	14.58	15.08
190-04	Mar-23-04	Otis 15 ATL Machine Sheave Bolts	Archive 1/2	Compliance Past Due		2004-09-01	15.70	16.15
189-05	Sep-23-05	General Variance to Type B Material Lifts Limitations: Floor Penetration and Travel	Archive 1/2		Superseded by CAD			14.64
188-04	Jun-30-05	Change in Scope of EDM-B Certificate	Archive 1/2		Superseded by Regulation			14.87
185-03	Sep-24-03	BM Chair Lifts with CWT Tensioning	Archive 1/2	Compliance Past Due	Superseded by Code Req'mts	2003-09-24	16.64	16.64
184-03	Sep-24-03	Inspection and Replacement Criteria for CWT Ropes	Archive 1/2	Compliance Past Due	Superseded by Code Req'mts	2003-09-24	16.64	16.64
182-03	Aug-11-03	Actions to mitigate hazards and causes for detachments on tube tows	Archive 1/2	Compliance Past Due				16.76
180-03	Mar-17-03	Chair Lifts with Counterweight Ropes – 'Inspection / Verification and/or Replacement'	Archive 1/2	Compliance Past Due		2003-03-17	17.16	17.16
179-03	May-12-03	Hollister/Whitney Disc Brake	Archive 1/2	Compliance Past Due		2003-05-12	17.01	17.01
178-03	Feb-24-03	Reporting of Detachments on "Tube Tows" - Secondary Carriers	Archive 1/2	Compliance Past Due	Superseded by CAD	2003-02-24	17.22	17.22
177-03	May-12-03	Muffler Inserts	Archive 1/2	Compliance Past Due		2005-07-01	14.87	17.01
173-02-r1	Jun-01-04	Retrofitting of elevators without car top maintenance	Archive 1/2	Compliance Past Due	Superseded by CAD	2005-07-01	14.87	15.95
173-02	Nov-01-02	Retrofitting of elevators without car top maintenance	Archive 1/2		Superseded by Rev	2005-07-01	14.87	17.54
172-02	Nov-01-02	Elevators with in-car special emergency operation	Archive 1/2	Compliance Past Due		2003-05-01	17.04	17.54
171-02-r2	May-03-05	Cab Interior Modernization and / or Change in Cab Weight	Archive 1/2		Superseded by CAD			15.03
171-02-r1	Sep-05-03	Cab Interior Modernization and / or Change in Cab Weight	Archive 1/2		Superseded by Rev			16.69
171-02	Apr-03-03	Cab Interior Modernization and / or Change in Cab Weight	Archive 1/2		Superseded by Rev			17.12
170-02	Mar-20-02	Apprenticeship Requirement of Elevating Devices Mechanics-in-Training	Archive 1/2		Superseded by Policy Doc			18.16
169-02-r2	Apr-18-07	Periodic Engineering Review and Assessment of Aging Above-Surface Passenger Ropeways	Archive 1/2		Superseded by DO 224/07			13.07
169-02-r1	Mar-05-03	Periodic Engineering Review and Assessment of Aging Above-Surface Passenger Ropeways	Archive 1/2		Superseded by Rev			17.20
169-02	Feb-14-02	Periodic Engineering Review and Assessment of Aging Above-Surface Passenger Ropeways	Archive 1/2		Superseded by Rev			18.25
168-02	Jan-17-02	Periodic Load testing and Preseason Inspection - of Passenger Ropeways	Archive 1/2		Superseded by Code Req'mts			18.33
165-02	Jul-24-02	US Elevator - Ascension 2000 Control - Door Monitor	Archive 1/2	Compliance Past Due		2002-10-01	17.62	17.81
162-01	Aug-22-01	Listing of Elevators w/o Car Top Maintenance Stations	Archive 1/2	Compliance Past Due		2001-09-01	18.70	18.73
160-01	Aug-16-01	Elevator with inverted cylinders	Archive 1/2	Compliance Past Due	Superseded by CAD-277 (3.12)	2002-02-01	18.28	18.75
159-01	Dec-13-01	Armor AD1 AD2 Controls - Shorts in circuits due to objects falling on relays mounted below	Archive 1/2	Compliance Past Due		2002-03-01	18.21	18.42
158-01	Feb-20-01	Schindler Escalators Inserts	Archive 1/2	Compliance Past Due		2001-12-01	18.45	19.23
156-01	Dec-14-00	Firefighter's Elevators	Archive 1/2	Compliance Past Due		2001-07-15	18.84	19.42
154-00	Jul-31-00	Hollister/Whitney Governors – model 201, 205 & 208	Archive 1/2	Compliance Past Due		2001-01-31	19.29	19.79
150-00-r2	Nov-17-00	Barricading Escalators/Moving Walk during maintenance	Archive 1/2	Compliance Past Due	Superseded by Reg / CAD Req'mts	2001-03-26	19.14	19.49
150-00-r1	Sep-26-00	Barricading Escalators/Moving Walk during maintenance	Archive 1/2	Compliance Past Due	Superseded by Rev	2000-12-07	19.44	19.64
150-00	Jun-07-00	Barricading Escalators/Moving Walk during maintenance	Archive 1/2	Compliance Past Due	Superseded by Rev	2000-12-07	19.44	19.94
148-99	Jun-28-99	Otis Electronic Touch Buttons, Maintenance procedures	Archive 1/2	Compliance Past Due		1999-06-28	20.88	20.88
147-99-r1	Dec-31-99	Garaventa Stair Plat. Lifts – Leading Edges Operation	Archive 1/2	Compliance Past Due		2000-03-30	20.13	20.38

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147-99	Jun-30-99	Garaventa Stair Plat. Lifts – Leading Edges Operation	Archive 1/2		Superseded by Rev	1999-09-30	20.63	20.88
145-99	Feb-16-99	Carriers on Borvig double Chair Lifts. Urgent Actions Required.	Archive 1/2	Compliance Past Due		1999-02-16	21.25	21.25
144-99	Feb-16-99	Cross-arm assemblies on Hallift bars lifts and/ or chair lifts Urgent Actions Required	Archive 1/2	Compliance Past Due		1999-02-16	21.25	21.25
143-99	Feb-08-99	In–ground cylinder corrosion - Contractors to develop and implement checking	Archive 1/2	Compliance Past Due	Superseded by CAD	1999-05-10	21.02	21.27
142-98	Dec-30-98	"Contact Shields" on horizontally mounted Klockner – Moeller and Benedict + Jager	Archive 1/2	Compliance Past Due		1999-05-31	20.96	21.38
140-98	Dec-04-98	Turnbull / Dover Elev.; Door – zone – switch retrofit required	Archive 1/2	Compliance Past Due		1999-12-04	20.45	21.45
138-98	Oct-20-98	Northern Elev. Traction Sheave Break ("Jammer")	Archive 1/2	Compliance Past Due		1999-01-18	21.33	21.57
137-98	Oct-20-98	GD45 Dover Machine Gear Mounting Bolt Failure	Archive 1/2	Compliance Past Due		1999-04-18	21.08	21.57
136-98	Oct-20-98	Benedict & Jager Relays – Horizontally Mounted	Archive 1/2	Compliance Past Due		1999-04-18	21.08	21.57
134-98	Jun-24-98	G.A.L/ Hollister –Whitney "Rope-Gripper"- Models #600/605/610 may need retrofit	Archive 1/2	Compliance Past Due		1998-09-22	21.65	21.90
133-98	Jul-20-98	Advisement of the Service Bulletin Number 1998-001 issued by Van Roll Tramways	Archive 1/2	Compliance Past Due		1998-11-01	21.54	21.82
128-96-r1	Jul-24-97	Support, hold-down & combination hold-down/support sheave assemblies on the chair lifts	Archive 1/2	Compliance Past Due		1997-11-01	22.54	22.81
128-96	Dec-13-96	Hold-down & combination hold-down/support sheave assemblies on the above-surface chair lifts	Archive 2/2		Superseded by Rev	1997-02-16	23.25	23.42
125-96	Mar-01-96	Retrofit of Pivot Pins on Northern Type N two Speed Door Relating Linkage	Archive 2/2		Superseded by CAD	1996-09-01	23.71	24.21
123-96	Jan-31-96	Order to Retrofit Dover 105B & G01015 Geared Machines	Archive 2/2	Compliance Past Due		1996-07-01	23.88	24.29
122-95	Sep-15-95	C.O. & 2 Spd Hall & Car Doors – Devices with 1/ 8" Dia. Air Cord of 7x7 Strand	Archive 2/2	Compliance Past Due	Superseded by CAD	1996-03-13	24.18	24.67
110-93	Jul-14-93	Continuity of Ground on Controllers to be verified, Checking Beckett VV Controllers	Archive 2/2	Compliance Past Due	Superseded by CAD	1994-01-10	26.35	26.84
109-93	Jul-14-93	Warning: Effectiveness of Safety Retainers Depends on Panel – Sill Clearances	Archive 2/2		Superseded by CAD	1994-01-10	26.35	26.84
108-93-r1	Mar-18-96	Relays in Safety Circuits and Wiring Changes on Horn / Armor	Archive 2/2	Compliance Past Due	Superseded by CAD	1996-09-30	23.63	24.16
108-93	Jul-12-93	Relays in Safety Circuits and Wiring Changes on Horn / Armor	Archive 2/2		Superseded by Rev			26.85
107-93	Jun-21-93	Inconsistencies in reporting devices maintained in Ontario	Archive 2/2	Compliance Past Due		1993-07-12	26.85	26.91
106-93	May-10-93	Alert – Use of Jumpers – Safe Trouble-shooting procedures required	Archive 2/2		Superseded by CAD			27.02
105-93-r2	Oct-25-94	Fire Code Retrofit Elevators – Residential Buildings (O.Reg. 627 / 92 Fire Marshals Act)	Archive 2/2		Superseded by CAD			25.56
105-93-r1	Mar-01-94	Fire Code Retrofit Elevators – Residential Buildings (O.Reg. 627 / 92 Fire Marshals Act)	Archive 2/2		Superseded by Rev			26.21
105-93	Feb-17-93	Fire Code Retrofit Elevators – Residential Buildings (O.Reg. 627 / 92 Fire Marshals Act)	Archive 2/2		Superseded by Rev			27.25
104-93	Jan-20-93	Elevators w/Dover 105B or GD105 M/C's and MP-1 control retrofitting of M/C brakes	Archive 2/2	Compliance Past Due		1993-07-01	26.88	27.32
103-93-r2	Jan-05-95	Existing Elevator Door Reopening Devices - alteration to conform with B44 cl 2.13.5	Archive 2/2	Compliance Past Due				25.36
103-93-r1	Jul-15-93	Existing Elevator Door Reopening Devices - alteration to conform with B44 cl 2.13.5	Archive 2/2		Superseded by Rev			26.84
103-93	Jan-20-93	Existing Elevator Door Reopening Devices - alteration to conform with B44 cl 2.13.5	Archive 2/2		Superseded by Rev	1994-03-01	26.21	27.32
102-93	Jan-20-93	M.A.C Interlocks - check immediately - attach maintenance instructions	Archive 2/2	Compliance Past Due	Superseded by CAD	1993-01-20	27.32	27.32
97-92	Nov-13-92	Retrofitting of Elevators Single Slide Doors with Safety Retainers	Archive 2/2	Compliance Past Due	Superseded by CAD	1993-02-11	27.26	27.51
93-92	Jun-24-92	Northern Elevator wiring changes in Leveling circuits per Northern Bulletin # 85-034	Archive 2/2	Compliance Past Due		1992-12-21	27.41	27.90
92-92	Jun-23-92	Northern Elevators with VV Relay Tape controllers - changes per Northern Bulletin # 91-063	Archive 2/2	Compliance Past Due		1992-09-21	27.65	27.90
91-92	Jun-02-92	Northern Elevator with Normic Controllers may require wiring changes	Archive 2/2	Compliance Past Due		1992-08-31	27.71	27.96
85-91-r1	Sep-18-91	Escalator Brake Setting – Follow up to Ruling # 65 / 88	Archive 2/2	Compliance Past Due	Superseded by CAD	1992-12-31	27.38	28.67
85-91	Sep-03-91	Escalator Brake Setting – Follow up to Ruling # 65 / 88	Archive 2/2		Superseded by Rev			28.71
83-91	Feb-25-91	Retrofitting of Elevator Single Slide Doors with Safety Retainers – Procedure	Archive 2/2	Compliance Past Due	Superseded by CAD	1991-05-01	29.05	29.23
82-90	Nov-21-90	Potential Hazard – Action by Elevator Maintenance Contractors	Archive 2/2	Compliance Past Due	Superseded by CAD	1990-11-21	29.49	29.49
79-90-r2	Mar-16-92	Hydraulic Cylinders Removal, Examination and Replacement	Archive 2/2	superseded	Superseded by CAD	1992-03-16	28.17	28.17
79-90-r1	Jan-13-92	Hydraulic Cylinders Removal, Examination and Replacement	Archive 2/2	superseded	Superseded by Rev	1992-01-13	28.35	28.35
79-90	Aug-03-90	Hydraulic Cylinders Removal, Examination and Replacement	Archive 2/2	superseded	Superseded by Rev	1990-09-01	29.71	29.79
71-89	May-04-89	Re-Wiring on "Northern " Elevators with "KUP" Style Relay Controllers	Archive 2/2	Compliance Past Due		1989-10-31	30.55	31.04
69-88	Oct-31-88	Gal Type "MO" and "MOCP" Interlock Assemblies	Archive 2/2	Compliance Past Due		1989-10-31	30.55	31.55
68-88-r3	Feb-22-90	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	Archive 2/2		Superseded by Code Req'mts			30.24
68-88-r2	Jun-09-89	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	Archive 2/2		Superseded by Rev			30.94
68-88-r1	Dec-19-88	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	Archive 2/2		Superseded by Rev			31.41
68-88	Oct-27-88	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	Archive 2/2		Superseded by Rev			31.56
67-88	Oct-27-88	Protection Against Uncontrolled Overspeed of Ascending Car	Archive 2/2		Superseded by Code Req'mts			31.56
65-88	Jun-10-88	Checking of Escalator Brake Setting	Archive 2/2	Compliance Past Due	Superseded by CAD	1988-07-01	31.88	31.94
63-88	Jun-03-88	Beckett Elevators w/VV Drives to be revised to Eliminate Potentially Unsafe Conditions	Archive 2/2	Compliance Past Due		1988-11-30	31.47	31.96
62-88-r1	Nov-26-89	Door Safety Retainers – Add'l Design Req'mts for Hor. Slide Landing Doors	Archive 2/2					30.48
62-88	Jun-03-88	Door Safety Retainers – Add'l Design Req'mts for Hor. Slide Landing Doors	Archive 2/2		Superseded by Rev			31.96
61-88-r13	Jul-28-99	Retrofitting of Elevator Slide Doors w/ safety retainers - 1st amend.	Archive 1/2	Compliance Past Due	Superseded by CAD	1999-07-28	20.80	20.80

Technical Standards & Safety Authority		Archived Code Adoption Documents, Guidelines, Rulings, Bulletins, Advisories, Director's (Safety) Orders						
ID No.	**Date**	**This achive contains historic information of various regulatory communucation tools that have been Archived for various reasons, including items that are > 7yrs Old, Superseded or otherwise moved from ACTIVE Status**	**ARCHIVE 1 or 2 of 2**	**Past Due**	**Superseded by**	**Compliance Due Date**	**Yrs Past Due**	**Yrs Old**
61-88	May-01-88	Retrofitting of Elevator Slide Doors w/ safety retainers	Archive 2/2		Superseded by Rev	1988-05-01	32.05	32.05
60-88-r1	May-31-88	Fire Code Retrofit Elevators	Archive 2/2		Superseded by CAD			31.97
60-88	Apr-18-88	Fire Code Retrofit Elevators	Archive 2/2		Superseded by Rev			32.08
59-88	Mar-31-88	Escalator Load Test on Initial Inspection - No type Test Certificate Available	Archive 2/2	Compliance Past Due		1989-03-31	31.13	32.13
58-88	Jan-27-88	Potential Failure of Sheave Shaft of Anglo Electromatic Traction Machine	Archive 2/2					32.31
44-86	Nov-28-86	Horizontal Sliding Hoistway Doors	Archive 2/2			1987-05-27	32.98	33.47
36-86	Apr-22-86	Hitch for Governor Rope must be secured	Archive 2/2			1986-10-19	33.58	34.08
34-86	Nov-22-86	Major Alterations & Counterbalance	Archive 2/2			1986-11-22	33.49	33.49
25-85	Jul-09-85	Potential Hazard created by Wear on Lock Beak and Lock Ledger	Archive 2/2		Superseded by CAD	1985-07-09	34.86	34.86
24-85	Jun-21-85	Unauthorized Modifications of Dover Door Latches may create potential hazard	Archive 2/2	Compliance Past Due		1985-06-21	34.91	34.91
17-84	Nov-16-84	Signs required if counterweight runby on elevators is not maximum allowed by the B44	Archive 2/2		Superseded by Code Req'mts	1984-11-16	35.51	35.51
16-84	Nov-15-84	Northern Instantaneous type 'A' Safeties Potentially Incapacitated by Misadjustment	Archive 2/2	Compliance Past Due		1984-11-17	35.50	35.51
13-84	May-16-84	Dover Elevators w/o Retiring Cam - Potentiually Unsafe	Archive 2/2	Compliance Past Due		1984-11-18	35.50	36.01
12-84	Apr-13-84	BECKETT G79 governor	Archive 2/2	Compliance Past Due		1984-06-08	35.95	36.10
11-84	Mar-15-84	HW door gibs	Archive 2/2	Compliance Past Due		1984-03-30	36.14	36.18
10-84	Mar-15-84	OTIS "R" governor – pins	Archive 2/2	Compliance Past Due		1984-09-11	35.69	36.18
07-83	Oct-01-83	MOLINE (Mac) door interlocks	Archive 2/2	Compliance Past Due		1984-03-29	36.14	36.64
03-82	Dec-15-82	Working practice on chair lifts	Archive 2/2			1983-06-13	36.94	37.43
01-82	Nov-18-82	Reporting of Incidents, Use of jumper wires, Testing of safeties (method)	Archive 2/2		Superseded by CAD	1983-05-17	37.01	37.50
ID No.	**Date**	**Not Issued / Not Included**	**Status1**					
205-08		*Carts on Existing Moving Walks - never issued*	*never issued*	-				
130-98		*Not issued*	*never issued*					
88-91		*Ruling 88 never issued*	*never issued*					
87-91		*Ruling 87 never issued*	*never issued*					
84-91		*Ruling 84 never issued*	*never issued*					
61-88-r12	*Nov-01-93*	*Retrofitting of Elevator Slide Doors w/ safety retainers - Consolidation*	*not included*					
61-88-r11	*Oct-18-93*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r10	*Jun-01-92*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r9	*Jan-10-92*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r8	*Apr-12-91*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r7	*Oct-20-90*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r6	*Apr-30-90*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r5	*Jan-22-90*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r4	*Sep-26-89*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r3	*Feb-24-89*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
61-88-r2	*Oct-12-88*	*Retrofitting …with Safety Retainers, Additional Designs*	*not included*					
40-86	*Jun-16-86*	*Amusement Devices Act, 1986 Ontario Regulation 248/86*	*not included*					
14-84		*Ruling 14 never issued, however Issued as ruling 21/85*	*never issued*					
	Legend:							
		Document is applicable to the PASSENGER ROPEWAY (SKI) Industry						Document is >7 yrs old
	Mar-15-84	← 'Green Highlight' is a Director's Rulings Issued Prior to May 5, 1997 under MCCR.						

Elevating and Amusement Devices Safety Division	Ref. No.: 61/88	Rev. No.: 1st Amendment (Rev13)
DIRECTOR'S RULING	Date: **May 1, 1988**	Date: **July 28, 1999**

Subject: **RETROFITTING OF ELEVATOR SINGLE SLIDE DOORS WITH SAFETY RETAINERS DESIGNS OF RETROFITTING KITS FILED AFTER NOVEMBER 1, 1993**

Sent to: **ELEVATOR CONTRACTORS IN SCOPE A, B, F, P, S**

* Note: Do not discard the original Ruling #61/88 dated May 1, 1988, and the Consolidated Edition dated November 1, 1993 that were previously mailed to you.

1. INTRODUCTION

1.1 Original Director's Ruling #61/88 was issued on May 1, 1988 to introduce a program of testing and filing designs of safety retainers to be used for retrofitting of single slide elevator doors.

1.2 Consolidated Edition of Ruling #61/88 was issued on November 1, 1993, incorporating a full list ("Guide for Selection") of all designs of retrofitting kits filed with MCCR as of that date, with all design and installation details in the attachments.

1.3 Since then, an additional design for the retrofit safety retainers has been filed with TSSA. It is shown in attachments #61-79.12 and 61-79.13 enclosed with this Bulletin.

1.4 Also, "Guide for selection" (attachments 61-01, 61-02 and 61-03) has been revised. Additions introduced with this 1st Amendment are marked by ®.

1.5 For details on design and installation instruction of all previously filed retrofitting kits refer to the attachments to Director's Ruling #61/88, Consolidated Edition of November 1, 1993.

1.6 Requirements for the design and installation as well as the procedure for filing of any new design with TSSA (formerly MCCR) are in the original (May 1, 1988) edition of Director's Ruling No 61/88.

2. ORDER TO CONTRACTORS

2.1 Until further notice through a new edition or amendment of this Bulletin, only retrofitting kits listed in the attachments 61-01, 61-02 & 61-03 to this Bulletin are acceptable as conforming to the requirements set out in the Director's Ruling 61/88 of May 1, 1988.

3. INSTRUCTIONS

3.1 In order to update your records on all retrofit retainer designs, filed until this date, combine all attachments from the Consolidated Edition with two new attachments #61-79.12 and 61-79.13 enclosed with this Bulletin.

3.2 "Guide for selection" – in attachments No 61-01, 61-02 and 61-03 enclosed with this Bulletin, supersede the same pages from the Consolidated Edition.

C. Ernest Vlahovic, Chief Engineer

NOTES:

This page is not part of the original ruling.
Director's Ruling 61 was comprised of 13 separate mail outs.
This sheet is a record of the revision history.

This revision Titled
ED-061-88-r13
is a complete collection of all submitted retainer drawings
& Includes the original text of DR #61/88 (first issue).

Issue	RULING #	DATE OF ISSUE	RETAINER DWGS INCLUDED			
1	61/88	May 1, 1988	61-11	61-31	61-41	61-52
			61-21	61-32	61-42	61-53
			61-22	61-33	61-43	61-54
			61-23	61-34	61-44	~~61-61~~
			61-24	61-35	~~61-51~~	~~61-62~~
2	61/88 Edition 2	October 12, 1988	~~61-71~~			
3	61/88 Edition 3	February 24, 1989	61-36	~~61-71~~	61-73	61-81
			61-37	61-72		61-82
4	61/88 Edition 4	September 26, 1989	61-63	61-65	61-74	61-83
			61-64	61-66	61-75	
5	61/88 Edition 5	January 22, 1990	61-38	61-39	61-71	
6	61/88 Edition 6	April 30, 1990	61-51	61-61	61-62	61-76
7	61/88 Edition 7	October 20, 1990	61-45	61-67	61-92	61-94
			61-46	61-91	61-93	61-95
8	61/88 Edition 8	April 12, 1991	61-77	61-78.1	61-78.3	61-78.4
				61-78.2		
9	61/88 Edition 9	January 10, 1992	61-25	61-48	61-69	61-101
			61-47	61-68		61-102
10	61/88 Edition 10	June 1, 1992	61-79.1	61-79.2		
11	61/88 Edition 11	October 18, 1993	61-79.3	61-79.5	61-79.7	61-79.9
			61-79.4	61-79.6	61-79.8	61-79.10
						61-79.11
12	61/88 Consolidated Edition	November 11, 1993	No additional drawings added Issue was for consolidation purposes only			
13	61/88 Consolidated Edition 1st Amendment	July 28, 1999	61-79.12	61-79.13		

Elevating and Amusement Devices Safety Division	Ref. No.: 61/88	Rev. No.: Original ruling
DIRECTOR'S RULING	Date: May 1, 1988	Date:

Subject: **RETROFITTING OF ELEVATOR SINGLE SLIDE DOORS WITH SAFETY RETAINERS**

Sent to: **ELEVATOR CONTRACTORS IN SCOPE A, B, F, P, S**

1. ORDER TO RETROFIT

Commencing May 15, 1988, inspectors will order elevators equipped with single slide landing doors, to be retrofitted with door SAFETY RETAINERS.

NOTE: The elevators, however, may be retrofitted before the inspector's order is issued. That, indeed, is strongly recommended, considering that the cycle of our inspections may be extended up to 36 months.

2. ORDER TO CONTRACTORS

2.1 Contractors retrofitting elevator doors in accordance with this order must use retainers which conform to the following:

a) A professional engineer has issued a certificate stating that the retainers of the specified make and model:

i) are designed in accordance with Clause 2.11.10.5 and type tested for the strength as specified in Clause 2.11.10.5. of the 1985 edition of CSA-B44 Safety Code for Elevators and the following amendment:

"The retainers shall also withstand, without detachment or permanent deformation, a force of 1000N applied upward at any point along the width of the door panel and, while this force is maintained, an additional force of 1000N applied perpendicular to the door at its centre over an area of 300 x 300mm".

ii) When installed on a specified door assembly, following instructions supplied with retainers, will meet the requirement referred to in "i", assuming that the door assembly will be able to withstand forces specified.

b) The engineer's certificate along with design drawings have been filed and registered with this Branch and the make and model is listed in attachment to this Ruling #61-01 / Edition1 or any future edition;

c) Each retainer (kit) must be accompanied by manufacturer's detailed instructions containing installation, adjustment and inspection criteria, to be used by installing contractors;

d) Each retainer supplied must be permanently identified with manufacturer's name or logo and also with a unique model number or symbol if the manufacturer supplies more than one retainer model. (Also see 2.2(b)(i) below).

2.2 Each safety retainer, when installed:

a) Must restrict vertical movement of the door panel to 3.2mm (1/8 inch) unless otherwise specified in instructions referred to in 2.1(c) above;

b) Must be readily identifiable from inside the hoistway without dismantling any door component and for that purpose:

i) must be marked with YELLOW colour and so installed that the markings required in 2.1(d) are readily visible from inside the hoistway; or

ii) a notice plate, containing data specified in 2.1(d) above, must be attached to the door component that covers a safety retainer must be readily visible, from inside the hoistway.

2.3 Contractor retrofitting safety retainers in accordance with this order must:

a) Before installation of the retainers assure that the door assembly has not deteriorated to the point of significantly losing its original strength;*

*NOTE: This implies that when a significant loss in a door's original strength is identified, the contractor will carry out necessary repairs (e.g. broken welds or loose anchors) or in extreme cases, replace door assemblies (if deteriorated beyond repair e.g. due to corrosion) before safety retainers are retrofitted.

b) Ensure that proper retainers are selected for the doors being retrofitted, and

c) Install, adjust and inspect retainers following instructions referred to in 2.1.(c) above.

2.4 Where a contractor identifies an elevator with a landing door type for which retrofitting kits are not listed in the attached document #61-01, the contractor must either:

a) Design new retainers for that door type, but before installation, the retainers must be certified, filed, registered** and marked in accordance with procedure set in 2.1 above: or

b) Submit full information on make and model of the door, hangers and gibs and also the location, manufacturer, model and year of manufacture of the elevator to the Elevating Devices Branch, which will, on the basis of available information, advise on acceptable design and procedure or will order the owner that provisions in (a) must be fulfilled through a registered contractor.

**NOTE: With the consent of the contractor or manufacturer who has successfully registered with this Branch a new design of safety retainers, the retainer design as well as the source of retrofitting kits will be listed in a new addition of document #61-01 for information to all other registered contractors.

3. BACKGROUND

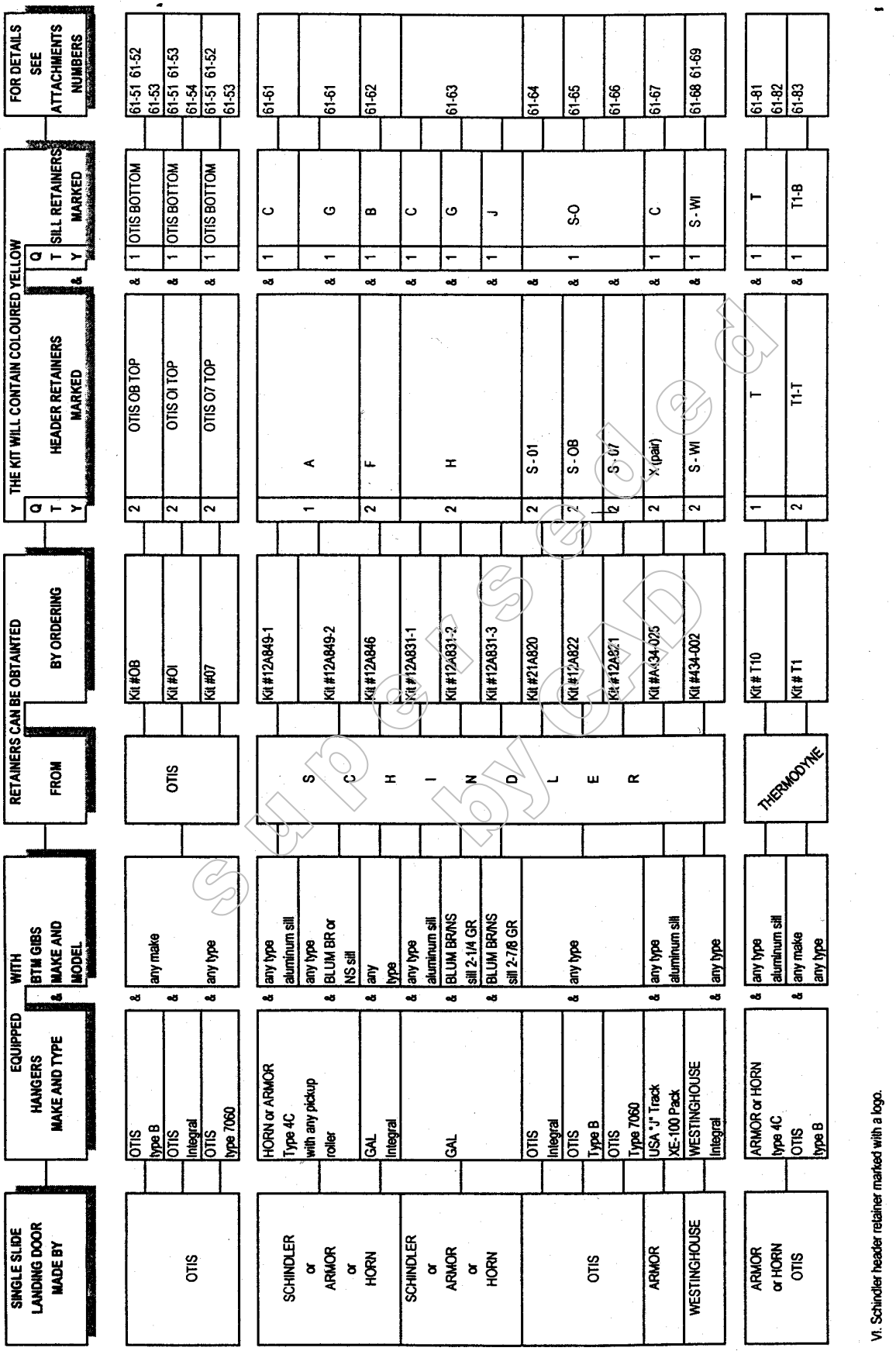
Following a series of accidents that were attributed to the inadequate landing door strength, the CAN3-B44 Elevator Safety Code for Elevators has been advised to require safety retainers on all new elevator doors. Considering the history of accidents in the province of Ontario, and in accordance with subsection 10(8) of the Elevating Devices Act, I have decided to make the requirements retroactive to existing passenger elevators, at this stage to those equipped with single slide landing doors. Since most of the accidents were recorded in residential buildings, where the majority of elevators were equipped with single slide doors, I expect that in 2 to 3 years, when inspectors' orders (as in 1 above) are completed, the overall safety of elevators will be significantly improved.

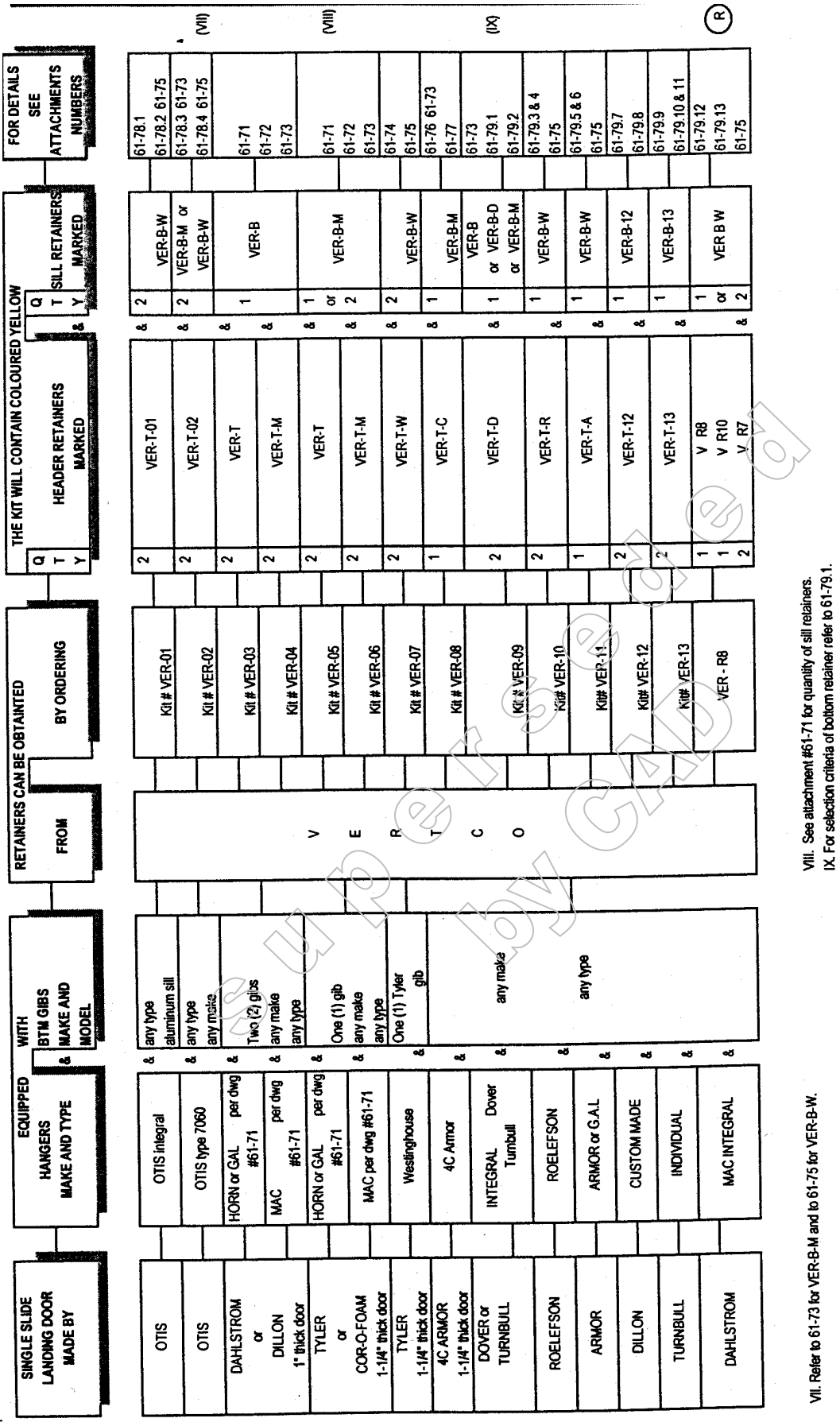
Later on, after the elevator industry has gained more experience on new elevators, we must consider ordering retrofitting of elevators equipped with other than single slide doors.

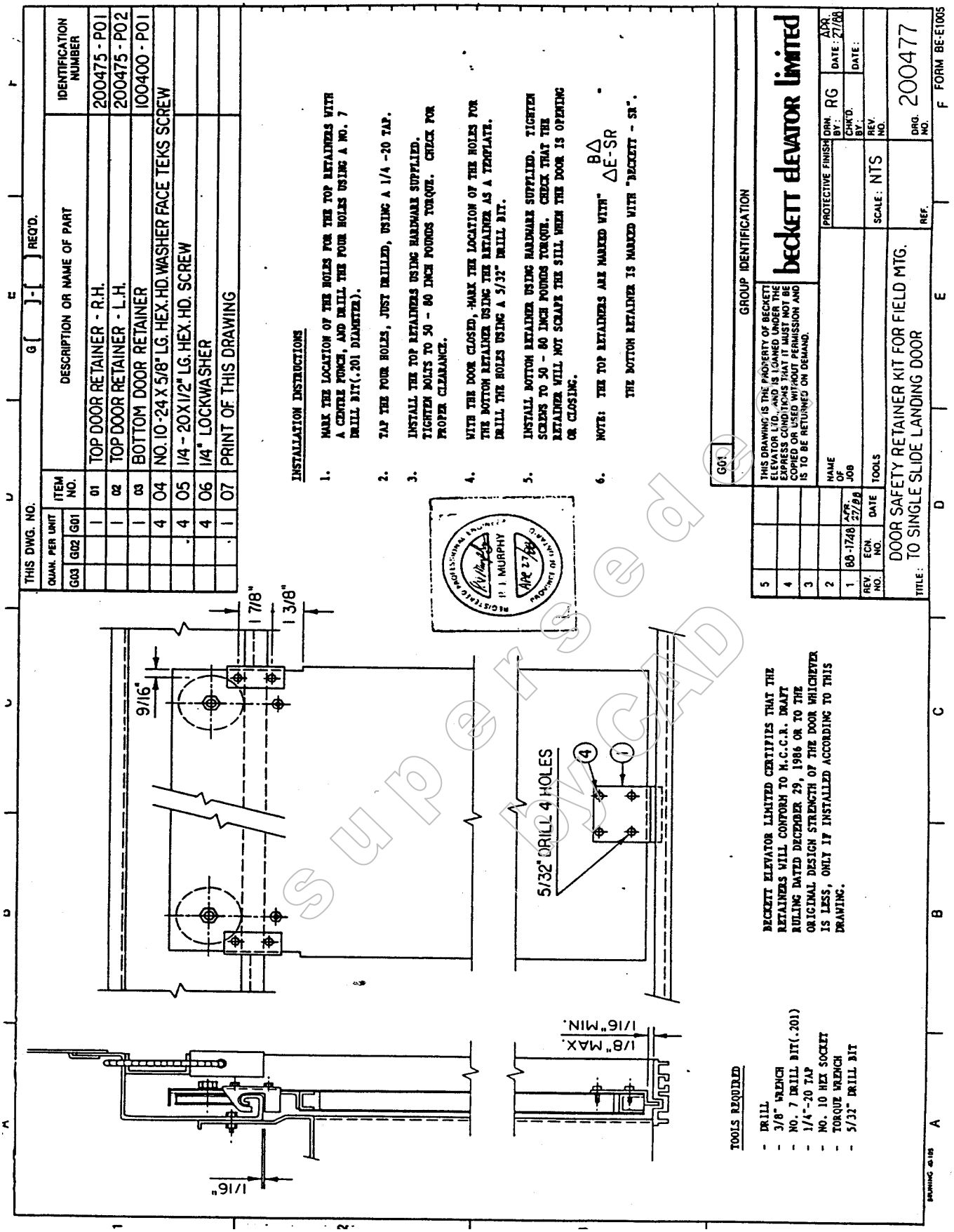
Retrofitting kits listed in the attached document #61-01 have been designed, tested, certified and made available to all registered contractors by the original door manufacturers at the initiative of a government-industry task force. We are, however, aware that a few makes and models of existing single slide doors are not listed in that document. We invite all interested contractors and elevator parts manufacturers to design retrofitting kits for door models not covered. As indicated above, this Branch will notify all elevator contractors on the source of certified retrofitting kits.

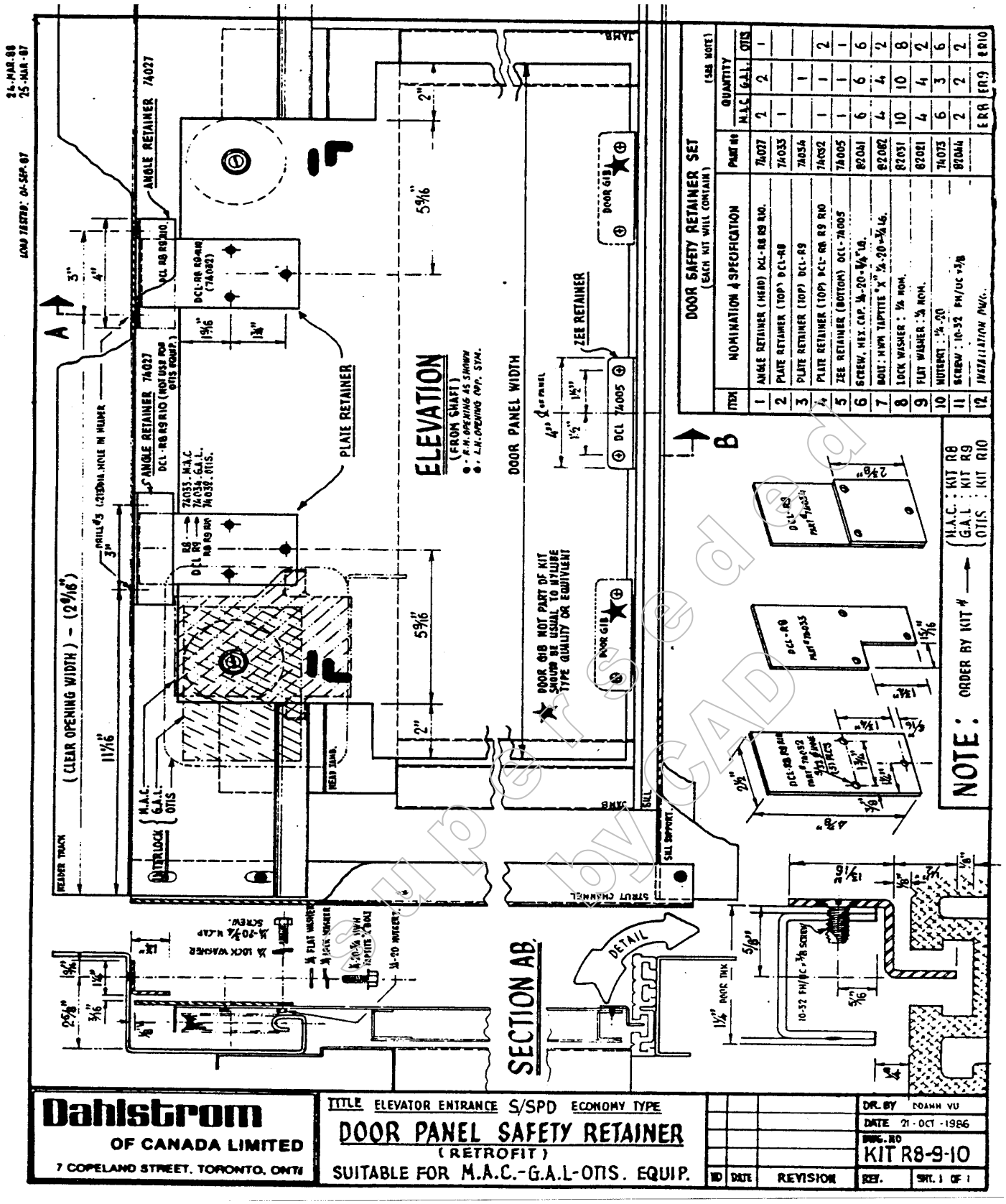
SINGLE SLIDE LANDING DOOR MADE BY	EQUIPPED HANGERS MAKE AND TYPE	& WITH BTM GIBS MAKE AND MODEL	RETAINERS CAN BE OBTAINED FROM	BY ORDERING	QTY	THE KIT WILL CONTAIN COLOURED YELLOW HEADER RETAINERS MARKED	QTY	SILL RETAINERS MARKED	FOR DETAILS SEE NUMBERS	
DAHLSTROM	GAL-Cast Type	& any make	ADCO	Kit #AD-1	2	AD-1			61-91 61-95	
	GAL-Formed Steel Type	& any type		Kit #AD-2	2	AD-2	1	AD-B	61-92 61-93 61-94 61-95	
BECKETT	BECKETT integral	& any make any type	BECKETT	Kit #200477-GO1	2	B E-SR	1	Beckett-SR	61-11	
BECKETT	GAL-Formed Steel Type	& any make any type	CEE	Kit #CEE-1	2	see note below	1	Beckett-SR	61-101 61-102	(I)
DAHLSTROM	MAC (economy) integral GAL (economy) integral OTIS (economy) integral MAC	& any make any type	DAHLSTROM	Kit #R8	1	DCL-R8	1	DCL 74005	61-21 61-22	
				Kit #R9	1	DCL-R8R9R10 p#74032	1	DCL 74005	61-21 61-23	
				Kit #R10	2	DCL-R8R9R10 p#74027	1	DCL 74005	61-21 61-24	
				Kit #DCL-NR1-A	1	DCL-NR1	1	DCL 74005	61-25	
DOVER or TURNBULL	DOVER-TURNBULL integral DOVER-TURNBULL individual	& any make any type	DOVER	Kit #462597	2	DOVER 462597	1	DOVER	61-31 61-32 61-35	(II)
DOVER U.S. HYDRAULICS installed between 1971 - 1978	Individual with track: 38mm high radiused top bolted to UNISTRAT	& any DOVER make and type		Kit #462598	2	DOVER 462598	1	DOVER	61-33 61-34 61-35	(II)
				Kit #463589	2	DOVER 261964	1	DOVER 261911	61-36 61-37	(III)
NORTHERN Dahlstrom type 1/4" max door to sill clearance NORTHERN Dahlstrom type 1/4" -3/6" door to sill clearance	MAC or GAL integral	& any type any make	NORTHERN	B-807-8120	1	N	1 & or 2	N	61-41 61-42 61-43 61-44	(IV)
				B-807-8120-B	1				61-41 61-45 61-43 61-46	(IV)
NORTHERN	Type N	&		B-80-A1043	2	N21	1	N23	61-47 61-48	(V)

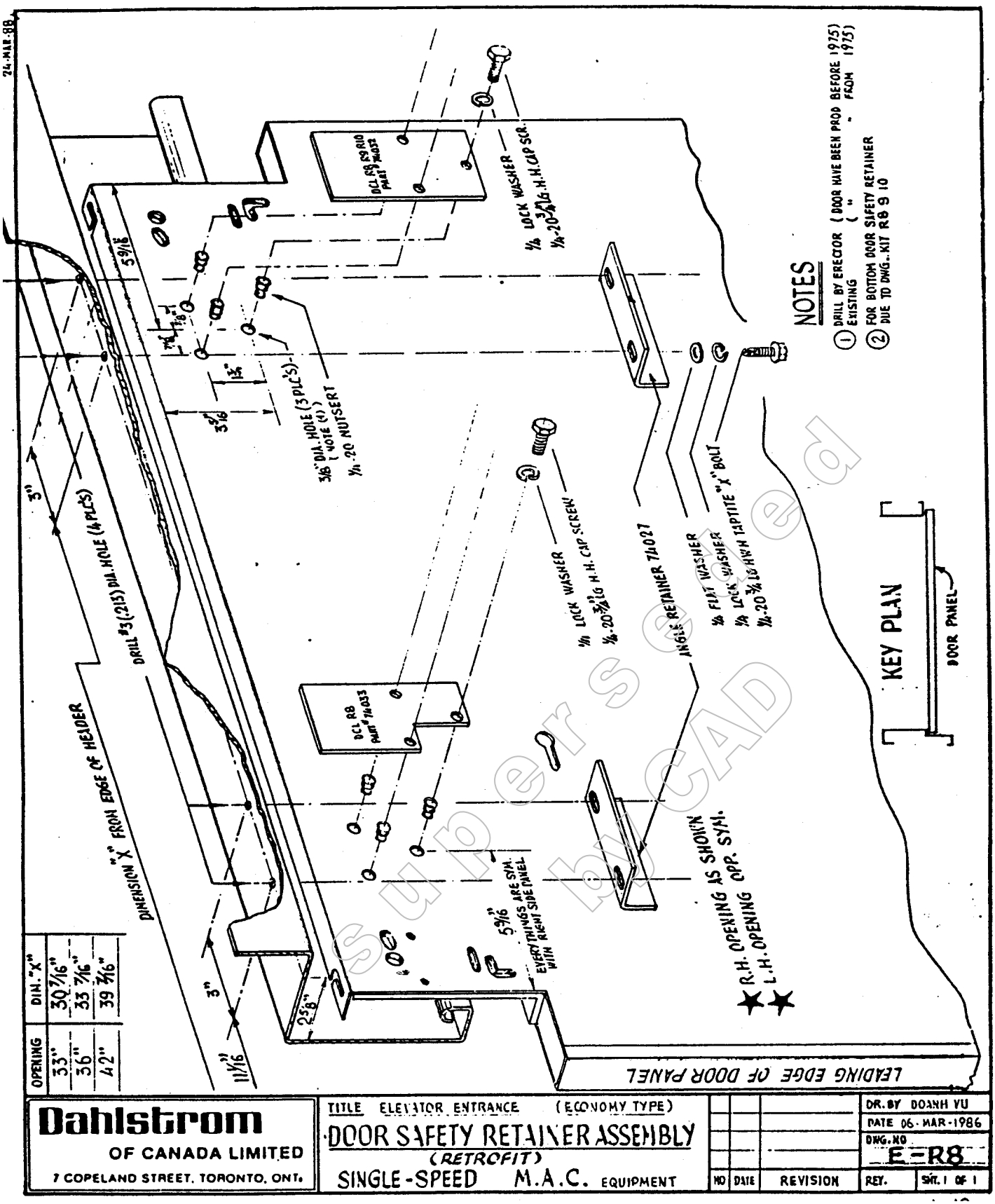
I. Top retainers are part of GAL supplied hanger assemblies.
II. A limited number may be w/out markings and yellow colouring.
III. Kit #463589 superseded Kit #463485.
IV. See attachment #61-41 for quantity of sill retainers - part #B-807-8122
V. Door manufactured prior to CSA-B44-1985 enforcement.

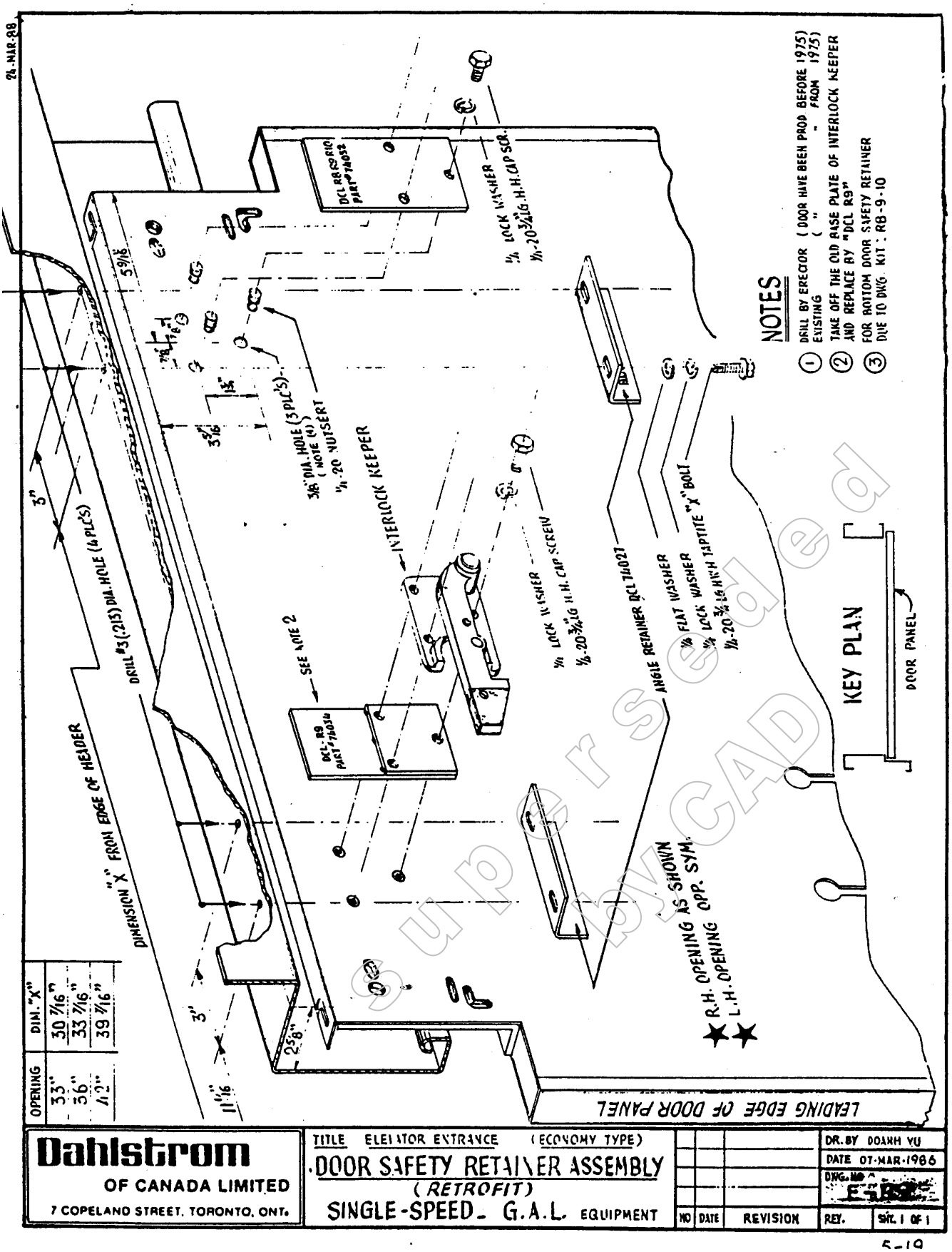


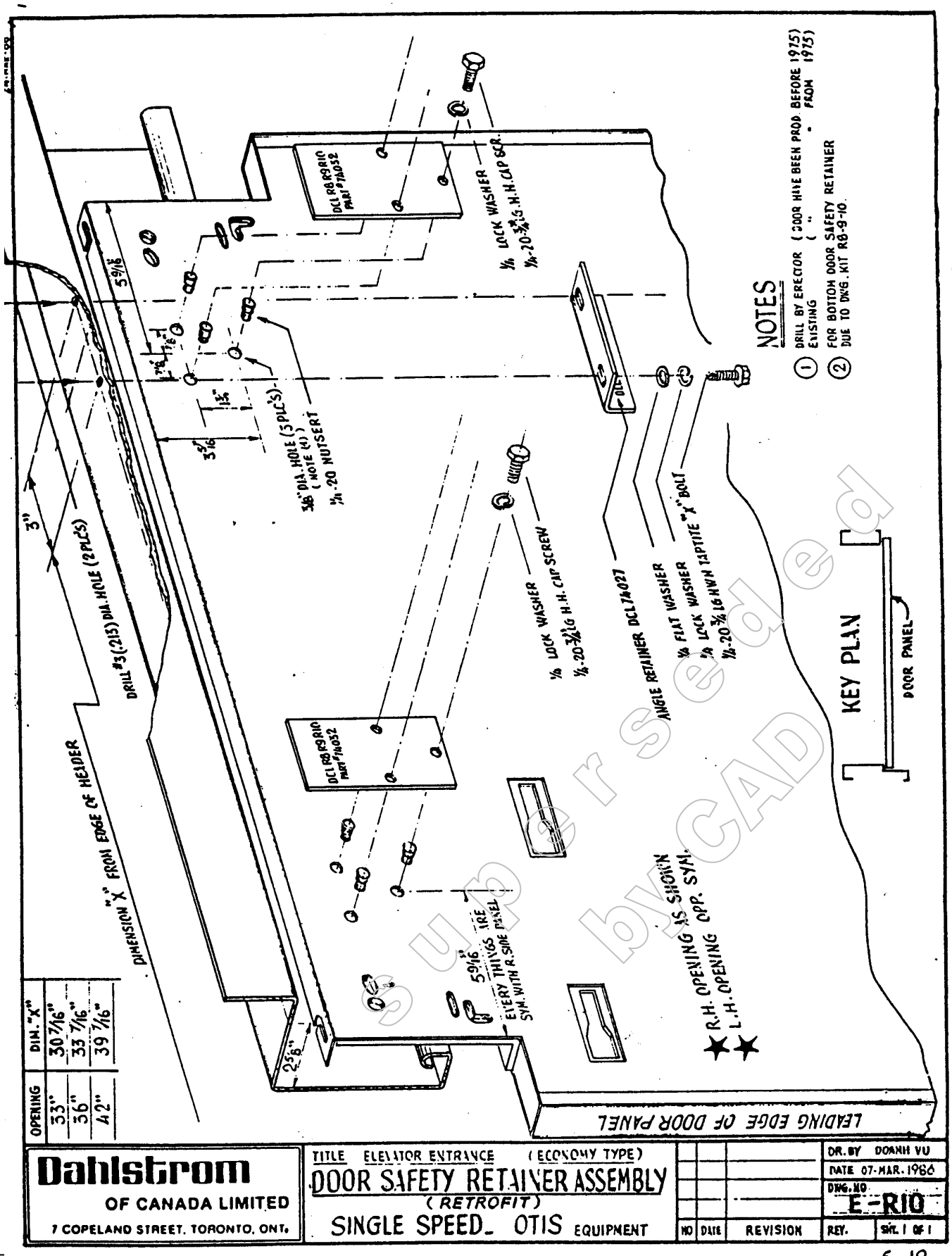


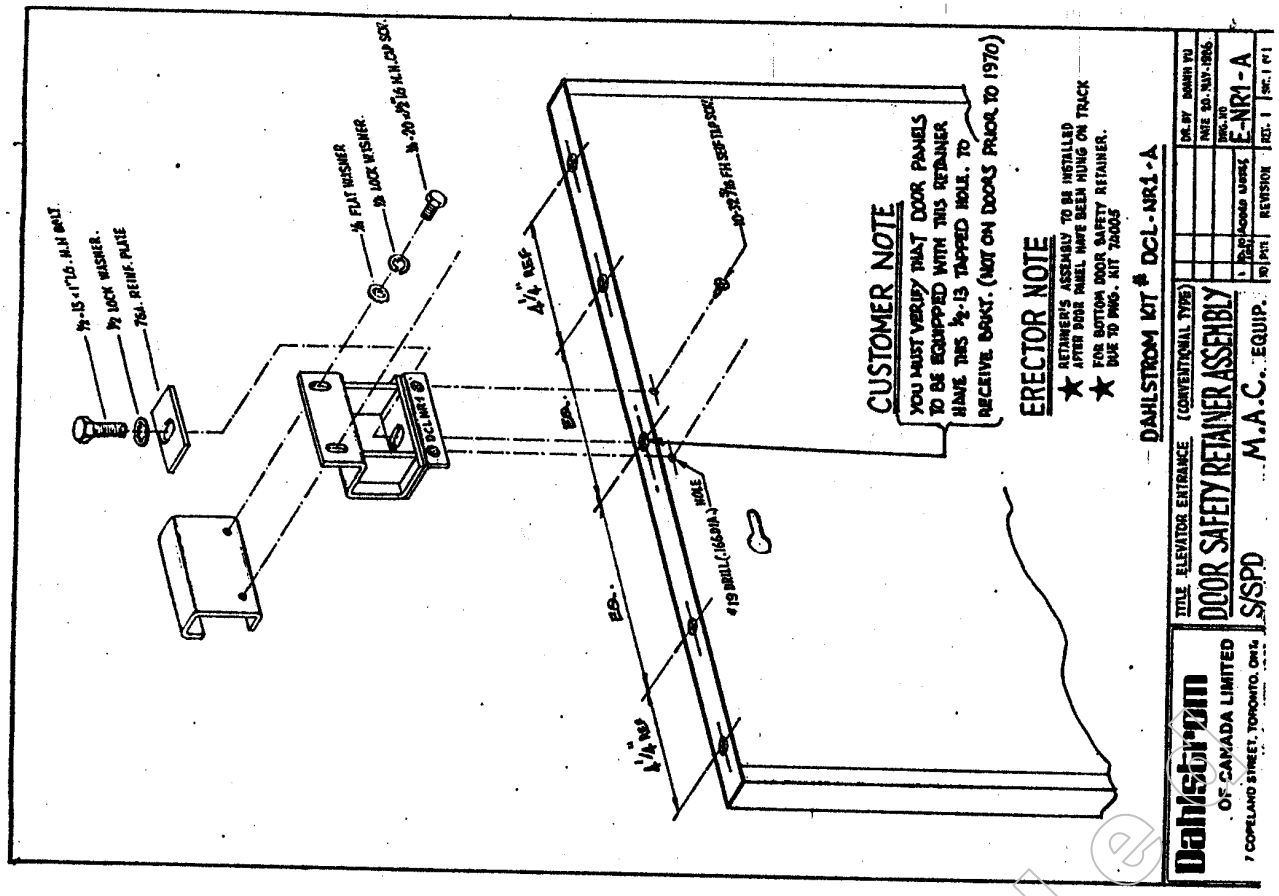

THIS DWG. NO. G[ ]-[ ] REQ'D.
QUAN. PER UNIT G03 G02 G01
ITEM NO.
DESCRIPTION OR NAME OF PART
IDENTIFICATION NUMBER
01 TOP DOOR RETAINER - R.H. 200475 - P01
02 TOP DOOR RETAINER - L.H. 200475 - P02
03 BOTTOM DOOR RETAINER 100400 - P01
04 NO.10-24 X 5/8" LG. HEX.HD.WASHER FACE TEKS SCREW
05 1/4 - 20X1/2" LG. HEX. HD. SCREW
06 1/4" LOCKWASHER
07 PRINT OF THIS DRAWING
INSTALLATION INSTRUCTIONS
1. MARK THE LOCATION OF THE HOLES FOR THE TOP RETAINERS WITH A CENTRE PUNCH, AND DRILL THE FOUR HOLES USING A NO. 7 DRILL BIT(.201 DIAMETER).
2. TAP THE FOUR HOLES, JUST DRILLED, USING A 1/4 -20 TAP.
3. INSTALL THE TOP RETAINERS USING HARDWARE SUPPLIED. TIGHTEN BOLTS TO 50 - 80 INCH POUNDS TORQUE. CHECK FOR PROPER CLEARANCE.
4. WITH THE DOOR CLOSED, MARK THE LOCATION OF THE HOLES FOR THE BOTTOM RETAINER USING THE RETAINER AS A TEMPLATE. DRILL THE HOLES USING A 5/32" DRILL BIT.
5. INSTALL BOTTOM RETAINER USING HARDWARE SUPPLIED. TIGHTEN SCREWS TO 50 - 80 INCH POUNDS TORQUE. CHECK THAT THE RETAINER WILL NOT SCRAPE THE SILL WHEN THE DOOR IS OPENING OR CLOSING.
6. NOTE: THE TOP RETAINERS ARE MARKED WITH " B△E-SR "
THE BOTTOM RETAINER IS MARKED WITH "BECKETT - SR".
REGISTERED PROFESSIONAL ENGINEER P. J. MURPHY APR 27/88 PROVINCE OF ONTARIO
G01
GROUP IDENTIFICATION
THIS DRAWING IS THE PROPERTY OF BECKETT ELEVATOR LTD., AND IS LOANED UNDER THE EXPRESS CONDITIONS THAT IT MUST NOT BE COPIED OR USED WITHOUT PERMISSION AND IS TO BE RETURNED ON DEMAND.
beckett elevator limited
NAME OF JOB
PROTECTIVE FINISH
DRN. BY: RG DATE: APR. 27/88
CHK'D. BY: DATE:
SCALE: NTS
REV. NO.
REV. NO. ECN. NO. DATE
1 80-1748 APR. 27/88
TITLE: DOOR SAFETY RETAINER KIT FOR FIELD MTG. TO SINGLE SLIDE LANDING DOOR
REF.
DRG. NO. 200477
F FORM BE-E1005
1 7/8"
1 3/8"
9/16"
5/32" DRILL 4 HOLES
1/16"
1/8" MAX.
1/16" MIN.
TOOLS REQUIRED
- DRILL
- 3/8" WRENCH
- NO. 7 DRILL BIT(.201)
- 1/4"-20 TAP
- NO. 10 HEX SOCKET
- TORQUE WRENCH
- 5/32" DRILL BIT
BECKETT ELEVATOR LIMITED CERTIFIES THAT THE RETAINERS WILL CONFORM TO M.C.C.R. DRAFT RULING DATED DECEMBER 29, 1986 OR TO THE ORIGINAL DESIGN STRENGTH OF THE DOOR WHICHEVER IS LESS, ONLY IF INSTALLED ACCORDING TO THIS DRAWING.
Superseded by CAD

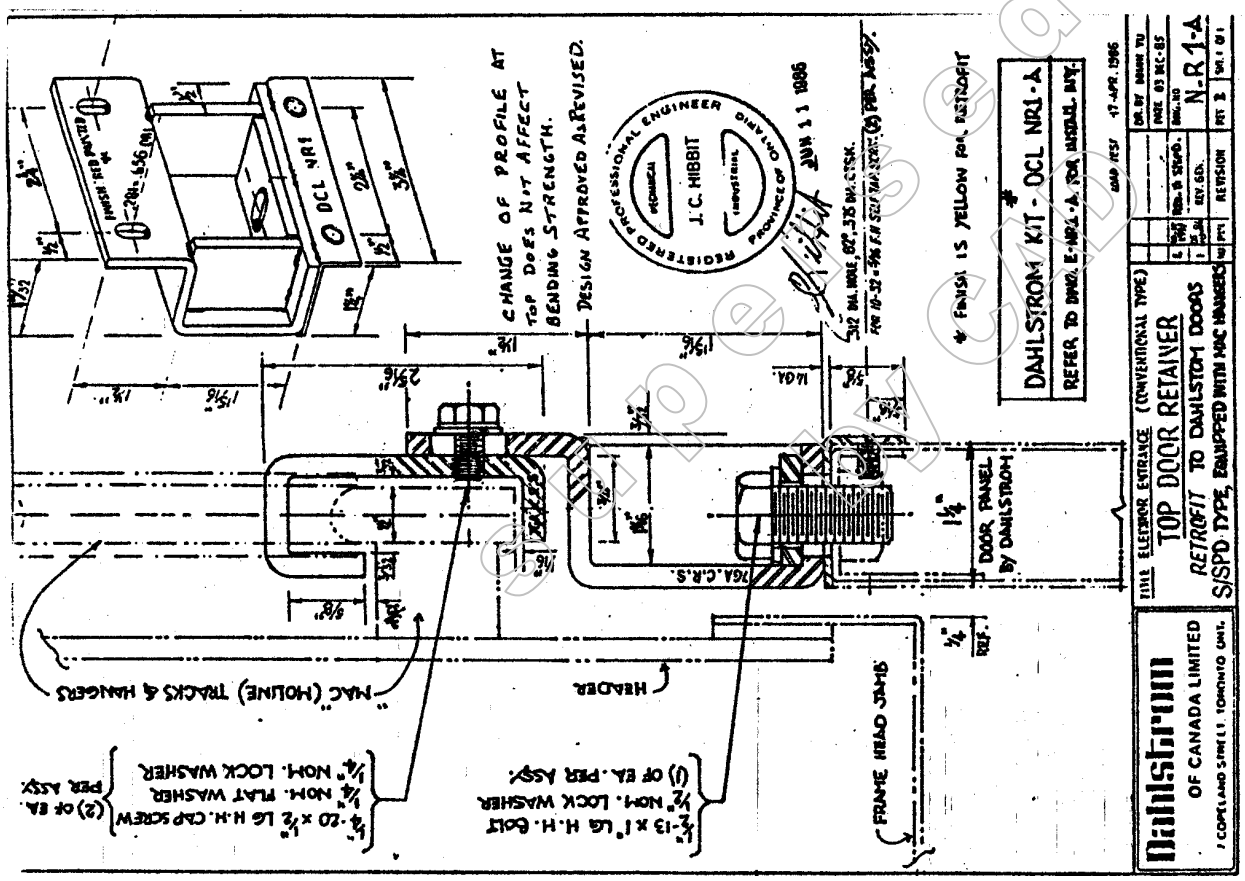


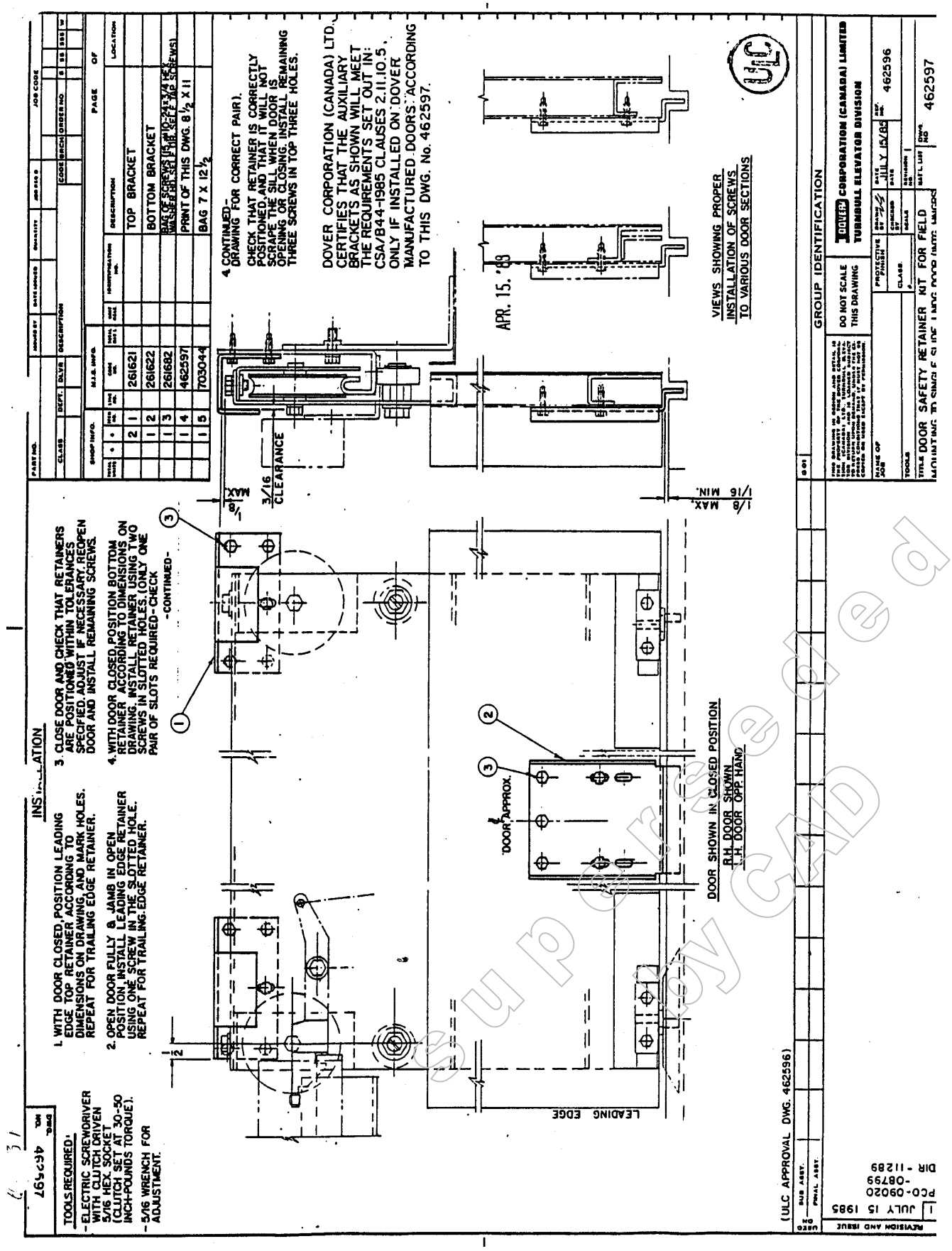


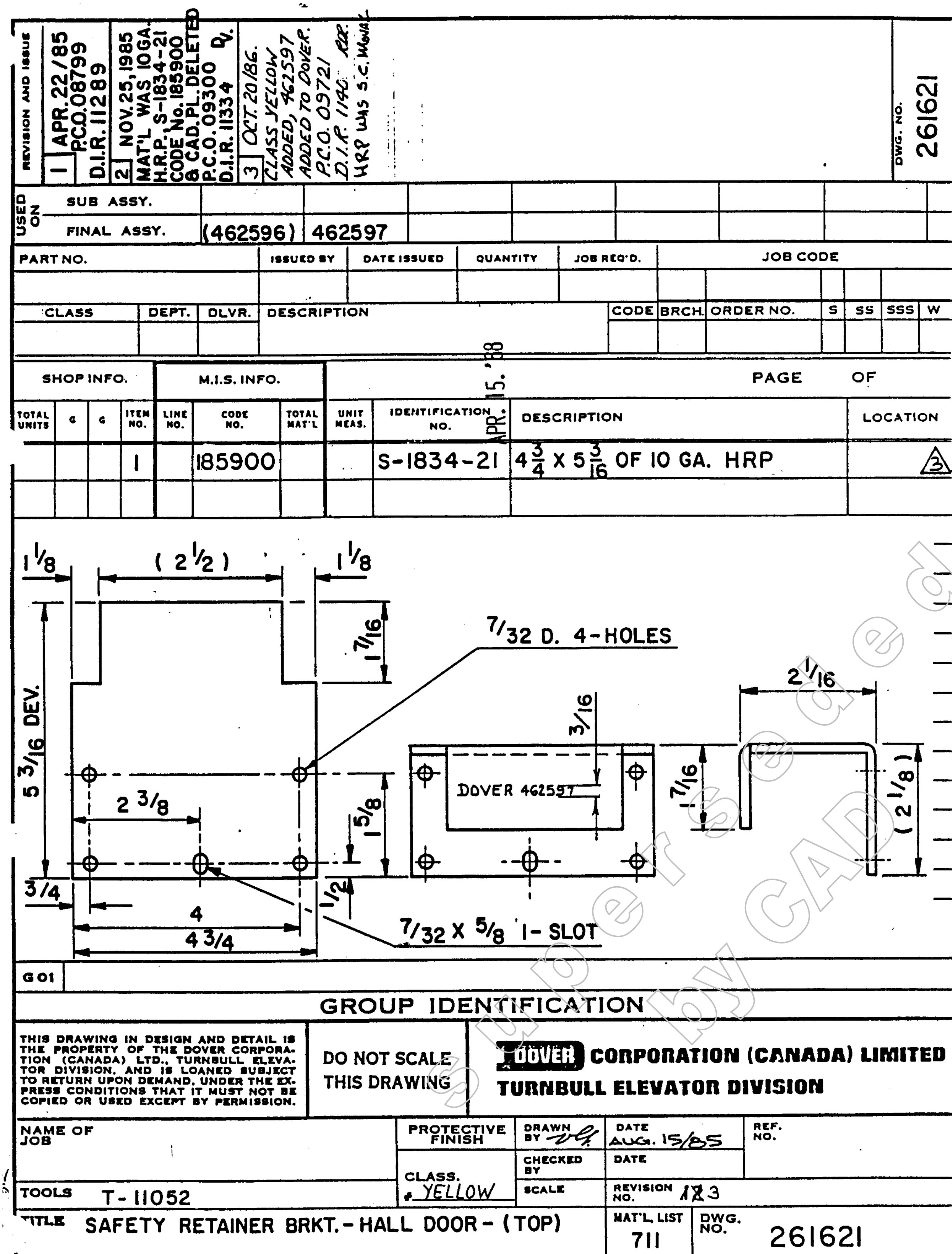



NOTES
1. DRILL BY ERECTOR (DOOR HAVE BEEN PROD. BEFORE 1975)
EXISTING " " FROM 1975)
2. FOR BOTTOM DOOR SAFETY RETAINER
DUE TO DWG. KIT R8-9-10
KEY PLAN
DOOR PANEL
DRILL #3(.213) DIA. HOLE (2 PLCS)
DIMENSION "X" FROM EDGE OF HELDER
3/8" DIA. HOLE (3 PLCS.) (NOTE (1))
5/16-20 NUTSERT
5/16 LOCK WASHER
5/16-20 x 3/4 LG. H.H. CAP SCR.
DCL R8 R9 R10 PART #1A052
ANGLE RETAINER DCL 1A027
5/16 FLAT WASHER
5/16 LOCK WASHER
5/16-20 x 3/4 LG H.H. CAP SCREW
1/4-20 x 3/4 LG H.H. TAPTITE "Y" BOLT
5 9/16" EVERY THIRD SYM. WITH R. SIDE PANEL
R.H. OPENING AS SHOWN
L.H. OPENING OPP. SYM.
LEADING EDGE OF DOOR PANEL
OPENING | DIM. "X"
33" | 30 7/16"
36" | 33 7/16"
42" | 39 7/16"
Dahlstrom
OF CANADA LIMITED
7 COPELAND STREET, TORONTO, ONT.
TITLE ELEVATOR ENTRANCE (ECONOMY TYPE)
DOOR SAFETY RETAINER ASSEMBLY
(RETROFIT)
SINGLE SPEED OTIS EQUIPMENT
NO | DATE | REVISION
DR. BY DONNH VU
DATE 07-MAR. 1986
DWG. NO E-R10
REV. | SHT. 1 OF 1
Superseded by CAD

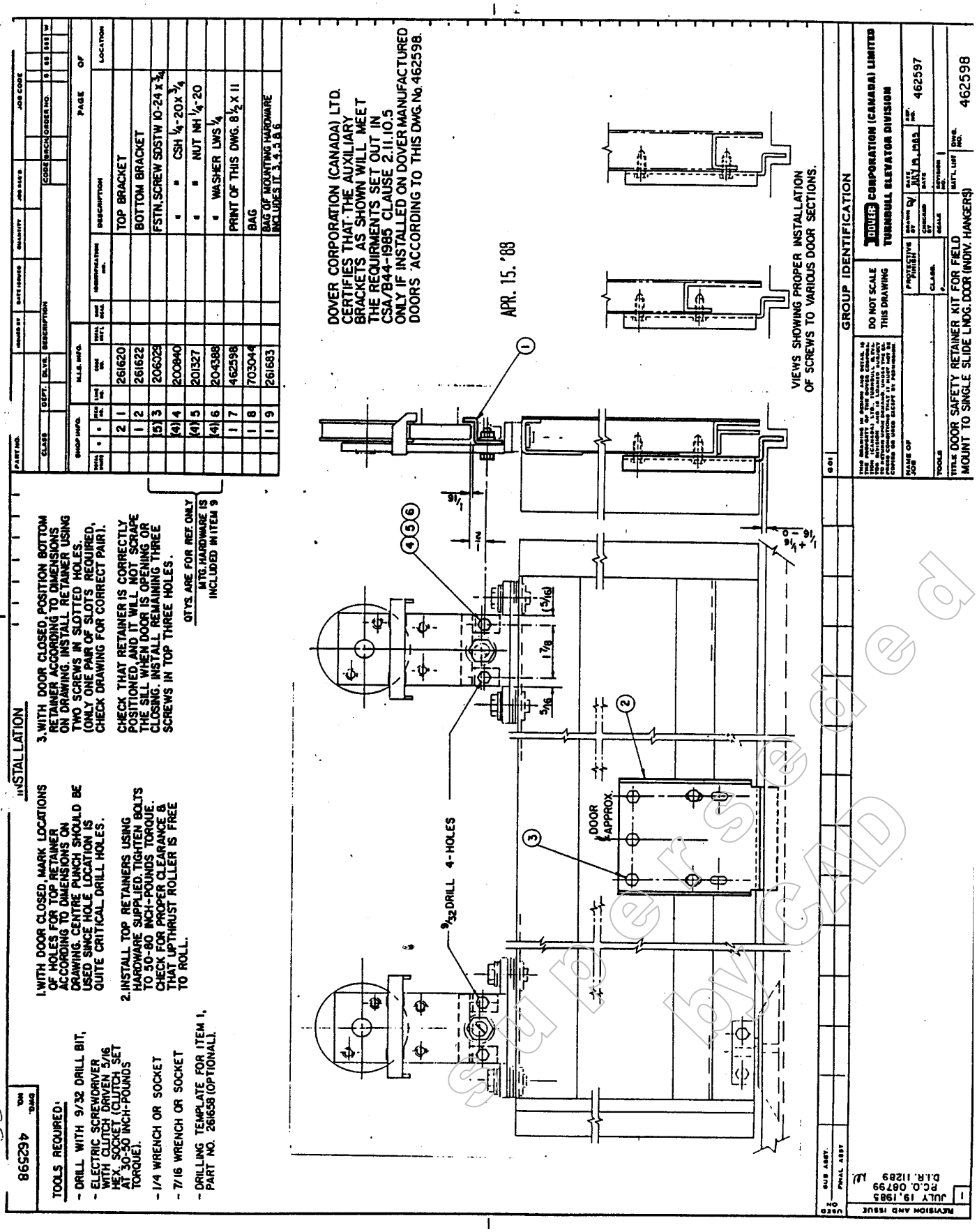

CUSTOMER NOTE
YOU MUST VERIFY THAT DOOR PANELS TO BE EQUIPPED WITH THIS RETAINER HAVE THIS ¾-13 TAPPED HOLE. TO RECEIVE BOLT. (NOT ON DOORS PRIOR TO 1970)
ERECTOR NOTE
★ RETAINER'S ASSEMBLY TO BE INSTALLED AFTER DOOR PANEL HAVE BEEN HUNG ON TRACK
★ FOR BOTTOM DOOR SAFETY RETAINER. DUE TO PKG. KIT 70A005
DAHLSTROM KIT # DCL-NR1-A
M.A.C. EQUIP.
S/SPD
DOOR SAFETY RETAINER ASSEMBLY
TITLE ELEVATOR ENTRANCE (CONVENTIONAL TYPES)
Dahlstrom
OF CANADA LIMITED
7 COPELAND STREET, TORONTO, ONT.
E-NR1-A


CHANGE OF PROFILE AT TOP DOES NOT AFFECT BENDING STRENGTH.
DESIGN APPROVED AS REVISED.
REGISTERED PROFESSIONAL ENGINEER
J.C. HIBBIT
PROVINCE OF ONTARIO
DCL NR1
DAHLSTROM KIT - DCL NR1-A
REFER TO DWG. E-NR1-A FOR INSTALL. INFO.
* FINISH IS YELLOW FOR RETROFIT
TOP DOOR RETAINER
RETROFIT TO DAHLSTROM DOORS
S/SPD TYPE, EQUIPPED WITH MAC HANGERS
ELEVATOR ENTRANCE (CONVENTIONAL TYPE)
DOOR PANEL BY DAHLSTROM
MAC (MOLINE) TRACKS & HANGERS
HEADER
FRAME HEAD JAMB
¼"-20 x ½" LG H.H. CAP SCREW
¼" NOM. FLAT WASHER
¼" NOM. LOCK WASHER
(2) OF EA. PER ASSY.
⅜"-13 x 1" LG H.H. BOLT
⅜" NOM. LOCK WASHER
(1) OF EA. PER ASSY.
Dahlstrom
OF CANADA LIMITED
7 COPELAND STREET, TORONTO ONT.
N.R.1-A





REVISION AND ISSUE
1 APR. 22/85 P.C.O.08799 D.I.R. 11289
2 NOV. 25, 1985 MAT'L WAS 10GA. H.R.P. S-1834-21 CODE No. 185900 & CAD. PL. DELETED P.C.O. 09300 D.I.R. 11334
3 OCT. 20/86. CLASS YELLOW ADDED, 462597 ADDED TO DOVER. P.C.O. 09721 D.I.R. 1140 HRP WAS S.C. WGWAL
DWG. NO. 261621
USED ON SUB ASSY.
FINAL ASSY. (462596) 462597
PART NO.
ISSUED BY
DATE ISSUED
QUANTITY
JOB REQ'D.
JOB CODE
CLASS
DEPT.
DLVR.
DESCRIPTION
CODE
BRCH.
ORDER NO.
S
SS
SSS
W
APR. 15. '88
SHOP INFO.
M.I.S. INFO.
PAGE
OF
TOTAL UNITS
G
G
ITEM NO.
LINE NO.
CODE NO.
TOTAL MAT'L
UNIT MEAS.
IDENTIFICATION NO.
DESCRIPTION
LOCATION
1
185900
S-1834-21
4 3/4 X 5 3/16 OF 10 GA. HRP
3
1 1/8
(2 1/2)
1 1/8
7/32 D. 4-HOLES
1 7/16
5 3/16 DEV.
2 3/8
1 5/8
3/4
4
4 3/4
1/2
7/32 X 5/8 1- SLOT
3/16
DOVER 462597
1 7/16
2 1/16
(2 1/8)
superseded by CAD
G01
GROUP IDENTIFICATION
THIS DRAWING IN DESIGN AND DETAIL IS THE PROPERTY OF THE DOVER CORPORATION (CANADA) LTD., TURNBULL ELEVATOR DIVISION, AND IS LOANED SUBJECT TO RETURN UPON DEMAND, UNDER THE EXPRESS CONDITIONS THAT IT MUST NOT BE COPIED OR USED EXCEPT BY PERMISSION.
DO NOT SCALE THIS DRAWING
DOVER CORPORATION (CANADA) LIMITED
TURNBULL ELEVATOR DIVISION
NAME OF JOB
PROTECTIVE FINISH
DRAWN BY
DATE AUG. 15/85
REF. NO.
CHECKED BY
DATE
CLASS. YELLOW
TOOLS T- 11052
SCALE
REVISION NO. 3
TITLE SAFETY RETAINER BRKT.- HALL DOOR - (TOP)
MAT'L LIST 711
DWG. NO. 261621


INSTALLATION
1. WITH DOOR CLOSED, MARK LOCATIONS OF HOLES FOR TOP RETAINER ACCORDING TO DIMENSIONS ON DRAWING. INSTALL RETAINER USING TWO SCREWS IN SLOTTED HOLES. (ONLY ONE PAIR OF SLOTS REQUIRED). CHECK DRAWING FOR CORRECT PAIR.
2. INSTALL TOP RETAINERS USING HARDWARE SUPPLIED. TIGHTEN BOLTS TO 50-80 INCH-POUNDS TORQUE. CHECK FOR PROPER CLEARANCE & THAT UPTHRUST ROLLER IS FREE TO ROLL.
3. WITH DOOR CLOSED, POSITION BOTTOM RETAINER ACCORDING TO DIMENSIONS ON DRAWING. INSTALL RETAINER USING TWO SCREWS IN SLOTTED HOLES. (ONLY ONE PAIR OF SLOTS REQUIRED). CHECK DRAWING FOR CORRECT PAIR).
CHECK THAT RETAINER IS CORRECTLY POSITIONED, AND IT WILL NOT SCRAPE THE SILL WHEN DOOR IS OPENING OR CLOSING. INSTALL REMAINING THREE SCREWS IN TOP THREE HOLES.
QTYS. ARE FOR REF. ONLY
MTG. HARDWARE IS INCLUDED IN ITEM 9
TOOLS REQUIRED:
- DRILL WITH 9/32 DRILL BIT,
- ELECTRIC SCREWDRIVER WITH CLUTCH DRIVEN 5/16 HEX. SOCKET (CLUTCH SET AT 30-90 INCH-POUNDS TORQUE).
- 1/4 WRENCH OR SOCKET
- 7/16 WRENCH OR SOCKET
- DRILLING TEMPLATE FOR ITEM 1, PART NO. 261658 (OPTIONAL).
DOVER CORPORATION (CANADA) LTD. CERTIFIES THAT THE AUXILIARY BRACKETS AS SHOWN WILL MEET THE REQUIRMENTS SET OUT IN CSA/B44-1985 CLAUSE 2.11.10.5 ONLY IF INSTALLED ON DOVER MANUFACTURED DOORS ACCORDING TO THIS DWG. No. 462598.
APR. 15. '88
VIEWS SHOWING PROPER INSTALLATION OF SCREWS TO VARIOUS DOOR SECTIONS.
DOOR APPROX.
9/32 DRILL 4-HOLES
GROUP IDENTIFICATION
DOVER CORPORATION (CANADA) LIMITED
TURNBULL ELEVATOR DIVISION
TITLE DOOR SAFETY RETAINER KIT FOR FIELD MOUNT TO SINGLE SLIDE LNDG. DOOR (INDIV. HANGERS)
462598
462597
JULY 19, 1985
P.O. 08799
D.I.R. 11289
SUPERSEDED by CAD

REVISION AND ISSUE

1 APR. 8/85 P.C.O. 08799 D.I.R. 11289

2 NOV. 25, 1985 MAT'L WAS 10 GA. H.R.P. CODE No. 185900, S-1834-21 & CAD. PL. DELETE P.C.O. 09300 D.I.R. 11334 DV

3 OCT. 20/86. CLASS YELLOW ADD 462598 ADDED TO DOVER P.C.O. 09721 D.I.R. 11940. ADD HRP WAS S.C. MANUAL

DWG. NO. 261620

USED ON	
SUB ASSY.	
FINAL ASSY.	462598

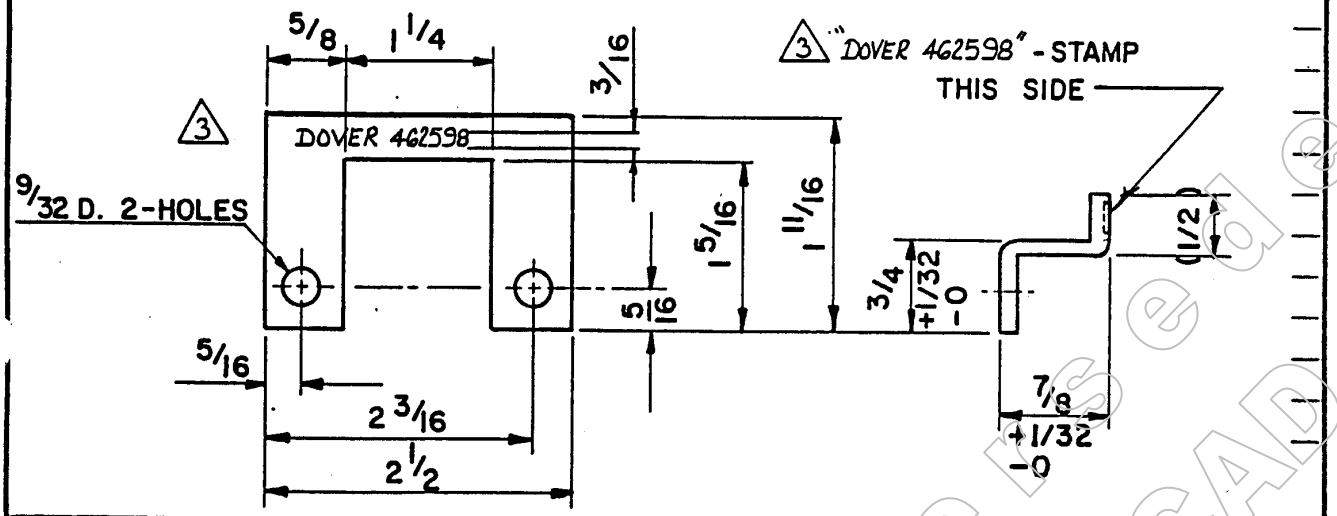
PART NO.	ISSUED BY	DATE ISSUED	QUANTITY	JOB REQ'D.	JOB CODE

CLASS	DEPT.	DLVR.	DESCRIPTION	CODE	BRCH.	ORDER NO.	S	SS	SSS	W

APR. 15. '88

PAGE OF

SHOP INFO.				M.I.S. INFO.						
TOTAL UNITS	G	G	ITEM NO.	LINE NO.	CODE NO.	TOTAL MAT'L	UNIT MEAS.	IDENTIFICATION NO.	DESCRIPTION	LOCATION
			1		185900			S-1834-21	$2\frac{1}{2}$ X $1\frac{11}{16}$ OF 10 GA. HRP	3



G01

GROUP IDENTIFICATION

DO NOT SCALE THIS DRAWING

DOVER CORPORATION (CANADA) LIMITED
TURNBULL ELEVATOR DIVISION

NAME OF JOB	PROTECTIVE FINISH	DRAWN BY	DATE	REF. NO.
	CLASS. YELLOW	CHECKED BY	DATE	
TOOLS T-11051		SCALE	REVISION NO. 3	
TITLE SAFETY RETAINER - HALL DOOR HANGER			MAT'L. LIST 711	DWG. NO. 261620

REVISION AND ISSUE

1 APR. 18/85 P.C.O. 08799 D.I.R. 11289

2 NOV. 25, 1985 MAT'L WAS 10GA. H.R.P. S-1834-41 CODE No. 185884 CAD. PL. DELETED P.C.O. 09300 D.I.R. 11334

3 Oct. 20/86. CLASS YELLOW ADDED. P.C.O. 09721 D.I.R. 1140 HRP WAS S.C. MOVAL

DWG. NO. 261622

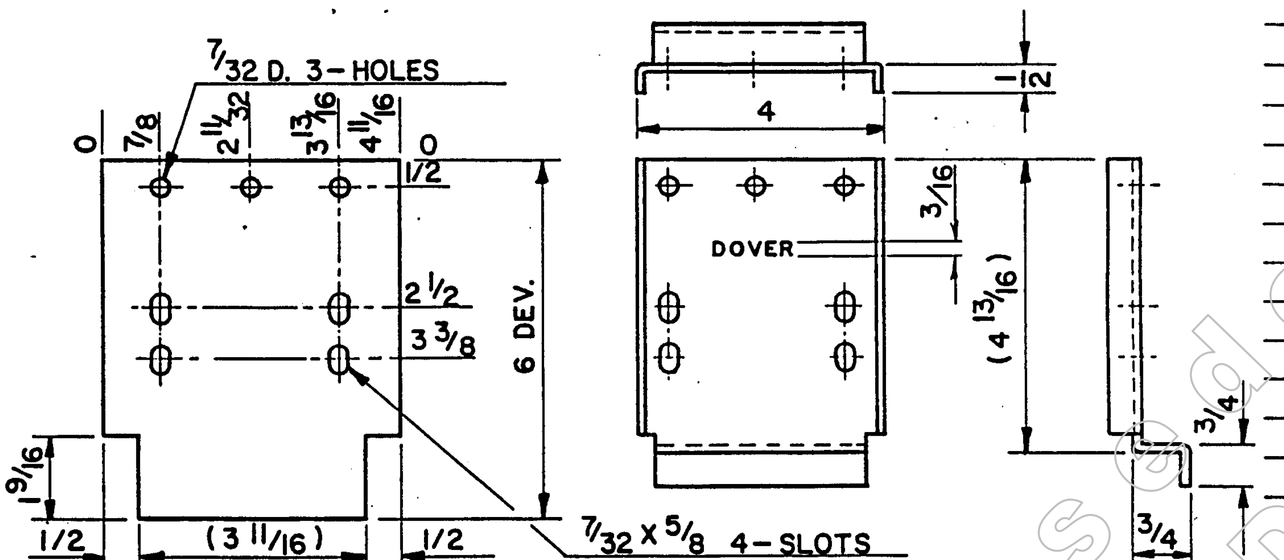
USED ON			
SUB ASSY.			
FINAL ASSY.	(462596)	462597-8	

PART NO.	ISSUED BY	DATE ISSUED	QUANTITY	JOB REQ'D.	JOB CODE

CLASS	DEPT.	DLVR.	DESCRIPTION	CODE	BRCH.	ORDER NO.	S	SS	SSS	W

APR. 15 '88

SHOP INFO.				M.I.S. INFO.					PAGE OF	
TOTAL UNITS	G	G	ITEM NO.	LINE NO.	CODE NO.	TOTAL MAT'L	UNIT MEAS.	IDENTIFICATION NO.	DESCRIPTION	LOCATION
			1		185885			S-1834-41	$4\frac{11}{16}$ X 6 OF 12 GA. HRP	3



G01

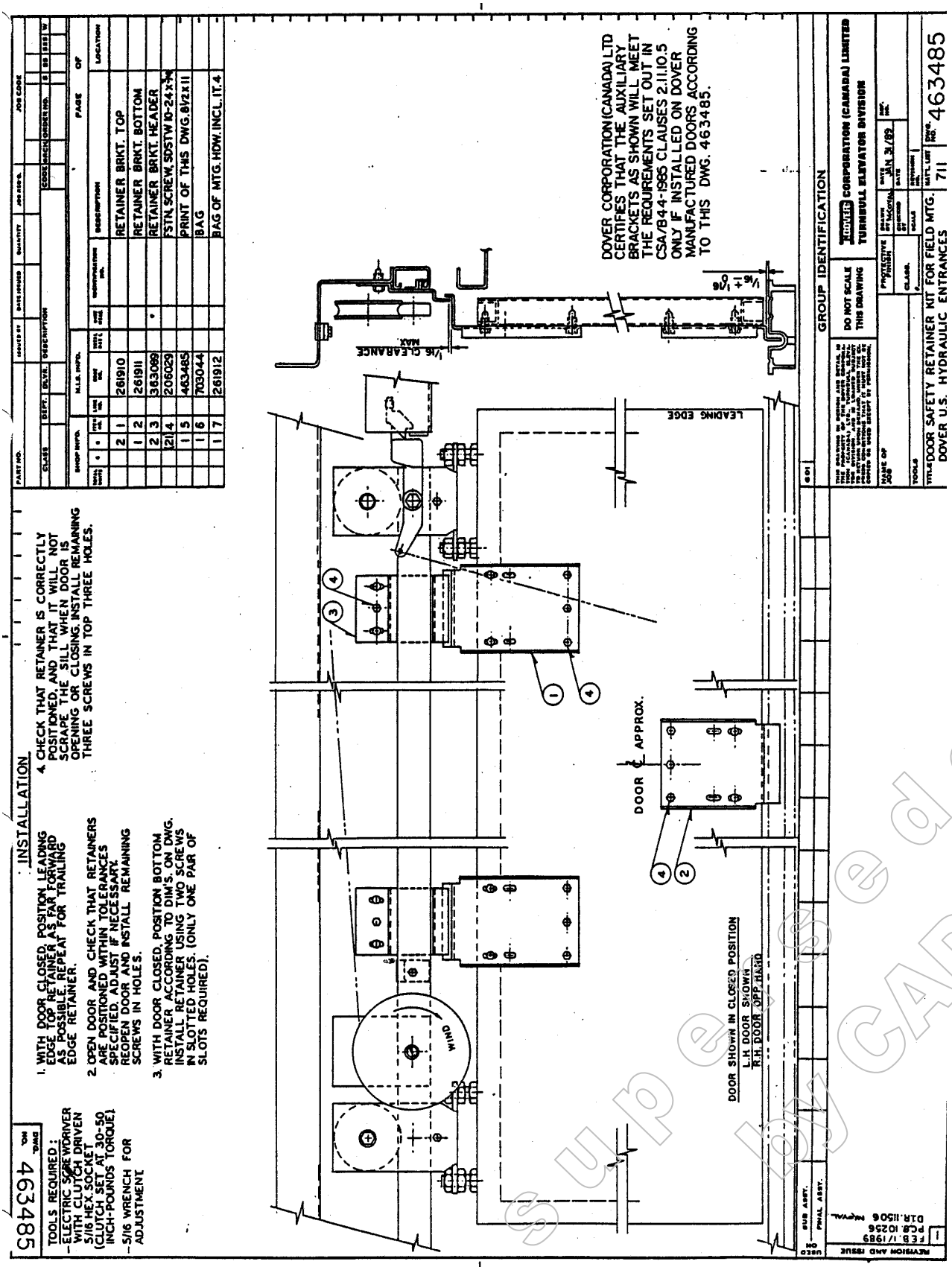
GROUP IDENTIFICATION

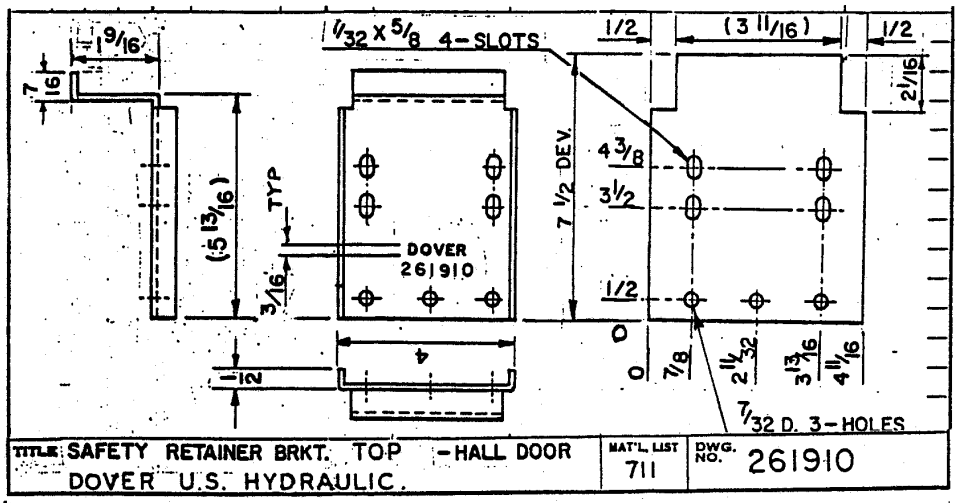
THIS DRAWING IN DESIGN AND DETAIL IS THE PROPERTY OF THE DOVER CORPORATION (CANADA) LTD., TURNBULL ELEVATOR DIVISION, AND IS LOANED SUBJECT TO RETURN UPON DEMAND, UNDER THE EXPRESS CONDITIONS THAT IT MUST NOT BE COPIED OR USED EXCEPT BY PERMISSION.

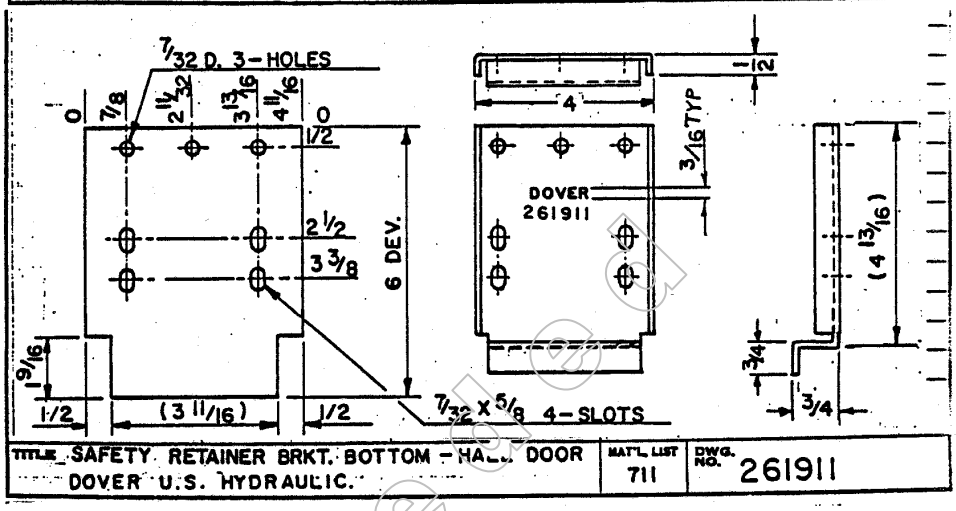
DO NOT SCALE THIS DRAWING

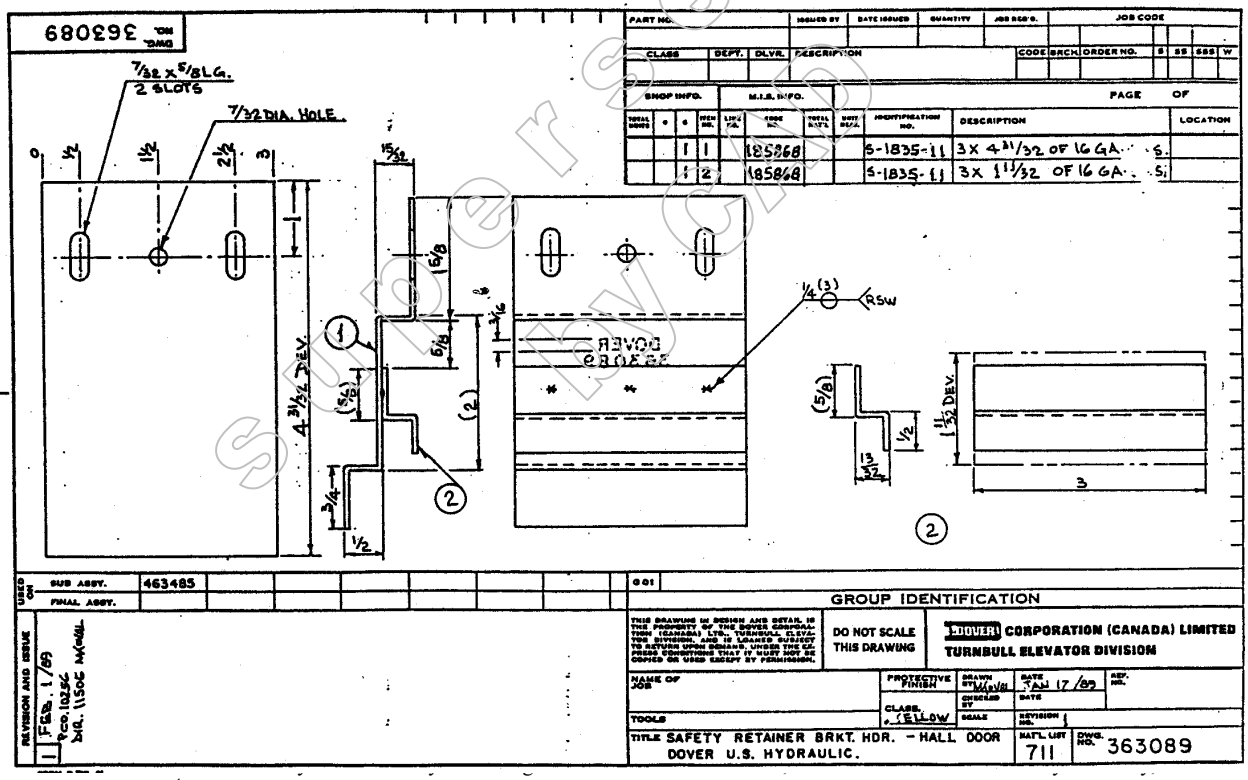
DOVER CORPORATION (CANADA) LIMITED
TURNBULL ELEVATOR DIVISION

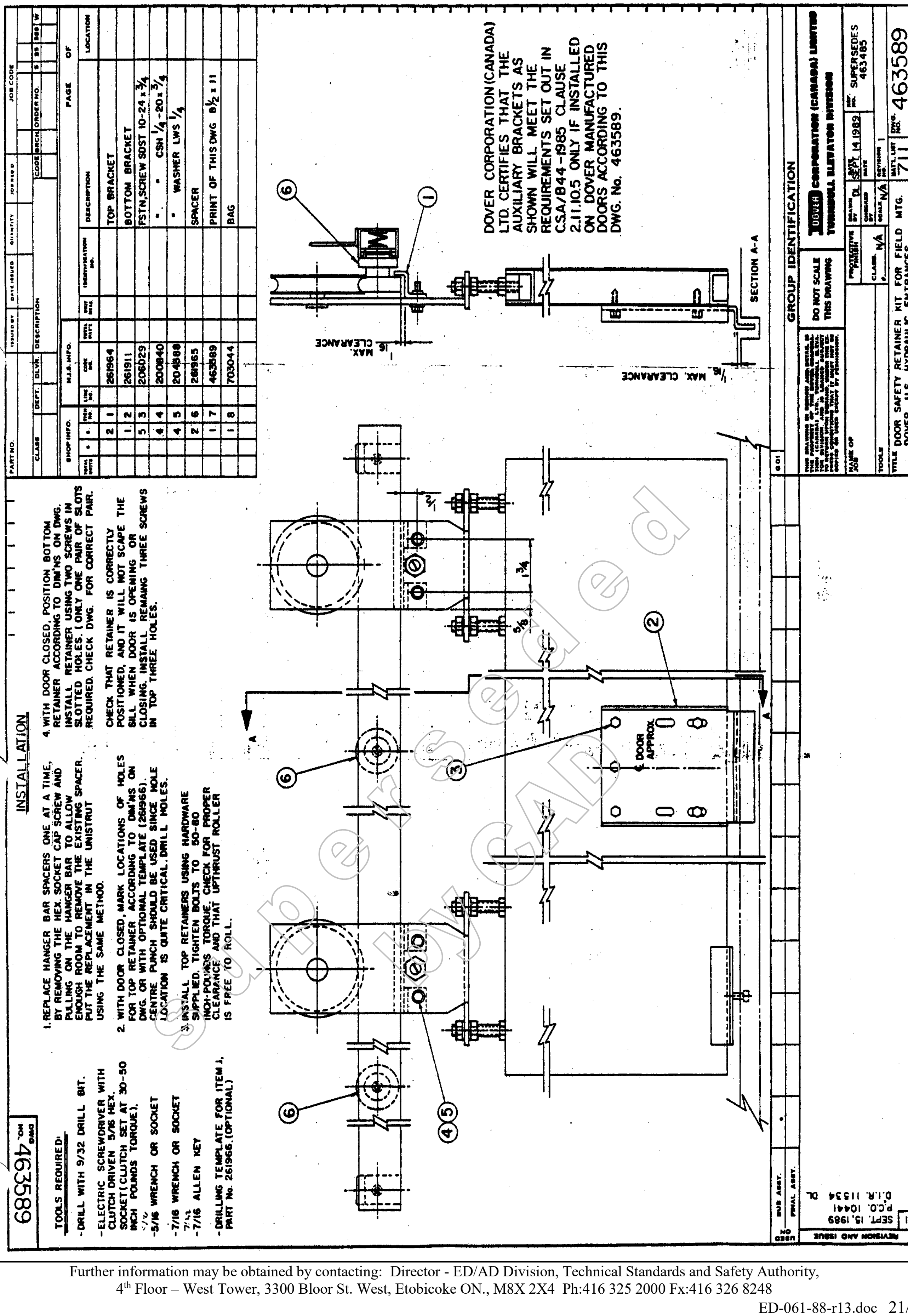
NAME OF JOB	PROTECTIVE FINISH	DRAWN BY	DATE AUG. 15/85	REF. NO.
	CLASS. YELLOW	CHECKED BY	DATE	
TOOLS T-11053		SCALE	REVISION NO. 1 2 3	
TITLE SAFETY RETAINER BRKT. - HALL DOOR (BTM.)			MAT'L LIST 711	DWG. NO. 261622



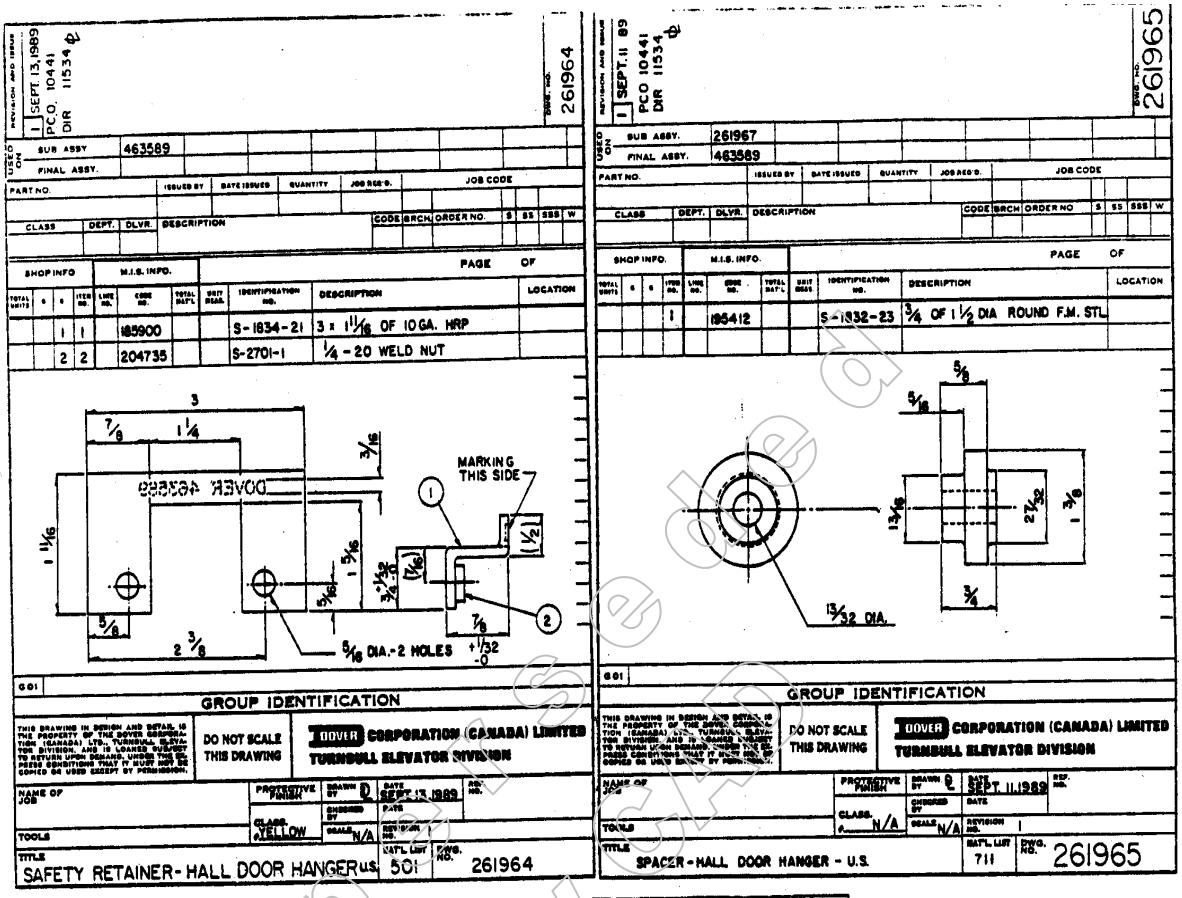


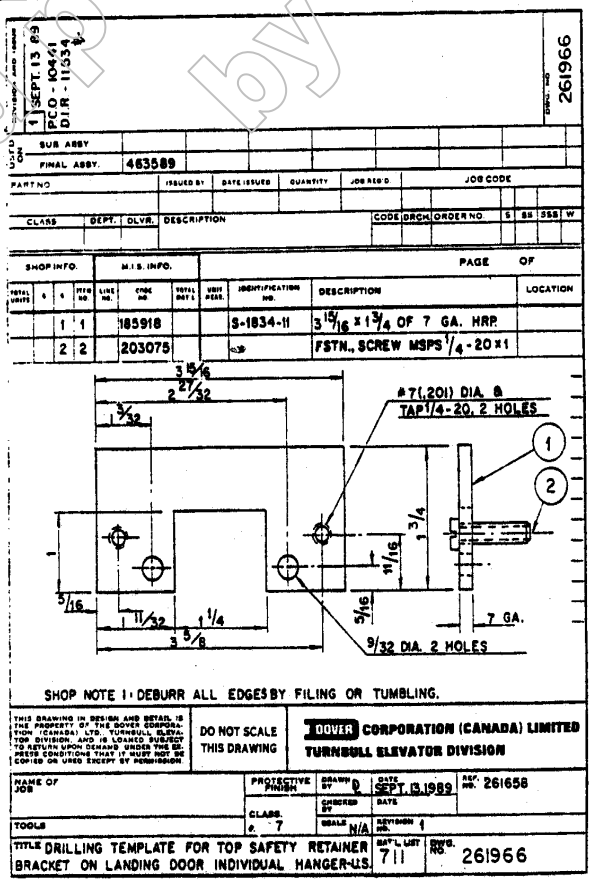






DWG No. 463589
INSTALLATION
TOOLS REQUIRED:
-DRILL WITH 9/32 DRILL BIT.
-ELECTRIC SCREWDRIVER WITH CLUTCH DRIVEN 5/16 HEX. SOCKET (CLUTCH SET AT 30-50 INCH POUNDS TORQUE).
-5/16 WRENCH OR SOCKET
-7/16 WRENCH OR SOCKET
-7/16 ALLEN KEY
-DRILLING TEMPLATE FOR ITEM 1, PART No. 261966. (OPTIONAL)
1. REPLACE HANGER BAR SPACERS ONE AT A TIME, BY REMOVING THE HEX. SOCKET CAP SCREW AND PULLING ON THE HANGER BAR TO ALLOW ENOUGH ROOM TO REMOVE THE EXISTING SPACER. PUT THE REPLACEMENT IN THE UNISTRUT USING THE SAME METHOD.
2. WITH DOOR CLOSED, MARK LOCATIONS OF HOLES FOR TOP RETAINER ACCORDING TO DIM'NS ON DWG. OR WITH OPTIONAL TEMPLATE (261966). CENTRE PUNCH SHOULD BE USED SINCE HOLE LOCATION IS QUITE CRITICAL. DRILL HOLES.
3. INSTALL TOP RETAINERS USING HARDWARE SUPPLIED. TIGHTEN BOLTS TO 50-80 INCH-POUNDS TORQUE. CHECK FOR PROPER CLEARANCE AND THAT UPTHRUST ROLLER IS FREE TO ROLL.
4. WITH DOOR CLOSED, POSITION BOTTOM RETAINER ACCORDING TO DIM'NS ON DWG. INSTALL RETAINER USING TWO SCREWS IN SLOTTED HOLES. (ONLY ONE PAIR OF SLOTS REQUIRED. CHECK DWG. FOR CORRECT PAIR.
CHECK THAT RETAINER IS CORRECTLY POSITIONED, AND IT WILL NOT SCAPE THE SILL WHEN DOOR IS OPENING OR CLOSING. INSTALL REMAING THREE SCREWS IN TOP THREE HOLES.
PART NO.
ISSUED BY
DATE ISSUED
QUANTITY
JOB REQ D
JOB CODE
CLASS
DEPT.
DLVR.
DESCRIPTION
CODE
BRCH.
ORDER NO.
SHOP INFO.
M.I.S. INFO.
PAGE OF
IDENTIFICATION NO.
DESCRIPTION
LOCATION
2 1 261964 TOP BRACKET
1 2 261911 BOTTOM BRACKET
5 3 206029 FSTN, SCREW SDST 10-24 x 3/4
4 4 200840 " " CSH 1/4-20 x 3/4
4 5 204588 " WASHER LWS 1/4
2 6 261965 SPACER
1 7 463589 PRINT OF THIS DWG 8 1/2 x 11
1 8 703044 BAG
6
4 5
3
2
1
A
1/2
5/8
1 3/4
℄ DOOR APPROX.
1/16 MAX. CLEARANCE
SECTION A-A
DOVER CORPORATION (CANADA) LTD. CERTIFIES THAT THE AUXILIARY BRACKETS AS SHOWN WILL MEET THE REQUIREMENTS SET OUT IN C.S.A/B44-1985 CLAUSE 2.11.10.5 ONLY IF INSTALLED ON DOVER MANUFACTURED DOORS ACCORDING TO THIS DWG. No. 463589.
USED ON
SUB ASSY.
FINAL ASSY.
REVISION AND ISSUE
1 SEPT. 15, 1989 P.C.O. 10441 D.I.R. 11534 DL
GROUP IDENTIFICATION
DO NOT SCALE THIS DRAWING
DOVER CORPORATION (CANADA) LIMITED
TURNBULL ELEVATOR DIVISION
NAME OF JOB
TOOLS
PROTECTIVE FINISH
CLASS. N/A
DRAWN BY DL
DATE SEPT. 14 1989
CHECKED BY
SCALE N/A
REVISION 1
SUPERSEDES 463485
TITLE DOOR SAFETY RETAINER KIT FOR FIELD MTG. DOVER U.S. HYDRAULIC ENTRANCES
MAT'L LIST 711
DWG. No. 463589
Superseded by CAD





NORTHERN ELEVATOR LIMITED
TORONTO

subject: RETRO-FIT ENTRANCE DOOR SAFETY RETAINERS

page

PROPOSAL

INSTALLATION OF NORTHERN SAFETY RETAINERS

PART #B-807-8121A AND #B-807-8122A

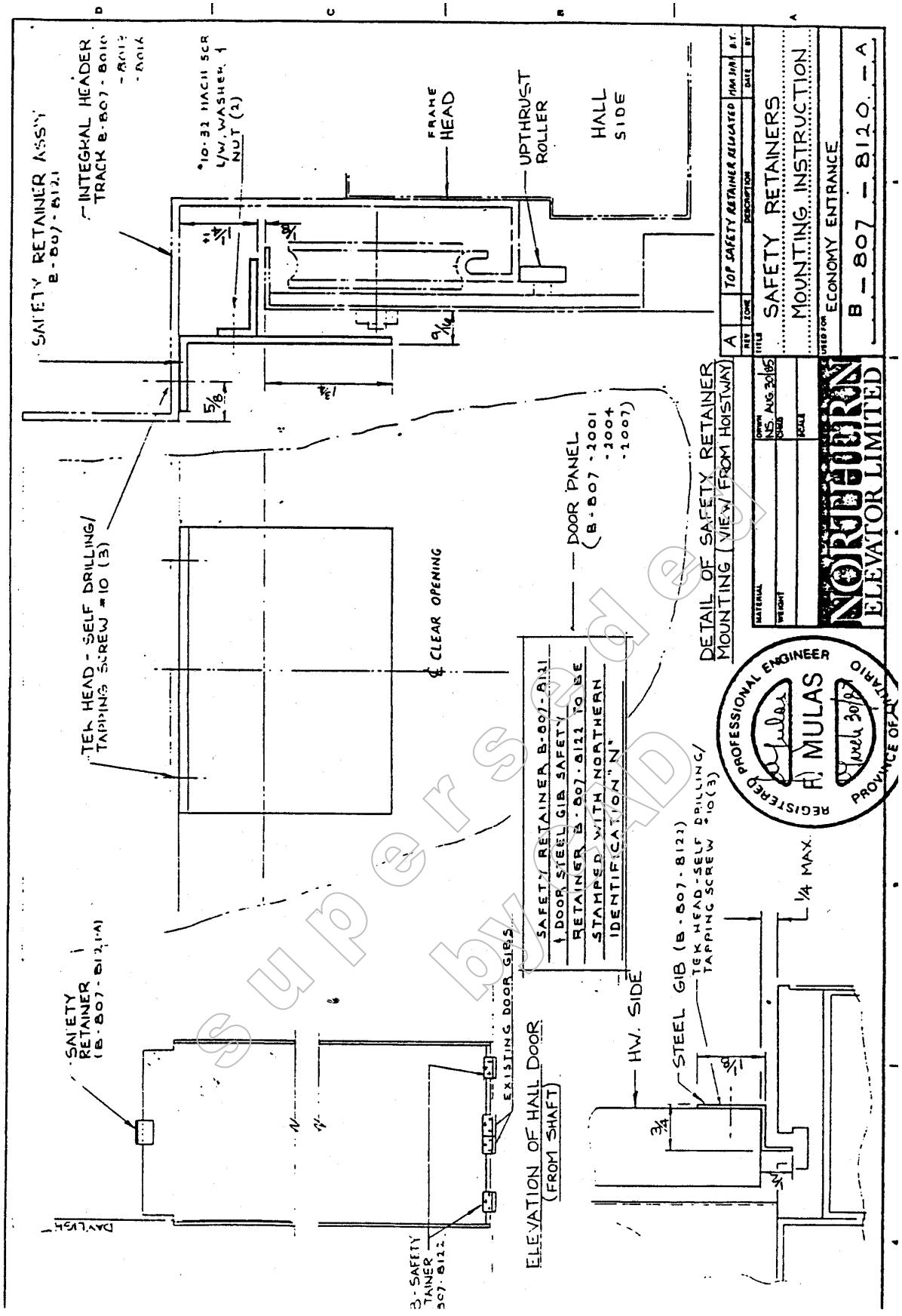
THE TOP OF DOOR SAFETY RETAINER PART #B-807-8121 WHICH IS A TWO-PIECE ANGLE ASSEMBLY IS TO BE MOUNTED TO THE UNDERSIDE OF THE INTEGRAL HEADER TRACK WITH (3) #10 TEK HEAD SELF DRILLING/TAPPING SCREWS AT THE MIDDLE OF DOOR. (ASSEMBLY DRAWING #B-807-8120)

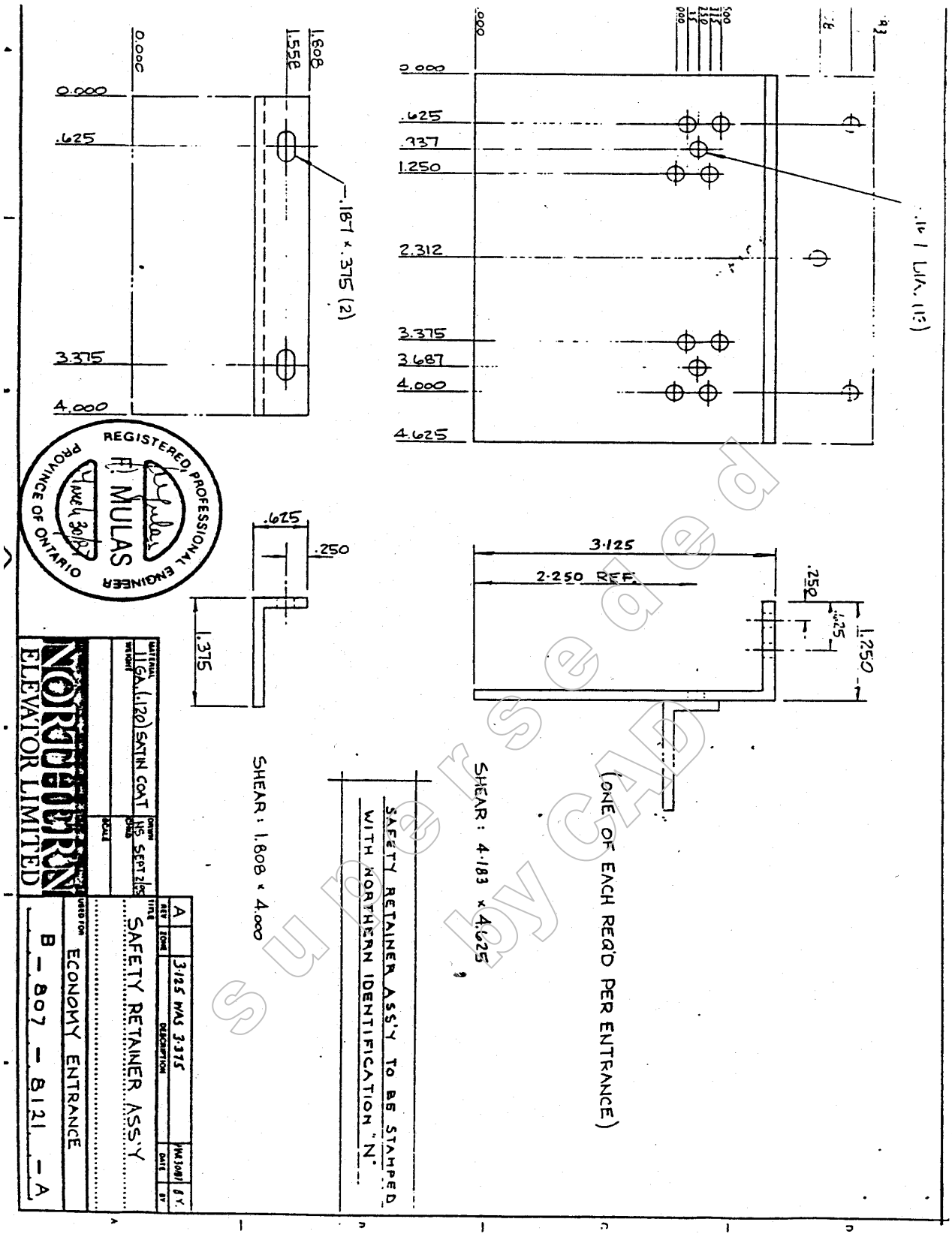
DEPENDENT ON EXISTING DOOR GIB LOCATION EITHER (1) OR (2) SAFETY GIB RETAINERS PART #B-807-8122 ARE REQUIRED. SAFETY GIB RETAINER IS MOUNTED TO SHAFT SIDE OF DOOR WITH (3) #10 TEK HEAD SELF DRILLING/TAPPING SCREWS. (ASSEMBLY DRAWING #B-807-8120)

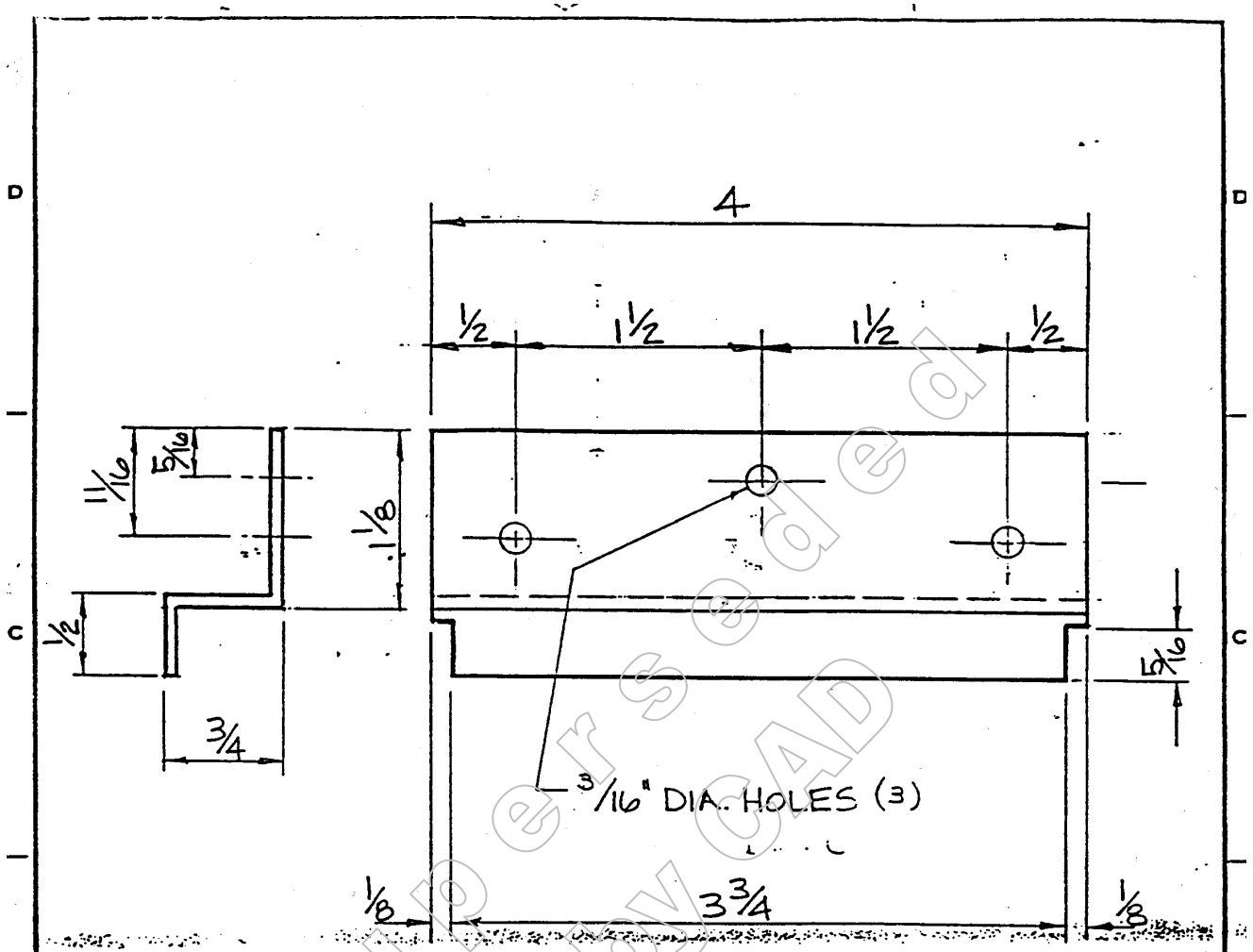
* IF ONLY (1) EXISTING DOOR GIB IS LOCATED AT CENTRE OF DOOR THEN INSTALL (2) SAFETY GIB RETAINERS (1) AT LEADING EDGE AND (1) AT TRAILING EDGE.

* IF (2) EXISTING DOOR GIBS ARE LOCATED (1) AT LEADING EDGE AND (1) AT TRAILING EDGE THEN INSTALL (1) SAFETY GIB RETAINER AT CENTRE OF DOOR.

REGISTERED PROFESSIONAL ENGINEER
F. MULAS
March 30/88
PROVINCE OF ONTARIO







GIB - SAFETY RETAINER
TO BE STAMPED WITH
NORTHERN IDENTIFICATION "N"

REGISTERED PROFESSIONAL ENGINEER
F. MULAS
March 30/87
PROVINCE OF ONTARIO

REV	ZONE	DESCRIPTION	DATE	BY

MATERIAL: 14 GA (.075) SATIN COAT	DRWN: NS. AUG. 30/85
WEIGHT:	CHKD:
	SCALE:

TITLE: GIB - SAFETY RETAINER

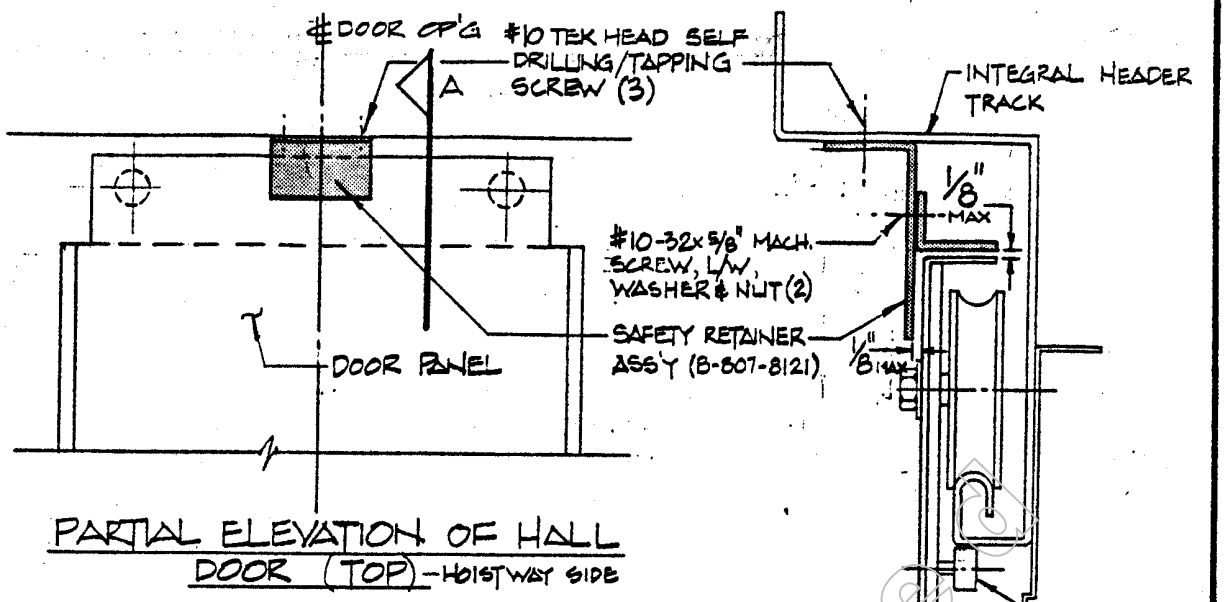
USED FOR:

NORTHERN

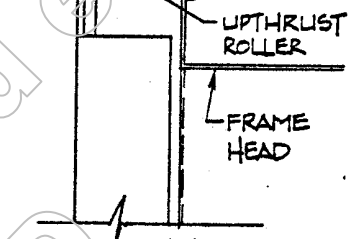
NORTHERN ELEVATOR LIMITED

TORONTO

subject: RETROFIT ENTRANCE DOOR SAFETY RETAINERS PER E.D.B. RULE 61/88 — DAHLSTROM TYPE ECONOMY ENTRANCE



PARTIAL ELEVATION OF HALL DOOR (TOP) - HOISTWAY SIDE



DETAIL-'A'

INSTALLATION OF NORTHERN SAFETY RETAINERS

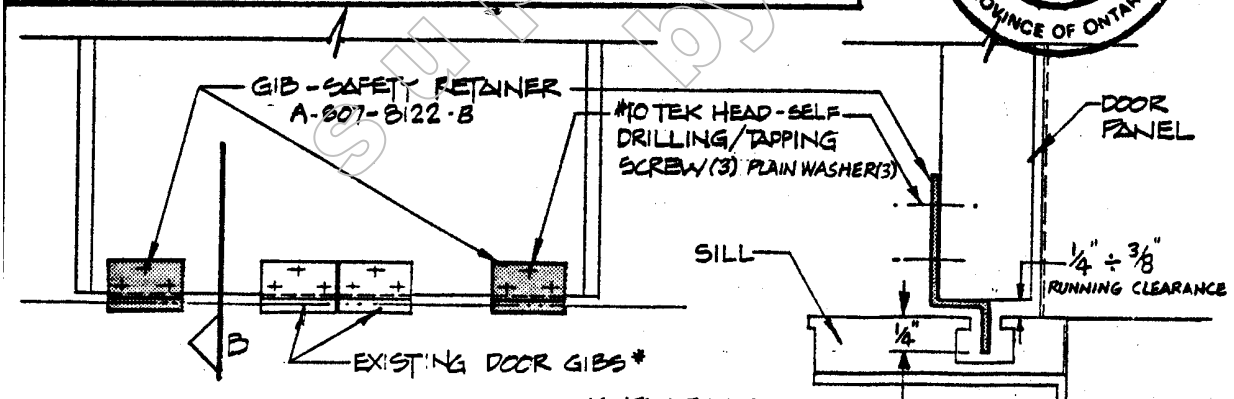
PART #B-807-8121A AND #B-807-8122B

THE TOP OF DOOR SAFETY RETAINER PART #B-807-8121 WHICH IS A TWO-PIECE ANGLE ASSEMBLY IS TO BE MOUNTED TO THE UNDERSIDE OF THE INTEGRAL HEADER TRACK WITH (3) #10 TEK HEAD SELF DRILLING/TAPPING SCREWS AT THE MIDDLE OF DOOR.

DEPENDENT ON EXISTING DOOR GIB LOCATION EITHER (1) OR (2) SAFETY GIB RETAINERS PART #B-807-8122 ARE REQUIRED. SAFETY GIB RETAINER IS MOUNTED TO SHAFT SIDE OF DOOR WITH (3) #10 TEK HEAD SELF DRILLING/TAPPING SCREWS AND PLAIN WASHERS

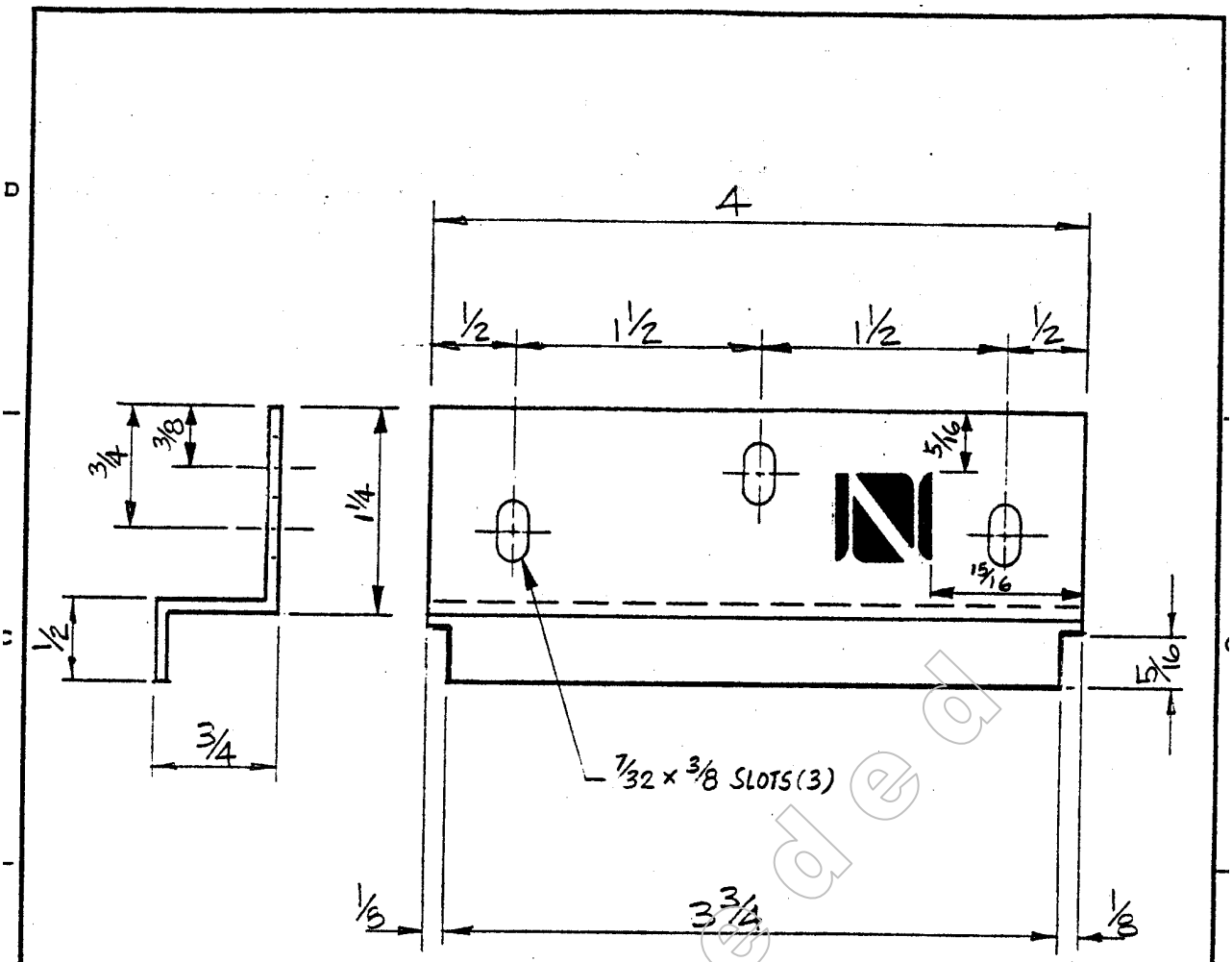
- IF ONLY (1) EXISTING DOOR GIB IS LOCATED AT CENTRE OF DOOR THEN INSTALL (2) SAFETY GIB RETAINERS (1) AT LEADING EDGE AND (1) AT TRAILING EDGE.
- IF (2) EXISTING DOOR GIBS ARE LOCATED (1) AT LEADING EDGE AND (1) AT TRAILING EDGE THEN INSTALL (1) SAFETY GIB RETAINER AT CENTRE OF DOOR.

REGISTERED PROFESSIONAL ENGINEER
F. MULAS
08 | 10 | 90
PROVINCE OF ONTARIO



PARTIAL ELEVATION OF HALL DOOR (BOTTOM) - HOISTWAY SIDE

DETAIL - 'B'



GIB - SAFETY RETAINER
TO BE STAMPED WITH
NORTHERN IDENTIFICATION "N"

REGISTERED PROFESSIONAL ENGINEER
F. MULAS
01 | 13 | 90
PROVINCE OF ONTARIO

REV	ZONE	DESCRIPTION	DATE	BY
B		MATERIAL WAS #14 GA. SATIN COAT. 1 1/4 BENDING WAS 1 1/8, 7/32 x 3/8 SLOTS WERE 7/32 DIA	JULY 12 1990	E.Y.
A		HOLE DIA. INCREASED TO 7/32"	JUNE 8/88	NS

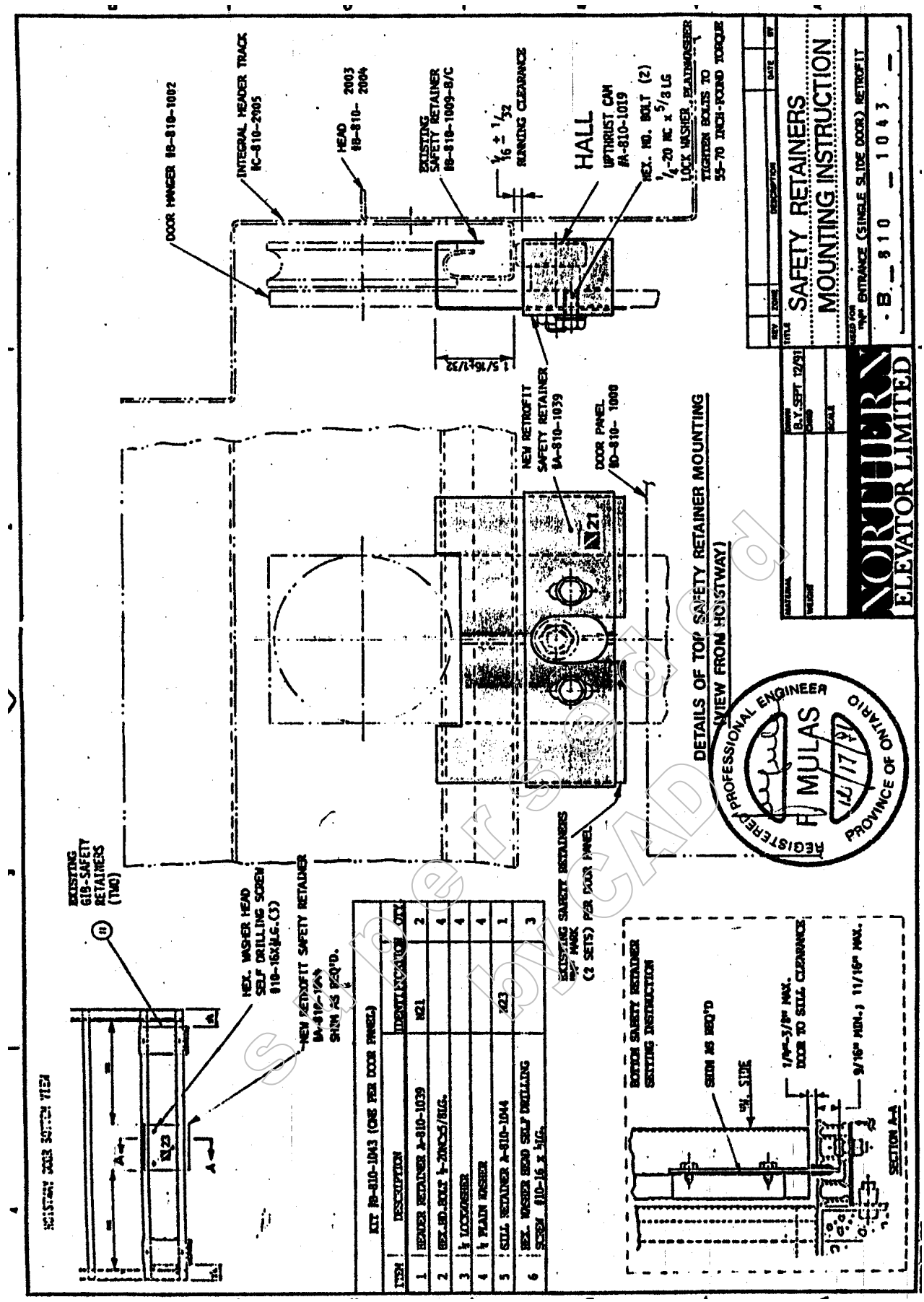
MATERIAL 14 GA. (.075) C R S ASTM A366	DRWN NS. AUG. 30/85
FINISH YELLOW ENAMEL	CHKD
SHEAR 2 1/4 x 4	SCALE 1:1

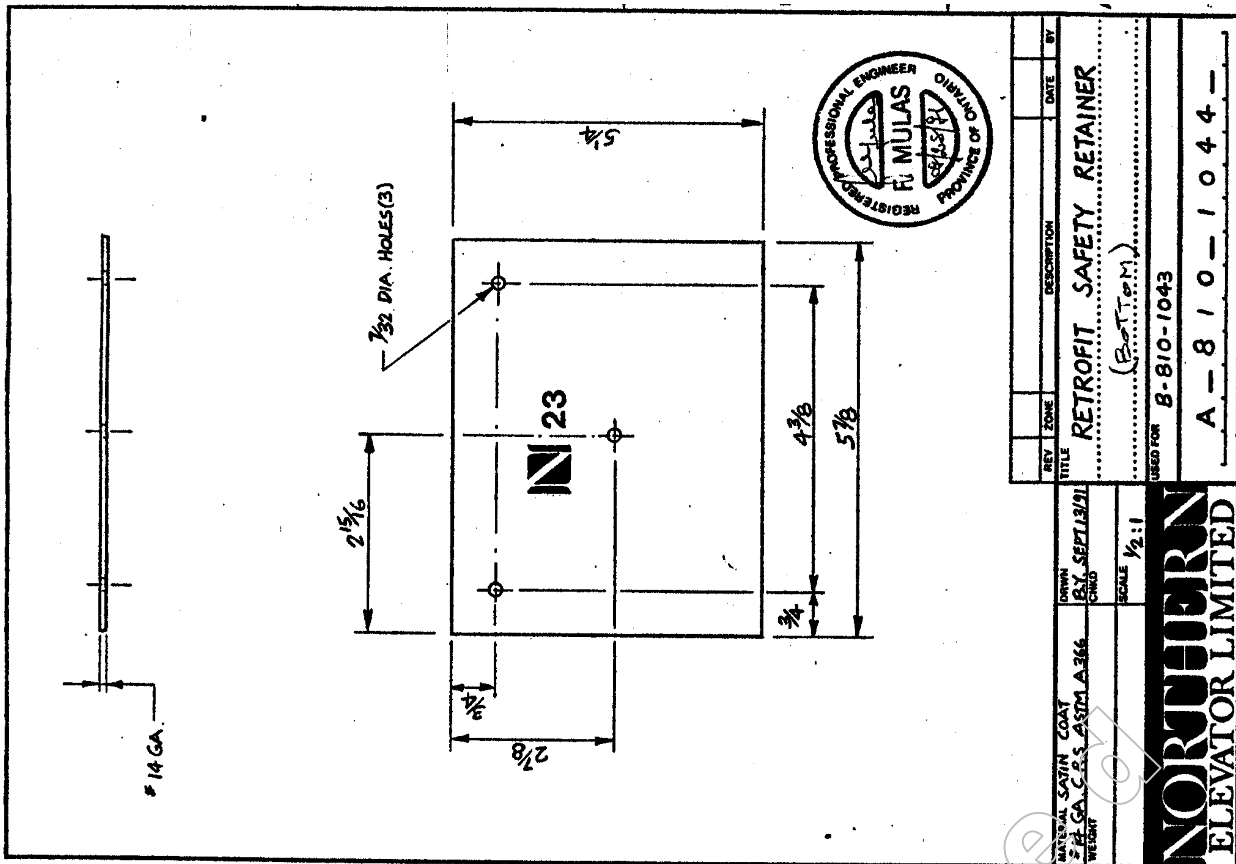
TITLE: GIB - SAFETY RETAINER

USED FOR

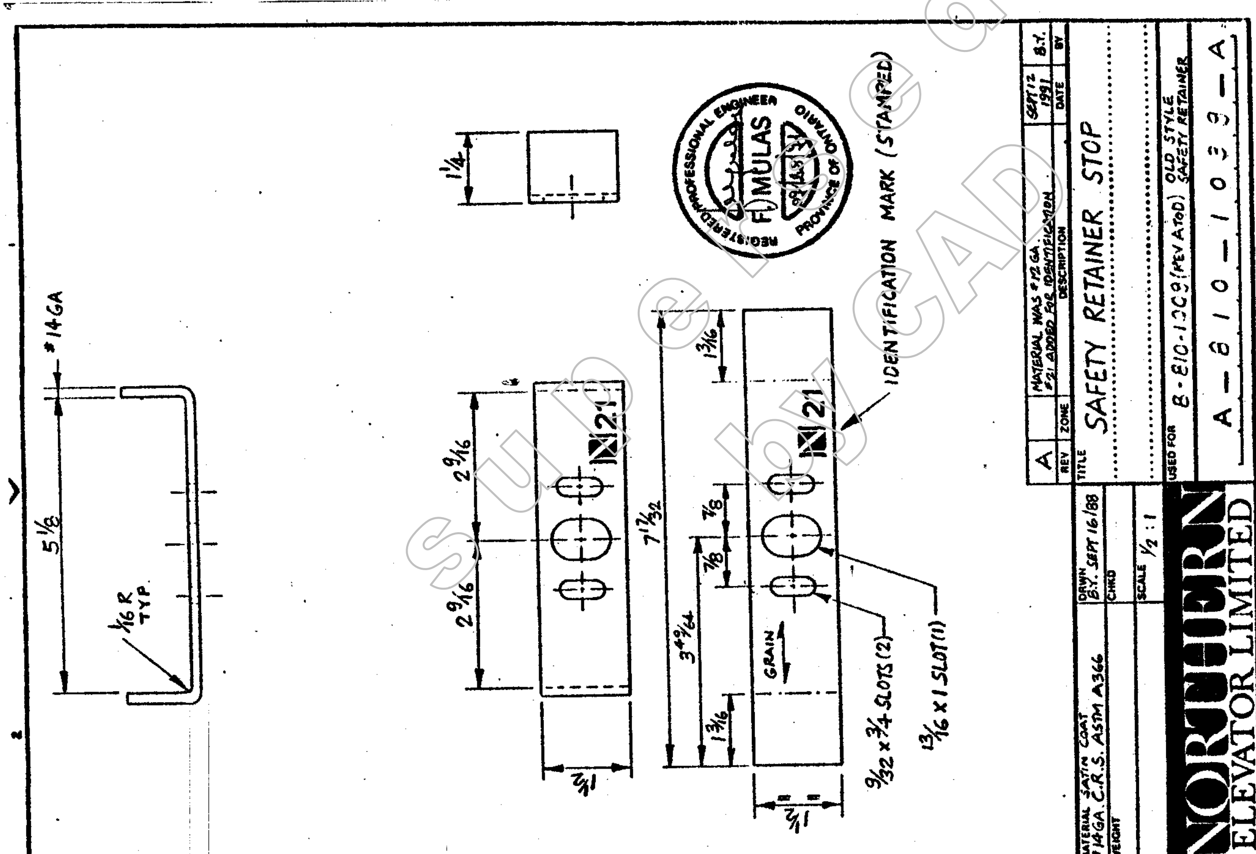
NORTHERN ELEVATOR LIMITED

A — 807 — 8122 — B

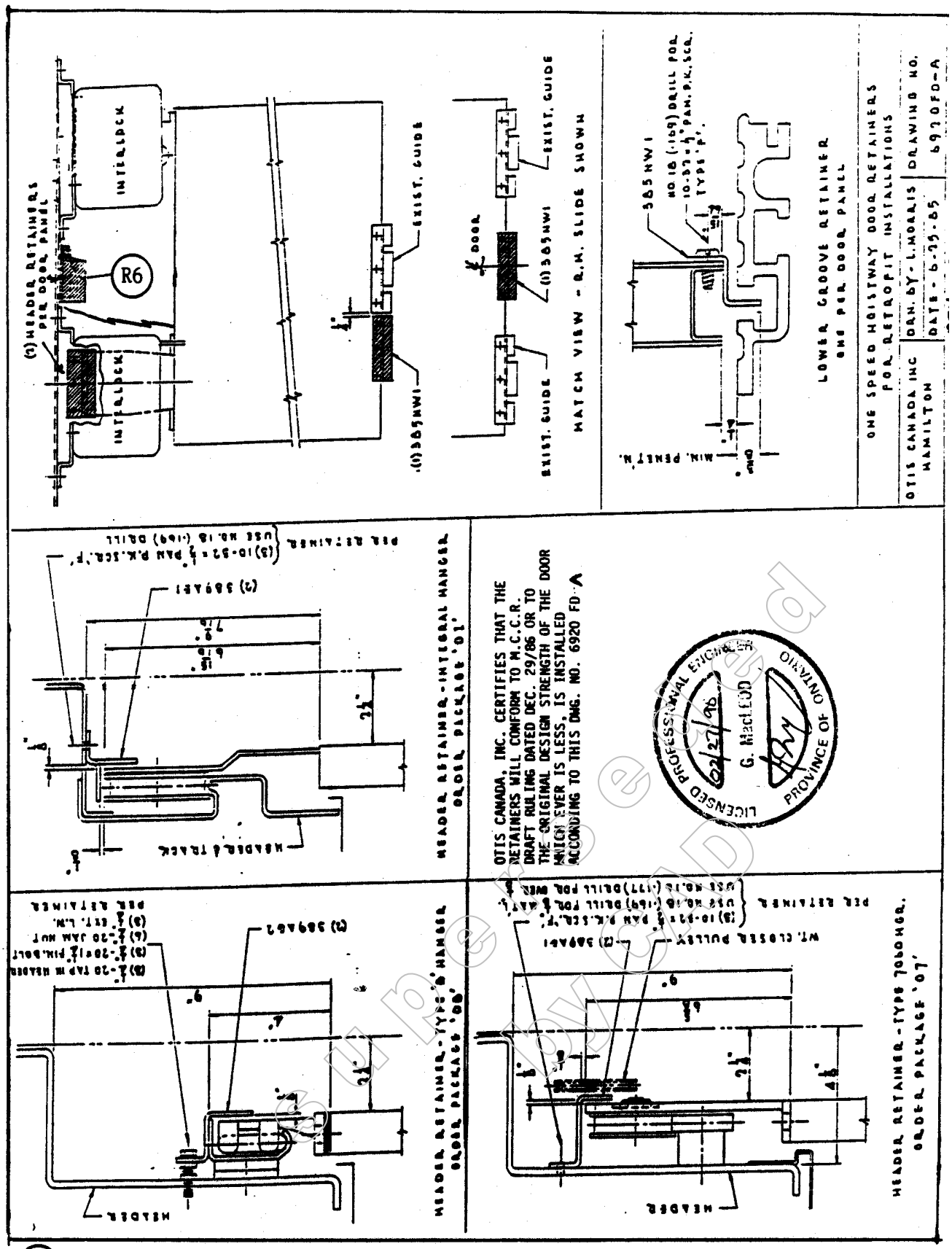




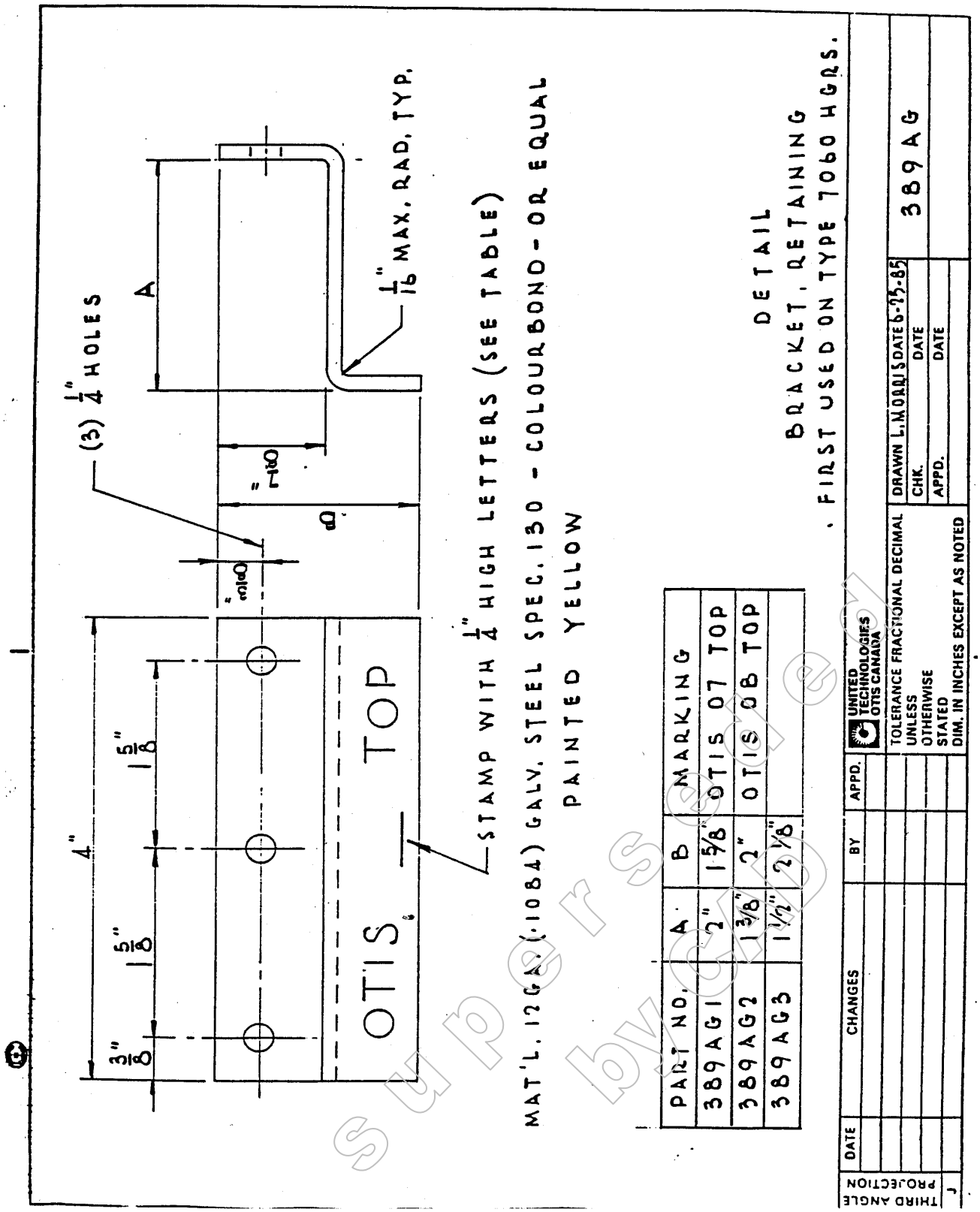
7/32 DIA. HOLES(3)
5 1/4
2 15/16
4 3/8
5 7/8
3/4
2 7/8
#14 GA.
23
MATERIAL SATIN COAT #14 GA. C.R.S. ASTM A366
DRAWN B.Y. SEPT 13/91
SCALE 1/2:1
TITLE RETROFIT SAFETY RETAINER (BOTTOM)
USED FOR B-810-1043
A—810—1044—
NORTHERN ELEVATOR LIMITED

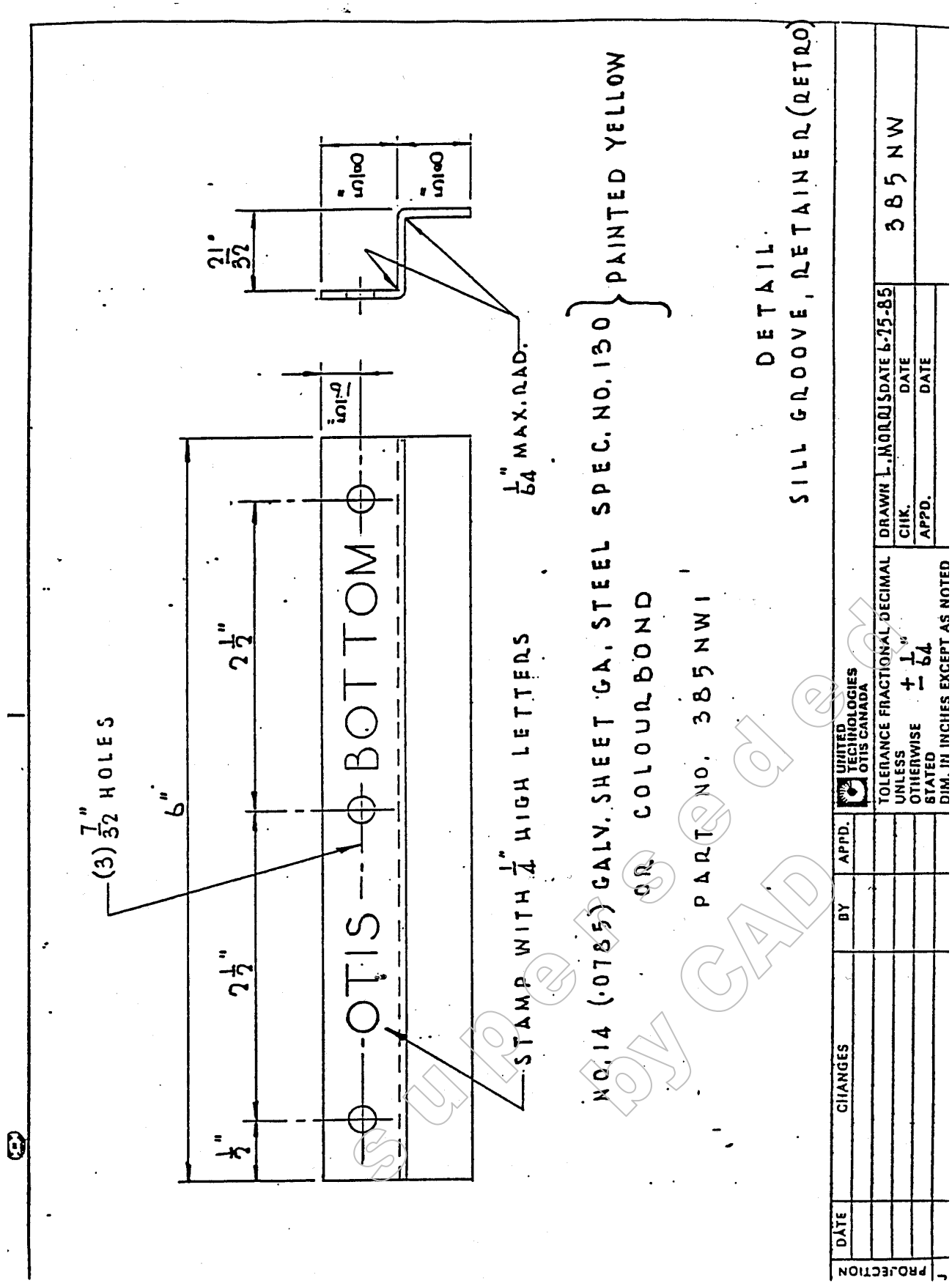


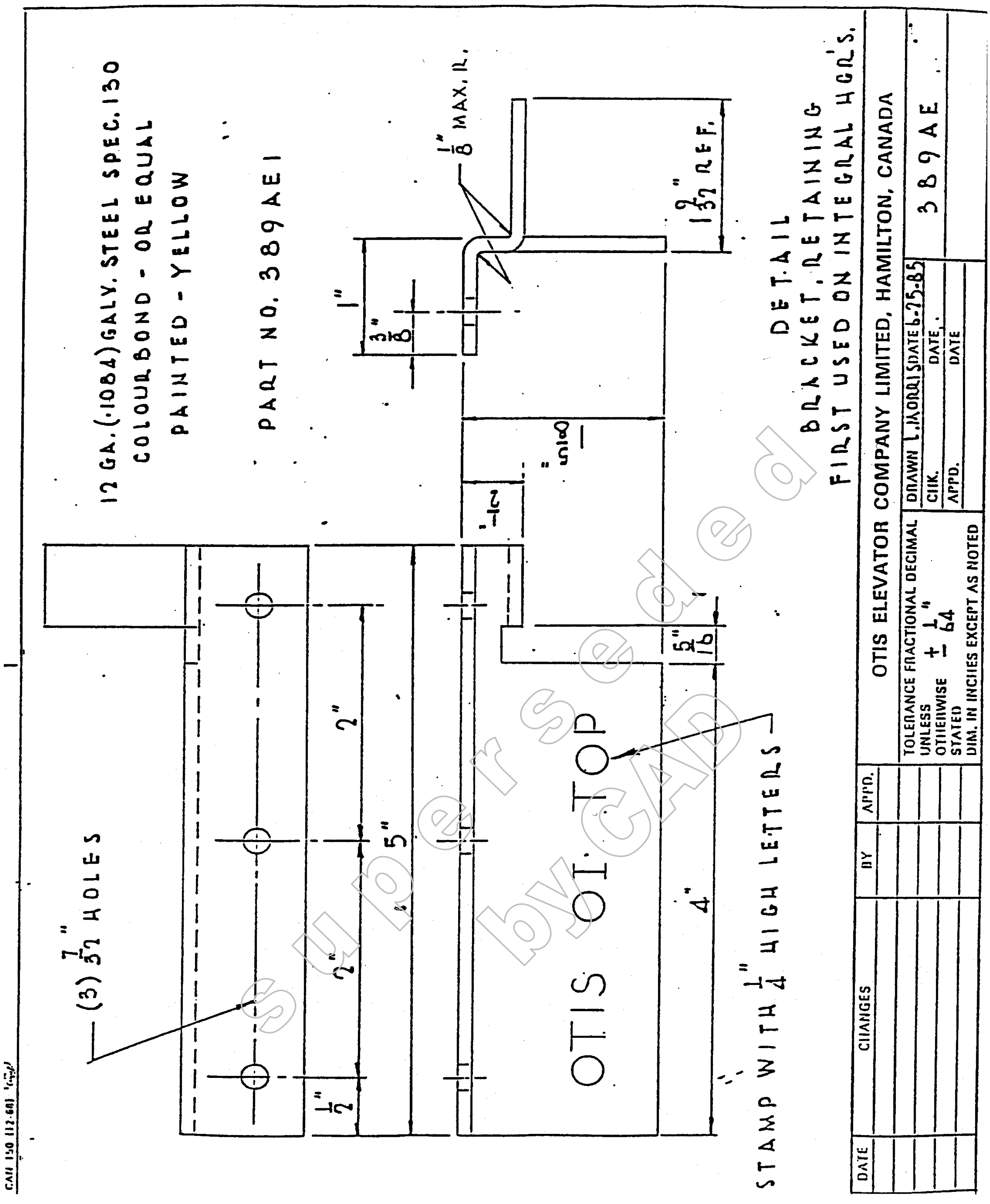
#14 GA
5 1/8
1/16 R TYP.
2 9/16
2 9/16
1 1/2
7 11/32
3 49/64
1 3/16
7/8
7/8
1 3/16
1 1/2
GRAIN
IDENTIFICATION MARK (STAMPED)
9/32 x 3/4 SLOTS (2)
13/16 x 1 SLOT (1)
21
MATERIAL SATIN COAT #14 GA. C.R.S. ASTM A366
DRAWN B.Y. SEPT 16/88
SCALE 1/2:1
TITLE SAFETY RETAINER STOP
OLD STYLE SAFETY RETAINER
A—810—1039—A
NORTHERN ELEVATOR LIMITED
superseded by CAD



R6 BRACKET WAS RELOCATED

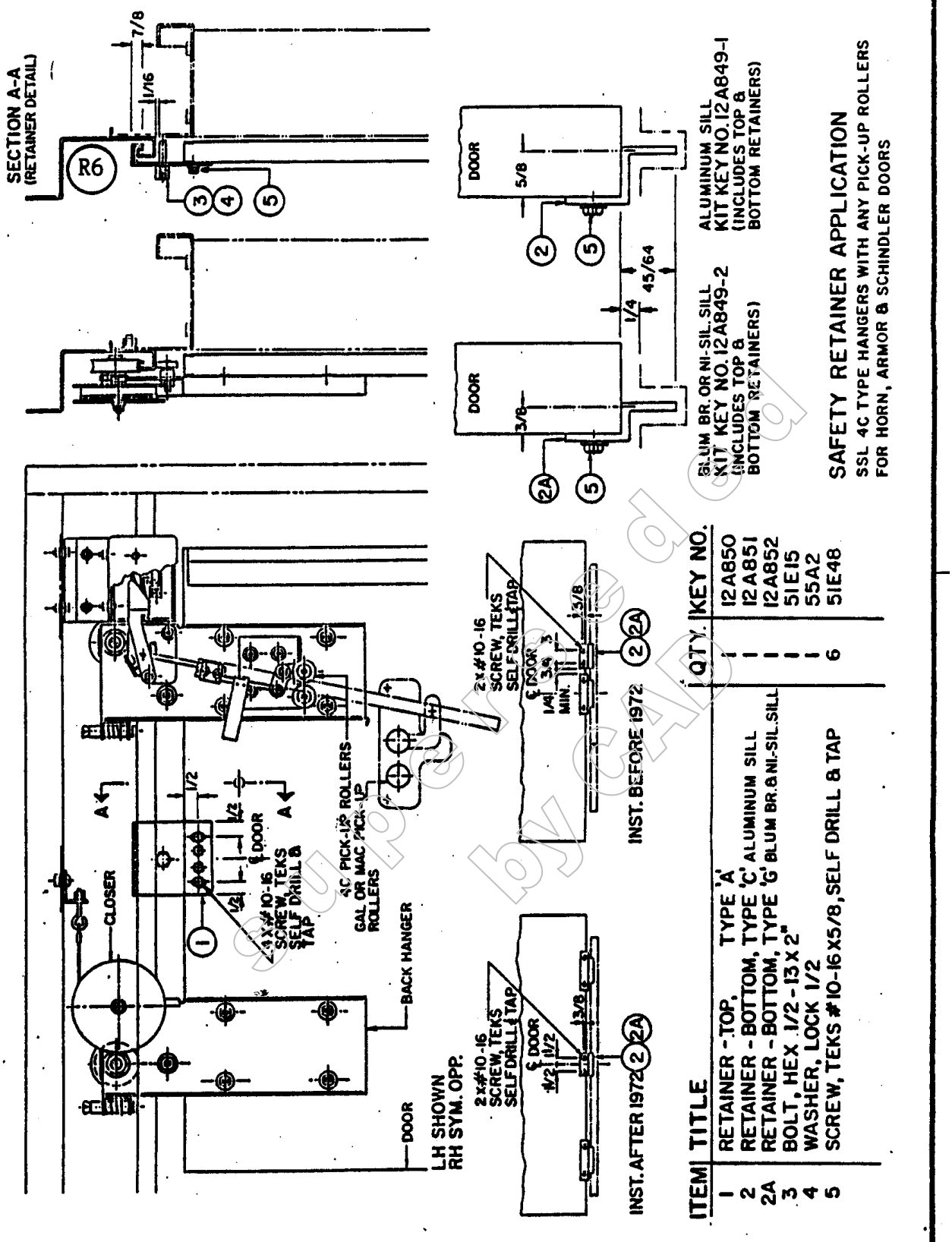



(3) 7/32" HOLES
6"
2½"
2½"
½"
-OTIS- BOTTOM
STAMP WITH ¼" HIGH LETTERS
NO. 14 (.0785) GALV. SHEET GA. STEEL SPEC. NO. 130
OR COLOURBOND
PART NO. 385 NW1
1/64" MAX. RAD.
PAINTED YELLOW
21/32"
.118"
.118"
.078"
DETAIL
SILL GROOVE, RETAINER (RETRO)
DRAWN L. MORRIS DATE 6-25-85
CHK. DATE
APPD. DATE
385 NW
UNITED TECHNOLOGIES OTIS CANADA
TOLERANCE FRACTIONAL DECIMAL
UNLESS OTHERWISE STATED ± 1/64
DIM. IN INCHES EXCEPT AS NOTED
CHANGES
BY
APPD.
DATE
PROJECTION
Superseded by CAD



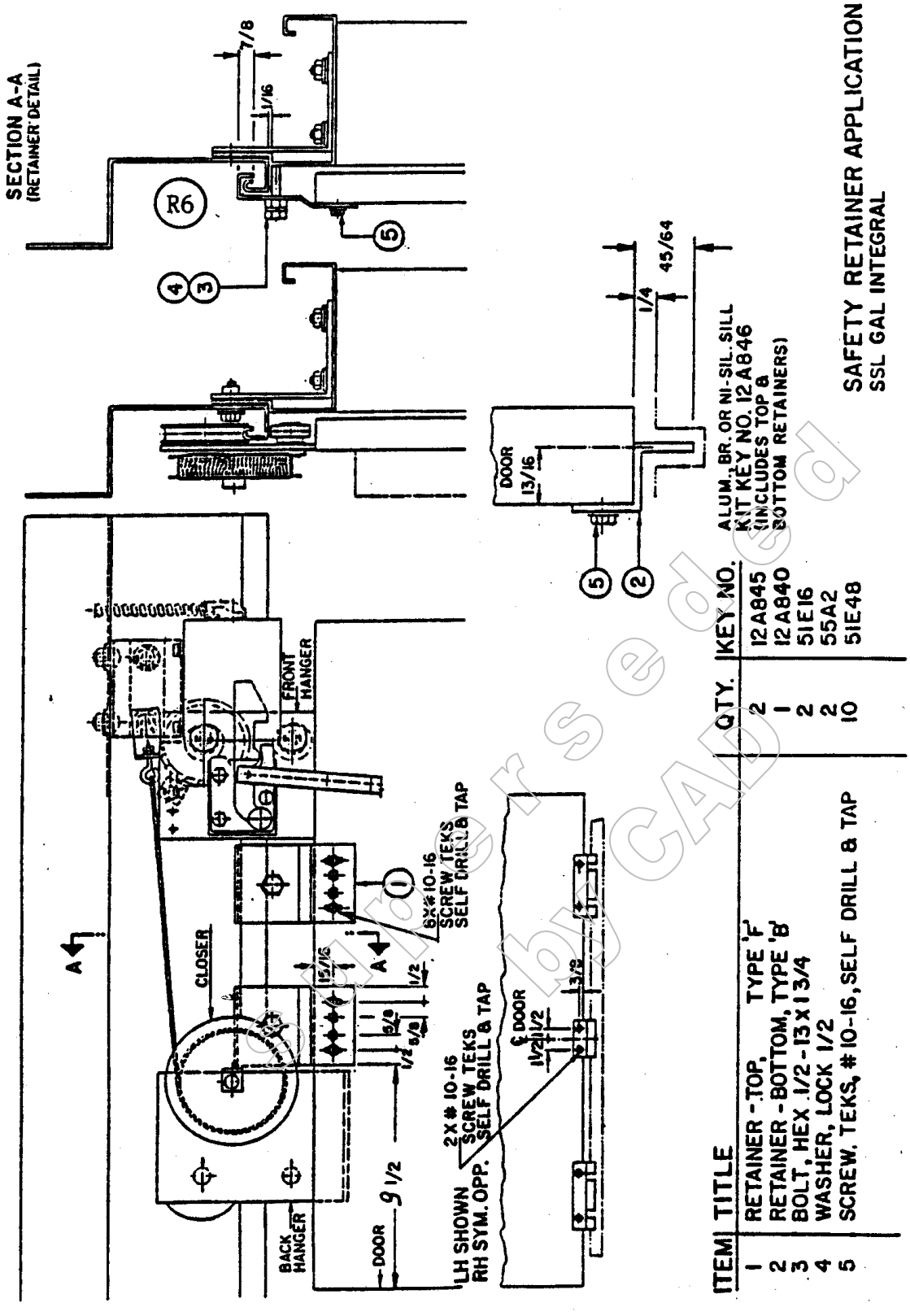
12 GA. (.1084) GALV. STEEL SPEC. 130
COLOURBOND - OR EQUAL
PAINTED - YELLOW
PART NO. 389AE1
DETAIL
BRACKET, RETAINING
FIRST USED ON INTEGRAL HGR'S.
(3) 7/32" HOLES
STAMP WITH 1/4" HIGH LETTERS
OTIS OT TOP
1/8" MAX. R.
1 9/32" REF.
OTIS ELEVATOR COMPANY LIMITED, HAMILTON, CANADA
389AE
TOLERANCE FRACTIONAL DECIMAL
UNLESS OTHERWISE STATED ± 1/64"
DIM. IN INCHES EXCEPT AS NOTED
DRAWN
DATE 6-25-85
CHK.
APPD.
DATE
CHANGES
BY
APPD.
superseded by CAD

A-517 9173 01 05	INSTRUCTIONS-SAFETY RETAINERS FOR 4C TYPE SINGLE SLIDE ENTRANCE	1
DRAWING NO.	SUBJECT	PAGE

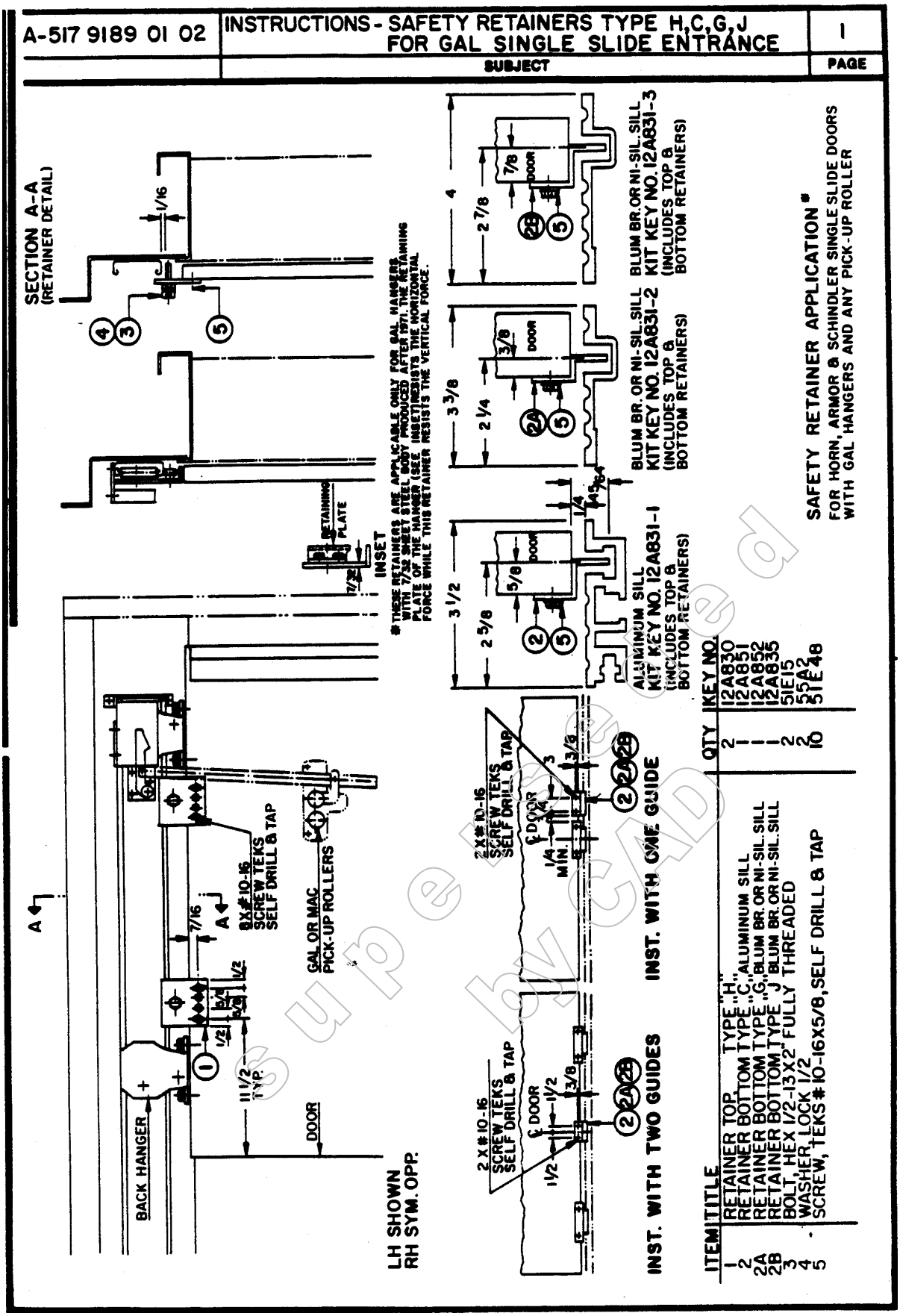


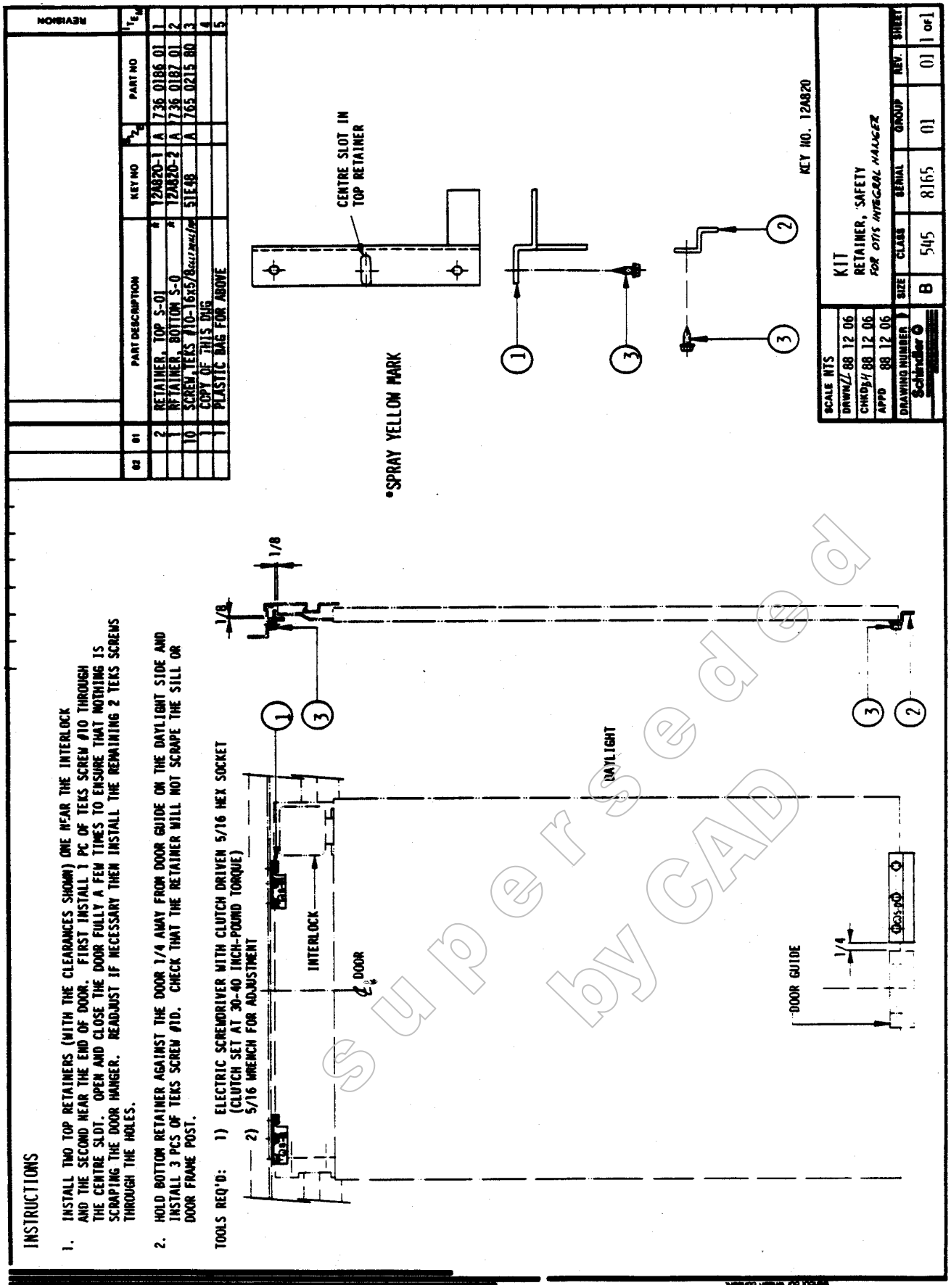
ITEM	TITLE	QTY.	KEY NO.
1	RETAINER - TOP, TYPE 'A'	1	12A850
2	RETAINER - BOTTOM, TYPE 'C' ALUMINUM SILL	1	12A851
2A	RETAINER - BOTTOM, TYPE 'G' BLUM BR. & NI-SIL SILL	1	12A852
3	BOLT, HEX 1/2-13 X 2"	1	51E15
4	WASHER, LOCK 1/2	1	55A2
5	SCREW, TEKS #10-16 X 5/8, SELF DRILL & TAP	6	51E48

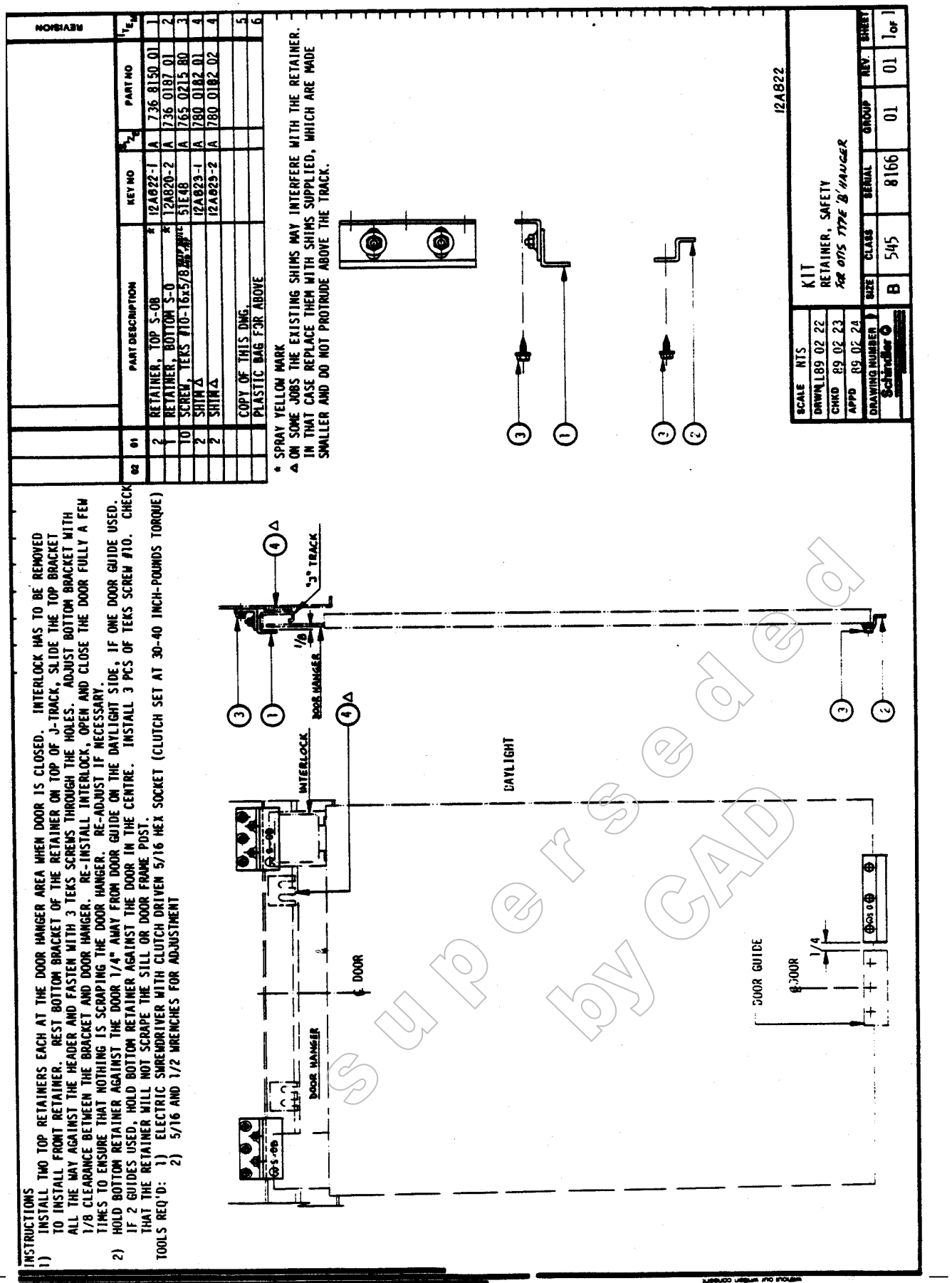
A-517 9175 01 04	INSTRUCTIONS-SAFETY RETAINERS FOR GAL INTEGR. SINGLE SLIDE ENTRANCE	1
DRAWING NO.	SUBJECT	PAGE

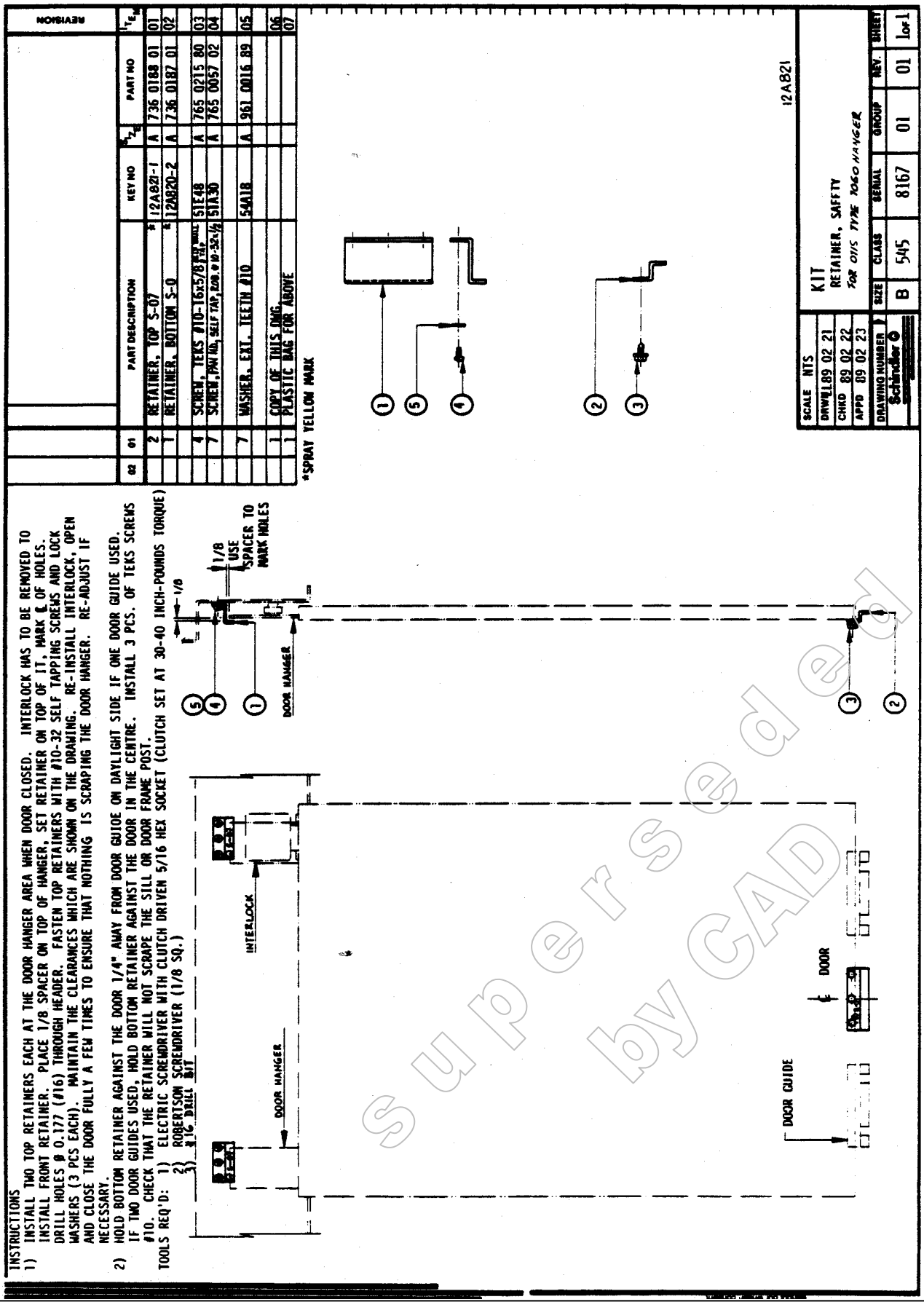


ITEM	TITLE	QTY.	KEY NO.
1	RETAINER - TOP, TYPE 'F'	2	12A845
2	RETAINER - BOTTOM, TYPE 'B'	1	12A840
3	BOLT, HEX 1/2 - 13 x 1 3/4	2	51E16
4	WASHER, LOCK 1/2	2	55A2
5	SCREW, TEKS, # 10-16, SELF DRILL & TAP	10	51E48








INSTRUCTIONS
1) INSTALL TWO TOP RETAINERS EACH AT THE DOOR HANGER AREA WHEN DOOR CLOSED. INTERLOCK HAS TO BE REMOVED TO INSTALL FRONT RETAINER. PLACE 1/8 SPACER ON TOP OF HANGER, SET RETAINER ON TOP OF IT, MARK Ø OF HOLES. DRILL HOLES Ø 0.177 (#16) THROUGH HEADER. FASTEN TOP RETAINERS WITH #10-32 SELF TAPPING SCREWS AND LOCK WASHERS (3 PCS EACH). MAINTAIN THE CLEARANCES WHICH ARE SHOWN ON THE DRAWING. RE-INSTALL INTERLOCK, OPEN AND CLOSE THE DOOR FULLY A FEW TIMES TO ENSURE THAT NOTHING IS SCRAPING THE DOOR HANGER. RE-ADJUST IF NECESSARY.
2) HOLD BOTTOM RETAINER AGAINST THE DOOR 1/4" AWAY FROM DOOR GUIDE ON DAYLIGHT SIDE IF ONE DOOR GUIDE USED. IF TWO DOOR GUIDES USED, HOLD BOTTOM RETAINER AGAINST THE DOOR IN THE CENTRE. INSTALL 3 PCS. OF TEKS SCREWS #10. CHECK THAT THE RETAINER WILL NOT SCRAPE THE SILL OR DOOR FRAME POST.
TOOLS REQ'D: 1) ELECTRIC SCREWDRIVER WITH CLUTCH DRIVEN 5/16 HEX SOCKET (CLUTCH SET AT 30-40 INCH-POUNDS TORQUE)
2) ROBERTSON SCREWDRIVER (1/8 SQ.)
3) #16 DRILL BIT
DOOR HANGER
INTERLOCK
DOOR
DOOR GUIDE
1/8
1/8 USE SPACER TO MARK HOLES
DOOR HANGER
REVISION
02
01
PART DESCRIPTION
KEY NO
PART NO
2 RETAINER, TOP S-07 12A821-1 736 0188 01
1 RETAINER, BOTTOM S-0 12A820-2 736 0187 01
4 SCREW, TEKS #10-16x5/8 PH, 765 0215 80
7 SCREW, PAN HD, SELF TAP, #10-32x½ 765 0057 02
7 WASHER, EXT. TEETH #10 961 0016 89
1 COPY OF THIS DWG.
1 PLASTIC BAG FOR ABOVE
*SPRAY YELLOW MARK
12A821
SCALE NTS
DRWN 89 02 21
CHKD 89 02 22
APPD 89 02 23
KIT
RETAINER, SAFETY
FOR OTIS TYPE 1060 HANGER
SIZE B
CLASS 545
SERIAL 8167
GROUP 01
REV. 01
SHEET 1 of 1
DRAWING NUMBER
Schindler
SUPERSEDED BY CAD

REVISION	ITEM	PART DESCRIPTION	KEY NO	SIZE	PART NO
02	01	2 RETAINER,TOP "X" *		B	736 6155 01
		2 ANGLE,FORMED "X" *		A	009 0294 01
		1 RETAINER ,BOTTOM "C" *	12A851	A	736 0173 01
		2 BOLT,HEX 1/2-13x2 WILL TAKE #3	51E15	A	059 0011 85
		4 WASHER,LOCK1/2	55A2	A	961 0018 91
		28 SCREW,TEKS#10-6x3/4 SELF TAPPING	51E48	A	765 0215 80
		1 COPY OF THIS DRAWING			
		1 PLASTIC BAG FOR ABOVE			

* SPRAY YELLOW PAINT

INSTALLATION INSTRUCTIONS

1) INSTALL THE TWO TOP RETAINERS (EACH CONSISTS OF TWO PARTS) AS CLOSE AS POSSIBLE TO THE HANGERS WHEN THE DOOR IS CLOSED:
   a) INSTALL RETAINER-CHANNEL TO THE DOOR (ITEM 1);
   b) INSTALL ANGLE-FORMED TO THE HEADER (ITEM 2);
   FIRST FASTEN BOTH PIECES WITH #10 TEKS SCREWS THROUGH THE SLOTS. ADJUST TO THE CLEARANCES SHOWN IN THE VIEW. OPEN AND CLOSE THE DOOR FULLY A FEW TIMES TO ENSURE THAT THERE IS NO INTERFERENCE. DOWELL BOTH PIECES WITH #10 TEKS SCREWS THROUGH THE HOLES.
2) INSTALL THE BOTTOM RETAINER WITH 2 PIECES OF #10 TEKS SCREW. IF ONE DOOR GUIDE IS USED, THE BOTTOM RETAINER SHOULD BE INSTALLED 1/4" AWAY FROM THE DOOR GUIDE ON THE DAYLIGHT SIDE. IF TWO DOOR GUIDES ARE USED, THE BOTTOM RETAINER SHOULD BE INSTALLED IN THE CENTRE. CHECK THAT THE RETAINER WILL NOT SCRAPE THE SILL OR THE DOOR FRAME POST.

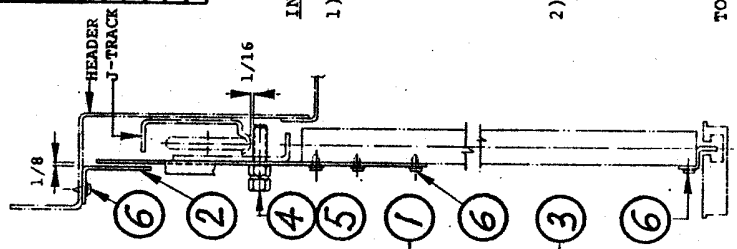
TOOLS REQ'D: aa) ELECTRIC SCREWDRIVER WITH CLUTCH DRIVEN 5/16 HEX SOCKET (CLUTCH SET AT 30-40 INCH-POUNDS TORQUE).
bb) 5/16 AND 3/4 WRENCHES FOR ADJUSTMENT.

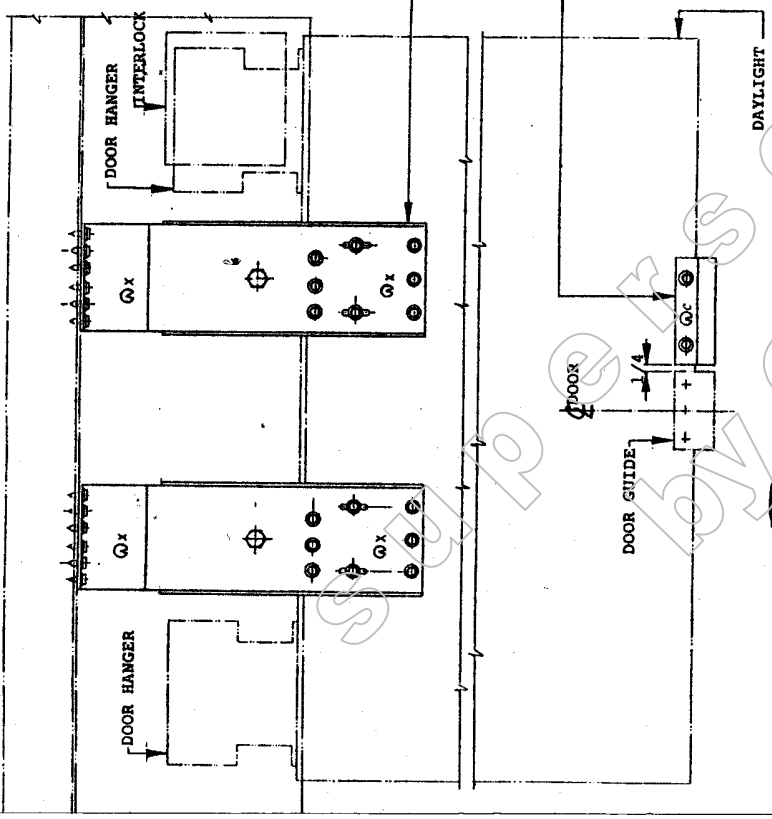
KEY NO. A434-025

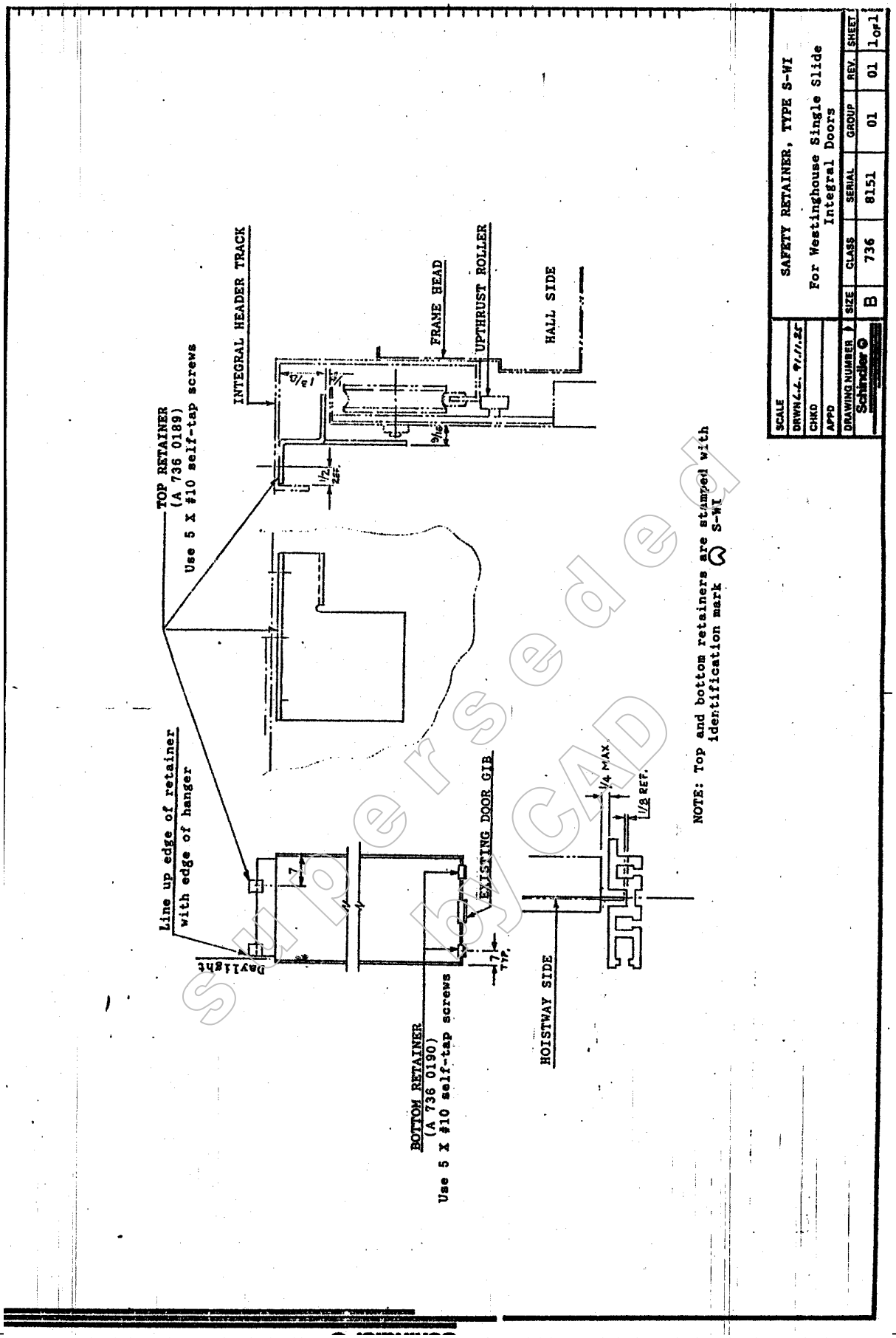
SCALE	NTS
DRWN	90 08 2
CHKD	90 08 2
APPD	90 08 2
DRAWING NUMBER	Schindler

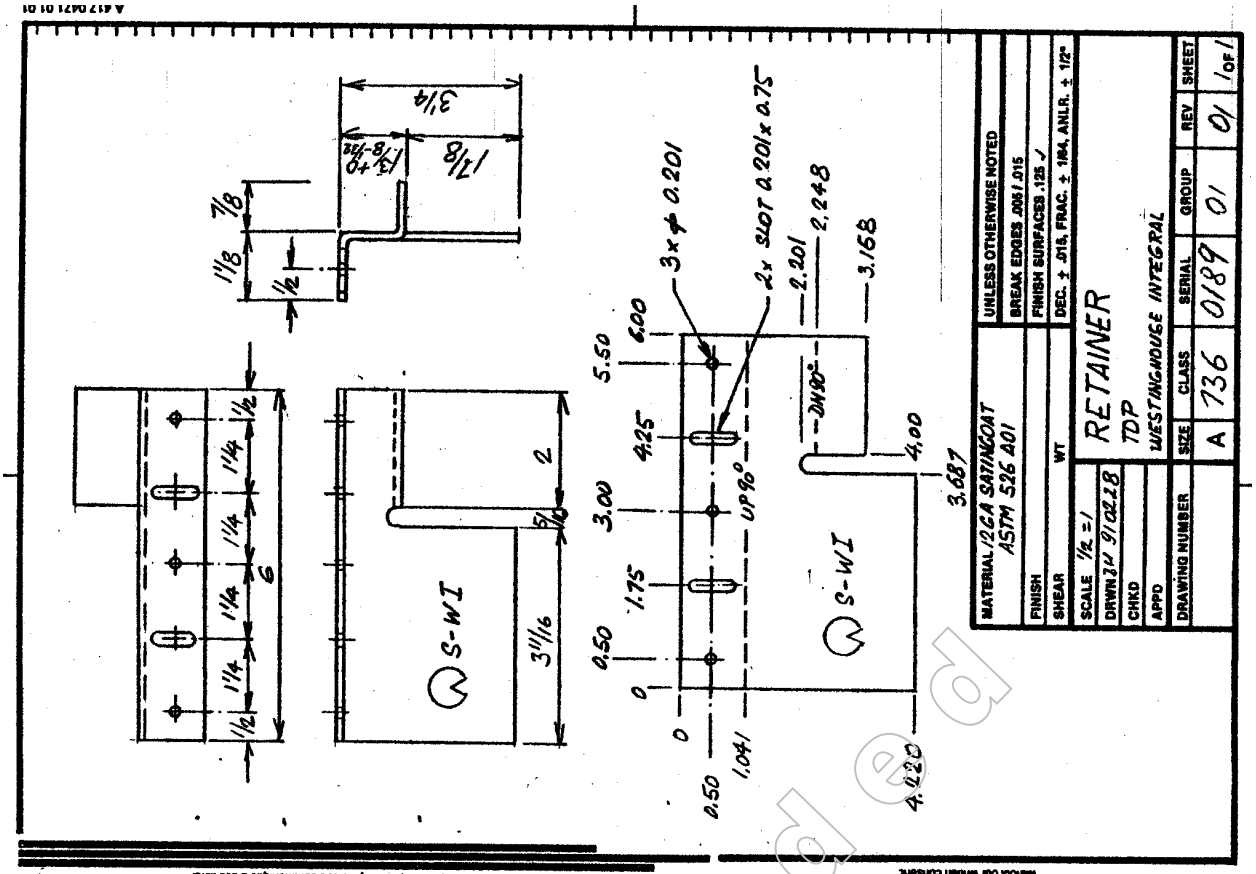
KIT
RETAINER, SAFETY
XE-100, J-TRACK (USA)

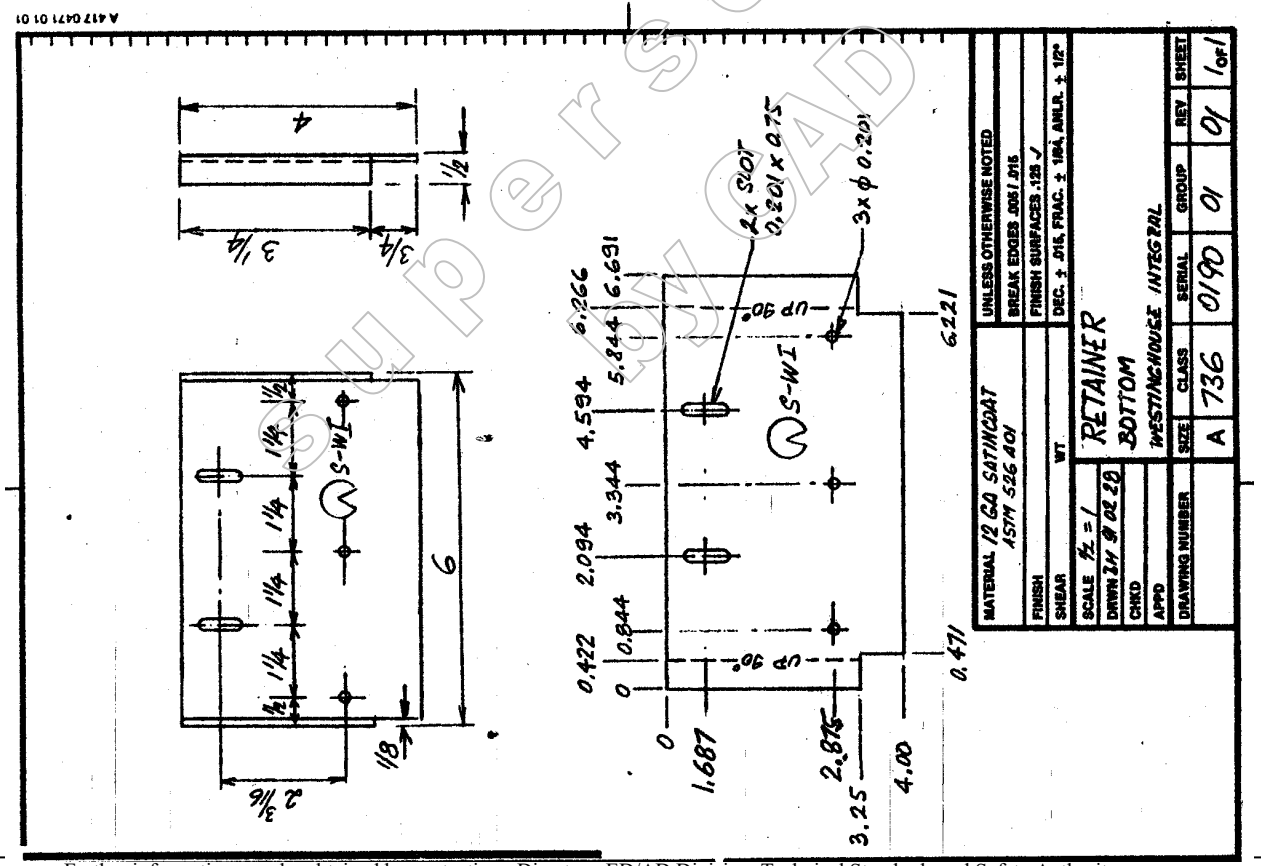
SIZE	CLASS	SERIAL	GROUP	REV.	SHEET
B	545	8168	01	01	1 OF 1











ITEM	PART NUMBER	DESCRIPTION	KIT # VER-03	VER-04	VER-05	VER-06
			Q'TY REQ'D			
1	VER-T	TOP RETAINER ASSEMBLY	2		2	
2	VER-T-M	TOP RETAINER ASSEMBLY		2		2
3	VER-B	BOTTOM RETAINER	1	1		
4	VER-B-M	BOTTOM RETAINER			1 or 2	1 or 2 *
5	VER-BOT	UPTHRUST BOLT	2	2	2	2
6	TEKS-2	SCREWS 10-24 x 3/4" TEKS 2 or EQUIV. HEX, WASHER HD, SELF TAP. SELF DRIL.	21	21	21 or 26	21 or 26

INSTALLATION

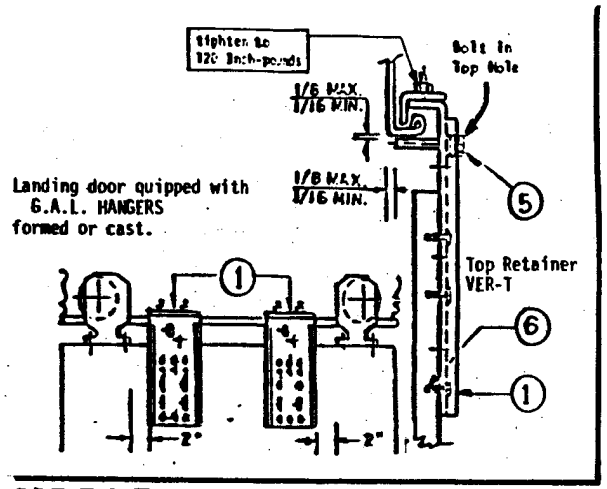
TOOLS REQUIRED:

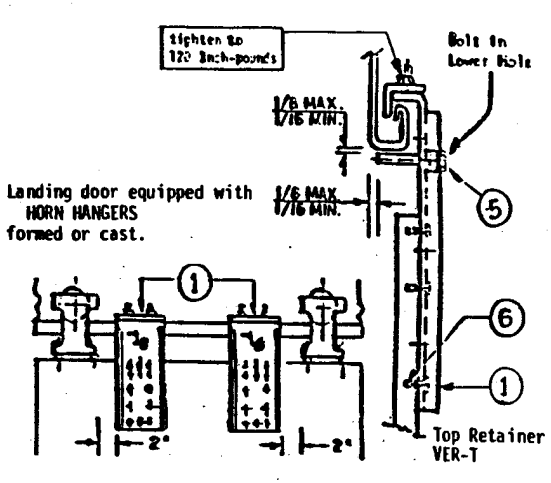
Electric screwdriver with clutch driven 5/16 hex. socket (clutch set at 30 - 40 inch-pounds torque).

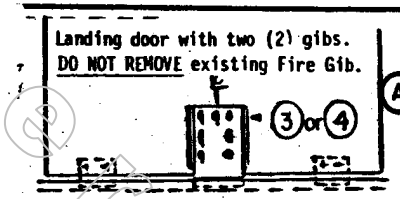
5/16, 1/2, 9/16 wrench for adjustment, torque wrench.

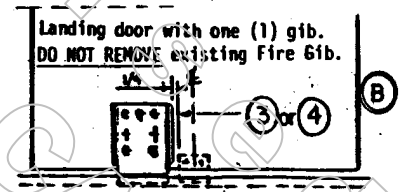
R. C. MITCHELL — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

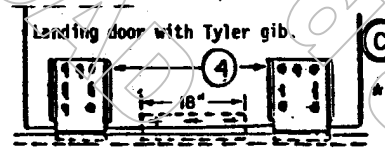
1. Determine type of door track and hangers.
2. With door closed, position top retainers (Item 1 or 2) according to dimension of drawing and mark holes.
3. Open door fully & jamb in "open" position. Install retainers using two screws in the slotted holes.
4. Install upthrust bolt (Item 5) in proper position adjust & secure with lock nut.
5. Close door and check that retainers are correctly positioned, and that it will not scrape the door track when door is opening or closing. Adjust if necessary Re-open door and install remaining screws. (6).
6. With door closed, position bottom retainer (Item 3 or 4)
   - in the centre of door if (2) two door gibs used (Diagram A)
   - ¼ away from gib if (1) one door gib used (Diagram B).
   - one near the leading edge, second near the end of door if Tyler gib (18" long) used (diagram C).
7. Install retainer using two screws in slotted holes, (only one pair of slots required)
8. Check that retainer will not scrape the sill when door is opening or closing. Install remaining screws in top three holes.

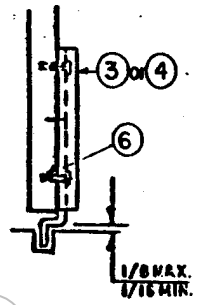


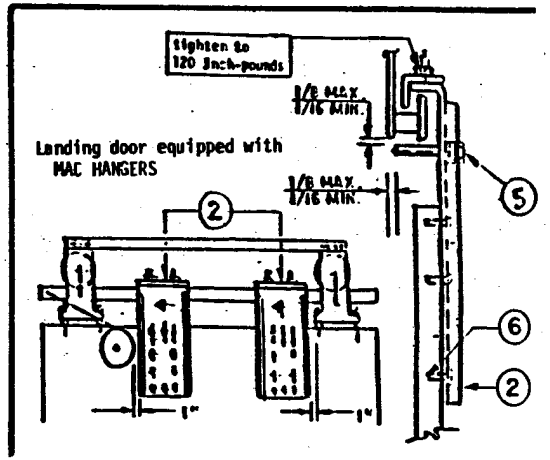












* If door equipped with Tyler Gib (18" long), use two (2) Bottom Retainers VER-B-M.

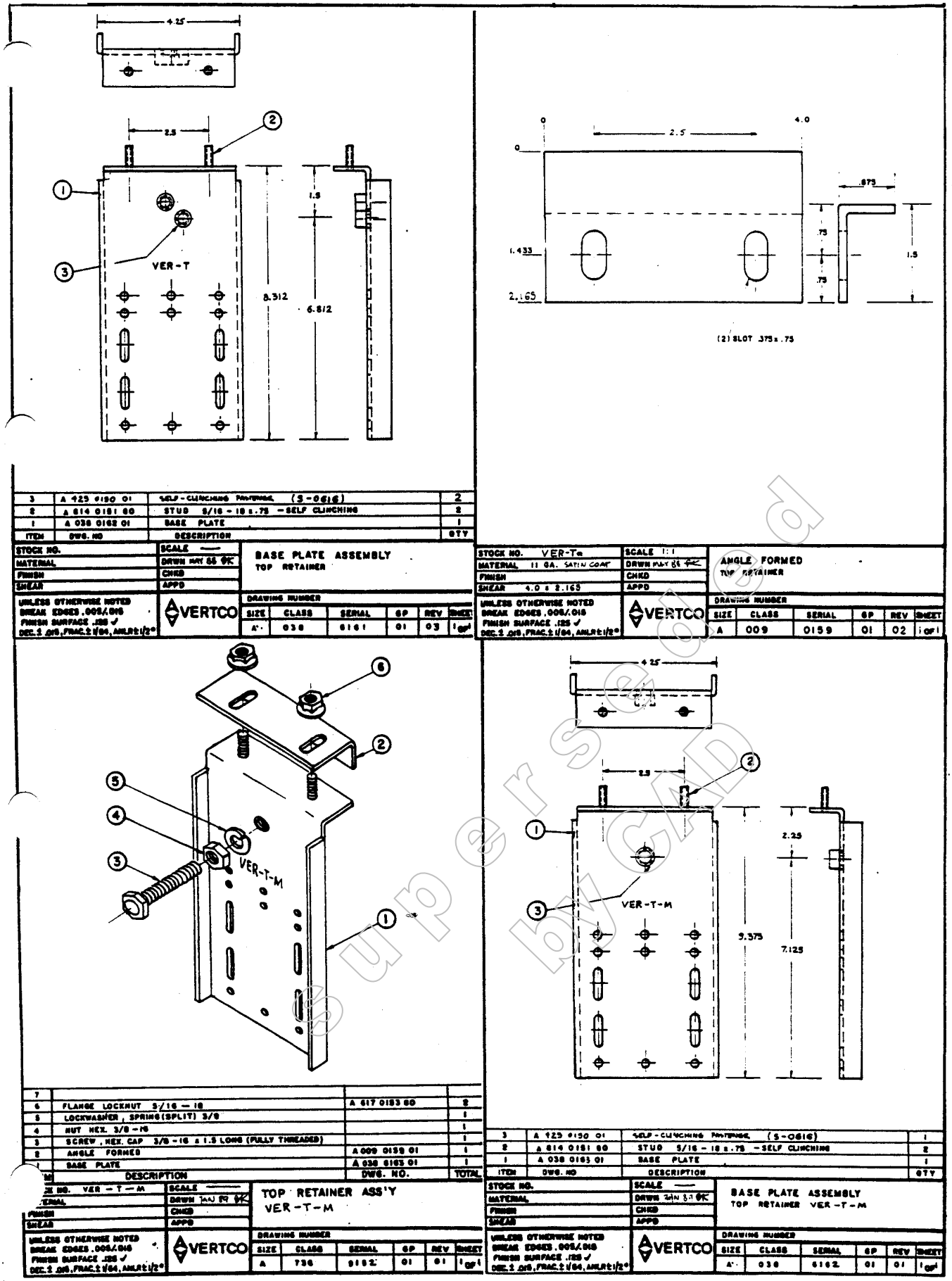
for SINGLE SLIDE landing door made by	thickness of door	Equipped with HANGERS make & type	BOTTOM GIBS make & type	SAFETY RETAINERS can be obtained from	by ordering KIT #	The kit will contain - coloured YELLOW HEADER RETAINERS	marked	SILL RETAINERS marked	
DAHLSTROM DILLON	1"	HORN, GAL	any make any type	VERTCO	VER - 03	2	VER - T	1	VER-B
		MAC			VER - 04	2	VER - T-M		
TYLER DAHLSTROM COR-O-VAN	1¼	HORN, GAL	any make any type		VER - 05	2	VER - T	1 or 2	* VER-B-M
		MAC			VER - 06	2	VER - T-M		

VERTCO

B 736 9155 04 03

DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

REVISION



ITEM	DWG. NO	DESCRIPTION	QTY
3	A 425 0150 01	SELF-CLINCHING FASTENER (S-0616)	2
2	A 614 0181 00	STUD 5/16-18 x .75 - SELF CLINCHING	2
1	A 038 0162 01	BASE PLATE	1

STOCK NO. — SCALE —
MATERIAL — DRWN MAY 88 PK
FINISH — CHKD
SHEAR — APPD

BASE PLATE ASSEMBLY
TOP RETAINER

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC. ± .01, FRAC. ± 1/64, ANLR ± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	SP	REV	SHEET
A	038	0161	01	03	1 OF 1

STOCK NO. VER-Ta — SCALE 1:1
MATERIAL 11 GA. SATIN COAT — DRWN MAY 88 PK
FINISH — CHKD
SHEAR 4.0 x 2.165 — APPD

ANGLE FORMED
TOP RETAINER

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC. ± .01, FRAC. ± 1/64, ANLR ± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	SP	REV	SHEET
A	009	0159	01	02	1 OF 1

ITEM	DWG. NO	DESCRIPTION	QTY
7			
6	FLANGE LOCKNUT 5/16 - 18	A 617 0183 00	2
5	LOCKWASHER, SPRING (SPLIT) 5/8		1
4	NUT HEX. 5/8 - 18		1
3	SCREW, HEX. CAP 5/8 - 18 x 1.5 LONG (FULLY THREADED)		1
2	ANGLE FORMED	A 009 0159 01	1
1	BASE PLATE	A 038 0163 01	1

STOCK NO. VER-T-M — SCALE —
MATERIAL — DRWN MAY 88 PK
FINISH — CHKD
SHEAR — APPD

TOP RETAINER ASS'Y
VER-T-M

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC. ± .01, FRAC. ± 1/64, ANLR ± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	SP	REV	SHEET
A	736	0162	01	01	1 OF 1

ITEM	DWG. NO	DESCRIPTION	QTY
3	A 425 0150 01	SELF-CLINCHING FASTENER (S-0616)	1
2	A 614 0181 00	STUD 5/16-18 x .75 - SELF CLINCHING	2
1	A 038 0163 01	BASE PLATE	1

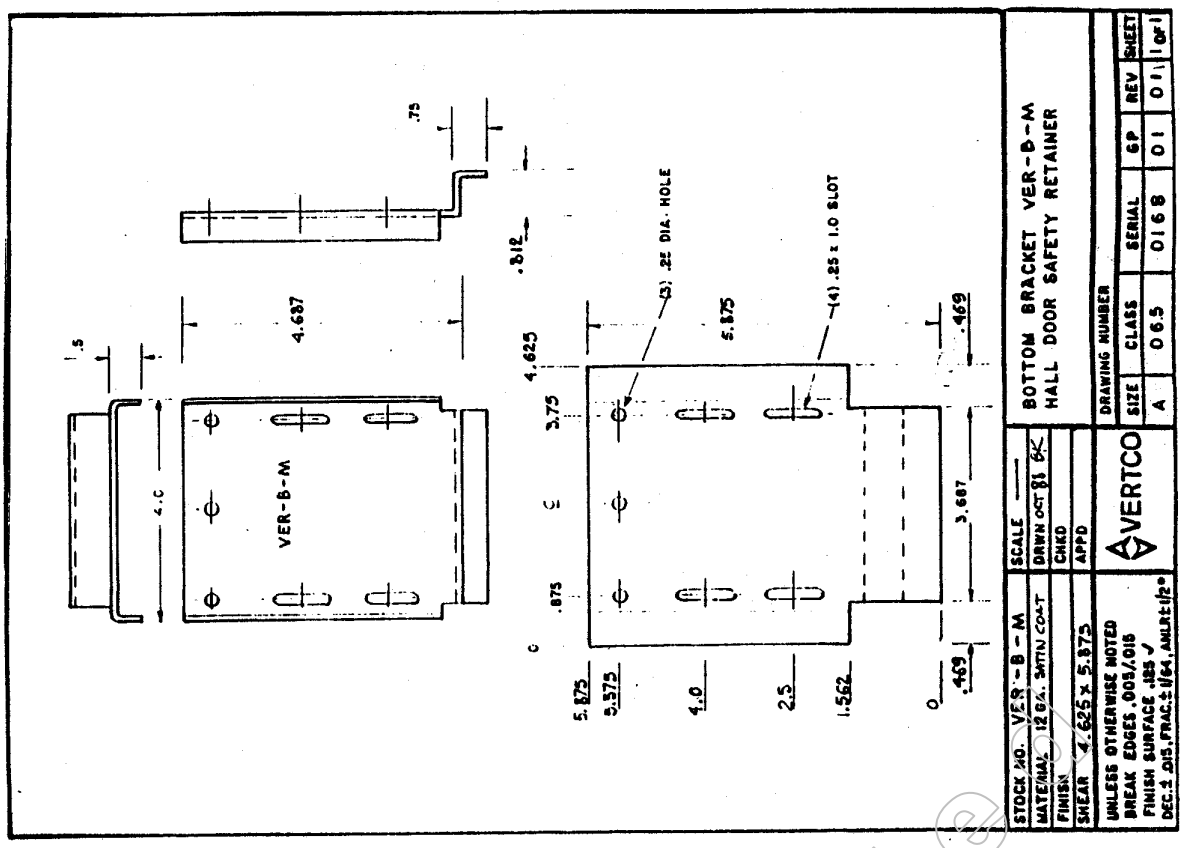
STOCK NO. — SCALE —
MATERIAL — DRWN MAY 88 PK
FINISH — CHKD
SHEAR — APPD

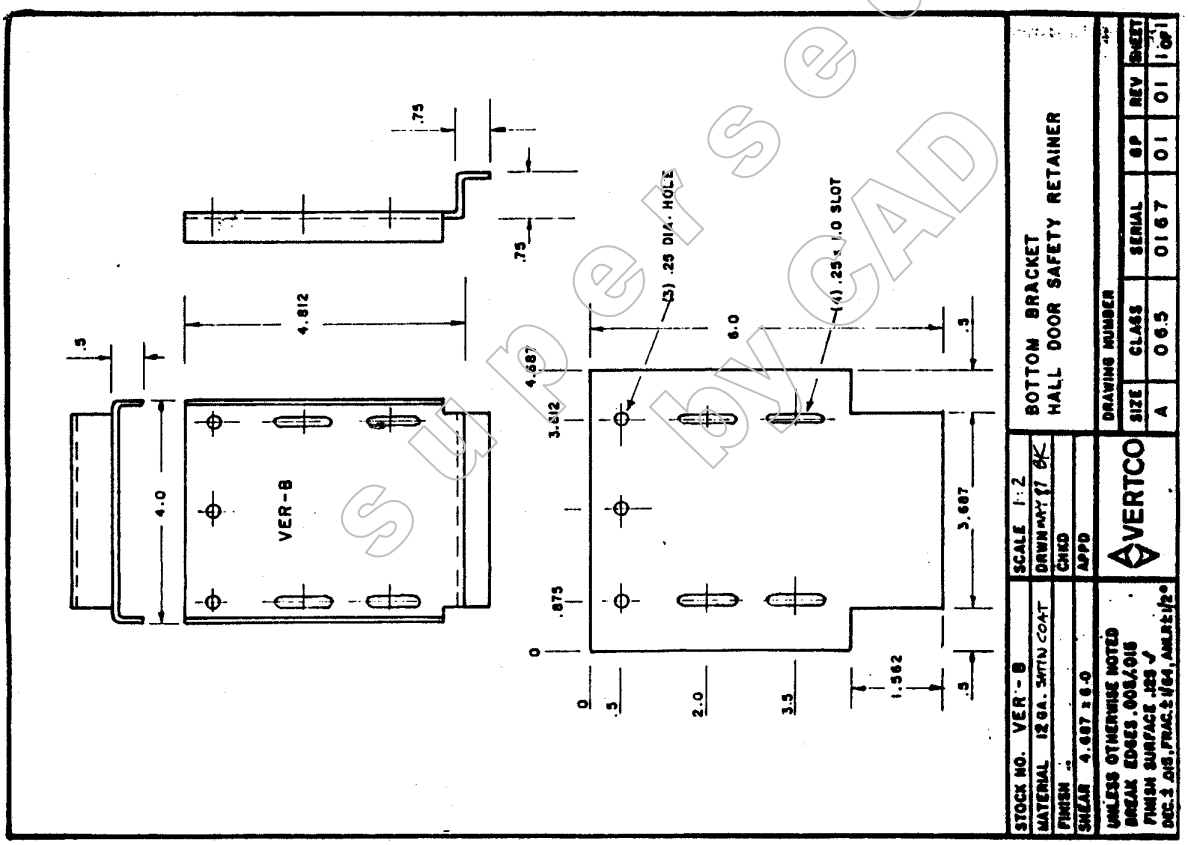
BASE PLATE ASSEMBLY
TOP RETAINER VER-T-M

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC. ± .01, FRAC. ± 1/64, ANLR ± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	SP	REV	SHEET
A	038	0162	01	01	1 OF 1





ITEM	PART NUMBER	DESCRIPTION	QTY REQ'D
1	VER-T-W	Top Retainer Assembly	2
2	VER-B-W	Bottom Retainer	2
3	VER-BOT	UpThrust Bolt	2
4	TEKS-2	Screws 10-24 x 3/4" Teks 2 or Equiv.Hex Washer HD. self tap. self dril.	26

REGISTERED PROFESSIONAL ENGINEER R. C. MITCHELL PROVINCE OF ONTARIO

INSTALLATION

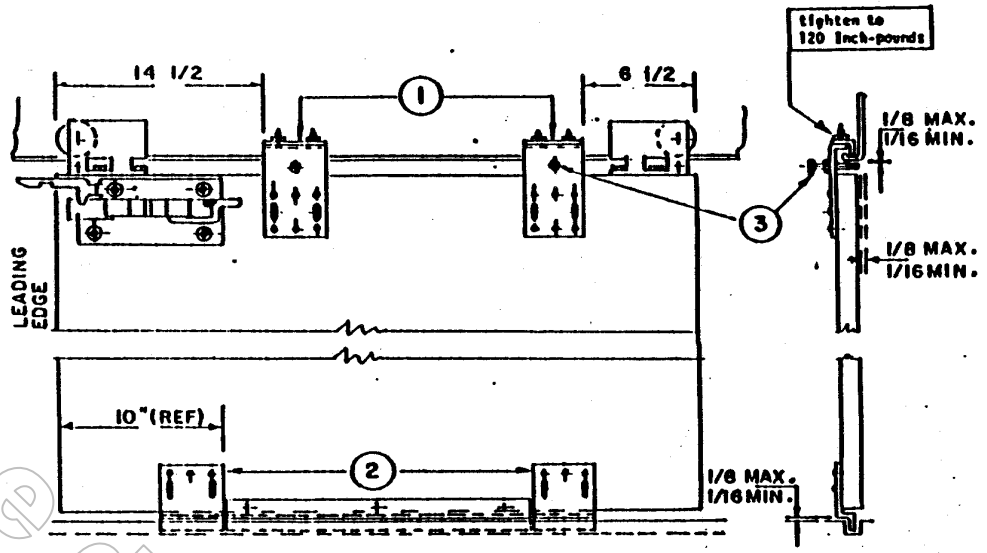
TOOLS REQUIRED:

Electric screwdriver with clutch driven 5/16 hex. socket (clutch set at 30 - 40 inch-pounds torque).

5/16, 1/2, 9/16 wrench for adjustment,torque wrench.

KIT # VER - 07

Landing Door equipped with "WESTINGHOUSE" hangers & (1) gib in centre. (Tyler)



1. With door closed, position top retainers (Item 1) according to dimension of drawing and mark holes.
2. Open door fully & jamb in "open" position. Install retainers using two screws in the slotted holes.
3. Install upthrust bolt (Item 3) in proper position, adjust & secure with lock nut.
4. Close door and check that retainers are correctly positioned, and that it will not scrape the door track when door is opening or closing. Adjust if necessary. Re-open door and install remaining screws (6).
5. With door closed, position bottom retainers (Item 2), according to dimension on drawing. Install retainers using two screws in slotted holes.
6. Check that retainers will not scrape the sill when door is opening or closing. Install remaining screws in top three holes.

VERTCO

A 736 9156 01 01

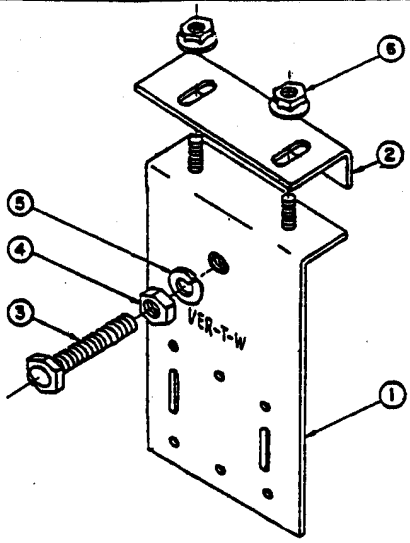
DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

For SINGLE SLIDE landing door made by: TYLER | Thickness of door: 1 1/4

Equipped with HANGERS make & type: WESTINGHOUSE | BOTTOM GIBS make & type: (1)TYLER GIB

SAFETY RETAINERS can be obtained from: VERTCO | by ordering KIT #: VER - 07

The kit will contain - coloured YELLOW: 2 HEADER RETAINERS marked VER - T - W | & 2 SILL RETAINERS marked VER-B-W



ITEM	DESCRIPTION	DWG. NO.	TOTAL
7			
4	FLANGE LOCKNUT 5/16 – 18	A 617 0153 00	2
5	LOCKWASHER, SPRING (SPLIT) 3/8		1
6	NUT HEX. 3/8 – 16		1
3	SCREW, HEX. CAP 3/8 – 16 x 1.5 LONG (FULLY THREADED)		1
2	ANGLE FORMED	A 009 0163 01	1
1	BASE PLATE	A 038 0165 01	1

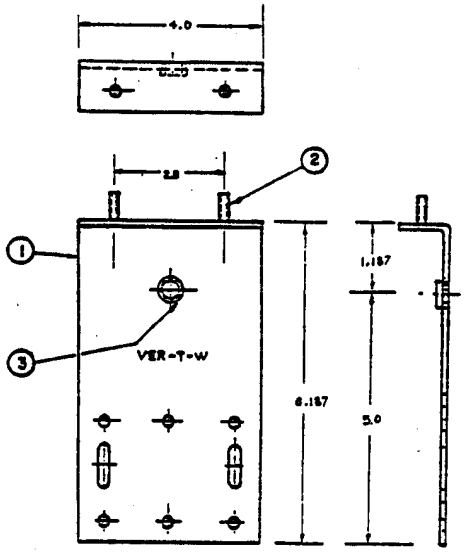
STOCK NO. VER – T – W | SCALE ——
MATERIAL | DRWN JOHN MAR 84 BK
FINISH | CHKD
SHEAR | APPD

TOP RETAINER ASS'Y
VER-T-W

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC.± .015, FRAC.± 1/64, ANLR± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	9156	01		1 OF 1



ITEM	DWG. NO	DESCRIPTION	QTY
3	A 123 0190 01	SELF-CLINCHING FASTENER S-0616	1
2	A 814 0131 00	STUD 5/16 – 18 x .75 – SELF CLINCHING	2
1	A 038 0164 01	BASE PLATE	1

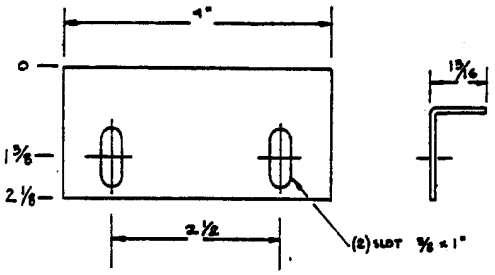
STOCK NO. | SCALE ——
MATERIAL | DRWN THOS MAR 84 BK
FINISH | CHKD
SHEAR | APPD

BASE PLATE ASSEMBLY
TOP RETAINER VER-T-W

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC.± .015, FRAC.± 1/64, ANLR± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	GP	REV	SHEET
A	038	6165	01	01	1 OF 1



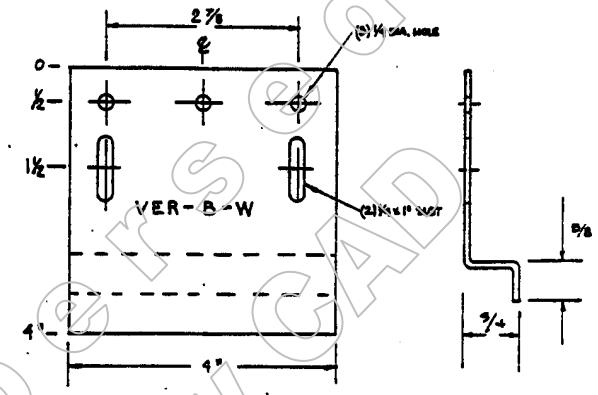
STOCK NO. VER – T – W (A) | SCALE ——
MATERIAL 12 GA. SATIN COAT | DRWN MAR 84 BK
FINISH | CHKD
SHEAR 4" x 2 1/8 | APPD

ANGLE FORMED
TOP RETAINER

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC.± .015, FRAC.± 1/64, ANLR± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	GP	REV	SHEET
A	009	0163	01		1 OF 1



STOCK NO. VER – B – W | SCALE ——
MATERIAL 12 GA. SATIN COAT | DRWN MAR 84 BK
FINISH | CHKD
SHEAR 4" x 4" | APPD

BOTTOM RETAINER
DOOR SAFETY RETAINER

UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC.± .015, FRAC.± 1/64, ANLR± 1/2°

VERTCO

DRAWING NUMBER					
SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	0155	01		1 OF 1

LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

VER - 03

ITEM	PART NUMBER	DESCRIPTION	QTY REQ'D
1	VER-T-C	Top Retainer Assembly	1
2	VER-B-M	Bottom Retainer	1
3	VER-BOT	Up Thrust Bolt	1
4	TEKS-2	Screws 10-24 x 3/4" Teks 2 or equiv. -ex Washer HD. self tap. self drill.	14

INSTALLATION

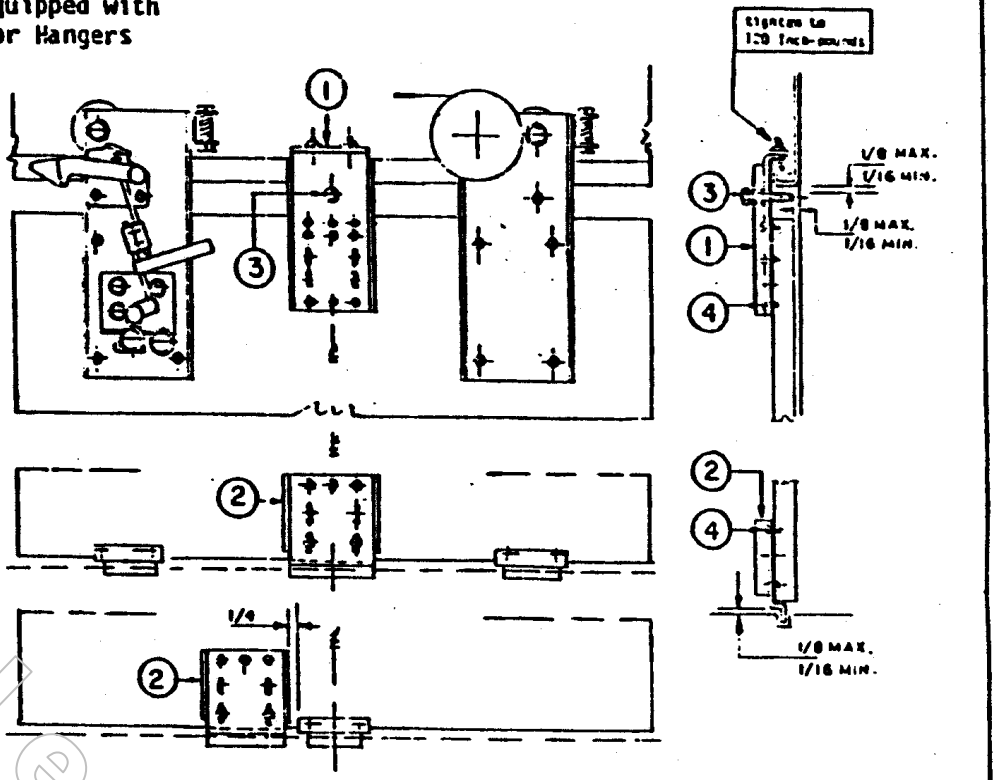
TOOLS REQUIRED:

Electric screwdriver with clutch driven 5/16 hex. socket (clutch set at 30 - 40 inch-pounds torque).

5/16, 1/2, 9/16 wrench for adjustment, torque wrench.

1. With door closed, position top retainer (Item 1) according to dimension of drawing and mark holes.
2. Open door fully & jamb in "open" position. Install retainer using two screws in the slotted holes.
3. Install upthrust bolt (Item 3) in proper position, adjust & secure with lock nut.
4. Close door and check that retainer are correctly positioned, and that it will not scrape the door track when door is opening or closing. Adjust if necessary. Re-open door and install remaining screws
5. With door closed, position bottom retainer (Item 2), according to dimension on drawing. Install retainer using two screws in slotted holes.
6. Check that retainer will not scrape the sill when door is opening or closing. Install remaining screws in top three holes.

Landing Door equipped with 4C Armor Hangers



VERTCO

A736 9157 01 01

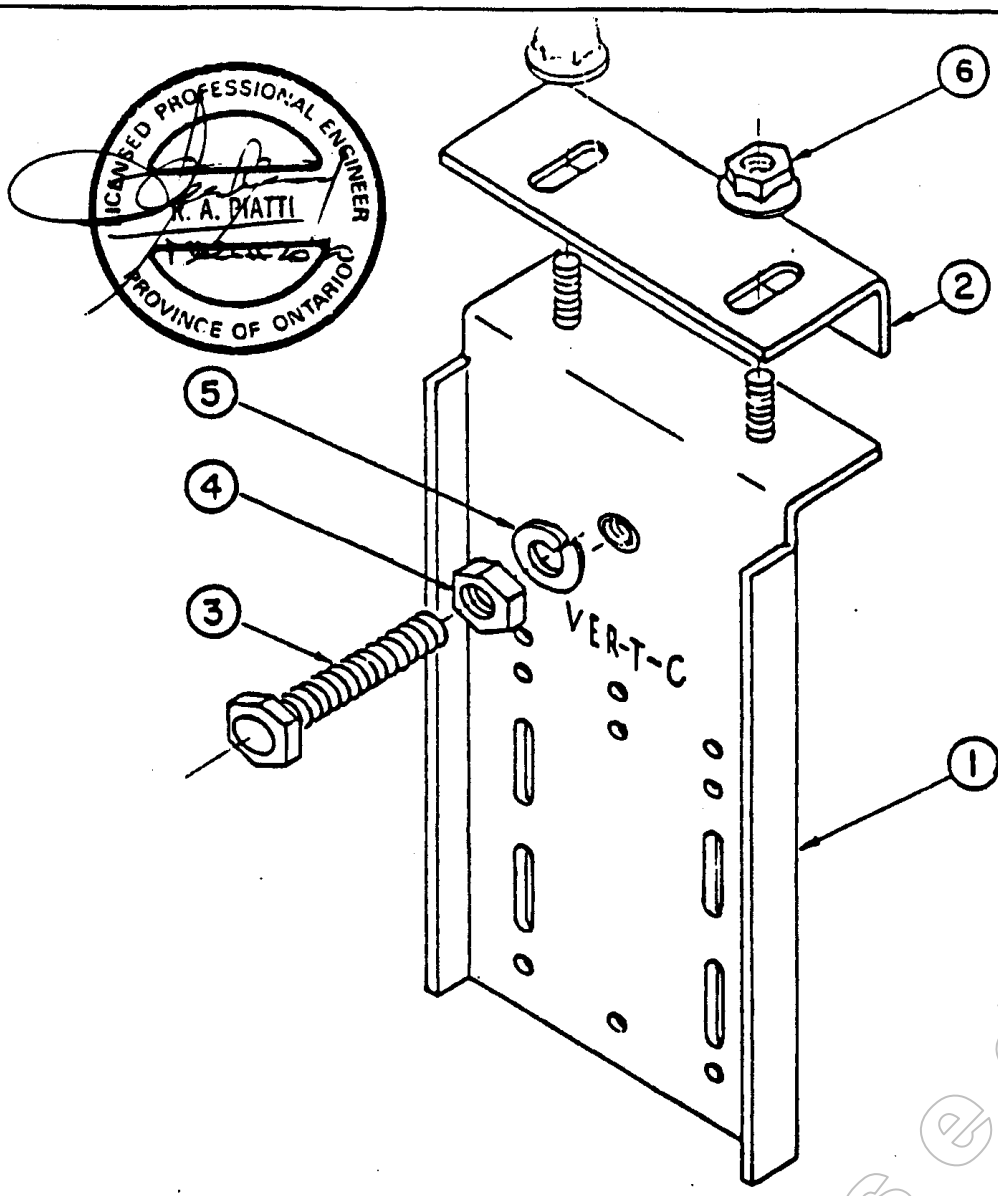
DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

For SINGLE SLIDE landing door made by: 4C ARMOR | 1/4

Equipped with HANGERS make & type: 4C ARMOR | BOTTOM GIBS make & type: [illegible]

SAFETY RETAINERS can be obtained from: VERTCO | by ordering KIT #: VER - 03

The kit will contain - coloured YELLOW HEADER RETAINERS marked: 1 VER - T - C | SILL RETAINERS marked: 1 VER-B-M



ITEM	DESCRIPTION	DWG. NO.	TOTAL
7			
6	FLANGE LOCKNUT 5/16 – 18	A 617 0153 60	2
5	LOCKWASHER, SPRING (SPLIT) 3/8		1
4	NUT HEX. 3/8 – 16		1
3	SCREW, HEX. CAP 3/8 – 16 x 2" LONG (FULLY THREADED)		1
2	ANGLE FORMED	A 009 0159 01	1
1	BASE PLATE ASSEMBLY	A 038 6162 01	1

STOCK NO. VER – T – C	SCALE	TOP RETAINER ASS'Y VER-T-C
MATERIAL	DRWN MAR 90 PSK	
FINISH	CHKD	
SHEAR	APPD	
UNLESS OTHERWISE NOTED BREAK EDGES .005/.015 FINISH SURFACE .125 ✓ DEC.± .015, FRAC.± 1/64, ANLR± 1/2°	VERTCO	DRAWING NUMBER

SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	9160	01	03	1 OF 1

ITEM	PART NUMBER	DESCRIPTION	QTY REQ'D
1	VER-T-01	Top Retainer	2
3	VER-B-W	Bottom Retainer	1
4	TEKS-2	Screws 10-24 x 3/4" Teks 2 or Equiv. Hex Washer HD. self tap. self dril.	12

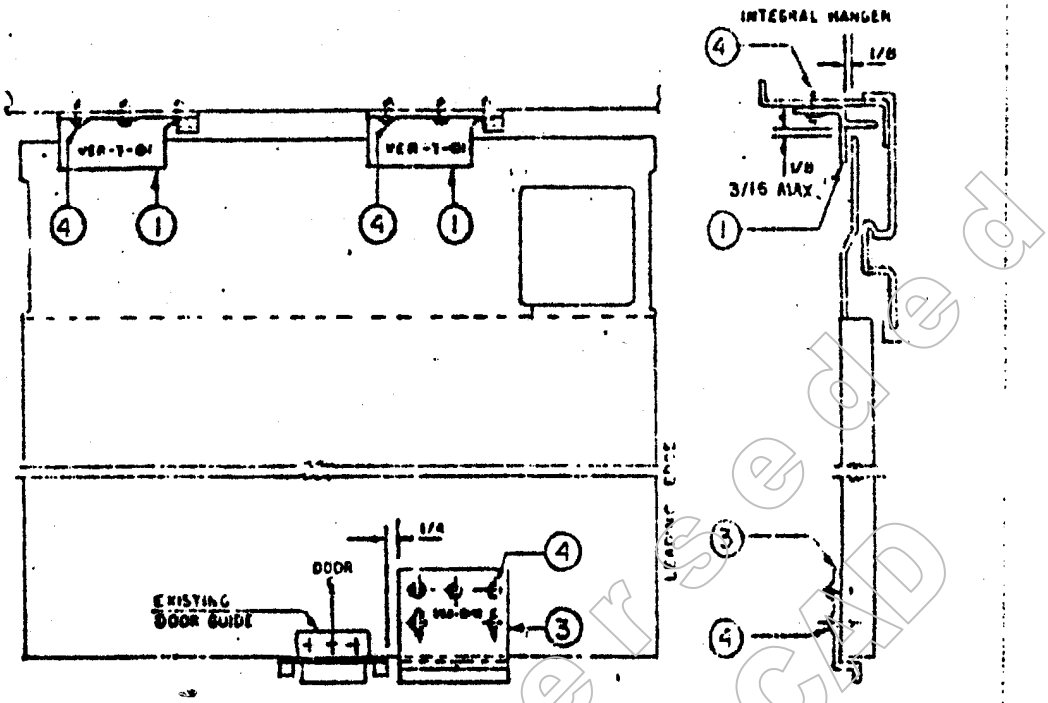
KIT # VER 01
for Otis Landing Door
with Integral Hanger

Tools Req'd: Electric screwdriver with clutch driven 5/16 hex. socket.
(Clutch set at 30-40 inch-pounds torque.
5/16 & 1/2 wrench for adjustment.)

Installation:

With door closed, position two top retainers (Item 1) according to the dwg., one near the interlock, second near the end of door.
Install retainers with clearance shown using one screw in slotted hole. Check that retainers will not scrape the door hanger when door is opening or closing. Readjust if nesessary and install remaining 2 screws.

With door closed, position bottom retainer (Item 3) as shown on dwg., install retainer using two screws in slotted holes.
Check that retainer will not scrape the sill when door is opening or closing. Readjust if necessary Install remaining 3 screws.

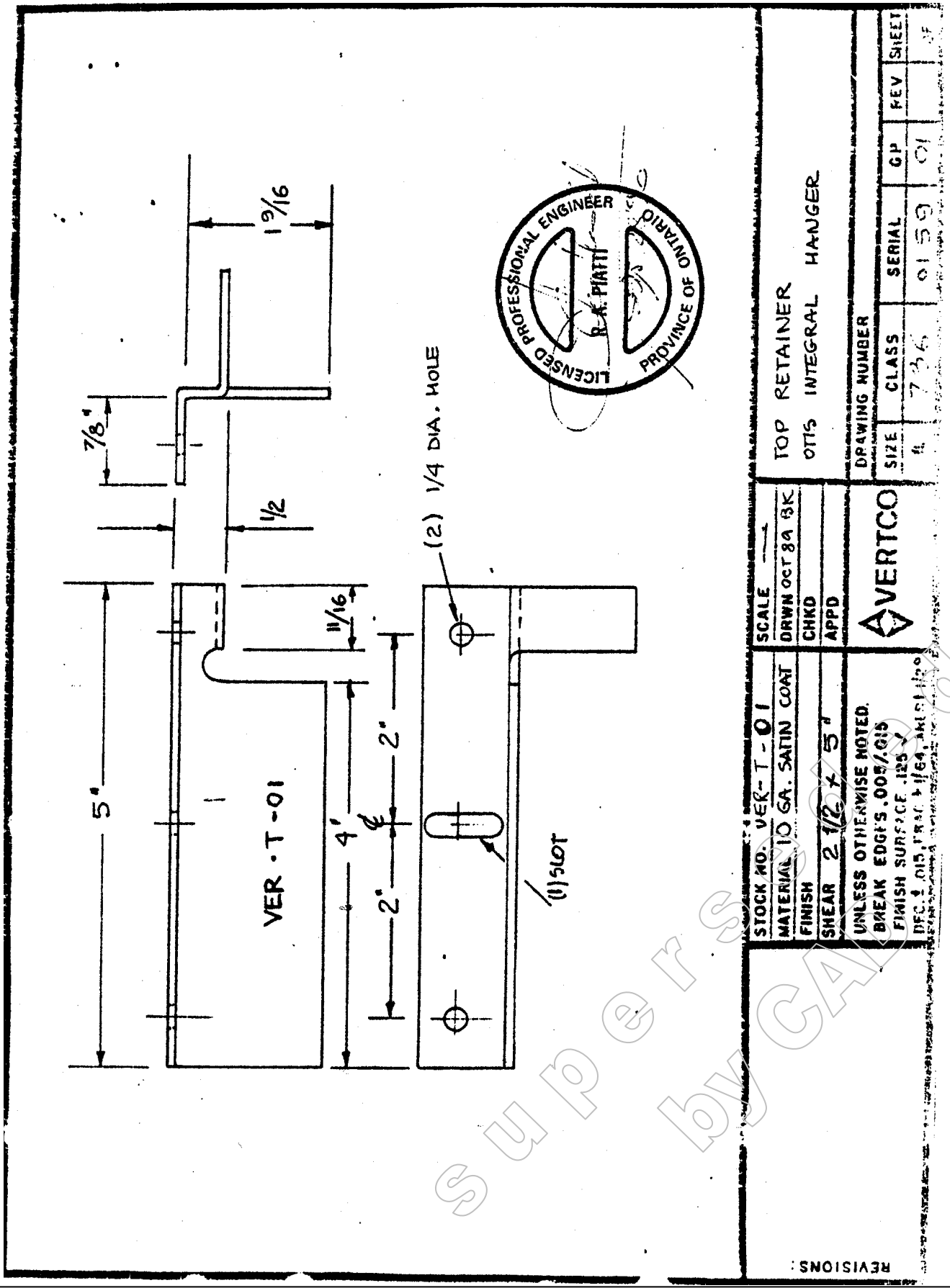


VERTCO

DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

A736 9161 01

For SINGLE SLIDE landing door made by	Equipped with HANGERS make & type	BOTTOM GIBS make & type	RETAINERS can be obtained from	by ordering KIT #	The kit will contain - colored YELLOW HEADER RETAINERS marked	&	SILL RETAINERS marked
OTIS	OTIS INTEGRAL	ANY MAKE ANY TYPE	VERTCO	VER – 01	2 VER-T-01	1	VER-B-W



KIT # VER 02

for Otis Landing Door
with Type 7060 Hanger

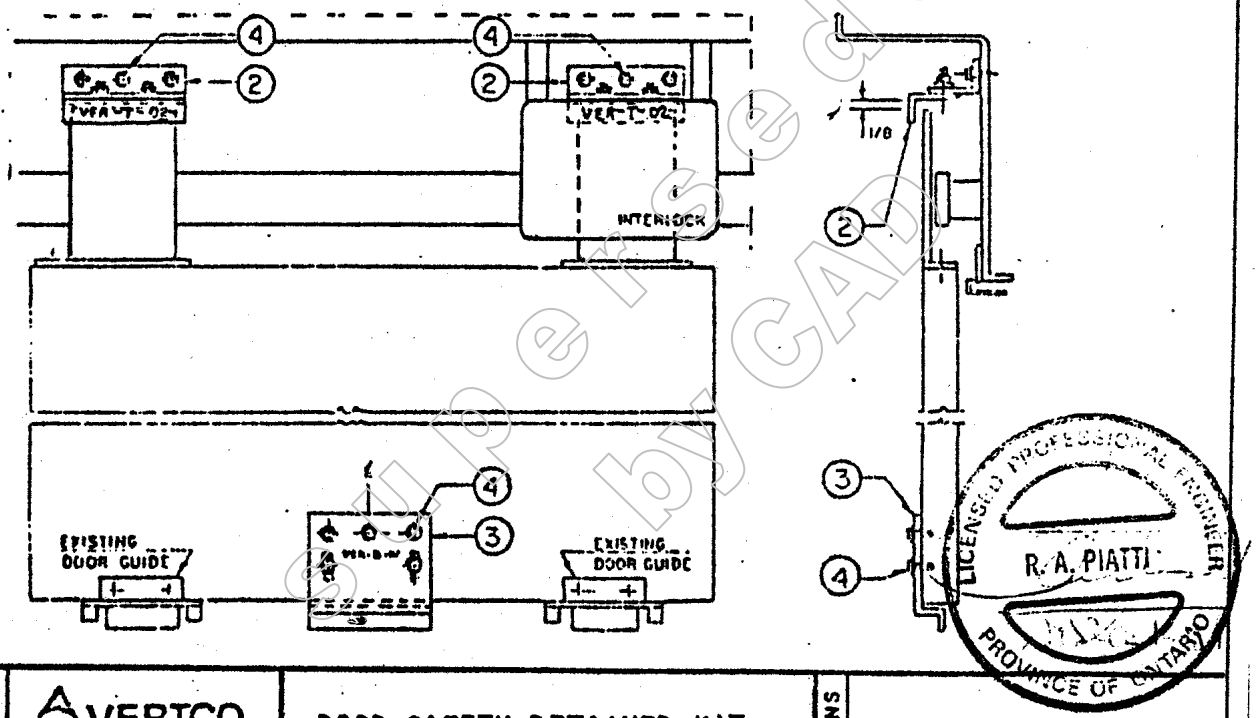
ITEM	PART NUMBER	DESCRIPTION	QTY REQ'D
2	VER-T-02	Top Retainer Assembly	2
3	VER-B-W or VER-B-M	Bottom Retainer	1
4	TEKS-2	Screws 10-24 x 3/4" Teks 2 or Equiv. Hex Washer HD. self tap. self dril.	12

Tools Req'd: Electric screwdriver with clutch driven 5/16 hex. socket.
(Clutch set at 30-40 inch-pounds torque.
5/16 & 1/2 wrench for adjustment.)

Installation:

Position two top retainers (Item 2) at the door hanger area according to dimensions on the drawing. Fasten retainers (with clearances shown) using 3 screws. Check that retainers will not scrape door hanger when door is opening or closing. Readjust if necessary.

With door closed, position bottom retainer (Item 3) as shown on dwg., install retainer using two screws in slotted holes. Check that retainer will not scrape the sill when door is opening or closing. Readjust if necessary. Install remaining 3 screws.



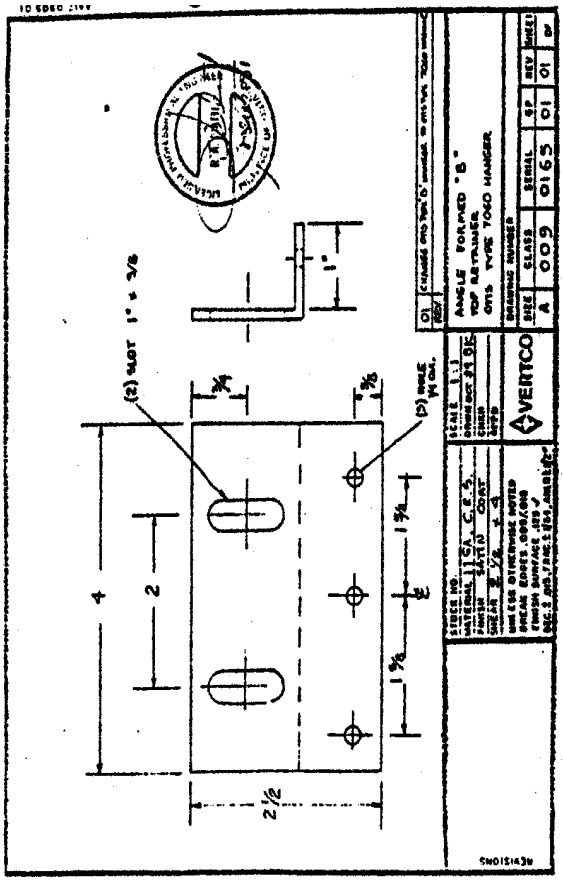
VERTCO

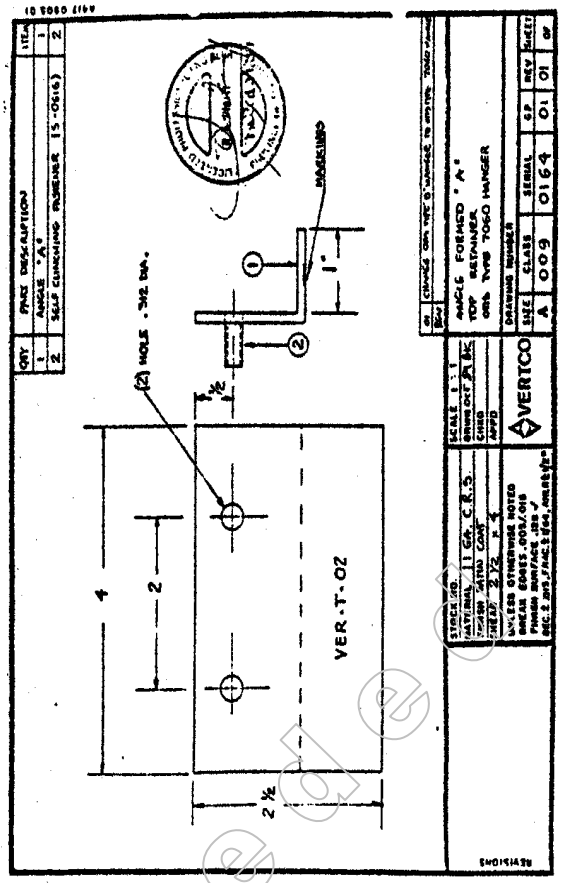
B 736 9162 01 01

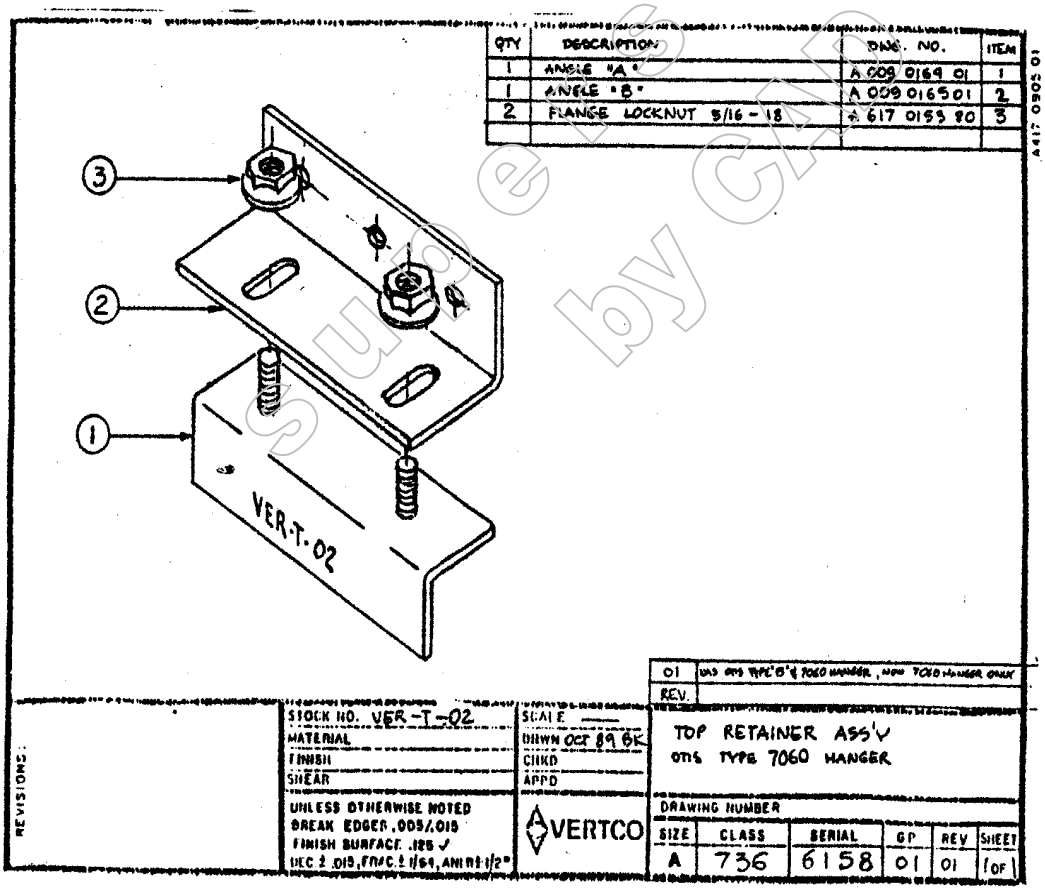
DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

REVISIONS

For SINGLE SLIDE landing door made by	Equipped with HANGERS make & type	BOTTOM GIBS make & type	SAFETY RETAINERS can be obtained from	by ordering KIT #	The kit will contain - coloured YELLOW HEADER RETAINERS marked		SILL RETAINERS marked	
OTIS	OTIS TYPE 7060	ANY MAKE ANY TYPE	VERTCO	VER - 02	2	VER - T - 02	1	VER-B-W or VER-B-M







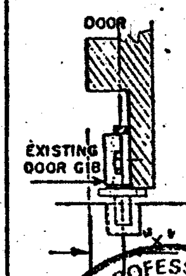
INSTALLATION

TOOLS REQUIRED:

Electric screwdriver with clutch driven 5/16 hex. socket (clutch set at 30 - 40 inch-pounds torque).

5/16 wrench for adjustment, torque wrench.

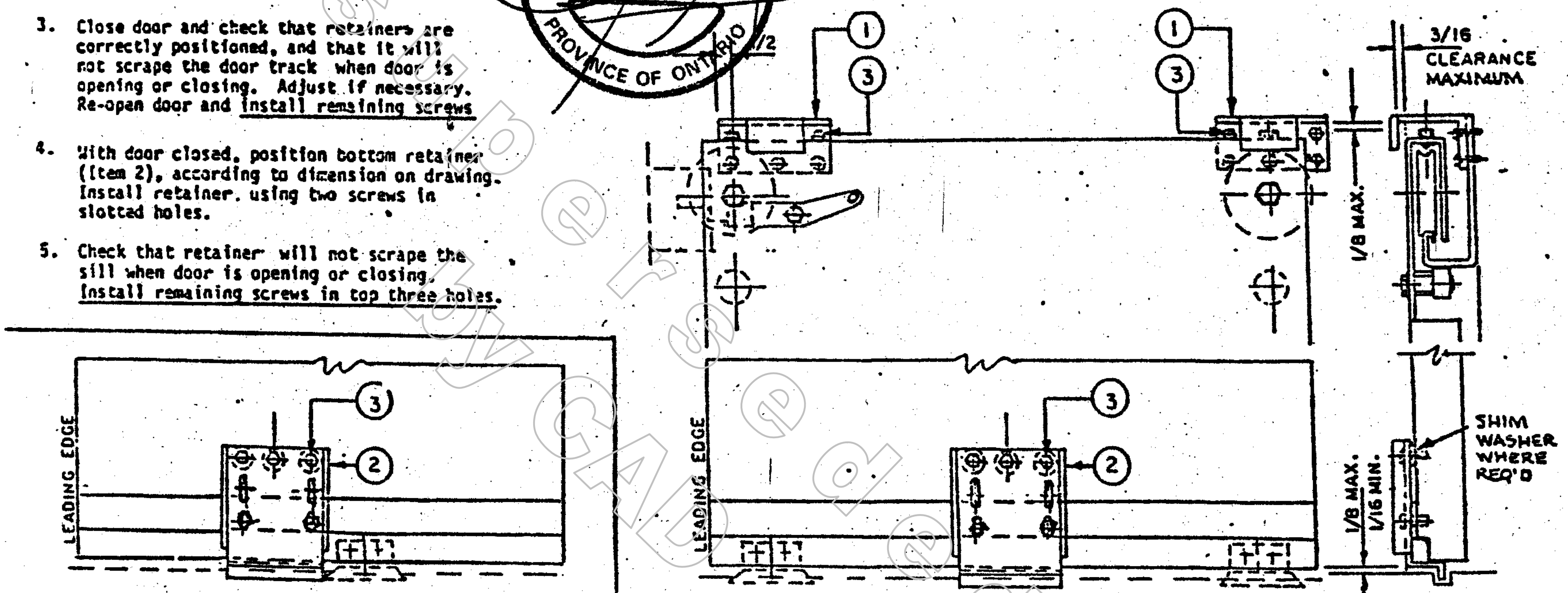
1. With door closed, position top retainers (Item 1) according to dimension of drawing and mark holes.
2. Open door fully & jamb in "open" position. Install retainers using one screw in the slotted hole.
3. Close door and check that retainers are correctly positioned, and that it will not scrape the door track when door is opening or closing. Adjust if necessary. Re-open door and install remaining screws.
4. With door closed, position bottom retainer (Item 2), according to dimension on drawing. Install retainer, using two screws in slotted holes.
5. Check that retainer will not scrape the sill when door is opening or closing. Install remaining screws in top three holes.



✳ CRITERIA FOR SELECTING SILL RETAINERS	
"X" OFFSET	SELECT
1/2"	VER-B
5/8"	VER-B-M
13/16"	VER-B-D

ITEM	PART NUMBER	DESCRIPTION	QTY REQ'D
1	VER-T-D	Top Retainer	2
2	VER-B or VER-B-M or VER-B-D	Bottom Retainer ✳	1
3	TEKS-2	Screws 10-24 x 3/4" Teks 2 or Equiv. Hex Washer HD. self tap. self dril.	15

KIT # VER – 09
LANDING DOOR EQUIPPED WITH
DOVER – TURNBULL INTEGRAL HANGERS



VERTCO
1736 9164 01 01

DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

For SINGLE SLIDE landing door made by → DOVER or TURNBULL

Equipped with HANGERS make & type → INTEGRAL Dover-Turnbull

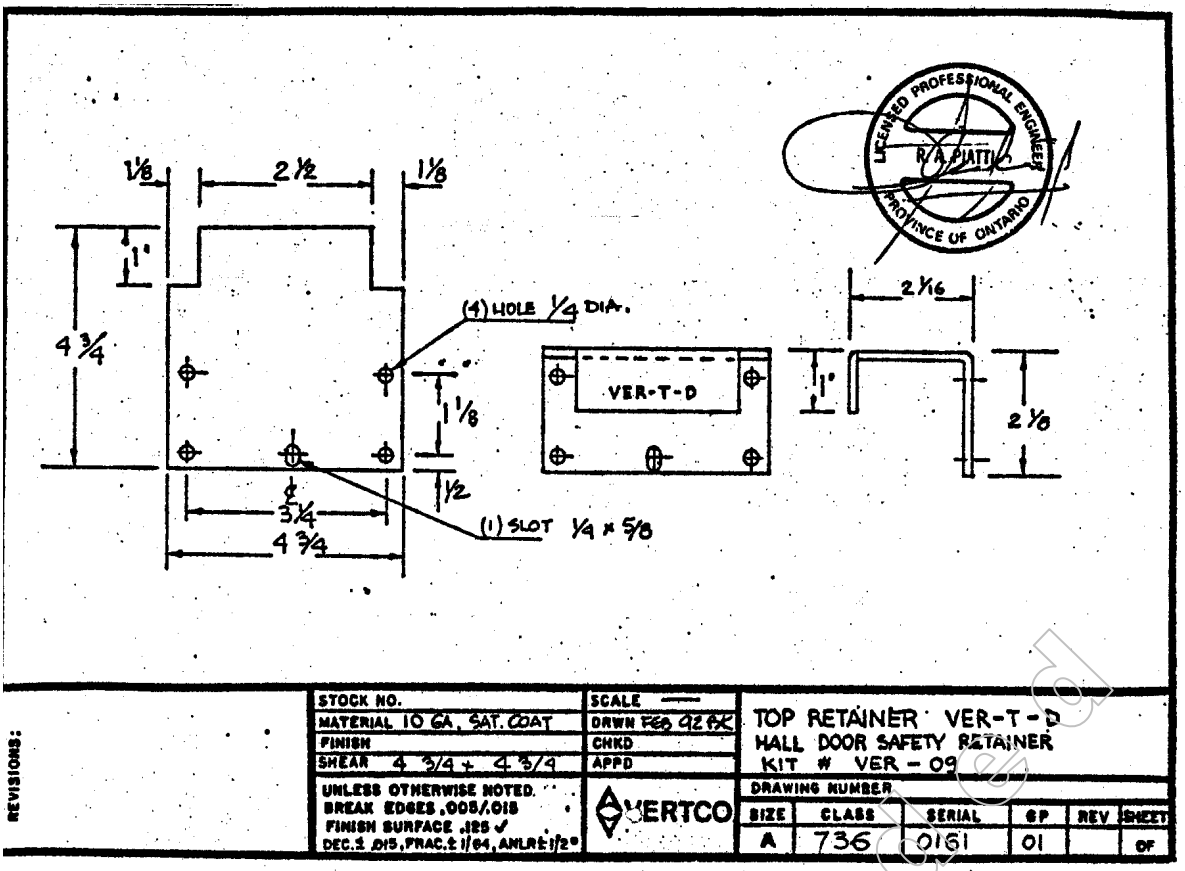
BOTTOM GIBS make & type → any make and type

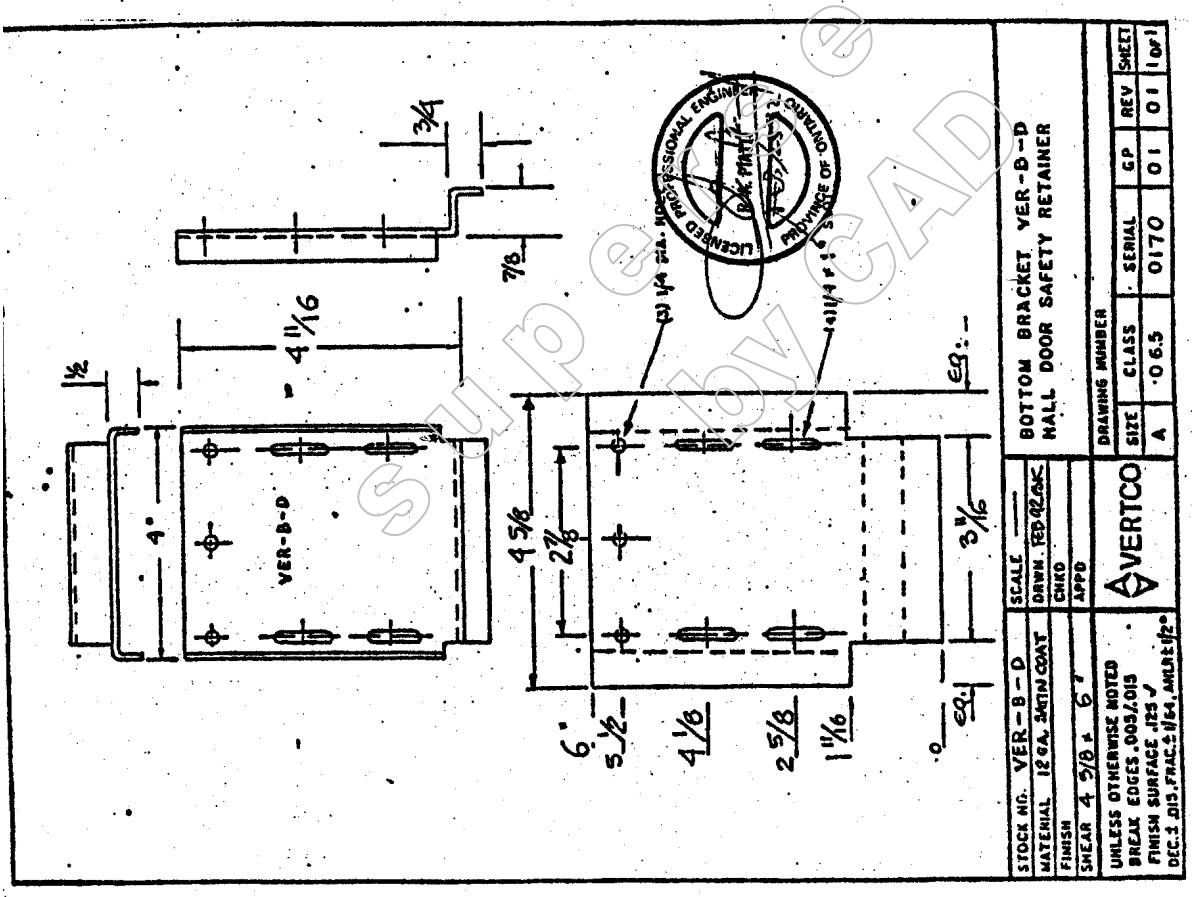
SAFETY RETAINERS can be obtained from → VERTCO

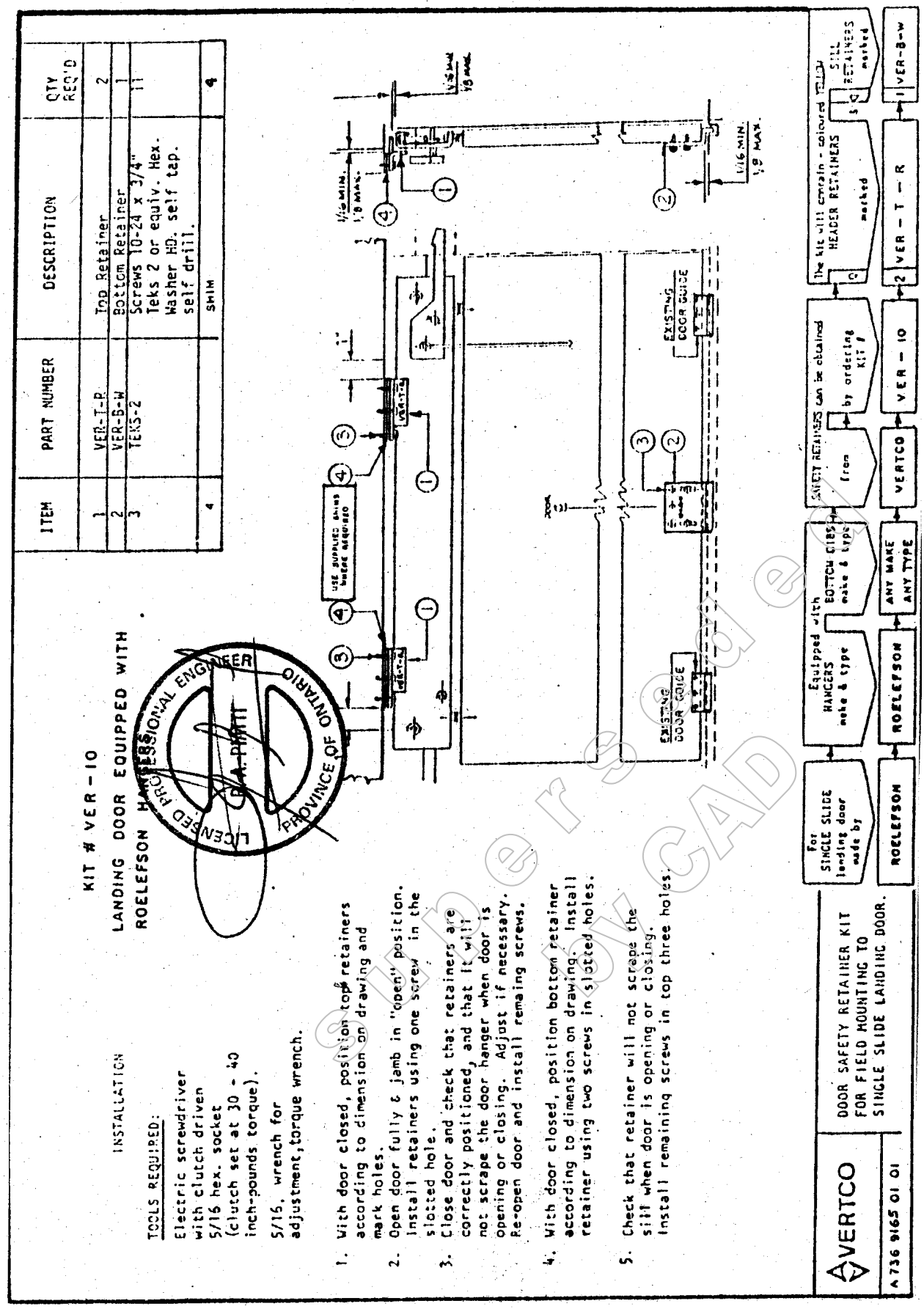
by ordering KIT # → VER – 09

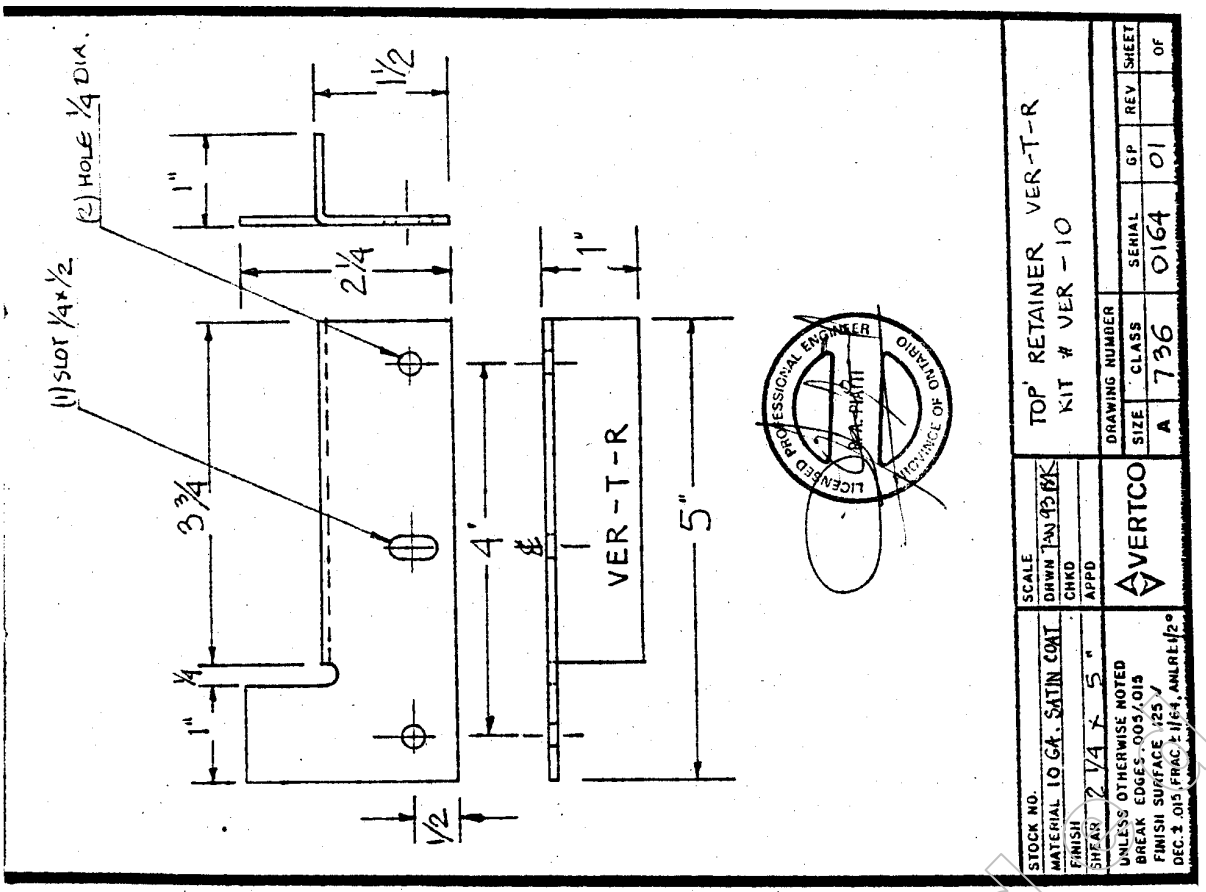
The kit will contain – coloured YELLOW HEADER RETAINERS marked → 2 VER-T-D

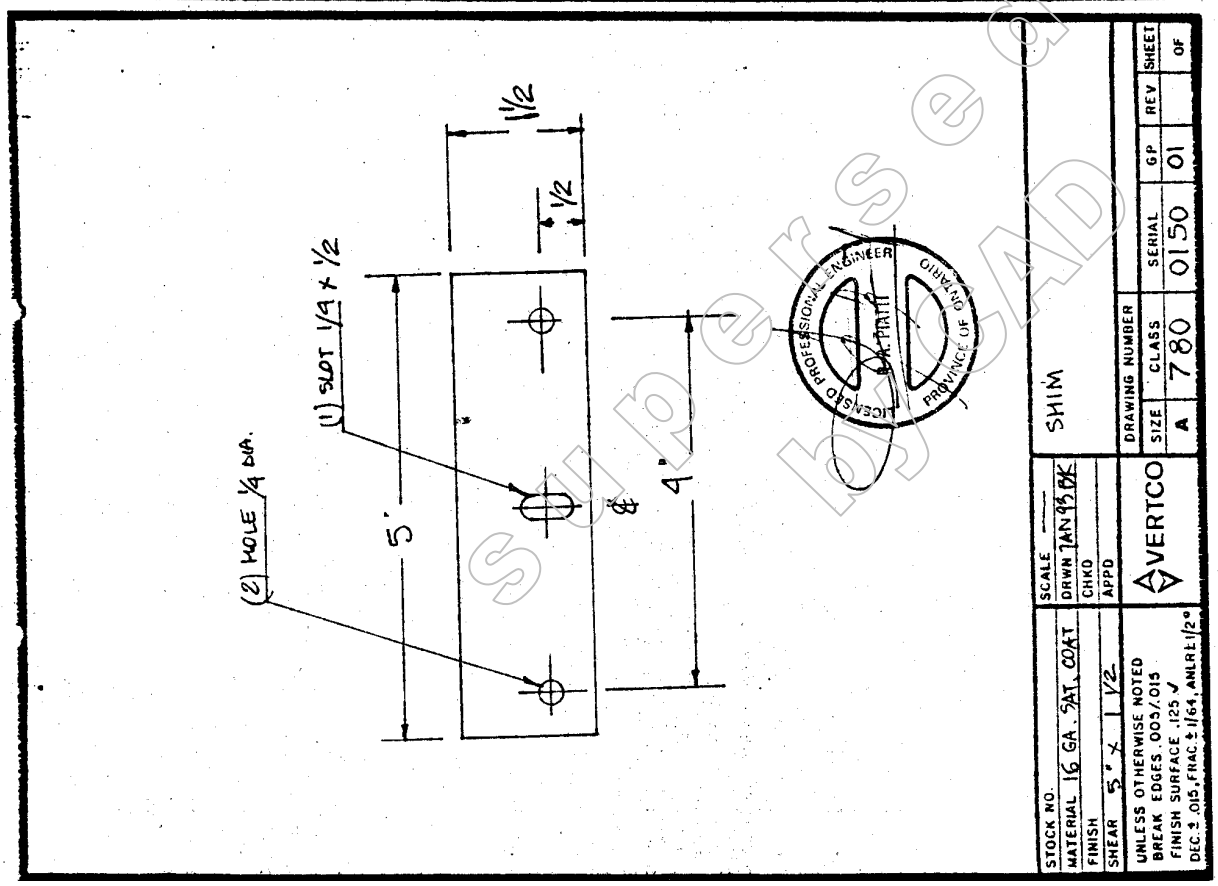
& SILL RETAINERS ✳ marked → 1 VER-B or VER-B-M or VER-B-D











ITEM	PART NUMBER	DESCRIPTION	QTY REQ'D
1	VER-T-A	Top Retainer Assembly SEE DWG. NO. A038 9165 01-02	1
2	VER-B-W	Bottom Retainer	1
3	TEKS-2	Screws 10-24 x 3/4" Teks 2 or Equiv.Hex Washer HD. self tap. self dril.	13

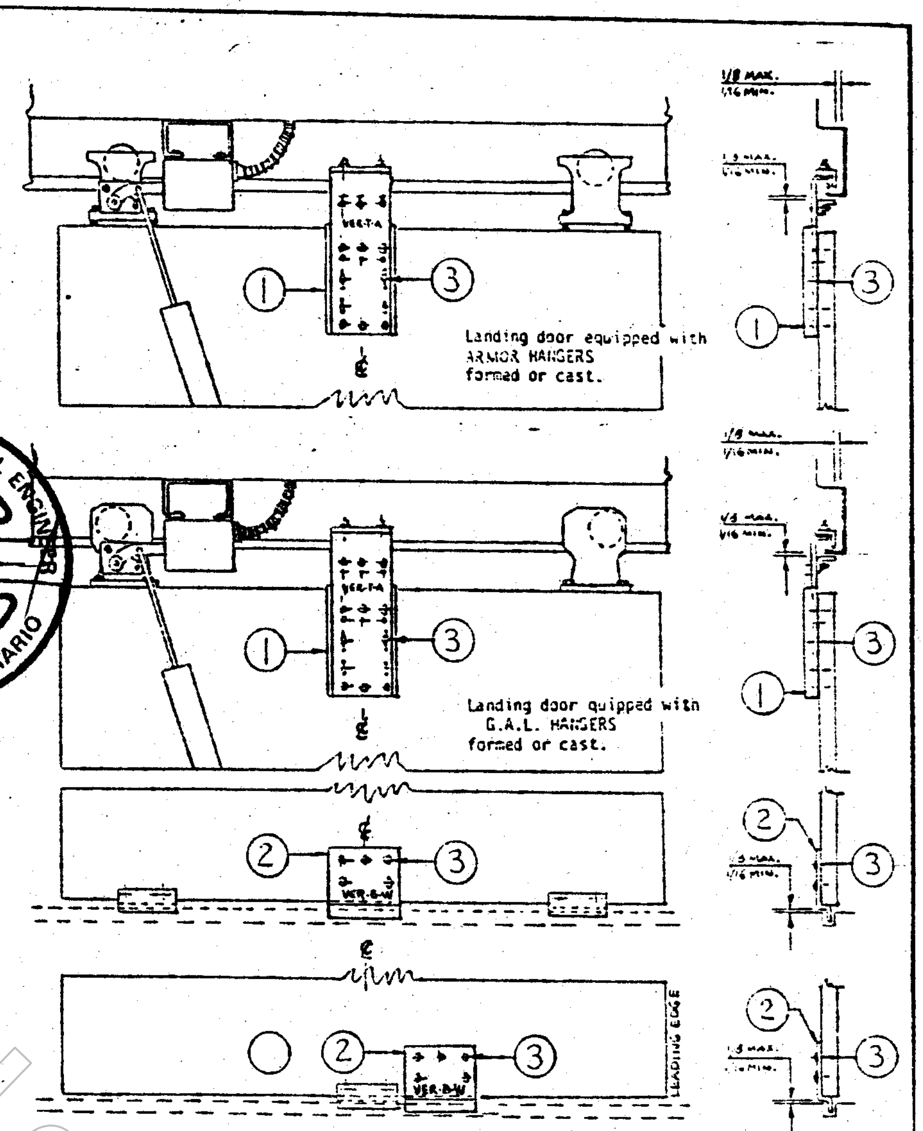
KIT # VER – 11

Landing door equipped with ARMOR or G.A.L. hangers & vandalproof G.A.L. lock

INSTALLATION

1. Determine type of door track and hangers.
2. With door closed, position top retainer (Item 1) according to dimension of drawing and mark holes.
3. Open door fully & jamb in "open" position. Install retainer using two screws in the slotted holes.
4. Close door and check that retainers are correctly positioned, and that it will not scrape the door track when door is opening or closing. Adjust if necessary Re-open door and install remaining screws. (6).
5. With door closed, position bottom retainer (Item 2)
   - in the centre of door if (2) two door gibs used
   - ¼ away from gib if (1) one door gib used

   Install retainer using two screws in slotted holes.
6. Check that retainer will not scrape the sill when door is opening or closing. Install remaining screws in top three holes.



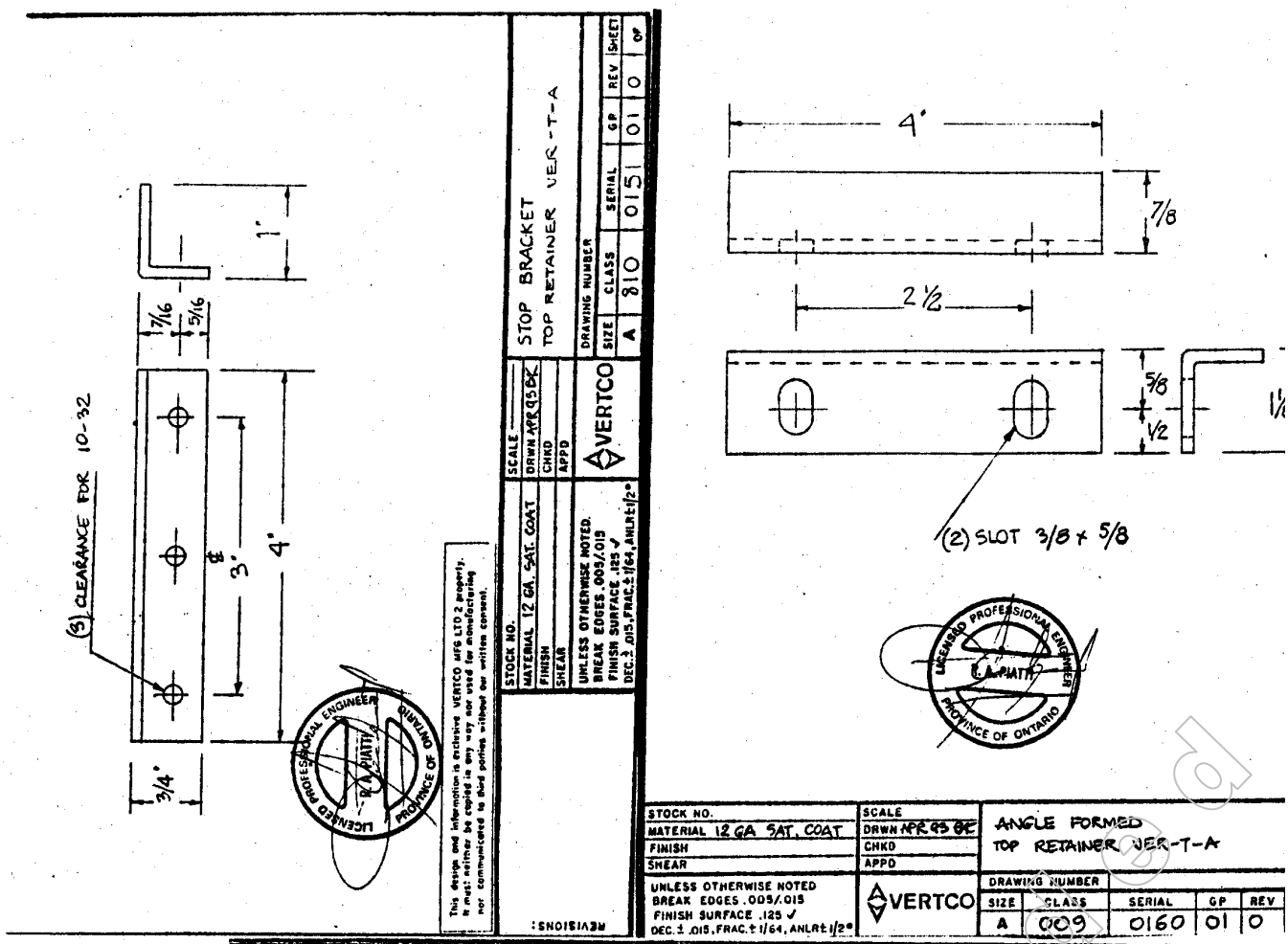
LICENSED PROFESSIONAL ENGINEER — G. A. PIATA — PROVINCE OF ONTARIO

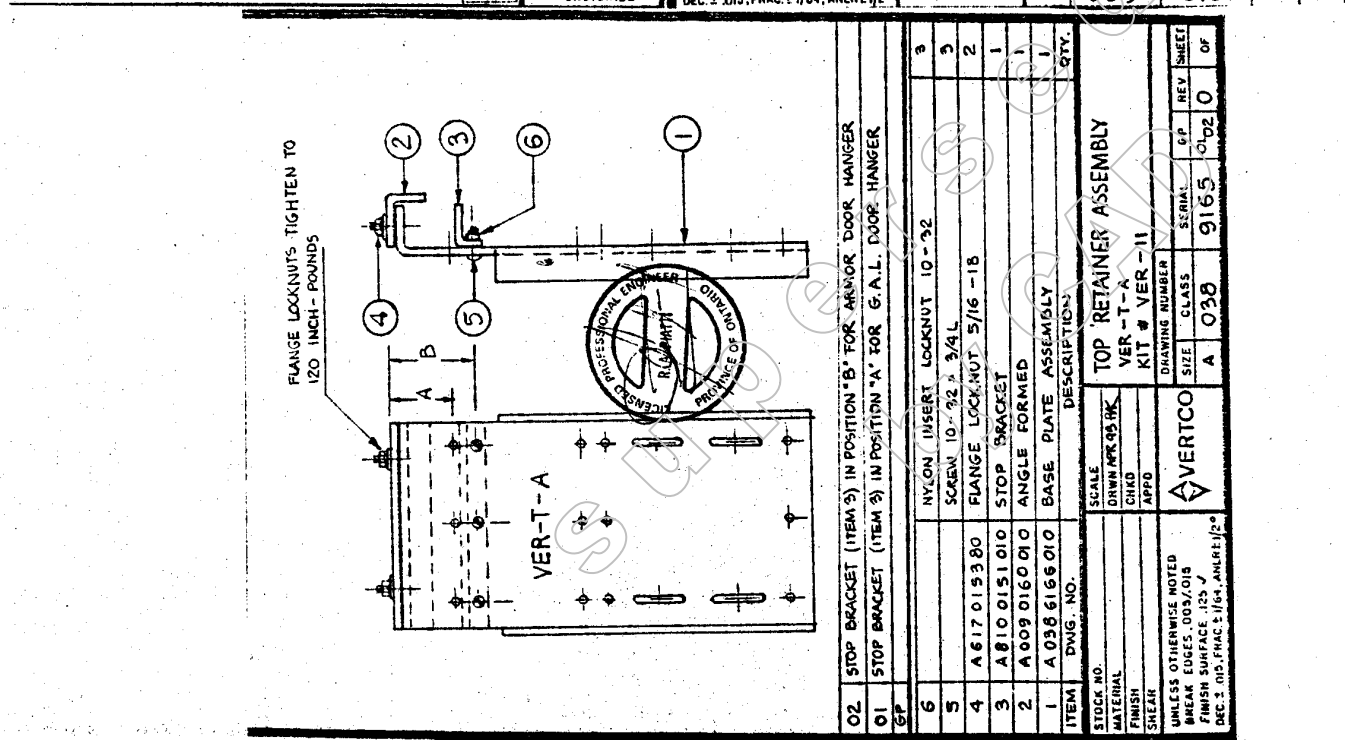
VERTCO

DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

A 736 9166 020

For SINGLE SLIDE landing door made by	Equipped with HANGERS make & type	BOTTOM GIBS make & type	SAFETY RETAINERS can be obtained from	by ordering KIT #	The kit will contain - coloured YELLOW HEADER RETAINERS marked	SILL RETAINERS marked
ARMOR	ARMOR, G.A.L.	ANY TYPE ANY MAKE	VERTCO	VER – 11	1 VER – T – A	1 VER-B-W


STOP BRACKET
TOP RETAINER VER-T-A
VERTCO
(3) CLEARANCE FOR 10-32
4'
3'
1'
3/4'
7/16
5/16
2 1/2
7/8
5/8
1/2
(2) SLOT 3/8 x 5/8
ANGLE FORMED
TOP RETAINER VER-T-A
UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125
DEC. ± .015, FRAC. ± 1/64, ANLR ± 1/2°
REVISIONS:


FLANGE LOCKNUTS TIGHTEN TO
120 INCH-POUNDS
VER-T-A
TOP RETAINER ASSEMBLY
VER-T-A
KIT # VER-11
VERTCO
02 STOP BRACKET (ITEM 2) IN POSITION "B" FOR ARMOR DOOR HANGER
01 STOP BRACKET (ITEM 2) IN POSITION "A" FOR G.A.L. DOOR HANGER
6 NYLON INSERT LOCKNUT 10-32 3
5 SCREW 10-32 x 3/4L 2
4 A617015380 FLANGE LOCKNUT 5/16-18 1
3 A810015101 010 STOP BRACKET 1
2 A009016001 0 ANGLE FORMED 1
1 A038616601 0 BASE PLATE ASSEMBLY 1
ITEM DWG. NO. DESCRIPTION QTY.
DRAWING NUMBER SIZE A CLASS 038 SERIAL 9165 GP 02 REV 0 SHEET OF
UNLESS OTHERWISE NOTED
BREAK EDGES .005/.015
FINISH SURFACE .125
DEC. ± .015, FRAC. ± 1/64, ANLR ± 1/2°

KIT # VER – 12
Dillon landing door
with custom made
door hangers

ITEM	PART NO.	DESCRIPTION	Q'TY
1	VER-T-12 VER-T-12	Top retainer R.H. Top retainer L.H.	1 1
2	VER-B-12	Bottom retainer	1
3	TEKS – 2	Screws 10-24 x 3/4 Teks-2 or equiv. Hex. washer hd., self tap., self drill.	9

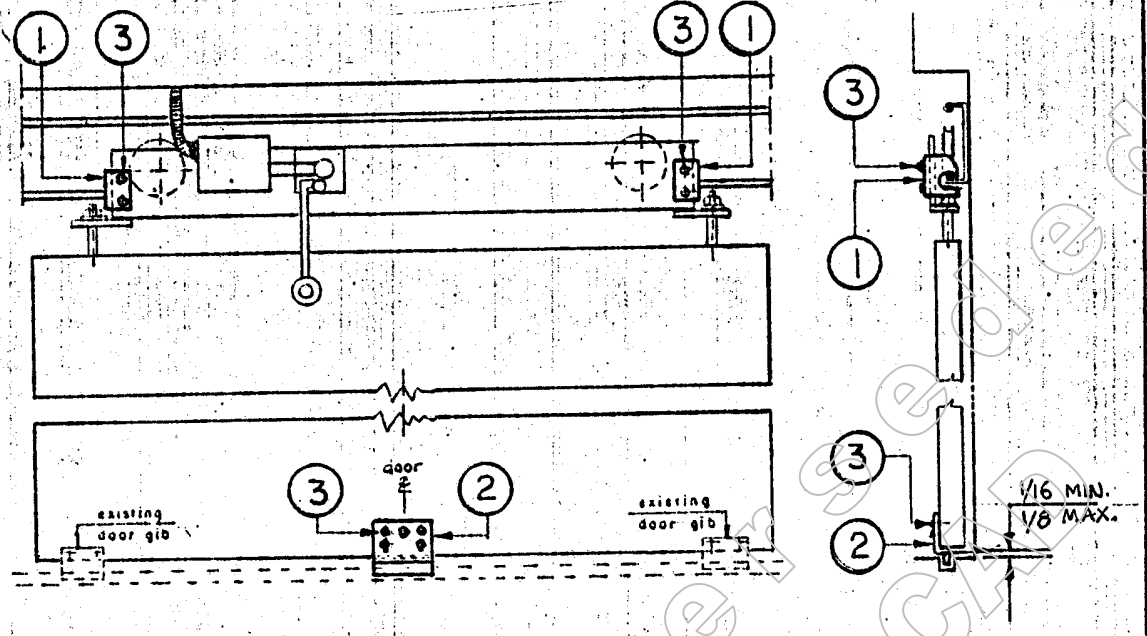
INSTALLATION

With door closed position top retainers(Item 1) by sliding each one over the end of door track. Install retainers using supplied hardware, check that retainers will not scrape the door track when door is opening and closing.

With door closed position bottom retainer (Item 2) as shown on the dwg.

Install retainer using two screws in the slated holes, check that retainer will not scrape the sill when door is opening or closing. Readjust if necessary, install remaining screws.

LICENSED PROFESSIONAL ENGINEER R.A. PIATTI PROVINCE OF ONTARIO



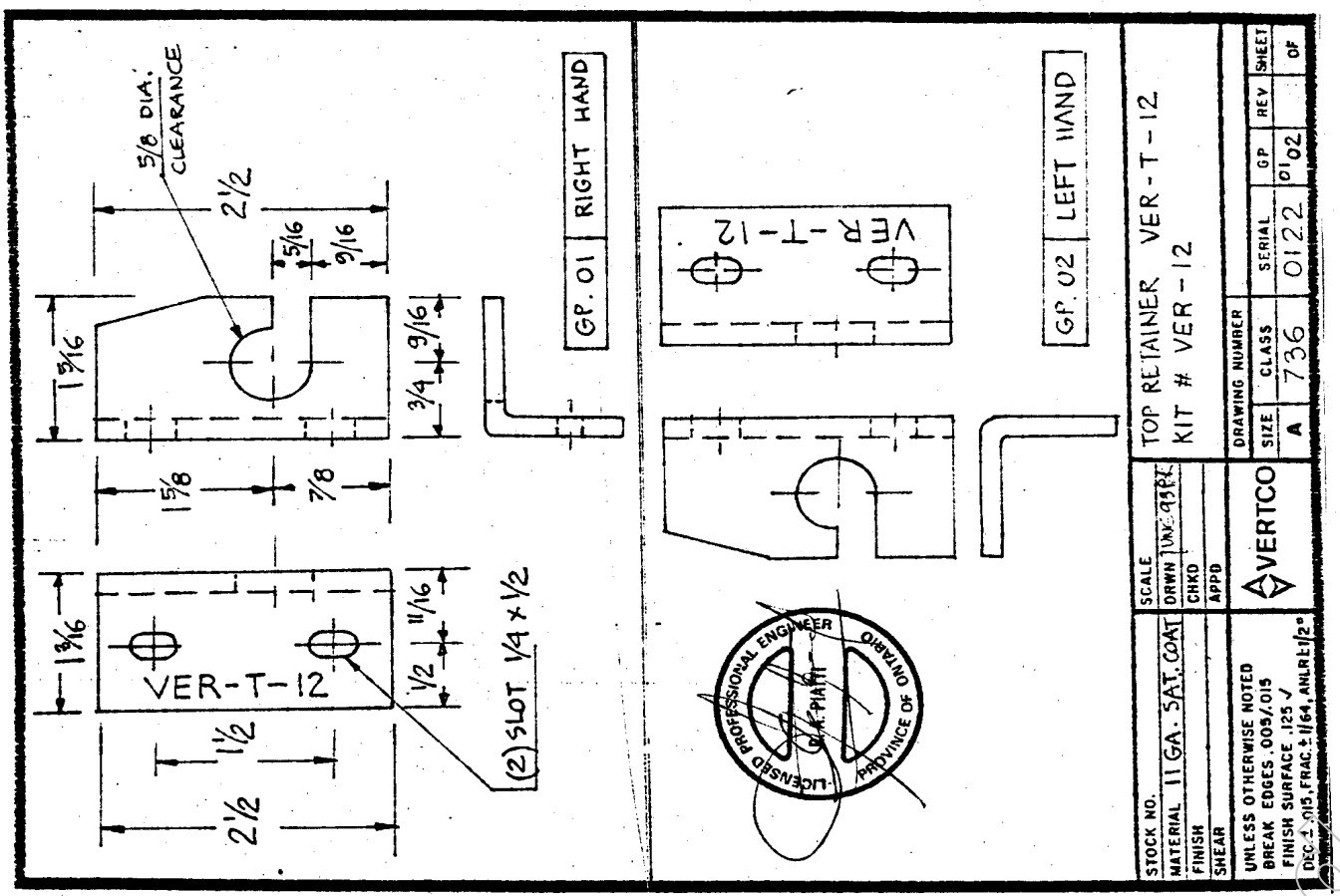
VERTCO

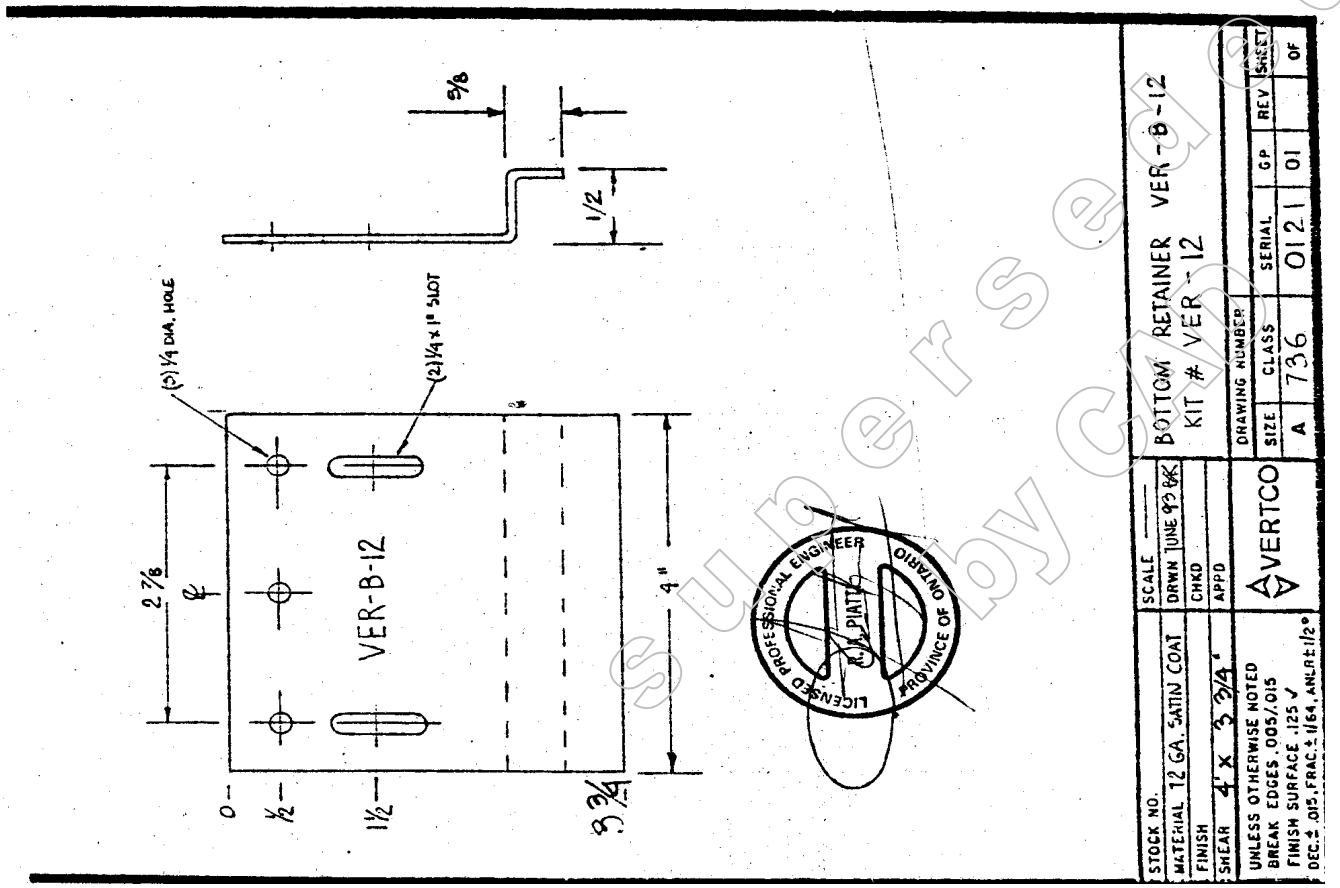
A 736 9168 01 01

DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR.

REVISIONS
01. FINAL REV. oct. 93

For SINGLE SLIDE landing door made by	Equipped with HANGERS make & type	BOTTOM GIBS make & type	SAFETY RETAINERS can be obtained from	by ordering kit #	The kit will contain – coloured YELLOW HEADER RETAINERS marked	&	SILL RETAINERS marked
DILLON	CUSTOM MADE	any make any type	VERTCO	VER – 12	2 VER-T-12		1 VER-B-12





KIT # VER-13

Turnbull landing door
with individual hangers

ITEM	PART NO.	DESCRIPTION	Q'TY
1	VER-T-13	Top retainer assembly see dwg. A038 9167 01	2
2	VER-B-13	Bottom retainer	1
3	TEKS - 2	Screws 10-24 x 3/4 Teks 2 or equiv. Hex. washer hd., self tap., self drill.	19
4		Spacer	4

INSTALLATION

With door closed position top retainers(Item 1) according to dimensions on dwg.

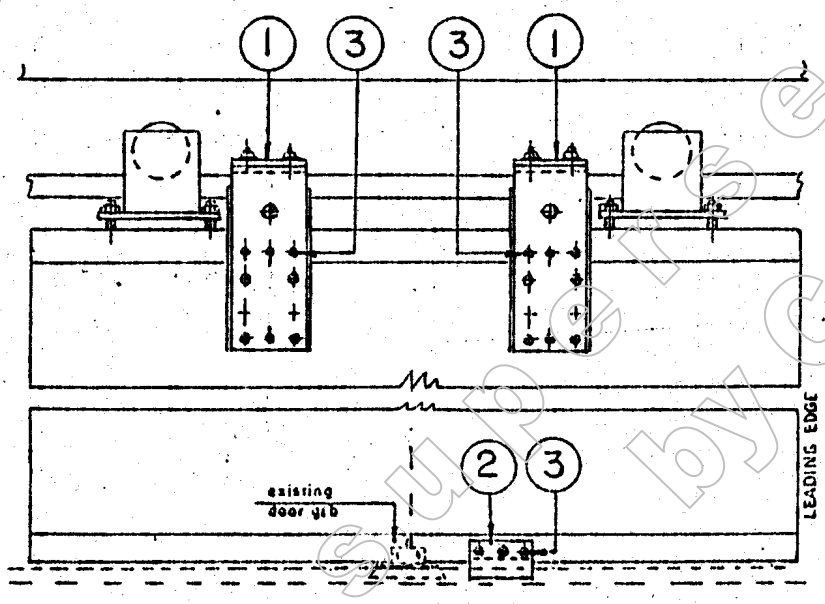
Install retainers using supplied hardware, check that retainers will not scrape the door hanger when door is opening and closing.

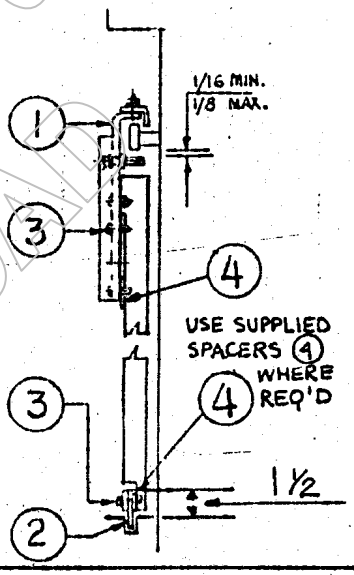
With door closed position bottom retainer (Item 2) as shown on the dwg.

Install retainer using one screws in the sloted holes, check that retainer will not scrape the sill when door is opening or closing.

Readjust if necessary, install remaining screws.

LICENSED PROFESSIONAL ENGINEER
R.W. PLATT
PROVINCE OF ONTARIO





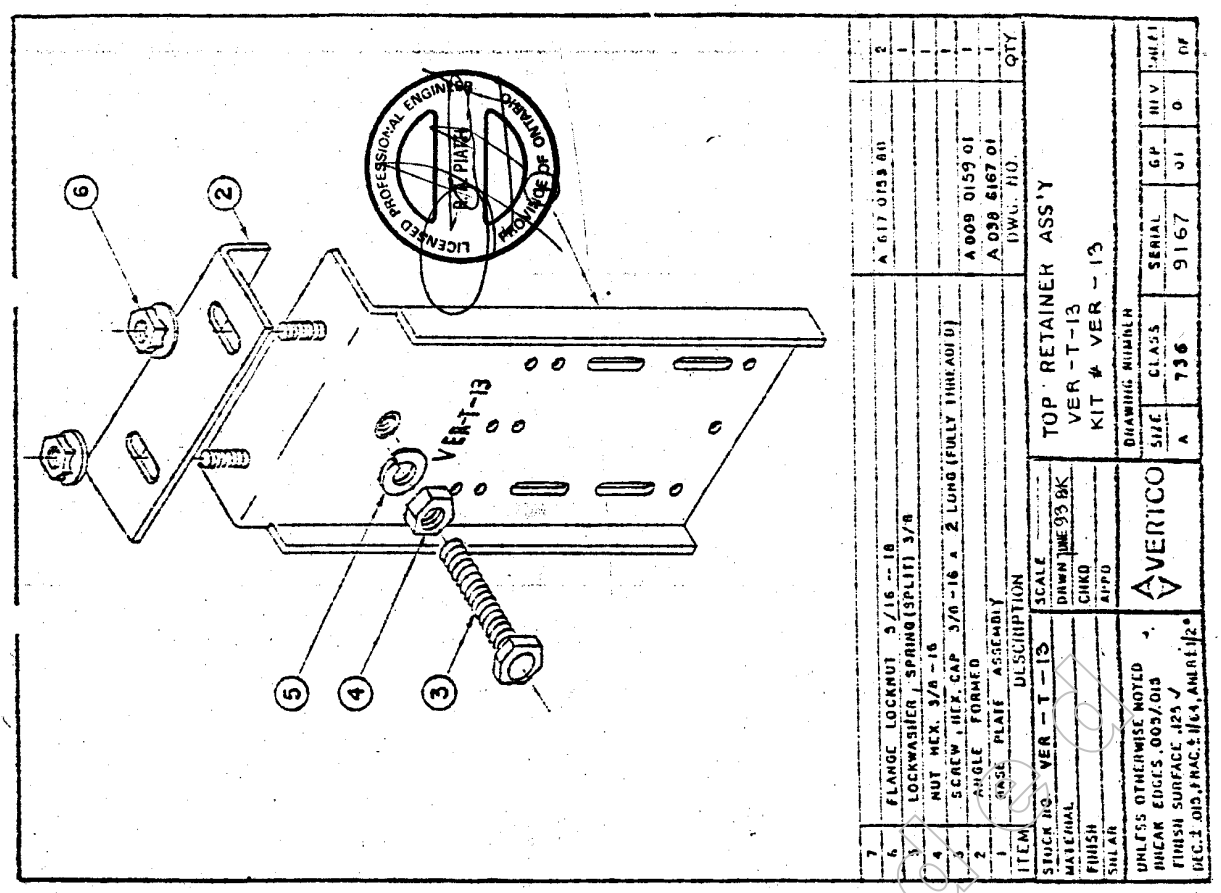
VERTCO

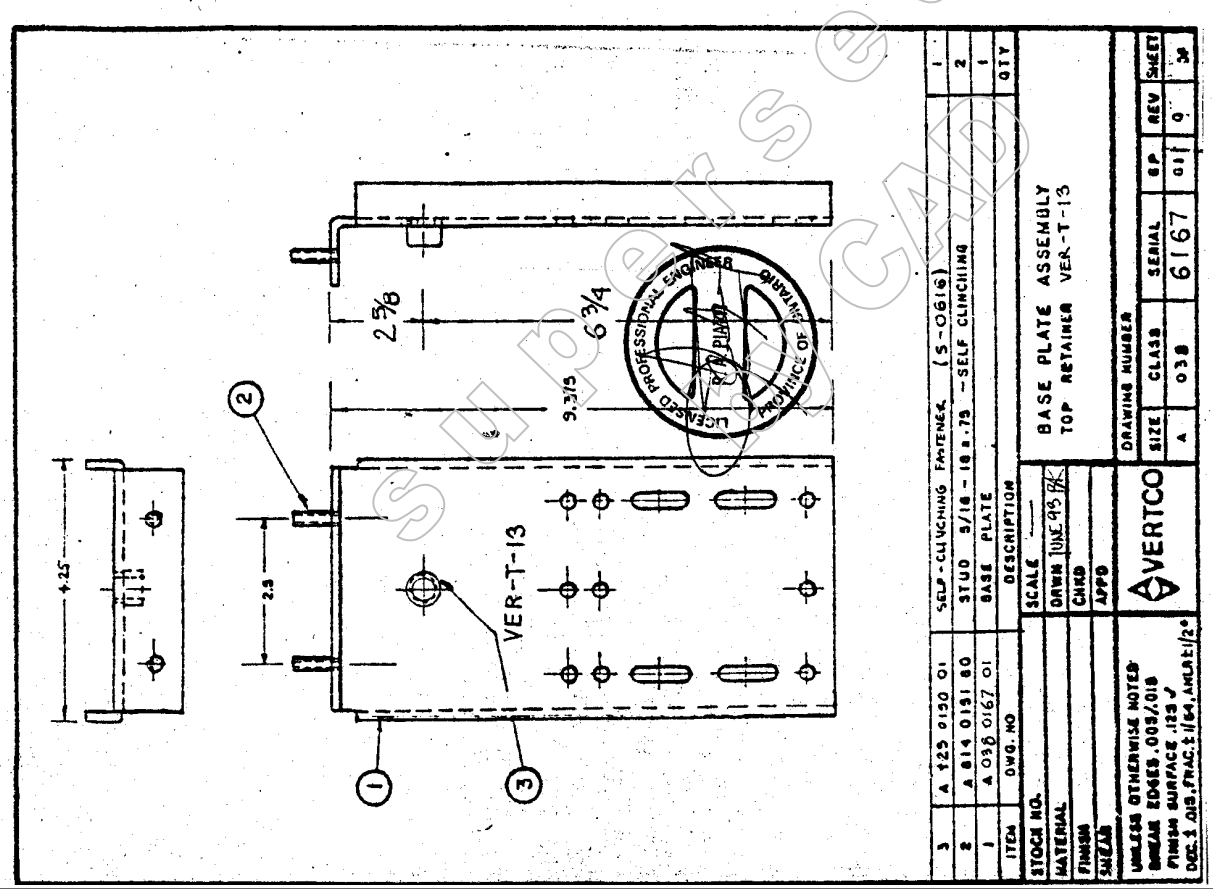
A736 91 01 01

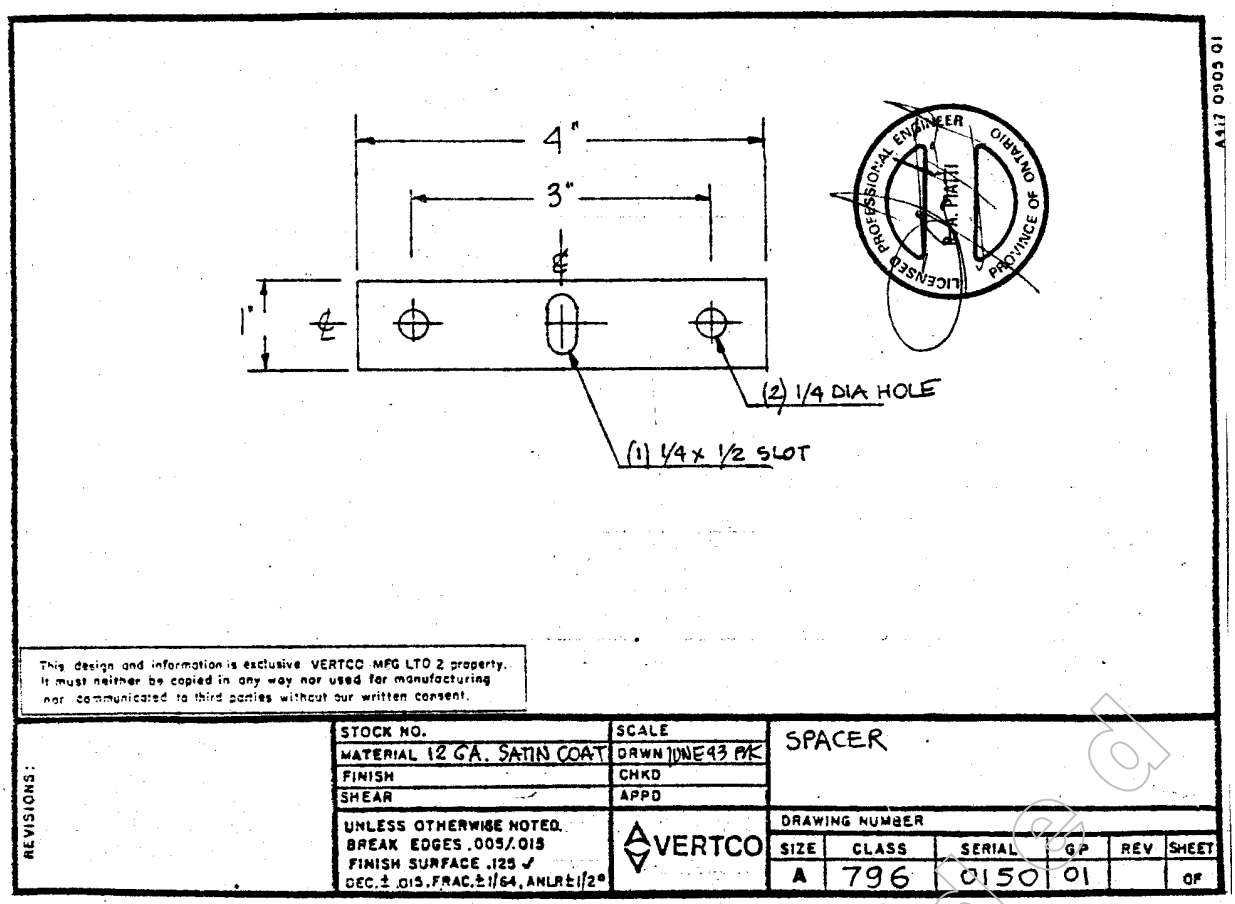
DOOR SAFETY RETAINER KIT
FOR FIELD MOUNTING TO
SINGLE SLIDE LANDING DOOR.

REVISIONS:

For SINGLE SLIDE landing door made by	Equipped with HANGERS make & type	BOTTOM GIBS make & type	SAFETY RETAINERS can be obtained from	by ordering kit #	The kit will contain - coloured YELLOW HEADER RETAINERS marked	&	SILL RETAINERS marked
TURNBULL	INDIVIDUAL	any make any type	VERTCO	VER-13	2 VER-T-13		1 VER-B-13







REVISIONS:

STOCK NO.	SCALE
MATERIAL 12 GA. SATIN COAT	DRWN JUNE 93 PK
FINISH	CHKD
SHEAR	APPD

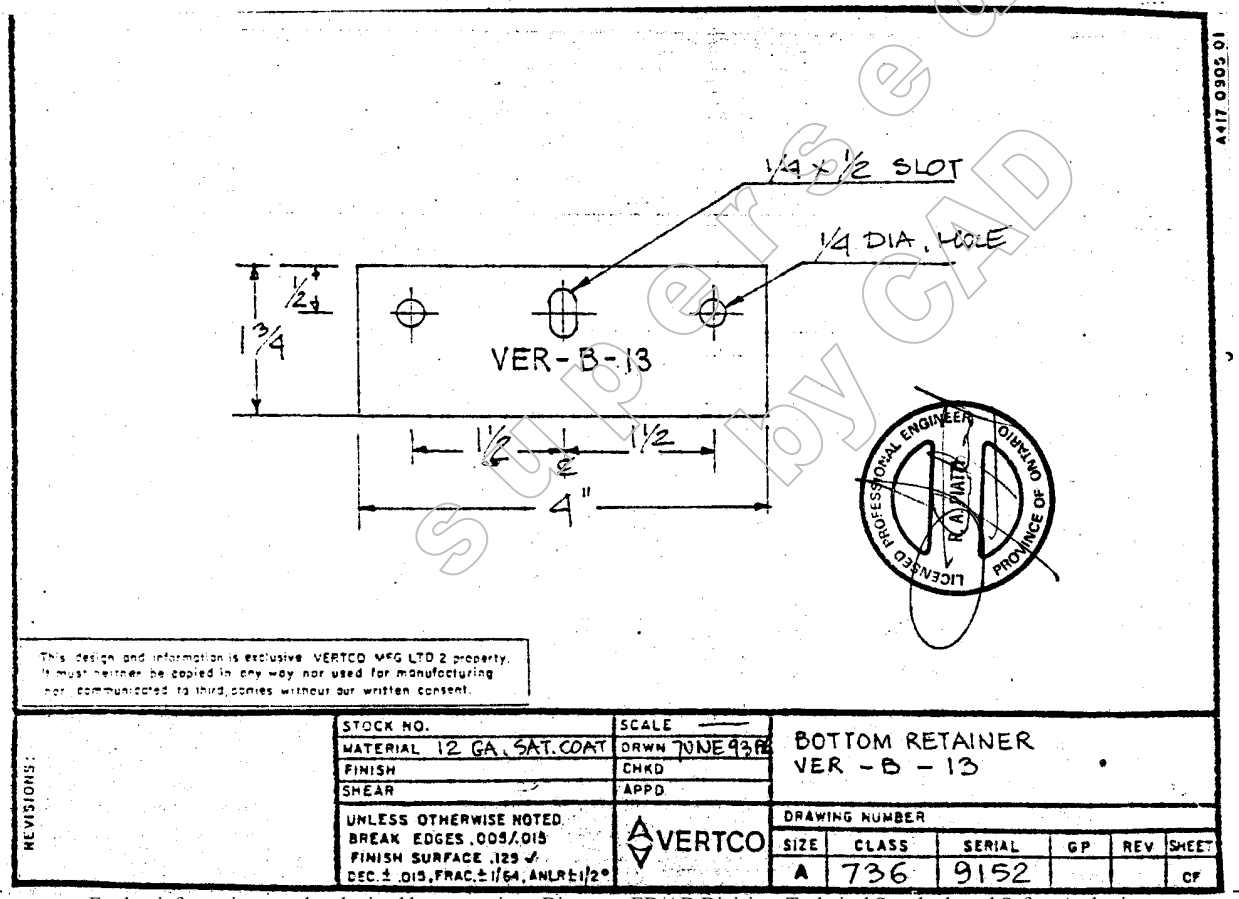
SPACER

UNLESS OTHERWISE NOTED.
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC.± .015, FRAC.± 1/64, ANLR± 1/2°

VERTCO

DRAWING NUMBER

SIZE	CLASS	SERIAL	GP	REV	SHEET
A	796	0150	01		OF



REVISIONS:

STOCK NO.	SCALE
MATERIAL 12 GA. SAT. COAT	DRWN JUNE 93 PK
FINISH	CHKD
SHEAR	APPD

BOTTOM RETAINER
VER - B - 13

UNLESS OTHERWISE NOTED.
BREAK EDGES .005/.015
FINISH SURFACE .125 ✓
DEC.± .015, FRAC.± 1/64, ANLR± 1/2°

VERTCO

DRAWING NUMBER

SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	9152			OF

VERTCO

DWG NO. A 736 9186 01 0

DOOR SAFETY RETAINER KIT FOR FIELD MOUNTING TO SINGLE SLIDE LANDING DOOR

KIT # VER R8

Tools required :
- Drill with 9/32 & 1/4-20 tap
- Electric screwdriver w\clutch driven 5/16 & 3/8 hex. socket (clutch set at 30-50 inch-pounds torque)

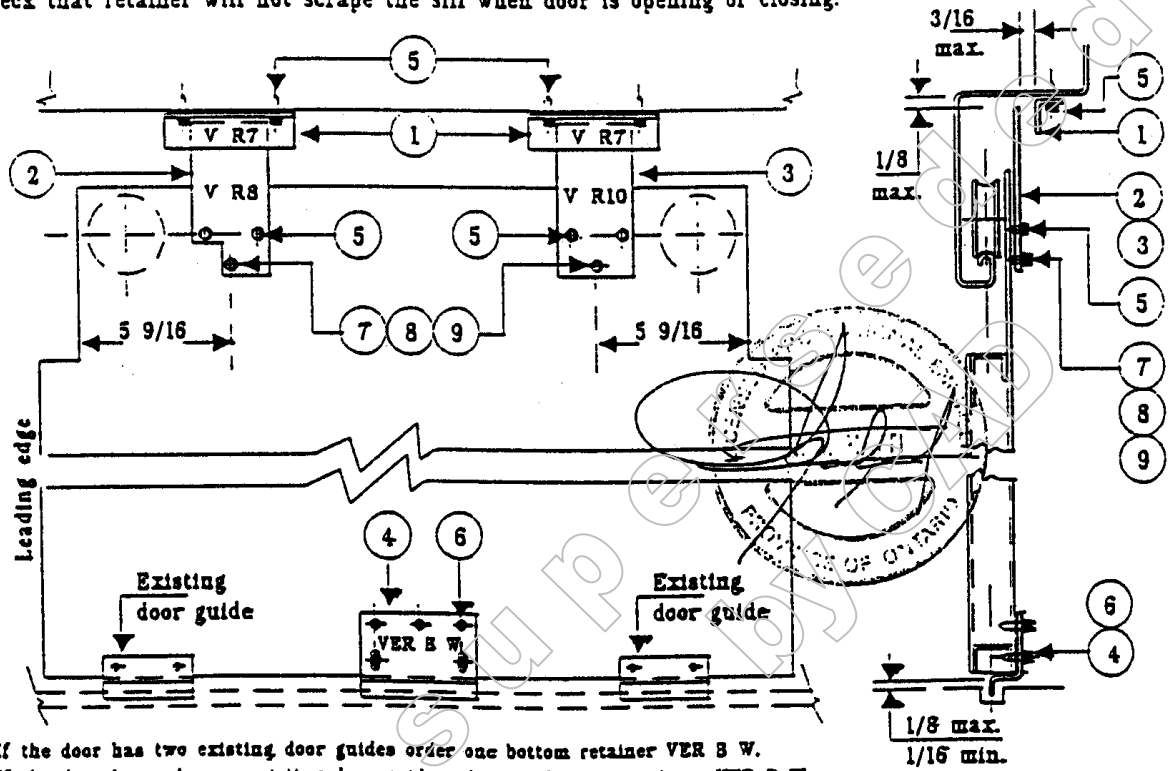
Item	Part number	Description	Q'ty
1	V R7	ANGLE RETAINER	1
2	V R8	TOP RETAINER	1
3	V R10	TOP RETAINER	2
4	VER B W	BOTTOM RETAINER	1 or 2
5	TEKS 2	SCREW 1/4-20 x 3/4" - " TEKS 2 " or EQUIV.. HEXAGON WASHER HD.. SELF TAP.. SELF DRIL.	8
6	TEKS 2	SCREW 10-24 x 3/4" - " TEKS 2 " or EQUIV.. HEXAGON WASHER HD.. SELF TAP.. SELF DRIL.	5 or 10
7		SCREW 1/4-20 x 1/2" HEXAGON HD.	2
8		1/4 LOCK WASHER	2
9		1/4 FLAT WASHER	2

INSTALLATION

With door closed . position top retainers (Item 2 & 3) according to dimensions on drawing and mark holes. Fasten retainers using supplied hardware. For (2) top holes use 1/4-20 x 3/4 TEKS 2 screws. For lower hole use 1/4- 20 x 1/2 screw w/lock and flat washer (check to be sure door runs free).

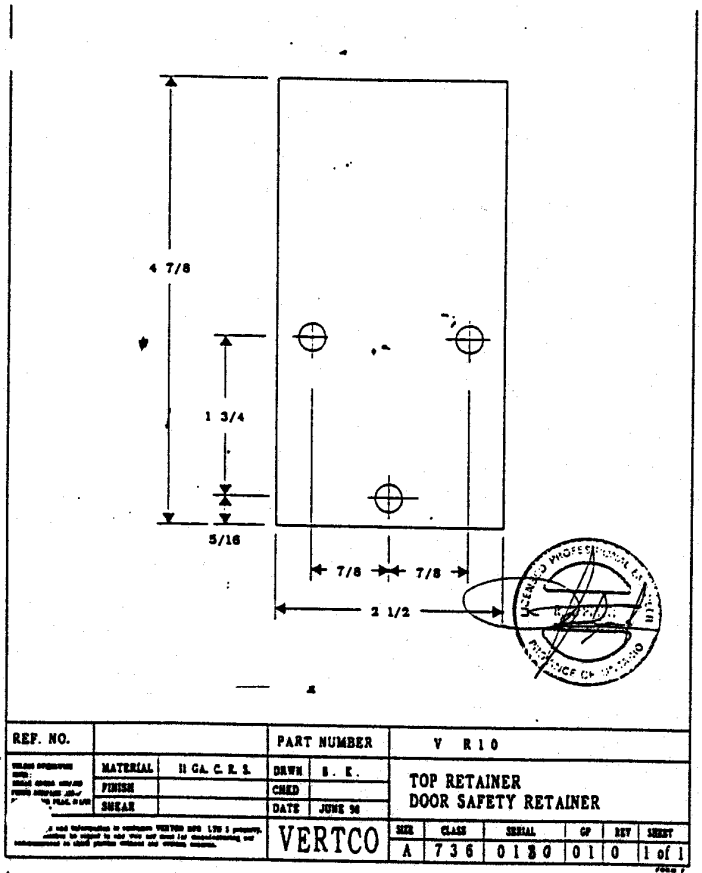
Position angle retainers (Item 1) as shown. mark holes. drill and fasten using 1/4-20 x 3/4 TEKS 2 screws. Check that retainers are correctly positioned. adjust if necessary.

With door closed position bottom retainer (Item 4) according to dimension on drawing. Mark holes . drill and install retainer using TEKS 2 screws. Check that retainer will not scrape the sill when door is opening or closing.



* If the door has two existing door guides order one bottom retainer VER B W.
* If the door has only one existing door guide order two bottom retainers VER B W.

For SINGLE SLIDE landing door made by	Equipped with HANGERS make & type	BOTTOM GIBS make & type	SAFETY RETAINERS can be obtained from	by ordering KIT #	The kit contain - colored YELLOW Q HEADER RETAINERS marked	Q SILL RETAINER marked
DAHLSTROM	MAC INTEGRAL	any make any type	VERTCO	VER - R8	1 V R8 1 V R10 2 V R7	1 or 2* VER B W

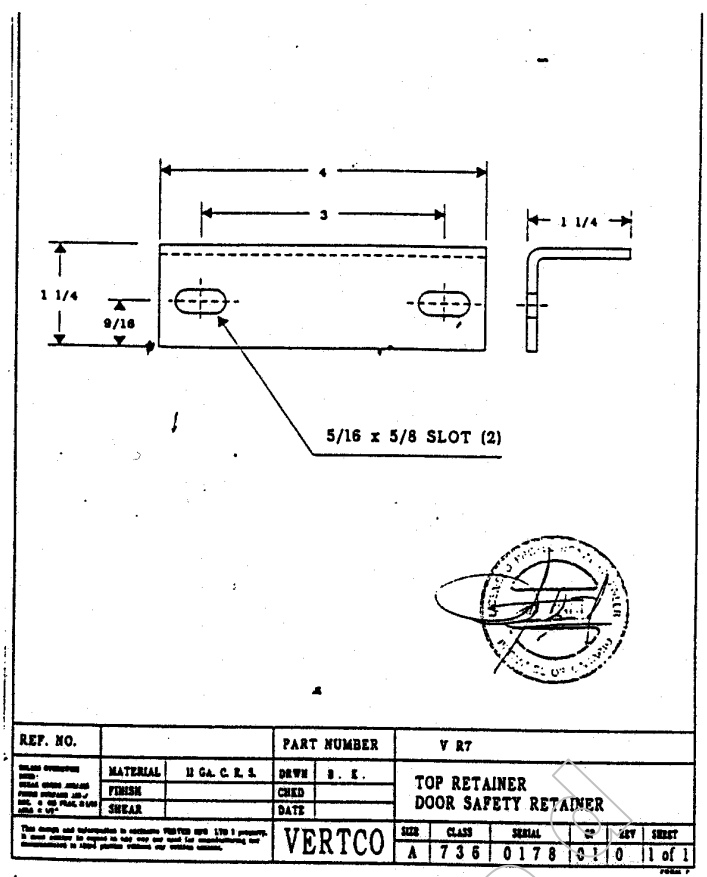


REF. NO.		PART NUMBER	V R 1 0
MATERIAL	11 GA. C. R. S.	DRWN	B. E.
FINISH		CHKD	
SHEAR		DATE	JUNE 90

TOP RETAINER
DOOR SAFETY RETAINER

VERTCO

SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	0180	01	0	1 of 1

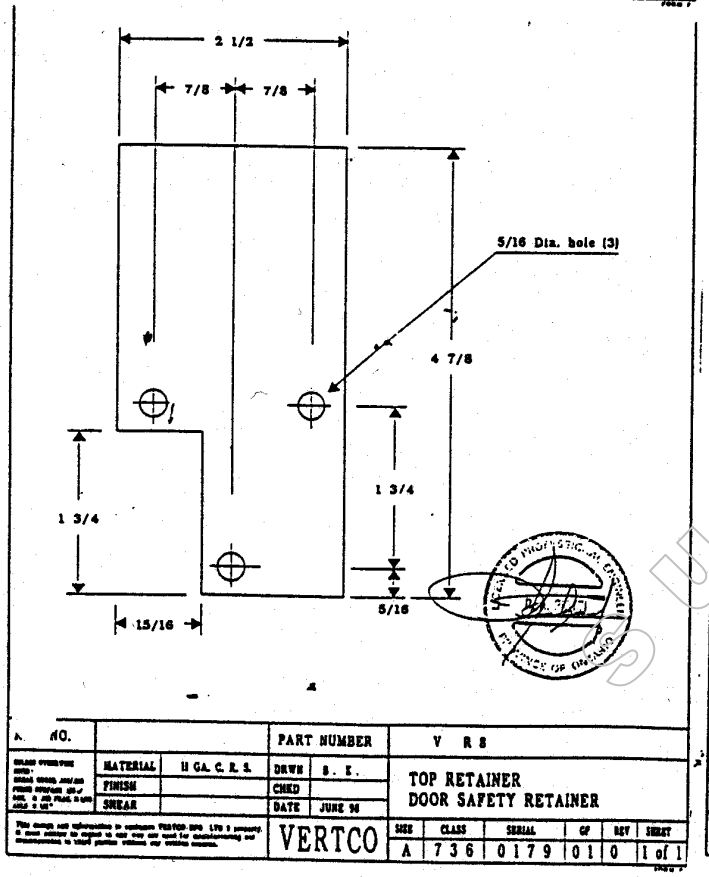


REF. NO.		PART NUMBER	V R7
MATERIAL	11 GA. C. R. S.	DRWN	B. E.
FINISH		CHKD	
SHEAR		DATE	

TOP RETAINER
DOOR SAFETY RETAINER

VERTCO

SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	0178	01	0	1 of 1

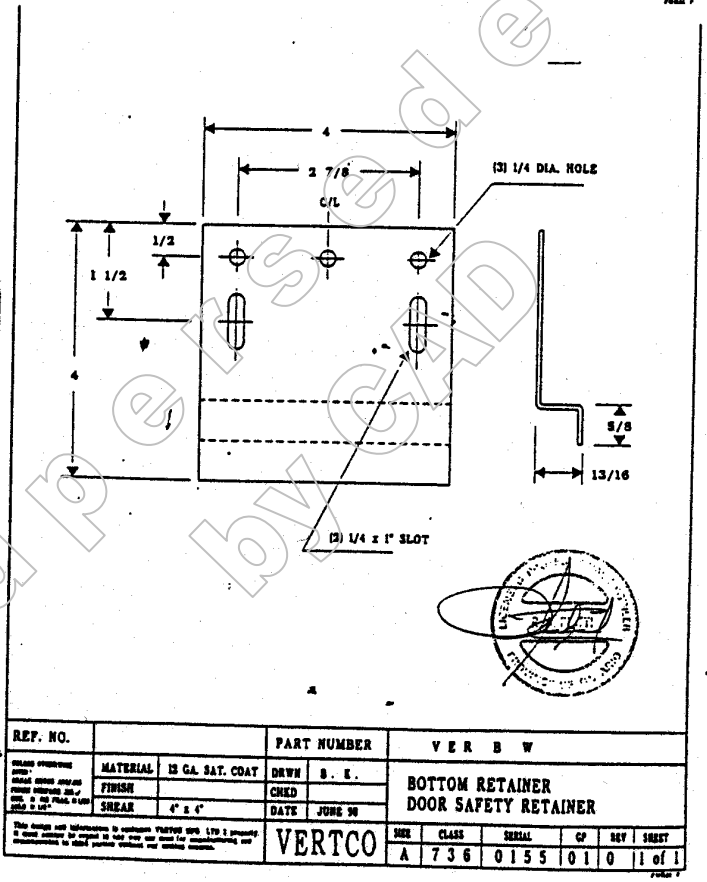


NO.		PART NUMBER	V R 8
MATERIAL	11 GA. C. R. S.	DRWN	B. E.
FINISH		CHKD	
SHEAR		DATE	JUNE 90

TOP RETAINER
DOOR SAFETY RETAINER

VERTCO

SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	0179	01	0	1 of 1

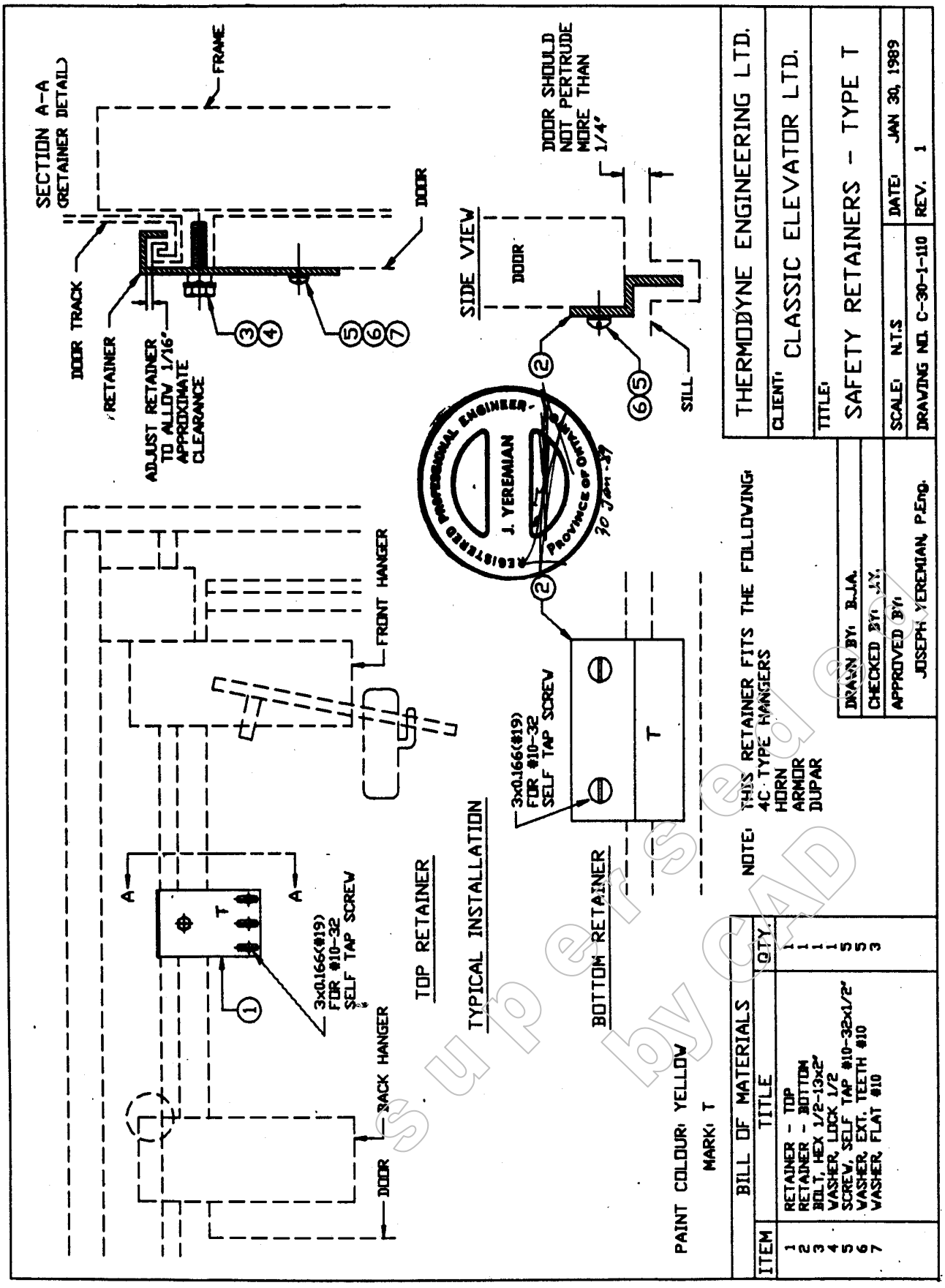


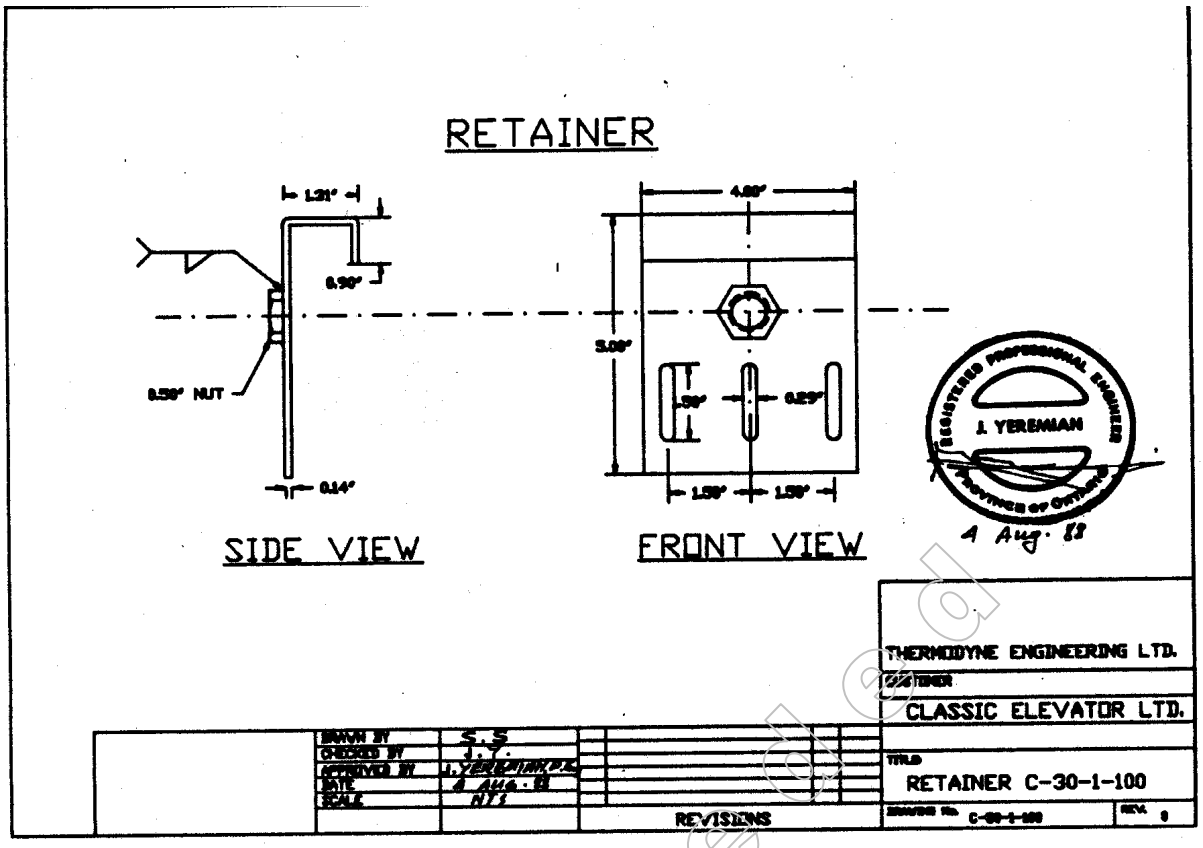
REF. NO.		PART NUMBER	V E R B W
MATERIAL	12 GA. SAT. COAT	DRWN	B. E.
FINISH		CHKD	
SHEAR	4" x 4"	DATE	JUNE 90

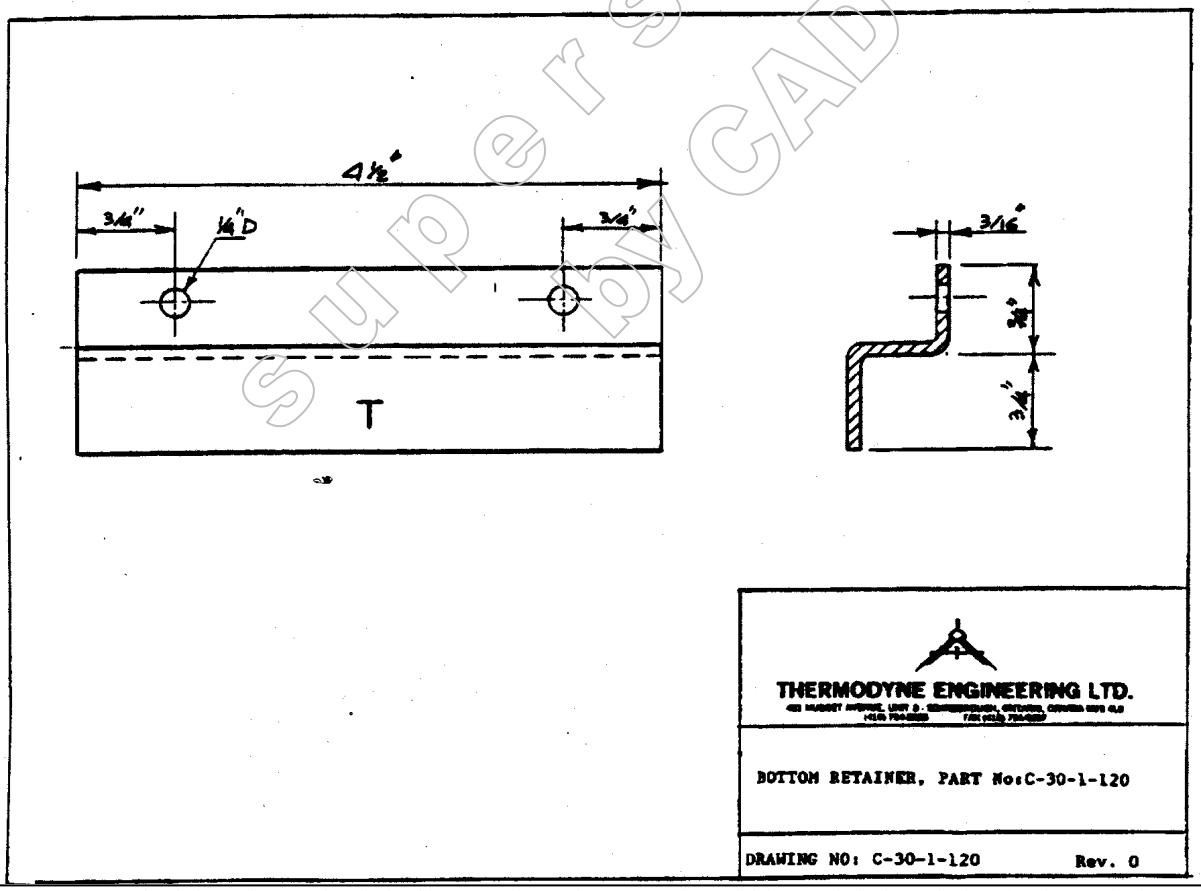
BOTTOM RETAINER
DOOR SAFETY RETAINER

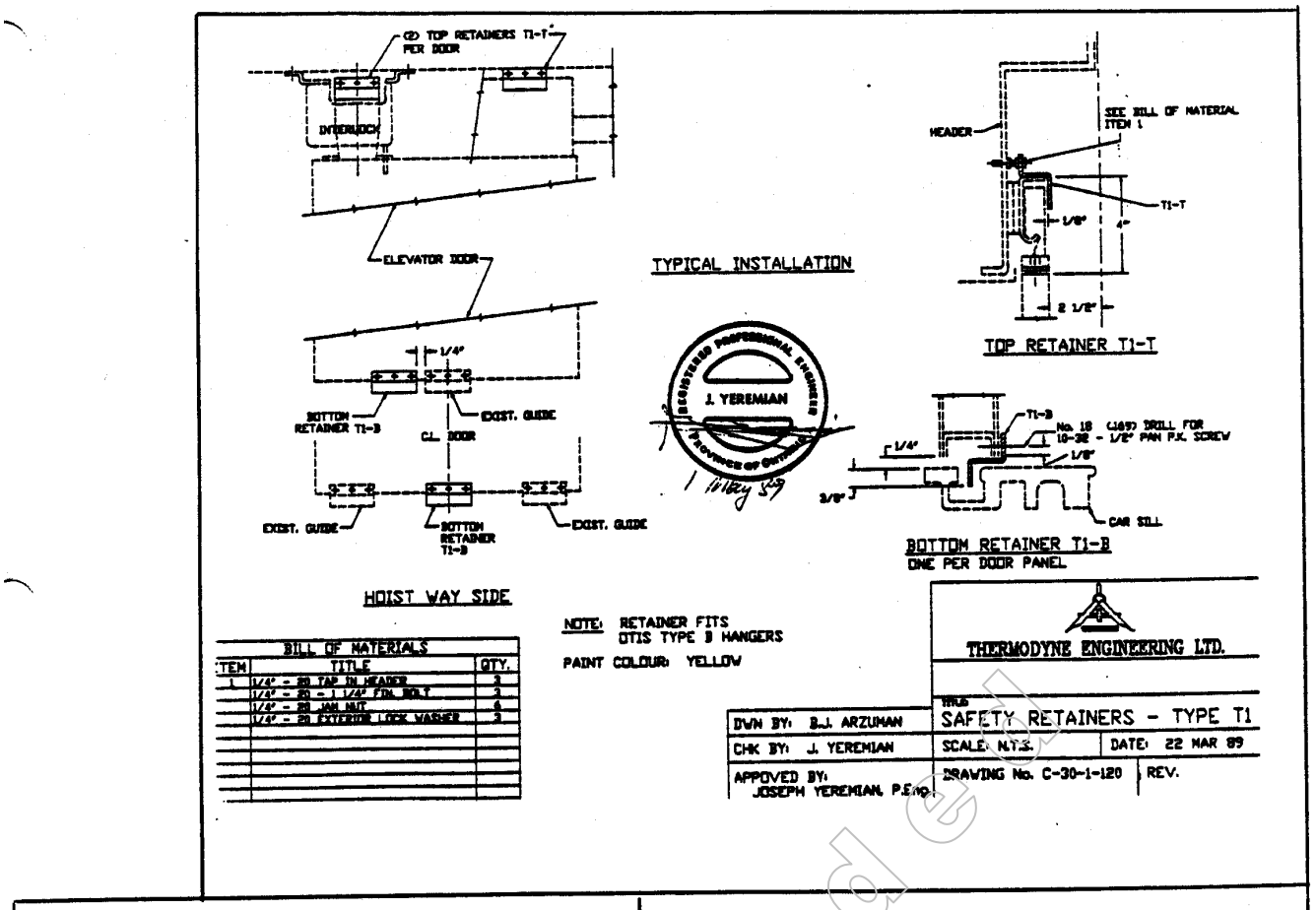
VERTCO

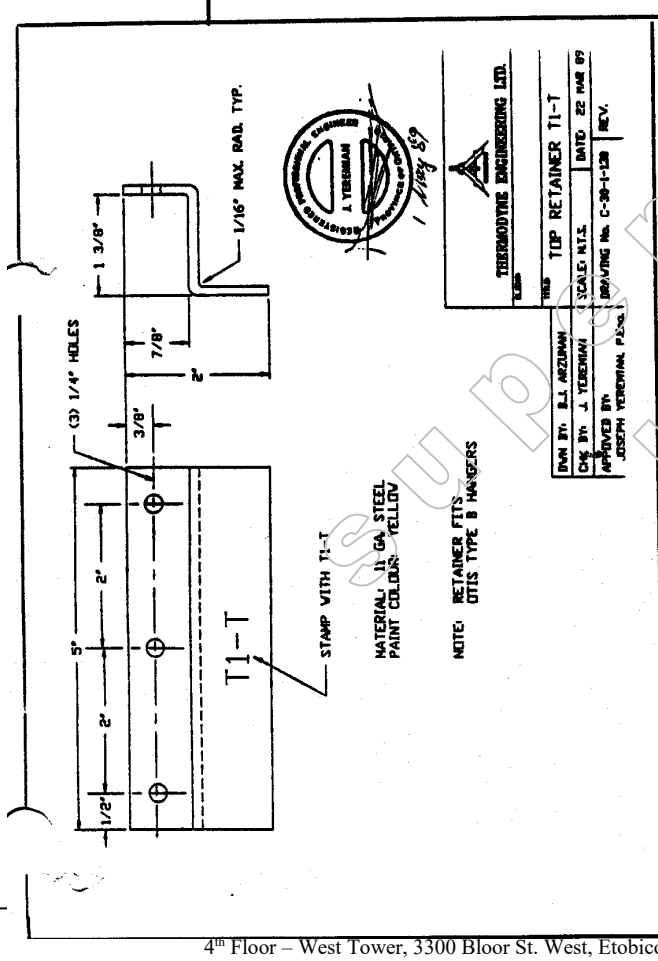
SIZE	CLASS	SERIAL	GP	REV	SHEET
A	736	0155	01	0	1 of 1

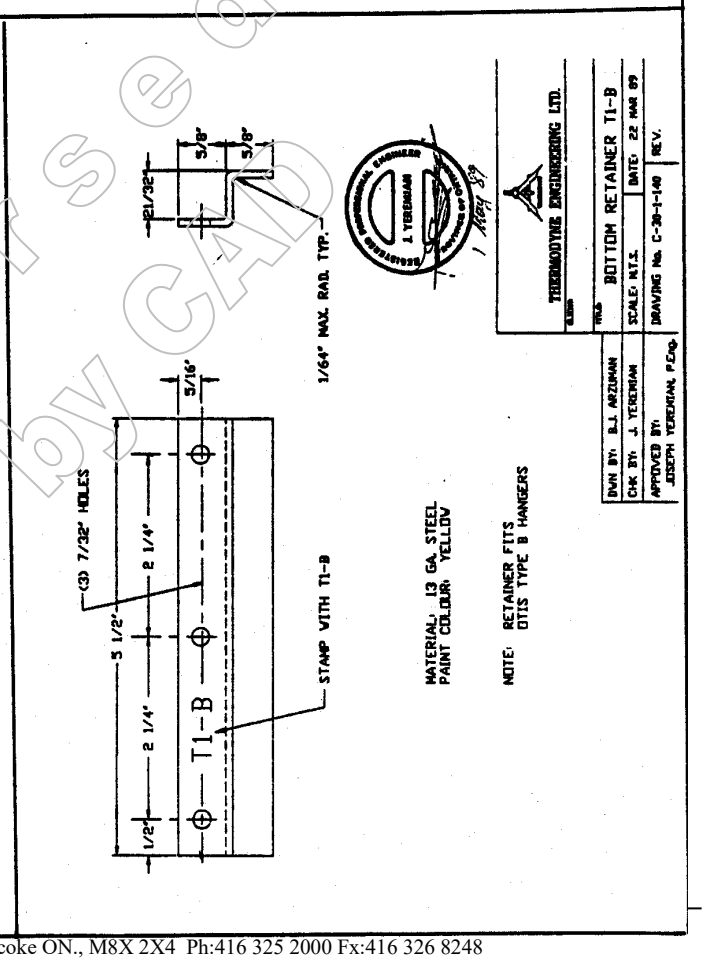


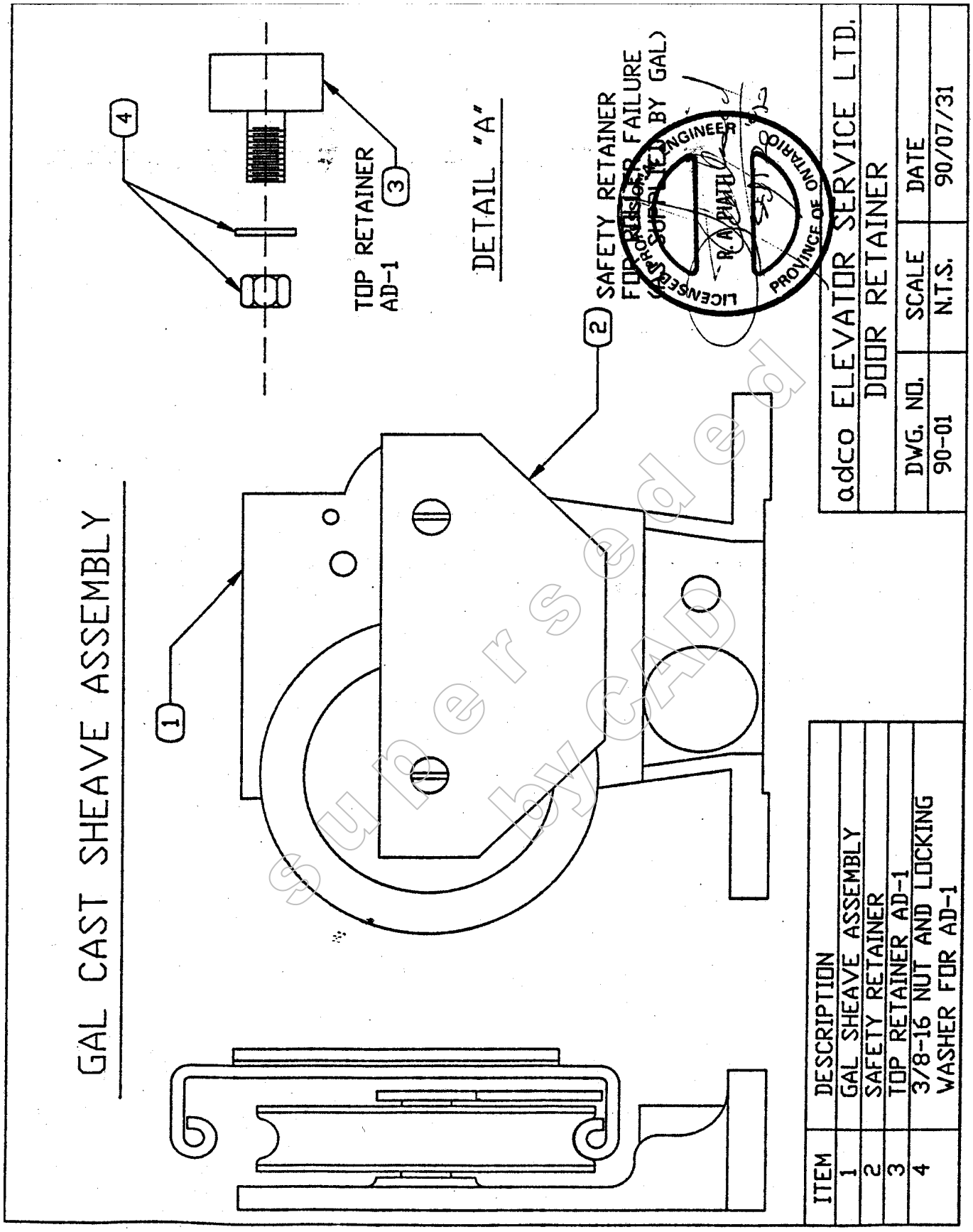




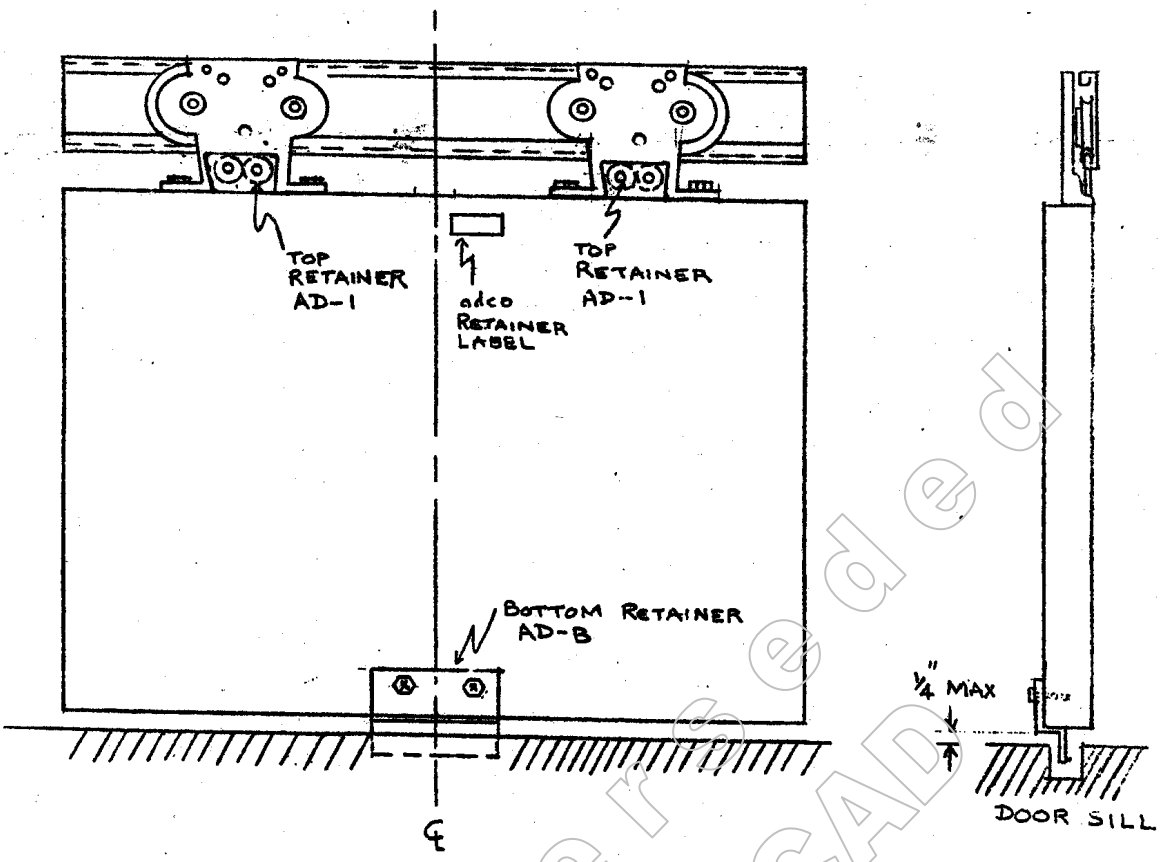







GAL CAST SHEAVE ASSEMBLY
DETAIL "A"
TOP RETAINER AD-1
SAFETY RETAINER FOR DOOR FAILURE (SUPPLIED BY GAL)
adco ELEVATOR SERVICE LTD.
DOOR RETAINER
DWG. NO. 90-01
SCALE N.T.S.
DATE 90/07/31
ITEM DESCRIPTION
1 GAL SHEAVE ASSEMBLY
2 SAFETY RETAINER
3 TOP RETAINER AD-1
4 3/8-16 NUT AND LOCKING WASHER FOR AD-1
LICENSED PROFESSIONAL ENGINEER
R. A. PRATT
PROVINCE OF ONTARIO
superseded by CAD

GAL CAST SHEAVE ASSEMBLY WITH AD-1 RETAINER



TOOLS REQUIRED:

ELECTRIC SCREWDRIVER WITH CLUTCH DRIVEN 5/16" SOCKET (CLUTCH SET AT 30-40 INCH POUNDS TORQUE)
3/8" WRENCH

INSTALLATION:

1. PLACE THE TOP RETAINER INTO ONE OF THE HOLES (DEPENDING ON LEFT OR RIGHT HAND HANGER).
2. SCREW-IN THE 3/8-16 NUT WITH LOCKING WASHER (SUPPLIED) FROM THE BACKSIDE OF THE HANGER.
3. MOUNT THE BOTTOM RETAINER AS SHOWN ABOVE.
4. AFFIX THE LABEL CLOSE TO THE TOP OF DOOR (BETWEEN THE HANGERS).

LICENSED PROFESSIONAL ENGINEER
R. A. PIATTI
AUG. 31 1990
PROVINCE OF ONTARIO

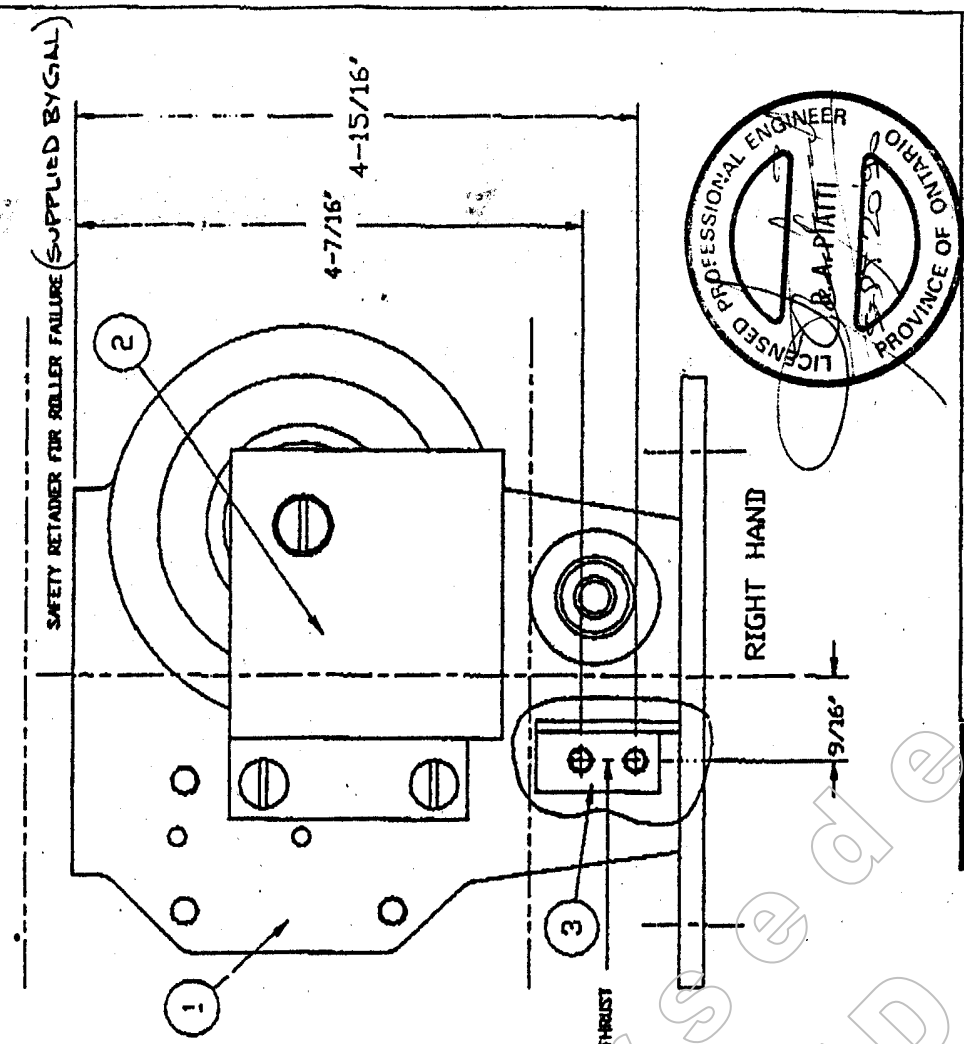
ORDER KIT AD-1
(SEE DWG. NO. 90-03 FOR DETAILS)

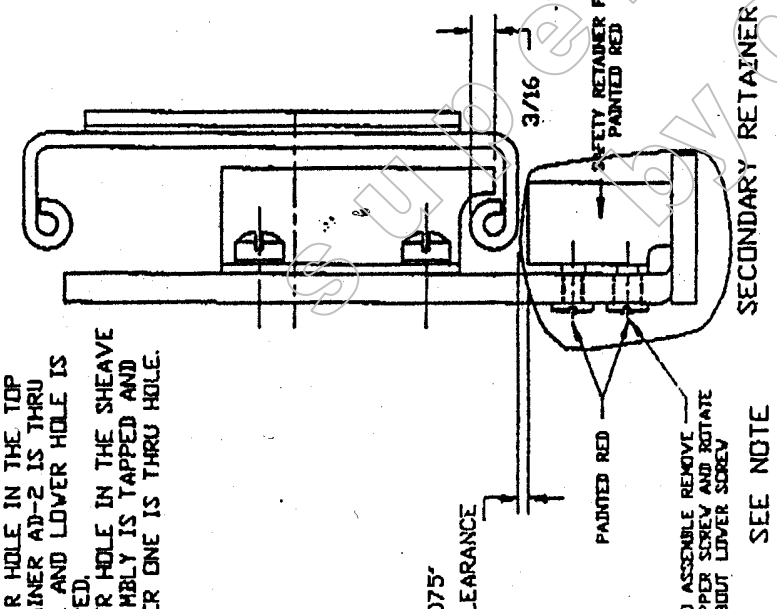
adco ELEVATOR SERVICE LTD

DOOR RETAINERS

DWG. NO.	SCALE	DATE
90-01A	NONE	90-07-31

GAL FORMED STEEL SHEAVE ASSEMBLY





NOTE:
UPPER HOLE IN THE TOP RETAINER AD-2 IS THRU HOLE AND LOWER HOLE IS TAPPED.
UPPER HOLE IN THE SHEAVE ASSEMBLY IS TAPPED AND LOWER ONE IS THRU HOLE.

ITEM	DESCRIPTION
1	GAL SHEAVE ASSEMBLY
2	SAFETY RETAINER BY GAL
3	TOP RETAINER AD-2
4	TWO 8-32 x 3/8 SCREWS FOR MOUNTING AD-2

adco ELEVATOR SERVICE LTD.

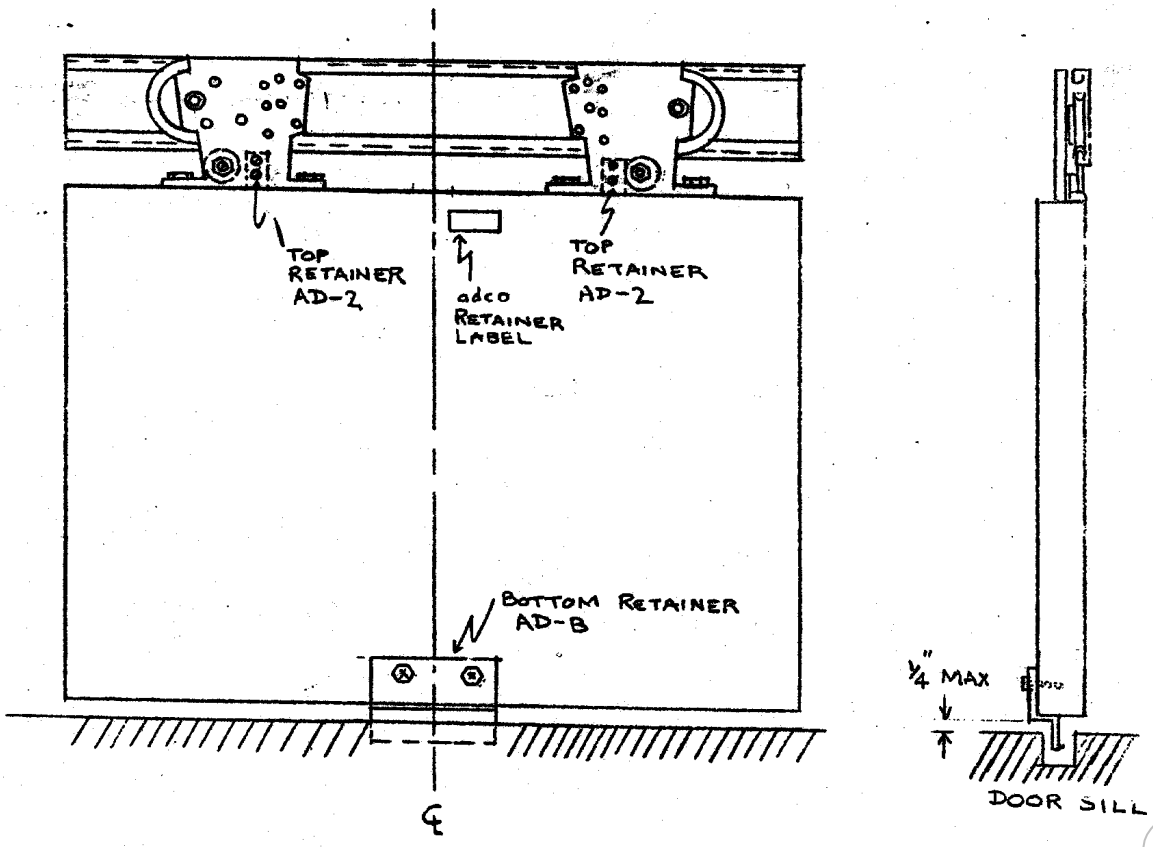
DOOR RETAINER

DWG. NO.	SCALE	DATE
90-02	N.T.S.	90/09/14

ADCO ELEVATOR SERVICE LTD

LICENSED PROFESSIONAL ENGINEER
J. A. PIATTI
PROVINCE OF ONTARIO

GAL FORMED STEEL SHEAVE WITH AD-2 RETAINERS



TOOLS REQUIRED:

ELECTRIC SCREWDRIVER WITH CLUTCH DRIVEN 5/16" SOCKET (CLUTCH SET AT 30-40 INCH POUNDS TORQUE)
DRILL AND TAP FOR 8-32 SCREW; DRILL MACHINE
FLATHEAD SCREW DRIVER, 9/16" WRENCH.

INSTALLATION:

1. DRILL AND TAP THE HOLES IN THE HANGER AS PER DWG. # 90-02
2. SCREW THE TOP RETAINER BY INSERTING THE SCREWS (SUPPLIED) FROM THE BACKSIDE OF THE HANGER.
3. MOUNT THE BOTTOM RETAINER AS SHOWN ABOVE.
4. AFFIX THE LABEL CLOSE TO THE TOP OF DOOR (BETWEEN THE HANGERS).

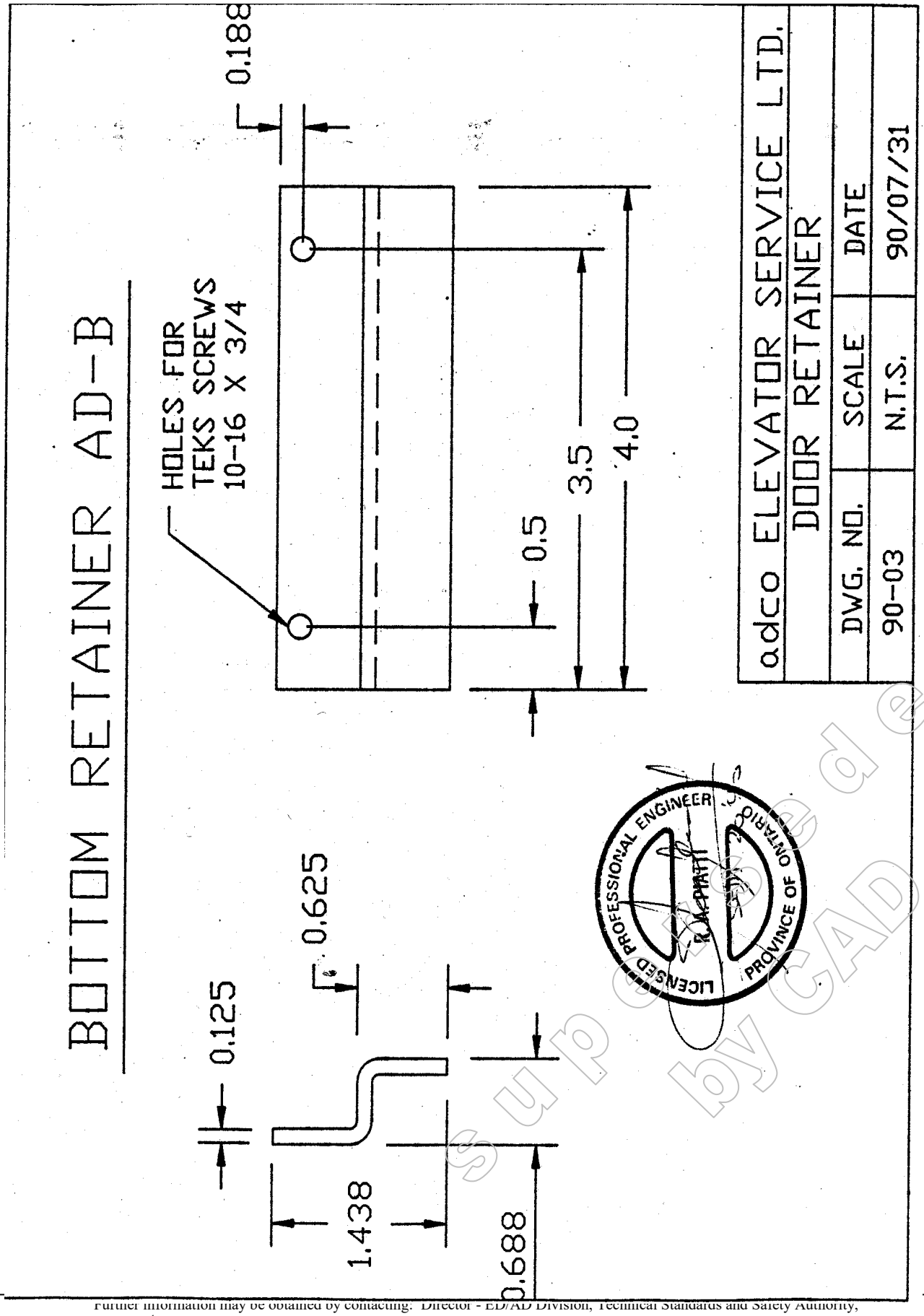
LICENSED PROFESSIONAL ENGINEER
R. A. PLATH
PROVINCE OF ONTARIO

ORDER KIT AD-2
(SEE DWG. NO. 90-03 FOR DETAILS)

adco ELEVATOR SERVICE LTD

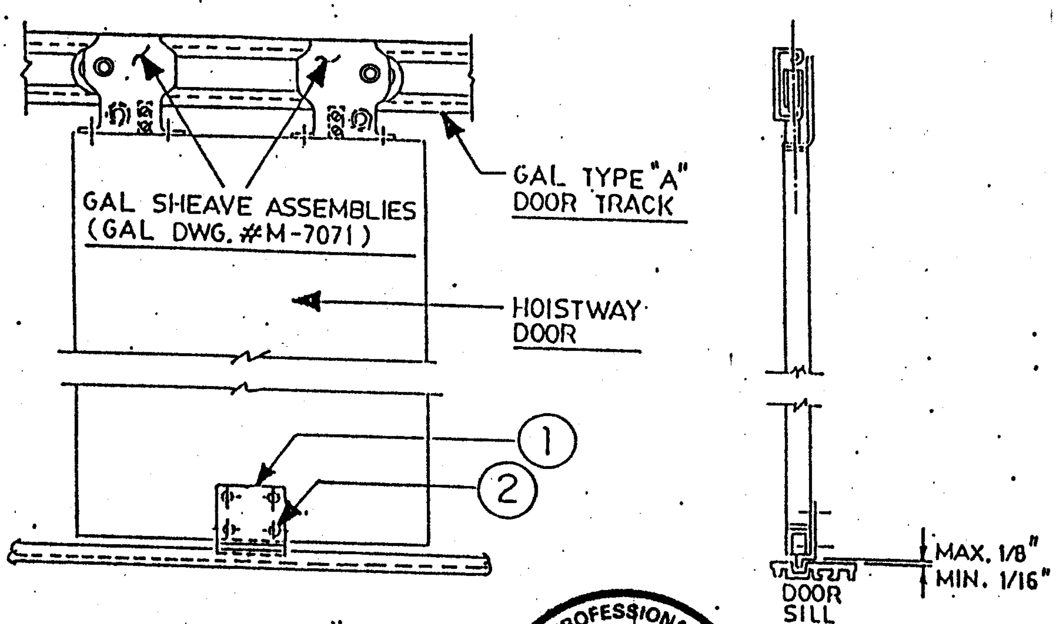
DOOR RETAINERS

DWG. NO.	SCALE	DATE



For SINGLE SLIDE landing door made by	Equipped with HANGERS make & type	BOTTOM GIBS make & type	SAFETY RETAINERS can be obtained from	by ordering	The kit will contain - coloured YELLOW HEADER RETAINERS marked	SILL RETAINERS marked	For details see attachments Number
BECKETT	GAL formed Steel type	any make and type	CEE	Kit# CEE-1	2 N/A See note below	1 BECKETT-SR	

Note :
Top retainers are integral part of GAL supplied sheave assemblies.



LICENSED PROFESSIONAL ENGINEER
A. W. Kruszewski
PROVINCE OF ONTARIO

Tools required
- -Drill;
- -3/8" wrench;
- -No.10 hex sockett;
- -Torque wrench;
- -5/32" drill bit.

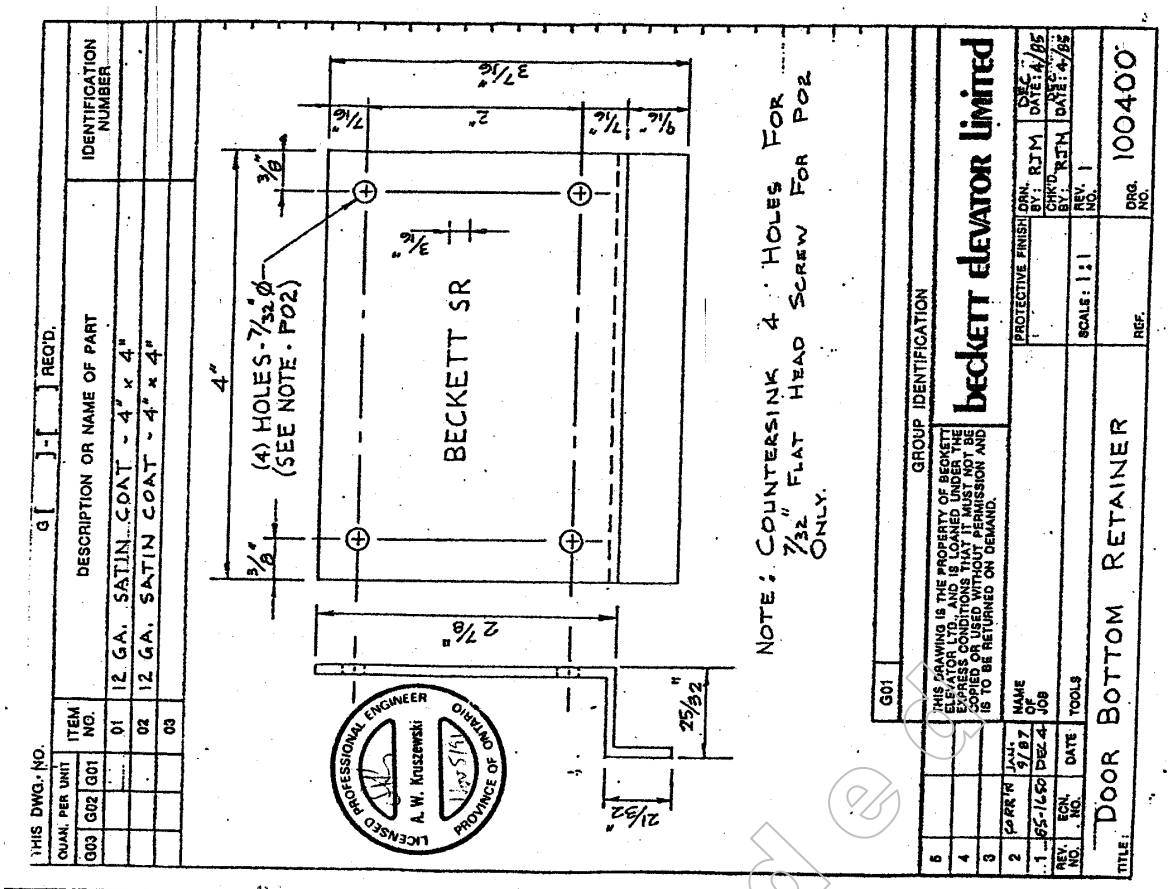
Installation instructions
1. With the door closed, mark the location of the holes for the bottom retainer using the retainer as a template. Drill the holes using a 5/32" drill bit.
2. Install bottom retainer using hardware supplied. Tighten screws to 50-80 inch pounds torque. Check that the retainer will not scrape the sill when the door is opening or closing.

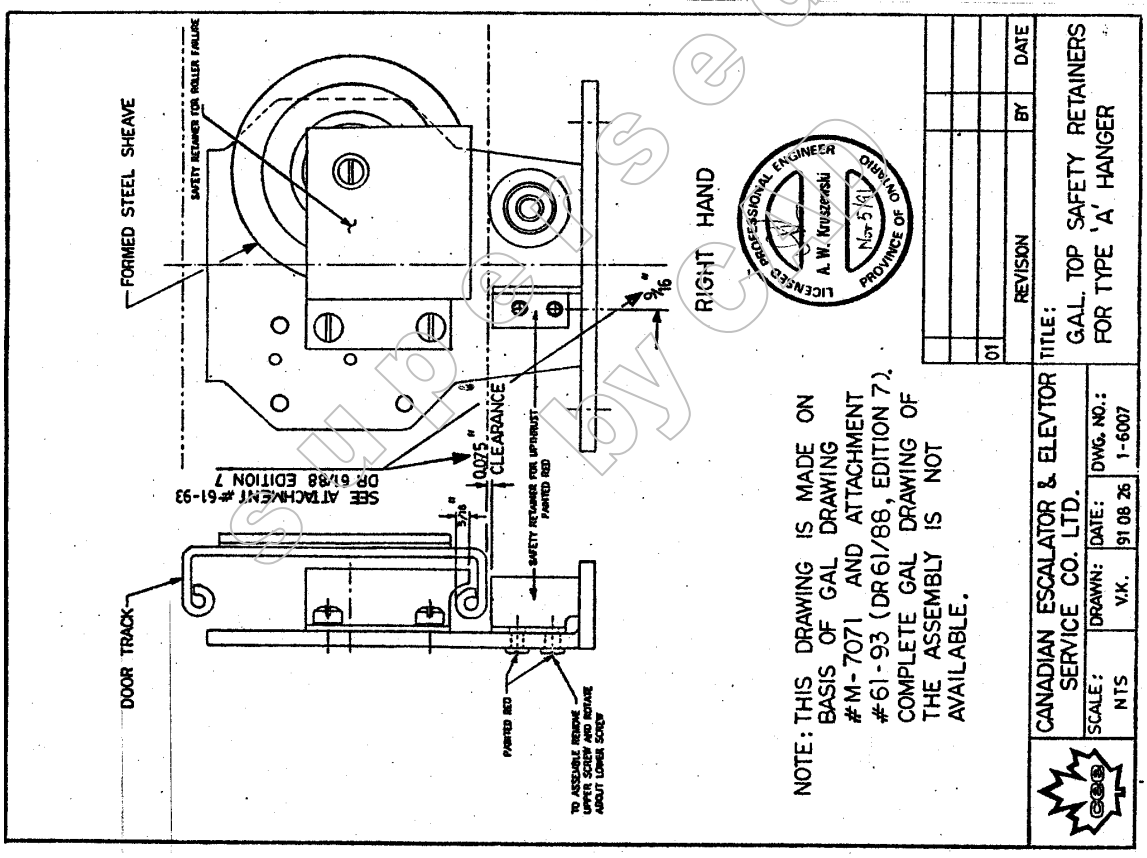
ITEM	DESCRIPTION
3	PRINT OF THIS DRAWING
2	#10-24 x 5/8" LG. HEX. HD WASHER FACE TEKS SCREWS
1	BOTTOM RETAINER "BECKETT-SR" (#100400 - ITEM 01)

CANADIAN ESCALATOR & ELEVATOR SERVICE CO. LTD.

SCALE :	DRAWN :	DATE :	DWG NO. :
NTS	V.K.	91 08 26	1-6006

TITLE :
DOOR SAFETY RETAINER KIT #CEE-1 (FIELD MOUNTED TO SINGLE SLIDE LANDING DOOR)





Elevating and Amusement Devices Safety Division	Ref. No.: 128/96	Rev. No.: 1
DIRECTOR'S RULING	Date: December 13/96	Date: July 24, 1997

Subject: **SUPPORT, HOLD-DOWN AND COMBINATION HOLD-DOWN/SUPPORT SHEAVES AND SHEAVE ASSEMBLIES ON THE ABOVE-SURFACE CHAIR LIFTS**

Send to: **ALL CONTRACTORS IN GROUP 8, SUBMITTING ENGINEERS, MANUFACTURERS AND OTHER JURISDICTIONS**

THIS RULING IS AN EMERGENCY SAFETY ALERT

1. DESIGN AND PERFORMANCE REQUIREMENTS FOR HOLD-DOWN AND COMBINATION HOLD-DOWN/SUPPORT SHEAVES AND SHEAVE ASSEMBLIES

Support, hold-down and combination hold-down/support sheaves and sheave assemblies on all chair lifts operating in Ontario shall meet the following requirements:

a. Means shall be provided to restrict the movement of the haul rope to the inside of each sheave and sheave assembly should the rope leave the groove. (Reference Clause 3.19.10.2 of CAN/CSA-Z98-96 Standard)

b. Means, shall be provided to retain the haul rope, in the event that the rope leaves its normal running position, to the outside of each sheave and sheave assembly. Such means shall be located not more than ½ sheave diameter vertically from the normal position of the rope. (Reference Clause 3.19.10.3 of CAN/CSA-Z98-96 Standard)

c. The design of sheave assembly and the means provided to comply with the foregoing items (a) and (b) shall allow free passage of the haul rope and carriers while the rope is in or out of the normal position. (Reference Clause 3.19.10.4 of CAN/CSA-Z98-96 Standard)

2. ORDER

All chair lifts shall comply with Section 1 of this Ruling forthwith. Any chair lift not in compliance with Ruling Section 1 shall not be operated for use by the public, until such time as the corrective actions to meet the requirements of this ruling have been completed.

The owner of the chair lift shall obtain services of either a qualified professional engineer registered in Ontario or a qualified representative of the designer/manufacturer of the chair lift to determine compliance of this Ruling. In addition, the owner shall submit to this office within 65 days of the date on which this Ruling is sent, pertinent documentation approved by the qualified professional engineer registered in Ontario or the qualified representative of the designer/manufacturer of the chair lift in accordance with the Elevating Devices Act and Section 7 of the Ontario Regulation demonstrating compliance of this Ruling. The fee for this type of design submission shall be based on a minor alteration Type 'A'.

3. CLARIFICATION

The requirements in Section 1 of this Ruling apply to the specific application described, and do not remove the requirements to comply with the Elevating Devices Act and Regulation including all the adopted Standards in the Regulation.

4. BACKGROUND

As the result of a fatal accident that occurred at Snow Valley Ski Resort on Friday December 6, 1996 a potential hazard has been discovered that requires this immediate action.

5. EXPLANATION FOR REVISION 1

Following the consultation with stakeholders this Ruling is revised as a result of:

- Further investigation and testing of the support sheave assembly revealed the support sheave assembly was unable to retain the hauling rope out of its normal position, as was the case for the hold-down sheave assembly which resulted in issuance of this Safety Alert.

Since the original Safety Alert was issued during the beginning of 1996 ski season, the timing for submission of pertinent documentation in Section 2 of this Safety Alert is revised for 1997 ski season.

Director

Elevating and Amusement Devices Safety Division	Ref. No.: 131/98	Rev. No.:
Information / Interpretation Bulletin	Date: **October 20, 1998**	Date:

Subject: 1) **ED & AD Bulletins & Director's Orders Replacing Director's Rulings**
2) **Lists Of Cancelled And Valid Rulings As Of October '98**

Sent to: **All Elevating Devices Contractors and Amusement Devices Licensees ALL**

1. Bulletins and Director's Orders Replacing Director's Rulings

1.1 Since 1982 Director's Rulings have been issued to contractors, owners/licensees as a means of communicating issues relating to safety, information, enforcement, etc.

1.2 TSSA is committed to public safety and to be responsive to the concerns of all stakeholders and clients. In order to provide a more streamlined, efficient and effective means of communication, it has been decided to review the Director's Rulings communication system.

1.3 Effective immediately, all future communications will be under the major heading of "Elevating & Amusement Devices Safety Division BULLETIN" or DIRECTOR'S ORDERS.

Director's Orders will cover adoption of published codes or standards; adoption of technical rules developed by TSSA; announcement of other actions or decisions by the Director under the Act.

1.4 Depending on the nature of the communication a bulletin, will be designated in the sub-heading as one of these types:

(a) **Enforcement Procedures**: Procedures for enforcement of the requirements specified in the Act, Regulations, codes and standards, such as procedures for design submission registration or technical dossier filing; testing and inspections; licensing; contractor registration; maintenance; alterations; operation.
(b) **Safety Alert**: The Safety Alerts are orders to owners, contractors or operators to take specific actions. The orders are based on information on newly identified potential safety hazards on existing installations, resulting from equipment faults, non-compliance with codes or standards, inappropriate maintenance or use, etc.
(c) **Information/Interpretation**: Information on accidents or incidents in Ontario and other jurisdictions; warning on unsafe work practices; information on TSSA activities and services; interpretations by code committees or clarifications of codes or standards; general communications.

1.5 Director's Orders only will require signatures by the Director under the Act. All bulletins will be issued by the Chief Engineer and/or Chief Inspector. Before publication, the draft Bulletins and Director's Orders will be reviewed by stakeholders' representatives or standing committees, as appropriate and within acceptable time lines.

1.6 Bulletins and Director's Orders will be consecutively numbered.

2. Status of Current Director's Rulings

2.1 Valid Rulings - Enclosed is a list of Director's Rulings that are valid as of the date of this Bulletin.A number of rulings from this list is proposed to be incorporated into the regulations, currently being developed. Once the legislation review process is completed, further lists of cancelled rulings will be issued.

2.2 Cancelled Rulings - Enclosed is a list of all Director's Rulings that are cancelled for reasons given in the list.
Note: The attached list amends the previous cancelled Rulings list issued in 1993.

C. E. Vlahovic, Chief Engineer

J. Murphy, Chief Inspector

LIST OF VALID - EDB DIRECTORS RULINGS - STATUS:OCTOBER 19, 1998

Note: All Rulings up to and including #130 are cancelled if not listed in this table

Number	Date	Subject
07/83	83.10.19	MOLINE (Mac) door interlocks
10/84	84.03.15	OTIS 'R' governor pins
12/84	84.04.13	BECKETT G79 governor
13/84	84.05.16	DOVER elevators without retiring cam
16/84	84.11.16	Northern instantaneous Type A safeties potentially incapaciatated by misadjustment
24/85	85.06.21	Unauthorized modifications of Dover door latches may create potential hazard
25/85	85.07.09	Potential hazard created by wear on lock beak & lock ledger
48/87	87.01.30	General variance to Freight Lifts limitations respecting floor penetration and travel
50/87	87.05.06	Adoption of CAN/CSA Z256-M87 Construction Hoists
58/88	88.01.27	Potential failure of sheave shaft of Anglo Electromatic Traction Machines
59/88	88.03.31	Escalator load test on initial inspection where no type test certificate is available
60/88 REV. A	88.04.18 88.05.31	Fire code retrofit elevators
61/88 EDIT.2 EDIT.3 EDIT.4 EDIT.5 EDIT.6 EDIT.7 EDIT.8 EDIT.9 EDIT.10	88.05.01 88.10.12 89.02.24 89.09.26 90.01.22 90.04.30 90.10.20 91.04.12 92.01.10 92.06.01	Retrofitting of elevator slide door with safety retainers
63/88	88.06.03	Beckett elevators equipped with VV drives to be rewired to eliminate potentially unsafe conditions
67/88	88.10.27	Protection against uncontrolled overspeed of ascending car on construction hoists
69/88	88.10.31	Gal Type "MO" and "MOCP" interlock assemblies

71/89	89.05.04	Re-wiring required on "Northern" elvators with "KUP" style relay controlers
74/89	89.11.01	Fire rating of oversized hoistway door assemblies
76/90	90.05.01	Cleaning of glass enclosures on observation elevators safety measures
82/90	90.11.21	Potential Hazard - action by elevator maintenance contractors required
91/92	92.06.22	Northern elevators with Normic controllers may require wiring changes per Northern Bulletin #91-062
92/92	92.06.23	Northern geared elevators with VV relay type controllers built before Sept. 91 may require wiring changes per Northern Bulletin #91-063
93/92	92.06.24	Northern Elevator wiring changes in levelling circuits per Northern Bulletin #85-034
95/92	92.06.22	Information to installing elevator contractors stop switch on in-car emergency operation clauses 3.12.15.8.2(h)
97/92	92.11.13	Retrofitting of elevator single slide doors with safety retainers
99/92 REV.1 REV.2	92.10.30 94.02.10 94.12.02	New standard for maintenance of elevators, dumbwaiters, freight platform lifts, escalators & moving walks to be enforced as of April 1/93
100/92	92.12.22	Major alteration inspection & licencing
102/93	93.01.20	M.A.C. interlocks must be checked immediately & must have maintenance instructions attached by July 1/93
103/93	93.01.20	Existing elevator door reopening devices may require alteration to conform with Clause 2.13.5 of the B44 Code
104/93	93.01.20	Elevators equipped with Dover 105Bor GD105 machines and MP-1 control retrofitting of machines brakes required
105/93 REV.1 REV.2	93.02.17 94.03.01 94.10.25	Rules for Fire Code Retrofit Elevators - residential elevators in buildings with residential occupancies when retrofitted in conformance with Article 9.6.5.6 of Ontario Fire Code (O.Reg 627/92 under the Fire Marshals Act)
106/93	93.05.10	Alert - Use of Jumpers
108/93 REV.A	93.07.12 96.03.18	Armor controllers: 1) Safety circuits relays CDL/HDL 2) Wiring changes on VV controls

110/93	93.07.14	Continuity of ground on Beckett controls
111/93	93.08.13	Periodic load testing of the above-surface passenger ropeways
112/94 REV.1 REV.2	94.04.26 94.11.04 94.12.06	Adoption of CSA-B355-94 lifts for persons with physical disabilities
114/94	94.07.20	MCCR procedure for initial inspection of bypass switches, door monitoring system
115/94	94.11.04	Adoption of CSA B44-94
116/95 REV.A	95.02.20 96.07.30	Alternations per CSA B44-1994 Code
117/95	95.08.05	Guidelines for reporting of accidents/incidents
121/95	95.08.01	Step fatigue test for escalators: Clause 8.3.5.8
122/95	95.09.15	Centre-opening and 2-speed doors with 1/8" dia air cord and 7 x 7 strand construction
123/96	96.01.31	Order to retrofit Dover 105B/GD105 geared machines
124/96	96.01.31	Safety alert: Maintenance hazards on escalators
125/96	96.03.01	Retrofit of pivot pins on Northern type "N" 2-speed door linkage
126/96	96.08.06	Adoption of CSA-Z98-96 Passenger ropeways
127/96	96.11.20	Interpretation of DR #105/93 - Rules for fire retrofit residential building
128/96 REV. 1	96.12.13 97.07.24	Hold-down and combination hold-down/support sheave assemblies on the above-surface chair lifts
129/97	97.04.02	Adoption of Supplement #1 - 1997 to CAN/CSA-B44-94
130/98	-	Not issued
131/98	19.10.98	Bulletins replacing Director's Rulings
132/98	24.07.98	Maintenance & repairs of elevators by qualified mechanics
133/98	20.07.98	Safety Alert: Re: Van Roll Tramways
134/98	24.07.98	Safety Alert: GAL/HW Rope Gripper

Second* LIST OF CANCELLED EDB DIRECTOR'S RULINGS -OCTOBER 19, 1998

**Note: In 1993 a first list of cancelled rulings was issued*

Number	Date	~~Subject~~	~~Rationale/Comment~~
08/83	83.10.24	Safe Working practice on elevators	Covered by OH & SA
09/83	83.12.20	Accidents & incidents reporting Provision of testing equipment ED pre-examination (Form 29438)	1) Accidents: covered by DR #117/95 2) Test equipment: covered by Act S.6 and Reg.S.32(2) 3) ED Pre-exam: covered by Reg. S.16
34/86	86.10.22	Major alterations	Superseded by DR #116/95 - 10.4.4.2
36/86	86.04.22	Hitch for governor rope must be secured	Purpose achieved
39/86	86.06.13	Unauthorized access to elevator hoistway & car tops	Covered in DR #117 and in Act S.29
46/87	87.01.15	Adoption of CAN/CSA B355-M86 elevating devices for the handicapped	Superseded by DR #112/94, B355-94
51/87	87.06.02	New hydraulic elevators - auxiliary contact in the main disconnect switch	Purpose achieved; covered in El. Code
53/87	87.11.06	Concrete foundations for new Passenger Ropeways	Covered by Z98-96
64/88	88.06.03	Relocated elevating devices licensing procedure and applicable standards	Covered by Reg.
75/90	90.02.22	Return to service following a minor alteration	Superseded by DR #116/95
77/90	90.05.01	Observation elevators - 1) cleaning glass enclosures 2) variance ie, doors, panels	Purpose achieved Part (2) superseded by B44-94
78/90 REV.1 REV.2 REV.3 REV.4 REV.5	90.06.01 90.10.22 91.01.17 91.05.23 91.05.27 92.06.22	Adoption of CAN/CSA B44-90 Safety Code for Elevators - New Edition	Superseded by DR #115/95 B44-M94
79/90 REV.1 REV.2	90.08.03 91.01.13 91.01.16	Hydraulic cylinders removal, examination and replacement	Superseded by DR #116/95
80/90	90.10.22	Revisions to design submissions filed prior to registration: order to submitting engineers and installing contractors	Purpose achieved

81/90	90.11.02	Supervision of "Mechanics in Training"	Current Reg. deemed sufficient
85/91 REV.1	91.09.03 91.09.18	Escalator brake setting - follow up to Ruling #65-88	Superseded by 99/92 - Sect 12 Clause 12.6.4(e)
94/92 REV.1	92.06.22 93.01.20	Adoption of Supplement No. 1-1992 to CAN/CSA B44-M90 Safety Code for Elevators	Superseded by DR #113/94, B44-94
96/92	92.06.22	Standardization of specification sheet entries needed for the new EDB computer data bank	Included on current forms
98/92	92.10.13	Adoption of CAN/CSA-Z98-M91 Passenger Ropeways New Edition. A National Standard of Canada	Superseded by DR #126/96 and Z98-96
101/93	93.01.13	Adoption of Supplement No. 1-92 to CAN/CSA-Z98-M91 Passenger Ropeways	Superseded by DR #126/96 and Z98-96
107/93	93.06.21	Inconsistencies of reporting devices maintained	Expired
109/93	93.07.14	Effectiveness of safety retainers	Effective date expired
113/94 REV.1	94.07.20 94.10.21	Revised CSA-B44 Clause 3.12.1.15 door monitoring system to be enforced as of Jan 20, 1995	Superseded by B44-94
118/95	95.06.16	Fall protection on car-tops	Covered by OH & SA
119/95	95.07.18	Maintenance and repair of elevating devices by qualified mechanics	Replacement by DR #132
120/95	95.08.01	Replacement of seals on components previously sealed by inspectors; amendment of DR #116/95 of February 30, 1995	Superseded by DR #116/95, REV.A

Elevating and Amusement Devices Safety Division	Ref. No.: 132/98	Rev. No.: -
DIRECTOR'S RULING	Date: July 24, 1998	Date: -

Subject: **Maintenance and Repair of Elevating Devices by Qualified Mechanics**

Sent to: **All Elevator Contractors & Consultants**

Director's Order 132/98 revokes Director's Ruling 119/95.

Maintenance and repair of elevators, escalators, and other elevating devices must be performed in accordance with the requirements of the Ontario Regulation 316/90, and Ontario Regulation 155/97, under the Elevating Devices Act, 1997.

Ontario Regulation 316/97

Section 15 (1)	No work shall be undertaken on an elevating device by a contractor unless it is performed by a mechanic or by a mechanic-in-training under the supervision of a mechanic.
Section 15 (3)	No mechanic shall be assigned or undertake work beyond the scope of his or her experience or training.
Section 1	"Mechanic" means a person who has a minimum of 4 years work experience directly related to the work assigned to him or her, and.....

Ontario Regulation 155/97

Section 1 (1)	A person who wishes to work as a mechanic under the Act is required to obtain a certificate designated the person as one or more of the following.....

You are reminded, that if personnel, other than those whose regular duties include servicing of elevating devices, are assigned to this work in the event of a labour disruption, they must be qualified in accordance with the Act and Regulation.

Elevating and Amusement Devices Safety Division	Ref. No.: 133/98	Rev. No.:
Safety Alert Bulletin	Date: **July 20, 1998**	Date:

Subject: **Advisement of the Service Bulletin Number 1998-001 issued by VanRoll Tramways**

Sent to: **All Elevating Device Owners, Contractors and Consultants**

1. BACKGROUND

Attached is the Service Bulletin number 1998-001 issued by VanRoll Tramways advising all the owners/contractors of passenger chair lifts manufactured by;

- Hall Ski Lifts, and
- VanRoll Tramways

The Service Bulletin gives the plan of action required by the maintenance contractors to;

(a) remove 549D grip inserts from 549E grip assemblies, and
(b) install 4660B inserts.

Reason: Wrong specification in the manufacturing of the inserts, at the time of their production, may result in development cracks in insert due to stress corrosion.

2. ORDER TO OWNERS & CONTRACTORS

Comply **forthwith** with the corrective actions numbered from 1 to 3 of the Service Bulletin number 1998-001 issued by VanRoll Tramways.

C. E. Vlahovic, Chief Engineer

J. Murphy, Chief Inspector

VonRoll

Tramways

June 23, 1998

SERVICE BULLETIN NUMBER 1998-001 ACTION REQUIRED

TO: ALL OPERATORS OF HALL SKI LIFTS AND VON ROLL TRAMWAYS PASSENGER CHAIRLIFTS

SUBJECT: 549E GRIP ASSEMBLIES WITH 549D GRIP INSERTS

As a result of a failure of a 549D grip insert and subsequent analysis of the failure mode, Von Roll Tramways requires all suspect two-passenger, 1 1/8" 549D grip inserts be removed from service.

The grip inserts in question have a single raised diamond on the back of the insert, were supplied with 549E grip assemblies, and have a serial number between 11700 and 13000.

From metallurgical studies, we confirmed the chemical make-up of this particular batch of inserts does meet the required specifications for the type of stainless steel used. X-ray diffraction examination has revealed chloride, sulfide, and hydrogen molecules present on the surface of the failed pieces. The chloride and sulfide combines with the stainless steel to create what is commonly known as "Stress Corrosion Cracking".

It is our opinion that the inserts supplied in grips by Hall Ski Lift with serial numbers between 11700 and 13000 for the assembled 549E two-passenger grip were manufactured to a Brinell hardness between 340 - 400. Von Roll specifications now require a maximum Brinell of 285.

At the time these inserts were manufactured, Hall Ski Lift required a minimum hardness. but did not set an upper limit. The higher Brinell hardness is the only difference between those subject to stress corrosion cracking and our present supply. The introduction of sulfides and chlorides are considered outside contaminants. When the stress corrosion cracking develops, the inserts with a higher Brinell hardness (more brittle) are susceptible to fatigue cracking and impact cracking (ie. chair swing, bullwheel misalignment, impact during de-icing, and sharp impacts during maintenance).

Von Roll Tramways Inc.
753 West Main Street - P.O. Box 868
Watertown, NY 13601 USA
Tel. (315) 788-1230 Fax (315) 788-1231

Corrective Action

To be taken within 30 days

1) Visually check all two passenger 1 1/8" 549E grips for inserts displaying a single raised diamond marker with a grip serial number between 11700 and 13000.

2) Replace inserts with the Von Roll Tramways current 4660B insert. Destroy and discard all inserts, as described, to prevent accidental use.

3) Provide Von Roll Tramways with a written notice that your grips/inserts were inspected for this condition, and any inserts found within the serial numbers 11700 - 13000 have been removed from service.

All data in our possession suggests that the problem is limited to serial numbers 11700 through 13000. However, no documentation exists to confirm that grip inserts manufactured prior to serial number 11700 or after serial number 13000 are immune from this problem. At the present time, we are conducting surveillance testing of other serial numbers to determine if the problem is more extensive than data suggests.

Any indication that the condition may exist outside of these parameters will be addressed by a subsequent service bulletin.

Thank you for your continued effort in providing safe and reliable transportation to your guests.

Sincerely,

VON ROLL TRAMWAYS INC.

Red Blomer

Red Blomer
President

RB:akc

Elevating and Amusement Devices Safety Division	Ref. No.: 134/98	Rev. No.: -
Safety Alert Bulletin	Date: **June 24, 1998**	Date: -

Subject: **G.A.L./HOLLISTER-WHITNEY "ROPE GRIPPER" Models #600/605/610 may need retrofit**

Sent to: **Elevator Contractors (Scope U1, F1 & Consultants)**

1. BACKGROUND

1.1 During recent periodic inspections of passenger elevators, the installed ROPE GRIPPERS failed to operate as intended. As a result of this failure, the "grippers" did not grab the ropes and consequently did not slow down the elevator or disconnect normal elevator operation.

1.2 According to the recently received information from HOLLISTER-WHITNEY, during 1996 HOLLISTER-WHITNEY sent to the company that installed and maintained those elevators, information on possible malfunctioning of the "ROPE GRIPPERS" along with instructions for retrofitting of "guide angles" that were offered at no charge.

1.3 According to the mailing list provided to TSSA by Hollister-Whitney, the Hollister-Whitney information was sent to 31 companies in Ontario and 27 other elsewhere in Canada. The maintenance supervisor, of the Company that installed and maintained the elevators mentioned in 1.1, was not aware of the Hollister-Whitney information.
TSSA surveyed contractors and established that the information coming from component suppliers may not necessarily reach the "right" personnel within a company who ensure compliance with safety alerts. They consider TSSA's Director's Rulings or Bulletins as the most effective means of disseminating "Safety Alerts".

1.4 With the permission from Hollister-Whitney, TSSA is enclosing a copy of the their latest information.

Contractors may receive another direct communication from Hollister-Whitney on the same subject, as TSSA has supplied them with the list of all elevator contractors registered in Ontario.

1.5 The following order is issued in accordance with Subsection 10(8) of the Elevating Devices Act.

2. ORDER TO CONTRACTORS

2.1 Contractors shall immediately examine all elevator installations that are equipped with "Rope Grippers" by Hollister-Whitney, and on installations equipped with gripper MODEL #600, #605, or #610, the contractors shall:

(a) test all #600, #605, and #610 "Rope Grippers"
(b) on any malfunctioning "Grippers" install guide angles as specified by Hollister-Whitney (see attachments) in order to comply with Clause 3.16 of CSA B44 Code, or
(c) take other steps necessary to make elevators to comply with CSA B44 Code.

2.2 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete the work, you shall inform this office immediately, indicating the elevator installation numbers (to the attention of Mr. John Murphy, re: Safety Alert #.../98), so that we may issue an order to the owner to have this order completed.

C.E. Vlahovic, Chief Engineer J. Murphy, Chief Inspector

HOLLISTER-WHITNEY ELEVATOR CORPORATION
P.O. Box 4025 • No. 1 Hollister Whitney Pkwy., Quincy, Illinois 62305 • Phone 217-222-0466 • FAX 217-222-0493

SAFETY ALERT

THIS MATERIAL MUST BE CI
AMONG MAINTENANCE PE

July 23, 1998

Re: **"ROPE GRIPPERS" Model #600, #605, #610**
Shipped prior to March 1996

Due to recent discussions with the Technical Standard Safety Foundation, we have become aware that some of our "ROPE GRIPPERS" Models #600, #605, and #610 are still malfunctioning.

In March of 1996 we advised you of this possible problem on "GRIPPERS" that were shipped prior to that time.

This problem occurs when one or more of the guide pins is hit either during shipment or installation. As the movable shoe closes or as it opens it tilts and binds on the guide pins and prevents the "GRIPPER" from operating. HOLLISTER-WHITNEY has available a guide angle which prevents tilting of this shoe. This angle can be easily installed on an existing "GRIPPER". Please note that this problem is rare on the #600 "GRIPPER" and is more likely to occur on a #605 or #610 "GRIPPER".

Since this is a safety concern, we ask that your maintenance personnel operate the test switch on the side of the pumping unit to assure the "GRIPPER" grabs the ropes. This can be done with the elevator stationary. Please contact us immediately, and advise the Model number, if a malfunction occurs, so that we can supply angles to correct this or any other problem.

Note that guide angles were supplied on "GRIPPERS" shipped a f t e r March 1996, and that the new "GRIPPER" Models #618, #620, #622, #624, #625, and #626 operate with a different guide system; thus eliminating this problem.

HOLLISTER-WHITNEY ELEVATOR CORP.

Frank H. Musholt
Secretary/Treasurer

FHM:keg

CECA

GUIDE ANGLE INSTALLATION FOR #600, #605, & #610 ROPE GRIPPER™

MATERIAL INCLUDED FOR MODEL #600:
(1) Left hand and (1) right hand guide angle
(use one angle only on most convenient side)
(1) Hole position fixture
(2) 5/16" hex. hd. cap screws
(1) 5/16" shoulder bolt

MATERIAL INCLUDED FOR MODEL #605 & #610:
(1) Guide angle (may be used on either side)
(1) Hole position fixture
(2) 5/16" hex. hd. cap screws
(1) 5/16" shoulder bolt

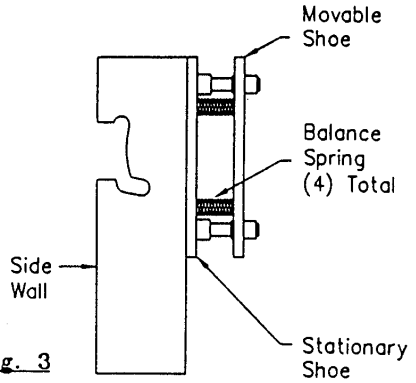


Fig. 3

INSTRUCTIONS:

1. Clamp rope gripper against ropes.

2. Drill 1/4" and tap 5/16"-18 N.C. hole in existing spring recess hole. (See Fig. 1)

3. Place the hole position fixture against the front edge of the side wall so that it is also aligned with the slot in the guide angle. (See Fig. 2)

4. While holding the fixture in position, drill a 3/16" dia. spot hole approx. 1/8" deep in the side wall. Then drill and tap it for a 5/16"-18 N.C. hole and attach the shoulder bolt. (See Fig. 2)

5. Remove (4) balance springs. This will allow greater force when applying the gripper. (See Fig. 3)

6. Activate the rope gripper several times to insure proper operation.

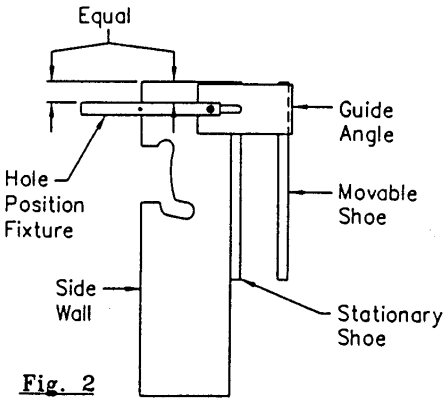


Fig. 2

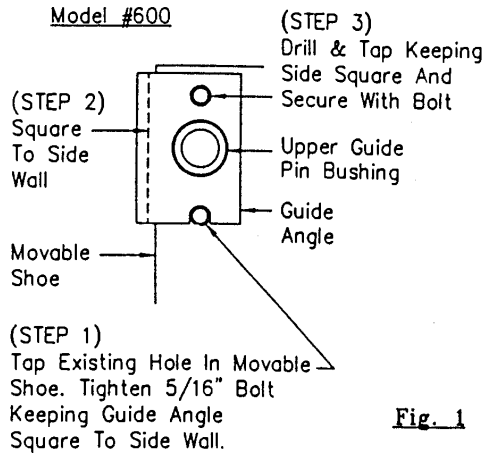
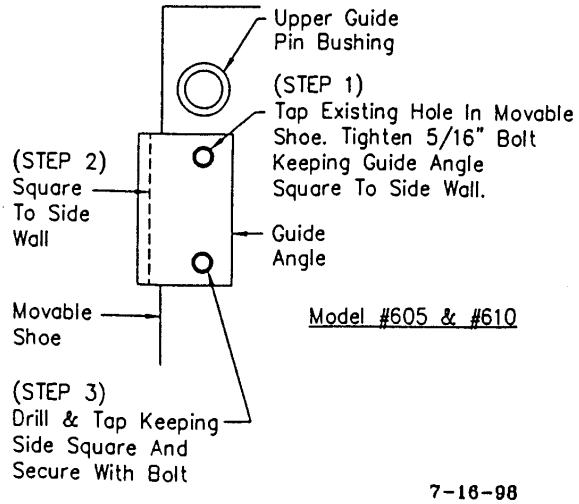


Fig. 1



7-16-98

Elevating and Amusement Devices Safety Division	Ref. No.: 135/98	Rev. No.:
Enforcement Procedure Bulletin	Date: **October 20, 1998**	Date:

Subject: **ELEVATOR INSPECTION OPERATION WITH OPEN DOOR CIRCUITS FROM MACHINE ROOM (CSA B44 CLAUSE 3.12.1.4.4)·RELATED PROCEDURE AND EQUIPMENT**

Sent to: **Elevator Contractors (Scope U1 & Consultants)**

This bulletin does not apply:
- *to elevators that don not have any inspection – operation devices in the machine room, or*
- *to elevator that do not have inspection operating devices in the machine room, but devices cannot be used to move the car from the machine room while any BYPASS switch is activated.*

1. INTRODUCTION

This Bulletin applies only to elevators where the car can be moved from the machine room by inspection operating devices located in the machine room while the door circuits are BYPASSED by means of a BYPASS switch. In that case, according to CSA B44 Code, Clause 3.12.1.4.4(d), prior to initiation of the machine room inspection operation with bypassed door circuits,

(a) all landing doors shall be checked to ensure that they are closed and locked or barricaded (as to prevent any falling, shearing or crushing hazard when the car is moved from the machine room), and

(b) if there are passengers in the car, communication with them must be established (in order to verify with them that the car door is closed or to ask them to stay away from the car door opening), or

(c) if there is no response from the car, the location and state of the car must be established (in order to verify that indeed no person is in the car or in the vicinity who could be exposed to any hazard when the car is moved by means of the machine room operating devices).

2. ORDER TO CONTRACTORS

To facilitate compliance with the B44 Code requirements, the following shall be provided.

2.1. The sign, which is placed near the inspection operating devices, as required in B44 Clause 3.12.1.4.4(d), shall clearly state that:

(a) the person who intends to use the operating devices must, prior to doing so, personally check each elevator landing door [per 1(a) above] if necessary, or

(b) that the person must have voice-to-voice communication with another person who is checking the landing doors and the car position on his/her behalf.

2.2. Equipment for two-way communication between the passengers in the car [per 1(b) above] and the person in the machine room shall be permanently installed and maintained in operating condition.

3. BACKGROUND

3.1 In 1992, CSA B44 Safety code for elevators introduced a new requirement for provision of "door bypass switches" (Clause 3.12.1.4.1) that would enable the inspection operation from the top of the car with open door circuits (Clause 3.12.1.4.2). The intent was to enable mechanics to troubleshoot and repair elevators in a safe manner and to eliminate the potential use of temporarily applied jumpers which may cause an unsafe condition.

3.2 The Code also permits such operation from the machine room (Clause 3.12.1.4.4). Recognizing that moving the car from a remote location while the car or landing door might be open is inherently unsafe, the Code imposes additional safety requirements and procedures (Clause 3.12.1.4.4d).

3.3 This ruling is issued in response to repetitively expressed concerns sating that it may be impossible to adhere to the safety procedures if clear instructions are not given and/or the necessary communication equipment is not provided.

C.E. Vlahovic, Chief Engineer J. Murphy, Chief Inspector

Elevating and Amusement Devices Safety Division	Ref. No.: 136/98	Rev. No.:
Safety Alert Bulletin	Date: **October 20, 1998**	Date:

Subject: **BENEDIKT+JAGER RELAYS - HORIZONTALLY MOUNTED**

Sent to: **Elevator Contractors (Scope U1, L1, F1 & Consultants)**

1. INTRODUCTION

1.1 In the past, a series of accidents or incidents occurred, when elevators moved with doors open. Investigations revealed, that a dislodged screw, washer or a short strand of wire had shorted two unrelated contacts on horizontally mounted relays rendering the safety circuit inoperative and allowing the car to move with doors open. This foreign material had fallen from components located above the horizontally mounted relays.

Contractors were informed about this hazard with Director's Ruling #82/90 in relation to horizontally mounted Klockner-Moeller relays on Horn Controllers.

1.2 TSSA inspectors recently identified a similar potential safety hazard on controllers, that are equipped with horizontally mounted "Benedikt+Jager" (Model 6) relays. According to our information, the Benedikt+Jager relays:

(a) are being installed on Anglo-Electromatic and Horn controllers as a replacement for Klockner-Moeller relays, and
(b) might be found on controllers of other makes, and
(c) are illustrated on the reverse of this Bulletin

1.3 The following order is issued in accordance with Subsection 10(8) of the Elevating Devices Act.

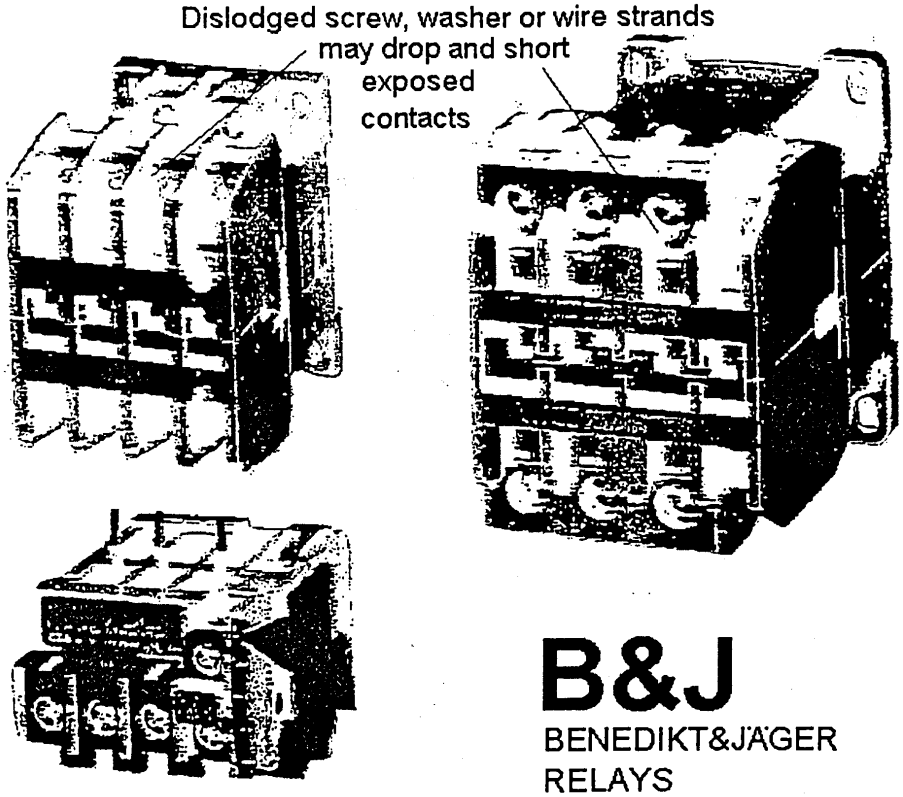
2. ORDER TO CONTRACTORS

2.1 Contractors shall examine all elevator installations under their maintenance, that are equipped with controllers incorporating horizontally mounted "Benedikt+Jager" (Model 6) relays and determine, if the potential for occurrences described in 1.1 exists.

Necessary repairs or changes shall be carried out in order to ensure that a dislodged screw or any other foreign object falling on the relay terminals cannot create an unsafe condition.

2.2 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the owner to complete the work, you shall inform this office immediately, indicating the elevator installation numbers (to the attention of Mr. John Murphy, re. Safety Alert #136/98), so that we may issue an order to the owner to have the work completed.

C.E. Vlahovic, Chief Engineer J. Murphy, Chief Inspector


Dislodged screw, washer or wire strands
may drop and short
exposed
contacts
B&J
BENEDIKT&JÄGER
RELAYS

Elevating and Amusement Devices Safety Division	Ref. No.: **137/98**	Rev. No.:
Safety Alert Bulletin	Date: **October 20, 1998**	Date:

Subject: **GD45 Dover Machine Gear Mounting Bolt Failure**

Sent to: **All Elevator Contractors in Scope U1, F1 and Consultant**

1. BACKGROUND

1.1 We have been informed by Dover Corporation (Canada) Limited that one of Dover GD45 machines had a complete gear mounting failure. The six 5/8" dia mounting bolts broke below the head, allowing the bolts to move out of their mounting holes of the gear and the spider. As a consequence of this condition, the solid connection between the Drive Sheave and the Worm Shaft was lost. It appears, according to the Department of Government Services and Lands of Newfoundland who first reported the incident, that the bolts had the radius machined off at the shank below the head to fit the holes.

1.2 The subject Dover machine type GD45 identification is stamped in the machine enclosure. This machinery has been used for the following duties:

- Roping 1:1, speed 200 ft/min, capacity 2500 lb
- Roping 2:1, speed 100-125 ft/min, capacity 5000 lb

2. ORDER TO CONTRACTORS MAINTAINING THE SUBJECT TYPE MACHINES

2.1 Contractors shall examine the subject machines for loose or broken bolts that connect the gear to the spider.

2.2 If any bolts are found broken or loose, contact Mr Joe Corr of Dover Corporation (Canada) Limited by phone at (905) 949-6700 or fax at (905) 949-6718 to order the replacement hardware and to obtain instructions for the retrofit.

2.3 If, the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete this order, you shall notify this office immediately, in writing (to the attention of John Murphy - Chief Inspector re. Bulletin #137/98), indicating the installation numbers of the relevant elevators so that we may issue an order to the owner have the work completed.

C. E. Vlahovic, Chief Engineer J. Murphy, Chief Inspector

Elevating and Amusement Devices Safety Division	Ref. No.: 138/98	Rev. No.:
Safety Alert Bulletin	Date: October 20/98	Date:

Subject: **Northern Elevator Traction Sheave Brake ("Jammer")**

Sent to: **All Elevator Contractors in Scope U1, F1 and Consultants**

1. ORDER TO CONTRACTORS *MAINTAINING* ELEVATORS EQUIPPED WITH NORTHERN ELEVATOR *TRACTION SHEAVE BRAKE*

1.1 Contractors maintaining elevators that are equipped with the Traction Sheave Brake ("Jammer") made by Northern Elevator Limited shall, **on the next maintenance visit of** the installation(s) **or not later than 3 months from the date of this Bulletin**, whichever comes first, carry out a visual inspection and cleaning, if needed, of the brake frictional pads and sheave rims following the instructions in the attached Northern Elevator Bulletin No. 98-82 dated September 9,1998.

1.2 Should any cracks on the pads be detected, a replacement program must be initiated. Replacement instructions and pads can be obtained from Northern Elevator Limited (see second part of the Northern Elevator Bulletin).

1.3 After each application of the sheave brake, a removal of filings from the frictional pad and the sheave shall be carried out as per the Northern Elevator Bulletin instructions.

1.4 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete this order, you shall notify this office immediately, in writing (to the attention of John Murphy - Chief Inspector re. Bulletin #138/98), indicating installation numbers of the relevant elevators so that we may issue an order to the owner to have the work completed.

2. ORDER TO CONTRACTORS *INSTALLING* NORTHERN *ELEVATOR TRACTION SHEAVE BRAKES*.

Contractors who install Northern Elevator Traction Sheave Brakes ("jammers")shall carry out the sheave brake initial run-in preparation work at the initial brake application as per the attached Northern Elevator Bulletin.

3. BACKGROUND

We have become aware of a sheave brake frictional pads failure on an initial inspection. It was observed that the front edge of the pad started to chip upon engagement with the sheave and, at some locations, cracks developed and propagated towards the rear edge causing the pad to disintegrate. It was also reported that the chipping of the pad impaired the brake engagement at low speeds. Northern Elevator Limited undertook analysis of the brake pad failure and, in response to this problem issued a "Product Support Bulletin" # 98-82 dated September 9/1998 (included in this Safety Alert) which outlines criteria for initiation, inspection and maintenance of the brake frictional pads.

C. E. Vlahovic, Chief Engineer J. Murphy, Chief Inspector

NORTHERN ELEVATOR LIMITED
TORONTO

No. 98-082

BULLETIN FROM: MECHANICAL ENGINEERING

DATE: 09/09/98

TO:	ADM.	SALES	E. ENG.	M. ENG.	PLANT	FIELD	SERVICE	

RE: PRODUCT SUPPORT BULLETIN
Appendix to the traction Sheave brake (T.S.B.) OPERATING MANUAL

This product bulletin includes important information regarding the final setting procedures and subsequent follow-up service verifications otherwise detailed in the Field Operating Manual.

The T.S.B. device requires an initial run-in preparation work in order to reach full performance setting: This is accomplished in the field with a minimum of one sheave revolution (with the sheave jammer fully engaged) to establish a suitable pressure contact between the mating surfaces of the frictional pads and the sheave rim.

PROPER CLEANING OF THESE CONTACT AREAS IS VERY IMPORTANT in this preparatory process and after each subsequent sheave jammer braking application .

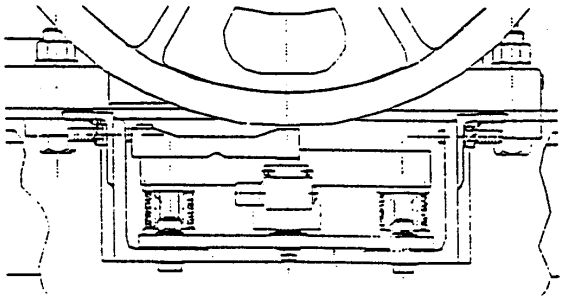
After a braking application, the following conditions occur:
- Localized indentations in the sheave rim
- Build-up (fillings) in the frictional plate

Both conditions are not favorable for the subsequent brakes applications as they might introduce over-pressure, shock loads and chattering conditions.

Herewith some recommendations of how to verify and maintain the related brake areas:

a) Frictional pads:

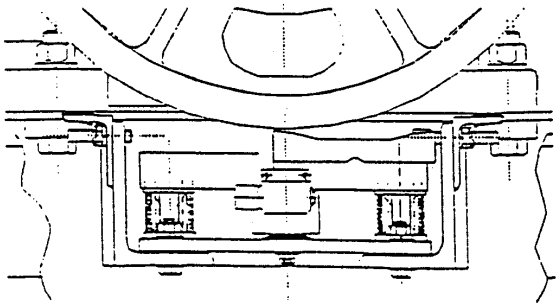
1) Apply T.S.B. / one direction / low speed
By triggering the T.S.B. governor switch



2) Visually inspect the exposed side of the brake pad (portable light might be required).

3) Remove built-up from frictional plate: use brush for loose deposits and the flat tip of a screw driver or similar tool. for sticky metal built-up.

4) Apply T.S.B. / reverse direction / low speed



5) Inspect & remove built ups as per 2) & 3)

evision:

NORTHERN ELEVATOR LIMITED

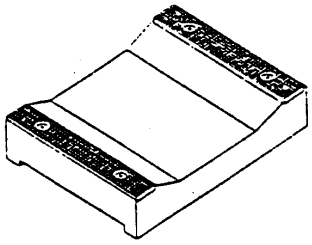
TORONTO

98-1

BULLETIN FROM: MECHANICAL ENGINEERING DATE: 09/09/98

TO:	ADM.	SALES	E. ENG.	M. ENG.	PLANT	FIELD	SERVICE	

RE:



FRICTIONAL PLATE IS DEPICTED FOR REFERENCE ONLY

b) Sheave rim outside diameter surface:

Smoothen / scrape indentations with a metal tip (use the flat tip of a screw driver or similar tool).

KEEP BOTH AREAS CLEAN AT ALL TIMES

On next visit and periodic maintenance list-task include a visual inspection of the unit:

SHOULD ANY CRACK ON THE FRICTIONAL PAD BE DETECTED AFTER THE PREPARATORY WORK OR ANY SUBSEQUENT APPLICATIONS,
A REPLACEMENT PROGRAM HAS TO BE PLANNED.

Should you have further questions or if in need of replacement parts, contact Northern Elevator with data of the original Unit serial number.

NORTHERN ELEVATOR LIMITED
270 FINCHDENE SQUARE
SCARBOROUGH, ONT.
M1X 1A5

TEL . NO. (416) 291-2549
FAX NO. (416) 291-4654

evision:

Elevating and Amusement Devices Safety Division	Ref. No.: 139/98	Rev. No.:
Information / Interpretation Bulletin	Date: **December 4, 1998**	Date:

Subject: **CSA- B44 CODE SECTION 12 REQUIREMENTS FOR FIVE-YEAR MAINTENANCE GOVERNOR PULL-THROUGH FORCE TEST**

Sent to: **All Elevator Contractors (Scope U1, L1, F1 & Consultants)**

1. Introduction

1.1 Elevator contractors have requested clarification to assist them in complying with Clause 12.4.3.2 requiring that every five years, "the pull-through force of the governor be tested for conformance with Clause 3.8.6".

1.2 Clause 3.8.6 requires that "Type B safeties be activated by a speed governor with a governor-rope retarding means", and that "the means shall retard the rope with a force that is at least 67% greater than the force required to activate the safety or to trip the governor-rope releasing carrier (see Clause 3.7.14(e))".

1.3 Clause 3.7.14(e), in turn, requires "the force needed to activate the safeties (releasing carrier)" to be marked on the safeties marking plate. In addition, Clause 3.8.9(d) requires the governor pull-through force be marked on the governor-marking plate.

1.4 Since the 67% requirement and both marking plate requirements were introduced with the 1990 edition of B44 Code, several contractors concluded that no pull-through-force testing, per Clause 12.4.3.2 is required on elevators which are not provided with marking plates.

2. Clarification

2.1 The clarifications were requested from the CSA B44 Technical Committee. The Committee clarified that the governor pull-through force test, in accordance with Clause 12.4.3.2 is required for all elevators equipped with Type B safeties which require a tension in the governor rope for the activation of safeties.

2.2 The governors have always been expected to be able to activate the safeties and for that purpose they were expected to impart an adequate pull force on the safeties activating mechanism. The B44 Code, since its 1960 edition clearly specifies (in Clause 3.7.15.1 or 3.7.16.1, depending on the edition) that the force required to activate the safeties must be "not more than 60% of pull-through tension developed by the governor". Looking from the governor side, the governor pull-through force has been required to be 67% greater than the force required to activate the safeties [(100 ÷ 60) x 100 = 167%].

2.3 In other words, the 67% requirement introduced in Clause 3.8.6 with the 1990 edition of B44 was not a new requirement, but rather the clarification of the governor's performance previously required. Equally, the marking plates did not introduce any new governor/safeties performance requirements but requested forces to be marked in order to simplify the Code-compliance verification process.

2.4 According to the CSA B44 Committee, where the forces are not indicated on the safeties/governor marking plates and not available from the original manufacturer, in order to comply with Clause 12.4.3.2, one would have to test both: (A) the force that activates the safeties, and (B) the governor pull-through force. When the two forces are compared, force A must be not more than 60% of force B, or the force B must be at least 67% greater than force A.

3. Notice to Contractors

3.1 Pursuant to the clarification all contractors maintaining devices with the equipment referred to in the Bulletin shall ensure that the required pull through test was performed. The requirement for a pull through test was introduced in amendments to the Elevator Safety Code in 1993 and required the tests to be performed at five year intervals from that date.

3.2 Contractors shall ensure the timely completion of testing in accordance with their obligations under the Elevating Devices Act.

C.E. Vlahovic, Chief Engineer

Elevating and Amusement Devices Safety Division	Ref. No.: **140/98**	Rev. No.:
Safety Alert Bulletin	Date: **December 4, 1998**	Date:

Subject: **Turnbull/Dover elevators; Door-zone-switch retrofit required**

Sent to: **All Elevator Contractors in Scope U1, F1, P1 and Consultant**

1. Introduction

Pursuant to their obligation under Section 25 of Ontario Regulation 316 made under the Elevating Devices Act, Dover Elevator Company advised the Director of a potential defect in a component on older Turnbull/Dover elevators. This defect could effect the safe operation of their elevators by allowing the car to stop up to 600 mm out of level with the landing door open. Based on retrofit criteria and procedure supplied by Dover Elevator Company to TSSA the following "Order to Contractors" is formulated.

2. Order to Contractors

Contractors who maintain older Turnbull/Dover hydraulic and traction elevators (with or without a mechanical selector) that are equipped with:

a) only two levelling switches without door zone switch, or
b) with a door zone switch that is active over a long door zone

shall retrofit such elevators with an additional door zone switch "Z" (MV3 type or similar) and with a 6-inch vane at each floor as to permit doors to open only within 3 inches of floor level. The "Z" contact shall be connected in the door operator circuit as to allow the door to open only when the switch "Z" is activated by the 6-inch vane.

3. Clarification

3.1 The enclosed drawing illustrates the Turnbull/Dover control type XA-BS-052-S-2, single speed. Other similar Turnbull/Dover control types must also be checked and retrofitted, in accordance with the above Order.

3.2 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the owner to complete the work, you shall inform the District inspector immediately, indicating the elevator installation number and reference to Bulletin #140/98, so that the inspector may issue an order to the owner to have the work completed. Note that contractors are provided with a listing of inspectors' home office/district information.

4. Background

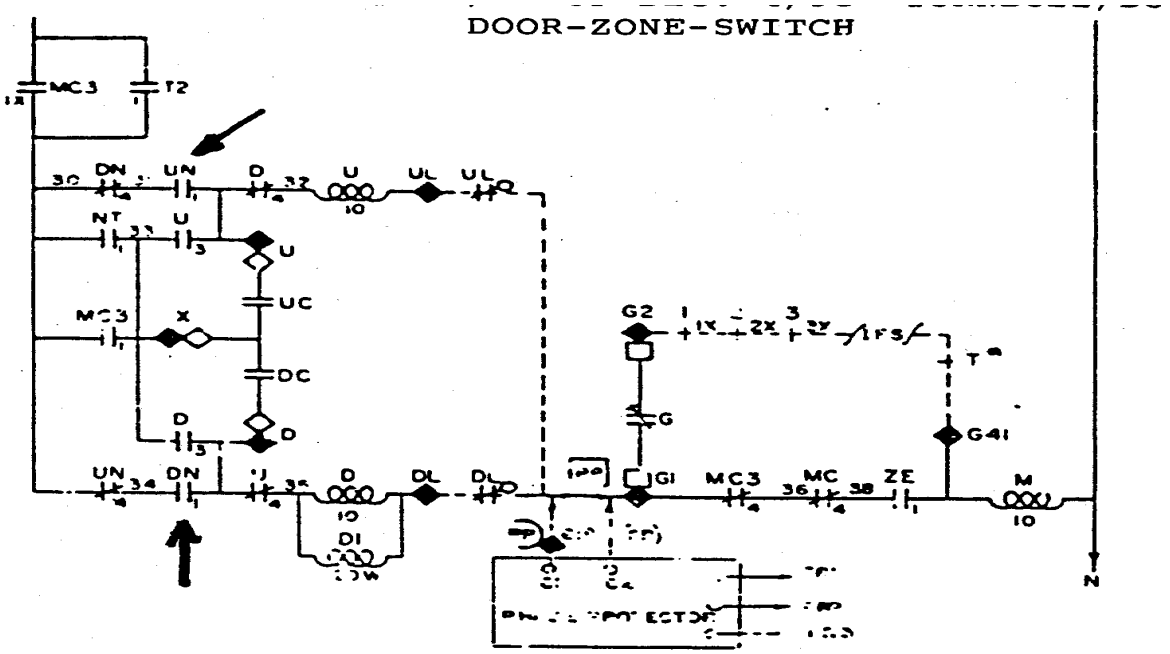
There have been two reported cases of elevators opening doors after stopping from 10 to 24 inches out of level. Passengers were injured, when they stepped off the elevator. On these elevators, the control relied only on two levelling switches (on the selector or on the top of car) to signal that the car is within the level and the door can be opened. The failure of one of these levelling switches, or of their associated circuitry, would cause the car to stop out of level and allow the doors to open.

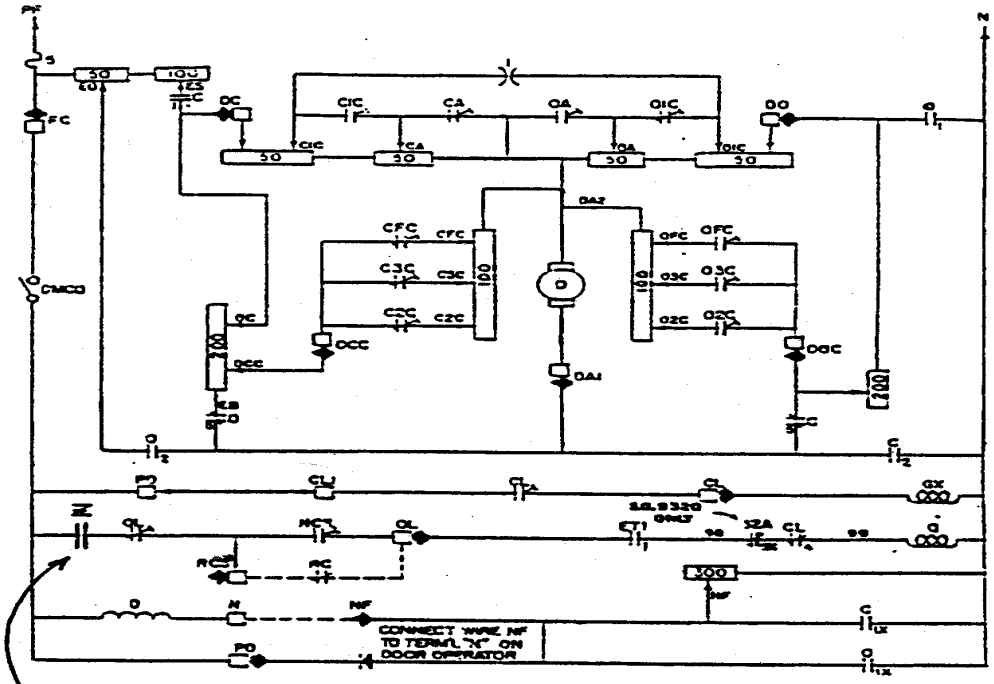
To illustrate a typical occurrence, and to help analyse other types of controls with this deficiency, please see the enclosed drawing. For example, during normal operation the car is going up to a call. and "MC3" contacts keep "U" and "M" energized. When the car comes into the levelling zone, the levelling relay "UN" picks up to bring the car into the floor level. Relays "UC" and "MC3" drop out: the continuation of the travel depends solely on the "UN" contact. Once the car stops, relay "32E" drops (not shown on the enclosed drawing), causing relay "CL" to drop out, which allows relay "O" to pick up and open the door. However, if the contact "UN" fails (dust, wear-out, etc.), the car stops below the floor level and opens the door. Similarly, in the down direction, if contact "DN" fails, the car would stop above the floor level and open the door.

5. Notice to Contractors/Manufacturers

We remind all elevator contractors and manufacturers of elevating devices of their obligation under Section 25 of Ontario Regulation 316. Should contractors or manufacturers be aware of any defect on their equipment or equipment made by them which may result in a similar unsafe condition, they shall notify the Director.

C. E. Vlahovic, Chief Engineer





ADD CONTACT OF Z IN THE DOOR OPEN CIRCUIT TO PREVENT THE DOOR FROM OPENING IF THE ELEVATOR IS NOT WITHIN 3" OF FLOOR LEVEL.

Elevating and Amusement Devices Safety Division	Ref. No.: 141/98	Rev. No.:
DIRECTOR'S RULING	Date: December 30/98	Date:

Subject: **Adoption of B44S2-98 Supplement No.2 to CAN/CSA-B44-94 Safety Code for Elevators**

Send to: **All contractors in Scope U & L 1,2,3,4,5 and Consultants**

1. ORDER

1.1 Despite Sections 38(1) of Ontario Regulation 316, every elevator, dumbwaiter, escalator, moving walk and freight platform lift shall meet the requirements of National Standards of Canada CAN/CSA-B44-94, Safety Code for Elevators, Supplement B44-S1-97, and B44 S2-98, including Appendix J.

1.2 Each newly installed or altered elevator, escalator, dumbwaiter, moving walk and freight platform lift, for which the DESIGN is submitted to this Division for registration on or after the **1st day of February 1999**, shall conform to the requirements of B44S2-98, Supplement No. 2 to the CAN/CSA-B44-94 Safety Code for Elevator, except as specified in Order #1.3.

Compliance with this Supplement No. 2 shall be confirmed in the design submission, in item 192 of specification sheets or in a separate affidavit.

1.3 The current maintenance procedures of each elevator, escalator, dumbwaiter, moving walk and freight platform lift shall be reviewed and brought into compliance with Section 12 of, and the requirement specified in Appendix J to, the B44S2-98, Supplement No. 2 to CAN/CSA B44-94, Safety Code for Elevators, not later than the 1st day of April 1999.

2. CLARIFICATION

2.1 The original edition of CAN/CSA-B44-94, was adopted with the Director's Ruling 115/94 and B44S1-97, Supplement No. 1 with the Director's Ruling 129/97.

2.2 You are advised to study all revisions and additions in this Supplement No. 2, and take all necessary steps to ensure conformance by dates given in order #1.2 and #1.3. The changes and additions include:

- Revised Clause 3.12.4.3
- New requirements for inspection switch on escalators in Clause 8.6.19
- Revised Section 12 with maintenance actions at specific intervals relocated in Appendix J.

2.3 The procedure for implementation of maintenance requirements in Section 12 of B44 editions prior to B44S2-98 were set in Director's Ruling #99/92 of October 30, 1992 and Revision #3 of October 20, 1998. A new revision, Revision #4 of the Director's Ruling #99/92 is being issued to update references to the clauses in the Section 12 and Appendix J of B44S2-98.

3. INSTRUCTIONS

3.1 In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Regulation under the Elevating Devices Act.

3.2 B44S2-98 Supplement No. 2 to the CAN/CSA-B44-94, Safety Code for Elevators is available from the
Canadian Standards Association
178 Rexdale Blvd.
Rexdale, ON M9W 1R4
Telephone: (416) 747-4044

3.3 Since the Ontario Elevating Devices Act requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will be provided with a copy of the subject standard.

E. Stephan, Director, under the Elevating Devices Act

Elevating and Amusement Devices Safety Division	Ref. No.: **142/98**	Rev. No.:
Safety Alert Bulletin	Date: **December 30/98**	Date:

Subject: **"Contact Shields" on horizontally mounted Klockner-Moeller and Benedikt+Jager**

Sent to: **Elevator Contractors in ScopUe L, L1, F1 & Consultants**

1. INTRODUCTION

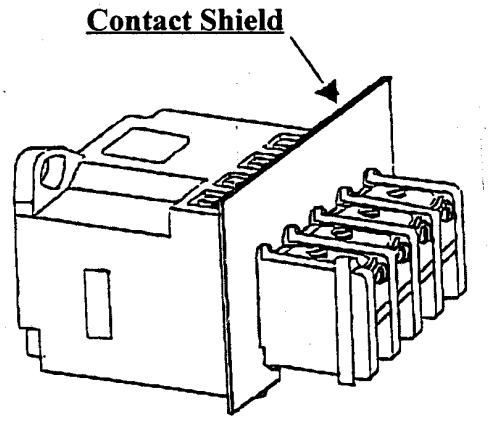
1.1 In the past, a series of accidents or incidents occurred, when elevators moved with doors open, because a fallen screw, washer or a strand of wire had overbridged adjacently located front and back contacts on horizontally mounted relays. Contractors were informed about the hazard and ordered to take specific actions with Director's Ruling #82/90, covering Klockner-Moeller relays and Safety Alert #136/98, relating to Benedikt+Jager relays.

1.2 In order to eliminate this hazard, contractors used various methods. One method was the installation of **contact shields** as a barrier between the front and back relays contacts, as depicted below.

1.3 Investigations in a recent incident indicated that, if a **contact shield** is not of a tight-fit type and positively locked in its intended position, vibrations could cause the **contact shield** to move towards the front of the relay making the barrier between the front and back relay contacts ineffective. In this incident, the **contact shield** was displaced forward allowing a screw fitting to bridge two contacts, which in turn caused the elevator doors to open outside the door zone.

1.4 Contact shields that could be displaced by vibrations, as described in 1.3, do not meet the intent of "Orders to Contractors" specified in Director's Ruling #82/90 and Safety Alert #132/98.

2. ORDER TO CONTRACTORS



2.1 Not later than **March 1, 1999** (60 days from the date of this bulletin), contractors shall examine all elevator installations under their maintenance, that are equipped with controllers incorporating **horizontally mounted Klockner- Moeller or Benedik+Jager relays fitted with contact shields.**

2.2 Contractors shall verify that the **contact shields** are of a tight-fit type and positively locked or fastened in their intended position at all times, irrespective of the relay vibrations.

2.3 **On non-conforming controllers** where the potential unsafe condition exist, such as occurrences described in 1.1 or 1.3 above, **not later than May 31, 1999** the contractors shall take necessary actions to bring them into compliance with Director's Ruling #82/90, related to Klockner-Moeller relays or with Safety Alert #136/98, related to Benedikt+Jager relays, as the case maybe. Following this date, non-conforming elevators shall be shut down by TSSA inspectors.

C.E. Vlahovic, Chief Engineer

Further information may be obtained by contacting: Director - ED/AD Division, Technical Standards and Safety Authority,
4th Floor – West Tower, 3300 Bloor St. West, Etobicoke ON., M8X 2X4 Ph:416 325 2000 Fx:416 326 8248

Elevating and Amusement Devices Safety Division	Ref. No.: 143/99	Rev. No.:
Safety Alert Bulletin	Date: **February 8, 1999**	Date:

Subject: **Effects of corrosion on in-ground cylinders of hydraulic elevators to be checked on an on-going basis.**

Sent to: **Elevator Contractors in Scope U1, L1, F1 and Consultants**

1. INTRODUCTION

1.1 It is generally known in the industry that in-ground hydraulic elevator cylinders (as well as piping) can be affected by corrosion causing leakage of oil. Once the oil starts leaking, if no action is taken, other than refilling the oil tank, total failure of the cylinder could occur causing the car to overspeed or free-fall. This was the case with an elevator in Ontario when in 1990 two passengers were seriously injured (EDB Director's Ruling #79/90).

1.2 More recently, an elevator mechanic was injured when the car oversped or fell-free into the pit while he was working on the car top. Investigations have not been completed as to the nature of the cylinder failure, but there are clear indications that the cylinder was leaking oil before it failed, and that there was insufficient monitoring of the oil use by the maintenance personnel.

1.3 **Unexplained loss of oil** in hydraulic elevators has been deemed a positive indicator of cylinder leakage and considered a critical warning of the need for cylinder replacement, before the corrosion causes a catastrophic rupture of the cylinder. This Bulletin is intended to alert contractors with regard to this critical safety risk.

1.4 The risk of corrosion affecting cylinders is greater on elevators installed before April, 1992, when a new requirement for corrosion protection by means of a protective plastic casing was introduced with Clause 4.18.3.8 of B44 Code, Supplement 1 – 1992 (Director's Ruling #94/99). Furthermore, the risk of catastrophic cylinder failure is even greater on cylinders installed before August, 1978 * when a new requirement for a safety bulkhead (double cylinder head) was introduced with Clause 4.18.3.7 of B44 Code, Supplement 1 – 1977. Therefore, **monitoring of oil is of paramount importance.**

Note: An elevator registered my MCCR on September 5, 1978, under Installation No. 31909 was provided with a safety bulkhead.

1.5 This Bulletin has been developed in consultations with the Elevating Devices Technical Committee and the Elevating Devices Advisory Council.

2. ORDER TO CONTRACTORS

2.1 In order to help eliminate the risk of injuries to persons due to the elevator car descending into the pit at an uncontrolled rat of speed, because of cylinder rupture, the following shall be adhered to.

Not later than May 10, 1999 (90 days from the date of this Bulletin), EACH CONTRACTOR maintaining hydraulic elevators shall:

(a) re-examine and if necessary amend the current company's policy and procedures respecting any loss of oil from the hydraulic system and any addition of oil to the oil tank;

(b) train their maintenance personnel on the company's policy and procedures and keep records on such training; and

(c) Implement the policy and procedures.

2.2 The company procedure shall include:

(a) criteria for gauging oil volume in the system of each specific elevator installation and for establishing oil loss;

(b) specification of intervals within which the system oil volume will be checked and necessary tests carried out;

(c) requirements for keeping a log in the machine room with records on each checking oil volume, with dates and mechanic's identification, also reason for any addition (re-filling) of oil, including volume, date and mechanic's identification.

Note: Caution should be used when gauging oil level. An oil tank may have a volume much greater than needed for a specific elevator. A small reduction in oil level in a tank may correspond to a major oil loss.

2.3 The procedure shall specify actions and allocate responsibilities to the company's personnel when any unaccounted (unexplained) loss of oil is discovered, be it through regular oil level checks or through tests carried out in accordance with Clause 12.4.9 of B44 Code's Maintenance Section.

2.4 The policy and procedures shall be available for review by TSSA upon request.

3. FURTHER INFORMATION

Following annexes are enclosed with this Bulletin for information only. TSSA does not endorse any described testing method or procedure. It is the responsibility of each contractor to develop own internal policy and procedures, that is comprehensive and addresses the seriousness of oil leakage, and that complies with the above Order.

Annex 1: A sample of a hydraulic elevator record log on oil level checking used by a contractor.

Annex 2A: A sample of a "Safety Notice" posted at point of use – hydraulic elevator oil tank – by one contractor, where the cylinder is in-ground and is not provided with PVC protection.

Annex 2B: A sample of a "test procedure" followed by another contractor.

Annex 3: A sample of a "maintenance/test procedure" prepared by a contractor.

C.E. Vlahovic, Chief Engineer M. Tevyaw, Acting Chief Inspector

Further information may be obtained by contacting: Director - ED/AD Division, Technical Standards and Safety Authority,
4th Floor – West Tower, 3300 Bloor St. West, Etobicoke ON., M8X 2X4 Ph:416 325 2000 Fx:416 326 8248

SAMPLE

Hydraulic Elevator – Oil Level Record Log

Building Name/Location:_____

Contractor: _____

Machine Number		
Date Oil Checked	Signature	If oil added to system, state how much and explain reason
___/___/___		
___/___/___		
___/___/___		
___/___/___		
___/___/___		
___/___/___		
___/___/___		
___/___/___		
___/___/___		

Annex 2A

SAMPLE: Safety Notice – In – Ground Hydraulic Cylinders (By a Contractor)

Safety Notice – In – Ground Hydraulic Cylinder

THIS HYDRAULIC ELEVATOR USES AN IN-GROUND HYDRAULIC CYCLINDER WHICH MAY CORRRODE AND FAIL. IF THE CYCLINDER WAS INSTALLED PRIOR TO 1977 SUCH FAILURE MAY BE CATASTROPHIC, CAUSING SERIOUS INJURY OR DEATH.

ANY UNEXPLAINED LOSS OF OIL INDICATES CYCLINDER LEAKAGE FROM CORROSION AND REQUIRES THIS ELEVATOR BE IMMEDIATELY REMOVED FROM SERVICE.

CHECK OIL LEVEL(S) AT EVERY MAINTENANCE VISIT. LEVELS SHOULD BE ON FILL LINE(S) WITH CAR AT TOP OR BOTTOM LANDING AS APPROPRIATE.

DO **NOT ADD OIL WITHOUT IMMEDIATELY TESTING CYCLINDER FOR LEAKAGE:**

- Place car level with landing.
- Ensure car empty and doors closed
- Open mainline disconnect. [See note (2) below]
- Close shutoff valve
- Check car level after 15 minutes

TEST CYCLINDER FOR LEAKAGE ANNUALLY IN ANY CASE. TEST IS REQUIRED BY B44 12.4.9 AND STRONGLY RECOMMENDED OTHERWISE.

ANNEX 2B

SAMPLE: TEST PROCEDURE (By a contractor)

-OIL TEMPERATURE SHOULD NOT BE IN EXCESS OF 30°C
-PARK THE CAR ABOUT 4 FT. FROM THE LOWEST LANDING AND MARK ON THE HALL DOOR JAMB PRECISE LOCATION OF CAR SILL.
-CLOSE THE CAR DOORS
-OPEN MAINLINE DISCONNECT AND CLOSE SHUT OFF VALVE.
-CHECK CAR LEVEL AFTER 15 MINUTES *[See note (2) below]*

Notes to Annex 2A & 2B:

Note (1) *According to a comment, the car should be positioned at same level on every maintenance visit.*

Note (2) *According to the experience of several contractors the 15 minutes with empty car test may not be adequate to detect oil loss (See Annex 3).*

Annex 3
To EAD Bulletin #143/99

ANNEX 3
SAMPLE: MAINTENANCE/TEST PROCEDURE (By a contractor)

THE BASIC PRINCIPLE OF HYDRAULIC ELEVATOR SAFETY IS THAT A CYLINDER LEAK INDICATES CYCLINDER FAILURE AND IMPENDING CYCLINDER COLLAPSE. HYDRAULIC ELEVATORS MYST BE TAKEN OUT OF SERVICE AT THE FIRST SIGN OF A CYCLINDER LEAK. A CYCLINDER LEAK MEANS ANY OIL LOSS THAT CANNOT BE ACCOUNTE FOR AND CORRECTED ABOVE GROUND.

The following maintenance standards must be adhered to for safe operation of hydraulic cylinders:

1. Regular and frequent inspection (during very visit) to detect possible cylinder leaks. The oil level must be marked and monitored regularly. Be alert for signs of low oil (shaking, labouring at top of rise, unusual noises such as grawling or groaning, frequent re-leveling, tripping of low oil timer, motor overloads or other safety features). Oil loss which cannot be corrected above ground means that there is a cylinder leak which indicates a cylinder failure and impending cylinder collapse.

2. Do not add oil without determining that the source of the oil is above ground and has been corrected.

3. Test the pressure relief valve annually, strictly adhering to code requirements.

4. Perform an annual no-load static pressure test of the total hydraulic system, including cylinder and piping, strictly adhering to code requirements.

5. Do not disconnect any safety feature (low oil timer, motor overloads, etc). They are an early warning system for cylinder leaks.

6. If a cylinder leak is suspected, perform a two-hour, fulll-load static pressure test of the total hydraulic system, including cylinder and piping, and test the pressure relief valve, strictly adhering to code requirements for both tests. The tests, alone, are not a fail-safe method of determining the safety of the hydraulic system. The tests must be followed by close monitoring (during every visit) of the oil level to ensure that the cylinder is not leaking. If a cylinder leak is detected the elevator must be immediately taken out of service and cylinder replaced.

FAILURE TO DETECT AND CORRECT OIL LEAKS IN HYDRAULIC CYLINDERS CAN CAUSE DEATH, SERIOUS INJURY AND ENVIRONMENTAL CONTAMINATION.

Elevating and Amusement Devices Safety Division	Ref. No.: 144/99	Rev. No.:
Safety Alert Bulletin	Date: **February 16/99**	Date:

Subject: **Cross-arm assemblies on Hallift bar lifts and/or chair lifts**
- **URGENT ACTIONS REQUIRED**

Sent to: **All passenger ropeways owners/operators, contractors in Scope 8 and consultants**

1. Background

This safety alert is a result of investigations into a potentially serious incident caused by the collapse of a cross-arm assembly on Model 1000 Hallift T-bar. Fortunately, there were no injuries as result of this particular incident.

Due to seriousness of the incident, an independent professional engineer was retained to determine the cause of the cross-arm assembly collapse. In his report the consultant proposed corrective measures to prevent recurrence of such type of equipment failure. Von Roll Tramways Inc., the lift manufacturer, was provided with the engineer's report for their perusal and action.

Attached with this is the Service Bulletin Number 1999-001, dated February 9, 1999 and issued by Von Roll Tramways Inc. to all operators of Hall Surface Lifts and Hall Chair Lifts. The Service Bulletin provides instructions to operators of Hallift bar and chair lifts about the inspection and corrective measures required to maintain the safety of Hallift bar and chair lifts.

2. Order to all owners/operators and contractors of passenger ropeways

The requirements of the Von Roll Tramways Inc Service Bulletin Number 1999-001, dated February 9,1999 shall be implemented immediately in the following manner:

2.1 Remove from service all Hall surface lifts and Hall chair lifts immediately. The requirements of the Service Bulletin shall be complied with before any lift is returned to operation during the rest of 1998/1999 ski operating season.

2.2 Before the start of every ski operating season the requirement of the Service Bulletin shall be complied with.

2.3 Records of the inspections including any repair done as mandated in the Service Bulletin shall be kept in the log book required by Section 54(2) of the Ontario Regulation.

C. E. Vlahovic, Chief Engineer

VonRoll

Tramways

February 9, 1999

SERVICE BULLETIN NUMBER 1999-001 ACTION REQUIRED

TO: ALL OPERATORS OF HALL SURFACE LIFTS AND HALL CHAIRLIFTS

SUBJECT: CROSSARM CLAMP BOLTS

As a result of a failure of bolts which fastened a T-bar crossarm to a tower tube, Von Roll is recommending certain inspections be performed on certain types of lifts manufactured since 1954.

The type of attachment affected by this bulletin is one wherein the crossarm is manufactured in halves and clamped to either a similar crossarm half or a plain back clamp. On surface lifts, there are six bolts per assembly; and on chairlifts there are eight bolts per assembly.

Although the connection which failed was not examined by Von Roll, information available to us indicates that the bolts which failed were not of a type currently recommended by us. The bolts also showed indications of corrosion and bending which may have contributed to the failure.

Corrective Action

To be taken within 30 days.

1) Visually check crossarm clamp bolts to ensure that the correct bolts are present. The correct bolt must be a type A325 Structural Bolt with A325 Heavy Hex Nut (also A325). This bolt will have the designation `A325' on the bolt head and other designations which determine the manufacturer. The A325 bolt may be either galvanized or plain finish. T-bars use a size 3/4" x 2-3/4" long bolt, and chairlifts use a size 7/8" x 3-1/4" long bolt. **USE EXTREME CAUTION WHEN REMOVING AND REPLACING THE BOLTS.**

   - Do **not** attempt to replace the bolts when the lift is operating.
   - Do **not** remove more than one bolt at a time.

2) Check bolts for corrosion and bending. If any bolts show signs of corrosion or bending they shall be replaced with the correct bolt(s) as listed above.

Von Roll Tramways Inc.
753 West Main Street • P.O. Box 869
Watertown, NY 13601 USA
Tel. (315) 788-1280, Fax (315) 788-1321

3) Inspect the bolts for signs of loosening. The bolts should be snug, but not to the point where they unduly distort the clamping halves. Some distortion is normal, and indicates that the clamp is tightened sufficiently to withstand the imposed loads. Further tightening is detrimental.

4) Visually inspect the clamp halves for signs of cracking, tearing and corrosion. Contact Von Roll for recommendations if any indications are found.

5) Chairlifts must have their crossarms tack-welded according to the enclosed procedure IN-40-131. This procedure has been part of the installation instructions since 1972, and is included here as a reminder.

To be performed annually.

1) Inspect the referenced crossarm bolts as per steps 2), 3) and 4) above.

Thank you for your continued effort in providing safe and reliable transportation to your guests.

Sincerely,

VON ROLL TRAMWAYS INC.

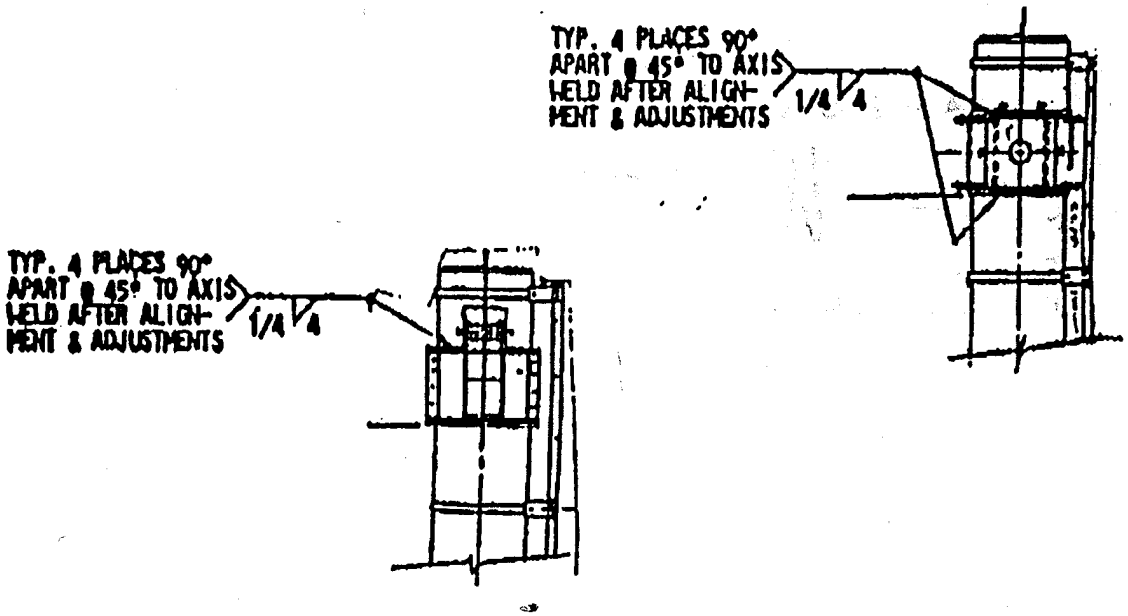
Laurence L. Wollum
Vice President, Engineering

VON ROLL TRAMWAYS INC. 753 W. MAIN STREET WATERTOWN, NY 13601 TEL: (315) 788-1280 FAX: (315) 788-1321	TOWER ARM TACK WELDING	BY: LAR DATE: 10/12/72 IN - 40-131 SHT: 1 of 1

After chairlift is fully tested and approved for operation, adjusted tower arms must be welded in place. The clamping is satisfactory for normal conditions, but welding is necessary for improved safety. Most codes require the arms to be fixed against rotation.

Welding is to be done by a certified welder. Low hydrogen electrodes (7016-7018) are to be used. At temperatures below freezing, the area to be welded should be preheated until it is at least warm to touch.

Either the top or bottom of the clamp is welded with 3 - 2" long 1/4" fillet welds. More weld is unnecessary and makes future adjustment of the tower arm difficult.



Elevating and Amusement Devices Safety Division	Ref. No.: 145/99	Rev. No.:
Safety Alert Bulletin	Date: **February 16, 1999**	Date:

Subject: **CARRIERS ON BORVIG DOUBLE CHAIR LIFTS**
- **URGENT ACTIONS REQUIRED**

Sent to: **All passenger ropeways owners/operators, contractors in Scope 8 and consultants**

1. Background

This safety alert is as a result of the investigation into potentially serious incident caused by the failure of the carrier on the Borvig double chair lift at a ski resort in Ontario. The failure of the carrier hanger at its connection to the chair frame caused the chair to fall on the ground. Fortunately, there were no injuries as a result of this incident.

Due to the seriousness of the incident, an independent professional engineer and the manufacturer/designer of the Borvig chair lifts were retained to determine the cause of the carrier failure, and the corrective measures to prevent this type of equipment failure from recurring.

Attached with this is the Service Bulletin Number 02-020899 dated February 9, 1999 issued by Partek Enterprises, Inc. to all owners/operators of the Borvig double chair lifts in Ontario. The Service Bulletin provides the information about the short and long terms corrective measures to maintain the safety of the Borvig double chair lifts.

2. Order to all owners/operators and contractors of passenger ropeways

The requirements of the enclosed Service Bulletin Number 02-020899 dated February 9, 1999 and issued by Partek Enterprises Inc shall be implemented immediately in the following manner:

2.1 Immediately remove from service all those Borvig double chair lifts having carriers, whose hanger is connected to the chair frame as explained in the Service Bulletin.

2.2 Before returning the lift to service for the remaining 1998/1999 ski season, all carriers on the chair lift shall be inspected for cracks, and the faulty carriers shall be either repaired or removed from service.

2.3 Prior to the 1999/2000 ski season, all carriers shall be equipped with new chairs, the sheave liners shall be replaced with the original equipment liners, and all rope grips shall be subjected to non-destructive testing for determination of their serviceability.

2.4 The modification of the chair lift as specified in the Section 2.3 of this Safety Alert shall constitute a major alteration. According to Section 11 of the Elevating Devices Act, the design submission for a major alteration must be registered and then the installation inspected by a TSSA inspector prior to the use of the lift.

2.5 Provide immediately in writing by fax at (416) 325 4320 to the attention of Marc Tevyaw, Acting Chief Inspector, the installation number of the chair lift affected by this Safety Alert.

C.E. Vlahovic, Chief Engineer

PARTEK ENTERPRISES, INC.
Newport Bridge Road
Pine Island, NY 10969
914-258-4552 • 800-626-4165
Fax: 914-258-4537 E-Mail: PARTEK@AOL.COM

February 9, 1999

SERVICE BULLETIN NUMBER 02-020899

- ACTION IS REQUIRED -

TO: ALL OWNERS/OPERATORS OF BORVIG DOUBLE CHAIR LIFTS IN THE PROVINCE OF ONTARIO.

SUBJECT: CHAIR HANGER FAILURE

REFERENCES: ATTACHED PARTEK DRAWING

A failure of a double chair hanger at a Ski Resort in Ontario has been reported to Partek. The failure has occurred due to metal fatigue and the use of Urethane sheave liners. The failure area is indicated on the attached drawing.

We are aware that many operators of Borvig chair lifts have used after market replacement urethane sheave liners. These liners are not original replacements and should be removed from service as soon as possible, but no later than December 1999.

We have concluded that the use of urethane liners has contributed to the failure of the hanger. The urethane liners in use are much harder than the original rubber liners. Urethane does not have the natural shock absorbing qualities of natural rubber. The shock loads that occur each time a chair passes over a sheave assembly are dampened with the use of natural rubber liners. When urethane liners are used, the shock absorbing effect no longer exists and the shock loads are transferred to the rope grip and chair.

The other reason that has contributed to the failure is the age of the chairs. All of the affected lifts having these type of chairs are at least 25 (twenty five) years old. These chairs have come to the end of their service life expectancy.

SAFETY IS OUR PRIMARY CONCERN. On the advice of THE TECHNICAL STANDARDS AND SAFETY AUTHORITY we have issued this safety alert.

INSPECTION PROCEDURE

1) All chair hanger tubes, U-Saddles, fasteners and chair bail frames are to be visually inspected for cracks immediately and on a bi-weekly basis thereafter for the duration of the 1998/1999 season. This inspection is to be documented showing the date, chair number, result of inspection and the individual(s) performing the inspection.

2) Any chair assembly indicating a crack is to be immediately removed from service. Damaged or defective fasteners are to be replaced immediately.

TEMPORARY REPAIR

1) If any chair is found to have a crack, then all chairs on that lift are to be repaired according to the attached drawing. All welding to be performed by a certified welder using 1/8" 7018 electrodes. Once the weld has cooled, the weld is to be painted with one coat primer paint.

CHAIR REPLACEMENT

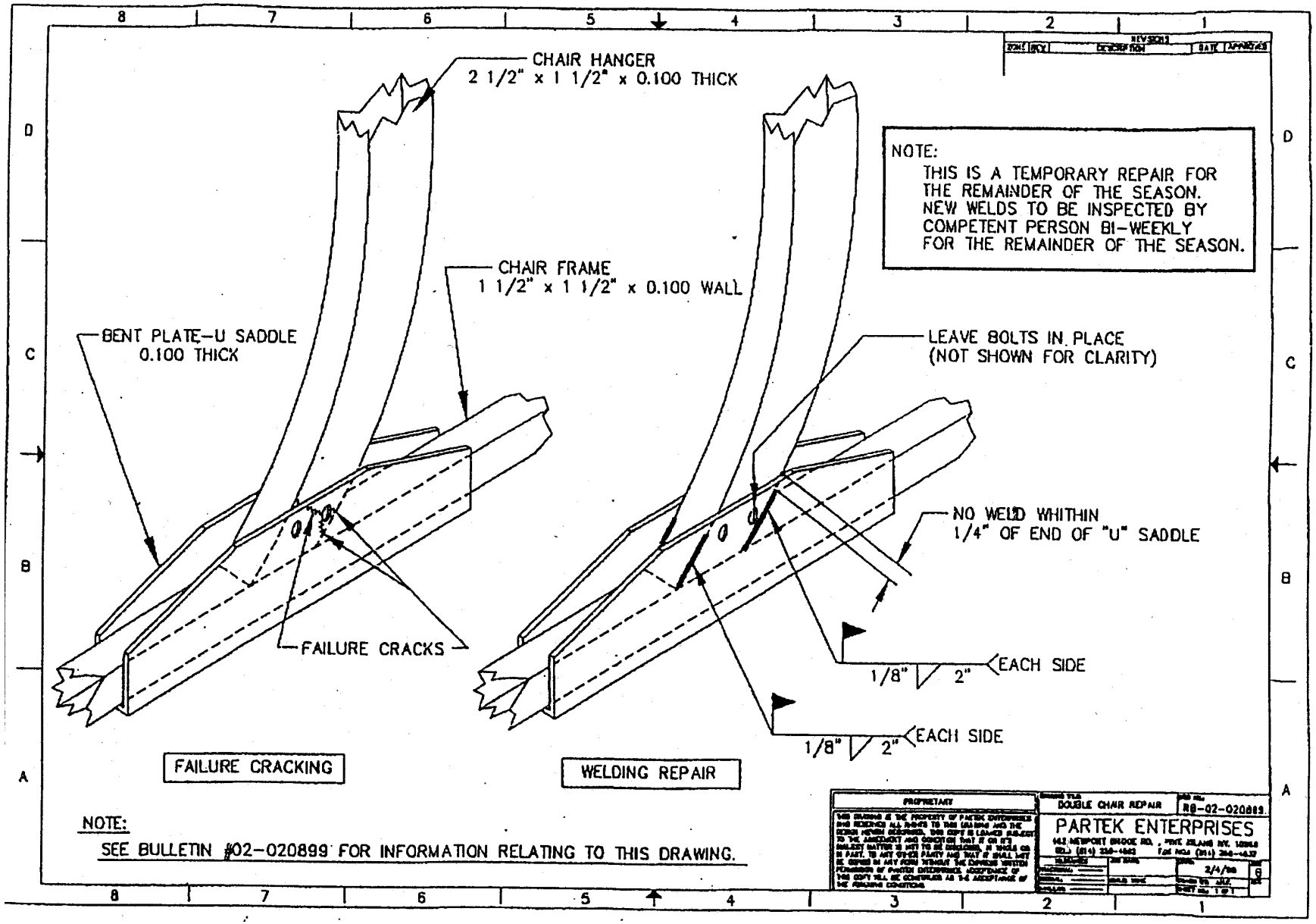
1) All double chairs of this particular configuration **must be replaced with new chairs prior to the 1999/2000 operating season.** Partek has a replacement chair for this particular grip configuration. We do not condone the use of chairs supplied by anyone other than Partek.

2) All Urethane sheave liners are to be removed from service and replaced with original equipment liners prior to the 1999/2000 operating season. Partek has these liners available.

3) We highly recommend that non-destructive testing be performed on all rope grips on lifts where Urethane liners are or have been in use. If independent testing firms are used, then Partek is to be supplied with the test results. Any rope grips showing indications are to be sent to Partek for final determination of their serviceability.

By: _____
Hagen Schulz
President

Attachments: Double Chair Repair Drawing



Elevating and Amusement Devices Safety Division	Ref. No.: 146 / 99	Rev. No.:
Enforcement Procedure Bulletin	Date: **March 15, 1999**	Date:

Subject: **Revisions to design Submissions Simplified Procedure**

Sent to: **All Elevating Devices Contractors in Class U and Consultants**

1. Introduction

1.1 On inspection of a newly installed or altered elevating device, a TSSA inspector may write directions identifying discrepancies between the registered design submission and the actual installation.

1.2 In response to the inspector's directions, a contractor may alter the installation to bring it in compliance with the registered design submission or the contractor may submit a revised design for registration to TSSA in accordance with Section 10 of the Regulations. When it is urgent to obtain the registration, the contractors/submitters find the current procedure time-consuming and ineffective. Currently at least two prescribed forms must be completed and a fee-prepayment-cheque enclosed. Furthermore, the discrepancies may result from a typo, or may not have a significant affect on the safety.

1.3 In Accordance with the TSSA business objective to serve the clients in the most effective manner, we are now introducing the following procedure:

a) For electric and hydraulic elevators, as shown in Annex 1 to this Bulletin, we have identified a number of design submission (DS) specification items that would not require a formal DS revision registration or fee payment because the discrepancies could be resolved through a contractor's letter to the inspector or by the inspector alone without any contractor's involvement, and

b) For other elevating devices and for elevator noncompliances not listed in Annex 1, we are now introducing, as an option, a simplified procedure for registration of revisions to the previously registered design submissions (see next page).

1.4 If a DS item has to be revised and is not listed in Annex 1, a revised DS must be submitted for registration and the prescribed fee paid. This submission must include all items requiring revision in relation to an installation. Please, do not send the letter to the inspector for one item and a DS revision for another item pertaining to the same installation.

1.5 Revisions submitted for registration following this simplified procedure or revisions made in accordance with guidelines set in Annex 1 will comply with the intent of Section 10 of the Regulations under the Elevating Devices Act.

2. <u>Simplified procedure (optional) for registration of revisions to design submissions</u>

2.1 Currently prescribed forms #ED9331 (Application), #ED9352 (abridged form) and any Specification Sheet form can be replaced with a letter or a fax. The letter or fax shall:

a) be addressed to TSSA – Elevating Devices Engineering;

b) have "Subject" reading "Revision to design submission for….. [name the type, eg. new installation, major or minor A or B alteration] for installation No(s)….[list number(s), previously allocated by MCCR or TSSA];

c) list all technical specification items, or drawings/schematics that are being revised, **indicating both the original/incorrect and the new/correct data**;

d) include a statement sealed and signed by a professional engineer, corresponding to the text of item #193 of the Specification sheets, or in the case of a revision to a Minor B Alteration, a statement signed by a contractor, corresponding to the text in item #193 of the Notification Form #ED 9356, and

e) have a copy of the inspector's report as an attachment, if the DS revision is made in response to the inspector's report.

2.2 When the DS revision is received via fax or if the cheque covering registration fee is not attached to the DS revision, TSSA will invoice the submitter.

C. E. Vlahovic, Chief Engineer M. Tevyaw, Acting Chief Inspector

SPECIFICATION ITEMS NOT REQUIRING FORMAL DS REVISION

Specification data for:
- **Hydraulic elevators (forms ED 90901 – 05/97)**
- **Electric elevators (forms ED 90322 – 05/97)**
- **Application (forms ED 09331 – 05/97)**

a) Introduction

Where discrepancies between and elevator installation and the related design submission (DS) are Identified in the TSSA inspector's report, the installing contractor may choose to alter the installation or revise the DS in order to resolve the discrepancies. In the latter case, a formal revision to the previously registered DS and fee payment may not be required if all discrepancies on one installation could be resolved in accordance with the following guidelines (b) and/or (c).

b) Contractor's letter or fax to TSSA inspector is acceptable in lieu of DS

If any of the DS specification items listed below needs changing, a formal DS revision may be replaced with a Contractor's letter showing the original/incorrect and the new/accurate data for specific items. The letter should be addressed to the inspector who identified the discrepancies between the installation and the DS. The letter/fax should not be copied to TSSA engineers. If the letter is addressed or copied to a TSSA registration engineer, then the revision noted in the letter will be processed as a formal DS Revision and the appropriate fee invoiced. This procedure is applicable to the following specification items:

b.1) Specification items for Electric and Hydraulic Elevators

General	-	Any data which is an obvious typo
17	-	Maximum capacity [persons]
20	-	Elevator model
21	-	Building address
27	-	Type of operation
28	-	Controller, if either model or trademark differ, but not both
75(H)	-	Car bottom runby
91	-	Landing door, if either model or trademark differ, but not both
95	-	Door safety retainers
101	-	Landing door interlock make and model, if either model or trademark differ, but not both
103.1 & 2	-	Access to hoistway
116	-	Car weight if within 5%
124	-	Car door or gate type
127	-	Door operator, if either model or trademark differ, but not both
128	-	Door reopening device
153 thru 163	-	Special emergency service
154.3	-	Recall switch location other than lobby

b.2) Application form items

21 - Building address

Note: If the Contractor's letter is not compiled in accordance with the above guidelines, the inspector may request the contractor to have the DS revision formally registered.

c) No action by contractor required

No action by the Contractor is required, if any of the following discrepancies are identified. The inspectors are authorized to mark-up corrected data in the TSSA copy of the Specification sheets or the Application form.

c.1 Specification items for Electric and Hydraulic elevators

General	-	Any data which is an obvious typo
16	-	Maximum capacity in (kg) if within 1%
18	-	Rated speed, if within code tolerances
23	-	Number of floors served, if only spec, but not if layout differs from installation
26	-	Car travel, if only spec, but not layout differ from installation
40(H)	-	Low oil protection
47(H)	-	Pump make and model
111 & 112	-	Car platform size, if within the code tolerances
115	-	Requirement in B44 Clause 3.6.2.3(e)
116	-	Car weight if within 2%
120.1	-	Car enclosure lining material
145	-	Governor make and model, if an obvious typo
146	-	Overspeed switch set at
147	-	Tripping speed set at
154.1	-	Manual recall if automatic recall is provided
169	-	TSSA file number, if applicable
170.1 through to 170.23	-	Symbols
171.1	-	Motor phase protection
181 though to 184	-	only if an obvious typo

c.2) Application form items

19	-	Owner's name and address
22	-	Building function
23	-	Common reference to building

d) DS Revision required

If any discrepancy between a registered DS and the actual installation, other than those listed in (b) and (c), is identified in the Inspector's Report and the contractor decides to revise the DS rather than to alter the installation, a DS Revision must be submitted for registration and prescribed fee paid. Please, in relation to one elevator installation do not send a letter to the inspector for one item and a DS revision for registration of another item. Include all revision in the DS.

Elevating and Amusement Devices Safety Division	Ref. No.: 147/99	Rev. No.:
Safety Alert Bulletin	Date: **June 30, 1999**	Date:

Subject: **GARAVENTA Stair Platform Lifts – Leading Edges Operation**

Sent to: **All Contractors for Lifts for Disabled in Scope U5 & U6 and Consultants**

1. ORDER TO CONTRACTORS MAINTAINING GARAVENTA STAIR PLATFORM LIFTS

On your next maintenance visit of each GARAVENTA stair platform lift and **not later than 90 days from the date of this *Revised* Bulletin,** whichever comes first:

(a) You shall operate the stair platform lift in the up direction and activate the leading edge of the under-platform safety surface (see B in Figure 1), making sure that you do not simultaneously activate the leading edge of the loading ramp (see A in Figure 1).

WARNING: Ensure personal safety while performing this test!

(b) If the lift stops, no further action is required.

If the lifts fails to stop, you shall provide immediately a copy of this Bulletin to the lift licensee/owner and point to the Order specified in Section 2 of this Bulletin.

2. ORDER TO OWNER/LICENSEES OF GARAVENTA STAIR PLATFORM LIFTS

If your lift failed to stop when the maintenance contractor performed the test specified in 1(a) of this Bulletin you shall:

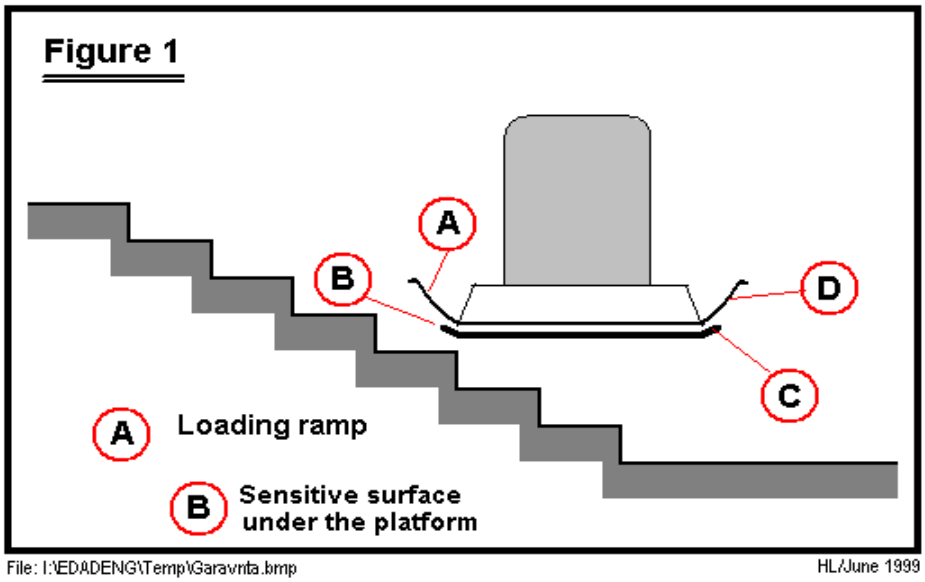
(a) **Immediately** instruct all persons, authorized to operate the lift, to the following:

- Riders and attendants, not to cause platform to move unless they have a clear view o the lift runway,
- Riders to face the direction of travel when travelling up and check for any obstruction, in particular presence of people in order to ensure that moving platform shall not impact on any such obstruction.

(b) **Not later than six month from the date of this Bulletin,** permanently attach a label to each lift operating station, summarizing the instructions stated in (a) above.

Example for the label: “WARNING: Face UP when travelling up. Stop before reaching people or any obstruction. ”

(c) Upon your request (telephone 905-664-3376) Garaventa is committed to provide you, with self-adhesive labels, free of charge.



3. Background

3.1. Concerns have been raised in regards to the operational safety for several models of Garaventa stair platforms lifts; specifically that the platform may not automatically stop when it engages an obstruction with the leading edge, marked B in the figure.

3.2. Garaventa confirmed that older (Garaventa) lifts are so designed or wired as not to stop when only edge marked B is engaged; however it would stop should the edge of the loading ramp (see A in Figure 1) be engaged. Garaventa considers it extremely unlikely that only edge "B" would be obstructed without simultaneous engagement of the edge "A". By reviewing records of reported accidents or incidents on ten thousand units worldwide over ten years interval Garaventa has found none attributed to the concern in 3.1

3.3. However, regardless how remote the risk is, Garaventa decided to make operational the switches activated by edges "B" on all new installations. For existing installations which may not stop when edge B is engaged, Garaventa recommends to impose strict operational procedures and to post warning signs.

3.4. No concerns have been expressed with respect to the operation of the edges marked "C" and "D". Both remain operational on all Garaventa lifts, when travelling in the down-direction.

3.5. All data and procedures included in this Bulletin are supplied by Garaventa office in Stoney Creek, Ontario.

C. E. Vlahovic, Chief Engineer M. Tevyaw, Regional Manager

Elevating and Amusement Devices Safety Division	Ref. No.: 147/99	Rev. No.: 1
Safety Alert Bulletin	Date: **June 30/99**	Date: **December 31/99**

Revisions shown in Italics

Subject: **GARAVENTA Stair Platform Lifts – Leading Edges Operation**

Sent to: **All Contractors for Lifts for Disabled in Scope U5 & U6 and Consultants**

1. ORDER TO CONTRACTORS MAINTAINING GARAVENTA STAIR PLATFORM LIFTS

On your next maintenance visit of each GARAVENTA stair platform lift and **not later than 90 days from the date of this *Revised* Bulletin,** whichever comes first:

(a) You shall operate the stair platform lift in the up direction and activate the leading edge of the under-platform safety surface (see B in Figure 1), making sure that you do not simultaneously activate the leading edge of the loading ramp (see A in Figure 1).

WARNING: Ensure personal safety while performing this test!

(b) If the lift stops, no further action is required.

(c) If the lifts fails to stop, you shall provide immediately a copy of this Bulletin to the lift licensee/owner and point to the Order specified in Section 2 of this Bulletin.

2. ORDER TO OWNER/LICENSEES OF GARAVENTA STAIR PLATFORM LIFTS

If your lift failed to stop when the maintenance contractor performed the test specified in 1(a) of this Bulletin you shall:

(a) **Immediately** instruct all persons, authorized to operate the lift, to the following:

(a1) Riders and attendants, not to cause platform to move unless they have a clear view of the lift runway,

(a2) Riders to face the direction of travel when travelling up and check for any obstruction, in particular presence of people in order to ensure that moving platform shall not impact on any such obstruction.

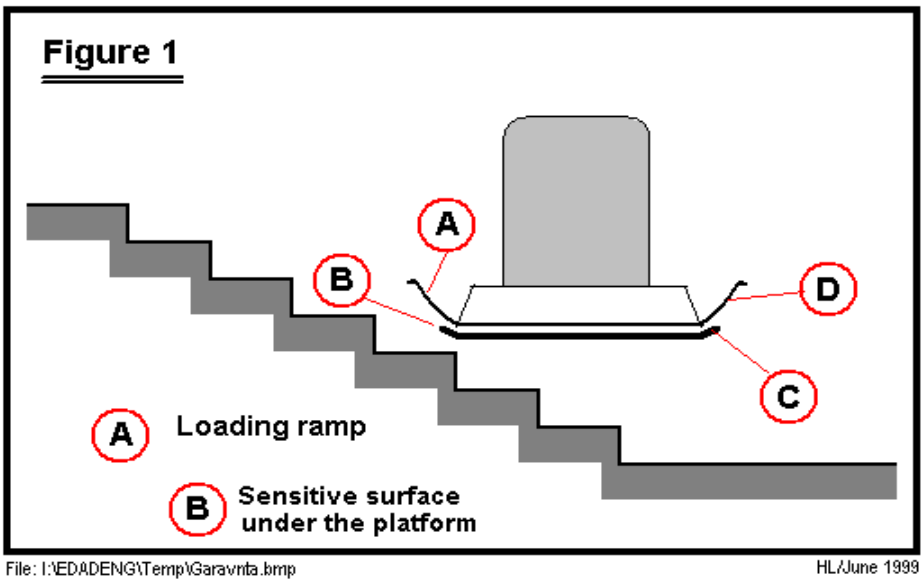
Exception to (a2): *On lifts that were previously equipped with signs requiring the riders to always position the wheelchair on the platform as to "face down" [typically in the case of low over-platform clearances], the riders shall be instructed to "observe the up-direction of travel" or to require assistance of an attendant while riding in the up direction.*

(b) **Not later than six month from the date of this Bulletin,** permanently attach a label to each lift operating station, summarizing the instructions stated in (a) above.

- Example for the label: "WARNING: Face UP when travelling up. Stop before reaching people or any obstruction. "

- *Where the **Exception to (a2)** applies, the label may read "WARNING": Position wheelchair as required. If not able to observe up-direction of travel, ask for assistance of an attendant when travelling up".*

(c) Upon your request (telephone 905-664-3376) Garaventa is committed to provide you, with self-adhesive labels, free of charge.



3. BACKGROUND

3.1 Concerns have been raised in regards to the operational safety for several models of Garaventa stair platforms lifts; specifically that the platform may not automatically stop when it engages an obstruction with the leading edge, marked B in the figure.

3.2 Garaventa confirmed that older (Garaventa) lifts are so designed or wired as not to stop when only edge marked B is engaged; however it would stop should the edge of the loading ramp (see A in Figure 1) be engaged. Garaventa considers it extremely unlikely that only edge "B" would be obstructed without simultaneous engagement of the edge "A". By reviewing records of reported accidents or incidents on ten thousand units worldwide over ten years interval Garaventa has found none attributed to the concern in 3.1

3.3 However, regardless how remote the risk is, Garaventa decided to make operational the switches activated by edges "B" on all new installations. For existing installations which may not stop when edge B is engaged, Garaventa recommends to impose strict operational procedures and to post warning signs.

3.4 No concerns have been expressed with respect to the operation of the edges marked "C" and "D". Both remain operational on all Garaventa lifts, when travelling in the down-direction.

3.5 All data and procedures included in this Bulletin are supplied by Garaventa office in Stoney Creek, Ontario.

C. E. Vlahovic, Chief Engineer M. Tevyaw, Regional Manager

Elevating and Amusement Devices Safety Division	Ref. No.: 148/99	Rev. No.:
Safety Alert Bulletin	Date: **June 28, 1999**	Date:

Subject: **Otis Electronic Touch Buttons, Maintenance Procedures**

Sent to: **All Elevating Licensees**

1. Background

Pursuant to their obligation under Section 25 of Ontario Regulation 316 made under the Elevating Devices Act, OTIS Canada, Inc. advised the Director of a potential problem with electronic touch buttons installed on Otis elevators.

The electronic touch buttons if not properly maintained may inadvertently activate when they come in contact with certain types of heavily moisture-laden smoke; typically, in the case of a building fire. The affects of smoke are particularly critical if the buttons are overly sensitive, worn, damaged or have accumulated dirt or other particular matter. Therefore a proper maintenance is of paramount importance.

The following Orders are formulated based on the maintenance procedures dated June 15, 1999, provided by OTIS Canada, Inc. that should lessen the possibility of unintentional activation of the buttons in the event of a fire.

2. Order to Contractors:

Contractors who maintain elevators equipped with Otis electronic touch buttons shall immediately implement the maintenance procedures which shall include the following:

2.1 Every Twelve (12) months:

2.1.1. **Check the voltage settings** of such buttons to ensure that they are not overly sensitive.

- **Recommended voltage** settings are as follows:
  - (1) B+ voltage – 135 volts maximum;
  - (2) Firing voltage (“Bo voltage) – 150 Volts maximum;
  - (3) Bias voltage, if applicable, *(“TB”)-25 Volts maximum.

  - Note: Bias voltage (“TB”) is utilized solely in electronic touch buttons that are part of multiriser elevator configurations.

2.1.2. **Inspect button faceplates** for signs of excessive wear or damage and accumulation of dirt or other particulate matter.

- **Actions**
  - (1) Faceplates that are excessively worn or damaged shall be replaced.

(2) Faceplates that have accumulated dirt or other particulate matter shall be wiped clean with a cloth

2.2 **Every sixty (60) months (see also 2.3)**

2.2.1 **Inspect button tubes and bases** for signs of excessive wear or damage an accumulation of dirt or other particulate matter.

- **Actions**

(1) Touch button components including tubes, button inserts, bases and tube sockets shall be disassembled from the faceplate.

(2) Tubes or bases that are excessively worn or damaged shall be replaced.

(3) Tubes that have accumulated dirt or other particulate matter shall be wiped clean with a cloth and blown free of any remaining dirt or particulate matter with compressed air.

(4) Button inserts, bases and tube sockets that have accumulated dirt or other particulate shall be wiped clean with a cloth and blown free of any remaining dirt of particulate matter with compressed air.

2.3 **Immediately and on regular maintenance visits:**

2.3.1 **Inspect immediately tubes and bases** of any individual electronic touch buttons that have malfunctioned or appear damaged.

- **Actions:** Replace or clean if necessary as per the maintenance procedure in 2.2 above.

3. Instructions to Contractor

If the work required does not constitute a part of your maintenance contract, and you cannot obtain authorization from the owner to complete the work, you shall inform the District Inspector immediately, indicating the elevator installation number and reference to Bulletin #148/99, so that the inspector may issue an Order to the owner to have the work completed. Note, that contractors are provided with a listing of inspectors' home office/district information.

4. Background

Following an investigation into a recent fire where the elevator equipped with Otis electronic touch buttons went to the fire floor, testing carried out by fire authorities in cooperation with the Offices of Coroners having jurisdiction, the manufacturer, other industry members and TSSA, confirmed the following.

Electronic touch buttons may activate when exposed to certain types of heavily moisture-laden smoke. Particularly if the buttons are overly sensitive and the button components are worn, damaged or have accumulated dirt or other particulate matter. The maintenance procedures prescribed above should lessen the possibility of such unintentional activation in the event of a fire.

C.E. Vlahovic, Chief Engineer **M. Tevyaw, Regional Manager**

Elevating and Amusement Devices Safety Division	Ref. No.: 149/1999	Rev. No.:
Enforcement Procedure Bulletin	Date: July 30/99	Date:

Subject:

- **Elevators in residential buildings altered to conform with the Ontario Fire Code**
- **Alterations in violation of the Elevating Devices Act and Director's Ruling #105/r2/94**
- **Design Submission not registered, inspection not requested.**

Sent to: **Elevator Contractors in Class U1, F1 and Consultants**

1. Introduction

1.1 Based on information received and spot checks by inspectors, we have reason to believe that there are elevators altered, as far back as 1996, for which the design submission was not registered and inspections not carried out, in violation of the requirements of the Elevating Devices Act.

1.2 Regulation 316, under the Elevating Devices Act, Section 1 defines the addition of special emergency service (often referred to as firemen's operation or fire code retrofit) and related functions as Minor Alteration, Type A.

1.3 Section 4 (2) of the Regulation 316 requires that where an alteration is performed, it must comply with the requirements of the Regulation.

1.4 Director's Ruling 105/93 dated February 17, 1993, including Revision #2 of October 25, 1994, outlines applicable rules for elevators in residential buildings when retrofitted to comply with Article 9.6.5.6. of Ontario Fire Code (O.Reg. 627/92 under Fire Marshall's Act).

1.5 Director's Ruling 116/95 dated February 20, 1995, including Revision A of July 30, 1996 further clarifies procedures for design submissions and inspections. Alterations involving the addition of special emergency service operation is identified with the ruling as a Minor A Type. The contractor who carries out such an alteration is required to submit the alteration design for registration within 5 days and arrange for a Special Inspection not later than 60 days from the date of the completion of the alteration and to arrange for performance of tests as required by the inspector.

2. Order to Contractors:

Effective immediately, each contractor who has altered an elevator to meet the requirements of the Ontario Fire Code by installing the emergency service of fire fighter's operation shall comply with the following:

(i) The contractor shall review records on each such alteration and shall ensure that each alteration has been completed in compliance with the Elevating Devices Act regarding the design submission registration and inspection.

(ii) Where the contractor finds that the alteration work was completed on a specific elevator(s) but the design submission(s) was not registered, the contractor who carried out the alteration shall submit immediately the required design submission for registration, irrespective of whether the contractor has or has not the elevator(s) under the maintenance contract at this time.

(iii) Where the design submission was previously registered but an inspection of the alteration has not been carried out, the contractor shall immediately arrange for an inspection to be performed by TSSA.

3. Order re: Compliance Requirement:

3.1 The contractors who have not received registration of the design submissions or have not had the alterations inspected will be afforded a 30 day grace period from the due date of this Bulletin to comply with the requirements of the Elevating Devices Act and Regulations (see Introduction in this Bulletin.)

3.2 Immediately following the grace period, the non-conforming installations will be subject to Special Inspections and orders will be issued to demonstrate conformance. The inspection fee will be charged to the contractor who carried out the alteration. In addition, the registration of the design submission and another special inspection will be subject to prescribed fees, payable by the altering contractor.

4. Penalty for Failure to Comply:

4.1 Failure to comply with the above order by the due date is an offence under the Elevating Devices Act which is subject to prosecution. The Elevating Devices Act provides penalties of up to $100,000 per day for contractors who fail to comply with these orders.

4.2 Convictions under the Elevating Devices Act may result in the loss of contractors registration.

C.E. Vlahovic, Chief Engineer

M. Tevyaw, Regional Manager

Elevating and Amusement Devices Safety Division	Ref. No.: 150/00	Rev. No.:
Safety Alert Bulletin	Date: **June 7, 2000**	Date:

Subject: **Barricading Escalators/Moving walks during maintenance**

Sent to: **Escalator and Moving Walk Contractors [in Scope U9 & U10] and Owners**

1. Introduction

- When maintenance or any other work is performed on an escalator or moving walk their entrances are barricaded, usually by placing a self-standing barrier at each entrance.
- Several occurrences have been reported where persons would step over or push aside the barrier and climb the stationary escalator or step on a moving escalator, while the escalator pit may be open or several steps may be missing, exposing themselves to a serious safety hazard.
- The Labour-Management Health and Safety Committee of the Construction Safety Association of Ontario and TSSA concluded that the self-standing barriers may not be effective in ensuring public safety.
- This bulletin was reviewed and agreed upon by the Elevating Devices Advisory Council.

2. Order to Contractors and Owners of escalators/moving walks

- Contractors who perform any work on an escalator or moving walk shall ensure that no member of the general public can gain access to the part of the escalator where the person's safety could be in danger.
- Owners shall ensure that the public protection means used by contractors comply with this order.
- Barricades or other guards placed around the escalators or moving walks **shall be so secured in place** as to prevent any passerby from gaining access to the escalator or moving walk by simple actions, such as lifting and pushing the barricade aside or by stepping over the barricade.
- Owners shall inform their representatives at the escalator/moving walk sites and contractors shall inform their mechanics of this Order.
- This Order comes into force not later than 6 months from the date of this Bulletin.

3. Compliance Required

- *Elevating Devices Act*, Section 17 requires that "no person shall perform any work on an elevating device in such manner as to…..endanger…any other person".
- Section 26(c) of O.Reg 316, R.R.O. 1990 requires that "Every owner of an elevating device shall ensure that, any part of the elevating device that may be hazardous is closed, locked or otherwise made inaccessible to the public."
- Section 30 of the Act provides for fines of up to $100,000 per day for a company who fail to comply with this Order.

C. E. Vlahovic, Chief Engineer John Sonke, Regional Manager

Elevating and Amusement Devices Safety Division	Ref. No.: 150/00	Rev. No.: 1
Safety Alert Bulletin	Date: **June 7, 2000**	Date: **September 26/00**

Subject: **Barricading Escalators/Moving walks during maintenance**

Sent to: **Escalator and Moving Walk Contractors [in Scope U9 & U10] and Owners**

Note: Revision 1 adds guidelines fo the barricade height R1

1. Introduction

- When maintenance or any other work is performed on an escalator or moving walk their entrances are barricaded, usually by placing a self-standing barrier at each entrance.
- Several occurrences have been reported where persons would step over or push aside the barrier and climb the stationary escalator or step on a moving escalator, while the escalator pit may be open or several steps may be missing, exposing themselves to a serious safety hazard.
- The Labour-Management Health and Safety Committee of the Construction Safety Association of Ontario and TSSA concluded that the self-standing barriers may not be effective in ensuring public safety.
- This bulletin was reviewed and agreed upon by the Elevating Devices Advisory Council.

2. Order to Contractors and Owners of escaltors/moving walks

- Contractors who perform any work on an escalator or moving walk shall ensure that no member of the general public can gain access to the part of the escalator where the person's safety could be in danger.
- Owners shall ensure that the public protection means used by contractors comply with this order.
- Barricades or other guards placed around the escalators or moving walks **shall be so secured in place** as to prevent any passerby from gaining access to the escalator or moving walk by simple actions, such as lifting and pushing the barricade aside or by stepping* over the barricade.

  Note: Based on the Ontario Building Code [re: guards], barricades of at least 1070 mm (42") in height should meet the intent of this part of the requirement*.** **R1**

- Owners shall inform their representatives at the escalator/moving walk sites and contractors shall inform their mechanics of this Order.
- This Order comes into force not later than *December 7, 2000***.** **R1**

3. Compliance Required

- *Elevating Devices Act*, Section 17 requires that "no person shall perform any work on an elevating device in such manner as to…..endanger…any other person".
- Section 26(c) of O.Reg 316, R.R.O. 1990 requires that "Every owner of an elevating device shall ensure that, any part of the elevating device that may be hazardous is closed, locked or otherwise made inaccessible to the public."
- Section 30 of the Act provides for fines of up to $100,000 per day for a company who fail to comply with this Order.

C. E. Vlahovic, Chief Engineer John Sonke, Regional Manager

Elevating and Amusement Devices Safety Division	Ref. No.: 150/00	Rev. No.: 2
Safety Alert Bulletin	Date: **June 7, 2000**	Date: **November 17/00**

Subject: **Barricading Escalators/Moving walks during maintenance**

Sent to: **Escalator and Moving Walk Contractors [in Scope U3 & U4] and Owners** R2

Note: *Revision R1 adds a guideline for the barricade height* R1
Revision R2 changes effective date & Scope R2

1. Introduction

- When maintenance or any other work is performed on an escalator or moving walk their entrances are barricaded, usually by placing a self-standing barrier at each entrance.
- Several occurrences have been reported where persons would step over or push aside the barrier and climb the stationary escalator or step on a moving escalator, while the escalator pit may be open or several steps may be missing, exposing themselves to a serious safety hazard.
- The Labour-Management Health and Safety Committee of the Construction Safety Association of Ontario and TSSA concluded that the self-standing barriers may not be effective in ensuring public safety.
- This bulletin was reviewed and agreed upon by the Elevating Devices Advisory Council

2. Order to Contractors and Owners of escaltors/moving walks

- Contractors who perform any work on an escalator or moving walk shall ensure that no member of the general public can gain access to the part of the escalator where the person's safety could be in danger.
- Owners shall ensure that the public protection means used by contractors comply with this order.
- Barricades or other guards placed around the escalators or moving walks **shall be so secured in place** as to prevent any passerby from gaining access to the escalator or moving walk by simple actions, such as lifting and pushing the barricade aside or by stepping* over the barricade.
  *Note: Based on the Ontario Building Code [re: guards], barricades of at least 1070 mm (42") in height should meet the intent of this part of the requirement. **R1**
- Owners shall inform their representatives at the escalator/moving walk sites and contractors shall inform their mechanics of this Order.
- This Order comes into force not later than *March 26, 2001*. **R2**

3. Compliance Required

- *Elevating Devices Act*, Section 17 requires that "no person shall perform any work on an elevating device in such manner as to…..endanger…any other person".
- Section 26(c) of O.Reg 316, R.R.O. 1990 requires that "Every owner of an elevating device shall ensure that, any part of the elevating device that may be hazardous is closed, locked or otherwise made inaccessible to the public."
- Section 30 of the Act provides for fines of up to $100,000 per day for a company who fail to comply with this Order.

C. E. Vlahovic, Chief Engineer John Sonke, Regional Manager

Elevating and Amusement Devices Safety Division	Ref. No.: 151/99	Rev. No.:
Information / Interpretation Bulletin	Date: **November 18/99**	Date:

Subject: **Potential Y2K issues affecting Elevating Devices**
Sent to: **ALL ELEVATOR CONTRACTORS**

INFORMATION:

The new millennium is coming and industries world-wide have taken steps to prepare themselves in the event that they may be affected by Y2K issues. The elevating industry, in keeping with its commitment of delivering the highest level of public safety, is no exception. TSSA has encouraged and welcomed initiatives by owners and contractors whose responsibility it is to ensure continued and safe operation of elevating devices.

The Technical Standards and Safety Authority (T.S.S.A.) has a contingency plan in place. Any serious incidents shall continue to be reported through *Spills Action Centre* at 416 – 325 – 3000.
The centre will make the necessary contact with T.S.S.A. staff on stand-by for Y2K issues.

REMINDER

All contractors are reminded of the need for the appropriate number of qualified staff to be available to take timely action deemed necessary to ensure the continued and safe operation of any device currently maintained, in preparation for unexpected situations in the advent of the Year 2000.

M. Tevyaw, Regional Manager

Elevating and Amusement Devices Safety Division	Ref. No.: 152/00	Rev. No.:
Information / Interpretation Bulletin	Date: **March 15, 2000**	Date:

Subject: **Elevating Devices Mechanics Certification Process/Due Diligence**

Sent to: **All Elevator Devices Contractors in Scope U1, L1, F1 and Consultants**

1. INTRODUCTION

At the request of the Elevating Devices Advisory Council (EDAC), the recommendations in the attachment to this bulletin have been developed as information for members of the elevating devices industry. The objective is to strengthen and document the communication process intended to ensure that all members of the elevating devices industry are appropriately aware of their duties, responsibilities and accountability under the Elevating Devices Act and Regulations, and are in turn, also supporting the certification process with respect to due diligence.

2. BACKGROUND

In support of the objective, the following key targets are identified in the enclosed recommendations (See Attachment):

- To enhance public and work place safety, by supporting the diligent use of Elevating Device Mechanics certified within the proper classifications and by creating awareness of the responsibilities of Elevating Device Mechanics and Elevating Device Contractors.
- To ensure the integrity of the training and certification process and promote a full understanding of the Elevating Devices Act and Regulations.
- To provide ways and means to communicate the requirements and responsibilities of certification under the Elevating Devices Act and Regulations.

3. ACKNOWLEDGEMENT

Responsibility for the development of the attached recommendations was assigned by EDAC to the Technical Standards and Safety Authority/Contractors Working Relations Committee. Council supports the recommendations and acknowledges the contributions of the Committee.

Marc Tevyaw, Regional Manager

Attachment - Ref. Bulletin #152/2000

RECOMMENDATIONS FROM THE TSSA/CONTRACTORS WORKING RELATIONS COMMITTEE

The committee identified the following items as criteria for communication by Elevator Contractors in supporting due diligence:

- A network of communicating and/or distribution of **"Information Bulletins"** and/or **"Safety Alerts"** shall be established by each employer (with an internal system for verification), to ensure receipt by all employees of registered elevating devices contractors.
- Mechanics are required to maintain a current certificate of authorization and provide proof upon request.
- Mechanics shall be employed by a contractor **registered** with the TSSA.
- Mechanics shall not perform work beyond the scope of his/her certificate of authority or beyond the scope of his/her experience.
- Newly installed elevators or existing elevators undergoing major alterations shall not be put into service unless inspected and licensed by an inspector under the Elevating Devices Act.
- No person shall allow the operation of an elevating device if that person has reason to believe it is in an unsafe condition or permit it to be operated in an unsafe manner and/or permit the use of a device where a seal has been affixed by an inspector.
- No person shall remove, displace, interfere with or damage any device installed in or about an elevating device for its safe operation.
- Accidents/Incidents involving death and/or serious injury shall be reported **immediately** and others within 24 hours by phone and in writing within 7 days (Director's Ruling #117).
- Where death or serious injury occurs, wreckage shall not be disturbed or altered except for the purpose of rescue until permission is given by an inspector under the Elevating Devices Act.
- Design Submissions are required in addition to those for major alterations, for alterations of any type identified by Director's Ruling #116 and inspections shall be carried out within the time limits permitted by the Ruling, and/or as specified by regulation for other devices not specified in the Ruling.
- Field welding of piping and fittings on an elevating device must be performed by certified persons and meet the requirements of CSA Standard B51 and current documentation must be produced upon request.
- Elevators shall not be operated where alteration work is being performed in adjacent hoistways, where the operation of the elevator may be hazardous to workers unless protected in accordance with the Section 43 of Ontario Regulation 316 and the Ontario Health and Safety Act.
- Where persons are discovered performing work on a device, not in compliance with the Act and Regulations, the contractor shall advise the regulative authority without delay.

Elevating and Amusement Devices Safety Division	Ref. No.: 153/00	Rev. No.:
Enforcement Procedure Bulletin	Date: **March 20, 2000**	Date:

Subject: **Electric Elevator Specification Sheets – New Format**

Sent to: **All Elevator Contractors in Class U1 and Consultants**

1. Introduction

- Enclosed is a hard copy of TSSA forms #ED09322 (03/00), Specification Sheet for Electric Elevator.
- Electronic version of this form is available upon request at hlee@tssa.org . Hard copies can be obtained by calling June Khan at (416) 325-2129 or by fax (416) 326-8248.
- The forms have been developed by TSSA in collaboration with industry submitting engineers. They were recently presented to the Elevating Devices Advisory Council who supported the release and use of the form.
- Similarly revised forms for Specification sheet for Hydraulic Elevators will be released next month.

2. Use of the New Forms

- The use of the new forms **should start immediately**.
- However, the use of the old forms is acceptable until September 30, 2000.
- **After September 30, only the new forms shall be used**.
- Computer printouts rather than photocopies of the form should be included in the design submissions.

3. Features of the new forms and effects

- 40% less technical data are required to be entered by submitting engineers. This should significantly reduce the submitter's work load. Note that 10% will be captured by inspectors and the remaining 30% will be reviewed by TSSA engineers based on drawings. This will slightly increase the workload of TSSA staff.
- Entering data in the form by submitters is further simplified by pre-printed "options", facilitating checking instead of typing full test. This should also simplify capturing of, and improve quality of, data in TSSA system for risk management.
- Only 3 pages of forms will be used by submitting engineer. The 4th page is to be used by the inspector only.
- Electronic forms are in commonly uses Microsoft Excel Software. The submitting engineers need not create their own programs to fill in current paper forms by the computer. The electronic forms now could be filled-in and then printed out.

  Note: At this stage a print-out will be included in the design submission. We are looking into issues related to a fully electronic submission system such as legal requirements, data integrity and security, common software for cross platform application etc.
- Only data that are critical for risk management, in addition to data required for safety assessment of a design are left in the forms.

C.E. Vlahovic, Chief Engineer J. Garner, Regional Manager

Elevating &
Amusement Devices
Safety Division
Phone: (416) 325-2161

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3300 Bloor Street West
Toronto, ON M8X 2X4
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For TSSA Use
Installation Number(s)

SPECIFICATION SHEET FOR ELECTRIC ELEVATORS

GUIDELINES are on the reverse side of the forms (or point cursor to the red triangle at corner or box).

General	11	Type of submission	○ New Installation. ○ Alteration to existing elevator(s) - Inst. No(s):		○ Other, specify	All
	12	Submitter's specification No.		All	14 No. of elevators ○ 1 ○ 2 ○ 3 ○ 4	All
	13	Elevator Class	○ Passenger Freight, Clas ○ A ○ B ○ C		○ Other, specify:	All
	15	Elevator manufacturer	Name:			All
	16	Maximum capacity	1 2 3 4 kg		17 Maximum capacity 1 2 3 4 persons	
	18	Rated speed	1 2 3 4 m/s		20 Elevator model	All
BLDG	21	Address				All
	23	Number of floors served	1 2 3 4		26 Car travel 1 2 3 4 mm	
Drive machine & control	27	Type of operation	○ Automatic		○ Other, specify:	All
	28	Controller	Make and model:			1 2 3 4
	32	Type of drive	○ Geared	○ Gearless	○ Other, specify:	All
	33	Type of motor control	○ V V V F	○ DC - V V - SCR	○ Other, specify:	All
	62	Drive machine	Make:	All	63 Drive Machine model:	All
HWY	70	Space below CWT accessible? (2.10)	○ Yes 1 2 3 4		71 Car top clearance minimum (2.8.5 & 2.8.6) 1 2 3 4 mm	
	76	Bottom CWT runby, max. (2.8.2)	1 2 3 4 mm		71.1 Car jump prevention (2.8.5d(e) &3.7.17) ○ Yes	All
Guiderails & buffers	78	Car rail nominal mass/m (Table 1)	1 2 3 4 kg		77 Critical distance (2.8.10) 1 2 3 4 mm	
	79	CWT rail nominal mass/m (Table 1)	1 2 3 4 kg		80 Maximum bracket spacing Car mm CWT 1 2 3 4 mm	
	82	Car buffers Type: .1	○ Oil ○ Spring 1 2 3 4		84 Car oil buffer (11.2.3.1 & 3.3.5) Make: 1 2 3 4	
		Assembly & number: .2	X units		Model:	
	83	CWT buffers Type: .1	○ Oil ○ Spring 1 2 3 4		85 CWT oil buffer (11.2.3.1 & 3.3.5) Make: 1 2 3 4	
		Assembly & number: .2	X units		Model:	
	86	Car spring buffer (3.3.4.1; 3.3.4.2)	Stroke: 1 2 3 4 mm		87 CWT spring buffer (3.3.4.1; 3.3.4.2) Stroke: 1 2 3 4 mm	
	88		Load rating: kg		89 Load rating: kg	
Ldg doors	91	Landing door assembly Make and model:		All	93 Fire rating of door assembly (Table 3.5.3.A - OBC) h	All
	92	Landing door type (2.11.3)	○ HSSS ○ HSCO ○ HS2		○ VSBC ○ Other, specify:	1 2 3 4
	100	Interlock or mech. lock & contact (2.12)	○ Interlock ○ Mech.lock&contac	All	101 Make and model:	All
Car	116	Weight of complete car (3.9.3.2.4a)	1 2 3 4 kg		118 CWT overbalance Min kg Max: 1 2 3 4 kg	
	120	Encl.lining or covering (3.6.2.1; 3.6.3.1) Material: .1	Wall including doors		Ceiling Floor	1 2 3 4
		Flame spread rating: .2				

Guidelines to Page 1 of 3

11. Four possible types of the design submission, for which this form may be used, are listed in **General Guidelines** 1 (b).

    Where a "Major Alteration" is proposed, put an 'X' or check mark to the item for 'Alteration to existing elevator(s) - installation No(s)' The installation number for the elevator being altered must also be indicated.

12. Submitter's specification number may be a job or contract number or any manufacturer's or submitter's number unique to that particular elevator installation.

13. Put an 'X' or check mark to either: Passenger, Freight and related class, or specify under 'Other,' e.g., Observation.

14. Where more than one elevator installation is covered with this specification refer to **General Guideline** 4.

15. In the case of a major alteration, where a contractor installs equipment of a different make the submitter is expected to enter the make of the original equipment in this box. If impossible to identify, state so.

20. State N/A unless the elevator manufacturer has a specific designation for the elevator models covered in this specification.

21. The address of the building or premises in which the proposed elevator will be located. If the full address is not known at time of submission, describe the location as exactly as possible (.e., SW corner of "A" street and "B" avenue intersection). At least the first three digits of the postal code should be provided if the full postal code is not available at the time of application.

27. Put an 'X' or check mark to either: Automatic, or specify under 'Other,' e.g., CPPB.

32. Put an 'X' or check mark to either: Geared, Gearless, or specify under 'Other,' e.g., Drum.

33. Put an 'X' or check mark to either: VVVF, DC-VV-SCR, or specify under 'Other,' e.g., AC-2 (for 2-speed AC control).

70. An unselected circle means "No." Put an 'X' or check mark to circle if "Yes," which means space under the counterweight is accessible.

71. Specify the anticipated car top clearance (with car leveled at top landing. It must be equal to or greater than the minimum required in 2.8.5, 2.8.6 or 2.8.7).

71.1. An unselected circle means "No." Put an 'X' or check mark to circle if "Yes," which means car jump prevention is provided.

76. A designer may specify for "maximum CWT bottom runby" an amount which is less than maximum permitted by code in order to ensure that "the minimum top car clearance" as specified in line 71, conforms to the code or that requirement in clause 2.8.10 is satisfied. Refer to clause 2.8.4.2 for a mandatory sign in the pit.

77. Calculate and enter the critical distance according to the following formula: (max. CWT runby) + (buffer stroke) + a + b + 150 mm where max. CWT runby is the value declared in box #76, buffer stroke is the actual amount by which the buffer can be compressed, "a" is half the gravity stopping distance obtained as per Cl. 2.8.5 d, or the distance as per Cl. 2.8.5 e if rope tie-down device is provided, and "b" is a distance that any equipment protrudes above crosshead.

*77. With the car leveled at the top landing, measure and enter the shortest distance between any car top equipment and the obstruction above it. This distance must be equal to or greater than the "critical distance" declared by the submitter in box #77.

78/79. If other than standard rails are used, specify section modulus.

80. Specify designed maximum bracket spacing for this installation in compliance with 3.2.4.

82/83. Put an 'X' or check mark to either: oil or spring. Also specify number of buffer-units designed to be provided under the car/cwt,

84/85. Specify manufacturer of the buffer and its designation of the model. Applicable to oil buffer only.

86/87. Applicable to spring buffers only. In case of oil buffers, enter N/A.

88/89. Specify maximum load rating in kilograms for each buffer assembly or buffer unit (as defined in 82/83) indicating the mass for which this particular assembly or unit may be used. The load rating (as per marking plate 3.3.4.2) that is the load which will compress the buffer for a length equal to its quoted stroke.

91. Specify the make of the landing door assembly with model designation.

92. Put an 'X' or check mark to either: HSSS (horizontally sliding, single-section),
HSCO (horizontally sliding, centre opening),
HS2 (horizontally sliding, two-speed),
VSBC (vertically sliding, bi-parting, counterbalanced), or specify under 'Other,' e.g.,
1. HS2C (horizontally sliding, two-speed, centre opening),
2. HWSS horizontally swinging, single-section),
3. HWCO (horizontally swinging, centre opening),
4. CHSS (combination horizontally sliding and swinging),
5. VSDC (vertically sliding down-to-open, counterbalanced),
6. VSUC (vertically sliding up-to-open, counterbalanced), etc.

93. Enter fire rating for hoistway entrance which must comply with table 3.5.3A of Ontario Building Code. Where OBC does not require fire rating of the hoistway, enter N/A.

100. Put an 'X' or check mark to either: "interlock" or "lock & contact," whereby definitions and clause 2.12 in B44 will be used. The engineer sealing this spec should not rely on the designation (interlock or lock and contact) given by the parts manufacturer nor on the designation listed in the CSA List of Certified Electrical Equipment. Instead, the engineer must ensure that the door locking device make and mode, as specified in 101 and as installed on a particular door, conforms to clause 2.12.2 (if interlock) or 2.12.3 (if lock and contact).

101. Specify the manufacturer and the designated model for the device listed on item

116. Weight of the complete car including the car safety and all auxiliary equipment attached to the car, excluding the rate load (see crosshead data plate requirement in 3.9.3.2

120. Give details for lining. When no lining is provided, give details for the enclosure. Specify material and flame spread ratings following the requirements in clause 3.6.2.1 and 3,6,3,1 if the B44 code. If the data is not available when submitting, lines 120.1 and 120.2 may remain blank. The registration of design submission will not be delayed. However, the inspector will not be authorized to proceed with initial inspection until the data is received and reviewed by an engineer of this office. The engineer Referred to in guideline 2 shall submit the data in a letter to TSSA with reference to the installation number(s).

SPECIFICATION SHEET FOR ELECTRIC ELEVATORS

Car door

124 Car door or gate type (See #189 for rear doors) — O HSSS O HSCO O HS2 O VSBC O Other, specify:

126 Door kinetic energy (2.13.4) (See #189 for rear doors) .1 — Minimum door closing time: Normal speed s; Reduced speed s .3 — Total door mass kg

128 Car door reopening device (2.13.5; 3.12.15.2.3(g)(iv)) — O Electronic 2D O Electronic 3D O Mechanical O Other, specify

Ropes

131 Number of hoisting ropes and diameter .2 — x mm

132 Comp.chains provided .1 number of runs — O Yes run(s)

Rope construction .3 (See guideline)

Comp.ropes provided .2 number and diameter — O Yes x mm

Calculated factor of safety of hoisting rope .4

Unit mass of compensating rope/chain .3 — kg / m

Governor & safeties

137 Safety-make and model

138 Safety type (3.7.6)

139 Maximum tripping speed (3.7.14b) — Car safety: m/s — CWT safety: O Yes m/s

145 Governor make and model — For car: — CWT governor: O Yes make and model

136 Ascending car overspeed protection (3.16.3.1.3)

149 Car uncontrolled low speed protection (3.16.4)

Sp.Emerg.Serv

153 In-car service .2 .3 (3.12.15.8) — O Provided — If provided, check applicable car(s) — Car No.: O All O 1 O 2 O 3 O 4

154 Emergency recall .5 (3.12.15) — O Provided — If provided, check initiation control — O Automatic (3.12.15.3) (with ON-OFF-AUTO sw) O Manual (3.12.15.2) (with ON-OFF sw)

155 Recall to alternate level (3.12.15.9 & 3.2.6.9; OBC) .5 — O Provided

160 Emergency power supply (3.12.13 & 3.2.7.9 - OBC) — O All O One at a time

157 Firefighter's elevator .5 (3.12.15.9 & 3.2.6.9 - OBC) — O Provided — If provided, check applicable car(s) — Car No.: O All O 1 O 2 O 3 O 4

Other Information

188 Welding (3.5.7;3.4.2.1. & 3.2.9.2d) — 1 Design/procedures 2 Fabricator's qualification

189 Special features - Scope of alteration - Remarks

124a Complete #124a &126a only if the rear door is a different type from front doors. — Door type:

126a Door kinetic energy (2.13.4) .1 — Normal speed s — Min.door closing time: Reduced speed s .3 — Total door mass: kg

190 Variances — O Yes, see **Annex - Proposed Variance(s)**, attached

Documents & codes

191 List of supporting drawings and documents:

192 Applied codes:

A Ontario Building Code, Ontario Regulation 419/86, as amended

B CSA Standard CAN-B44-94S2, Safety Code for Elevators;

C Ontario Electrical Safety Code - 1998 as amended

D

Guidelines to Page 2 of 3

124. Put an 'X' or check mark to either:
HSSS (horizontally sliding, single-section), or
HSCO (horizontally sliding, centre opening), or
HS2 (horizontally sliding, two-speed), or
VSBC (vertically sliding, bi-parting, counterbalanced), or
specify under 'Other,' e.g.,
1. HS2C (horizontally sliding, two-speed, centre opening),
2. HWSS horizontally swinging, single-section),
3. HWCO (horizontally swinging, centre opening),
4. CHSS (combination horizontally sliding and swinging),
5. VSDC (vertically sliding down-to-open, counterbalanced),
6. VSUC (vertically sliding up-to-open, counterbalanced),
etc.
Where rear door is a different type from the front doors, complete 124a and 126a in 'Remarks' (#189)section.

126. This item (with 3 entries) relates to kinetic energy of landing doors and applies only to elevators equipped with power operated horizontally sliding doors (see 2.13.4).
For other door type, enter N/A.

126* Verify door closing timing which must be equal to or greater than specified time.

128. Put an 'X' or check mark to "Other" and specify 'N/A' if manually operated doors.

131 and 132. For hoisting and compensating ropes, indicate specifics as required in the form. It may be necessary to refer to CSA Standard C237-M, Steel Wire Ropes for Elevators.

131.3 Construction means the number of strands in the rope and the number and arrangement of wires in each strand, e.g., 8x19 Seale. Indicate also Preformed or Non-preformed, Regular Lay or Langlay.

136. Specify means provided. If CWT safety, put an 'X' or check mark to the circle in items 139 and 145 to give details for CWT safety and governor.
For other types of protection, give description of the device (e.g.,rope brake, sheave jammer, etc.), make and model.
If compressed air tank is used, it must have a nameplate with a CRN, according to Ontario's **Boilers and Pressure Vessels Safety Act.**

137. Specify manufacturer of the safety device and designation of the model.

138. Indicate type A, B, C, or D as defined in clause 3.7.6 on B44 Code.

139. Specify the maximum tripping speed for which the safety may be used.

149. Describe the method of conformance with code requirements including the make and model of the device.

153. through 160. An unselected circle means "No." Put an 'X' or check mark to circle if provided,

153. When provided, and the specification covers more than one elevator, put an 'X' or check mark to identify whether emergency recall provided to all cars, or a certain car(s).

154. When provided, put an 'X' or check mark to indicate the means to initiate the recall operation.

157. When firefighter's operation is provided, and the specification covers more than one elevator, put an 'X' or check mark to identify whether all cars are designated as firefighters cars, or only a particular car(s).

188. This question relates to all elevator components for which the B44 requires that the welding as well as the qualifications of contractors performing the welding must conform to the CSA or equivalent standards (see clause 3.5.7; 3.4.2.1 and 3.2.9.2(d)).

188.1 State CSA-W59 or name other standard applied, in that case make a statement in space 189 that you have assessed the compatibility of the applied standard with the CSA standard and that you have found it equivalent.

188.2 Name the fabricator that is qualified to undertake the welding in accordance with CSA Standard W-47.1, or name other standard to which the fabricator is qualified. In that case make a statement in space 189 that you have assessed the compatibility of the applied standard with the CSA standard and that you have found it equivalent.

189. This space is provided for description of special elevator features, and for description of the scope of alteration.
Special elevator features, examples are:
a) LCD display panel in car for commercial and safety messaging;
b) means of emergency evacuation, other than top emergency exit, typically on observation elevator.
Alteration: Explain which components or features are being altered, replaced or added, including those which are not listed in the form because they are mandatory required by the codes (see guideline 7).

190. An unselected circle means "No." Put an 'X' or check mark to circle if "Yes," which means there are variance(s) proposed in a separate Annex attached to this specification.

191. The list may be limited to layout drawings, mechanical details and other documents. Electrical schematic must be listed on #191a, page 3 of 3.

192. Specify the edition or the latest supplement, which is enforced at the time of signing this design submission. All other standards referenced in the codes mentioned in this item are considered to have been applied in this specification.

SPECIFICATION SHEET FOR ELECTRIC ELEVATORS - Electrical Protective Devices

A) Required protective devices - all designs (3.12.1* & 3.12.2*)

Item No.	Elect. Prot. Devices	Inspector's check box (Car No. 1 2 3 4)
	Car switches	
170.2	Car door contact (*18)	
170.4	Car top transfer (*.10)	
170.5	Car top stop (*.9)	
	Trouble shooting	
170.23.1	Car door bypass sw (3.12.1.4)	
170.23.2	Ldg door bypass sw (3.12.1.4)	

Item No.	Elect. Prot. Devices	Inspector's check box (Car No. 1 2 3 4)
	Safeties	
170.6	Car safeties switch (*.11)	
	Terminal switches	
170.8	Final terminal limit (*14)	
170.9	Normal terminal (*13)	
	Hoistway & pit	
170.15	Landing door interlocks (*17)	
170.18	Pit stop switch (*.8)	

12 Submitter's specification number:

11 Type of submission

○ New installation ○ Other, specify

○ Alteration - Installation No(s

Professional Engineer's Remarks:

B) Protective devices and system monitors - specific to the installation (3.12.2*)

X = Selected	Item No.	Elect. Prot. Devices	Inspector's check box (Car No. 1 2 3 4)
		Car switches	
○	170.1	Emergency stop (*.1)	
○	170.21	In-car stop (*.13)	
○	170.3	Emergency exit (*.19/.20)	
		Terminal switches	
○	170.10	Emerg.speed limit (*.15)	
○	170.11	Broken rope/tape/chain (*.6/.7)	
		Overspeed switches	
○	170.12	Governor o/s sw (*.12)	
○	170.22	Gov.rope tension (*.28)	
○	170.14	Motor overspeed (*.4)	

X = Selected	Item No.	Elect. Prot. Devices	Inspector's check box (Car No. 1 2 3 4)
		Hoistway & pit	
○	170.16	Blind hwy access door (*.24)	
○	170.17	Hoistway access (*.23)	
○	170.19	Pit door (*.25)	
○	170.20	Comp.rope sheave (*.3)	
		Level/truck zone	
○	178	Nor.speed control (3.12.1.3h)	
○	179	Indep. speed control (3.12.1.3h)	
○	180	Outer zone sp.control (3.12.1.3i)	
		Door contact monitor	
○	176	Door monitoring (3.12.1.5)	

191. List of drawings and documents related to Electrical Protective Devices

C) Redundancy protection and monitoring (3.12.9.c & d)

Item No.	Critical components	Redundant critical components	181.5 Circuits to conform to (3.12.9.d)	Testing method	Inspector's check box
181.1	Magnetically operated devices		Yes		1 2 3 4
181.2	Static control devices		Yes		1 2 3 4
181.3	Levelling switches		Yes		1 2 3 4
181.4	Single ground		Yes		1 2 3 4

D) Additional electromechanical protection for static control (3.12.9.e & f)

Item No.	Critical components (Identify components by their markings in controller)		Inspector's check box
182.1	Motor contactor (e/i)(f/i)		1 2 3 4
182.2	Motor contactor brake contact(s)(e/iii)(f/iii)		
182.3	Brake contactor (e/iv)(f/iv)		
183	Conformance with (e/v) (f/v)	Yes Testing method:	
184	Conformance with (e/vi) (f/vi)	Yes Testing method:	1 2 3 4

193 Professional Engineer's Statement

The whole design of the elevators, including the parts and features not specifically identified in the design submission are in compliance with Ontario's Elevating Devices Act and Regulation, except for variances set out in the **Annex - Proposed Variance(s)** attached to this submission. If the design submission covers an alteration, this statement is limited to parts and features that are subject of or may be affected by the alteration. In addition, the whole design of the control and operating circuits and components represented by this form and attached documents is in compliance with the latest edition or applicable supplement of the CSA B44 Code.

194. Is there any qualifying amendment to the statement on box No. 193 attached ?

○ Yes ○ No

Date

Signature

195. Professional Engineer's stamp

Guidelines to Page 3 of 3 – Electrical Protective Devices

A) Required protective devices – all designs

There is no selection options provided since these are electrical protective devices mandatory for all elevator designs.

B) Protective devices specific to the installation

An unselected circle means not applicable. Put an 'X' or check mark to the circle where provided. Add other special protective switches to blank spaces if not listed.

C) Redundancy protection and monitoring

181.1 (a) In "Critical components" space, identify each magnetically operated switch, contactor and relay, a failure of which would:
i) render an electrical protective device listed under A) and B) ineffective, or
ii) permit the car to move beyond the levelling or truck zone with open door, or
iii) permit speeds in excess of those specified in 2.12.9.3.2(b);3.12.1.2.and 3.12.1.3.
(b) In "Redundant Critical components" space, identify the means provided to eliminate the above hazards should the critical component fail.
(c) In "Testing method," describe method of verifying in the field the provided means of protection in the case of failure of "critical" and "redundant critical" components, one failure at a time.

181.2 (a) In "Critical components" space, identify each static control device, failure of which would cause hazards (i), (ii) or (iii) mentioned in guideline 181.1(a)
(b) In "Redundant Critical components" space, identify the means provided to eliminate the above hazards should the solid state component fail.
(c) See guideline 181.1(c)

181.3 (a) In "Critical components" space, identify each levelling switch, failure of which would cause hazards mentioned in guideline 181.1(a) (ii).
(b) In "Redundant Critical components" space, identify the means provided to eliminate the above hazards should the levelling switch fail.
(c) See guideline 181.1(c)

181.4 In "Redundant Critical components" space, identify the means provided to eliminate the hazards mentioned in guideline 181.1(a)
in the case of the occurrence of a single accidental ground. In "Testing method," describe method of verifying of the provided protection against accidental ground that may be used at time of inspection.

181.5 The default "Yes" is a required attestation from the submitting engineer that the control circuits incorporating all critical and redundant components are so arranged that the car will not be permitted to restart when a failure of any single component or accidental ground occurs.

182/84 This section is applicable only to elevators with driving motors employing static control without motor generator set (as specified in item 33 of the specification sheet). In the case of AC hoist motor driven from DC power source, through a static inverter, you should follow the rules of clause 3.12.9(f) including sub-clause (i) to (vi) giving the following information:

182.1 Identify two separate means provided to inhibit the flow of alternating current through the solid state devices that connect the DC source to the AC motor (see 3/12/9(f),(i)).

182.2 Identify the device (relay or contactor) which must be one of those specified in 182,1 that shall directly open the machine brake circuit (see 3.12.9(f)(iii)).

182.3 Identify the contactor provide, also, in addition to the device mentioned in 182.2, to open the machine brake circuit (see 3.12.9(f)(iv)).

183 Describe the method of verifying that electrical protective devices specified in item 170 that control the devices specified in 182.1 and contactor specified in 182.3 (see 3.12.9(f)(v)).

184. Describe the method of verifying that after each elevator stop, the car shall not respond to a signal to start unless the relay (or contactor) specified in 182.2 and the contact specified in 182.3 are in the de-energized position. In the case of an elevator with driving motor employing static control without MG set (except in the case explained above), you shall follow the rules of clause 3.12.9(e) including sub-clause (i) to (vi). The entries will be similar as in the case above.
NOTE: the differences between (e)(i) and (f)(i) – the first requiring at least one contactor, the other at least one relay.

193. In making this statement, the professional engineer may relay on the opinion of or information obtained from another professional engineer or an architect. He/she may indicate in the specification and drawings, in what respect he/she is relying. If an engineer wishes to indicate so, he/she may put an "X" or a check mark to the appropriate circle, and attach an "Amendment to the Professional Engineer Statement" (on a letterhead) indicating in what respects he/she is so relying on another engineer or an architect.

194. Refer to 193. Put an "X" or a check mark to indicate "Yes" or "No."

Guidelines to Drawings

201. **General**. Drawings composing a design submission referred to in **General Guideline** 2 (under (C)) shall:
1 be identified by a number or other designation unique to that drawing;
2 bear a date (of completion and last revision);
3 set out the address of the building or premises where the elevator will be installed (see item 21 in the form);
4 set out the elevator class, maximum capacity and rated speed
5 Include layout, plan and elevation views of the elevator and/or parts thereof, showing all pertinent information, as specified in guidelines 4 and 202, and other information necessary to demonstrate conformance with the Regulation and applied codes;
6 include electric schematic diagrams as specified in guideline 203.
7 include drawings, certificates and other documents where required in the regulations or TSSA/EDB Director's Rulings;
8 bear the signature and sealed with date of the professional engineer referred to in guidelines 2 and 193;
9 include a legend or reference to a relevant code for all symbols used in the drawings;
10 be prepared in accordance with good engineering and drafting practices, and be accurate and complete.

202 General Layout, Plan and Elevation Views. General layout, plan and elevation view shall include but not be limited to the following:

1 Access to machine room from the top storey and also the secondary level, illustrating and, if necessary, describing routes, indicating sizes, clearances, means, and also protection on the roof (2.3.3.2(b)).

2 Machine room and secondary level:
a) location, size, headroom, material of enclosure, special arrangements (2.3);
b) entrances – location and size;
c) ventilation – size, construction and location of openings or information needed for the design of mechanical ventilation (2.3.5.2);
d) heating – details, if provided (2.3.5.1);
e) lighting – at least minimum requirements to be fulfilled and also location of the control switch (2.3.5.1);
f) supporting beams – materials, size and location (2.6.1);
g) maximum loads on beams, floor and foundations (2.6.2);
h) equipment – location and clearances needed for inspection and maintenance of drive machine, (including sheave and flywheel), controller, selector, all disconnecting means, speed governor, motor generator set, reactor and also other equipment and piping planned to be installed near the elevator equipment.

3 Hoistway:
a) enclosure – size, show clearly whether hoistway is fully or partially enclosed, material, including partitions between the hoistway and machine room windows, skylights, vents with protection (2.2);
b) equipment – location of car, counterweight, guiderails, all sheaves access platforms, governor and access thereto…
c) counterweight – construction, size, tie-rods (3.4);
d) guiderails – estimated maximum vertical and horizontal forces (3.2.1.1); If other than standard rails are used, (e.g. formed sheet metal rail), provide section modulus of the rail. Maximum bracket spacing for both car and CWT rails (fig. 2 and table 3).
e) bottom and top clearances (2.8);
f) horizontal clearances (2.9)
g) entrances – location of entrances and emergency exits
h) landing sill guards

4 Hoistway Pit:
a) enclosure – material and size;
b) guard between pits – construction, location and size (2.7.2);
c) access – means, location, size (2.7.3);
d) counterweight guards – construction, size location (2.5.2);
e) stop switch – location (2.7.6);
f) buffers – location and overall size (3.3);

5 Car Assembly:
a) size and also special features and arrangements, e.g. glass, compartments, access panels;
b) entrances – location (3.6.4, 3.6.5, 3.6.1.5 and 3.6.2.4);
c) top of car guards – location and height;
d) platform guard (apron) size (3.5.9 & O.Regulation);
e) car frame – material, section, number and size of al members for crosshead, uprights (stiles) and plank (3.5) for stiles that are not built up from standard beams but formed from sheet metal specify the moment of inertia about the main axis.
f) Top of car refuge space – outline in plan view (2.8.11.2).

203 Drawings related to electric protective devices

Electrical schematic diagrams must include a legend of symbols., and drawings and other documents necessary:
(a) to illustrate circuits incorporating components and features mentioned in the form,
(b) to illustrate the origin and function of all other components placed in such circuit and also
(c) to demonstrate that such components and the circuits as a whole conform to respective B44 rules.

Elevating &
Amusement Devices
Safety Division
Phone: (416) 325-2161

4th Floor - West Tower
3300 Bloor Street West
Toronto, ON M8X 2X4
Fax: (416) 326-8248

ANNEX - INSPECTION DATA RECORDS

This ANNEX is for TSSA Use Only

Installation Number(s)

Inspector's name:	Number
Signature:	District No.
Inspection date(s):	

Notes and Remarks:

A) *Machine Room - Drive machine*

Elevator No.: / Inst. No.:		1	2	3	4
Machine	31+ Drive location				
	37+ Brake setting				
	64+ Gear ratio				
Drv. Equipmt.	54+ SCR/MG rated AC (A)				
	55+ SCR/MG AC FLU (A)				
Drive motor	58+ Rated (A)				
	59+ Rated(V)				
	60+ Rated(kW)				

Inspection Data		1		2		3		4	
		18+ Speed m/s	58+ Amps A	18+ Speed m/s	58+ Amps A	18+ Speed m/s	58+ Amps A	18+ Speed m/s	58+ Amps A
Full load	U								
	D								
Bal. load	U								
	D								
No load	U								
	D								

B) *Machine Room - Clearances*

Elevator No.: / Inst. No.:		1	2	3	4
MR min. clearance (mm) Controller	51+ Front				
	52+ Rear				
	53+ Side				
	33.1+ Machine				

C) *Machine Room - Governors & Miscellaneous*

Elevator No.: / Inst. No.:		1		2		3		4	
Inspection Data		Car	CWT	Car	CWT	Car	CWT	Car	CWT
Governor- speed (m/s)	138+ Ascending o/s SW								
	146.1.1+ SW up								
	146.1.2+ SW down								
	146.1.3+ tripping								
	150.1.+ Seal No.								
Miscellaneous	30+Supplementary disconnect switch								
	34+ Em. stop. distance (mm)								

D) *Car, Hoistway and Pit*

Elevator No.: / Inst. No.:		1	2	3	4
	67+ Partial hoistway enclosure				
	68+ Pit depth (mm)				
	69+ Pit access				
Clearances and runbys (mm)	71+ Car top				
	72+ Car bottom				
	73+ Car sill to hwy enclosure				
	74+ Car door face to hwy door face				
	75+ Car bottom runby				
	77+ Critical distance				
Car and ancillary equipment	118+ Car balance load (kg)				
	121+ Communication				
	127.+ Door operator make: model:				
	144+ Safeties stop. distance (mm)				
	149+ Uncontrolled low spd.stop. distance (mm)				
	19+Insp.spd < 0.8 m/s				

Notes to Inspectors

Inspection check boxes are provided immediate in each specification sheets. They are located at the right hand corner of the corresponding specification items. All other inspection data or measurement records are centralized in this ANNEX for Inspection Records for field inspection use.

A check box with an inscription "All" means that the verification results are common to all elevators covered under the same specification item. Check boxes with 1,2,3, and 4 inscription denote that specification item must be individually verified against corresponding cars for code conformance, performance and functionality. You may create individual check boxes if situation dictates.

Guidelines to ANNEX – Inspection data records

This ANNEX lists observed data or measurements to be captured during inspection of an elevator installation. A plus (+) sign adjacent to all items indicates these are "additional" to items not otherwise specified in the design submission. They are logically arranged by inspection locations, i.e., at the machine room, in the car, hoistway and pit to facilitate convenient recording.

NOTE: A double space box is intended for recording data or measurement; a single space box is for check mark after verification of requirements, performance, and functionality. If a box is not relevant to the installation, enter N/A.

A) Machine Room – Drive machine

18+ Record speeds of tests when car is at no load, balance and full load conditions, in up and down directions.

31+ Note drive machine location : 'O' = Overhead, 'B' = Basement, or 'OSM' = Overhead Side Mounted.

37+ Verify brake setting as per instructions given on brake nameplate.

54+ Record SCR or MG AC nameplate rated current.

55+ Record SCR or MG full load running AC current for the UP direction.

58+ Record drive motor nameplate rated current, and compare to full load running current on 18+. and in 'Inspection Data' panel, record running currents from tests (see 18+).

59+ Record drive motor nameplate rated voltage

60+ Record drive motor nameplate output in kW.

B) Machine Room – Clearances

33.1+, 51+, 52+, 53+

Record measurement as installed according to the applicable requirements. Compare minimum requirements for: 33.1+: 450 mm; 51+: 750 mm; 52+: 600 mm; 53+: 460 mm.

C) Machine Room – Governors and Miscellaneous

30+ Remark supplementary disconnect switch 'provided' or 'not provided.'

34+ Record emergency stopping distance (see 9.2.2.2.v (iii), typically less than 2500 mm).

136+ Record trip speed of ascending over-speed protection.

146.1+, 146.2+, 146.3+

Record governor speeds during tests.

D) Car, Hoistway and Pit

19+ Verify inspection speed, it should be < 0.8 m/s.

67+ Enter 'Yes' or 'No' according to clause 2.2.1.

69+ Enter "ladder" (L) or "pit door" (PD) or "hoistway door without ladder" (H) or "hoistway door with ladder" (HL).

71+ to 77+

Record as installed clearances. Compare requirements for: 71+: (See 2.8.5/6/7); 72+:(2.8.1) 600 mm min.; 73+: (2.9.5) 125 mm max. in most cases, 190 mm max. with vertical sliding doors. No limit where car door interlock installed; 74+: (3.6.4.3) 100 mm for swing landing door to car gate, 140mm for swing landing door to car door and for sliding landing door and car door, max. 165 mm for swing door on freight elevators not accessible to the general public. 75+: (see 2.8.2/3/4).

118+ Record car balance load in kilograms.

121+ Record communication means as provided. Enter: "A1" for telephone, or "A2" for intercom or else per 3.13.2a, or "B" for audible signal to another building per 3.13.2b, or "C" for alarm bell per 3.13.2c.

127+ Record make and model of door operator.

144+ Record observed safety stopping distance. Enter N/A for type A safeties; see clause 3.7.4.2 for stopping distances for type B safeties.

149+ Observe the low speed protection stopping distances, either at no load or full load. Record the greater distance, which must be less than 1250 mm. (i.e., Total distance = 1250 mm max. consisting of detection before 500 mm, movement and stop before moving another 750 mm)

Elevating and Amusement Devices Safety Division	Ref. No.: 154/00	Rev. No.:
Safety Alert Bulletin	Date: **July 31, 2000**	Date:

Subject: **Hollister/Whitney Governors – Model #201, #205 and #208 – Retrofit Required**

Sent to: **Elevator Contractors in Scope U1, F1 and Consultants**

1. BACKGROUND

1.1 The speed governor over-speed switch falls under the category of Electrical Protective Devices as defined in Clause 3.12.2 of B44 and must have contacts that are positively opened mechanically as required in Clause 3.12.4.3 of B44.

1.2 It was discovered that the Hollister/Whitney governor over-speed switch installed on the governor models #201, #205 and #208 were of the kind that does not open positively as required, but their opening depends on gravity. Further, some governors were found retrofitted with a switch cam which had a design fault and did not operate as intended.

1.3 TSSA contacted Hollister/Whitney on this issue and as a result, Hollister/Whitney have redesigned the governor trigger which operates the switch. The replacement kit (part #201-9) which is to be installed on the subject speed governors or to replace the previously installed cams which had a design fault and did not operate properly, is offered at no charge by Hollister/Whitney.

2. ORDER TO CONTRACTORS

2.1 Not later than January 31, 2001 or 6 months from the date of this Alert, contractors shall:

(a) identify all elevators under their maintenance contracts which are equipped with the Hollister/Whitney speed governor, model #201, #205 and #208,

(b) obtain the redesigned governor trigger (part #201-9) from Hollister/Whitney as per instructions provided by Hollister/Whitney in attachments A and B to this Bulletin, and

(c) install or replace the trigger.

2.2 Upon completion of the installation of the governor trigger, the contractor shall arrange with a TSSA inspector to witness the governor spin test.

Note: To expedite the process arrangements may be made with the district inspector for the inspection to be performed at the same time that the retrofit is carried out.

2.3 Should you, as a contractor, not be able to obtain authorization from the elevator owner to complete the work, you shall inform this office immediately indicating the elevator installation number, so that TSSA may issue an order to the owner to have this part of the safety related system brought in to compliance with CSA B44 Elevator Safety Code.

Attachments: A- Parts Ordering instructions

B- Installation instructions

C. E. Vlahovic, Chief Engineer John Sonke, Regional Manager

ATTACHMENT (A)

Hollister-Whitney Elevator Corporation

91 Hollister-Whitney Parkway
Quincy Illinois 62305
Phone: 217-222-0468

Fax: 217-222-0493
e-mail: info@hollisterwhitney.com
www.hollisterwhitney.com

May 24, 2000

Re: HOLLISTER-WHITNEY GOVERNORS
Model #201, #205, #208

Due to recent discussions with the Technical Standards & Safety Authority, we have made some changes to the Governor Trigger (Part #201-9) which operates the electrical switch. This change results in a more positive activation of the switch and this Trigger should be changed on all existing installations.

HOLLISTER-WHITNEY will provide this re-designed Trigger (Part #201-9) with simple installation instructions at NO CHARGE. We suggest including this installation as part of your routine maintenance.

Please contact us immediately and advise the quantity of Triggers you require.

Sincerely,
HOLLISTER-WHITNEY ELEVATOR CORP.

Frank H. Musholt
Secretary/Treasurer

FHM:keg

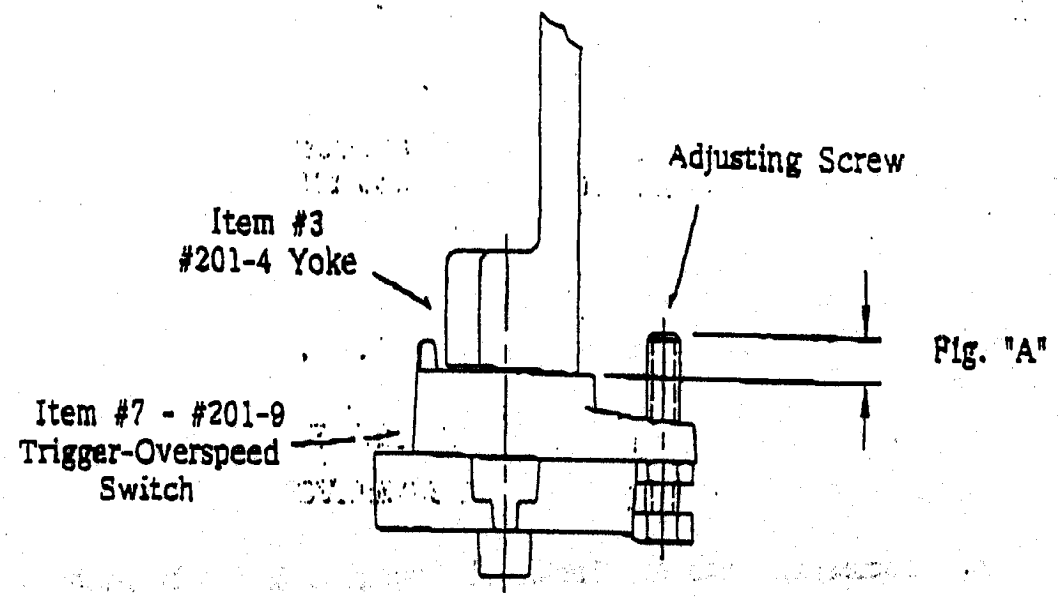
CECA

ATTACHMENT (B)

GAL
HOLLISTER-WHITNY

PROCEDURE TO CHANGE ITEM #7 (Part #201-9) GOVERNOR OVERSPEED SWITCH TRIGGER

IMPORTANT: Measure and record existing height (Top of Trigger to Top of Adjusting Screw) as shown below (See Fig. "A") to re-establish exact tripping switch speed.



Remove existing Overspeed Switch Trigger.

Install new Trigger and replace existing Adjusting Screw, making sure to maintain EXACT height, as recorded above.

Re-tighten Jamb Nut.

Elevating and Amusement Devices Safety Division	Ref. No.: 155/00	Rev. No.: -
Enforcement Procedure Bulletin	Date: **November 7,2000**	Date: -

Subject: **Hydraulic Elevator Specification Sheets – New Format**

Sent to: **All Elevator Contractors In Class U1 And Consultants**

1. Introduction

- Enclosed is a hard copy of the following TSSA forms:

  ED 09331 (09/00) – Application for Registration of a Design Submission
  ED 09091 (09/00) – Specification Sheet for Hydraulic Elevators
  ED 09091 (09/00) – ANNEX – Proposed Variance(s)

- Electronic versions of the forms are available upon request at hlee@tssa.org. Hard copies can be obtained by calling June Khan at (416) 325-2129 or by fax (416) 326-8248.
- The new forms have been developed by TSSA in collaboration with industry submitting engineers. They were recently presented to, and endorsed by, the Elevating Devices Advisory Council (EDAC).
- The electronic forms for Specification Sheet for Electric Elevators were released with EAD Bulletin #153 of March 20, 2000. We are currently revising these forms to include similar new features used in the hydraulic elevator electronic forms.

2. Use of the New Forms

- The new forms **may be used effective immediately**. However, the use of the old forms is acceptable until April 1, 2001.
- **After that date, only the new forms will be accepted**.
- If electronic forms are used, the computer printouts rather than photocopies should be included in the design submissions.

3. Features of the new forms and effects

- 35% less technical data is required to be entered by submitting engineers. This should significantly reduce the submitter's work load. Note that 10% will be captured by inspectors and the remaining 25% will be reviewed by TSSA engineers based on drawings submitted
- Only data that is critical for risk management, in addition to data required for safety assessment of a design is left in the forms. Furthermore, Only 3 pages of forms will be used by submitting engineer. The 4th page is to be used by the inspector only.
- Use of the electronic form, provided with many "context guidelines" and "drop-down list boxes", should further improve the submitting engineers' efficiency as well the quality of the submissions.
- Electronic forms are in commonly used Microsoft Excel Software. The submitting engineers need not create their own programs to fill in current paper forms by the computer. The electronic forms can now be completed and printed out.

C. E. Vlahovic, Chief Engineer

John Sonke, Regional Manager

Elevating &
Amusement Devices
Safety Division
Phone: (416) 325-2161

4th Floor - West Tower
3300 Bloor Street West
Toronto, ON M8X 2X4
Fax: (416) 326-8248

For TSSA Use
Installation Number(s)

SPECIFICATION SHEET FOR HYDRAULIC ELEVATORS

GUIDELINES are on the reverse side of the forms (or point cursor to the red triangle at corner or box).

General

11	Type of submission				All
12	Submitter's specification No.	Applicable to car(s): All	14	No. of elevators	All
13	Elevator Class				All
15	Elevator manufacturer (Name)	All	16	Maximum capacity kg	All
18	Rated speed m/s		17	Maximum capacity persons	All
18	Maximum down speed m/s		20	Elevator model	All

BLDG

21	Address				All
23	Number of floors served	1 2	26	Car travel mm	All

e & control

27	Type of operation				All
28	Controller make & model:				All
32	Type of drive				All
33	Recyling operation	1 2	46	Control valve Certification No.:	All
47	Drive Machine (pump) Make & model:	1 2	48	Control valve Make & model:	All

Hyd.System

34	Rated working pressure of the system kPa	1 2	35	Safety bulkhead or double cylinder?	
37	Plunger outside diameter mm	1 2	35.1	Cylinder corrosion protection	1 2
39	Plunger wall thickness mm		41	Plunger free length mm	

Guiderails & buffers

71	Top car clearance mm		78	Car rail nominal mass/m kg	1 2
75	Car bottom runby mm		79	Max. Bracket spacing mm	1 2
77	Car top runby mm	1 2	86	Stroke of spring buffers mm	1 2
82	Car buffers Type: .1	1 2	88	Load rating of spring buffer kg	1 2
	Assembly & No.of springs: .2	x			

Ldg doors

91	Landing door assembly Make and model:	1 2	93	Fire rating of door assembly (Table 3.5.3.A - OBC) h	1 2
92	Landing door type (2.11.3)				1 2
100	Interlock or mech. lock & contact (2.12)	1 2	101	Make and model:	1 2

116	Weight of complete car (3.9.3.2.4a) kg	1 2	117	Plunger weight kg	
120	Encl.lining or covering (3.6.2.1; 3.6.3.1) Material: .1	Wall including doors	Ceiling	Floor	1 2
	Flame spread rating: .2				

GUIDELINES TO THE FORM ED 09091

General Guidelines

1. **Application of the form:** This form must be used for:
   - (a) Following elevating device classes (as defined in the Regulation) which are equipped with hydraulic type of drive.
     - (i) Passenger elevator
     - (ii) Observation elevator
     - (iii) Freight elevator
     - (iv) Freight elevator – P
     - (v) Temporary elevator: and for
     - (vi) Others, as designated by the Director.
   - (b) Types of design submissions:
     - (i) New installation (not based on a previously registered standard design)
     - (ii) Major alteration (not based on a previously registered standard design) , or
     - (iii) Standard design.

   - Notes: For a design submission of the following types this form or form #ED09352 "specification Sheet for all Elevating Devices (abridged Form)" may be used:
     - (i) New installation or major alteration based on a standard design.
     - (ii) Revision to a registered design submission for a new installation or a major alteration
     - (iii) Revisions to a registered standard design
     - (iv) Minor type "A" alteration.

   For a Minor type "B" alteration, use form #ED09356 "Notification for Minor Type "B" Alteration."
2. **Design Submission.** A design submission, when submitted for registration, must include:
   - (a) Application form ED 09331
   - (b) This specification sheet
   - (c) Drawings prepared in accordance with items 201-204 of these guidelines
   - (d) Other documents if requested by TSSA.

   All documents forming a design submission, must be signed, dated and sealed by a professional engineer registered in the Province of Ontario, except that the application may be signed by an officer of the submitter's company.
3. **Copies.** All documents composing a design submission must be submitted in four copies, or in the case of a standard design submission, in two copies.
   Photocopies are acceptable, but at least in one set of documents all requested signatures and stamps must be original.
4. **Multiple installations.** The specification may cover multiple installations, up to a maximum of two elevators, provided that the elevators are of the same class, capacity, speed, and operation, that they utilize a common machine room and are to be installed simultaneously.
   When the specification covers more than one installation, each elevator shall be identified with a manufacturer's number or designation (e.g. elevator A & B) on the plan view of the hoistway and machine room in the attached drawings.
5. **Entries and Blanks in the Form.** All blanks must be filled in, unless otherwise permitted in the guidelines (see 8, 9 & 120).
   'N/A' entry shall be used where an item is not applicable. 'N/C' entry shall be used where there is no change to an item from the original installation.
   Where the provided blanks cannot accommodate all data, additional page may be enclosed, bearing reference number of respective blanks.
   The entries in this specification are legally binding and shall prevail in the case of discrepancy, with any other documents in the submission. Please note that it is an offence to knowingly make a false statement in any document required by Ontario's Elevating Devices Act or the Regulation.
6. **Units & Abbreviations in the Form.** Numbers in brackets e.g. (3.3.3 or (T2) mean a clause or table in CSA Standards B44 to which the designer should refer for clarification of the terminology used, or the expected entry. Exceptions are box #93 (reference to OBC – Ontario Building Code and boxes #157 and #160 (reference to both B44 and OBC).
   All entries shall be expressed in metric units in accordance with CSA Standards CAN3-Z234,1,Canadian Metric Practice Guide.
   Where a "model" of an elevator part is required to be specified, it will mean any designation: e.g. name, number, etc. which is specific to that particular part model and which enables any person and the original manufacturer to identify the part.
7. **Additional Specification Data.** This specification requires only data on a few components and characteristics of an elevator. However, the submitting engineer should he/she considers it necessary, forward additional specification data to the manufacturer or submitter in order to ensure that the balance of the elevator parts and features, mandatory required by the code, will be fulfilled.
8. **Major Alteration.** In the case of major alterations, the specifications and drawings must contain full information related to all components and features being altered, added, changed or replaced. Also include data related to components and features that may be affected by the alteration, regardless of the fact that part of the proposed work may not fall under "major alteration" designation.
   The remaining spec. forms sections must be marked as not being applicable or, no change to the original installation from the proposed alteration, by entering N/A or N/C, except that items 11 to 20, 189.
9. **Standard Design.** For Standard Design Submissions, related details and procedures, please contact ED/AD Engineering

GUIDELINES TO SPECIFICATION SHEET - PAGE 1

For MS Excel form users *- Where provided with a drop-down list box, click the down arrow at the right, and select the appropriate entry.*

11. Possible types of the design submission, of which this form may be used, are listed the general guideline.
    Where a "Major Alteration" is proposed, the installation number for the elevator being altered must be indicated.
12. Submitter's specification number may be a job or contract number or any manufacturer's/submitter's number unique to that particular elevator installation.
13. State: Passenger, Observation, Freight, Freight-P, Freight Platform Lift, or Temporary Elevator.
14. This form can be used to cover either one or two elevators. Where more than two elevators are covered with this specification, complete additional set of spec.form.
15. In case of a major alteration, where a contractor installs equipment of a different make, the submitter is expected to enter the make of the original equipment in this box. If impossible to identify, state so.
16. Enter the maximum capacity for elevators covered by this specification.
17. The code permissible capacity for number of persons will be automatically calculated based on the entry of #16.
18.1 See definition of "Rated Speed" in B44.
18.2 Indicate maximum anticipated speed of car, loaded with any load up to rated load, when travelling in down direction.
20. State N/A unless the elevator manufacturer has a specific designation for the elevator models covered in this specification.
21. The address of the building or premises in which the proposed elevator(s) will be located. If the full address is not known, describe the location as exactly as possible (i.e. SW corner of "A" Street and "B" Avenue intersection). At least the first three alphanumeric codes should be provided if the full postal code is not available at the time of application.
23. Number of floors served by the elevator.
27. Specify type of operation (see definition in B44).
32. Specify
    - direct plunger, or
    - direct plunger front mounted, or
    - direct plunger side mounted, or
    - dual direct plunger side mounted, or
    - dual 2:1 roped, etc.

34. Specify the rated working pressure of the hydraulic system as installed, taking into consideration the weakest component (pipes, valves, fittings). This must be equal to or greater than the working pressure as defined in the B44 Code.
35. State the applicable entry of "bulkhead" or "double cylinder" or "not buried". Refer to clause 4.18.3.4 of the B44.
35.1 State the applicable entry for corrosion protection.
37. In the case of a telescopic plunger, specify outside diameter and wall thickness of each section, e.g., 75/100/150.
41. Specify plunger free length as per appendix G4.1 of B44
78. If other than standard rails are used, specify section modulus of the structural shape.
91. Specify the make of the landing door assembly with model designation.
92. Specify the door type, using one of the following entries; or abbreviations as shown in brackets:
    1. horizontally sliding, single-section (HSSS)
    2. horizontally sliding, centre opening (HSCO)
    3. horizontally sliding, two-speed (HS2)
    4. horizontally sliding, two-speed, centre opening (HS2C)
    5. horizontally swinging, single-section (HWSS)
    6. horizontally swinging, centre-opening (HWCO)
    7. combination, horizontally sliding and swinging (CHSS)
    8. vertically sliding, bi-parting, counterbalanced (VSBC)
    9. vertically sliding, down-to-open, counterbalanced (VSDC)
    10. vertically sliding up-to-open, counterbalanced (VSUC)
    11. if other – specify....
93. Enter fire rating for hoistway entrance, which must comply with table 3.5.3.A of Ontario Building Code. Where OBC does not require fire rating of the hoistway, enter N/A
100. Specify whether "interlock" or "lock & contact."
    N.B., Definitions and clause 2.12 in B44 will be used. The engineer sealing this spec should not rely on the designation (interlock or lock and contact) given by the part manufacturer nor on the designation listed in the CSA List of Certified Electrical equipment. Instead, the engineer must ensure that the door locking device make and model, as specified in 101 and as installed on a particular door, conforms to clause 2.12.2 (if interlock) or 2.12.3 (if lock and contact).
101. Specify the make and model for item #100.
116. Enter the car weight, as it will be declared on the data plate required in clause 3.9.3.2.4 (excluding the hydraulic plunger).
117. Enter the weight of the hydraulic plunger (or plungers as the case may be) and in the case of roped hydraulic drives, include the weight of the rope sheaves assemblies.
120. Give details for lining. When no lining is provided, give details for the enclosure. Specify material and flame spread ratings following the requirements in clauses 3.6.2.1 and 3.6.3.1 of B44 Code. If the data are not available, the lines 120.1 and 120.2 may remain blank. The registration of design submission will not be delayed. However, the inspector will not be authorized to proceed with initial inspection until the data are received and reviewed by TSSA. The engineer referred to in guideline 2 shall submit the data in a letter to TSSA with references to installation number(s).

SPECIFICATION SHEET FOR ELECTRIC ELEVATORS

Submitter's specification No.:

Car door

124	Car door or gate type (See #189 for rear doors)				1 2
126	Door kinetic energy (2.13.4) (See #189 for rear doors) .1	Minimum door closing time: Normal speed s	Reduced speed s .3	Total door mass kg	1 2
128	Car door reopening device (2.13.5; 3.12.15.2.3(g)(iv))				1 2

Roped hydraulic

131	Number of hoisting ropes and diameter .2	x mm 1 2	137	Safety-make and model	1 2
	Rope construction (See guideline) .3	1 2	138	Safety type (3.7.6) .2	1 2
	Calculated factor of safety of hoisting rope .6		145	Governor make and model:	1 2

Sp.Emerg.Serv

153	In-car service (3.12.15.8) .2		.3	If provided, select applicable car(s)	1 2
154.1	Emergency recall (3.12.15) .5			If provided, specify initiation control:	1 2
155	Recall to alternate level (3.12.15.9 & 3.2.6.9; OBC) .5	1 2	160.1	Emerg/Aux power supply	1 2
157	Firefighter's elevator (3.12.15.9 & 3.2.6.9 - OBC) .5			If provided, select applicable car(s)	1 2

Other Information

188	Welding (3.5.7;3.4.2.1. & 3.2.9.2d)	1 Design/procedures	2 Fabricator's qualification		
189	Special features - Scope of alteration - Remarks				1 2
124a	Complete #124a &126a only if the rear door is a different type from front doors.		126a	Door kinetic energy (2.13.4) .1 Normal speed	Min.door closing time s Reduced speed	Door mass: s .3 kg 1 2
190	Variances				

ments & codes

191 List of supporting drawings and documents:	192 Applied codes: A Ontario Building Code, Ontario Regulation 419/86, as amended * B CSA Standard CAN-B44-94S2, Safety Code for Elevators; * C Ontario Electrical Safety Code - 1998 as amended * D * List applicable edition

GUIDELINES TO SPECIFICATION SHEET - PAGE 2

***For MS Excel form users** - Where provided with a drop-down list box, click the down arrow at the right, and select the appropriate entry.*

124. Specify the car door type, using one of the following entries:
Or abbreviations as shown in brackets
12. horizontally sliding, single-section (HSSS)
13. horizontally sliding, centre opening (HSCO)
14. horizontally sliding, two-speed (HS2)
15. horizontally sliding, two-speed, centre opening (HS2C)
16. horizontally swinging, single-section (HWSS)
17. horizontally swinging, centre-opening (HWCO)
18. combination, horizontally sliding and swinging (CHSS)
19. vertically sliding, bi-parting, counterbalanced (VSBC)
20. vertically sliding, down-to-open, counterbalanced (VSDC)
21. vertically sliding up-to-open, counterbalanced (VSUC)
22. if other – specify....

In the case the rear door is of a different type other than the front doors, complete #124a at "Other Information' below #189.

126. This item (with 3 entries) relates to kinetic energy of landing doors and applies only to elevators equipped with power operated horizontally doors (see 2.13.4). For other door type, enter N/A.
The entries must be calculated in accordance with clause 2.13.4(c).
126.1 Begin to open at the jamb, the entries will indicate the MINIMUM (permitted) time required for the door to travel from a point 50mm away from the jamb to a point 50mm away from the opposite jamb. For CENTRE-OPENING doors, the entries will indicate the MINIMUM (permitted) time required for doors to travel from point 25mm away from the open jamb to a point 25mm from the centre meeting point of the doors. The minimum PERMITTED time will be based on the KINETIC ENERGY LIMITATION stipulated in clause 2.13.4(a) and will be based on the compilation from the maximum average closing speeds. Entry in 'normal speed' will be based on 10J, entry in 'reduced speed' on 3.5J.
126.3 The entry must include masses (weight) of all components being moved horizontally in the process of door closing (such as landing and car doors panels, hangers, vanes, hardware, etc). Also include the equivalent translating masses of rotating components (e.g. door operator), which may affect door kinetic energy in accordance with clause 2.13.4(b).

128. Specify the applicable car door reopening device.

131. For hoisting ropes, indicate specifics as required in the form. It may be necessary to refer to CSA Standard C387-M, *Steel Rope for Elevators.*
131.3 Construction means the number of strands in the rope and the number and arrangement of wires in each strand, e.g., 8 x 19 Seale. Indicate also preformed or Non-preformed. Regular Lay or Langlay.

137. Enter safety make (manufacture) and model (manufacturer's designation).

138. Specify the safety type.

153/157. Enter the applicable entry.

189. This space is provided for description of **special elevator features** and for description of the **scope of alteration**.
Special elevator features, examples are: a) poster framed by safety plastic CGSB CAN2-12-2; b) air conditioning equipment on top of car as per attached drawing; c) 'Wandering Patient' feature for hospitals (elaborate details); d) means of emergency evacuation, other than top emergency exit, typically on observation elevator.
Scope of Alteration: Explain which components or features are being altered, replaced or added, including those which are not listed in the form because they are mandatory required by the codes.

190. Where a variance from the applicable codes and regulations is proposed, if must be delineated in a separate 'ANNEX - Variance Proposal' form attached to this specification.
Where a new forthcoming B44 rule (approved by the committee but not published) is used in the design of an elevator and where such rule is LESS stringent than the existing B44 rule, the engineer must request a variance from the existing rule, whereby the variance may be substantiated by the reference to the new rule. If the new rule is MORE stringent, no request for a variance is necessary.

191. The list may include alphanumeric reference only.

192. The designated code as amended means the applied code would include "'rolling incorporation" to the most current edition or latest supplement which is enforced at the time of signing of this design submission; or otherwise designated by regulations or Director's Ruling.

GUIDELINES TO DRAWINGS

1. **General**: Drawings composing a design submission shall:
1. be identified by a number or other designation unique to that drawing;
2. bear a date (of completion and last revision);
3. set out the address of the building or premises where the elevator will be installed (see item 21 in the form);
4. set out the elevator class, maximum capacity and rated speed (see items 13, 16 and 18 in the form);
5. include layout, plan and elevation views of the elevator and/or parts thereof, showing all pertinent information, as specified in guidelines 4 and 202, and other information necessary to demonstrate conformance with the Regulation and applied codes; the elevator layout drawings must contain all the information required in clause 4.24;
6. include electrical schematic diagrams
7. include drawings, certificates and other documents where required in the regulations or Director's Rulings;
8. bear the signature and seal with date of the professional engineer referred to in guidelines 2 and 193;
9. include a legend or reference to a relevant code for all symbols used in the drawings

202. **General Layout, Plan and Elevation Views**. General layout, plan and elevation view shall include but not be limited to the following:
1. Access to machine room from the top storey and also the secondary level, illustrating and, if necessary, describing routes, indicating sizes, clearances, means, and also protection on the roof (2.3.3.2.b)
2. Machine room:
a) location, size, headroom, material of enclosure, special arrangements (2.3);
b) entrances – location and size;
c) ventilation – size, construction and location of openings or information needed for the design of mechanical ventilation (2.3.5.2);
d) heating – details, if provided (2.3.5.3);
e) lighting – at least minimum requirements to be fulfilled and also location of the control switch (2.3.5.1);
f) equipment – location and clearances needed for inspection and maintenance of drive machine, pump, oil tanks, pipes, controller, all disconnecting means... and other equipment and piping planned to be installed in elevator machine room.
3. Hoistway:
a) enclosure – size, show clearly whether hoistway is fully or partially enclosed, material, including partitions between the hoistway and machine room, windows, skylights, openable vents and protection (2.2)'
b) equipment – location of car, guiderails cylinder, plunger, piping:
c) guiderails – estimated maximum vertical and horizontal forces (4.24);
-- Maximum rail bracket spacing
-- if other than standard rails are used, e.g. sheet metal formed shape, specify section modulus.
d) bottom and top clearances (4.5);
4. Hoistway Pit:
a) enclosure – material an size;
b) guard between pits – construction, location and size (2.7.2);
c) access – means, location, size (2.7.3);
d) stop switch – location (2.7.6);
e) buffers – location and overall size (4.12);
f) space below hoistway – function protection (4.7);
g) maximum load on floor and foundations.
5. Car Assembly:
a) size and also special features and arrangements ,e.g. glass, compartments, access panels;
b) entrances – locations (3.6.4, 3.6.5, 3.6.1.5 and 3.6.2.3.4);
c) top of car guards – location and height;
d) platform guard (apron) size (3.5.8 & Regulation, section 41);
e) car frame – materials, section, number and size of all members for crosshead, uprights & stiles) and plank; if other than standard structural sections are used, specify section modulus; and moments of inertial about the main axis;
f) top of car refuge space – outline in plan view (4.5.9).

203. **Electrical Schematic Diagrams** – This form must be accompanies by electrical schematic drawings and other documents necessary: (a) to illustrate circuits incorporating components and features mentioned in the form, (b) to illustrate the origin and function and all other components placed in such circuits and also (c) to demonstrate that such components and the circuits as a whole conform to respective **B44** rules including 4.22.4.2 & 4.22.4.3.

204. **Hydraulic Schematic Diagram** of the elevator shall include, but not be limited to, pump relief valve, check valve, lowering valve, shut-off valve, and line rupture valve (if required per 4.19.3.3).

SPECIFICATION SHEET FOR HYDRAULIC ELEVATORS - Electrical Protective Devices

Submitter's specification No.:

A) Required protective devices - all designs (3.12.1* & 3.12.2*)

Item No.	Elect. Prot. Devices	Car No. 1	Car No. 2	Inspector use
	Car switches			
170.2	Car door contact			
170.3	Emergency exit			
170.4	Car top transfer			
170.5	Car top stop			
	Terminal switches			
170.9	Normal terminal			

Item No.	Elect. Prot. Devices	Car No. 1	Car No. 2	Inspector use
	Hoistway & pit			
170.15	Landing door interlocks			
170.18	Pit stop switch			
	Trouble shooting			
170.23.1	Car door bypass sw			
170.23.2	Landing door by pass sw			

12 **Submitter's specification No.**

11 **Type of submission**

191 **List of drawings and documents**

B) Electrical protective devices and other switches - specific to the installation

Check box	Item No.	Elect. Prot. Devices	Inspector use 1	Inspector use 2
		Car switches		
☐	170.1	Emergency stop		
☐	170.21	In-car stop		
		Terminal switches		
☐	170.10	Emerg.speed limit		
☐	170.11	Broken rope/tape/chain		
		Levelling zone		
☐	175	Levelling speed control mean		
☐	176	Anti-creep control means		
		Door contact monitor		
☐	177	Door monitoring (3.12.1.5)		

Check box	Item No.	Elect. Prot. Devices	Inspector use 1	Inspector use 2	Remarks
		Hoistway & pit			
☐	170.17	Hoistway access			
☐	170.19	Pit door			
		Safeties			
☐	170.6	Car safety switch			
		Other switches			
☐	170.14	Pressure switch			
☐	170.22	Gov. rope tension			
☐	170.24	Follower/slack rope sw			
☐	171.1	Motor phase protection			
☐	171.2	Aux.contact for second source			

C) Redundancy protection and monitoring

Item No.	Critical components	Redundant critical components	181.5 Circuits to conform to (3.12.9 d)	Testing method	Inspector use 1	Inspector use 2
181.1	Magnetically operated devices		Yes			
181.2	Static control devices		Yes			
181.3	Levelling switches		Yes			
181.4	Single ground		Yes			

Submitting Engineer's remarks:

45	Pump motor max. permitted current	
Voltage:		V
Current:		A

193 Professional Engineer's Statement

The whole design of the elevators, including the parts and features not specifically identified in the design submission are in compliance with Ontario's Elevating Devices Act and Regulation, except for variances set out in the **Annex - Proposed Variance(s)** attached to this submission. If the design submission covers an alteration, this statement is limited to parts and features that are subject of or may be affected by the alteration. In addition, the whole design of the control and operating circuits and components represented by this form and attached documents is in compliance with the latest edition or applicable supplement of the CSA B44 Code.

Date

Signature

195. Professional Engineer's stamp

GUIDELINES TO SPECIFICATION SHEET – PAGE 3

For MS Excel form users *- Where provided with a drop-down list box, click the down arrow at the right, and select the appropriate entry. Where an item provided with a 'check box,' select the item by clicking check box with the mouse.*

Electrical Protective Devices

A) Required protective devices – all designs

There is no selection options provided since these are electrical protective devices mandatory for all elevator designs.

B) Protective devices and other switches - specific to the installation

An unchecked box means not applicable. Put a check mark on the box where device is provided. Add other special protective switches to blank spaces if not listed.

C) Redundancy protection and monitoring

181.1 (a) In "Critical components" space, identify each magnetically operated switch, contactor and relay, a failure of which would:

i) render an electrical protective device listed under A) and B) ineffective, or

ii) permit the car to move beyond the levelling or truck zone with open door, or

iii) permit speeds in excess of those specified in 2.12.9.3.2(b); 3.12.1.2.and 3.12.1.3

(b) In "Redundant Critical components" space, identify the means provided to eliminate the above hazards should the critical component fail.

(c) In "Testing method," describe method of verifying in the field the provided means of protection in the case of failure of "critical" and "redundant critical" components, one failure at a time.

181.2 (a) In "Critical components" space, identify each static control device, failure of which would cause hazards (i), (ii) or (iii) mentioned in guideline 181.1(a)

(b) In "Redundant Critical components" space, identify the means provided to eliminate the above hazards should the solid state component fail.

(c) See guideline 181.1(c)

181.3. (a) In "Critical components" space, identify each levelling switch, failure of which would cause hazards mentioned in guideline 181.1(a) (ii).

(b) In "Redundant Critical components" space, identify the means provided to eliminate the above hazards should the levelling switch fail.

(c) See guideline 181.1(c)

181.4 In "Redundant Critical components" space, identify the means provided to eliminate the hazards mentioned in guideline 181.1(a) in the case of the occurrence of a single accidental ground. In "Testing method," describe method of verifying of the provided protection against accidental ground that may be used at time of inspection.

191.5 The default "Yes" is a required attestation from the submitting engineer that the control circuits incorporating all critical and redundant components are so arranged that the car will not be permitted to restart when a failure of any single component or accidental ground occurs.

Submitting Engineer's Remarks:

45. Permitted maximum pump motor running current is the allowable limit for the hydraulic pump motor to run without damaging overheating.
Submitting engineer must provide this information if the full load running current of the motor is expected to exceed the name-plate rating.

193. In making this statement, the professional engineer may rely on the opinion of or information obtained from another professional engineer or an architect. He/she may indicate in the specification and drawings, in what respect he/she is relying. If an engineer wishes to indicate so, he/she may attach an "Amendment to the Professional Engineer Statement" (on a letterhead) indicating in what respects he/she is so relying on another engineer or an architect.

203 Drawings related to electrical protective devices

Electrical schematic diagrams must include a legend of symbols, related drawings and other documents necessary:

(a) to illustrate circuits incorporating components and features mentioned in the form,

(b) to illustrate the origin and function of all other components placed in such circuit and also

(c) to demonstrate that such components and the circuits as a whole conform to respective B44 rules.

Elevating &
Amusement Devices
Safety Division
Phone: (416) 325-2161

4th Floor - West Tower
3300 Bloor Street West
Toronto, ON M8X 2X4
Fax: (416) 326-8248

ANNEX - INSPECTION DATA RECORDS

This ANNEX is for TSSA Use Only

Installation Number(s)

A) *Machine Room - Drive machine*

Elevator No.: / Inst. No.:		1	2
Hydraulic system	31+ Drive location		
	34.3+ Test (4.19.1.3)	Working Pressure kPa	kPa
	49+ Test (4.19.4.2)	Relief Valve Pressure kPa	kPa
	50+ Relief Valve Seal No.		
Drive motor	58+ Rated (A)		
	59+ Rated(V)		
	60+ Rated(kW)		

Inspection Data		18+ Speed m/s	45+ Amps A	18+ Speed m/s	45+ Amps A
Full load	U				
	D				
No load	U				
	D				

B) *Machine Room - Clearances*

Elevator No.: / Inst. No.:		1	2
MR min. clearance (mm) Controller	51+ Front		
	52+ Rear		
	53+ Side		

C) *Governors & Miscellaneous*

Elevator No.: / Inst. No.:		1	2
Governor- speed (m/s)	146.1+ SW UP		
	146.2+ SW down		
	147+ tripping		
	150+ Seal No.		
Misc.	103.1+ HWY access key SW		
	103.2+ Unlocking device		
	111+ Car net platform width and depth:	A mm	A mm
		B mm	B mm

Form: ED 09091 (09/00) InspData

Inspector's name:	Number
Signature:	District No.
Inspection date(s):	

Notes and Remarks:

D) *Car, Hoistway and Pit*

Elevator No.: / Inst. No.:		1	2
67+ Partial hoistway enclosure			
68+ Pit depth (mm)			
69+ Pit access			
Clearances and runbys (mm)	71+ Car top		
	Above crosshead		
	72+ Car bottom		
	73+ Car sill to hwy enclosure		
	74+ Car door face to hwy door		
	75+ Car bottom runby		
	77+ Critical distance		
Car & ancillary equipment	121+ Communication		
	126.1+ Door closing time -	s	s
	126.1+ reduced spd	s	s
	127+ Door operato make: mode:		
	119+ Em.light & alarm		
30+ Supplementary disconnect SW			

Notes to Inspectors

Inspection check boxes are provided immediately on each specification sheet. They are located at the right hand corner of the corresponding specification items. All other inspection data or measurement records are centralized in this ANNEX -Inspection Data Records for field inspection use.

A check box with an inscription "All" means that the verification results are common to all elevators covered under the same specification item. Check boxes with 1 and 2 inscription denote that specification item must be individually verified against corresponding cars for code conformance, performance and functionality. You may create individual check boxes if situation warrants.

Guidelines to ANNEX – Inspection data records

This ANNEX lists observed data or measurements to be captured during inspection of an elevator installation. A plus (+) sign adjacent to all items indicates these are "additional" to items not otherwise specified in the design submission. They are logically arranged by inspection locations, i.e., at the machine room, in the car, hoistway and pit to facilitate convenient recording.

NOTE: A double space box is intended for recording data or measurement; a single space box is for check mark after verification of requirements, performance, and functionality. If a box is not relevant to the installation, enter N/A.

A) Machine Room – Drive machine

18+ Record speeds of tests when car is at no load and full load conditions, in up and down directions.

31+ State 'B' for Basement, if other, specify. Observe the requirements in clause 4.22.13 if the cylinder head is located above the storage tank.

34.3+ Record the measurement per 4.19.1.3, which must be equal to or less than the entry in box 34.1.

49+ When test per 9.3(c), the pressure measured shall not exceed the working pressure by more than 50%.

58+ Record drive motor nameplate rated current. Compare full load running current on 18+ to 45 – Max. permitted current in spec.sheet if information provided. If item 45 is blank, 18+ should not exceed the rated current.

59+ Record drive motor nameplate rated voltage

60+ Record drive motor nameplate output in kW.

B) Machine Room – Clearances

51+, 52+, 53+

Record measurement as installed according to the applicable requirements. Compare minimum requirements for: 51+: 750 mm; 52+: 600 mm; 53+: 460 mm.

C) Machine Room – Governors and Miscellaneous

146.1+, 146.2+, 147+

Record governor speeds during tests.

103.1+, 103.2+

Check means for access to hoistway.

111+ Check as-built net car area vs. layout drawing.

D) Car, Hoistway and Pit

67+ Enter 'Yes' or 'No' according to clause 2.2.1.

69+ Enter "ladder" (L) or "pit door" (PD) or "hoistway door without ladder" (H) or "hoistway door with ladder" (HL).

71+ to 77+

Record as installed clearances. Compare requirements for: 71+: (See 2.8.5/6/7); 72+: (2.8.1) 600 mm min.; 73+: (2.9.5) 125 mm max. in most cases, 190 mm max. with vertical sliding doors. No limit where car door interlock installed; 74+: (3.6.4.3) 100 mm for swing landing door to car gate, 140mm for swing landing door to car door and for sliding landing door and car door, max. 165 mm for swing door on freight elevators not accessible to the general public. 75+: (see 2.8.2/3/4).

121+ Record communication means as provided. Enter: "A1" for telephone, or "A2" for intercom or else per 3.13.2a, or "B" for audible signal to another building per 3.13.2b or "C for alarm bell per 3.13.2c.

127+ Record make and model of door operator.

119+ Check car emergency light and alarm.

30+ Enter 'Y' if supplementary disconnect switch is provided, otherwise, enter 'N' for not provided.

Elevating and Amusement Devices Safety Division	Ref. No.: 156/01	Rev. No.:
Safety Alert Bulletin	Date: **March 10, 2001**	Date:

Subject: **Elevators with in-car special emergency operation, floor buttons controlled by cards/keys**

Sent to: **All Elevator Contractors in scope U1 and L1 & Consultants**

1. **Background**

1.1 There are elevator cars that are fitted with floor-access control features. A car-call to specific floors cannot be registered without use of a "security card or key". The floor-access control means may be retrofitted on existing elevators or those means originally installed and tested might have been reprogrammed or altered.

1.2 If the floor access control means are not rendered inoperative when the car is on the in-car special-emergency-service mode of operation, the firefighters may be prevented from gaining access to certain building floors. The safety of the firefighters and general public may be seriously affected.

1.3 According to the CSA B44, Elevator Safety Code and therein referenced Building Code, the elevator operating as described in 1.2 contravenes the Safety Code, that requires the firemans' elevator "shall be capable of providing transportation from the storey containing entrance for firefighters access… to every floor….in the building that is normally served by the elevator system."

2. **Information**

2.1 Based on the information in the TSSA data base, we have compiled a list of all elevators that are equipped with in car special emergency service. We have sorted the list by maintenance contractors. Each maintenance contractor will have attached to his copy of this ruling, the list of elevators that he maintains and that our records show have in car special emergency service operation. Since information on in-car emergency service has only been collected from about 1982 this list is not complete, and for your reference only.

3. **Order to Contractors**

3.1 Not later than July 15, 2001, you shall:

(a) Identify elevators under your maintenance contract that are equipped with both:
(1) Special Emergency Service (SES),with in-car operation, and
(2) Means for controlling/restricting car-call registering (e.g. cards/keys) for one or more floors normally serviced by the elevator;

(b) Advise TSSA of the installation numbers and building address of such elevators, and

(c) Remind all staff who are involved in providing restricted access control on elevators of the requirements listed in 1. above

4. **Action By TSSA**

4.1 Not later than September 15, 2001, with another Bulletin, TSSA will advise owners of the elevators identified in 3(b) above, that they must:

(a) Test the in-car SES operation on these elevators to verify that a car-call can be registered for every floor without the use of the cards or keys or other means;
(b) Where necessary, carry out repairs to bring the elevator in compliance with the elevator Safety Code and the Building Code, and
(c) Confirm in the elevator log book or otherwise that they have carried out the actions listed in (a) and (b) above and that the elevators are now in full compliance with the elevator Safety Code and the Building Code.

5. This safety alert has been developed in consultation with the TSSA Elevating Devices Council.

William N. Wilkinson, Director under the ED Act CEV/RFH/JS

Elevating and Amusement Devices Safety Division	Ref. No.: 157/2001	Rev. No.:
DIRECTOR'S RULING	Date: **February 19, 2001**	Date:

Subject: **Adoption of CSA B355-00, Lifts for Persons with Physical Disabilities**

Sent to: **All Elevator Contractors in Scope U6 and Consultants**

1. ORDER TO CONTRACTORS

Each newly installed lift for persons with physical disabilities;

- for which a design submission is received by TSSA on or after the 1st day of August 2001,
- or that is initially inspected after the 1st day of August 2002, shall fully conform to the requirements of the following standard:

>CSA-B355-00 Lifts for Persons with Physical Disabilities<

Those jobs for which the design submission is received by TSSA before August 1, 2001 and that are inspected before August 1, 2002 need only comply with CSA B355-94.

NOTES

a) Standard CSA-B355-00 is available from CSA International, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3 – telephone 1-800-463-6727, e-mail – sales@csa-international.org

b) Contractors are urged to study all revisions and amendments, that are identified by the delta symbol (Δ) in the margin of the standard, to ensure that their lift designs, equipment and installations meet the standard requirements as of the specified date.

2. DESIGN SUBMISSION TO DEMONSTRATE COMPLIANCE

2.1 Compliance with the 2000 edition of CSA B355 Standard shall be stated in item #192 of the TSSA specification form or in a separate affidavit.

2.2 Major revisions/additions in CSA-B355-00 include:

(a) Minimum illumination level is increased from 50 lx to100 lx at the drive unit, carriage, and landings (Cl. 4.8.1);
(b) Landing door opening force reduced from 40 N to 22 N (Cl. 5.2.1.1);
(c) Added rules for power-assisted swing door opening that include timing and force to stop the door movement (Cl. 5.2.1.2);
(d) Deleted reference to CSA B44 Code and added new requirements for testing and certification of locks and contacts (5.2.4 and 5.2.5)
(e) Revised rules for under-platform access area and pit (5.4.1)
(f) Means for moving carriage in emergency, e.g. in the case of power failure are now required for each lift (6.1.4.1)
(g) Ratio of pitch diameter of drums and sheaves to rope diameter (6.2.2.1 and 6.2.3(c))
(h) Added new requirements for components under fluid pressure (6.6.1.1 to 6.6.1.6)
(i) Added new rules related to storage batteries if used as power source for a lift (8.1)
(j) Levelling accuracy reduced from 20 mm to 12 mm (8.2.4.1(f))

(k) New data plate and marking requirements added (9).

2.3 Conformance with the above rules as well as the rules not revised by this new CSA B355 edition shall be demonstrated in the design submission or at the initial inspection, as applicable.

Note: Special attention is drawn to the existing requirements in Clause 8.5 and 8.4.2. The design submission must include detailed analysis of every levelling circuit and each circuit that incorporates any electrical protective device (see guidelines in TSSA Specification Sheet forms (ED09089-05/97).

3. INSTRUCTIONS

3.1 Regulations

The CSA-B355-00 standard, does not cover the location of, access to, and usage of the lifts. These factors are regulated by Part VII, section 65 to 72 of Regulation 316 under the Elevating Devices Act, Revised Statutes of Ontario 1990, Chapter E.8. Copies are available from Publication Ontario, 880 Bay Street, Toronto, Ontario M7A 1N8 - Telephone 416-326-5300 or from Ontario 1-800-668-9938.

3.2 Specific Regulation Requirements

Your attention is particularly drawn to provisions of Regulation 316, requiring OWNERS:

- To prevent public access to specified lift types while in operation;
- To ensure that the lifts are used primarily for the transportation of the handicapped and that the operation is restricted to persons who have received instructions and training that emphasize the hazards associated with improper use of the lifts;
- To ensure assistance of a trained attendant to those handicapped persons not previously trained in the use and operation of the lifts;
- To sign a report on the form supplied by TSSA;

The Regulation also:

- Requires that operating devices be controlled by a key or other means;
- Specifies responsibilities of persons operating specific types of lifts;
- Requires specific signage, notices, signalling devices, etc.

3.3 Since the Elevating Devices Act requires the mechanics to have full knowledge of the codes applicable to the elevating devices upon which they are assigned to work, we would expect that every mechanic in your company who work on such devices will be provided with a copy of the new edition of CSA Standard B355-00.

RFH/TD

William N. Wilkinson,

Director under ED Act

Elevating and Amusement Devices Safety Division	Ref. No.: 158 / 2001	Rev. No.:
Safety Alert Bulletin	Date: October 1, 2001	Date:

Subject: **Yellow step inserts on Schindler Escalators – Models SWE and 9300**

Sent to: **Escalator Contractors in Scope U9, F9 and P9 & Owners of above mentioned models.**

1. Introduction

Inspection of some subject escalators revealed cracks on the yellow plastic step inserts typically around the screw head. In response to our investigations the manufacturer provided the following statements:

- The major cause of cracks in plastic inserts has been the use of,
  - solvents during cleaning of steps, or
  - synthetic lubrication oil for step chains.

- These solutions affect the characteristics of the insert material. Therefore, Schindler requires the subject escalators:
  - to be cleaned with a solution of soap/mild detergent only, and
  - to use mineral oils only (not synthetic oils) for lubrication of step chains.

- As a part of routine monthly maintenance, Schindler visually checks for cracks in the inserts and replaces inserts if cracks are visible.

- As a part of routine annual maintenance, Schindler checks for cracked or loose inserts and replaces inserts if cracks are visible or insert is loose. (See Attachment A to this Bulletin for the recommended procedure.)

- Schindler maintenance mechanics follow the procedure stated in Attachment A, a copy of which is provided with this Bulletin for information to companies maintaining the Schindler product. A qualified maintenance contractor is expected to inspect steps and their related hardware for any wear or damage as a part of regular maintenance.

- The inserts on Schindler escalator steps are easily visible and accessible; no special tools are required to inspect and replace them.

- Schindler provides a service manual to each escalator owner at the time of installation. The manual has instructions on the care of escalator step inserts (excerpts are in Attachment B to this Bulletin).

2. Order to Contractors

Contractors maintaining escalators models SWE and 9300, made by Schindler Elevator Co., shall:

(a) **within 60 days from the date of this Bulletin** revise their maintenance procedures to include:
   - **i. Visual inspection of inserts for cracks as part of monthly maintenance;**
   - **ii. Visual and physical inspection of inserts as part of annual maintenance,**

(b) replace the inserts with identified cracks,

(c) not use synthetic oil for lubrication of step chains, and

(d) advise escalator owners to use only a mild detergent and soap solution for cleaning of steps (see Attachment B).

3. Compliance Requirements

Failure to comply with this Order constitutes an offence under section 37 of the *Technical Standards and Safety Act*.

NOTE: This Safety Alert has been developed in consultation with the TSSA Elevating Devices Council.

Roland Hadaller, Chief Engineer

Ted Dance, Director of Operations

Attachment A

ANNUAL INSPECTION AND REPLACEMENT PROCEDURE FOR ESCALATOR STEP INSERTS

Inserts used for demarcation of escalator steps are made of yellow synthetic material having durability and flame retardation characteristics. However, when subjected to solvents or strong cleaners, which are not recommended, the inserts may develop hairline cracks especially at the point of fastening. If the cracks are left unattended, they may result in breaking of the insert at one or more of its attachment points, and separation of a piece of the insert may eventually occur. It is therefore recommended that during annual inspection, the inserts should be checked for breaks to prevent any unexpected failure. The following inspection procedure is suggested:

1. Remove the floor plate at the lower end and put the escalator on inspection mode.

2. Standing inside the lower machine area, visually inspect the inserts (without taking them apart) on all steps for any sign of cracks. Also manually check for secure fastening of the insert to the body of the step.

If the inspection of any insert reveals cracks or movement indicating the failure of one of the inserts at the attachment point, replace the insert.

Attachment B

- If an escalator or moving walk makes an automatic emergency stop, contact trained maintenance personnel for an equipment check before returning it to operation.
- Report all accidents immediately to the maintenance company and your insurance carrier.

! *Enforcing Proper Use*

- Instruct employees and qualified personnel as to the location and use of emergency stop buttons.
- Instruct all employees and passengers to avoid hitting escalator balustrades (side panels) with objects.
- Do not permit use of an inoperative escalator as a stairway.
- Maintain crowd control.
- Provide alternative vertical transportation for people with disabilities, the elderly, children in strollers or persons carrying parcels or freight.
- Advise passengers regarding proper use. Schindler offers a safety video and brochure to assist you in communicating ridership guidelines to your passengers. See page ii.

Care and Cleaning The balustrades of an escalator or moving walk come in various finishes. The following outlines how to care for components of the system.

Glass Glass should be cleaned with a quality glass cleaner. Do not lean over the handrail to clean outside glass surfaces while standing on the escalator or moving walk as a loss of balance may occur.

Stainless Steel and Bronze Areas We recommend you treat stainless steel portions of the balustrades with a quality stainless steel cleaner and polish and treat bronze surfaces with a quality bronze polish. Apply a light spray coating and polish with a soft cloth. Avoid spraying this product on the emergency stop buttons, keyed switches or over traffic areas.

Skirts Skirts, the vertical panels adjacent to the moving steps, should be carefully treated with a friction-reducing material by your escalator maintenance company. Do not apply cleaner or polish to the skirt area as they remove the friction-reducing material.

Aluminum Steps Brush the aluminum steps with a stiff broom to dislodge most dirt or debris. Do not attempt to use liquids to clean the steps without first consulting a trained technician. Liquids could enter the area below the steps and result in an unsafe condition. Do not polish the steps.

Synthetic Yellow Step Inserts Use a mild detergent and soap solution. Do not use any other cleaners, including steam jet blowers. Avoid contact with oil or other lubricants.

Handrails Handrails should be cleaned periodically with a mixture of light detergent and water.

! **Warning:** All cleaning of escalators and moving walks should be performed when the system is not in operation and passengers are not present.

Elevating and Amusement Devices Safety Division	Ref. No.: 159 / 2001	Rev. No.:
Safety Alert Bulletin	Date: **December 13, 2001**	Date:

Subject: **Armor AD1 AD2 Controls - Shorts in Safety Circuits from Objects falling on to relay contacts**

Sent to: **All Elevator Contractors in Scope U1, L1, F1 & Consultants**

1. INTRODUCTION

1.1 In the past, a series of accidents or incidents occurred, when elevators moved with doors open, because a fallen screw, washer or a strand of wire had overbridged adjacently located front and back contacts on horizontally mounted relays. Contractors were informed about the hazard and ordered to take specific actions with Director's Ruling #82/90, covering Klockner-Moeller relays and Safety Alert #136/98, relating to Benedikt+Jager relays.

1.2 In June 2001 an incident occurred when an elevator mechanic observed an elevator move away from the floor with the doors open. The investigation revealed that on this Armor controller a piece of the arc shield from the FF relay had fallen off and landed on and shorted out contacts 1 and 3 of the MG relay which is directly under the FF relay. This effectively shorted out most of the safety circuit and allowed the elevator to run with open doors. (see attached schematic)

2. ORDER TO CONTRACTORS

2.1 Not later than March 1, 2002, contractors shall examine all elevator installations under their maintenance, that are equipped with Armor Model AD1 & AD2 (Louisville) controllers incorporating relays such as FF relay mounted above relay MG.

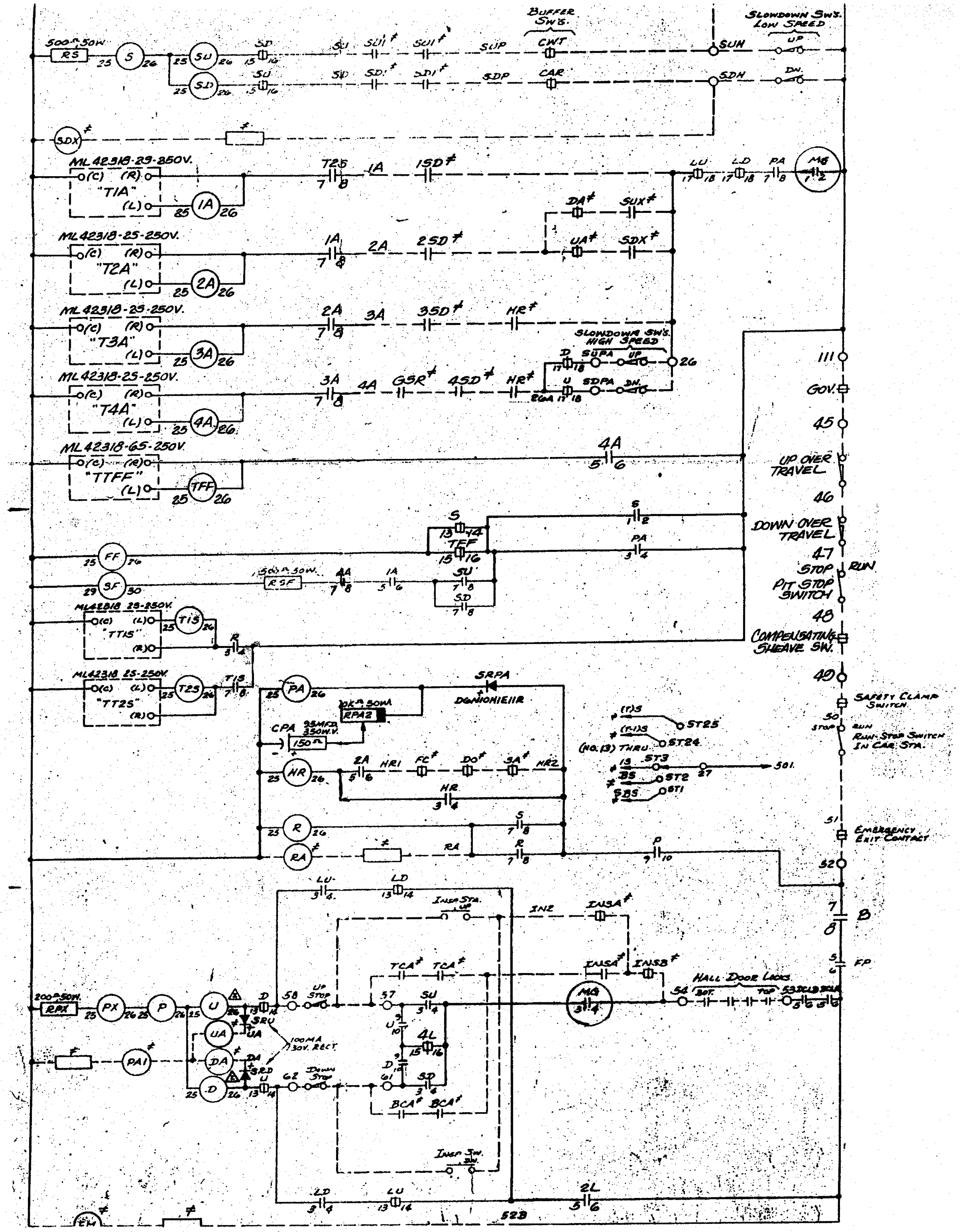
2.3 On controllers where the potential unsafe condition exists, such as occurrences described in 1.2 above, not later than June 1, 2002 contractors shall securely fasten a shield above relay MG to prevent it's contacts from being accidentally shorted by falling metal.

2.4 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorisation from the owner to complete the work, you shall inform this office immediately, indicating the elevator installation numbers so we may issue an order to the owner to have the work completed.

Roland Hadaller, Chief Engineer - EDAD PROGRAM

Roger Neate, Manager of Operations - EDAD PROGRAM

This Director's Order has been developed in consultation with the TSSA Elevating Devices Council.


Buffer Sws.
Slowdown Sws. Low Speed
ML 42318-25-250V.
"T1A"
"T2A"
"T3A"
"T4A"
ML 42318-65-250V.
"TTFF"
Slowdown Sws. High Speed
Gov.
Up Over Travel
Down Over Travel
Stop
Run
Pit Stop Switch
Compensating Sheave Sw.
Safety Clamp Switch
Run-Stop Switch in Car Sta.
Emergency Exit Contact
"TT1S"
"TT2S"
Hall Door Locks
100MA 30V. Rect.
Up Stop
Down Stop
Insp. Sta.
Insp. Sw.

Elevating and Amusement Devices Safety Division	Ref. No.: 160 / 2001	Rev. No.:
Safety Alert Bulletin	Date: **September 28, 2001**	Date:

Subject: **ELEVATORS WITH INVERTED HYDRAULIC CYLINDERS & NO EXISTING PRESSURE SWITCH (CONFORMANCE TO B44 4.22.13)**

Sent to: **ALL ELEVATOR CONTRACTORS IN SCOPE U1, L1, F1, P1**

1. Background

1.1. TSSA has recorded three incidents where elevators utilizing the Armor Inverted Hydraulic cylinder drive have fallen into the pit causing damage. No persons have been injured however the potential for injury exists.

1.2. The subsequent incident reports filed by the maintaining contractors have all concluded that the deterioration of the cylinder seals resulted in the cylinders binding, to the extent that the cars became hung up in the hoistway.

1.3. With the car hung up on the jammed seals and the down valve opened (call to a lower floor), oil may return to the tank leaving the elevator suspended on a column of air. Once the friction factor is overcome the unsupported car falls.

1.4. The incidents were recorded on units installed during the early 1980's on Armor designs utilizing a cantilevered sling with inverted hydraulic cylinders. Low pressure switches were not installed nor mandatory at the time.

1.5. Indicators of this potential hazard are not apparent since the oil is returned to the tank.

2. Order to Contractors

2.1. Not later than February 1, 2002, contractors shall carry out the modifications listed in 2.2 below, where elevators on their maintenance, regardless of make, meet the following criteria:

- the elevator utilizes inverted hydraulic drive technology
- where the top of the cylinder, **when at its highest elevation**, is above the storage tank and
- which do not have a low-pressure switch.

2.2. If such units are found, contractors shall add a low-pressure switch between the cylinder and the valve in conformance with current code requirements, (B44 4.22.13). This applies to all manufacturers equipment, which meet the criteria specified in 2.1.

2.3. If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete this order, you shall notify this office immediately. Indicate the installation numbers of the relevant elevators so that TSSA may issue an order to the owner to have the work completed.

2.4. Addition of a pressure switch shall be classified as a "Notification of minor Type B Alteration".

NOTES:

- Contractors should attempt to assess the integrity of the cylinder seals and if this is not possible, consideration should be given to replacement of the seals, utilizing safe working practices.
- This Director's Order has been developed in consultation with the TSSA Elevating Devices Council.

Roland Hadaller - Chief Engineer

Ted Dance – Director of Operations

Elevating and Amusement Devices Safety Division	Ref. No.: 161/2001	Rev. No.:
DIRECTOR'S ORDER	Date: **October 1, 2001**	Date:

Subject: **ADOPTION OF CAN/CSA-B44-00 SAFETY CODE FOR ELEVATORS - NEW EDITION**

Sent to: **ALL CONTRACTORS IN SCOPE U & L-1,2,3,4,5**

1. ORDER

a) Each newly installed or altered elevator, escalator, dumbwaiter, moving walk and material* lift for which the **DESIGN** is submitted to TSSA for registration on or after:

the 23rd day of March 2002, shall conform to the requirements of:

CSA-B44-00 Safety Code for Elevators.

*this term replaces freight platform lifts

b) Compliance with this edition of the B44 Code shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

c) Submissions received between January 23 and March 22, 2002 may comply with B44-94 or B44-00. Any designs submitted before January 23, 2002 based on the new code must be accompanied by a request for variance.

2. INSTRUCTIONS

a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act.*

b) The CSA-B44-00 Safety Code for Elevators, is available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3, telephone 1-800-463-6727, e-mail – sales@csa-international.org or web site www.csa.ca.

c) Since the Regulation under the *Technical Standards and Safety Act* requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of the subject standard.

3. NOTES

- Contractors are urged to study the B44-00 Code carefully to ensure conformance by the specified date. The Code has been completely reorganised and major revisions or additions have been made to the requirements.
- This Director's Order has been developed in consultation with the TSSA Elevating Devices Council.

William N. Wilkinson, Director under TSS Act RFH/TD

Elevating and Amusement Devices Safety Division	Ref. No.: 161/01	Rev. No.: 1
DIRECTOR'S ORDER	Date: October 1, 2001	Date: March 7, 2002

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **ADOPTION OF CAN/CSA-B44-00 SAFETY CODE FOR ELEVATORS, (Order 161/01)**
- **NEW EDITION**

Sent to: **ALL CONTRACTORS IN SCOPE U & L-1,2,3,4,5**

1. ORDER

1.1 Adoption

a) Each **newly installed** elevator, escalator, dumbwaiter, moving walk and material* lift for which the #**DESIGN** is submitted to TSSA for registration on or after: R

the 23rd day of March 2002, and

Each **newly altered** elevator, escalator, dumbwaiter, moving walk and material* lift for which the **DESIGN** is submitted to TSSA for registration on or after:

the 1st day of June 2002, shall conform to the requirements of:

CSA-B44-00 Safety Code for Elevators, as modified in item 1.2 of this Order

Note 1: Term material lift replaces freight platform lifts
#Note 2: A completed application form will be considered as a design submission for the purpose of meeting these date timelines

b) Compliance with this edition of the B44 Code shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

c) Submissions for new installations received between January 23 and March 22, 2002 may comply with B44-94 or B44-00. R

1.2 Modifications and clarifications

The Code adopted in 1.1 is subject to the following modifications and clarifications:

1.2.1 General

(a) Rules that are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted by this Order.

Note: NBCC means the National Building Code of Canada

(b) Rules identified as applicable "in jurisdictions enforcing NBCC" are adopted by this Order.

(c) Where there are duplicate rules under a same number, only the rules prefaced with a lower-case "c" are adopted by this Order. R

Note: Prefix "c" identifies Canadian (B44) deviations from A17.1 requirements.

(d) Any additional rule prefaced with a lower case "c" is adopted by this Order.

Note: Where there is inconsistency between the Regulations and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Order.

1.2.2 Definitions (Section 1.3 of the Code) and terminology

(a) "building code" – Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 403/97 made under the Building Code Act 1997 or a later edition, commonly known as Ontario Building Code or OBC.

(b) The following terms shall be considered to mean the same as the corresponding terms used in Ontario Regulation 209/01:

- "elevators used for construction" – replaces the term "temporary elevator"
- "material lift" – replaces the term "freight platform lift"

1.2.3 Exemption of specific requirements

(a) Consistent with subsection 2.(2) of Ontario Regulation 209/01, the following sections of the Code are not adopted by this Order:

- Section 5.3 – Private Residence Elevators,
- Section 5.4 – Private Residence Inclined Elevators
- Section 5.8 – Shipboard Elevators
- Section 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices that are installed, located and controlled as specified in item 2(3)(j) of the Elevating Device Regulation 209/101

Note: As stated in the Code, Section 5.7, 5.9 and 8.6 (except 8.6.12) are not part of the B44 Code

(b) Clause 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted with this Order.

(c) Section 8.7 – Alterations is adopted, with modifications and enforcement procedure to be specified in Director's Order #164/2002.

(d) Section 8.8 – Welding, is adopted, except where the requirements of the section are superseded by the requirements in Section 3 of Ontario Elevating Devices Regulation 209/2001, Code Adoption Document.

(e) Section 8.9 – Code Data Plate. The requirements shall not apply to the existing devices installed or altered before this Order comes into force.

(f) Requirements of elevator maintenance are adopted in accordance with Rule c8.6.12 and Appendix J of the Code. Maintenance records shall be kept in the log book, in accordance with c8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/2001.

(g) Section 8.11 - Periodic Inspection and Test Requirements are adopted with the following exemptions and modifications

(1) Requirements in Rules 8.11.2.2.7 and 8.11.3.2.3(f) for testing of standby or emergency power operation are not adopted with this Order.

Note: These periodic tests fall under jurisdiction of Fire Protection and Building Code Authorities.

(2) Requirement for Periodic Category One, Category Three and Category Five tests in Rules 8.11.2.2, 8.11.2.3, 8.11.3.2, 8.11.3.3 and 8.11.3.4 are not adopted with this Order.

Note: Another Order respecting the adoption of the Category One, Three and Five test rules and implementation procedure will be issued later.

2. INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act*.

(b) The CSA-B44-00 Safety Code for Elevators, is available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3, telephone 1-800-463-6727, e-mail – sales@csa-international.org or web site www.csa.ca.

(c) Since the Regulation under the *Technical Standards and Safety Act* requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of the subject standard.

3. NOTE

- Contractors are urged to study the B44-00 Code carefully to ensure conformance by the specified date. The Code has been completely reorganised and major revisions or additions have been made to the requirements.
- This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

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Ted Dance, Director, TSS Act 2000
(Elevating Devices)

Elevating and Amusement Devices Safety Division	Ref. No.: 161/01	Rev. No.: 2
DIRECTOR'S ORDER	Date: October 1, 2001	Date: May 17, 2002

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **ADOPTION OF CAN/CSA-B44-00 SAFETY CODE FOR ELEVATORS, (Order 161/01)**
- **NEW EDITION**

Sent to: **ALL CONTRACTORS IN SCOPE U & L-1,2,3,4,5**

1. ORDER

1.1 Adoption

a) Each **newly installed** elevator, escalator, dumbwaiter, moving walk and material* lift for which the #**DESIGN** is submitted to TSSA for registration on or after: R

the 23rd day of March 2002, and

R Each **newly altered** elevator, escalator, dumbwaiter, moving walk and material* lift for which the #**DESIGN** is submitted to TSSA for registration on or after:

the 1st day of June 2002, shall conform to the requirements of:

CSA-B44-00 Safety Code for Elevators, as modified in item 1.2 of this Order

**Note 1: Term material lift replaces freight platform lifts*
#*Note 2: A completed application form will be considered as a design submission for the purpose of meeting these date timelines*

b) Compliance with this edition of the B44 Code shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

c) Submissions for new installations received between January 23 and March 22, 2002 may comply with B44-94 or B44-00. R

1.2 Modifications and clarifications

The Code adopted in 1.1 is subject to the following modifications and clarifications:

1.2.1 General

(a) Rules that are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted by this Order.

Note: NBCC means the National Building Code of Canada

(b) Rules identified as applicable "in jurisdictions enforcing NBCC" are adopted by this Order.

(c) Where there are duplicate rules under a same number, only the rules prefaced with a lower-case "c" are adopted by this Order. R

Note: Prefix "c" identifies Canadian (B44) deviations from A17.1 requirements.

(d) Any additional rule prefaced with a lower case "c" is adopted by this Order.

Note: Where there is inconsistency between the Regulations and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Order.

1.2.2 Definitions (Section 1.3 of the Code) and terminology

(a) "building code" – Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 403/97 made under the Building Code Act 1997 or a later edition, commonly known as Ontario Building Code or OBC.

(b) The following terms shall be considered to mean the same as the corresponding terms used in Ontario Regulation 209/01:

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Note: As stated in the Code, Section 5.7, 5.9 and 8.6 (except 8.6.12) are not part of the B44 Code

(b) Clause 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted with this Order.

(c) Section 8.7 – Alterations is adopted, with modifications and enforcement procedure to be specified in Director's Order #164/2002.

(d) Section 8.8 – Welding, is adopted, except where the requirements of the section are superseded by the requirements in Section 3 of Ontario Elevating Devices Regulation 209/2001, Code Adoption Document.

(e) Section 8.9 – Code Data Plate. The requirements shall not apply to the existing devices installed or altered before this Order comes into force.

(f) Requirements of elevator maintenance are adopted in accordance with Rule c8.6.12 and Appendix J of the Code. Maintenance records shall be kept in the log book, in accordance with c8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/2001.

(g) Section 8.11 - Periodic Inspection and Test Requirements are adopted with the following exemptions and modifications

(1) Requirements in Rules 8.11.2.2.7 and 8.11.3.2.3(f) for testing of standby or emergency power operation are not adopted with this Order.

Note: These periodic tests fall under jurisdiction of Fire Protection and Building Code Authorities.

(2) Requirement for Periodic Category One, Category Three and Category Five tests in Rules 8.11.2.2, 8.11.2.3, 8.11.3.2, 8.11.3.3 and 8.11.3.4 are not adopted with this Order.

Note: Another Order respecting the adoption of the Category One, Three and Five test rules and implementation procedure will be issued later.

2. INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act*.

(b) The CSA-B44-00 Safety Code for Elevators, is available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3, telephone 1-800-463-6727, e-mail – sales@csa-international.org or web site www.csa.ca.

(c) Since the Regulation under the *Technical Standards and Safety Act* requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of the subject standard.

3. NOTE

- Contractors are urged to study the B44-00 Code carefully to ensure conformance by the specified date. The Code has been completely reorganised and major revisions or additions have been made to the requirements.
- This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

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Ted Dance, Director, TSS Act 2000
(Elevating Devices)

Elevating and Amusement Devices Safety Division	Ref. No.: 162/2001	Rev. No.:
DIRECTOR'S ORDER	Date: August 22, 2001	Date:

Subject: **LISTING OF ELEVATORS WITHOUT CAR TOP MAINTENANCE STATIONS**

Sent to: **ALL CONTRACTORS IN SCOPE U1, L1 & P1**

1. BACKGROUND

a) Some older elevators in the Province of Ontario are not equipped with car top maintenance stations. This creates a hazard for Elevator Mechanics and Inspectors.

b) TSSA has been approached by the Elevating Devices Advisory Council to issue an order to require the retrofitting of car top maintenance stations on all existing licensed elevators in the province.

c) In order to make a proper decision, TSSA needs to know how many elevators would be affected.

2. ORDER TO MAINTENANCE CONTRACTORS

By **September 30, 2001**, all maintaining contractors shall provide to TSSA a list of elevators that they maintain that do not have car top maintenance stations.

3. INSTRUCTIONS

a) Completed lists should include the elevator installation number as well as the address.

b) Contractors are to send completed lists to June Khan, fax 416-326-8248, or email jkhan@tssa.org

c) Once the number of elevating devices without car top stations has been determined, a decision can be made on the appropriate course of action.

RFH/TD

William N. Wilkinson,

Director under TSS Act

Elevating and Amusement Devices Safety Division	Ref. No.: 164/02	Rev. No.:
DIRECTOR'S ORDER	Date: **May 1, 2002**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
Technical Standards and Safety Act 2000
(Elevating Devices)

Subject:
- **Alterations of Elevators, Dumbwaiters, Material Lifts (Freight Platforms), Escalators and Moving Walks per CSA B44-2000 Code**
- **Procedure for Design Submissions and Inspections**

Sent to: **ALL ELEVATOR CONTRACTORS**

1. Introduction

1.1 As of June 1, 2002 this Order will replace Director's Ruling #116/95 and all revisions thereof.

1.2 With Director's Order #161/2001 you have been notified that the new edition CAN/CSA-B44-00, Safety Code for Elevators will apply to each **newly altered** elevating device listed in the subject for which the DESIGN is submitted to Technical Standards and Safety Authority (TSSA) for registration on or after the 1st day of June 2002.

1.3 The requirements for alterations are in Section 8.7 and c8.6.12.5 of the new Code. Numbering of rules have changed, but the listing of alteration has not substantially changed when compared with the 1994 edition of the Code. However, the list of components or features, that must be upgraded to the requirements of the new Code, when an individual alteration is carried out may be substantially revised. Contractors are advised to study the Code requirements when any alteration is to be carried out.

1.4 The purpose of this Director's Order is:
(a) to re-affirm the order to contractors carrying out alterations, and
(b) to classify types of alterations and also types of related design submission as "major" or "minor A" or "minor B".

1.5 Note that this Order applies only to the elevating devices listed in the subject. Alterations to all other elevating devices shall be carried out in accordance with Elevating Devices Regulations O.Reg.209/01 and previously established procedures.

2. Order to Contractors Carrying out Alterations

Each alteration to an elevating device listed in the subject, for which the DESIGN is submitted for registration to TSSA on or after the 1st day of June, 2002 shall be carried out in accordance with this Order.

3. Alterations

3.1 **Definitions**
The term "alteration" is defined in the Ontario Regulation 209/01. Effectively it is any work performed on a previously licensed elevating device, other than the work performed during:

(a) **maintenance** (see sub-section 32(3) of O.Reg 209/01)

(b) **replacement** which means the substitution of a device or component and/or subsystem in its entirety, with a new unit that is basically* the same as the original for the purpose of ensuring performance in accordance with applicable Code requirements, except that replacements specified in 3.2(c) and (d) below, constitute an alteration, and

**Note: A replaced device, subsystem, component, or part, is "basically the same as the original" if it is 'identical' or 'somewhat different', provided that the differences have no affect on safety, original design and operational characteristics.*

(c) **repair**, which means reconditioning or renewal of parts, components, and/or subsystems necessary to keep the elevating device in compliance with applicable code requirements.

3.2 Types of alterations

Alterations, referred to in Sections 8.7 and c8.6.12.5 of the CSA B44-00 Code are listed in the enclosed tables in column 1: B44-00 rule number and in column 2, description of the alteration. In columns 3 to 6, each alteration is classified as one of the following types of alterations:

Note: Alterations identified with ★ are TSSA designated alterations in addition to those specified in B44-00.

(a) **Modification/change** (column 3) means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment. Note that a change of the component make or model, without any other change, may constitute an alteration under this Director's Order (see item (d) below).

(b) **Addition** (column 4) means addition of a new component or a design feature, e.g. addition of top-of-car operating devices.

(c) **Replacement with same** (column 5) means: The substituted device, assembly or component is basically the same as the original, but B44- Section c8.6.12.5 classifies eleven specific replacements as alterations and requires that the substituted component and/or the elevating device as a whole meets the specific requirements of the latest Code edition.

(d) **Replacement with different make and model** (column 6) means that the substituted device, assembly or component is basically the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model. Only replacements of the components listed below are designated alterations of this type. Item numbers correspond to the numbers in applicable specification forms:

Elevators:	48 (control valve), (worm or gear make), 84&85 (oil buffers), 101 (locks and interlocks), 136&149 (overspeed and lowspeed), 137 (car/CWT safeties) and 145 (speed governor).
Dumbwaiters:	item #31 (controller), 55 (locks/interlocks)
Material lifts & Platform lifts:	item 29 (machine), 88 (locks/interlocks), 96 (safeties)
Escalators and Moving walks:	none

Note: In addition to the work described in 3.2 and listed in the attachments, any other work performed on an elevating device, that results in a change to the inherent safety or operational characteristics, will constitute an alteration even though there may be no change in the original design. The list in the enclosed table, is not all inclusive.

3.3 Type of Design Submission

3.3.1 Type of the required design submission is specified in columns 3 to 6 of the enclosed tables, depending on whether the alteration work is leading to the "modification/change" (column 3), or "addition" (column 4) or "replacement with same" (column 5) or "replacement with different" (column 6), of an assembly, component, unit or feature. The entries in column 3 – 6 may be one of the following:

Major	-	means Major alterations
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
(-)	-	work that would not constitute an alteration
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
★	-	TSSA designated alterations

Note: For this purpose, the definitions for "major" and "minor" alterations in O.Regulation 209/01 have been used. Although not defined in the Regulations anymore we continue to use terms "Minor A" and "Minor B" in order to facilitate the needs of the contractors respecting the timing, scope and format of submissions and inspections.

3.3.2 Where a design submission covers alterations to more than one component or feature, which would require different types of submissions, the type of such submission will be of the "highest rank", e.g. combination of Minor B and Major will be designated as a Major alteration.

4. Requirements for Design Submissions and Inspections

4.1 Major Alteration:

4.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

4.1.2 The alteration shall be inspected by TSSA prior to returning to service.

4.2 Minor Alteration type A and B

4.2.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 10 working days after completion of a minor alteration. However, contractors are advised to submit the documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

4.2.2 The contractor who completed the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration, and shall arrange for performance of tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.

4.3 Signatures

According to subsection 15(6) of O.Reg 209/01 the design submission for any Major or Minor A alteration shall bear the **signature and seal of the professional engineer** who prepared or approved the design submission based on subsection 15(9) of O.Reg 209/01.
In the case of Minor B alterations, an officer or director of the Company applying for registration may sign the design submission documents or the Notification, if the officer or director is a mechanic.

4.4 Specification Forms

4.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries which are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as rope factor of safety (elec.) or cylinder column strength (hyd.)
  - Sufficient details are to be provided to show compliance verification.

4.4.2 Items which are not affected by the alterations should be noted with either:

- **N/C** or **No Change** or
- The original entry followed by **Existing** (Example Car Wt.: 1812 kg - Existing)

4.4.3 Where a "major alteration" and "minor alteration" affects only a very few items, the abridged form may be used instead of the full specification form provided clarity is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry valves. (Example: 34. Rated Working Pressure: 3445 kPa)

4.5 Additional Requirement for Design Submission – COMPLIANCE With Section 8.7

4.5.1 The design submission (or notification) must clearly specify the following:

(a) The B44-00 alteration Rule(s) applicable to the performed alteration(s) as in Column 1 of the table;
(b) The description of the alteration(s) in Column 2,
(c) List of all B44-00 design or other rules, which according to the alteration rule in (a) must be complied with, when the alteration in (b) is performed (see example below), and
(d) Confirmation by the person who compiled the submission, that all design and other rules in (c) are complied with. (Mark with 'X' those items – see below)

Example: A controller is to be replaced with a new controller & Alteration Rule 8.7.2.27.4 applies. Submitter verifies compliance to the MAIN Alteration Requirement (ie 8.7.2.27.4) and also identifies the individual items that the altered device will meet.

Conforms to B44 Mark with 'X'	1	2	2a	2b	3	4	5	6
	B44-00 Reference Number	**Scope of Alteration B44-00 Part, Section or Requirement**			Type of Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Diff
					Submission Type Required			
X	8.7.2.27.4	Alteration to		Elevator Controller	Major	-	-	-
x			2.25.	Terminal Stopping Devices				
x			2.26.1.4	Inspection Operation				
x			2.26.1.5	Inspection Operation with Open Door Circuits				
x			2.26.4	Electrical Equipment and Wiring				
x			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
x			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
x			2.26.8	Release and Application of Driving-Machine Brakes				
x			2.26.9	Control & Operating Circuits				
x			2.27.2	Emergency or Standby Power systems				
x			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				

Note: To assist our clients, we will post on the TSSA Website www.tssa.org an expanded table of all alterations which will list all the design and other B44-00 rules that must be complied with when any specific alteration listed in the enclosed table is to be performed.
The submitter should be able to utilize the tables to create a list of Rules required in 4.5.1(c) and as shown in the example.

4.5.2 The **Main** items marked with 'X' in the Alterations Table of work (above) will also be those items that are expected to be shown on the Code Data Plate. From example in table above, 8.7.2.27.4 would be listed on the code data plate.

Ted Dance, Director Under the TSS Act

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Committee

Conforms to B44 Mark with 'X'	1	2	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement			Type of Work: Alteration – Modification Change	Alteration – Addition	Replacement with – Same	Replacement with – Diff
					Submission Type Required			
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.1	Hoistway Enclosures			Major	Major	-	-
	8.7.2.2	Pits	see below for non Major Alterations		Major	-	-	-
	8.7.2.2	Pit Drains & Sumps			Minor A	-	-	-
	8.7.2.2	Pit Guards			Minor A	-	-	-
	8.7.2.2	Pit Illumination			Minor A	-	-	-
	8.7.2.2	Pit Stop Switches			Minor A	-	-	-
	8.7.2.3	Location and Guarding of Counterweights			Major	Major	-	-
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys			Major	-	-	-
	8.7.2.5	Horizontal Car and Counterweight Clearances			Major	-	-	-
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major	-	-
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7			Major	Major	-	-
	8.7.2.7.2	Means of Access			Minor B	-	-	-
	8.7.2.7.3	Access Doors and Openings			Minor B	-	-	-
	8.7.2.7.4	Headroom			Minor B	Minor B	-	-
	8.7.2.7.5	Windows and Skylights			-	-	-	-
	8.7.2.7.6	Lighting			Minor B	Minor B	-	-
	8.7.2.7.7	Ventilation			Minor B	Minor B	-	-
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms			Minor B	Minor B	-	-
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major	-	-
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	-	-
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			Major	Major	-	Minor B
	8.7.2.11.2	Mechanical Locks and Electric Contacts			Major	Major	-	Minor B
	8.7.2.11.3	Parking Devices			Minor A	-	-	-
	8.7.2.11.4	Access Switches			Minor A	Minor A	-	-
	8.7.2.11.4	Unlocking Devices			Minor B	Minor B	-	-
		★ Door Safety Retainers Other Than Made to Ruling #62			Minor B	Minor A	-	-
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors)			Minor B	Minor B	-	-
	8.7.2.12	Power Operation of Hoistway Doors			Minor A	Minor A	-	-
	-	★ Replacement of Door Operator			-	-	-	Minor B
	8.7.2.13	Door Reopening Device (Safety Edge)			Minor B	Minor B	-	-
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-	-	-
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A	-	-
	8.7.2.14.2(b)	Top Emergency Exit			Minor B	Minor B	-	-
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B	-	-
	8.7.2.14.2(d)	Equipment in Elevator Car			Minor B	Minor B	-	-
	8.7.2.14.2(e)	Side Emergency Exits			Major	Major	-	-
	8.7.2.14.2(f)	Car Ventilation			Minor B	-	-	-
	8.7.2.14.2(g)	Car Illumination (Decrease only)			Minor B	-	-	-
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major	-	-
	8.7.2.14.4	Car Enclosure, Door or Gates			Minor A	Minor A	-	-
	8.7.2.14.5	Car Enclosure - Removal of Emergency Stop Sw.			Minor A	Minor A	-	-
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-	-	-
	2.14.1.7	★ Car Top Railing			Minor A	Minor A	-	-
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-	-	-
	-	★ Increase or Decrease in Deadweight of Car (Car Wt+Rated Load< 5%)			Minor B	-	-	-
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-	-	-
	8.7.2.16	Capacity, Loading, and Classification			Major	-	-	-
	8.7.2.17	Change in Travel or Rated Speed			⇩ See Below ⇩			
	8.7.2.17.1	Increase or Decrease in Travel			Major	-	-	-
	8.7.2.17.2	Increase in Rated Speed			Major	-	-	-
	8.7.2.17.3	Decrease in Rated Speed			Major	-	-	-
	8.7.2.18	Car and Counterweight Safeties			Major	Major	-	Minor A
	c8.7.2.19	Speed Governors and Governor Ropes			Major	Major	-	Minor A
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection			Minor A	Major	-	Minor A
	8.7.2.21	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.2.21.1	Change in Ropes - for non-major see below			Major	-	-	-
	8.7.2.21.1	Change in Material / Grade of Ropes			Minor A			
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B	-	-
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices			Major	Major	-	-
	8.7.2.22	Counterweights			Minor A	-	-	-

Conforms to B44 Mark with 'X'	1	2	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement			Type of Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Diff
					Submission Type Required			
	8.7.2.23	Car and Counterweight Buffers and Bumpers (oil buffer only in column 6)			Major	-	-	Minor B
	8.7.2.24	Guide Rails, Supports, and Fastenings			Major	-	-	-
	8.7.2.25	Driving Machines and Sheaves			⇩ See Below ⇩			
	8.7.2.25.1	Alterations to	Driving Machines & Sheaves		Major	-	-	-
	c8.6.12.5.2	Replacement of	Driving Machine		-	-	Major	-
	8.7.2.25.2(a)	Change in Location of Driving Machine w/ no change in Travel			Major	-	-	-
	8.7.2.25.2(b)	Change in Location of Driving Machine w/ change in Travel			Major	-	-	-
	-	★ Replacement of worm and/or gear (specify make)			-	-	-	Minor A
	8.7.2.26	Terminal-Stopping Devices			Minor B	Minor B	-	-
	8.7.2.27	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.2.27.1	Top-of-Car Operating Devices			Minor A	Minor A	-	-
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A	-	-
	2.26.1.5	★ Door By-Pass Switches			Minor A	Minor A	-	-
	2.26.5	★ Door Monitoring System			Minor A	Minor A	-	-
	8.7.2.27.3	Change in Power Supply			Major	-	-	-
	8.7.2.27.4(a)	Alteration to	Elevator Controller		Major	-	-	-
	c8.6.12.5.3.1	Replacement of	Elevator Controller		-	-	Major	-
	8.7.2.27.4(b)	Alteration to	Door Controller		Minor A	-	-	-
	c8.6.12.5.3.2	Replacement of	Door Controller		-	-	Minor B	-
	8.7.2.27.5	Change in Type of Motion Control			Major	-	-	-
	8.7.2.27.6	Change in Type of Operation Control			Major	-	-	-
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	-	-
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A	-	-
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A	-	-
	8.7.2.28	Addition of Elevator to a Group			-	Minor A	-	-
	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.3.2	Pits			see Electric Elevators			
	8.7.3.3	Location and Guarding of Counterweights			Major	Major	-	-
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys			Major	-	-	-
	8.7.3.5	Horizontal Car and Counterweight Clearances			Major	-	-	-
	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major	-	-
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B	-	-
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major	-	-
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			Major	Major	-	-
	8.7.3.11	Hoistway Door-Locking Devices			See 8.7.2.11			
	8.7.3.12	Power Operation of Hoistway Doors			Minor A	Minor A	-	-
	-	★ Replacement of Door Operator			-	-	-	Minor B
	-	★ Door Reopening Device (Safety Edge)			Minor B	Minor B	-	-
	8.7.3.13	Car Enclosures			See 8.7.2.14			
	8.7.3.14	Car Frames and Platforms			Major	-	-	-
	8.7.3.15	Safeties			Major	Major	-	Minor A
	8.7.3.16	Governors and Governor Ropes			Major	Major	-	Minor A
	8.7.3.17	Change in Type of Service			Major	-	-	-
	8.7.3.18	Change in Class of Loading			Major	-	-	-
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-	-	-
	8.7.3.20	Increase in Rated Load			Major	-	-	-
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-	-	-
	-	★ Increase or Decrease in Deadweight of Car (Car Wt+Rated Load< 5%)			Minor B	-	-	-
	8.7.3.22	Change in Travel or Rated Speed			⇩ See Below ⇩			
	8.7.3.22.1	Increase or Decrease in Travel			Major	-	-	-
	8.7.3.22.2	Increase in Rated Speed			Major	-	-	-
	8.7.3.22.3	Decrease in Rated Speed			Major	-	-	-
	8.7.3.23	Hydraulic Equipment			⇩ See Below ⇩			
	8.7.3.23.1	Alteration to	Hydraulic Jacks		Major	-	-	-
	c8.6.12.5.4.1	Replacement of	Hydraulic Jacks		-	-	Major	-
	8.7.3.23.2	Alteration to	Plungers		Major	-	-	-
	c8.6.12.5.4.2	Replacement of	Plungers		-	-	Minor A	-
	8.7.3.23.3	Alteration to	Cylinders		Major	-	-	-
	c8.6.12.5.4.3	Replacement of	Cylinders		-	-	Minor A	-
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-	-	-
	8.7.3.23.5	Change in Location of Hydraulic Jack			Major	-	-	-
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-	-	-

Conforms to B44 Mark with 'X'	1	2	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement			Type of Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Diff
					Submission Type Required			
	8.7.3.24	Alteration to		Relief or Check Valves, Pressure Piping, and Fittings	Minor A	Minor A		
	c8.6.12.5.5	Replacement of		Relief or Check Valves, Pressure Piping, and Fittings			Minor B	-
	8.7.3.24	Alteration to		Control Valves	Minor A	-		
	c8.6.12.5.5	Replacement of		Control Valves			Minor B	Minor B
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Ropes - for non-major see below			Major	-	-	-
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-	-	-
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B	-	-
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.3.26	Counterweights - Addition of			-	Major	-	-
	8.7.3.27	Car Buffers and Bumpers (oil buffer only in column 6)			Major	-	-	Minor B
	8.7.3.28	Guide Rails, Supports, and Fastenings			Major	-	-	-
	8.7.3.29	Alteration to		Tanks	Minor B	-	-	-
	c8.6.12.5.6	Replacement of		Tanks	-	-	Minor B	-
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B	-	-
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	-	-
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A	-	-
	8.7.3.31.3	Alteration to		Anti-Creep Leveling Device	Minor B	-	-	-
	c8.6.12.5.7	Replacement of		Anti-Creep Leveling Device	-	-	Minor B	-
	2.26.1.5	★ Door By-Pass Switches			Minor A	Minor A	-	-
	2.26.5	★ Door Monitoring System			Minor A	Minor A	-	-
	8.7.3.31.4	Change in Power Supply			Major	-	-	-
	8.7.3.31.5	Alteration to		Elevator Controller	Major	-	-	-
	c8.6.12.5.3.1	Replacement of		Elevator Controller	-	-	Major	-
	8.7.3.31.5	Alteration to		Door Controller	Minor A	-	-	-
	c8.6.12.5.3.1	Replacement of		Door Controller	-	-	Minor B	-
	8.7.3.31.6	Change in Type of Motion Control			Major	-	-	-
	8.7.3.31.7	Change in Type of Operation Control			Major	-	-	-
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B	-	-
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A	-	-
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A	-	-
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B	-	-

Conforms to B44 Mark with 'X'	1	2	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement			Type of Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Diff
					Submission Type Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
	8.7.4.2	Screw-Column Elevators			Major	-		
	8.7.4.3	Hand Elevators			Major	-		
	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-	-	-
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	8.7.5.5	Power Sidewalk Elevators			Major	-	-	-
	8.7.5.6	Rooftop Elevators			Major	-	-	-
	8.7.6.1	Alterations to Escalators						
	c8.7.6.1.1	General Requirements - Alterations other than Below			Major	-	-	-
	8.7.6.1.2	Relocation of Escalator			New	-	-	-
	ED CAD 15.(2)	★ Repositioning of Escalator (within the same building)			Major	-	-	-
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-	-	-
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-	-	-
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-	-	-
	8.7.6.1.5(c)	Construction Requirements - Balustrades			Minor A	Minor A	-	-
	8.7.6.1.6	Handrails			Minor A	-	-	-
	8.7.6.1.7	Step System			Major	-	-	-
	8.7.6.1.8	Combplates			Minor A	-	-	-
	8.7.6.1.9	Trusses and Girders			Major	-	-	-
	8.7.6.1.9	New Escalator into Existing Trusses			New	-	-	-
	8.7.6.1.10	Step Wheel Tracks			Major	-	-	-
	8.7.6.1.11	Rated Load and Speed			Major	-	-	-
	8.7.6.1.12(a)	Driving Machine			Major	-	-	-
	8.7.6.1.12(b)	Driving Motor			Major	-	-	-
	8.7.6.1.12(c)	Machine Brake			Major	-	-	-
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A	-	-
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B	-	-
	8.7.6.1.15	Entrance and Egress			Major	-	-	-
	8.7.6.2	Alterations to Moving Walks						
	c8.7.6.2.1	General Requirements - Alterations other than below			Major	-	-	-
	8.7.6.2.2	Relocation of Moving Walk			New	-	-	-
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-	-	-
	8.7.6.2.5	Construction Requirements - Angle of Inclination			Major	-	-	-
	8.7.6.2.5	Construction Requirements - Geometry			Major	-	-	-
	8.7.6.2.5	Construction Requirements - Balustrades			Minor A	Minor A	-	-
	8.7.6.2.6	Handrails			Minor A	-	-	-
	8.7.6.2.7	Treadway System			Major	-	-	-
	8.7.6.2.8	Combplates			Minor A	-	-	-
	8.7.6.2.9	Trusses and Girders			Major	-	-	-
	8.7.6.2.9	New Moving Walk into Existing Truss			New	-	-	-
	8.7.6.2.10	Track System			Major	-	-	-
	8.7.6.2.11	Rated Load and Speed			Major	-	-	-
	8.7.6.2.12	Driving Machine			Major	-	-	-
	8.7.6.2.12	Drive Motor			Major	-	-	-
	8.7.6.2.12	Machine Brake			Major	-	-	-
	8.7.6.2.13	Operating and Safety Devices			Minor A	Minor A	-	-
	8.7.6.2.14	Lighting, Access, and Electrical Work			Minor B	Minor B	-	-
	8.7.7	Alterations to Dumbwaiters and Material Lifts						
	8.7.7.1	Dumbwaiters Without Automatic Transfer Devices			Major	-	-	-
	8.7.7.2	Addition of Automatic Transfer Device			Major	-	-	-
	8.7.7.3	Material Lifts and Dumbwaiters With Automatic Transfer Devices			N/A	N/A	-	-
	8.7.7.3	Material Lifts and Dumbwaiters - remove Transfer Device			New	-	-	-
	8.7.7.3	Material Lifts altered to an Elevator			New	-	-	-
	8.7.7.3	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W			New	-	-	-

Elevating and Amusement Devices Safety Division	Ref. No.: 164 / 02	Rev. No.: 1
DIRECTOR'S ORDER	Date: May 1, 2002	Date: Dec 11, 2003

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
Technical Standards and Safety Act 2000
(Elevating Devices)

Subject:
- **Alterations of Elevators, Dumbwaiters, Material Lifts (Freight Platforms), Escalators and Moving Walks per CSA B44-00U1-02 Code**
- **Procedure for Design Submissions and Inspections**

Sent to: **ALL ELEVATOR CONTRACTORS**

1. Introduction

1.1 As of April 1, 2004 this Order [164-02-r1] will replace Director's Order 164/02.

1.2 With Director's Order # 181/03 you have been notified that the new edition **CAN/CSA-B44-00, Safety Code for Elevators** including **Update No. 1 dated September 2002 [B44-00U1-02]** will apply to each **newly installed or altered** elevating device for which the DESIGN is submitted to Technical Standards and Safety Authority (TSSA) for registration on or after the 1st day of January 2004.

1.3 The requirements for alterations are in Section 8.7 and c8.6.12.5 of the new Code. Numbering of the rules has changed, but the listing of alterations has not substantially changed when compared with the 1994 edition of the Code. However, the list of components or features that must be upgraded to the requirements of the new Code, when an individual alteration is carried out may be substantially revised. Contractors are advised to study the Code requirements when any alteration is to be carried out.

1.4 The purpose of this Director's Order is:
(a) to re-affirm the order to contractors carrying out alterations, and
(b) to classify types of alterations and also types of related design submission as "major" or "minor A" or "minor B".

1.5 Note that this Order applies only to the elevating devices listed in the subject. Alterations to all other elevating devices shall be carried out in accordance with Elevating Devices Regulations O.Reg.209/01 and previously established procedures.

2. Order to Contractors Carrying out Alterations

Each alteration to an elevating device listed in the subject, for which the DESIGN is submitted for registration to TSSA on or after the 1st day of April 2004 , shall be carried out in accordance with this Order. Alteration submissions received prior to April 1, 2004 may follow either DR 164/02 or DR 164/02-r1.

3. Alterations

3.1 **Definitions**
The term "alteration" as defined in the Ontario Regulation 209/01 as,
(a) "alteration" means an alteration or replacement, removal or addition of any component or part of an elevating device that results in, or may result in, a change in the original design, inherent safety or operational characteristics of the elevating device, and "altered" has a corresponding meaning; and

alteration — [B44 definition] any change to equipment, including its parts, components, and/or subsystems, other than maintenance, repair, or replacement;

defines the scope of work which requires a submission and subsequently a field inspection. An alteration is essentially any work performed on a previously licensed elevating device, other than the work performed during:

(b) maintenance (see sub-section 32(3) of O.Reg 209/01)

- an inspection and examination at regular intervals of all parts and functions of the elevating device;
- cleaning, lubricating and adjusting all its parts at regular intervals and repairing or replacing worn or defective components in order to prevent the device from becoming unsafe for operation;
- repairing or replacing damaged or broken parts;
- such other examinations or work as is required by this Regulation, the applicable code or standard referred to in the code adoption document or by an inspector.

maintenance — [B44 definition] a process of routine examination, lubrication, cleaning, and adjustment of parts, components, and/or subsystems for the purpose of ensuring performance in accordance with the applicable Code requirements.

(c) replacement — [B44 definition which means] the substitution of a device or component and/or subsystems, in its entirety, with a unit that is basically* the same as the original for the purpose of ensuring performance in accordance with applicable Code requirements,
except that replacements specified in 3.2(c) and (d) below, constitute an alteration, and

**Note: A replaced device, subsystem, component, or part, is "basically the same as the original" if it is 'identical' or 'somewhat different', provided that the differences have no affect on safety, original design and operational characteristics.*

(d) repair — [B44 definition which means] reconditioning or renewal of parts, components, and/or subsystems necessary to keep equipment in compliance with applicable Code requirements.

3.2 Types of alterations

Alterations, referred to in Sections 8.7 and c8.6.12.5 of the CSA B44-00U1-02 Code are listed in the enclosed tables in column 1: B44-00 rule number and in column 2, description of the alteration. In columns 3 to 6, each alteration is classified as one of the following types of alterations:

Note: Alterations identified with ★ are TSSA designated alterations in addition to those specified in B44-00.

(a) **Alteration / Modification / Change** (column 3) includes the scope of 3.1(a) and means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment.
Note that a change of the component make or model, without any other change, may constitute an alteration under this Director's Order (see item (d) below).

(b) **Addition** (column 4) includes the scope of 3.1(a) and means addition of a new component or a design feature, e.g. addition of top-of-car operating devices.

(c) **Replacement with same** (column 5) means: The substituted device, assembly or component is basically the same as the original, but B44- Section c8.6.12.5 classifies specific replacements as alterations and requires that the substituted component and/or the elevating device as a whole meets the specific requirements of the latest Code edition.

(d) **Replacement with different make and model** (column 6) means that the substituted device, assembly or component is basically the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model.

Note: In addition to the work described in 3.2 and listed in the attachments, any other work performed on an elevating device, that results in a change to the inherent safety or operational characteristics will constitute an alteration even though there may be no change in the original design. The list in the enclosed table, is not all inclusive.

3.3 Type of Design Submission

3.3.1 Type of the required design submission is specified in columns 3 to 6 of the enclosed tables, depending on whether the alteration work is leading to the "modification/change" (column 3), or "addition" (column 4) or "replacement with same" (column 5) or "replacement with different" (column 6), of an assembly, component, unit or feature. The entries in column 3 – 6 may be one of the following:

Major	-	means Major alterations
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
Blanks (column5&6)	-	work that would not constitute an alteration
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
★	-	TSSA designated alterations

Note: For this purpose, the definitions for "major" and "minor" alterations in O.Regulation 209/01 have been used. Although not defined in the Regulations anymore we continue to use terms "Minor A" and "Minor B" in order to facilitate the needs of the contractors respecting the timing, scope and format of submissions and inspections.

3.3.2 Where a design submission covers alterations to more than one component or feature, which would require different types of submissions, the type of such submission will be of the "highest rank", e.g. combination of Minor B and Major will be designated as a Major alteration.

4. Requirements for Design Submissions and Inspections

4.1 Major Alteration:

4.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

4.1.2 The alteration shall be inspected by TSSA prior to returning to service.

4.2 Minor Alteration type A and B

4.2.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 10 working days after completion of a minor alteration. However, contractors are advised to submit the documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

4.2.2 Minor A and B alterations are permitted to be returned to service after work completion, however the contractor who completed the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration, and shall arrange for performance of tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.

4.3 Signatures

According to subsection 15(6) of O.Reg 209/01 the design submission for any Major or Minor A alteration shall bear the **signature and seal of the professional engineer** who prepared or approved the design submission based on subsection 15(9) of O.Reg 209/01.
In the case of Minor B alterations, an officer or director of the Company applying for registration may sign the design submission documents or the Notification, if the officer or director is a mechanic.

4.4 Specification Forms

4.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries which are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as rope factor of safety (elec.) or cylinder column strength (hyd.)
- Sufficient details are to be provided to show compliance verification.

4.4.2 Items which are not affected by the alterations should be noted with either:

- **N/C** or **No Change** or
- The original entry followed by **Existing** (Example Car Wt.: 1812 kg - Existing)

4.4.3 Where a "major alteration" and "minor alteration" affects only a very few items, the abridged form may be used instead of the full specification form provided clarity is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry valves. (Example: 34. Rated Working Pressure: 3445 kPa)

4.5 **Additional Requirement for Design Submission – COMPLIANCE With Section 8.7**

4.5.1 The design submission (or notification) must clearly specify the following:

(a) The B44-00 alteration Rule(s) applicable to the performed alteration(s) as in Column 1 of the table;
(b) The description of the alteration(s) in Column 2,
(c) List of all B44-00 design or other rules, which according to the alteration rule in (a) must be complied with, when the alteration in (b) is performed (see example below), and
(d) Confirmation by the person who compiled the submission, that all design and other rules in (c) are complied with. (Mark with 'X' those items – see below)

Example: A controller is to be replaced with a new controller & Alteration Rule 8.7.2.27.4 applies. Submitter verifies compliance to the MAIN Alteration Requirement (ie 8.7.2.27.4) and also identifies the individual items that the altered device will meet.

Conforms to B44 Mark with 'X'	1	2	2a	2b	3	4	5	6
	B44-00 Reference Number	**Scope of Alteration B44-00 Part, Section or Requirement**			Type of Work			
					Alteration		Replacement with	
					Modification Change	Addition	Basically Same	Diff
					Submission Type Required			
X	8.7.2.27.4	Alteration to		Elevator Controller	Major	-		
x			2.25.	Terminal Stopping Devices				
x			2.26.1.4	Inspection Operation				
x			2.26.1.5	Inspection Operation with Open Door Circuits				
x			2.26.4	Electrical Equipment and Wiring				
x			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
x			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
x			2.26.9	Control & Operating Circuits				
x			2.27.2	Emergency or Standby Power systems				
x			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				

Note: To assist our clients, we will post on the TSSA Website www.tssa.org an expanded table of all alterations which will list all the design and other B44-00 rules that must be complied with when any specific alteration listed in the enclosed table is to be performed.
The submitter should be able to utilize the tables to create a list of Rules required in 4.5.1(c) and as shown in the example.

4.5.2 The **Main 8.7 items** marked with 'X' in the Alterations Table of work (above) will also be **those items that are expected to be shown on the Code Data Plate**.
From example in table above, 8.7.2.27.4 would be listed on the code data plate.

Ted Dance, Director Under the TSS Act
This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Committee

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration – Modification Change	Alteration – Addition	Replacement with – Basically Same	Replacement with – Diff
		Job Reference:		Submission Type Required			
	8.7.2	**Alterations to Electric Elevators**					
	8.7.2.1	Hoistway Enclosures		Major	Major		
	8.7.2.2	Pits see below for non Major Alterations		Major	-		
	8.7.2.2	Pit Drains & Sumps		Minor B	Minor A		
	8.7.2.2	Pit Guards		Minor B	Minor A		
	8.7.2.2	Pit Illumination		Minor B	Minor A		
	8.7.2.2	Pit Stop Switches		Minor B	Minor A		
	8.7.2.3	Location and Guarding of Counterweights		Major	Major		
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys		Major	-		
	8.7.2.5	Horizontal Car and Counterweight Clearances		Major	-		
	8.7.2.6	Protection of Spaces Below Hoistways		Minor B	Major		
	8.7.2.7	Machine Rooms and Machinery Spaces		⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7		Minor A	Minor A		
	8.7.2.7.2	Means of Access		Minor B	-		
	8.7.2.7.3	Access Doors and Openings		Minor B	-		
	8.7.2.7.4	Headroom		Minor B	Minor B		
	8.7.2.7.5	Windows and Skylights		-	-		
	8.7.2.7.6	Lighting		Minor B	Minor B		
	8.7.2.7.7	Ventilation		Minor B	Minor B		
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms		Minor B	Minor B		
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations		Major	Major		
	8.7.2.10	Entrances and Hoistway Openings		Major	Major		
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices		⇩ See Below ⇩			
	8.7.2.11.1	Interlocks		Major	Major	mrr	Minor B
	8.7.2.11.2	Mechanical Locks and Electric Contacts		Major	Major	mrr	Minor B
	8.7.2.11.3	Parking Devices		Minor A	-		
	8.7.2.11.4	Access Switches		Minor A	Minor A		
	8.7.2.11.4	Unlocking Devices		Minor B	Minor B		
		★ Door Safety Retainers Other Than Made to Ruling #62		Minor B	Minor A		
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors)		Minor B	Minor B		
	8.7.2.12	Power Operation of Hoistway Doors		Minor A	Minor A		
	-	★ Replacement of Door Operator		-	-	mrr	Minor B
	8.7.2.13	Door Reopening Device (Safety Edge)		Minor B	Minor B	mrr	Minor B
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination		⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure		Major	-		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures		Minor A	Minor A		
	8.7.2.14.2(b)	Top Emergency Exit		Minor B	Minor B		
	8.7.2.14.2(c)	Installation of Glass		Minor B	Minor B		
	8.7.2.14.2(d)	Specific Equipment in Elevator Car		Minor B	Minor B		
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut		Major	-		
	8.7.2.14.2(f)	Car Ventilation		Minor B			
	8.7.2.14.2(g)	Car Illumination (Decrease only)		Minor B	-		
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars		Major	Major		
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates		⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** - Enclosure Materials		DR 171		Minor B	DR 171
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates**		Minor A	Minor A		
	8.7.2.14.5	Car Enclosure - Removal of Emergency Stop Sw.		Minor B	Minor B		
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location		Minor B†	-		
	2.14.1.7	★ Car Top Railing		Minor B	Minor A		
	8.7.2.15	Car Frames and Platforms		⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms		Major	-		
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (100 kg or Less)		Minor B	Minor B		
	DR 171/02	★ Increase Deadweight of Car (>100 kg to 5%)		Minor A	Minor A		
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)		Major	-		
	8.7.2.16	Capacity, Loading, and Classification		Major	-		
	8.7.2.17	Change in Travel or Rated Speed		Major	-		

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration – Modification Change	Alteration – Addition	Replacement with – Basically Same	Replacement with – Diff
		Job Reference:		Submission Type Required			
	8.7.2.18	Car and Counterweight Safeties		Major	Major	⇩See Below ⇩	
	8.7.2.18.1	New Car Safeties		-	Major		
	8.7.2.18.2	New Cwt Safeties		-	Major		
	8.7.2.18.3	Existing Car Safeties			-	mrr	Minor A
	8.7.2.18.3	Existing Cwt Safeties		Major	-	mrr	Minor A
	8.7.2.19	Speed Governors and Governor Ropes		Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.	Speed Governors			mrr	Minor A
	8.7.2.19	2.17.15	Governor Rope Releasing Carriers			mrr	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:				Minor B	Minor B
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection		Minor A	Major	mrr	Minor A
	8.7.2.21	Suspension Ropes and Their Connections		⇩ See Below ⇩			
	8.7.2.21.1	Change in Ropes - for non-major see below		Major	-		
	8.7.2.21.1	Change in Material / Grade of Ropes		Minor A			
	8.7.2.21.2	Addition of Rope Equalizers		Minor B	Minor B		
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices		Major	Major		
	8.7.2.22	Counterweights		Minor A	-		
	8.7.2.23	Car and Counterweight Buffers and Bumpers (oil buffer only in column 6)		Major	-	mrr	Minor B
	8.7.2.24	Guide Rails, Supports, and Fastenings		Major	-		
	8.7.2.25	Driving Machines and Sheaves		⇩ See Below ⇩			
	8.7.2.25.1	Alterations to	Driving Machines & Sheaves	Major	-		
	8.7.2.25.1(a)		Driving Machine Replaced (as part of an alteration)	-	-	see c8.6.12.5.2	
	8.7.2.25.1(b)	Alterations to	Driving Machine Components - affected component complies w/	Major			
	8.7.2.25.1(c)	Change of	Driving Machine Sheave	Major	-		
	c8.6.12.5.2	Replacement of	Driving Machine	-	-	Major	
	8.7.2.25.2(a)	Change in Location of Driving Machine w/ no change in Travel		Major	-		
	8.7.2.25.2(b)	Change in Location of Driving Machine w/ change in Travel		Major	-		
	-	★ Replacement of worm and/or gear (specify make)		-	-	mrr	Minor A
	8.7.2.26	Terminal-Stopping Devices		Minor B	Minor B		
	8.7.2.27	Operating Devices and Control Equipment		⇩ See Below ⇩			
	8.7.2.27.1	Top-of-Car Operating Devices		Minor A	Minor A		
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices		Minor A	Minor A		
	2.26.1.5	★ Door By-Pass Switches		Minor A	Minor A		
	2.26.5	★ Door Monitoring System		Minor A	Minor A		
	8.7.2.27.3	Change in Power Supply - voltage, frequency, # of phases, AC--> DC, DC-->AC		Major	-		
	8.7.2.27.4(a)	Alteration to	Elevator Controller (as part of an alteration)	Major	-	see c8.6.12.5.3.1	
	c8.6.12.5.3.1	Replacement of	Elevator Controller	-	-	Major	
	8.7.2.27.4(b)	Alteration to	Door Controller (as part of an altertion)	Minor A	-	see c8.6.12.5.3.2	
	c8.6.12.5.3.2	Replacement of	Door Controller	-	-	Minor B	
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR		Major	-		
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC		Major	-		
	8.7.2.27.6	★ Addition of Wander Patient Feature - Change in Operation Control		Minor B	Minor B		
	8.7.2.27.6	★ Addition of Restricted Access - Security / Floor Lock Out		Minor B	Minor B		
	8.7.2.28	Emergency Operation and Signaling Devices		⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices		Minor B	Minor B		
	8.7.2.28	Emergency or Standby Power		Minor B	Minor A		
	8.7.2.28	Firefighter's Emergency Operation		Minor B	Minor A		
	8.7.2.28	Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install		Minor B			
	8.7.2.28	Addition of Elevator to a Group		-	Minor A		

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration – Modification Change	Alteration – Addition	Replacement with – Basically Same	Replacement with – Diff
		Job Reference:		Submission Type Required			
	8.7.3	**Alterations to Hydraulic Elevators**					
	8.7.3.1	Hoistway Enclosures		see 8.7.2.1			
	8.7.3.2	Pits		see Electric Elevators			
	8.7.3.3	Location and Guarding of Counterweights		Major	Major		
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys		Major	-		
	8.7.3.5	Horizontal Car and Counterweight Clearances		Major	-		
	8.7.3.6	Protection of Spaces Below Hoistways		Minor B	Major		
	8.7.3.7	Machine Rooms and Machinery Spaces		see 8.7.2.7			
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms		Minor B	Minor B		
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations		Major	Major		
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10		Major	Major		
	8.7.3.11	Hoistway Door-Locking Devices		See 8.7.2.11			
	8.7.3.12	Power Operation of Hoistway Doors		Minor A	Minor A		
	-	★ Replacement of Door Operator		-	-	mrr	Minor B
	8.7.2.13	Door Reopening Device (Safety Edge)		Minor B	Minor B	mrr	Minor B
	8.7.3.13	Car Enclosures		See 8.7.2.14			
	8.7.3.14	Car Frames and Platforms		Major	-		
	8.7.3.15	Safeties	Car or Cwt (plunger gripper see 8.7.3.23.7)	Major	Major	mrr	Minor A
	8.7.3.16	Governors and Governor Ropes		Major	Major	mrr	Minor A
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger		Major	-		
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]		Major	-		
	8.7.3.19	Carrying of Passengers on Freight Elevators		Major	-		
	8.7.3.20	Increase in Rated Load		Major	-		
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (100 kg or Less)		Minor B	Minor B		
	DR 171/02	★ Increase Deadweight of Car (>100 kg to 5%)		Minor A	Minor A		
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)		Major	-		
	8.7.3.22	Change in Travel or Rated Speed		Major	-		
	8.7.3.23	Hydraulic Equipment		⇩ See Below ⇩			
	8.7.3.23.1	Alteration to	Hydraulic Jacks	Major	-		
	c8.6.12.5.4.1	Replacement of	Hydraulic Jacks	-	-	Major	
	8.7.3.23.2	Alteration to	Plungers	Major	-		
	c8.6.12.5.4.2	Replacement of	Plungers	-	-	Minor A	
	8.7.3.23.3	Alteration to	Cylinders	Major	-		
	c8.6.12.5.4.3	Replacement of	Cylinders	-	-	Minor A	
	8.7.3.23.4	Increase in Working Pressure >5%		Major	-		
	8.7.3.23.5	Change in Location of Hydraulic Jack		Major	-		
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)		Minor A	-		
	8.7.3.23.7	Plunger Gripper		Minor A	-		
	8.7.3.24	Alteration to	Relief or Check Valves or Pressure Piping or Fittings	Minor A	Minor A		
	c8.6.12.5.5.2	Replacement of	Relief or Check Valves or Pressure Piping or Fittings			Minor B	
	8.7.3.24	Alteration to	Control Valves	Minor A	-	see c8.6.12.5.5	
	c8.6.12.5.5.1	Replacement of	Control Valves			Minor B	

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration		Type of Work: Replacement with	
		Job Reference:		Modification Change	Addition	Basically Same	Diff
				Submission Type Required			
	8.7.3.25	Suspension Ropes and Their Connections		⇩ See Below ⇩			
	8.7.3.25.1	Change in Ropes - for non-major see below		Major	-		
	8.7.3.25.1	Change in Material / Grade of Ropes		Minor A	-		
	8.7.3.25.2	Addition of Rope Equalizers		Minor B	Minor B		
	8.7.3.26	Counterweights - Alteration of		See 8.7.2.22			
	8.7.3.26	Counterweights - Addition of		-	Major		
	8.7.3.27	Car Buffers and Bumpers (oil buffer only in column 6)		Major	-	mrr	Minor B
	8.7.3.28	Guide Rails, Supports, and Fastenings		Major	-		
	8.7.3.29	Alteration to	Tanks	Minor B	-		
	c8.6.12.5.6	Replacement of	Tanks	-	-	Minor B	
	8.7.3.30	Terminal-Stopping Devices		Minor B	Minor B		
	8.7.3.31	Operating Devices and Control Equipment		⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices		Minor A	Minor A		
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices		Minor A	Minor A		
	8.7.3.31.3	Alteration to	Anti-Creep Leveling Device	Minor B	-		
	c8.6.12.5.7	Replacement of	Anti-Creep Leveling Device	-	-	Minor B	
	2.26.1.5	★ Door By-Pass Switches		Minor A	Minor A		
	2.26.5	★ Door Monitoring System		Minor A	Minor A		
	8.7.3.31.4	Change in Power Supply		Major	-		
	8.7.3.31.5	Alteration to	Elevator Controller (as part of an alteration)	Major	-	see c8.6.12.3.1	
	c8.6.12.5.3.1	Replacement of	Elevator Controller	-	-	Major	
	8.7.3.31.5	Alteration to	Door Controller (as part of an alteration)	Minor A	-	see c8.6.12.5.3.1	
	c8.6.12.5.3.1	Replacement of	Door Controller	-	-	Minor B	
	8.7.3.31.6	Change in Type of Motion Control		Major	-		
	8.7.3.31.7	Change in Type of Operation Control		Major	-		
	8.7.3.31.8(a)	Car Emergency Signaling Devices		Minor B	Minor B		
	8.7.3.31.8(b)	Emergency or Standby Power		Minor B	Minor A		
	8.7.3.31.8(c)	Firefighter's Emergency Operation		Minor B	Minor A		
	8.7.3.31.9	Auxiliary Power Lowering Operation		Minor B	Minor B		

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration		Type of Work: Replacement with	
		Job Reference:		Modification Change	Addition	Basically Same	Diff
				Submission Type Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines					
	8.7.4.1	Rack and Pinion Elevators		Major	-		
	8.7.4.2	Screw-Column Elevators		Major	-		
	8.7.4.3	Hand Elevators		Major	-		
	8.7.5	Alterations to Special Application Elevators					
	8.7.5.1	Inclined Elevators		Major	-		
	8.7.5.2	Limited Use/Limited Application Elevators		See Electric or Hydraulic Elevator			
	8.7.5.5	Power Sidewalk Elevators		Major	-		
	8.7.5.6	Rooftop Elevators		Major	-		

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration		Type of Work: Replacement with	
		Job Reference:		Modification Change	Addition	Basically Same	Diff
				Submission Type Required			
	8.7.7	Alterations to Dumbwaiters and Material Lifts					
	8.7.7.1	Dumbwaiters Without Automatic Transfer Devices		Major	-		
	8.7.7.2	Addition of Automatic Transfer Device		Major	-		
	8.7.7.3	Material Lifts and Dumbwaiters With Automatic Transfer Devices		N/A	N/A		
	8.7.7.3	Material Lifts and Dumbwaiters - remove Transfer Device		New	-		
	8.7.7.3	Material Lifts altered to an Elevator		New	-		
	8.7.7.3	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W		New	-		

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration		Replacement with	
		Job Reference:		Modification Change	Addition	Basically Same	Diff
				Submission Type Required			
	8.7.6.1	Alterations to Escalators					
	c8.7.6.1.1	General Requirements - Alterations other than Below		Major	-		
	8.7.6.1.2	Relocation of Escalator		New	-		
	ED CAD 15.(2)	★ Repositioning of Escalator (within the same building)		Major	-		
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire		Minor A	-		
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination		Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry		Major	-		
	8.7.6.1.5(c)	Construction Requirements - Balustrades		Minor A	Minor A		
	8.7.6.1.5(c)	Deflector Devices		Minor B			
	8.7.6.1.6	Handrails		Minor A	-		
	8.7.6.1.7	Step System		Major	-		
	8.7.6.1.8	Combplates		Minor A	-		
	8.7.6.1.9	Trusses and Girders		Major	-		
	8.7.6.1.9	New Escalator into Existing Trusses		New	-		
	8.7.6.1.10	Step Wheel Tracks		Major	-		
	8.7.6.1.11	Rated Load and Speed		Major	-		
	8.7.6.1.12(a)	Driving Machine		Major	-		
	8.7.6.1.12(b)	Driving Motor		Major	-		
	8.7.6.1.12(c)	Machine Brake		Major	-		
	8.7.6.1.13	Operating and Safety Devices		Minor A	Minor A		
	8.7.6.1.14	Lighting, Access, and Electrical Work		Minor B	Minor B		
	8.7.6.1.15	Entrance and Egress		Major	-		

Conforms to B44 Mark with 'X'	1	2a	2b	3	4	5	6
	B44-00 Reference Number	Scope of Alteration B44-00 Part, Section or Requirement		Type of Work: Alteration		Replacement with	
		Job Reference:		Modification Change	Addition	Basically Same	Diff
				Submission Type Required			
	8.7.6.2	Alterations to Moving Walks					
	c8.7.6.2.1	General Requirements - Alterations other than below		Major	-		
	8.7.6.2.2	Relocation of Moving Walk		New	-		
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire		Minor A	-		
	8.7.6.2.5	Construction Requirements - Angle of Inclination		Major	-		
	8.7.6.2.5	Construction Requirements - Geometry		Major	-		
	8.7.6.2.5	Construction Requirements - Balustrades		Minor A	Minor A		
	8.7.6.2.6	Handrails		Minor A	-		
	8.7.6.2.7	Treadway System		Major	-		
	8.7.6.2.8	Combplates		Minor A	-		
	8.7.6.2.9	Trusses and Girders		Major	-		
	8.7.6.2.9	New Moving Walk into Existing Truss		New	-		
	8.7.6.2.10	Track System		Major	-		
	8.7.6.2.11	Rated Load and Speed		Major	-		
	8.7.6.2.12	Driving Machine		Major	-		
	8.7.6.2.12	Drive Motor		Major	-		
	8.7.6.2.12	Machine Brake		Major	-		
	8.7.6.2.13	Operating and Safety Devices		Minor A	Minor A		
	8.7.6.2.14	Lighting, Access, and Electrical Work		Minor B	Minor B		

Elevating and Amusement Devices Safety Division	Ref. No.: 165 / 02	Rev. No.:
Safety Alert Bulletin	Date: **July 24, 2002**	Date:

Subject: **US Elevator Ascension 2000 Hydraulic Elevator Controls – Door Monitor**

Sent to: **All Elevator Contractors in Scope U1, L1, F1 & Consultants**

1. INTRODUCTION

1.1 As the result of an initial inspection on an Ascension 2000 hydraulic elevator controller, a TSSA inspector found that the door monitor feature on the elevator worked when first tested. Other tests were performed to check redundancy. During the redundancy testing, jumpers were placed on the wrong terminals and some of the printed circuit boards on the control were damaged. After the control was repaired and redundancy tests completed, the inspector again tested the door monitor and found it no longer functioned.

1.2 Upon investigation, it was found that the door monitor feature on this control can be turned on and off by use of the maintenance tool. When the jumpers for testing redundancy were put on the wrong terminals it caused the setting for the door monitor feature to be turned off.

2. ORDER TO CONTRACTORS

2.1 Not later than October 1, 2002, contractors shall identify all elevator installations under their maintenance, that are equipped with US Elevator Ascension 2000 Hydraulic Elevator Controls and test the door monitor circuit to ensure that this feature is turned on and functioning properly.

2.2 After this procedure is complete, a notation shall be made in the maintenance log book stating that the requirement of this ruling has been complied with.

3. NOTES

3.1 Attached for your information is a partial manufactures testing instruction for the door monitor feature for this control. (see page 2)

Roland Hadaller, Chief Engineer - EDAD PROGRAM

Roger Neate, Manager of Operations - EDAD PROGRAM

This Director's Order has been developed in consultation with the TSSA Elevating Devices Council.

SIMULATED TESTING PROCEDURE

FRONT CAR DOOR LOCK: TEST 1

(THIS TEST IS TO VERIFY CONFORMANCE TO CLAUSE 3.12.1.5(B))

1. Before this test is attempted, make sure all elevator functions, including safety circuit and door operator signals, are checked and working properly.
2. Mechanic 1 in the machine room; Mechanic 2 stationed in the cab.
3. Car placed in automatic service operation.
4. Run the car to front door opening level. Monitor that the elevator doors are fully open.
5. Mechanic 2 must remain inside the cab during testing and prevent anyone from entering the cab until testing is complete. (As an additional safeguard, the entrance at which tests are being conducted should be barricaded.)
6. Make jumper between terminals TV-24 and TV-8 (this jumps out the front car door lock or gate switch). Use terminal TV-8 and TV-3 <u>if rear door exists.</u>
7. The car is now shut down (Fault 4). Verify that the car will not run and that the doors will close (Mechanic 2 in the car should try to operate the car).
8. Remove jumper. Shut down signal is latched and the car will not restart until disconnect is cycled. Reset system. (To verify, Mechanic 2 in the car should again try to operate the car.)
9. Repeat test <u>for rear door</u> (if applicable) using terminal TV-8 and TV-3 in Step 6 (above).
10. Test 1 is complete.
11. Cycle disconnect to allow running.
12. Proceed to Test 2.

Elevating and Amusement Devices Safety Division	Ref. No.: 166 / 01	Rev. No.:
Enforcement Procedure Bulletin	Date: **December 17, 2001**	Date:

Subject:

- **LULA type Elevators and Requirement for Long Apron Plate**
- **TRAVEL RESTRICTIONS for LULA Elevators and Enclosed Vertical Platform Lifts (B355)**

Sent to: **All Elevator Contractors in Scopes U1, L1, U6, L6 & Consultants**

1 ADOPTION OF B44-00 SECTION 5.2 LIMITED-USE LIMITED APPLICATION ELEVATORS (LULA)

- Effective immediately, LULA Elevators no longer require a **general variance** to allow their installation as TSSA has officially adopted SECTION 5.2 (and all referenced sub-sections) of the B44-00 SAFETY CODE FOR ELEVATORS for this purpose.
- Director's Order #161 / 2001 officially adopts the complete text of B44-00 SAFETY CODE FOR ELEVATORS on March 23, 2002 and designates LULA's as Elevators.

2 LONG APRON REQUIREMENTS AS THEY PERTAIN TO LULA ELEVATORS

2.1 Elevating Devices - Code Adoption Document (ED-CAD) under Ontario Regulation 209/01

(a) ED CAD 10.(1) requires every passenger elevator shall be provided with an apron plate not less than 1200mm
(b) ED CAD 10.(2) requires that the elevator pit shall be deep enough to accommodate the 1200mm apron
(c) LULA by definition is a passenger elevator and is subject to the requirements of 10.(1) & 10.(2) above.
(d) LULA devices utilizing **traction drive** & serving 3 or more floors **must fully comply** with this requirement.
(e) LULA devices utilizing **hydraulic or roped hydraulic drive** & serving 2 or more floors are **permitted to be exempt** from this requirement provided the requirements of section 3.2 below are met.

3 EXEMPTION FROM LONG APRON REQUIREMENT WHERE EQUIVALENCY IS DEMONSTRATED

3.1 Identification of Harard

3.1.1 Long apron plates offer protection from falling into the hoistway, typically during the evacuation of passengers. Two factors must be present for exposure to the hazard:
(a) Passenger can exit the car, via open car and hoistway doors
(b) Unprotected space exists below the car (short apron) when the car sill is above the landing sill

3.1.2 When car doors are not locked, trapped passengers that attempt self-rescue are unaware that an unprotected space may exist 'below the car sill' and 'above the hall sill', and as such could fall into the hoistway during self-extraction. With the introduction of B44-00 requirement 2.12.5 RESTRICTED OPENING OF HOISTWAY OR CAR DOORS, the hazard identified by 3.1.1(a) is effectively mitigated.

3.1.3 A residual hazard identified by 3.1.1(b) remains when untrained persons attempt to rescue trapped passengers and are not fully aware of the falling hazards nor do they realize that lowering the elevator prior to rescue may be possible. Furthermore, access to the unlocking device is a contributing factor. Per the requirements of B44-00 2.12.6, hoistway door unlocking devices are required for the use of ***Elevator and Emergency Personnel***. The operating means for unlocking the doors carries a Group 1 Security designation and must be made available to ***Emergency Personnel*** (per 2.12.6.2.4) and shall be kept on the premises (per 8.1.1(c)) accessible to specified personnel. ***Emergency Personnel*** by definition refer to persons who have been **trained in emergency evacuation**.

3.2 Mitigating Means to Exempt LULA Elevators from the Requirement of 10.(1) and 10.(2)

Where a hydraulic or roped hydraulic drive LULA Elevator cannot accommodate the requirements of 10.(1) & 10.(2) the following requirements shall be met:

(a) Owners of LULA elevators shall complete and sign a **SUPPLEMENTARY OWNERS REPORT FOR LULA ELEVATORS** indicating their understanding that:

- ***only elevator personnel are permitted to unlock hoistway doors***
- ***only emergency personnel are permitted to perform emergency evacuations***.
- Access to the unlocking device is controlled or has a controlled procedure
- owners shall ensure the appropriate building personnel are made aware of these requirements

(b) Signage shall be provided on the apron plate that meets the following criteria:

- Lettering shall be a minimum of 16mm in height
- The sign shall remain permanent and readily legible, viewable from the hall
- The Context of the message shall convey the following information:
    - A 'Warning' advising of the potential fall hazard that exists below when the car is above the floor level
    - Lower the car prior to attempting rescue of trapped passengers
    - Lowering and Rescue by trained personnel only.

3.3 Other Methods

This ruling does not prevent the equipment manufacturer from implementing other systems, methods or devices that can be demonstrated to provide equivalent safety.

4 TRAVEL RESTRICTIONS

4.1 Enclosed Vertical Platform Lifts (B355)

- B355-00 does NOT permit travel of **Enclosed Vertical Platform Lifts** (Vertical-C) to exceed 7000 mm.
- As of the date of this ruling, TSSA **will no longer consider** applications for variances to B355-00 clause 4.2.1(b), Limits of Travel.

4.2 LULA Elevators

- B44-00 requirement 5.2.1.16.5 permits LULA Elevators to have a maximum rise of 7.6m (25ft)
- Directors Order # 161/01 when adopting B44-00 will not adopt the requirement of 5.2.1.16.5, and with this ruling the requirement of 5.2.1.16.5 is exempted.

5 DESIGN SUBMISSIONS FOR LULA ELEVATORS

5.1 Supplementary Owners Report for LULA Elevators

Each Design Submission for a new LULA elevator which does not have the 1200mm long apron, shall be provided with a copy of the SUPPLEMENTARY OWNERS REPORT FOR LULA ELEVATORS (3.2.1(a)) and shall also fulfil the requirements of 3.2.1(b) above.

5.2 Specification Sheets

Depending on the type of drive, a design submission for LULA elevator shall be submitted on the appropriate Elevator Specification Sheets.

Roland Hadaller, Chief Engineer - EDAD PROGRAM

Roger Neate, Manager of Operations - EDAD PROGRAM

Elevating and Amusement Devices Safety Division	Ref. No.: 167 / 01	Rev. No.:
DIRECTOR'S ORDER	Date: **December 31, 2001**	Date:

Subject: **ADOPTION OF CSA Z98-01 Passenger Ropeways Standard New Edition**

Sent to: **All contractors in Group 8 and submitting engineers**

1. INTRODUCTION

This bulletin is intended to inform the ski industry stakeholders about adoption of the new edition of CSA Z98-01 Passenger Ropeway Standard to replace the previous standard referenced in Section 19 of the Elevating Devices Code Adoption Document in accordance with the requirements stated in this bulletin.

2. ORDER

2.1 Newly Installed or Altered Passenger Ropeway

a) Each **newly** installed or altered passenger ropeway for which the **DESIGN** is submitted to the TSSA for registration on or after:

the 31st day of May 2002 shall conform to the requirements of:

CSA Z98-01 Passenger Ropeway Standard.

b) Compliance with this new edition of the Z98 Standard shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

c) The **DESIGN** submitted to the TSSA in accordance with the Section 15 of the Regulation 209/01 shall, also, contain the information listed in the Appendix A "Approved Checklist" of the newly adopted passenger ropeways standard.

2.2 Existing Passenger Ropeway

a) For the purpose of this Director's Order, "**existing"** when used in reference to a passenger ropeway or part thereof for which DESIGN is submitted to the TSSA **on or prior to the 3rd day of June 2002.**

b) In the case of **existing** passenger ropeways the application of the newly adopted standard is restricted to the Section 11 "Inspection, Testing, Operation, and Maintenance of Passenger Ropeways", unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act.*

c) Sub-clause 2.2 "Definitions" and sub-clause 3.4.3 "Designer" of the newly adopted passenger ropeways standard shall be applied in the interpretation of the Section 11 referenced in the sub-section (b) of this Order.

2.3 Every Passenger Ropeway

The following appendices referenced in the newly adopted passenger ropeways standard shall be considered a mandatory part of the standard for every passenger ropeway:

- Appendix B "Procedures for Work Carriers"
- Appendix C "Daily Ropeway Log"
- Appendix D "Inspection and Maintenance Checklist"
- Appendix E "Rope Non-destructive Test Report"
- Appendix F " Grip-Carrier Non-destructive Test Report"
- Appendix G "Certificate and Inspection of Wire Rope Splice"
- Appendix H "Five- year Load Test Report" shall be completed in accordance with the Director's Ruling # 111/93 using the form provided with the Director's Ruling".
- Appendix J Stopping Times and Distance for circulating passenger ropeways (See clause 5.6.1)

3. INSTRUCTIONS

a) The CSA-Z98-00 Passenger Ropeways Standard, is available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3, Telephone: 1-800-463-6727, e-mail: sales@csa-international.org or web site www.csa.ca.

b) The Regulation under the *Technical Standards and Safety Act* requires that all mechanics to have full knowledge the standards applicable to the passenger ropeways on which they are assigned to work. Thus, we would expect that the mechanics involved in the construction, installation, alterations, inspection, testing, and maintenance of passenger ropeways will obtain a copy of the subject standard and this Director's Order.

4. NOTES

- The format and layout of the newly adopted standard are basically that of the 1996 edition. The general arrangement has been revised by moving inspection, testing, operation and maintenance requirements to Clause 11 to make its placement logical in the formation of the standard.
- Additional changes are incorporated in every section. The major change is the introduction of requirements concerning ropeways for secondary carriers (e.g. tube-tows) in Clause 8. In the future, requirements concerning belt tows will be introduced in Clause 9.
- Braking Systems:

  Testing of brake shall be in accordance with the Sub-section 11.23.5 of the newly adopted standard. When measuring stopping times and distances for circulating passenger ropeways (e.g. chair lifts) by using the tabulation listed in an appendix, the following standards are referenced for use of appropriate table:

  I. Appendix J of the newly adopted standard shall be used for **new** ropeway defined in the sub-section 1.1 of this Director's Order, unless braking system of **existing** ropeway is **altered** to allow the maximum deceleration rate of **1.5** m/s^2 and the minimum rate of 0.45 m/s^2. Particular attention shall be paid to Sections 5.6.4 of CSA Z98-01 when applying Appendix J.

  II. Appendix J of the CAN/CSA-Z89-96 "Passenger Ropeways" Standard shall be used for **existing** ropeway defined in the sub-section 1.2(a) of this Director's Order. The table in the Appendix J is based on the maximum deceleration rate of **2** m/s^2 and the minimum rate of 0.45 m/s^2.

- Any passenger ropeway that is relocated shall meet all the requirements of the adopted standard in this bulletin and the Technical Standards and Safety Act, Ontario Regulation, and CAD.

Ted Dance, Director under the Act

Elevating and Amusement Devices Safety Division	Ref. No.: 168 / 02	Rev. No.:
DIRECTOR'S ORDER	Date: **January 18, 2002**	Date:

Subject: **PERIODIC LOAD TESTING & PRESEASON INSPECTION - OF PASSENGER ROPEWAYS**

Sent to: **ALL CONTRACTORS IN GROUP 8 AND CONSULTANTS**

1. INTRODUCTION

The Elevating Devices Regulation made under the Technical Standards and Safety Act (TSSA) adopts the Elevating Devices Code Adoption Document (CAD). This bulletin is prepared in keeping with Section 22 and Section 23 of the CAD that respectively reads:

Section 22

"The results of five-year periodic tests, performed in accordance with ***the standard adopted in section 19*** *of this Document, shall be recorded in* ***a form acceptable to the director."***

This bulletin is being issued to clarify the intent of the highlighted wording quoted in Section 22:

- the standard adopted in section 19; and
- a form acceptable to the Director.

Section 23

1) *"The holder of a licence for a passenger ropeway shall perform* ***a preseason inspection*** *prior to the start of each season to ensure that the lift is in compliance with* ***the applicable standard as set out in Section 5 of the Regulation."***
2) *The Results of the inspection shall be recorded in* ***a form acceptable to the director."***

This bulletin is being issued to clarify the intent of the highlighted wording quoted in Section 23:

- a preseason inspection;
- the applicable standard as set out in Section 5 of the Regulation; and
- a form acceptable to the director.

2. ORDER

2.1 General

All person operating passenger ropeways in Ontario shall comply with Sections 22 and 23 of the CAD adopted in the Elevating Devices Regulation in accordance with the clarity and requirements stated in this bulletin.

2.2 Section 22 of the CAD

2.2.1 The standard adopted in section 19

The National Standard of Canada CAN/CSA-Z98-96, Passenger Ropeways, as amended by the General Instructions No. 2 – April 1997 is adopted in Section 19 of the CAD. In case where the adopted standard in Section 19 of the CAD is superseded by the current passenger ropeways standard by way of its adoption in the latest Director's Order, the adopted current standard shall be adhered.

2.2.2 Form acceptable to the Director

Results of a five-year periodic test shall be recorded in the form provided with the Director's Ruling # 111/93 in accordance with Director's Ruling.

2.3 Section 23 of the CAD

2.3.1 A preseason inspection

A preseason inspection means complete and thorough inspection of passenger ropeways once every year prior to its use by the public to confirm their compliance with the Technical Standards and Safety Act and the applicable Regulation.

2.3.2 The applicable standard as set out in Section 5 of the Regulation

The applicable standard as set out in Section 5 of the Regulation is Part V of the Elevating Devices CAD.

NOTE:

- The National Standard of Canada CAN/CSA-Z98-96, Passenger Ropeways, as amended by the General Instructions No. 2 – April 1997 is adopted in Section 19 under Part V of the CAD. In case where the adopted standard in Section 19 of the CAD is superseded by the current passenger ropeways standard by way of its adoption in the latest Director's Order, the adopted current standard shall be adhered.

2.3.3 A form acceptable to the director

Results of a preseason inspection shall be recorded in either of the two forms listed following:

a) Forms entitled **"Ontario Passenger Ropeways Inspection Report"** and **"Ontario Passenger Ropeways Safety Examination Check List"** endorsed by Ontario Ski Resorts Association (OSRA) and Technical Standards and Safety Authority (TSSA).

"Ontario Passenger Ropeways Inspection Report" applies to every class of passenger ropeways.

"Ontario Passenger Ropeways Safety Examination Check List" are specific for each class of passenger ropeways – above-surface lift (chair lift), T-bar/J-bar/Platter lift, rope tow (fiber/wire rope), secondary carrier tow (e.g. tube tow), and belt conveyor.

Or

b) In lieu of Sub-clause (a), an alternate preseason inspection form is acceptable provided:

- the form is designed specific to the class of passenger ropeway for which it is used; and
- the form shall be submitted to the TSSA for review to determine its acceptance prior to its use. The fee prescribed in the fee schedule for review of pre-season inspection form will be charged to the applicant

The form entitled "Inspection and Maintenance Checklist" in Appendix D of the passenger ropeways standard referenced in the sub-clause 2.3.2 may be used as template in developing passenger ropeway class specific preseason inspection form.

2.3.4 Statement of Compliance

The owner or his/her designated representative must sign all preseason inspection forms with a statement prior to its use by the public:

This form has been completed by individuals qualified in the relevant areas of operation, inspection and maintenance, and testing to confirm its compliance with the Technical Standards & Safety Act and the applicable Regulation. I, the undersigned, declare that the information provided in this form is true and correct"

2.4 Retention of Forms for Periodic Load Testing and Preseason Inspection

Both the Periodic Load Testing and Preseason Inspection Forms shall be retained in the logbook until the passenger ropeway is dismantled.

3. INSTRUCTIONS

a) Forms entitled "Ontario Passenger Ropeways Inspection Report" and "Ontario Passenger Ropeways Safety Examination Check List" are available from the Ontario Snow Resorts Association (OSRA), 125 Napier Street, Collingwood, Ontario L9Y 4E8, telephone: (705) 443 5450, fax: (705) 443 5460, e-mail: osra@skiontario.on.ca, and web page: www.skiontario.on.ca.

b) OSRA is responsible to maintain the preseason inspection forms referenced in sub-section 3.3.3(a) of this bulletin current.

c) The owner of passenger ropeway(s) is responsible to maintain the preseason inspection forms referenced in sub-section 3.3.3(b) of this bulletin current.

d) The results of a periodic load testing and preseason inspection shall be kept in the logbook in accordance with Section 21 of the Elevating Devices CAD.

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Ted Dance, Director under the Act

This Director's Order has been developed in consultation with the TSSA Ski Industry Advisory Technical Committee.

Elevating and Amusement Devices Safety Division	Ref. No.: 169 / 02	Rev. No.:
DIRECTOR'S ORDER	Date: **February 14, 2002**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000 (Elevating Devices)

Subject: **Periodic Engineering Review and Assessment of Above-surface Passenger Ropeways**

Sent to: **All Contractors in Group 8 and Consultants**

1. INTRODUCTION

1.1 General

The Elevating Devices Regulation made under the *Technical Standards and Safety Act (TSS Act)* adopts the Elevating Devices Code Adoption Document (CAD). This bulletin is prepared in keeping with the Section 24 of the CAD that reads:

"Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director."

Above-surface passenger ropeways include those ropeways on which the passengers are transported in rope-supported carriers and are not in contact with the ground or snow surface. Chair lifts, gondola lifts, and reversible ropeways are above-surface passenger ropeways.

Periodic engineering review and assessment of every above-surface passenger ropeway will ensure continued compliance with the TSS Act, Elevating Devices Regulation, and CAD, which in turn is intended *to ensure continued operational safety*.

This bulletin expounds upon following criteria to meet the intent of Section 24:

- frequency for periodic engineering assessments;
- initial phase for implementing Section 24 of the CAD;
- after initial phase;
- guidelines for periodic engineering review and assessment of above-surface passenger ropeways;
- reporting engineering review/assessment findings; and
- compliance.

This Director's Order has been developed in consultation with the TSSA Ski Industry Advisory Technical Committee.

2. ORDER

2.1 General

All person operating above-surface passenger ropeways in Ontario shall comply with Section 24 of the CAD adopted in the Elevating Devices Regulation in accordance with the requirements stated in this bulletin.

2.2 Frequency for Periodic Engineering Assessment

All above-surface passenger ropeways shall be subject to engineering assessment as follows:

a) first engineering assessment: maximum 22,500 hours of operation, without exceeding 15 years from the initial start-up; ("initial start-up" means first permitted for use anywhere.)
b) second engineering assessment: maximum 37,500 hours of operation, without exceeding 25 years;
c) third engineering assessment: 45,000 hours of operation, without exceeding 30 years;
d) periodic engineering assessments: at every interval of 7,500 hours of operation, without exceeding 5 years after the third engineering assessment (Reference sub-clause (c)).

2.3 Initial Phase for Implementing Section 24 of the CAD

The schedule for implementing Section 24 of the CAD during the initial phase has been planned based on following factors:

- Frequency for periodic engineering assessment based on Section 2.1 of this bulletin;
- Six year period, based on availability of qualified engineering resources, during which all above-surface passenger ropeways in Ontario to meet the requirements of this bulletin;
- Year 2002 to allow reasonable period of notice to the Ski Industry to schedule engineering evaluation of the aging ski lifts; and
- Older above-surface passenger ropeways to under-go engineering evaluation as early as possible.

All person shall adhere to the schedule (Table # 1) entitled "Initial Phase for Implementing Compliance to Section 24 of the CAD In Chronological Order by Age of Above-surface Passenger Ropeways" attached with this bulletin.

Table #2 entitled "Initial Phase for Implementing Compliance to Section 24 of the CAD In Chronological Order by Owner of Above-surface Passenger Ropeways" is attached with this bulletin to complement the Table # 1.

2.4 After Initial Phase

After complying with the Section 2.3 of this bulletin, all person (operator's / licensees) shall adhere to periodic engineering review and assessment in accordance with the frequency stated in Section 2.2 of this bulletin.

2.5 Guidelines for Periodic Review and Assessment of Above-surface Passenger Ropeways

The following sources of information shall be used to assess and verify the safety of above-surface passenger ropeways during the initial and subsequent phase established in Sections 2.3 and 2.4 respectively of this bulletin:

- The latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order
- Requirements by manufacturer/designer of passenger ropeways
- Non-destructive Testing of Critical Components
- Documentation

(a) The Latest Version of CSA Standard Z98 – Passenger Ropeways

Passenger ropeway installation shall be assessed against requirements of the latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order, and identify those parts of ropeway not complying with any portion of the Standard. Where any part of the passenger ropeway is determined to be safe and thus not requiring compliance with any portion of the standard, such decision shall be supported by provision of equal safety.

(b) Requirements by Manufacturer/Designer of Passenger Ropeways

Passenger ropeway installation shall be assessed to ensure conformance with the requirements supplied by the ropeway manufacturer/designer to the owner to manage the safety of ropeway. Steps to correct any non-conformance from the requirements established by the manufacturer/designer shall be explained and implemented.

The information supplied by the ropeway manufacturer/designer to the owner shall be reviewed to ensure that it is in keeping with the requirements of the latest adopted version of CSA Standard Z98 – Passenger Ropeways to manage the safety of the ropeway. In case where the information supplied by the ropeway manufacturer/designer is determined to be inadequate or incomplete to manage the safety of the ropeway, the information shall be updated to meet the requirements of the latest adopted version of CSA Standard Z98 – Passenger Ropeways.

(c) Non-destructive Testing of Critical Components

All critical components of an above-surface passenger ropeway shall be subjected to non-destructive testing. Any components to be tested that are not directly accessible shall be disassembled. The method of non-destructive, acceptance/rejection criteria, and other tolerances shall be specified by the manufacturer/designer. Testing of carriers and wire ropes shall follow the requirements of the latest adopted version of CSA Standard Z98 – Passenger Ropeways for these components.

Critical components are those parts of ropeway, the failure of which would immediately jeopardize passenger safety. The list of critical components of an above-surface ropeway shall include, but not be limited to the following:

- Carrier, including grip, hanger, chair, or gondola;
- Haul rope sheaves, sheave units and their attachments;
- Line sheaves and their attachments;
- Tension systems and their attachments; and
- Wire rope, including haul ropes, track ropes and counterweight ropes

Identification of every critical component of an above-surface passenger ropeway shall be based on its definition and requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways.

According to the CSA Standard Z89, critical component means " a component or system of components, the failure of which would immediately jeopardize passenger safety".

All critical components shall be tabulated with identification, including the type of non-destructive testing conducted, rejection/acceptance criteria, findings, and recommendations. The recommendations may contain establishing program of inspection/maintenance, steps to repair, replace, and/or alter the critical components.

(d) Documentation

All documentation in logbooks kept by the owner shall be in par with the requirements of the latest adopted version of CSA Standard Z98 – Passenger Ropeways. With this in mind, all documentation kept by the owner shall be reviewed with a view to inform the owner of the deficiencies in the documentation maintained by the owner. Steps to develop documentation in keeping with the requirements of the latest adopted version of CSA Standard Z98 – Passenger Ropeways shall be explained and implemented.

Documented information about critical components in the logbooks shall be reviewed for variances from the criteria established in the latest adopted version of CSA Standard Z98 – Passenger Ropeways and/or the manufacturer/designer's manual. All such variances shall be tabulated with identification of critical components, nature of variances, and steps to take to deal with such variances.

2.6 Reporting Engineering Review/Assessment Findings

A professional engineer shall certify the engineering review/assessment report. The report shall address:

- guidelines established in Section 2.5 of this Director's Order; and
- requirements to correct those non-compliance related findings to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

An owner shall attest that he/she will comply with the requirements of the certified engineering review and assessment report to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

2.7 Compliance

The engineering review and assessment report prepared in accordance with the requirements of Section 2.6 of the bulletin shall be submitted to the Technical Standards and Safety Authority (TSSA) for its registration.

Prior to registering the report, TSSA shall evaluate an engineering and assessment report for its technical integrity and conformance to the requirements of this Director's Order. The report shall be registered without conditions, registered with conditions or rejected with explanation. An owner of an above-surface passenger ropeway shall not operate the ropeway prior to the registration of the certified engineering review and assessment report.

3. INSTRUCTIONS

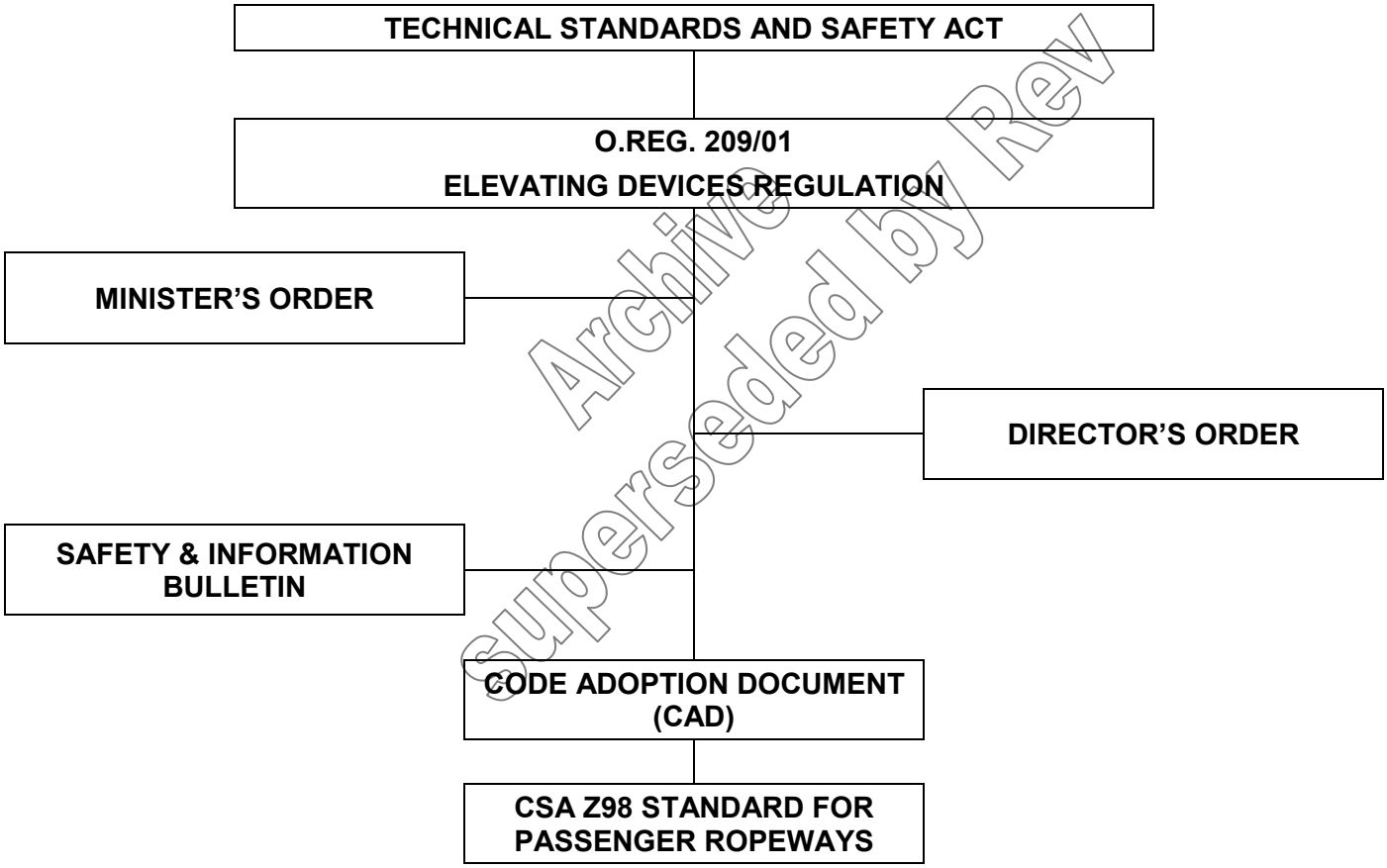
- Those recommendations of the engineering review and assessment report requiring major and minor alterations of the above-surface passenger ropeway shall be dealt in accordance with the requirements of the Technical Standards and Safety Act, Elevating Devices Ontario Regulation, and Code Adoption Document. All alterations may be submitted as one design submission. The design submission for major alteration(s) must be registered and inspected prior to the operation of the ropeway.

- The fee prescribed in the fee schedule for evaluation of engineering review and assessment report will be charged to the submitter of the report.

- Four copies of the engineering review and assessment report shall be submitted to TSSA. Upon registration of the report, TSSA will retain two copies (one for TSSA engineering & one for TSSA inspection), distribute one copy to the owner and one to the engineer.

- Tables # 1 & 2 attached with this bulletin form an integral part of this Director's Order – Section 2.3.
- Where the latest adopted version of CSA Standard Z98 – Passenger Ropeways and this Director's Order requires action by a designer or manufacturer who is no longer in business, that action shall be performed by a professional engineer as defined in the Elevating Devices Regulation.
- The attached "Ontario Elevating Devices Regulatory Hierarchy Flow Chart" is intended to explain the regulatory hierarchy for the protection of public safety in Ontario.
- Prior to the start of year 2003, an hour-meter shall be installed on every above surface passenger ropeway to keep track of hours of operation.
- All owners of above-surface passenger ropeways shall review Tables # 1 & 2 for accuracy and/or lack or missing information contained in those tables, and inform the TSSA in writing immediately of their findings.

ONTARIO ELEVATING DEVICES REGULATORY HIERARCHY FLOW CHART



Ted Dance, Director Under the Act - EDAD PROGRAM

Table # 1 (Director's Order #169/02)
Initial Phase for Implementing Compliance to Section 24 of the Code Adoption Document
In Chronological Order by Age of Above-surface Passenger Ropeways

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1971	Poma	70532	Blue Mountain Ski Resorts	**2002**	This resort volunteered to comply in Year 2002
1971	Borvig	22409	Chicopee Ski Club	**2002**	This resort volunteered to comply in Year 2002
1969	Borvig	20158	Horseshoe Resorts	**2002**	This resort volunteered to comply in Year 2002
1955	Poma	70584	Adanac Ski Hill	**2003**	Next Compliance per the Order S. 2.2
1959	Riblet	1265	Mt. Baldy	**2003**	Next Compliance per the Order S. 2.2
1960	Von Roll	14513	Niagra Parks Commision	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15404	Talisman Mt Resort	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15825	Talisman Mt Resort	**2003**	Next Compliance per the Order S. 2.2
1964	Hall	15832	Hidden Valley	**2003**	Next Compliance per the Order S. 2.2
1965	Timberland	16794	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1965	Poma	16803	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1965	Timberland/Elliot	18297	Centreville Amusement Park	**2003**	Next Compliance per the Order S. 2.2
1965	Poma	70604	Dacre Heights Ski Resort	**2003**	Next Compliance per the Order S. 2.2
1966	Hall	16677	Osler Bluff Ski Club	**2003**	Next Compliance per the Order S. 2.2
1966	Skyway	17182	Corp. of Township of Michipicoten	**2003**	Next Compliance per the Order S. 2.2
1968	BM Lifts	19188	Mt. Pakenham	**2003**	Next Compliance per the Order S. 2.2
1969	Hall	20139	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1969	Riblet	71554	Georgian Peaks	**2003**	Next Compliance per the Order S. 2.2
1970	Doppelmayr	21424	Alphine Ski Club	**2003**	Next Compliance per the Order S. 2.2
1970	Hall	39638	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	20264	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Borvig	22387	Devil's Elbow	**2003**	Next Compliance per the Order S. 2.2
1971	Skyway	70511	Rocket Man Restaurants	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	22307	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	23577	Mt. St. Louis-Moonstone	**2003**	Next Compliance per the Order S. 2.2
1972	BM Lifts	23681	Pine Ridge Ski	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23697	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23701	Searchmont	**2004**	Next Compliance per the Order S. 2.2
1972	Poma	23750	Thunder Bay Ski Jumps	**2004**	Next Compliance per the Order S. 2.2
1972	Hall	23753	Sir Sam's Ski Area	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23754	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1973	Borvig	27504	Horseshoe Resort	**2004**	Next Compliance per the Order S. 2.2
1974	Hall	28667	Mt. Pakenham	**2004**	Next Compliance per the Order S. 2.2
1974	Hall	28687	Craigleith Ski Club	**2004**	Next Compliance per the Order S. 2.2
1974	Poma	29553	North Bay Laurentian Ski Club	**2004**	Next Compliance per the Order S. 2.2
1975	Borvig	29557	Devil's Elbow	**2004**	Next Compliance per the Order S. 2.2
1976	Borvig	30582	Chicopee Ski Club	**2004**	Next Compliance per the Order S. 2.2
1977	Hall	31084	Devil's Glen	**2004**	Next Compliance per the Order S. 2.2
1977	Sampson	31310	Calabogie Peaks	**2004**	Next Compliance per the Order S. 2.2
1977	Borvig	65904	Snow Valley Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1977	Poma	68594	Buttermilk Alpine Ski Village	**2004**	Next Compliance per the Order S. 2.2
1978	Poma	31058	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1978	Hall	32114	Caledon Ski Club	**2004**	Next Compliance per the Order S. 2.2
1978	Skyway	61915	Dagmar Resort	**2004**	Next Compliance per the Order S. 2.2
1978	BM Lifts	65948	Superior Slopes, Town of Marathon	**2004**	Next Compliance per the Order S. 2.2
1979	Poma	32161	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1979	Borvig	32174	Rocket Man Restaurants	**2004**	Next Compliance per the Order S. 2.2
1979	Skyway	32831	Mt. St. Louis-Moonstone	**2004**	Next Compliance per the Order S. 2.2

Table 1 - (1 of 3) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1979	Skyway	33001	North Bay Laurentian Ski Club	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	20529	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1980	Borvig	33629	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	67359	North York Ski Centre	**2005**	Next Compliance per the Order S. 2.2
1981	Borvig	35356	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60264	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60268	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	Doppelmayr	36014	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36107	Sir Sam's Ski Area	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36108	Dagmar Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36802	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	68568	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	70593	Uplands Golf and Ski Club	**2005**	Next Compliance per the Order S. 2.2
1984	Poma	37570	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	36801	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Doppelmayr	37609	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38441	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38451	Snow Valley Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38456	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Poma	38459	Blue Mountain Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39466	Loch Lomand	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39484	Hockley Valley Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39493	Searchmont Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39511	Mansfield Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Von Roll	39515	Osler Bluff Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Poma	39549	Horseshoe Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	13323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Dopplemayr	34000	Craigleith Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	60305	Glen Eden	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	73255	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	73323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	75231	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76427	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76485	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61722	Devil's Elbow	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61723	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61724	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61753	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61756	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61763	Dagmar Resort	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61765	Mt. Dufour Ski Area	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	63736	Sir Sam's Ski Area	**2006**	Next Compliance per the Order S. 2.2
1989	Poma	63706	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63712	Blue Mountain Ski Resorts	**2006**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63755	Lakeridge Resort	**2006**	Next Compliance per the Order S. 2.2

Table 1 – (2 of 3) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1989	Doppelmayr	63776	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63803	Lakeridge Resort	**2007**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63831	Searchmont Resort	**2007**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63881	Dagmar Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Doppelmayr	65244	Beaver Valley Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65719	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65720	Caledon Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65737	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65738	London Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65739	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65785	Devil's Glen	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65786	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65788	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65791	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67250	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67251	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	BM	67275	Talisman Mt. Resort	**2007**	Next Compliance per the Order S. 2.2
1991	BM Lifts	67276	Cobble Hills Golf & Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67310	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68505	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68524	Sir Sam's Ski Area	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts/Poma	68579	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69392	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1993	BM Lifts	69416	Lakeridge Resort	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1994	BM Lifts	70473	Devil's Elbow	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1995	Poma	71436	Georgian Peaks	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1996	BM Lifts	72151	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1996	BM Lifts	72269	Skyloft Ski & Country Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1996	Poma	72406	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1997	Leitner/Doppelmayr	31207	Beaver Valley Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1997	Poma	73036	Glen Eden, Kelso Conservation Area	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1997	Poma	73037	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1997	Leitner-BM	73091	Snow Valley Ski Resort	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1998	BM Lifts	73790	Oshawa Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1998	Leitner	73791	Mattawa Conservation Authority	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1998	Doppelmayr	73910	Osler Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1998	Leitner	74103	Mansfield Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	C-Tec	74440	Craigleith Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Doppelmayr	74568	Alpine Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Poma	74994	Blue Mountain Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Poma	74995	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Poma	75049	Blue Mountain Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Doppelmayr	76120	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Doppelmayr	76121	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Poma	76186	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Doppelmayr	76195	Osler Bluff Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Poma	76199	Glen Eden	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Doppelmayr	76252	Calabogie Peaks	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	C-Tec	76268	Craigleith Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Leitner Lifts	76295	Georgian Peaks	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Leitner Lifts	76299	Georgian Peaks	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Doppelmayr	76398	Beaver Valley Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	

Note:
All owners of above-surface passenger ropeways shall review this table to verify for accuracy and/or lack of information contained in this table, and inform the TSSA in writing immediately of their findings.

Table 1 – (3 of 3)

Table # 2 (Director's Order #169/02)
Initial Phase for Implementing Compliance to Section 24
of the Code Adoption Document
In Chronological Order by Owner of Above-surface Passenger Ropeways

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1955	Poma	70584	Adanac Ski Hill	**2003**	Next Compliance per the Order S. 2.2
1970	Doppelmayr	21424	Alphine Ski Club	**2003**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61723	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61724	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1999	Doppelmayr	74568	Alpine Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1982	Doppelmayr	36014	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1985	Doppelmayr	37609	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1990	Doppelmayr	65244	Beaver Valley Ski Club	**2007**	Next Compliance per the Order S. 2.2
1997	Leitner/Doppelmayr	31207	Beaver Valley Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
2000	Doppelmayr	76398	Beaver Valley Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1965	Poma	16803	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	20264	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	70532	Blue Mountain Ski Resorts	**2002**	This resort volunteered to comply in Year 2002
1997	Poma	73037	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1999	Poma	74994	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1999	Poma	75049	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
2000	Poma	76186	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1978	Poma	31058	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1979	Poma	32161	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1985	Poma	38459	Blue Mountain Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63712	Blue Mountain Ski Resorts	**2006**	Next Compliance per the Order S. 2.2
1977	Poma	68594	Buttermilk Alpine Ski Village	**2004**	Next Compliance per the Order S. 2.2
1977	Sampson	31310	Calabogie Peaks	**2004**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76252	Calabogie Peaks	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1978	Hall	32114	Caledon Ski Club	**2004**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65720	Caledon Ski Club	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69392	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1996	BM Lifts	72151	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
2000	Doppelmayr	76120	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
2000	Doppelmayr	76121	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1965	Timberland/Elliot	18297	Centreville Amusement Park	**2003**	Next Compliance per the Order S. 2.2
1971	Borvig	22409	Chicopee Ski Club	**2002**	This resort volunteered to comply in Year 2002
1976	Borvig	30582	Chicopee Ski Club	**2004**	Next Compliance per the Order S. 2.2
1991	Poma	67250	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67251	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	BM Lifts	67276	Cobble Hills Golf & Ski Club	**2007**	Next Compliance per the Order S. 2.2
1966	Skyway	17182	Corp. of Township of Michipicoten	**2003**	Next Compliance per the Order S. 2.2

Table 2 – (1 of 4) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1974	Hall	28687	Craigleith Ski Club	**2004**	Next Compliance per the Order S. 2.2
1981	Hall	60264	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60268	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1987	Dopplemayr	34000	Craigleith Ski Club	**2006**	Next Compliance per the Order S. 2.2
1999	C-Tec	74440	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	C-Tec	76268	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1965	Poma	70604	Dacre Heights Ski Resort	**2003**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63881	Dagmar Resort	**2007**	Next Compliance per the Order S. 2.2
1978	Skyway	61915	Dagmar Resort	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36108	Dagmar Resort	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61763	Dagmar Resort	**2006**	Next Compliance per the Order S. 2.2
1971	Borvig	22387	Devil's Elbow	**2003**	Next Compliance per the Order S. 2.2
1975	Borvig	29557	Devil's Elbow	**2004**	Next Compliance per the Order S. 2.2
1981	Borvig	35356	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38441	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61722	Devil's Elbow	**2006**	Next Compliance per the Order S. 2.2
1994	BM Lifts	70473	Devil's Elbow		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1965	Timberland	16794	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1969	Hall	20139	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1977	Hall	31084	Devil's Glen	**2004**	Next Compliance per the Order S. 2.2
1990	Borvig	65785	Devil's Glen	**2007**	Next Compliance per the Order S. 2.2
1969	Riblet	71554	Georgian Peaks	**2003**	Next Compliance per the Order S. 2.2
1995	Poma	71436	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76295	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76299	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1987	Poma	60305	Glen Eden	**2006**	Next Compliance per the Order S. 2.2
2000	Poma	76199	Glen Eden		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1997	Poma	73036	Glen Eden		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1964	Hall	15832	Hidden Valley Highlands Ski Club	**2003**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76427	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61756	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39484	Hockley Valley Resort	**2005**	Next Compliance per the Order S. 2.2
1973	Borvig	27504	Horseshoe Resort	**2004**	Next Compliance per the Order S. 2.2
1980	Borvig	33629	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36802	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1984	Poma	37570	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1986	Poma	39549	Horseshoe Resort	**2006**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63776	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65786	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65788	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65791	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1969	Borvig	20158	Horseshoe Resort	**2002**	This resort volunteered to comply in Year 2002
1990	BM Lifts	65737	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65739	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2

Table 2 – (2 of 4) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1989	BM Lifts	63755	Lakeridge Resort	**2006**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63803	Lakeridge Resort	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69416	Lakeridge Resort	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1970	Hall	39638	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	22307	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Borvig	23754	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23697	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39466	Loch Lomand	**2005**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65738	London Ski Club	**2007**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39511	Mansfield Ski Club	**2006**	Next Compliance per the Order S. 2.2
1998	Leitner	74103	Mansfield Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1998	Leitner	73791	Mattawa Conservation Authority	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1959	Riblet	1265	Mt. Baldy	**2003**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61765	Mt. Dufour Ski Area	**2006**	Next Compliance per the Order S. 2.2
1968	BM Lifts	19188	Mt. Pakenham	**2003**	Next Compliance per the Order S. 2.2
1974	Hall	28667	Mt. Pakenham	**2004**	Next Compliance per the Order S. 2.2
1980	BM Lifts	20529	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	68568	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76485	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61753	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1972	Poma	23577	Mt. St. Louis-Moonstone	**2003**	Next Compliance per the Order S. 2.2
1979	Skyway	32831	Mt. St. Louis-Moonstone	**2004**	Next Compliance per the Order S. 2.2
1985	BM Lifts	36801	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38456	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1987	BM Lifts	73255	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1989	Poma	63706	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1991	Poma	67310	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts/Poma	68579	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1996	Poma	72406	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1999	Poma	74995	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1960	Von Roll	14513	Niagra Parks Commision	**2003**	Next Compliance per the Order S. 2.2
1974	Poma	29553	North Bay Laurentian Ski Club	**2004**	Next Compliance per the Order S. 2.2
1979	Skyway	33001	North Bay Laurentian Ski Club	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	67359	North York Ski Centre	**2005**	Next Compliance per the Order S. 2.2

Table 2 – (3 of 4) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1990	BM Lifts	65719	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68505	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1998	BM Lifts	73790	Oshawa Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1966	Hall	16677	Osler Bluff Ski Club	**2003**	Next Compliance per the Order S. 2.2
1986	Von Roll	39515	Osler Bluff Ski Club	**2006**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76195	Osler Bluff Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1998	Doppelmayr	73910	Osler Bluff Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1972	BM Lifts	23681	Pine Ridge Ski	**2004**	Next Compliance per the Order S. 2.2
1971	Skyway	70511	Rocket Man Restaurants	**2003**	Next Compliance per the Order S. 2.2
1979	Borvig	32174	Rocket Man Restaurants	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23701	Searchmont Resort	**2004**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39493	Searchmont Resort	**2005**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63831	Searchmont Resort	**2007**	Next Compliance per the Order S. 2.2
1972	Hall	23753	Sir Sam's Ski Area	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36107	Sir Sam's Ski Area	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	63736	Sir Sam's Ski Area	**2006**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68524	Sir Sam's Ski Area	**2007**	Next Compliance per the Order S. 2.2
1996	BM Lifts	72269	Skyloft Ski & Country Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1997	Leitner-BM	73091	Snow Valley Ski Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1977	Borvig	65904	Snow Valley Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38451	Snow Valley Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1978	BM Lifts	65948	Superior Slopes, Town of Marathon	**2004**	Next Compliance per the Order S. 2.2
1963	Hall	15404	Talisman Mt. Resort	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15825	Talisman Mt. Resort	**2003**	Next Compliance per the Order S. 2.2
1987	Poma	13323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	73323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	75231	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1991	BM	67275	Talisman Mt. Resort	**2007**	Next Compliance per the Order S. 2.2
1972	Poma	23750	Thunder Bay Ski Jumps	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	70593	Uplands Golf and Ski Club	**2005**	Next Compliance per the Order S. 2.2

Note:
All owners of above-surface passenger ropeways shall review this table to verify for accuracy and/or lack of information contained in this table, and inform the TSSA in writing immediately of their findings.

Table 2 – (4 of 4) End

Elevating and Amusement Devices Safety Division	Ref. No.: 169 / 02	Rev. No.: 1
DIRECTOR'S ORDER	Date: **February 14, 2002**	Date: **March 5, 2003**

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000 (Elevating Devices)

Subject: **Periodic Engineering Review and Assessment of Above-surface Passenger Ropeways**

Sent to: **All Contractors in Group 8 and Consultants**

1. INTRODUCTION

1.1 General

The Elevating Devices Regulation made under the *Technical Standards and Safety Act (TSS Act)* adopts the Elevating Devices Code Adoption Document (CAD). This bulletin is prepared in keeping with the Section 24 of the CAD that reads:

"Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director."

Section 24 of the CAD is intended to deal with the impact on the safety of above-surface passenger ropeway as a result of its age. Even though a ropeway is maintained to keep up with its original or current design/manufacturing specification during its life, over the period of time the following elements will still weaken parts of the ropeway that can fail accidentally:

- Fatigue and vibration of both moving components and fixed structures causing cracks and fractures of connections and parent metal; and
- Environmental factors like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components.

Above-surface passenger ropeways include those ropeways on which the passengers are transported in rope-supported carriers and are not in contact with the ground or snow surface. Chair lifts, gondola lifts, and reversible ropeways are above-surface passenger ropeways.

Periodic engineering review and assessment of every above-surface passenger ropeway will ensure continued compliance with the TSS Act, Elevating Devices Regulation, and CAD, which in turn is intended *to ensure continued operational safety*.

This bulletin expounds upon following criteria to meet the intent of Section 24:

- frequency for periodic engineering assessments;
- initial phase for implementing Section 24 of the CAD;
- after initial phase;
- guidelines for periodic engineering review and assessment of above-surface passenger ropeways;
- reporting engineering review/assessment findings; and
- compliance.

This Director's Order has been developed in consultation with the TSSA Ski Industry Advisory Technical Committee.

2. ORDER

2.1 General

All person operating above-surface passenger ropeways in Ontario shall comply with Section 24 of the CAD adopted in the Elevating Devices Regulation in accordance with the requirements stated in this bulletin.

2.2 Frequency for Periodic Engineering Assessment

All above-surface passenger ropeways shall be subject to engineering assessment as follows:

a) first engineering assessment: maximum 22,500 hours of operation, without exceeding 15 years from the initial start-up; ("initial start-up" means first permitted for use anywhere.)
b) second engineering assessment: maximum 37,500 hours of operation, without exceeding 25 years;
c) third engineering assessment: 45,000 hours of operation, without exceeding 30 years;
d) periodic engineering assessments: at every interval of 7,500 hours of operation, without exceeding 5 years after the third engineering assessment (Reference sub-clause (c)).

2.3 Initial Phase for Implementing Section 24 of the CAD

The schedule for implementing Section 24 of the CAD during the initial phase has been planned based on following factors:

- Frequency for periodic engineering assessment based on Section 2.1 of this bulletin;
- Six year period, based on availability of qualified engineering resources, during which all above-surface passenger ropeways in Ontario to meet the requirements of this bulletin;
- Year 2002 to allow reasonable period of notice to the Ski Industry to schedule engineering evaluation of the aging ski lifts; and
- Older above-surface passenger ropeways to under-go engineering evaluation as early as possible.

All person shall adhere to the schedule (Table # 1) entitled "Initial Phase for Implementing Compliance to Section 24 of the CAD In Chronological Order by Age of Above-surface Passenger Ropeways" attached with this bulletin.

Table #2 entitled "Initial Phase for Implementing Compliance to Section 24 of the CAD In Chronological Order by Owner of Above-surface Passenger Ropeways" is attached with this bulletin to complement Table # 1.

2.4 After Initial Phase

After complying with the Section 2.3 of this bulletin, all person (operator's / licensees) shall adhere to periodic engineering review and assessment in accordance with the frequency stated in Section 2.2 of this bulletin.

2.5 Guidelines for Periodic Review and Assessment of Above-surface Passenger Ropeways

Identify passenger ropeway parts that are affected by the factors listed following, determine extent of their deterioration, and evaluate their security at time intervals established in Sections 2.3 and 2.4 respectively of this bulletin:

- Fatigue and vibration of both moving components and fixed structures causing cracks and fractures of connections and parent metal; and
- Environmental factors like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components.

The following sources shall be used as guides to appraise the security of the passenger ropeway parts:

- The latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order
- Requirements by manufacturer/designer of passenger ropeways
- Non-destructive Testing of Critical Components
- Documentation

(a) The Latest Version of CSA Standard Z98 – Passenger Ropeways

The latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order shall be used as a guide to establish criteria to assess safety of parts impacted by an aging ropeway. Those parts of passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements of the latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order.

(b) Requirements by Manufacturer/Designer of Passenger Ropeways

Those parts of passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements established by the manufacturer/designer. Where manufacturer or designer is no longer in business, an engineer shall establish requirements for alteration, replacement and/or repair.

(c) Non-destructive Testing of Critical Components

All critical components of an above-surface passenger ropeway shall be subjected to non-destructive testing. Any components to be tested that are not directly accessible shall be disassembled. The method of non-destructive, acceptance/rejection criteria, and other tolerances shall be in accordance with the specification specified by the manufacturer/designer. Where manufacturer or designer is no longer in business, an engineer shall perform that action.

Critical components are those parts of ropeway, the failure of which would immediately jeopardize passenger safety. The list of critical components of an above-surface ropeway shall include, but not be limited to the following:

MOVING COMPONENTS:

- Carrier, including grip, hanger, chair, or gondola;
- Drive and return sheaves including shafts;
- Line sheave assemblies and their attachments;
- Tension systems and their attachments; and
- Wire rope, including haul ropes, track ropes and counterweight ropes

FIXED STRUCTURES

- Drive terminal structure;
- Return terminal structure;
- Towers and cross-arms; and
- Catwalks

Identification of every critical component of an above-surface passenger ropeway shall be based on its definition and requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways.

According to the CSA Standard Z98, critical component means " a component or system of components, the failure of which would immediately jeopardize passenger safety".

All critical components shall be tabulated with identification, including the type of non-destructive testing conducted, rejection/acceptance criteria, findings, and recommendations. The recommendations may contain establishing program of inspection/maintenance, steps to repair, replace, and/or alter the critical components.

2.6 Reporting Engineering Review/Assessment Findings

A professional engineer shall certify the engineering review/assessment report. The report shall address:

- guidelines established in Section 2.5 of this Director's Order; and
- requirements to correct those non-compliance related findings to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

An owner shall attest that he/she will comply with the requirements of the certified engineering review and assessment report to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

2.7 Compliance

The engineering review and assessment report prepared in accordance with the requirements of Section 2.6 of the bulletin shall be submitted to the Technical Standards and Safety Authority (TSSA) for its registration.

Prior to registering the report, TSSA shall evaluate an engineering and assessment report for its technical integrity and conformance to the requirements of this Director's Order. The report shall be registered without conditions, registered with conditions or rejected with explanation. An owner of an above-surface passenger ropeway shall not operate the ropeway prior to the registration of the certified engineering review and assessment report.

3. INSTRUCTIONS

- Those recommendations of the engineering review and assessment report requiring major and minor alterations of the above-surface passenger ropeway shall be dealt in accordance with the requirements of the Technical Standards and Safety Act, Elevating Devices Ontario Regulation, and Code Adoption Document. All alterations may be submitted as one design submission. The design submission for major alteration(s) must be registered and inspected prior to the operation of the ropeway.

- The fee prescribed in the fee schedule for evaluation of engineering review and assessment report will be charged to the submitter of the report.

- Four copies of the engineering review and assessment report shall be submitted to TSSA. Upon registration of the report, TSSA will retain two copies (one for TSSA engineering & one for TSSA inspection), distribute one copy to the owner and one to the engineer.

- Tables # 1 & 2 attached with this bulletin form an integral part of this Director's Order – Section 2.3.

- Where the latest adopted version of CSA Standard Z98 – Passenger Ropeways and this Director's Order requires action by a designer or manufacturer who is no longer in business, that action shall be performed by a professional engineer as defined in the Elevating Devices Regulation.

- Prior to the start of year 2003, an hour-meter shall be installed on every above surface passenger ropeway to keep track of hours of operation.

- All owners of above-surface passenger ropeways shall review Tables # 1 & 2 for accuracy and/or lack or missing information contained in those tables, and inform the TSSA in writing immediately of their findings.

- This Director's Order establishes guidelines for in-depth inspection and compliance requirements to ensure security of critical components of an above-surface passenger ropeway. In order to expedite registration of "Reporting Engineering Review/Assessment Findings" in accordance with Section 2.7 of this Director's Order, it is critical that consistent "methodology" is applied to confirm compliance with this Director's Order:

  - Compile "as built" specification of the ropway necessary to assess security of critical components of an above-surface passenger ropeway.
  - Identify critical components of an above-surface passenger ropeway subjected to fatigue, vibration, and environmental exposure for their inspection.
  - Prepare list of critical components and non-destructive testing methods to be applied for their inspection.
  - Where critical components to be inspected are not directly accessible, any disassembling required must be performed where deemed necessary.
  - Evaluate the findings of the inspection with a view to confirm the security of critical components.
  - Determine action (repair, replacement and/or alteration) taken or to be taken to secure the integrity of critical components.

This is a reminder that "Operation and Maintenance" requirements under Section 32 of the Ontario Regulation must be adhered at all times. When replacing parts of a ropeway, Section 32(5) of the Ontario Regulation applies. All work must be performed by qualified persons.

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Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Table # 1 (Director's Order #169/02)
Initial Phase for Implementing Compliance to Section 24 of the Code Adoption Document
In Chronological Order by Age of Above-surface Passenger Ropeways

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1971	Poma	70532	Blue Mountain Ski Resorts	**2002**	This resort volunteered to comply in Year 2002
1971	Borvig	22409	Chicopee Ski Club	**2002**	This resort volunteered to comply in Year 2002
1969	Borvig	20158	Horseshoe Resorts	**2002**	This resort volunteered to comply in Year 2002
1955	Poma	70584	Adanac Ski Hill	**2003**	Next Compliance per the Order S. 2.2
1959	Riblet	1265	Mt. Baldy	**2003**	Next Compliance per the Order S. 2.2
1960	Von Roll	14513	Niagara Parks Commision	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15404	Talisman Mt Resort	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15825	Talisman Mt Resort	**2003**	Next Compliance per the Order S. 2.2
1964	Hall	15832	Hidden Valley	**2003**	Next Compliance per the Order S. 2.2
1965	Timberland	16794	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1965	Poma	16803	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1965	Timberland/Elliot	18297	Centreville Amusement Park	**2003**	Next Compliance per the Order S. 2.2
1965	Poma	70604	Dacre Heights Ski Resort	**2003**	Next Compliance per the Order S. 2.2
1966	Hall	16677	Osler Bluff Ski Club	**2003**	Next Compliance per the Order S. 2.2
1966	Skyway	17182	Corp. of Township of Michipicoten	**2003**	Next Compliance per the Order S. 2.2
1968	BM Lifts	19188	Mt. Pakenham	**2003**	Next Compliance per the Order S. 2.2
1969	Hall	20139	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1969	Riblet	71554	Georgian Peaks	**2003**	Next Compliance per the Order S. 2.2
1970	Doppelmayr	21424	Alphine Ski Club	**2003**	Next Compliance per the Order S. 2.2
1970	Hall	39638	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	20264	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Borvig	22387	Devil's Elbow	**2003**	Next Compliance per the Order S. 2.2
1971	Skyway	70511	Rocket Man Restaurants	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	22307	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	23577	Mt. St. Louis-Moonstone	**2003**	Next Compliance per the Order S. 2.2
1972	BM Lifts	23681	Pine Ridge Ski	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23697	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23701	Searchmont	**2004**	Next Compliance per the Order S. 2.2
1972	Poma	23750	Thunder Bay Ski Jumps	**2004**	Next Compliance per the Order S. 2.2
1972	Hall	23753	Sir Sam's Ski Area	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23754	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1973	Borvig	27504	Horseshoe Resort	**2004**	Next Compliance per the Order S. 2.2
1974	Hall	28667	Mt. Pakenham	**2004**	Next Compliance per the Order S. 2.2
1974	Hall	28687	Craigleith Ski Club	**2004**	Next Compliance per the Order S. 2.2
1974	Poma	29553	North Bay Laurentian Ski Club	**2004**	Next Compliance per the Order S. 2.2
1975	Borvig	29557	Devil's Elbow	**2004**	Next Compliance per the Order S. 2.2
1976	Borvig	30582	Chicopee Ski Club	**2004**	Next Compliance per the Order S. 2.2
1977	Hall	31084	Devil's Glen	**2004**	Next Compliance per the Order S. 2.2
1977	Leitner/Doppelmayr	31207	Beaver Valley Ski Club	**2004**	Next Compliance per the Order S. 2.2
1977	Borvig	65904	Snow Valley Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1977	Poma	68594	Buttermilk Alpine Ski Village	**2004**	Next Compliance per the Order S. 2.2
1978	Poma	31058	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1978	Hall	32114	Caledon Ski Club	**2004**	Next Compliance per the Order S. 2.2
1978	Skyway	61915	Dagmar Resort	**2004**	Next Compliance per the Order S. 2.2
1978	BM Lifts	65948	Superior Slopes, Town of Marathon	**2004**	Next Compliance per the Order S. 2.2
1979	Poma	32161	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1979	Borvig	32174	Rocket Man Restaurants	**2004**	Next Compliance per the Order S. 2.2
1979	Skyway	32831	Mt. St. Louis-Moonstone	**2004**	Next Compliance per the Order S. 2.2

Table 1 - (1 of 3) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1979	Skyway	33001	North Bay Laurentian Ski Club	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	20529	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1980	Borvig	33629	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	67359	North York Ski Centre	**2005**	Next Compliance per the Order S. 2.2
1981	Borvig	35356	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60264	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60268	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	Doppelmayr	36014	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36107	Sir Sam's Ski Area	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36108	Dagmar Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36802	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	68568	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	70593	Uplands Golf and Ski Club	**2005**	Next Compliance per the Order S. 2.2
1984	Poma	37570	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	36801	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Doppelmayr	37609	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38441	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38451	Snow Valley Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38456	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Poma	38459	Blue Mountain Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39466	Loch Lomand	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39484	Hockley Valley Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39493	Searchmont Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39511	Mansfield Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Von Roll	39515	Osler Bluff Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Poma	39549	Horseshoe Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	13323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Dopplemayr	34000	Craigleith Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	60305	Glen Eden	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	73255	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	73323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	75231	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76427	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76485	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61722	Devil's Elbow	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61723	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61724	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61753	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61756	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61763	Dagmar Resort	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61765	Mt. Dufour Ski Area	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	63736	Sir Sam's Ski Area	**2006**	Next Compliance per the Order S. 2.2
1989	Poma	63706	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63712	Blue Mountain Ski Resorts	**2006**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63755	Lakeridge Resort	**2006**	Next Compliance per the Order S. 2.2

Table 1 - (2 of 3) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1989	Doppelmayr	63776	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63803	Lakeridge Resort	**2007**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63831	Searchmont Resort	**2007**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63881	Dagmar Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Doppelmayr	65244	Beaver Valley Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65719	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65720	Caledon Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65737	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65738	London Ski Club	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65739	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65785	Devil's Glen	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65786	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65788	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65791	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67250	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67251	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	BM	67275	Talisman Mt. Resort	**2007**	Next Compliance per the Order S. 2.2
1991	BM Lifts	67276	Cobble Hills Golf & Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67310	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68505	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68524	Sir Sam's Ski Area	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts/Poma	68579	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69392	Caledon Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1993	BM Lifts	69416	Lakeridge Resort		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1994	BM Lifts	70473	Devil's Elbow		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1995	Poma	71436	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1996	BM Lifts	72151	Caledon Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1996	BM Lifts	72269	Skyloft Ski & Country Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1996	Poma	72406	Mt. St. Louis-Moonstone		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1997	Poma	73036	Glen Eden, Kelso Conservation Area		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1997	Poma	73037	Blue Mountain Ski Resorts		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1997	Leitner-BM	73091	Snow Valley Ski Resort		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1998	BM Lifts	73790	Oshawa Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1998	Leitner	73791	Mattawa Conservation Authority		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1998	Doppelmayr	73910	Osler Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1998	Leitner	74103	Mansfield Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1999	C-Tec	74440	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1999	Doppelmayr	74568	Alpine Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1999	Poma	74994	Blue Mountain Resorts		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1999	Poma	74995	Mt. St. Louis-Moonstone		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1999	Poma	75049	Blue Mountain Resorts		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Doppelmayr	76120	Caledon Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Doppelmayr	76121	Caledon Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Poma	76186	Blue Mountain Ski Resorts		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Doppelmayr	76195	Osler Bluff Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Poma	76199	Glen Eden		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Doppelmayr	76252	Calabogie Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	C-Tec	76268	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76295	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76299	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Doppelmayr	76398	Beaver Valley Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2

Note:
All owners of above-surface passenger ropeways shall review this table to verify for accuracy and/or lack of information contained in this table, and inform the TSSA in writing immediately of their findings.

Table 1 - (3 of 3) Continued…

Table # 2 (Director's Order #169/02)
Initial Phase for Implementing Compliance to Section 24 of the Code Adoption Document
In Chronological Order by Owner of Above-surface Passenger Ropeways

Year Made	*Manufacturer*	*Device #*	*Owner*	*Initial Phase (Year) Scheduled to Implement Director's Order*	*After Initial Phase Schedule Next Date*
1955	Poma	70584	Adanac Ski Hill	**2003**	Next Compliance per the Order S. 2.2
1970	Doppelmayr	21424	Alphine Ski Club	**2003**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61723	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61724	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1999	Doppelmayr	74568	Alpine Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1977	Leitner/Doppelmayr	31207	Beaver Valley Ski Club	**2004**	Next Compliance per the Order S. 2.2
1982	Doppelmayr	36014	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1985	Doppelmayr	37609	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1990	Doppelmayr	65244	Beaver Valley Ski Club	**2007**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76398	Beaver Valley Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1965	Poma	16803	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	20264	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	70532	Blue Mountain Ski Resorts	**2002**	This resort volunteered to comply in Year 2002
1997	Poma	73037	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1999	Poma	74994	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1999	Poma	75049	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
2000	Poma	76186	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1978	Poma	31058	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1979	Poma	32161	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1985	Poma	38459	Blue Mountain Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63712	Blue Mountain Ski Resorts	**2006**	Next Compliance per the Order S. 2.2
1977	Poma	68594	Buttermilk Alpine Ski Village	**2004**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76252	Calabogie Peaks	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1978	Hall	32114	Caledon Ski Club	**2004**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65720	Caledon Ski Club	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69392	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1996	BM Lifts	72151	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
2000	Doppelmayr	76120	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
2000	Doppelmayr	76121	Caledon Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1965	Timberland/Elliot	18297	Centreville Amusement Park	**2003**	Next Compliance per the Order S. 2.2
1971	Borvig	22409	Chicopee Ski Club	**2002**	This resort volunteered to comply in Year 2002
1976	Borvig	30582	Chicopee Ski Club	**2004**	Next Compliance per the Order S. 2.2
1991	Poma	67250	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67251	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	BM Lifts	67276	Cobble Hills Golf & Ski Club	**2007**	Next Compliance per the Order S. 2.2
1966	Skyway	17182	Corp. of Township of Michipicoten	**2003**	Next Compliance per the Order S. 2.2

Table 2 – (1 of 4) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1974	Hall	28687	Craigleith Ski Club	**2004**	Next Compliance per the Order S. 2.2
1981	Hall	60264	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60268	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1987	Dopplemayr	34000	Craigleith Ski Club	**2006**	Next Compliance per the Order S. 2.2
1999	C-Tec	74440	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	C-Tec	76268	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1965	Poma	70604	Dacre Heights Ski Resort	**2003**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63881	Dagmar Resort	**2007**	Next Compliance per the Order S. 2.2
1978	Skyway	61915	Dagmar Resort	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36108	Dagmar Resort	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61763	Dagmar Resort	**2006**	Next Compliance per the Order S. 2.2
1971	Borvig	22387	Devil's Elbow	**2003**	Next Compliance per the Order S. 2.2
1975	Borvig	29557	Devil's Elbow	**2004**	Next Compliance per the Order S. 2.2
1981	Borvig	35356	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38441	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61722	Devil's Elbow	**2006**	Next Compliance per the Order S. 2.2
1994	BM Lifts	70473	Devil's Elbow		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1965	Timberland	16794	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1969	Hall	20139	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1977	Hall	31084	Devil's Glen	**2004**	Next Compliance per the Order S. 2.2
1990	Borvig	65785	Devil's Glen	**2007**	Next Compliance per the Order S. 2.2
1969	Riblet	71554	Georgian Peaks	**2003**	Next Compliance per the Order S. 2.2
1995	Poma	71436	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76295	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76299	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1987	Poma	60305	Glen Eden	**2006**	Next Compliance per the Order S. 2.2
2000	Poma	76199	Glen Eden		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1997	Poma	73036	Glen Eden		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1964	Hall	15832	Hidden Valley Highlands Ski Club	**2003**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76427	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61756	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39484	Hockley Valley Resort	**2005**	Next Compliance per the Order S. 2.2
1973	Borvig	27504	Horseshoe Resort	**2004**	Next Compliance per the Order S. 2.2
1980	Borvig	33629	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36802	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1984	Poma	37570	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1986	Poma	39549	Horseshoe Resort	**2006**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63776	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65786	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65788	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65791	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1969	Borvig	20158	Horseshoe Resort	**2002**	This resort volunteered to comply in Year 2002
1990	BM Lifts	65737	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65739	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2

Table 2 – (2 of 4) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1989	BM Lifts	63755	Lakeridge Resort	**2006**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63803	Lakeridge Resort	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69416	Lakeridge Resort	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1970	Hall	39638	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	22307	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Borvig	23754	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23697	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39466	Loch Lomand	**2005**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65738	London Ski Club	**2007**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39511	Mansfield Ski Club	**2006**	Next Compliance per the Order S. 2.2
1998	Leitner	74103	Mansfield Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1998	Leitner	73791	Mattawa Conservation Authority	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1959	Riblet	1265	Mt. Baldy	**2003**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61765	Mt. Dufour Ski Area	**2006**	Next Compliance per the Order S. 2.2
1968	BM Lifts	19188	Mt. Pakenham	**2003**	Next Compliance per the Order S. 2.2
1974	Hall	28667	Mt. Pakenham	**2004**	Next Compliance per the Order S. 2.2
1980	BM Lifts	20529	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	68568	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76485	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61753	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1972	Poma	23577	Mt. St. Louis-Moonstone	**2003**	Next Compliance per the Order S. 2.2
1979	Skyway	32831	Mt. St. Louis-Moonstone	**2004**	Next Compliance per the Order S. 2.2
1985	BM Lifts	36801	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38456	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1987	BM Lifts	73255	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1989	Poma	63706	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1991	Poma	67310	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts/Poma	68579	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1996	Poma	72406	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Poma	74995	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1960	Von Roll	14513	Niagara Parks Commision	**2003**	Next Compliance per the Order S. 2.2
1974	Poma	29553	North Bay Laurentian Ski Club	**2004**	Next Compliance per the Order S. 2.2
1979	Skyway	33001	North Bay Laurentian Ski Club	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	67359	North York Ski Centre	**2005**	Next Compliance per the Order S. 2.2

Table 2 – (3 of 4) Continued…

Year Made	*Manufacturer*	*Device #*	*Owner*	*Initial Phase (Year) Scheduled to Implement Director's Order*	*After Initial Phase Schedule Next Date*
1990	BM Lifts	65719	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68505	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1998	BM Lifts	73790	Oshawa Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1966	Hall	16677	Osler Bluff Ski Club	**2003**	Next Compliance per the Order S. 2.2
1986	Von Roll	39515	Osler Bluff Ski Club	**2006**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76195	Osler Bluff Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1998	Doppelmayr	73910	Osler Bluff Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1972	BM Lifts	23681	Pine Ridge Ski	**2004**	Next Compliance per the Order S. 2.2
1971	Skyway	70511	Rocket Man Restaurants	**2003**	Next Compliance per the Order S. 2.2
1979	Borvig	32174	Rocket Man Restaurants	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23701	Searchmont Resort	**2004**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39493	Searchmont Resort	**2005**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63831	Searchmont Resort	**2007**	Next Compliance per the Order S. 2.2
1972	Hall	23753	Sir Sam's Ski Area	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36107	Sir Sam's Ski Area	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	63736	Sir Sam's Ski Area	**2006**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68524	Sir Sam's Ski Area	**2007**	Next Compliance per the Order S. 2.2
1996	BM Lifts	72269	Skyloft Ski & Country Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1997	Leitner-BM	73091	Snow Valley Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1977	Borvig	65904	Snow Valley Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38451	Snow Valley Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1978	BM Lifts	65948	Superior Slopes, Town of Marathon	**2004**	Next Compliance per the Order S. 2.2
1963	Hall	15404	Talisman Mt. Resort	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15825	Talisman Mt. Resort	**2003**	Next Compliance per the Order S. 2.2
1987	Poma	13323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	73323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	75231	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1991	BM	67275	Talisman Mt. Resort	**2007**	Next Compliance per the Order S. 2.2
1972	Poma	23750	Thunder Bay Ski Jumps	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	70593	Uplands Golf and Ski Club	**2005**	Next Compliance per the Order S. 2.2

Note:
All owners of above-surface passenger ropeways shall review this table to verify for accuracy and/or lack of information contained in this table, and inform the TSSA in writing immediately of their findings.

Table 2 – (4 of 4) END

Elevating and Amusement Devices Safety Division	Ref. No.: 169 / 02	Rev. No.: 2
DIRECTOR'S ORDER	Date: February 14, 2002	Date: April 18, 2007

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices)
made under the
***Technical Standards and Safety Act* 2000**

Subject: **Initial Phase - Periodic Engineering Review and Assessment of Above-surface Passenger Ropeways – (Aging Ski Lifts)**
Sent to: **All Passenger Ropeway Contractors and Consultants**

For Above-Surface Passenger Ropeways made in 1992 and Earlier.

For Above-Surface Passenger Ropeways made after 1992 , see Director's Order 224/07.

1. INTRODUCTION

1.1 General

The Elevating Devices Regulation made under the *Technical Standards and Safety Act (TSS Act)* adopts the Elevating Devices Code Adoption Document (CAD). This bulletin is prepared in keeping with the Section 24 of the CAD that reads:

"Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director."

Section 24 of the CAD is intended to deal with the impact on the safety of above-surface passenger ropeway as a result of its age. Even though a ropeway is maintained to keep up with its original or current design/manufacturing specification during its life, over the period of time the following elements will still weaken parts of the ropeway that can fail accidentally:

- Fatigue and vibration of both moving components and fixed structures causing cracks and fractures of connections and parent metal; and
- Environmental factors like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components.

Above-surface passenger ropeways include those ropeways on which the passengers are transported in rope-supported carriers and are not in contact with the ground or snow surface. Chair lifts, gondola lifts, and reversible ropeways are above-surface passenger ropeways.

Periodic engineering review and assessment of every above-surface passenger ropeway will ensure continued compliance with the TSS Act, Elevating Devices Regulation, and CAD, which in turn is intended *to ensure continued operational safety*.

This bulletin expounds upon following criteria to meet the intent of Section 24:

- frequency for periodic engineering assessments;
- initial phase for implementing Section 24 of the CAD;
- after initial phase;
- guidelines for periodic engineering review and assessment of above-surface passenger ropeways;
- reporting engineering review/assessment findings; and
- compliance.

This Director's Order has been developed in consultation with the TSSA Ski Industry Advisory Technical Committee.

2. ORDER

2.1 General

1. All persons operating above-surface passenger ropeways in Ontario shall comply with Section 24 of the CAD adopted in the Elevating Devices Regulation in accordance with the requirements stated in this bulletin.

2.2 Frequency for Periodic Engineering Review and Assessment

1. All above-surface passenger ropeways shall be subject to engineering assessment as follows:
   a) first engineering assessment: maximum 22,500 hours of operation, without exceeding 15 years from the initial start-up; ("initial start-up" means first permitted for use anywhere.)
   b) second engineering assessment: maximum 37,500 hours of operation, without exceeding 25 years;
   c) third engineering assessment: 45,000 hours of operation, without exceeding 30 years;
   d) periodic engineering assessments: at every interval of 7,500 hours of operation, without exceeding 5 years after the third engineering assessment (Reference sub-clause (c)).

2. This order and attached tables are intended to establish the due dates for the "initial phase" or "first" engineering review and assessment reports for ropeways made in 1992 and earlier.
3. For ropeways made after 1992, initial and subsequent engineering review and assessment reports shall follow the requirements of Directors Order 224-07.
   Note: The "Frequency for Periodic Engineering Review and Assessment" timelines have been restated in Director's Order 224-07.

2.3 Initial Phase for Implementing Section 24 of the CAD

The schedule for implementing Section 24 of the CAD during the initial phase has been planned based on following factors:

- Frequency for periodic engineering assessment based on Section 2.1 of this bulletin;
- Six year period, based on availability of qualified engineering resources, during which all above-surface passenger ropeways in Ontario to meet the requirements of this bulletin;
- Year 2002 to allow reasonable period of notice to the Ski Industry to schedule engineering evaluation of the aging ski lifts; and
- Older above-surface passenger ropeways to under-go engineering evaluation as early as possible.

All person shall adhere to the schedule (Table # 1) entitled "Initial Phase for Implementing Compliance to Section 24 of the CAD In Chronological Order by Age of Above-surface Passenger Ropeways" attached with this bulletin.
Table #2 entitled "Initial Phase for Implementing Compliance to Section 24 of the CAD In Chronological Order by Owner of Above-surface Passenger Ropeways" is attached with this bulletin to complement Table # 1.

2.4 After Initial Phase

After complying with the Section 2.3 of this bulletin, all person (operator's / licensees) shall adhere to periodic engineering review and assessment in accordance with the frequency stated in Section 2.2 of this bulletin.

2.5 Guidelines for Periodic Review and Assessment of Above-surface Passenger Ropeways

Identify passenger ropeway parts that are affected by the factors listed following, determine extent of their deterioration, and evaluate their security at time intervals established in Sections 2.3 and 2.4 respectively of this bulletin:

- Fatigue and vibration of both moving components and fixed structures causing cracks and fractures of connections and parent metal; and
- Environmental factors like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components.

The following sources shall be used as guides to appraise the security of the passenger ropeway parts:

- The latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order
- Requirements by manufacturer/designer of passenger ropeways
- Non-destructive Testing of Critical Components
- Documentation

(a) The Latest Version of CSA Standard Z98 – Passenger Ropeways

The latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order shall be used as a guide to establish criteria to assess safety of parts impacted by an aging ropeway. Those parts of passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements of the latest version of CSA Standard Z98 – Passenger Ropeways adopted by CAD / Director's Order.

(b) Requirements by Manufacturer/Designer of Passenger Ropeways

Those parts of passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements established by the manufacturer/designer. Where manufacturer or designer is no longer in business, an engineer shall establish requirements for alteration, replacement and/or repair.

(c) Non-destructive Testing of Critical Components

All critical components of an above-surface passenger ropeway shall be subjected to non-destructive testing. Any components to be tested that are not directly accessible shall be disassembled. The method of non-destructive, acceptance/rejection criteria, and other tolerances shall be in accordance with the specification specified by the manufacturer/designer. Where manufacturer or designer is no longer in business, an engineer shall perform that action.

Critical components are those parts of ropeway, the failure of which would immediately jeopardize passenger safety. The list of critical components of an above-surface ropeway shall include, but not be limited to the following:

MOVING COMPONENTS:
- Carrier, including grip, hanger, chair, or gondola;
- Drive and return sheaves including shafts;

- Line sheave assemblies and their attachments;
- Tension systems and their attachments; and
- Wire rope, including haul ropes, track ropes and counterweight ropes

FIXED STRUCTURES
- Drive terminal structure;
- Return terminal structure;
- Towers and cross-arms; and
- Catwalks

Identification of every critical component of an above-surface passenger ropeway shall be based on its definition and requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways.
According to the CSA Standard Z98, critical component means " a component or system of components, the failure of which would immediately jeopardize passenger safety".

All critical components shall be tabulated with identification, including the type of non-destructive testing conducted, rejection/acceptance criteria, findings, and recommendations. The recommendations may contain establishing program of inspection/maintenance, steps to repair, replace, and/or alter the critical components.

2.6 Reporting Engineering Review/Assessment Findings

A professional engineer shall certify the engineering review/assessment report. The report shall address:

- guidelines established in Section 2.5 of this Director's Order; and
- requirements to correct those non-compliance related findings to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

An owner shall attest that he/she will comply with the requirements of the certified engineering review and assessment report to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

2.7 Compliance

The engineering review and assessment report prepared in accordance with the requirements of Section 2.6 of the bulletin shall be submitted to the Technical Standards and Safety Authority (TSSA) for its registration.

Prior to registering the report, TSSA shall evaluate an engineering and assessment report for its technical integrity and conformance to the requirements of this Director's Order. The report shall be registered without conditions, registered with conditions or rejected with explanation. An owner of an above-surface passenger ropeway shall not operate the ropeway prior to the registration of the certified engineering review and assessment report.

3. INSTRUCTIONS

- Those recommendations of the engineering review and assessment report requiring major and minor alterations of the above-surface passenger ropeway shall be dealt in accordance with the requirements of the Technical Standards and Safety Act, Elevating Devices Ontario Regulation, and Code Adoption Document. All alterations may be submitted as one design submission. The design submission for major alteration(s) must be registered and inspected prior to the operation of the ropeway.

- The fee prescribed in the fee schedule for evaluation of engineering review and assessment report will be charged to the submitter of the report.

- Four copies of the engineering review and assessment report shall be submitted to TSSA. Upon registration of the report, TSSA will retain two copies (one for TSSA engineering & one for TSSA inspection), distribute one copy to the owner and one to the engineer.

- Tables # 1 & 2 attached with this bulletin form an integral part of this Director's Order – Section 2.3.
- Tables #1 & 2 provide specific "initial phase" report times for above-surface passenger ropeways made in 1992 and prior. For devices made after 1992 see Director's Order 224/07.
- Where the latest adopted version of CSA Standard Z98 – Passenger Ropeways and this Director's Order requires action by a designer or manufacturer who is no longer in business, that action shall be performed by a professional engineer as defined in the Elevating Devices Regulation.

- Prior to the start of year 2003, an hour-meter shall be installed on every above surface passenger ropeway to keep track of hours of operation.

- All owners of above-surface passenger ropeways shall review Tables # 1 & 2 for accuracy and/or lack or missing information contained in those tables, and inform the TSSA in writing immediately of their findings.

- This Director's Order establishes guidelines for in-depth inspection and compliance requirements to ensure security of critical components of an above-surface passenger ropeway. In order to expedite registration of "Reporting Engineering Review/Assessment Findings" in accordance with Section 2.7 of this Director's Order, it is critical that consistent "methodology" is applied to confirm compliance with this Director's Order:
  - Compile "as built" specification of the ropway necessary to assess security of critical components of an above-surface passenger ropeway.
  - Identify critical components of an above-surface passenger ropeway subjected to fatigue, vibration, and environmental exposure for their inspection.
  - Prepare list of critical components and non-destructive testing methods to be applied for their inspection.
  - Where critical components to be inspected are not directly accessible, any disassembling required must be performed where deemed necessary.
  - Evaluate the findings of the inspection with a view to confirm the security of critical components.
  - Determine action (repair, replacement and/or alteration) taken or to be taken to secure the integrity of critical components.

- Necessary non-destructive testing (NDT) may be spread (staggered) over a period not exceeding five years to assist planning for compliance with this Director's Order in accordance with the "Frequency for Periodic Engineering Review and Assessment" established in Section 2.2
- This Director Order is not intended to replace any requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways and Ontario Regulation.

This is a reminder that "Operation and Maintenance" requirements under Section 32 of the Ontario Regulation must be adhered at all times. When replacing parts of a ropeway, Section 32(5) of the Ontario Regulation applies. All work must be performed by qualified persons.

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Roland Hadaller, P.Eng.,

Director, appointed under the *Technical Standards and Safety Act, 2000*, Ontario Regulation 209/01(Elevating Devices)

Table # 1 (Director's Order #169/02)
Initial Phase for Implementing Compliance to Section 24 of the Code Adoption Document
In Chronological Order by Age of Above-surface Passenger Ropeways

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1971	Poma	70532	Blue Mountain Ski Resorts	**2002**	This resort volunteered to comply in Year 2002
1971	Borvig	22409	Chicopee Ski Club	**2002**	This resort volunteered to comply in Year 2002
1969	Borvig	20158	Horseshoe Resorts	**2002**	This resort volunteered to comply in Year 2002
1955	Poma	70584	Adanac Ski Hill	**2003**	Next Compliance per the Order S. 2.2
1959	Riblet	1265	Mt. Baldy	**2003**	Next Compliance per the Order S. 2.2
1960	Von Roll	14513	Niagara Parks Commision	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15404	Talisman Mt Resort	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15825	Talisman Mt Resort	**2003**	Next Compliance per the Order S. 2.2
1964	Hall	15832	Hidden Valley	**2003**	Next Compliance per the Order S. 2.2
1965	Timberland	16794	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1965	Poma	16803	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1965	Timberland/Elliot	18297	Centreville Amusement Park	**2003**	Next Compliance per the Order S. 2.2
1965	Poma	70604	Dacre Heights Ski Resort	**2003**	Next Compliance per the Order S. 2.2
1966	Hall	16677	Osler Bluff Ski Club	**2003**	Next Compliance per the Order S. 2.2
1966	Skyway	17182	Corp. of Township of Michipicoten	**2003**	Next Compliance per the Order S. 2.2
1968	BM Lifts	19188	Mt. Pakenham	**2003**	Next Compliance per the Order S. 2.2
1969	Hall	20139	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1969	Riblet	71554	Georgian Peaks	**2003**	Next Compliance per the Order S. 2.2
1970	Doppelmayr	21424	Alphine Ski Club	**2003**	Next Compliance per the Order S. 2.2
1970	Hall	39638	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	20264	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Borvig	22387	Devil's Elbow	**2003**	Next Compliance per the Order S. 2.2
1971	Skyway	70511	Rocket Man Restaurants	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	22307	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	23577	Mt. St. Louis-Moonstone	**2003**	Next Compliance per the Order S. 2.2
1972	BM Lifts	23681	Pine Ridge Ski	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23697	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23701	Searchmont	**2004**	Next Compliance per the Order S. 2.2
1972	Poma	23750	Thunder Bay Ski Jumps	**2004**	Next Compliance per the Order S. 2.2
1972	Hall	23753	Sir Sam's Ski Area	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23754	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1973	Borvig	27504	Horseshoe Resort	**2004**	Next Compliance per the Order S. 2.2
1974	Hall	28667	Mt. Pakenham	**2004**	Next Compliance per the Order S. 2.2
1974	Hall	28687	Craigleith Ski Club	**2004**	Next Compliance per the Order S. 2.2
1974	Poma	29553	North Bay Laurentian Ski Club	**2004**	Next Compliance per the Order S. 2.2
1975	Borvig	29557	Devil's Elbow	**2004**	Next Compliance per the Order S. 2.2
1976	Borvig	30582	Chicopee Ski Club	**2004**	Next Compliance per the Order S. 2.2
1977	Hall	31084	Devil's Glen	**2004**	Next Compliance per the Order S. 2.2
1977	Leitner/Doppelmayr	31207	Beaver Valley Ski Club	**2004**	Next Compliance per the Order S. 2.2
1977	Borvig	65904	Snow Valley Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1977	Poma	68594	Buttermilk Alpine Ski Village	**2004**	Next Compliance per the Order S. 2.2
1978	Poma	31058	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1978	Hall	32114	Caledon Ski Club	**2004**	Next Compliance per the Order S. 2.2
1978	Skyway	61915	Dagmar Resort	**2004**	Next Compliance per the Order S. 2.2
1978	BM Lifts	65948	Superior Slopes, Town of Marathon	**2004**	Next Compliance per the Order S. 2.2
1979	Poma	32161	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1979	Borvig	32174	Rocket Man Restaurants	**2004**	Next Compliance per the Order S. 2.2
1979	Skyway	32831	Mt. St. Louis-Moonstone	**2004**	Next Compliance per the Order S. 2.2

Table 1 - (1 of 3) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1979	Skyway	33001	North Bay Laurentian Ski Club	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	20529	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1980	Borvig	33629	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	67359	North York Ski Centre	**2005**	Next Compliance per the Order S. 2.2
1981	Borvig	35356	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60264	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60268	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	Doppelmayr	36014	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36107	Sir Sam's Ski Area	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36108	Dagmar Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36802	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	68568	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	70593	Uplands Golf and Ski Club	**2005**	Next Compliance per the Order S. 2.2
1984	Poma	37570	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	36801	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Doppelmayr	37609	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38441	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38451	Snow Valley Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38456	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Poma	38459	Blue Mountain Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39466	Loch Lomand	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39484	Hockley Valley Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39493	Searchmont Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39511	Mansfield Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Von Roll	39515	Osler Bluff Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Poma	39549	Horseshoe Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	13323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Dopplemayr	34000	Craigleith Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	60305	Glen Eden	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	73255	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	73323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	75231	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76427	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76485	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61722	Devil's Elbow	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61723	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61724	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61753	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61756	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61763	Dagmar Resort	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61765	Mt. Dufour Ski Area	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	63736	Sir Sam's Ski Area	**2006**	Next Compliance per the Order S. 2.2
1989	Poma	63706	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63712	Blue Mountain Ski Resorts	**2006**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63755	Lakeridge Resort	**2006**	Next Compliance per the Order S. 2.2

Table 1 - (2 of 3) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1979	Skyway	33001	North Bay Laurentian Ski Club	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	20529	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1980	Borvig	33629	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	67359	North York Ski Centre	**2005**	Next Compliance per the Order S. 2.2
1981	Borvig	35356	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60264	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60268	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	Doppelmayr	36014	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36107	Sir Sam's Ski Area	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36108	Dagmar Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36802	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	68568	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	70593	Uplands Golf and Ski Club	**2005**	Next Compliance per the Order S. 2.2
1984	Poma	37570	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	36801	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Doppelmayr	37609	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38441	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38451	Snow Valley Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38456	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	Poma	38459	Blue Mountain Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39466	Loch Lomand	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39484	Hockley Valley Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39493	Searchmont Resort	**2005**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39511	Mansfield Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Von Roll	39515	Osler Bluff Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	Poma	39549	Horseshoe Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	13323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Dopplemayr	34000	Craigleith Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	60305	Glen Eden	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	73255	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	73323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	75231	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76427	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76485	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61722	Devil's Elbow	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61723	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61724	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61753	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61756	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61763	Dagmar Resort	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61765	Mt. Dufour Ski Area	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	63736	Sir Sam's Ski Area	**2006**	Next Compliance per the Order S. 2.2
1989	Poma	63706	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63712	Blue Mountain Ski Resorts	**2006**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63755	Lakeridge Resort	**2006**	Next Compliance per the Order S. 2.2

Table 1 - (3 of 3) Continued…

Table # 2 (Director's Order #169/02)
Initial Phase for Implementing Compliance to Section 24 of the Code Adoption Document
In Chronological Order by Owner of Above-surface Passenger Ropeways

Year Made	*Manufacturer*	*Device #*	*Owner*	*Initial Phase (Year) Scheduled to Implement Director's Order*	*After Initial Phase Schedule Next Date*
1955	Poma	70584	Adanac Ski Hill	**2003**	Next Compliance per the Order S. 2.2
1970	Doppelmayr	21424	Alphine Ski Club	**2003**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61723	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	Doppelmayr	61724	Alpine Ski Club	**2006**	Next Compliance per the Order S. 2.2
1999	Doppelmayr	74568	Alpine Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1977	Leitner/Doppelmayr	31207	Beaver Valley Ski Club	**2004**	Next Compliance per the Order S. 2.2
1982	Doppelmayr	36014	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1985	Doppelmayr	37609	Beaver Valley Ski Club	**2005**	Next Compliance per the Order S. 2.2
1990	Doppelmayr	65244	Beaver Valley Ski Club	**2007**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76398	Beaver Valley Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1965	Poma	16803	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	20264	Blue Mountain Ski Resorts	**2003**	Next Compliance per the Order S. 2.2
1971	Poma	70532	Blue Mountain Ski Resorts	**2002**	This resort volunteered to comply in Year 2002
1997	Poma	73037	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Poma	74994	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Poma	75049	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Poma	76186	Blue Mountain Ski Resorts	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1978	Poma	31058	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1979	Poma	32161	Blue Mountain Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1985	Poma	38459	Blue Mountain Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63712	Blue Mountain Ski Resorts	**2006**	Next Compliance per the Order S. 2.2
1977	Poma	68594	Buttermilk Alpine Ski Village	**2004**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76252	Calabogie Peaks	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1978	Hall	32114	Caledon Ski Club	**2004**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65720	Caledon Ski Club	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69392	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1996	BM Lifts	72151	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Doppelmayr	76120	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
2000	Doppelmayr	76121	Caledon Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1965	Timberland/Elliot	18297	Centreville Amusement Park	**2003**	Next Compliance per the Order S. 2.2
1971	Borvig	22409	Chicopee Ski Club	**2002**	This resort volunteered to comply in Year 2002
1976	Borvig	30582	Chicopee Ski Club	**2004**	Next Compliance per the Order S. 2.2
1991	Poma	67250	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	Poma	67251	Chicopee Ski Club	**2007**	Next Compliance per the Order S. 2.2
1991	BM Lifts	67276	Cobble Hills Golf & Ski Club	**2007**	Next Compliance per the Order S. 2.2
1966	Skyway	17182	Corp. of Township of Michipicoten	**2003**	Next Compliance per the Order S. 2.2

Table 2 - (1 of 4) Continued…

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1974	Hall	28687	Craigleith Ski Club	**2004**	Next Compliance per the Order S. 2.2
1981	Hall	60264	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1981	Hall	60268	Craigleith Ski Club	**2005**	Next Compliance per the Order S. 2.2
1987	Dopplemayr	34000	Craigleith Ski Club	**2006**	Next Compliance per the Order S. 2.2
1999	C-Tec	74440	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	C-Tec	76268	Craigleith Ski Club		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1965	Poma	70604	Dacre Heights Ski Resort	**2003**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63881	Dagmar Resort	**2007**	Next Compliance per the Order S. 2.2
1978	Skyway	61915	Dagmar Resort	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36108	Dagmar Resort	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61763	Dagmar Resort	**2006**	Next Compliance per the Order S. 2.2
1971	Borvig	22387	Devil's Elbow	**2003**	Next Compliance per the Order S. 2.2
1975	Borvig	29557	Devil's Elbow	**2004**	Next Compliance per the Order S. 2.2
1981	Borvig	35356	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38441	Devil's Elbow	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61722	Devil's Elbow	**2006**	Next Compliance per the Order S. 2.2
1994	BM Lifts	70473	Devil's Elbow		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1965	Timberland	16794	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1969	Hall	20139	Devil's Glen	**2003**	Next Compliance per the Order S. 2.2
1977	Hall	31084	Devil's Glen	**2004**	Next Compliance per the Order S. 2.2
1990	Borvig	65785	Devil's Glen	**2007**	Next Compliance per the Order S. 2.2
1969	Riblet	71554	Georgian Peaks	**2003**	Next Compliance per the Order S. 2.2
1995	Poma	71436	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76295	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
2000	Leitner Lifts	76299	Georgian Peaks		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1987	Poma	60305	Glen Eden	**2006**	Next Compliance per the Order S. 2.2
2000	Poma	76199	Glen Eden		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1997	Poma	73036	Glen Eden		Ropeways made after Year 1992 Plan Compliance per S. 2.2
1964	Hall	15832	Hidden Valley Highlands Ski Club	**2003**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76427	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61756	Hidden Valley Highlands Ski Club	**2006**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39484	Hockley Valley Resort	**2005**	Next Compliance per the Order S. 2.2
1973	Borvig	27504	Horseshoe Resort	**2004**	Next Compliance per the Order S. 2.2
1980	Borvig	33629	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36802	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1984	Poma	37570	Horseshoe Resort	**2005**	Next Compliance per the Order S. 2.2
1986	Poma	39549	Horseshoe Resort	**2006**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63776	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65786	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65788	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1990	Borvig	65791	Horseshoe Resort	**2007**	Next Compliance per the Order S. 2.2
1969	Borvig	20158	Horseshoe Resort	**2002**	This resort volunteered to comply in Year 2002
1990	BM Lifts	65737	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65739	Kamiskotia Snow Resort	**2007**	Next Compliance per the Order S. 2.2

Year Made	Manufacturer	Device #	Owner	Initial Phase (Year) Scheduled to Implement Director's Order	After Initial Phase Schedule Next Date
1989	BM Lifts	63755	Lakeridge Resort	**2006**	Next Compliance per the Order S. 2.2
1989	BM Lifts	63803	Lakeridge Resort	**2007**	Next Compliance per the Order S. 2.2
1993	BM Lifts	69416	Lakeridge Resort	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1970	Hall	39638	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Poma	22307	Loch Lomand	**2003**	Next Compliance per the Order S. 2.2
1972	Borvig	23754	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23697	Loch Lomand	**2004**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39466	Loch Lomand	**2005**	Next Compliance per the Order S. 2.2
1990	BM Lifts	65738	London Ski Club	**2007**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39511	Mansfield Ski Club	**2006**	Next Compliance per the Order S. 2.2
1998	Leitner	74103	Mansfield Ski Club	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1998	Leitner	73791	Mattawa Conservation Authority	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1959	Riblet	1265	Mt. Baldy	**2003**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61765	Mt. Dufour Ski Area	**2006**	Next Compliance per the Order S. 2.2
1968	BM Lifts	19188	Mt. Pakenham	**2003**	Next Compliance per the Order S. 2.2
1974	Hall	28667	Mt. Pakenham	**2004**	Next Compliance per the Order S. 2.2
1980	BM Lifts	20529	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1982	BM Lifts	68568	Mt. Pakenham	**2005**	Next Compliance per the Order S. 2.2
1987	BM Lifts	76485	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1988	BM Lifts	61753	Mt. Pakenham	**2006**	Next Compliance per the Order S. 2.2
1972	Poma	23577	Mt. St. Louis-Moonstone	**2003**	Next Compliance per the Order S. 2.2
1979	Skyway	32831	Mt. St. Louis-Moonstone	**2004**	Next Compliance per the Order S. 2.2
1985	BM Lifts	36801	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38456	Mt. St. Louis-Moonstone	**2005**	Next Compliance per the Order S. 2.2
1987	BM Lifts	73255	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1989	Poma	63706	Mt. St. Louis-Moonstone	**2006**	Next Compliance per the Order S. 2.2
1991	Poma	67310	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts/Poma	68579	Mt. St. Louis-Moonstone	**2007**	Next Compliance per the Order S. 2.2
1996	Poma	72406	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1999	Poma	74995	Mt. St. Louis-Moonstone	Ropeways made after Year 1992 Plan Compliance per S. 2.2	
1960	Von Roll	14513	Niagara Parks Commision	**2003**	Next Compliance per the Order S. 2.2
1974	Poma	29553	North Bay Laurentian Ski Club	**2004**	Next Compliance per the Order S. 2.2
1979	Skyway	33001	North Bay Laurentian Ski Club	**2005**	Next Compliance per the Order S. 2.2
1980	BM Lifts	67359	North York Ski Centre	**2005**	Next Compliance per the Order S. 2.2

Table 2 - (3 of 4) Continued…

Year Made	*Manufacturer*	*Device #*	*Owner*	*Initial Phase (Year) Scheduled to Implement Director's Order*	*After Initial Phase Schedule Next Date*
1990	BM Lifts	65719	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68505	Oshawa Ski Club	**2007**	Next Compliance per the Order S. 2.2
1998	BM Lifts	73790	Oshawa Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1966	Hall	16677	Osler Bluff Ski Club	**2003**	Next Compliance per the Order S. 2.2
1986	Von Roll	39515	Osler Bluff Ski Club	**2006**	Next Compliance per the Order S. 2.2
2000	Doppelmayr	76195	Osler Bluff Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1998	Doppelmayr	73910	Osler Bluff Ski Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1972	BM Lifts	23681	Pine Ridge Ski	**2004**	Next Compliance per the Order S. 2.2
1971	Skyway	70511	Rocket Man Restaurants	**2003**	Next Compliance per the Order S. 2.2
1979	Borvig	32174	Rocket Man Restaurants	**2004**	Next Compliance per the Order S. 2.2
1972	Borvig	23701	Searchmont Resort	**2004**	Next Compliance per the Order S. 2.2
1986	BM Lifts	39493	Searchmont Resort	**2005**	Next Compliance per the Order S. 2.2
1989	Doppelmayr	63831	Searchmont Resort	**2007**	Next Compliance per the Order S. 2.2
1972	Hall	23753	Sir Sam's Ski Area	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	36107	Sir Sam's Ski Area	**2005**	Next Compliance per the Order S. 2.2
1988	BM Lifts	63736	Sir Sam's Ski Area	**2006**	Next Compliance per the Order S. 2.2
1992	BM Lifts	68524	Sir Sam's Ski Area	**2007**	Next Compliance per the Order S. 2.2
1996	BM Lifts	72269	Skyloft Ski & Country Club	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1997	Leitner-BM	73091	Snow Valley Ski Resorts	Ropeways made after Year 1992 Plan	Compliance per S. 2.2
1977	Borvig	65904	Snow Valley Ski Resorts	**2004**	Next Compliance per the Order S. 2.2
1985	BM Lifts	38451	Snow Valley Ski Resorts	**2005**	Next Compliance per the Order S. 2.2
1978	BM Lifts	65948	Superior Slopes, Town of Marathon	**2004**	Next Compliance per the Order S. 2.2
1963	Hall	15404	Talisman Mt. Resort	**2003**	Next Compliance per the Order S. 2.2
1963	Hall	15825	Talisman Mt. Resort	**2003**	Next Compliance per the Order S. 2.2
1987	Poma	13323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	Poma	73323	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1987	BM Lifts	75231	Talisman Mt Resort	**2006**	Next Compliance per the Order S. 2.2
1991	BM	67275	Talisman Mt. Resort	**2007**	Next Compliance per the Order S. 2.2
1972	Poma	23750	Thunder Bay Ski Jumps	**2004**	Next Compliance per the Order S. 2.2
1982	BM Lifts	70593	Uplands Golf and Ski Club	**2005**	Next Compliance per the Order S. 2.2

Note:
All owners of above-surface passenger ropeways shall review this table to verify for accuracy and/or lack of information contained in this table, and inform the TSSA in writing immediately of their findings.

Table 2 – (4 of 4) END

Elevating and Amusement Devices Safety Division	Ref. No.: 170 / 02	Rev. No.:
DIRECTOR'S ORDER	Date: **March 20, 2002**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 222/01 made under the
***Technical Standards and Safety Act* 2000**
(Certification & Training of Elevating Mechanics)

Subject: **Apprenticeship Requirement of Elevating Devices Mechanics-in-Training**

Sent to: **ALL CONTRACTORS AND MECHANICS-IN-TRAINING**

1. INTRODUCTION

The Elevating Devices Regulation (O.Reg. 209/01) made under the *Technical Standards and Safety Act* (Act) adopts Ontario Regulation 222/01 (Certification & Training of Elevating Device Mechanics). This Order designates programs and training organizations under Section 6(1) and 6(2) of the Ontario Regulation 222/01

Ontario Regulation 222/01 provides that:
Section 6(1)
"An applicant for a certificate shall have successfully ***completed a program approved by the director that is delivered by a training organization approved by the Director*** *for each class of certificate by the applicant".*

Section 6(2)
"An applicant shall have successfully completed an examination or a series of examinations, conducted or approved by the Director, demonstrating that the applicant possesses the necessary knowledge and competence for each certificate or class of certificate sought by the applicant".

2. ORDER

2.1 General

All Mechanics-In-Training in Ontario shall comply with Sections 6(1) and 6(2) of Ontario Regulation 222/01 as adopted by the Elevating Devices Regulation in accordance with the requirements stated in this Order.

2.2 Section 6(1) of Regulation 222/01

2.2.1 Training programs approved by the Director.

Effective March 20, 2002 the programs deemed to be an apprenticeship under the *Apprenticeship and Certification Act* (ACA) as administered by the Ministry of Training Colleges and Universities (MTCU) for Mechanics-In-Training working towards an EDM-A certificate are approved by the Director pursuant to Section 6(1) of Ontario Regulation 222/01

2.2.2 Training organizations approved by the Director

Effective (*date to be confirmed)* those training organizations on the schedule of Elevating Devices training organizations published by the Director in conjunction with the MTCU are approved by the Director pursuant to Section 6(1) of Ontario Regulation 222/01.

(List of providers to be confirmed)

EXAMINATIONS

The Director further orders that pursuant to Section 6(2) of the Ontario Regulation 222/01:

1. An applicant must present TSSA with a Certificate of Apprenticeship in order to be permitted to write the TSSA EDM-A examination.

2. The Mechanic-In-Training that began his/her training prior to January 1, 2000, is not required to present a Certificate of Apprenticeship in order to be permitted to write the examination. The Mechanic-In-Training will be required to provide proof of start date to demonstrate the four years experience and proof of training received, prior to being permitted to write the examination.

3. a) All Mechanics-In-Training are required to obtain and maintain a TSSA Elevating Devices Mechanic-In-Training (EDM-T) certificate until the completion of the Apprenticeship program.

   b) All Mechanics-In-Training who began their training after January 1, 2000 must register with the MTCU as an apprentice by contacting the local Apprenticeship and Client Services office of the MTCU, please check your blue pages for the office nearest you. The Mechanic-In-Training must complete the apprenticeship per the guidelines set out by the MTCU and present TSSA with the Certificate of Apprenticeship in order to be permitted to write the qualifying examination. Those persons applying will be assessed and placed at the appropriate level of training.

   c) All Mechanics-In-Training who began their training prior to January 1, 2000 have the option of entering the Apprenticeship program or continue their training until the four year requirement is complete in order to be permitted to write the qualifying examination. Those persons applying will be assessed and placed at the appropriate level of training.

   d) All Contractors must ensure that their Mechanics-In-Training meet the requirements set out in Section 6(1) and 6(2) of Regulation 222/01.

   e) Any person currently holding an EDM-C, EDM-CE, or EDM-CM certificate may apply to the apprentice program for the EDM-A certificate upon assessment of qualification those people will be placed in the appropriate level of the EDM-A apprentice program.

_____
Ted Dance, Director
Certification & Training of Elevating Device Mechanics Regulation
Technical Standards and Safety Act

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Committee.

Elevating and Amusement Devices Safety Division	Ref. No.: 171 / 2002	Rev. No.:
DIRECTOR'S ORDER	Date: April 3, 2003	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Cab Interior Modernization's and / or Change in Cab Weight**

Sent to: **ALL ELEVATOR CONTRACTORS IN SCOPE U1, L1, F1, P1 & Consultants**

1. Background

1.1 Contractors doing cab renovations have requested that TSSA provide guidelines as to what is required when elevator cab interiors are renovated.

1.2 The TSSA working relations committee made suggestions for these requirements. A task force was set up to review these proposals and clarify the requirements that are to be followed when elevator cabs are renovated.

1.3 The actions of this bulletin are intended to address the issue of successive incremental weight changes **(cumulative weight change)**, which may require more stringent examination of the equipment when the sum of weight changes exceed prescribed levels.

1.4 Listed below are the results from the recommendations of the task force.

2. Order to Contractors Involved in Cab Renovations & All Contractors Who Perform Tests

2.1 Effective **October 1st, 2003**, when the dead weight of the car is changed the following requirements shall be met:

2.1.1 Reduction in Weight *OR* Cumulative Weight Change of 100 kg or less:

If the car weight is reduced by any amount that is less than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**
OR
If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is 100 kg or less (provided the Cumulative Weight is less than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**)

- Submit a **Minor B Notification**
- Record the weight change on an Auxiliary Data Tag* (* See 4. Auxiliary Data Tag requirements)
- Post the auxiliary data tag on the car crosshead

NOTE: Where there is evidence of a previous cab modernization and the prior weight changes were not recorded, the car must be weighed to ensure that the PREVIOUS Weight Change plus the PROPOSED Weight Change fall within the 100kg or less requirement.
It is recommended that the counterweight be weighed at the same time as the cab as this will provide important information for counterbalance requirements.

2.1.2 Cumulative Weight Change greater than 100 kg but not greater than 5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED

If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is greater than 100 kg but not greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**

- Submit a Design Submission for a **Minor A Alteration**
- Include the weight change (BOX 116.10)
- Include the complete** weight of the car (BOX 116.00)
- Include the counterweight overbalance required for the installation (BOX 118.00)
- Perform a full engineering assessment of the installation with regard to all equipment which may be affected by the weight change (example: machine, car frame, buffers, traction, lift ropes, plunger strengths, working pressures, etc.), however compliance with B44 requirement 2.24.3. is not required.
- Record the weight change on an Auxiliary Data Tag – Both **car** and **counterweight** changes
- Post the auxiliary data tag on the car crosshead

***Note: The contractor is expected to weigh both car and counterweight to obtain accurate weight measurements.*

2.1.3 Addition or Reduction greater than 5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED (8.7.2.15.2) or (8.7.3.21)

If the car weight is reduced by an amount greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**
OR
If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**

- Submit a Design Submission for a **Major Alteration**
- Include specification data as per 2.1.2 above
- Comply with B44 alteration requirement 8.7.2.15.2 'Increase or Decrease in Dead Weight of Car' or Comply with B44 alteration requirement 8.7.3.21 'Increase in Dead Weight of Car'
- Record the weight change on an Auxiliary Data Tag
- Post the auxiliary data tag on the car crosshead

3. Specific Requirements & Tests for Alterations including Glass, Mirror and Suspended Ceilings

Aside from the prescribed tests for cab alterations, where alterations include the,
a) addition of glass or mirror or
b) 'addition of' or 'alteration to' suspended ceilings
the following tests shall be performed PRIOR to returning the car into service to verify that the these items will not break or become dislodged.

For electric elevators:
- a no load full speed safety test OR
- a no load car buffer test at contract speed

For hydraulic elevators:
- an emergency stop in the UP direction

Notification of successful completion of the test(s) shall be made in the log book and shall include the date, mechanic and company. This test will not be required to be repeated at time of inspection.

4. Auxiliary Data Tag* (see Figure 1)**

The auxiliary data tag shall contain as a minimum:
- The weight change in kg - of both the CAR and CWT
  (includes '–ve' reduction in weight, 'zero' weight, and '+ve' weight changes)

- The month & year of the alteration
- The name of the contractor who performed or supervised the alteration
- The plate shall meet the requirements of B44 2.16.3.3 'Material & Marking of Plates'

*** It is the intention that the *Original Crosshead Data Tag* **plus** subsequent *Auxiliary Data Tags* will provide a permanent historical record of all weight changes made to the elevating device. This includes data tags with ZERO and NEGATIVE weight changes.
NOTE: Where no original crosshead data tag exists, the contractor must weigh the car prior to the start of the alteration and post the pre-alteration weight on an Auxiliary Data Tag.

5. General Notes Regarding Design Submissions & Inspections

- In the case of a **Minor B Notification**, or a **Minor A** alteration the elevator can be returned to service before it is inspected. See item **3. Specific Requirements & Tests..** before returning car to service.
- The **contractor** who completed the alteration **shall arrange** for a special inspection to be carried out not later than 60 days from the date of the completion of the alteration, and shall arrange for the performance of tests required by the inspector.
- In the case of a **Major** alteration, the elevator must be inspected before being returned to service.
- **Major** and **Minor A** alterations must be submitted by a Professional Engineer.
- **Major** and **Minor A** alterations shall have their traction tested in accordance with B44 8.10.2.2.2(v)(3).

6. Work Instructions & Recommendations

- Any work done on an elevator in the Province of Ontario must be done by a certified Elevator Mechanic Employed by a Registered Contractor per Ontario Regulation 209/01 - Elevating Devices Section 14 and Ontario Regulation 222/01 – Certification and Training of Elevating Device Mechanics.
- Mechanics should **weigh in** and **weigh out** materials to ensure final cab weights correspond to the values reflected by the auxiliary data tag.

Figure 1

Sample Auxiliary DATA TAG

Cab Alteration – Weight DATA			
Date of Alteration	_____ Month		_____ Year
NET Weight Change - CAR	_____ kg	☐ Added	☐ Removed
NET Weight Change - CWT	_____ kg	☐ Added	☐ Removed
Alteration Contractor	_____		
Pre-Alteration Wt - CAR	_____ kg		

Original Signed
Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 171 / 2002	Rev. No.: 1
DIRECTOR'S ORDER	Date: April 3, 2003	Date: Sept. 5, 2003

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Cab Interior Modernization's and / or Change in Cab Weight**

Sent to: **ALL ELEVATOR CONTRACTORS IN SCOPE U1, L1, F1, P1 & Consultants**

1. Background

1.1 Contractors doing cab renovations have requested that TSSA provide guidelines as to what is required when elevator cab interiors are renovated.

1.2 The TSSA working relations committee made suggestions for these requirements. A task force was set up to review these proposals and clarify the requirements that are to be followed when elevator cabs are renovated.

1.3 The actions of this bulletin are intended to address the issue of successive incremental weight changes **(cumulative weight change)**, which may require more stringent examination of the equipment when the sum of weight changes exceed prescribed levels.

1.4 Listed below are the results from the recommendations of the task force.

2. Order to Contractors Involved in Cab Renovations & All Contractors Who Perform Tests

2.1 For design submissions received on or after **October 1st, 2003**, where the dead weight of the car is changed the following requirements shall be met: R1

2.1.1 Reduction in Weight *OR* Cumulative Weight Change of 100 kg or less:

If the car weight is reduced by any amount that is less than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**
OR
If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is 100 kg or less (provided the Cumulative Weight is less than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**)

- Submit a **Minor B Notification**
- Record the weight change on an Auxiliary Data Tag* (* See 4. Auxiliary Data Tag requirements)
- Post the auxiliary data tag on the car crosshead

NOTE: Where there is evidence of a previous cab modernization and the prior weight changes were not recorded, the car must be weighed to ensure that the PREVIOUS Weight Change plus the PROPOSED Weight Change fall within the 100kg or less requirement.
It is recommended that the counterweight be weighed at the same time as the cab as this will provide important information for counterbalance requirements.

2.1.2 Cumulative Weight Change greater than 100 kg but not greater than 5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED

If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is greater than 100 kg but not greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**

- Submit a Design Submission for a **Minor A Alteration**
- Include the weight change (BOX 116.10)
- Include the complete** weight of the car (BOX 116.00)
- Include the counterweight overbalance required for the installation (BOX 118.00)
- Perform a full engineering assessment of the installation with regard to all equipment which may be affected by the weight change (example: machine, car frame, buffers, traction, lift ropes, plunger strengths, working pressures, etc.), however compliance with B44 requirement 2.24.3. is not required.
- Record the weight change on an Auxiliary Data Tag – Both **car** and **counterweight** changes
- Post the auxiliary data tag on the car crosshead

***Note: The contractor is expected to weigh both car and counterweight to obtain accurate weight measurements.*

2.1.3 Addition or Reduction greater than 5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED (8.7.2.15.2) or (8.7.3.21)

If the car weight is reduced by an amount greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**
OR
If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**

- Submit a Design Submission for a **Major Alteration**
- Include specification data as per 2.1.2 above
- Comply with B44 alteration requirement 8.7.2.15.2 'Increase or Decrease in Dead Weight of Car' or Comply with B44 alteration requirement 8.7.3.21 'Increase in Dead Weight of Car'
- Record the weight change on an Auxiliary Data Tag
- Post the auxiliary data tag on the car crosshead

3. Specific Requirements & Tests for Alterations including Glass, Mirror and Suspended Ceilings

Aside from the prescribed tests for cab alterations, where alterations include the,
a) addition of glass or mirror or
b) 'addition of' or 'alteration to' suspended ceilings
the following tests shall be performed PRIOR to returning the car into service to verify that the these items will not break or become dislodged.

For electric elevators:
- a no load full speed safety test OR
- a no load car buffer test at contract speed

For hydraulic elevators:
- an emergency stop in the UP direction

Notification of successful completion of the test(s) shall be made in the log book and shall include the date, mechanic and company. This test will not be required to be repeated at time of inspection.

4. Auxiliary Data Tag* (see Figure 1)**

The auxiliary data tag shall contain as a minimum:
- The weight change in kg - of both the CAR and CWT
  (includes '–ve' reduction in weight, 'zero' weight, and '+ve' weight changes)

- The month & year of the alteration
- The name of the contractor who performed or supervised the alteration
- The plate shall meet the requirements of B44 2.16.3.3 'Material & Marking of Plates'

*** It is the intention that the *Original Crosshead Data Tag* **plus** subsequent *Auxiliary Data Tags* will provide a permanent historical record of all weight changes made to the elevating device. This includes data tags with ZERO and NEGATIVE weight changes.
NOTE: Where no original crosshead data tag exists, the contractor must weigh the car prior to the start of the alteration and post the pre-alteration weight on an Auxiliary Data Tag.

5. General Notes Regarding Design Submissions & Inspections

- In the case of a **Minor B Notification**, or a **Minor A** alteration the elevator can be returned to service before it is inspected. See item **3. Specific Requirements & Tests..** before returning car to service.
- The **contractor** who completed the alteration **shall arrange** for a special inspection to be carried out not later than 60 days from the date of the completion of the alteration, and shall arrange for the performance of tests required by the inspector.
- In the case of a **Major** alteration, the elevator must be inspected before being returned to service.
- **Major** and **Minor A** alterations must be submitted by a Professional Engineer.
- **Major** and **Minor A** alterations shall have their traction tested in accordance with B44 8.10.2.2.2(v)(3).

6. Work Instructions & Recommendations

- Any work done on an elevator in the Province of Ontario must be done by a certified Elevator Mechanic Employed by a Registered Contractor per Ontario Regulation 209/01 - Elevating Devices Section 14 and Ontario Regulation 222/01 – Certification and Training of Elevating Device Mechanics.
- Mechanics should **weigh in** and **weigh out** materials to ensure final cab weights correspond to the values reflected by the auxiliary data tag.

Figure 1

Sample Auxiliary DATA TAG

Cab Alteration – Weight DATA			
Date of Alteration	_____ Month		_____ Year
NET Weight Change - CAR	_____ kg	☐ Added	☐ Removed
NET Weight Change - CWT	_____ kg	☐ Added	☐ Removed
Alteration Contractor	_____		
Pre-Alteration Wt - CAR	_____ kg		

Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 171 / 2002	Rev. No.: 2
DIRECTOR'S ORDER	Date: April 3, 2003	Date: May 3, 2005

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Cab Interior Modernization's and / or Change in Cab Weight - Effective May 3, 2005**

Sent to: **ALL ELEVATOR CONTRACTORS IN SCOPE U1, L1, F1, P1 & Consultants**

1. Background

1.1 Contractors doing cab renovations have requested that TSSA provide guidelines as to what is required when elevator cab interiors are renovated.

1.2 The TSSA working relations committee made suggestions for these requirements. A task force was set up to review these proposals and clarify the requirements that are to be followed when elevator cabs are renovated.

1.3 The actions of this bulletin are intended to address the issue of successive incremental weight changes **(cumulative weight change)**, which may require more stringent examination of the equipment when the sum of weight changes exceed prescribed levels.

1.4 Listed below are the results from the recommendations of the task force.

2. Order to Contractors Involved in Cab Renovations & All Contractors Who Perform Tests

2.1 Effective with the date of this revision [rev.2 - May 3, 2005], where the dead weight of the car is changed the following requirements shall be met: Δ

2.1.1 Reduction in Weight *OR* Cumulative Weight Change of 115 kg or less: Δ

If the car weight is reduced by any amount that is less than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**
OR
If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is 115 kg or less (provided the Cumulative Weight is less than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**) Δ

- Submit a **Minor B Notification**
- Record the weight change on an Auxiliary Data Tag* (* See 4. Auxiliary Data Tag requirements)
- Post the auxiliary data tag on the car crosshead

NOTE: Where there is evidence of a previous cab modernization and the prior weight changes were not recorded, the car must be weighed to ensure that the PREVIOUS Weight Change plus the PROPOSED Weight Change fall within the 115kg or less requirement. Δ
It is recommended that the counterweight be weighed at the same time as the cab as this will provide important information for counterbalance requirements.

2.1.2 **Cumulative Weight Change greater than 115 kg but not greater than 5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED** Δ

If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is greater than 115 kg but not greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED** Δ

- Submit a Design Submission for a **Minor A Alteration**
- Include the weight change (BOX 116.10)
- Include the complete** weight of the car (BOX 116.00)
- Include the counterweight overbalance required for the installation (BOX 118.00)
- Perform a full engineering assessment of the installation with regard to all equipment which may be affected by the weight change (example: machine, car frame, buffers, traction, lift ropes, plunger strengths, working pressures, etc.), however compliance with B44 requirement 2.24.3. is not required.
- Record the weight change on an Auxiliary Data Tag – Both **car** and **counterweight** changes
- Post the auxiliary data tag on the car crosshead

***Note: The contractor is expected to weigh both car and counterweight to obtain accurate weight measurements.*

2.1.3 **Addition or Reduction greater than 5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**
(8.7.2.15.2) or (8.7.3.21)

If the car weight is reduced by an amount greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**
OR
If the 'proposed weight increase' plus 'ALL prior weight increases' (ie the Cumulative Weight) is greater than **5% of 'CAR + CAPACITY' AS ORIGINALLY INSTALLED**

- Submit a Design Submission for a **Major Alteration**
- Include specification data as per 2.1.2 above
- Comply with B44 alteration requirement 8.7.2.15.2 'Increase or Decrease in Dead Weight of Car' or Comply with B44 alteration requirement 8.7.3.21 'Increase in Dead Weight of Car'
- Record the weight change on an Auxiliary Data Tag
- Post the auxiliary data tag on the car crosshead

3. **Specific Requirements & Tests for Alterations including Glass, Mirror and Suspended Ceilings**

Where alterations include the addition of glass or mirror, or addition/alteration to suspended ceilings, the following requirements shall be met:

3.1 Prior to returning the elevator back into public service, the alteration contractor shall record in the log book the date the elevator work was completed and returned to service. Δ

Sample Log Book Entry: "Cab work completed and Returned to Service on <enter full date>"

3.2 **WITHIN 15 DAYS** (of date noted in 3.1 above) the following tests shall be performed on the altered elevator to verify that these items will not break or become dislodged. Δ

Test for electric elevators:
- a no load full speed safety test OR
- a no load car buffer test at contract speed

Test for hydraulic elevators:
- an emergency stop in the UP direction

3.3 Upon successful completion of the test(s) in 3.2, the contractor who performed the tests shall put an entry in the logbook indicating; which test was performed, the date, the mechanic's name and company. These tests will not be required to be repeated at time of inspection.

4. Auxiliary Data Tag* (see Figure 1)**

The auxiliary data tag shall contain as a minimum:

- The weight change in kg - of both the CAR and CWT (includes '–ve' reduction in weight, 'zero' weight, and '+ve' weight changes)
- The month & year of the alteration
- The name of the contractor who performed or supervised the alteration
- The plate shall meet the requirements of B44 2.16.3.3 'Material & Marking of Plates'

*** It is the intention that the *Original Crosshead Data Tag* **plus** subsequent *Auxiliary Data Tags* will provide a permanent historical record of all weight changes made to the elevating device. This includes data tags with ZERO and NEGATIVE weight changes.

NOTE: Where no original crosshead data tag exists, the contractor must weigh the car prior to the start of the alteration and post the pre-alteration weight on an Auxiliary Data Tag.

5. General Notes Regarding Design Submissions & Inspections

- In the case of a **Minor B Notification**, or a **Minor A** alteration the elevator can be returned to service before it is inspected. See item **3. Specific Requirements & Tests** before returning car to service.
- The **contractor** who completed the alteration **shall arrange** for a special inspection to be carried out not later than 60 days from the date of the completion of the alteration, and shall arrange for the performance of tests required by the inspector.
- In the case of a **Major** alteration, the elevator must be inspected before being returned to service.
- **Major** and **Minor A** alterations must be submitted by a Professional Engineer.
- **Major** and **Minor A** alterations shall have their traction tested in accordance with B44 8.10.2.2.2(v)(3).

6. Work Instructions & Recommendations

- Any work done on an elevator in the Province of Ontario must be done by a certified Elevator Mechanic Employed by a Registered Contractor per Ontario Regulation 209/01 - Elevating Devices Section 14 and Ontario Regulation 222/01 – Certification and Training of Elevating Device Mechanics.
- Mechanics should **weigh in** and **weigh out** materials to ensure final cab weights correspond to the values reflected by the auxiliary data tag.

Figure 1

Sample Auxiliary DATA TAG

Cab Alteration – Weight DATA			
Date of Alteration	_____ Month		_____ Year
NET Weight Change - CAR	_____ kg	☐ Added	☐ Removed
NET Weight Change - CWT	_____ kg	☐ Added	☐ Removed
Alteration Contractor	_____		
Pre-Alteration Wt - CAR	_____ kg		

Roland Hadaller, Director, TSS Act 2000, [Elevating Devices]

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 172 / 02	Rev. No.:
DIRECTOR'S ORDER	Date: **November 1, 2002**	Date:

THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Elevators with in-car special emergency (phase II) operation and floor buttons controlled by cards/keys**

Sent to: **All Elevator Contractors in scope U1 and L1, Owners & Consultants**

1. **Background**

1.1 Some elevator cars are fitted/equipped with 'floor-access control' features. A car-call to a specific floor cannot be registered without the use of a "security card or key". Where the 'floor-access control' means were retrofitted on existing elevators, the originally installed (and tested) floor registering means might have been reprogrammed or altered.

1.2 If the 'floor access control' means are not rendered inoperative when the car is on the 'in-car special-emergency-service' mode of operation, the firefighters may be prevented from gaining access to certain building floors. The safety of the firefighters and general public may be seriously affected.

1.3 According to the CSA B44, Elevator Safety Code and therein referenced Building Code, the elevator operating as described in 1.2 contravenes the Safety Code, that requires the firemans' elevator "shall be capable of providing transportation from the storey containing entrance for firefighters access… to every floor….in the building that is normally served by the elevator system."

2. **Order to Owners**

For elevators with 'in car special emergency service' and any form of security device that restricts or controls car call registration, you shall:

(a) not later than **May 1, 2003**,

- have tested, the in-car SES operation on these elevators to verify that when on in-car SES operation, a car-call can be registered for every floor without the use of the access cards or keys or other means and
- confirm in the elevator log book by a note or separate document, that the test was completed and the results of the test; either: (i) SES overrides floor lockouts – PASS [no future action required]
  (ii) SES overrides floor lockouts – FAIL [see 2(b) below]

(b) where necessary, and not later than **May 1, 2004**,

- have repairs carried out to bring the elevator in compliance with the Elevator Safety Code and the Building Code; and
- confirm in the elevator log book by a note or separate document, that the elevators are now in full compliance with the elevator Safety Code and the Building Code.

3. **Note**

As required by the B44 Elevator Safety Code and the National Building Code, keys used to activate fire recall are to be available to firemen and emergency personnel. When doing the tests in 2(a) you should verify that the keys are available in their required location as determined by the local fire department.

Ted Dance, Director, TSS Act 2000, (Elevating Devices) RFH/RN

This order has been developed in consultation with the TSSA Elevating Devices Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 173 / 02	Rev. No.:
DIRECTOR'S ORDER	Date: **November 1, 2002**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000 (Elevating Devices)

Subject: **Retrofitting of Elevators Without Car Top Maintenance Stations**

Sent to: **All Contractors in Scope U1, L1 & P1, Owners & Consultants**

1. BACKGROUND

a) Some older elevators in the Province of Ontario are not equipped with car top maintenance stations. This creates a potential hazard for Elevator Mechanics and Inspectors.

b) TSSA has been approached by the Elevating Devices Advisory Council to issue an order to require the retrofitting of car top maintenance stations on all existing licensed elevators in the province.

c) After collecting preliminary data from elevator maintenance contractors (Directors Order 162-01), this order is being issued to make car top maintenance stations mandatory on all elevators.

2. ORDER TO ELEVATOR OWNERS

By July 1, 2005, you shall:

Up grade all elevators that do not have 'car top maintenance stations' to include, 'car top maintenance stations' conforming to either:

- CSA B44-94s2 clause 10.4.12.1 or
- CSA B44-00 requirement 8.7.2.27.1.

3. INSTRUCTIONS

a) All work must be performed by a contractor registered with TSSA.

b) Work carried out in compliance with this order is considered an alteration and, as such, a Design Submission in the form of a Minor A alteration must be submitted by a registered contractor. In accordance with Section 19 of O.Reg 209/01, the Design Submission shall be submitted for registration not later than 10 working days after completion of a minor alteration.

c) The contractor who completed the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of completion of the alteration.

Note: Contractors are advised to submit the documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

Ted Dance, Director, TSS Act 2000, (Elevating Devices) RFH/RN

This order has been developed in consultation with the TSSA Elevating Devices Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 173 / 02	Rev. No.: 1
DIRECTOR'S ORDER	Date: November 1, 2002	Date: June 1, 2004

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Retrofitting of Elevators Without Car Top Maintenance Stations**

Sent to: **All Contractors in Scope U1, L1 & P1, Owners & Consultants**

1. BACKGROUND

a) Some older elevators in the Province of Ontario are not equipped with car top maintenance stations. This creates a potential hazard for Elevator Mechanics and Inspectors.

b) TSSA has been approached by the Elevating Devices Advisory Council to issue an order to require the retrofitting of car top maintenance stations on all existing licensed elevators in the province.

△1 c) After collecting preliminary data from elevator maintenance contractors (Directors Order 162-01), this order is being issued to make car top maintenance stations mandatory on all passenger and freight elevators. This order does not apply to other types of elevating devices defined in Ontario Regulation 209/01.

d) The intent of this order is to provide control of the device to authorized persons on top of the car for their safety. If the car does not have a car top (roof) the car top maintenance station is not necessary and therefore compliance to this order is not required. The removal of roofs to meet this exemption criterion reduces the level of safety from the currently adopted code and is therefore an unacceptable alteration.

△1

2. ORDER TO ELEVATOR OWNERS

By July 1, 2005, you shall:

△1 Up grade all Passenger and Freight Elevators with full or partial car tops, but without 'car top maintenance stations' to include 'car top maintenance stations' conforming either to:

- CSA B44-94s2 clause 10.4.12.1 or
- CSA B44-00 requirement 8.7.2.27.1.

In addition partial and full car tops must be structurally sound, provide a safe working surface and be permanently mounted and secured to the car walls or frame.

3. INSTRUCTIONS

△1 a) All work must be performed by a contractor registered with TSSA.

b) Work carried out in compliance with this order is considered an alteration and, as such, a Design Submission in the form of a Minor A alteration with related electrical schematics must be submitted by a registered contractor. In accordance with Section 19 of O.Reg 209/01, the Design Submission shall be submitted for registration not later than 10 working days after completion of a minor alteration.

c) The contractor who completed the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of completion of the alteration.

Note: Contractors are advised to submit the documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

Ted Dance, Director, TSS Act 2000, (Elevating Devices) RFH/CG

This order has been developed in consultation with the TSSA Elevating Devices Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 174 / 02	Rev. No.:
DIRECTOR'S ORDER	Date: **February 24, 2003**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Adoption of CSA B311-02, Safety Code for Manlifts**

Sent to: **All Manlift Contractors in Scope U6 and Consultants**

1. Order

1.1. Adoption

a) Each newly installed manlift for which the design is submitted to TSSA for registration on or after:

the 1st day of September 2003, shall fully conform to the requirements of:

CSA-B311-02 Safety Code for Manlifts, as modified in Item 1.2 of this Order.

b) Compliance with the 2002 edition of CSA B311 Code shall be stated in item #192 of the TSSA specification sheet or in a separate affidavit.

c) Submissions for new installations received on or before August 31, 2003 need only comply with CSA B311-79 as amended with supplement No.1-1984.

1.2. Modifications and Clarifications

The code adopted in 1.1 is subject to the following modifications and clarifications:

a) Conformance to Appendix A, B, & C is mandatory.

b) Section 7.32.9 applies to all Power-Type Manlifts. Top-of-car operating stations are not limited to lifts with wireless control and shall be provided on each power-type manlift.

c) Section 7.32: Note that requirements of section 7.36, Control and Operating Circuits, apply to "Wireless Control" as well.

1.3. Major revisions or additions in CSA B311-02

1.3.1. General

Major changes have been made to the B311-02 code as a result of the extended period since publication of the 1979 edition. The Power-Type Manlift Section 7 has undergone a significant rewrite as a result of two factors:

a) Numerous new and more stringent requirements to allow an increase of capacity, speed, car floor area, and addition of automatic operation option.

b) Harmonization with ASME A17-1 Safety Code for Elevators, Section 5.7.

1.3.2. Specific clauses with major revisions/additions in the CSA-B311-02 include:

Endless-Belt-Type Manlift:

a) Pits are not permitted (Cl. 5.2.7.2.2);

b) Safety brake shall be applied to final output shaft or head pulley. Increased loading and tripping speed (Cl 5.3.2.3.1);

c) Belt width is based on speed (Cl. 5.3.3.2);

d) Belt strength is increased (Cl. 5.3.3.3);

e) A grab rail is replaced by a third automatic stop device as protection against emergency stop device failure (Cl. 5.4.3.3);

f) Both pulleys must be monitored to ensure both are turning at the same speed (Cl. 5.4.4.3);

g) Control circuits (Cl. 5.4.9.3);

h) Bottom floor warning sign and light (Cl. 5.5.3);

Hand-Powered Counterbalanced Manlift:

i) New requirements for counterweight safeties to protect spaces below hoistway (Cl. 6.5);

j) Gate height increased (Cl. 6.10.4);

Power-Type Manlift:

k) Maximum rated load, speed, and platform area increased (Cl. 7.2);

l) Top and bottom hoistway construction (Cl. 7.3.2);

m) Pit design and access (Cl. 7.5);

n) Clearances between Cars, Counterweights, and Hoistway Enclosures (Cl. 7.7.4);

o) Machine rooms (Cl. 7.9);

p) Automatic operation is permitted (Cl. 7.31.1.a);

q) Electrical protective devices have been added (Cl. 7.33);

r) Control and operating circuits (Cl. 7.36).

2. Instructions

a) In the case of existing manlifts, the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act*.

b) The CSA-B311-02 Safety Code for Manlifts is available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3, telephone 1-800-463-6727, e-mail – sales@csa-international.org or web site www.csa.ca.

c) Since the Regulation under the *Technical Standards and Safety Act* requires all mechanics to have full knowledge of the codes applicable to the elevating devices upon which they are assigned to work, we would expect that the mechanics involved in the construction, installation, and maintenance of manlifts will obtain a copy of the subject Standard.

3. NOTES

a) Contractors are urged to study the B311-02 Code carefully to ensure conformance by the specified date.

b) This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

_____

Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Elevating and Amusement Devices Safety Division	Ref. No.: 175 / 02	Rev. No.:
Information / Interpretation Bulletin	Date: **June 23, 2003**	Date:

Subject: **Firefighters' Emergency Operation [FEO], Special Emergency Service [SES], & Fire Code Retrofit [FCR] – Clarification of Requirements**

Sent to: **ALL ELEVATOR CONTRACTORS and CONSULTANTS**

1. INSTRUCTIONS TO SUBMITTING ENGINEERS & CONTRACTORS

1.1 Each professional **engineer** submitting designs, or any **contractors** installing, **NEW** elevators or performing **ADDITIONS** or **ALTERATIONS** which consist of:

- **NEW** elevators equipped with **[FEO]**
- **ADDITION** of **[FEO]** Firefighters' Emergency Operation to existing elevators
- **ADDITION** of **[FCR]** Fire Code Retrofit to existing elevators
- **ALTERATION** of existing **[FEO]** Firefighters' Emergency Operation
- **ALTERATION** of existing **[SES]** Special Emergency Operation, or
- **ALTERATION** of existing **[FCR]** Fire Code Retrofit

shall ensure that elevators comply with the applicable requirements of:

- CSA B44 - Safety Code for Elevators and
- applicable TSSA Director's Rulings

The inclusion of these features shall be in accordance with interpretations in Section 2 below, which explain,

- which rules apply to new equipment, added or altered systems
- which colours apply to engravings and switch markings
- when a 50mm Firefighters Elevator symbol is required or permitted

1.2 Possible deviations from this order are permitted on projects for which TSSA receives the design submission before **the First Day of January 2004**, except that **no variances** are permitted for **new elevators.**

2. INTERPRETATIONS

2.1 Subject of interpretation

The interpretations refer to the following requirements as applicable to FEO, SES and FCR:

- Clause 2.27.3 to 2.27.8 of B44-00, Firefighters' Emergency Operation [FEO]
- Clause 3.12.15 of B44 – editions and supplements from 1980 to 1998, Special Emergency Service [SES]
- TSSA Director's Ruling No.60/88, Elevator Fire Code Retrofit [FCR] in Health Care Facilities,
- TSSA Director's Ruling No.105/93/Rev.2/94, Elevator Fire Code Retrofit [FCR] in Residential Buildings,
- Ontario Building Code [OBC], Ontario Regulation 403/97 and earlier editions enforced at the time of original elevators installation or initial licensing,
- Ontario Fire Code [OFC], Ontario Regulation 627/92 and 388/97.

NEW, ADDITION, ALTERATION - Matrix of Permissible Options

New or Existing Elevator	Proposed Controller	Scope of Work	Feature Being Considered		
			FEO	**SES**	**FCR**
NEW Elevator w/	New Control	**INCLUSION** of	✓OK	× NO[1]	× NO[1]
EXISTING Elevator w/	New Controller&	**INCLUSION** of	✓OK	ⓘ[2]	× NO[1]
	Existing Controller &	**ADDITION** of	✓OK	ⓘ[2]	✓OK
		ALTERATION to	✓OK	✓OK[3]	✓OK[3]

[1] Feature is not permitted on new equipment

[2] Special cases may permit addition of previously absent feature if trying to match other elevators in the group

[3] Alterations such as: a) upgrade from manual recall to auto recall or b) addition of Phase II where previously not present would be permitted in lieu of compliance to 8.7.2.28 or 8.7.3.31.8

T A B L E: Interpretations

C1	C2	C3	C4	C5	C6
Case No.	**Building Type** where the elevator is located	**Is/was FEO/SES/FCR required by OBC or OFC?** Provided voluntarily?	**RULES Which this elevator does or must meet?**	**Required colour of switch markings in car and at landing**	**Colour** of **50 mm FF Hat at entrance frame** Required or Permitted?
1	**INSTALLATION of NEW ELEVATOR**				
1a	Any Building Type	- **FEO** is required by current OBC	- B44-00 rule 2.27.3 to 2.27.8 - OBC –97, 3.2.6.9 & 3.2.7.9	RED Required	RED hat required
1b		- **FEO** is NOT required by OBC, - But provided voluntarily	- B44-00 rule 2.27.3 to 2.27.8 - OBC –97, 3.2.6.9 & 3.2.7.9	RED Required	RED hat permitted
1c			- B44-00 rule 2.27.3 to 2.27.8 - Does not meet OBC –97	RED Required	NO hat permitted
2	**ADDITION of FCR (to existing controller only)**				
2a	Residential Building or Health Care facility	**FCR** required by OFC in building in column C2 but prohibited in other buildings	- TSSA Director's Ruling #105/93 Rev.2/94 or #60/88 Rev.1/88 - Does not fully meet OBC* or B44	Yellow Required	YELLOW hat required
2b		- Voluntarily provided FEO instead of FCR	- B44-00 rule 2.27.3 to 2.27.8 - Does not meet applicable OBC*	RED Required	<u>YELLOW</u> hat permitted
2c			- B44-00 rule 2.27.3 to 2.27.8 - Fully meets applicable OBC*		RED hat permitted
3	**ADDITION of FEO**				
3a	Any building, including Residential or Health Care	- Not required by any code. - **FEO** voluntarily provided	- B44-00 rule 2.27.3 to 2.27.8 - Does not meet applicable OBC*	RED Required	NO hat permitted
2b			- B44-00 rule 2.27.3 to 2.27.8 - Fully meets applicable OBC*		RED hat permitted
4	**ALTERATION to an installation which has FEO, SES or FCR**				
4a	Any building, including Residential or Health Care	- Required by B44-00 when work listed in 3.1.5 is performed	- B44-00 rule 2.27.3 to 2.27.8- Does not meet applicable OBC*	RED Required	<u>YELLOW</u>■ hat permitted
4.b		If required as in 4a or voluntarily altered **FCR, SES** or **FEO**	- B44-00 rule 2.27.3 to 2.27.8- Fully meets applicable OBC*	RED Required	RED or <u>YELLOW</u>■ hat permitted

Note re OBC*: *Undated "applicable OBC" means the OBC enforced at the time of original elevator installation.*

■ For elevators that are altered per 4 above and that have had FCR done previously, the existing yellow hat symbol on the door frame must remain, unless the Building is upgraded to the most recent OBC requirements as applicable for a red hat installation, in which case a red hat symbol can replace an existing yellow hat symbol.

2.2 Reason for, and explanation of, interpretations given in Table on page 2

2.2.1 The interpretations in the **Table** answer commonly asked questions:

- Which rules apply to new or existing elevators being provided with operation system for use by firefighters? For answer see Table, column C4.
- Which colour must, or is permitted to, be used for marking of "FIRE OPERATION" (in case of FEO) or "EMERGENCY" (in case of FCR) switches **inside the car** and operating instructions with a hat symbol (in case of FEO per Figure 2.27.7.2 in B44-00) if provided **inside the car**? For answer see Table, column C5.
- Which colour must, or is permitted to be used for a 50 mm FF hat symbol when posted at the entrance frame at the recall level. Also, which elevators must, or must not have such FF hat? For answer see Table, column C6.
- Why some elevators are required to be designated by the 50 mm FF hat at the entrance frame in red or yellow colour, but other elevators are not permitted to have one in either colour? For rationale see 3.3 in this Bulletin

2.2.2 Answers in the **Table** are formulated in relation to the following factors:

- Type of work on the elevator (see Table, groups of rows numbered 1, 2., 3 and 4 in column C1),
- Type of building occupancy where an elevator is, or is to be, located (see Table, column C2), and
- Whether the elevator was in the past, or is to be now, provided voluntarily for use by firefighters or because of requirements in OBC or OFC or B44 (see Table, column C3).

2.3 Summary of interpretations

- YELLOW identification of switches inside the car and at landing and the 50 mm FF hats at entrance frames are permitted **only** for elevators for which the retrofit was required by OFC and performed in accordance with Director Rulings No 60/88 and 105/93. However for elevators that are altered and that have had FCR done previously, the existing 50 mm yellow hat symbol on the door frame may remain.
- For other elevators RED colour must be used for identification of "FIRE OPERATION" switches inside the car and for "FIRE RECALL" switches at landings as well as the 50 mm FF hat symbol at the entrance frame if permitted, regardless whether the FEO system is provided voluntarily or in response to requirements in OBC or B44.
- RED 50 mm FF hat symbol may be posted or remain posted at the entrance frame only if the elevator fully met all OBC requirements applicable at the time of the original installation of the elevator. Lack of the 50 mm hat indicates that all elevators are equally equipped for use by firefighters.
- A voluntarily provided operating system that does not meet either Director's Rulings #60 or 105 or B44 Code requirements applicable to FEO or SES systems must not have any identification of switches or labels, in red or yellow, which could imply that the operating system is intended for use by the firefighters.
- Per FCR rulings 105/93 and 60/88, it is permitted to have additional features such as recall to the alternate level and automatic recall, provided the related building equipment (e.g. fire alarm system etc.) can support these features as required by the applicable OBC.

3. Background to Code Requirements and Rationale for Interpretations

3.1 Historical background to FEO requirements of B44-00

3.1.1 Several years before 1975, some basic requirements for FF operation were introduced in Building Codes. We do not know who enforced the requirements or how many elevators were equipped with FF operation.

3.1.2 Requirements for FF operation were first introduced in B44 Code with its 1975 edition, in new clause 3.12.15 (enforced in Ontario as of 01/07/1976), to be applied *"where the Building Code enforcing authority requires elevators to be arranged for firefighter's operation"*. B44-Supplement 2 of 1980, Clause 3.12.15.4 (enforced in Ontario as of 01/01/1981), added more explicit rules. Also, the terms Special Emergency Operation [SES] was introduced. New special rules for elevators designated "Firefighter's Elevator" were introduced, including requirement for "*a red outline of firefighter's hat …be used exclusively to identify elevators that comply with …building code…. This identification shall be located on the elevator entrance frame…recall level."*

3.1.3 Various operational changes were made in B44 after 1981. Since non-fully compliant FF features, were being installed in buildings where the OBC requirements did not apply, B44 Supplement 1-1987 made it clear that the

requirements of B44 Clause 3.12.15, including 3.12.15.9 apply to elevators *"where SES is provided either voluntarily or when required by the …Building Code".*

3.1.4 With the B44 –00 edition many new and revised requirement have been introduced in rules 2.27.3 up to 2.27.8, including the change in terminology, from SES to FEO. Special Canadian rule 2.27.7.4 is formulated to direct Canadian Code users to special requirements in Canadian building codes respecting designation of "Firefighter's Elevators". The "NOTE" following the B44 rule 2.27.7.4 is misleading because it refers to only one out of many Building Code requirements for FF elevators. See full list of requirements in 3.2 below.

3.1.5 If an existing elevator was provided with FEO, SES or FCR because such operation system had been required by OBC or OFC, the following B44-00 rules require that it must be brought into compliance with B44-00 requirements in rules 2.27.3 to 2.27.8* when any of the following elevator components is replaced or altered:

- C8.6.12.5.3.1 – Replacement of elevator controller
- 8.7.2.16.1 & 8.7.3.17 – Change in type of service
- 8.7.2.27.4 & 8.7.3.31.5 – Alteration of elevator controller
- 8.7.2.27.5 & 8.7.3.27.6 – Change in type of motion control
- 8.7.2.27.6 & 8.7.3.27.7 – Change in type of operation control

* **NOTE**: The intent is not to require upgrading of an elevator and related building features to the current OBC requirement beyond those applicable at the time of the original elevator installation. If the elevator was not installed in a *"high building"* or for other reason the OBC did not require provision of a "Firefighter's Elevator", compliance with 2.27.7.4 will not be required.

3.2 Designation "Firefighter's Elevator"

According to OBC-1997†, articles 3.2.6.9 and 3.2.7.9, in *"high buildings"* at least one elevator must be provided for use by firefighters. In addition to all B44 requirements, the elevator must meet several additional OBC requirements, including the following:

†**NOTE**: Requirements in previous editions of OBC may differ.

- Minimum car platform area – 2.2 m^2
- Minimum capacity – 900 kg,
- Capable of reaching the top floor from the designated (recall) floor within 1 min.,
- The mechanical part of the interlock must remain engaged and the interlock contact and associated wiring must maintain their electrical continuity and remain operational for as least 1 h when the door assembly is subjected to fire exposure per CAN4-S104, or the entrances must be protected by a vestibule or corridors meeting the OBC – 3.2.6.9 (3) (b) or (c),
- Must serve every building floor above the designated floor level,
- All electrical conductors for operation of the elevator must be protected against exposure to fire, as specified in the OBC – 3.2.6.9(6)
- Emergency power must be capable of simultaneous operation of all designated FF elevators, with exceptions specified in 3.2.7.9(3).

3.3 Rationale for interpretations

3.3.1 No elevator is allowed to have a RED 50 mm FF hat designation at the recall level entrance frame unless it meets OBC requirements applicable at the time of the original elevator installation (see 3.2 above), otherwise it would give false sense of security to firefighters.

3.3.2 When FEO is provided voluntarily, be it for a new or existing elevator, the FEO must meet the B44 requirements. However, the elevator and the related building features may not necessarily meet all OBC requirements for high buildings. Typically, this would be the case with a new elevator in a low-rise building where FEO is not mandated by OBC; or the case where FEO is added to an existing elevator, or upgrading of an existing FCR or SES to FEO. The addition of FEO or the upgrading of existing emergency operation systems would assist firefighters in their work and in any other building emergencies.

3.3.3 All elevators that are equipped with FEO or SES must at least meet all B44 requirements that were applicable at the time of original installation or subsequent alteration. These are the requirements that correspond to rules 2.27.3 to 2.27.8 (except 2.27.4.4) of B44-00. Consequently, elevators equipped with FEO or SES should have their in-car and recall switches marked in red to indicate to the firefighters what is the level of operational features and security level that FEO or SES offer. For these elevators, lack of FF hat at the recall level indicates that all elevators provide the same level of service and protection and that none is specially designated "for use of firefighters".

3.3.4 Exceptions to the above principles are the elevators in residential buildings and health care facilities. Instead of a system fully complying with B44, the TSSA Rulings (see 2.1 on page 1) permit that one or more elevators in the specific buildings may be equipped with a "basic" FCR version of firefighters' operation. This permission is based on the special retrofit provisions in Section 9 of OBC. The YELLOW coloured 50 mm FF hats at the entrance frame communicates to firefighters that only the identified elevator(s) in the building is/are provided with FCR system and the yellow marking of the switches indicates that the FEO system provides a lesser level of protection than a SES or FEO system. Yellow markings are not permitted for any other elevators.

3.3.5 There are no provisions in the OFC, OBC, B44 Code or Ontario Elevating Devices Regulations that would permit TSSA to accept retrofit of FCR type operational system for use by firefighters in buildings with occupancy other than residential and health care.

3.3.6 If an elevator has a 50mm red or yellow hat symbol mounted in the hall at the recall level, and is subsequently altered per 3.1.5, it is not the intent of this bulletin to remove the existing 50 mm hat symbol as this may cause confusion to the firefighters.

Roland Hadaller,
Chief Engineer - EDAD PROGRAM

Roger Neate,
Manager of Operations - EDAD PROGRAM

Elevating and Amusement Devices Safety Division	Ref. No.: 176 / 02	Rev. No.:
Information / Interpretation Bulletin	Date: **August 18, 2003**	Date:

Subject: **Sealing of Components on all Elevating Devices excluding Passenger Ropeways**

Sent to: **ALL ELEVATOR CONTRACTORS**

1. Introduction

Changes to the legislation have resulted in new rules regarding the sealing of components on elevating devices. The following information is intended to clarify those rules and provide additional permissions based on such clarification. An excerpt of the Regulation follows below.

O. Reg. 209/01

Removal of seals

45. (1) Where an inspector has sealed a part on an elevating device to prevent readjustment, no person shall remove the seal without the permission of the inspector.

(2) Despite subsection (1), a contractor may remove a seal without the permission of the inspector and may affix a replacement seal if,

(a) the settings of the elevating device under seal are not altered; and

(b) the appropriate record is entered in the maintenance log book referred to in section 34.

2. Interpretation

2.1 With respect to 45.(2)(a) the term "altered" is used in reference to the setting at which the component was originally sealed (the setting on record).

2.2 With respect to 45.(2) a replacement seal will be permitted to be affixed by a contractor where the original seal is missing (for reasons unknown) provided that the setting remains at, or is returned to, the setting at which the component was originally sealed (the setting on record).

2.3 A replacement seal may be affixed by a contractor where repairs to, or replacement of, sealed component(s) which do not constitute an alteration are carried out and settings are returned to the setting at which the component was originally sealed (the setting on record).

3. Additional Permissions

3.1 A replacement seal may be affixed following adjustments of components provided that the new settings are within tolerances or ranges specified by the applicable code requirements.

3.2 A replacement seal may be affixed by a contractor where replacement of sealed component(s) which constitute an alteration are carried out and settings are returned to the setting at which the component was originally sealed (the setting on record) or within tolerances or ranges specified by the applicable code requirements.

Note: Despite being sealed by the contractor, such alterations will remain subject to inspection by the Regulatory Authority.

4. Sealing Requirements

4.1 Contractors who affix or re-affix a seal in accordance with part 1, 2 and 3 may do so subject to the following conditions:

(a) Contractors shall keep a permanent record of all seals applied and shall be able to produce this list if requested by an inspector.

(b) A permanent record shall be kept on site, either attached to the seal or adjacent to the seal , containing the following information:

(1) Date
(2) Mechanic(s)' name and certificate number
(3) Mechanic(s)' signature
(4) Seal number
(5) Setting at which the component is sealed

Note:
Contractors who wish to purchase seals and crimpers such as those currently being used by this Regulatory Authority should contact **Helen MacDonald @ 416-325-1127 or** hmacdonald@tssa.org**.**

Roger Neate,
Manager of Operations, EDAD Program

This Bulletin has been developed in consultation with the TSSA Elevating Devices Advisory Council

Elevating and Amusement Devices Safety Division	Ref. No.: **177/ 2003**	Rev. No.: -
Safety Alert Bulletin	Date: **May 12, 2003**	Date: -

Subject: **SUBJECT Hydraulic Elevator Muffler Inserts**
Sent to: **ALL ELEVATOR CONTRACTORS and Consultants**

1. Background

Elevator contractors have reported two failures of hydraulic muffler inserts. The rubber insert material breaks up (see attached photos Annex B) and can make its way into the hydraulic control valve. This can result in the control valve sticking open and allowing the elevator to move down regardless of the state of the safety circuit.
Further investigation with the muffler insert manufacturer Texacone, produced the attached memo (Annex A) from the muffler manufacturer Pinnco.

2. Information to Contractors

- Elevator Contractors must immediately report to TSSA any failures of hydraulic muffler inserts. This will allow us to see how widespread the problem is.

- Contractors should pay close attention to jobs that operate under conditions defined in the attachment as "severe" and take action as recommend by Pinnco, the muffler manufacturer.

Roland Hadaller, Chief Engineer - EDAD Program

Roger Neate, Manager of Operations - EDAD Program

Annex A

As part of Pinnco's constant improvement to its products, we are upgrading the urethane compound on the hydraulic muffler insert. This material upgrade will improve resistance to severe storage and operational environments that the insert may be inadvertently exposed to.

In the period of time we have been selling this product, we have inspected a few inserts that have been unsuccessful during operation. The failure was due to hydrolysis (water absorption), which was resolved by chemical analysis. However, it is not known whether the water was absorbed during operation or the time it was stored.

The most common cause of hydrolysis among urethanes is from prolonged storage in humid environments. Another source of moisture can be from contained oil that the insert is exposed to during operation. In either case, hydrolysis degradation is significantly accelerated when it is coupled with high temperature (over130 °F), which is typical on high use jobs.

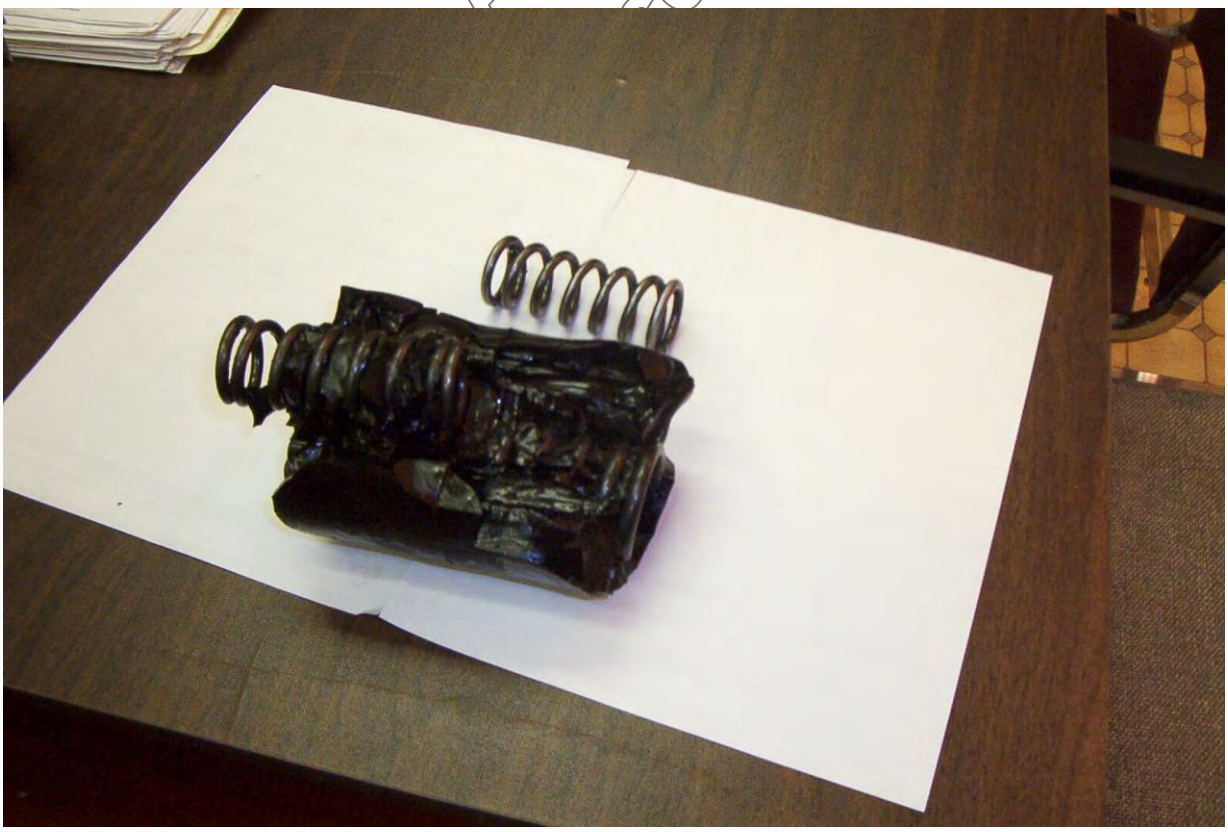
This new urethane compound exhibits a dramatic increase in the resistance to hydrolysis. According to the process and specification data, no other properties such as sound deadening or rebound should be affected. Even though this new compound is resistant to hydrolysis, the potential for unforeseen storage conditions such as excessive humidity mandate that we initiate a shelf life rating of two years for this product.

In addition, the recommendation is to replace all inserts exposed to severe conditions before 10 years in operation. Severe conditions are defined as continuous oil temperature of 130 °F or higher, inventory storage conditions with high humidity, and older installations or high use jobs where the oil condition may have degraded. We are also recommending that a label be affixed to the manufactured insert housing stating the need for this replacement referencing the date of installation. As one of the necessary maintenance procedure, we would be pleased to supply the labels.

Please feel free to contact us with any comments or questions at 416-292-2144 or 1-800-265-0838. Or you may fax us at 416-292-2560 or 888-265-2560.

Pinnco Elevator Ltd.

Annex B



Elevating and Amusement Devices Safety Division	Ref. No.: 178 / 03	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: **February 24, 2003**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Actions and Reporting of Detachments on "Tube Tows" - Secondary Carriers**
Sent to: **ALL TUBE TOW Owners / Operators**

1. ORDER

1.1 The tow path, crossfall and containment barriers along the crossfall shall be maintained to comply with Clauses 8.2.4 and 8.2.5 of the CSA-Z98-01 Passenger Ropeways Standard.

1.2 The time and date of grooming the tow path, crossfall and containment zone shall be recorded in the log book.

1.3 Where an occurrence occurs in connection with a ropeway for secondary carriers (commonly known as "tube tows") that results in an inadvertent detachment of a secondary carrier (commonly known as "tube"), the owner shall within 24 hours:
(a) fax a completed copy of the **Tube Tow Detachment Report** (attached)
(b) fax a completed copy of the **Ski Lift/Passenger Ropeway Accident /Incident Report** (attached)

1.4 In addition to the requirements of 1.3, when the inadvertent detachment of a carrier (tube):
(a) collides with 'following' carriers (tubes);
(b) fails to enter and/or stop safely in containment zone;
(c) collides with obstruction; or
(d) causes injury (minor or major)

then the owner / operator must **immediately**,

- notify the director by telephone. [416 325-1125, or after hours 416 325-3000]
- the ropeway (tube tow) must be removed from service and Section 36 of Ontario Regulation 209/01 shall apply.
- fax a completed copy of the **Tube Tow Detachment Report** (attached)
- fax a completed copy of the **Ski Lift/Passenger Ropeway Accident /Incident Report** (attached)

Section 36 sets out the requirements for notifying the Director of accidents/incidents and requires that; the elevating device (passenger ropeway) remain out of service, the site is not to be disturbed, an investigation be initiated requiring permission by an inspector before restarting the ropeway.

2. BACKGROUND

Over the last few weeks several **inadvertent detachments** on tube tows coupled with **tow path, crossfall grade and/or containment issues** have caused either serious injuries or potential for such injuries.

The intention of this Directors Safety Order is to:

- alert Owners of Tube Tows, about the hazard associated with inadvertent detachments
- ensure appropriate steps are taken to eliminate those factors which may contribute to detachments
- eliminate the hazards that can cause injuries.
- The data collected will assist TSSA and the industry to complete a full risk analysis and to take appropriate corrective action.

In addition to this Director's Safety Order, TSSA intends to complete an on site inspection of each "tube tow" in the very near future.

This order is being made pursuant to the Technical Standards and Safety Act. Failure to comply with this order is an offence punishable upon conviction, to a fine of not more than $50,000, or imprisonment for a term of not more than one year or both, or if the person is a body corporate to a fine of not more than $1,000,000.

_____

Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Technical Standards & Safety Authority
www.tssa.org

TUBE TOW DETACHMENT REPORT

Fax to: 416-325-4320

Installation Number		Date	

a) The inadvertent detachment occurred during **[ ] Starting [ ] Stopping [ ] Running** of the ropeway.

b) Did the inadvertent detachment occur due to improper condition of the tow path?
(i) If yes, describe the tow path condition. _____
_____

(ii) If no, explain why detachment occurred. _____
_____

c) Did the inadvertently detached tube collided with any 'following' secondary carrier(s) (tubes)?
(i) If yes, how many carriers became detached as a result of collision? _____
(ii) If yes, describe the condition of the crossfall along the tow path. _____
_____

d) Specify the location of the inadvertent detachment between the loading and unloading zones?
[ ] close to loading, [ ] 1/4 [ ] 1/2 or [ ] 3/4 ways up the hill, [ ] near the unloading zone.

e) Did the inadvertently detached carrier fail to enter and/or stop safely in the containment zone?
(i) If the carrier failed to enter the containment zone, describe the condition of the crossfall along the tow path. _____
_____

(ii) If the carrier entered the containment zone, explain why the detached tube failed to stop safely in the containment zone. _____
_____

f) Did the inadvertently detached carrier come in contact with any obstruction? If yes describe the obstructions.
_____

g) Are the carriers (tubes) that are being used on the ropeway, supplied and/or recommended for use by the manufacturer/designer of the ropeway? _____

h) What was the weight and height of the passenger. _____

i) Describe how the **grip**, used to haul the tube tow up the hill, is detached / released in the unloading zone.
[ ] Manually detached [ ] Automatically detached

j) If the inadvertent detachment was the result of **Equipment Failure** , describe the nature of the failure.
_____

k) Describe the Weather and Snow Conditions. (temperature, Snow: wet / ice / fast / slow , freezing rain, etc.)
_____

Elevating and Amusement Devices Safety Division	Ref. No.: **179 / 03**	Rev. No.: **-**
Safety Alert Bulletin	Date: **May 12, 2003**	Date: **-**

Subject: **SUBJECT: Hollister-Whitney Disc Brake Urgent Notice – Upgrade Kit**
Sent to: **ALL ELEVATOR CONTRACTORS and Consultants**

1) Background

a) Hollister-Whitney have determined that a condition may exist which relates to the proper operation of some disc brakes on their Model # 44, 54, & 64 Machines. Hollister-Whitney have notified purchasers of the subject machines. See Annex A, Urgent Notice dated November 20, 2002.

b) Hollister-Whitney has provided TSSA with a list of serial numbers of machines that need to be upgraded. One list of units where the upgrade is completed (Annex B) and a second list where the upgrade kits have been sent out, but have not been confirmed as being completed (Annex C).

2) Order to Contractors

a) If you are maintaining elevators with Hollister-Whitney machines of the models listed above with disc brakes, you shall check if they are any of the units listed in Annex C. If you maintain units listed in Annex C and they have not been upgraded, you must follow the procedure listed in the urgent notice in order to complete the upgrade. A record indicating that the upgrade has been completed must be entered in the log book.

b) If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the owner to complete the work, you shall inform this office immediately, indicating the elevator installation numbers so we may issue an order to the owner to have the work completed.

Roland Hadaller, Chief Engineer - EDAD PROGRAM

Roger Neate, Manager of Operations - EDAD PROGRAM

Hollister - Whitney Elevator Corporation

#1 Hollister-Whitney Parkway
Quincy, Illinois 62305
Phone: 217-222-0466

Fax: 217-222-0493
e-mail: info@hollisterwhitney.com
www.hollisterwhitney.com

Nov. 20, 2002

URGENT NOTICE

Extremely Important

Hollister-Whitney Elevator Corp has determined that a condition may exist which relates to the proper operation of some DISC BRAKES on our Model #44, 54, & 64 Machines.

Although the potential for danger may be small, we cannot take this chance and neither can you. Any risk makes it necessary that steps be taken to eliminate the condition.

WHAT YOU SHOULD DO

1) Immediately check all Brakes on the attached list of jobs, which you have installed. A sketch is enclosed for assistance in checking these brakes.

2) Immediately contact Hollister-Whitney if you determine that you have a brake that does not conform to the requirements shown in the enclosed sketch.

Contact Hollister Whitney at

Fax: 217-222-0493 or

Email: discbrakes@hollisterwhitney.com

Hollister-Whitney will send an upgrade kit, and set of instructions for all DISC BRAKES which do not conform.

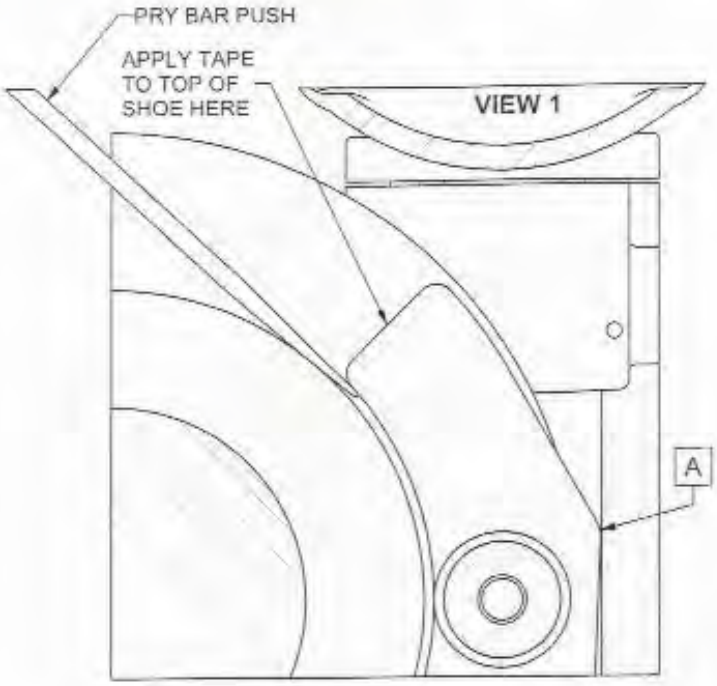
3) Immediately install the upgrade kit on the non-conforming DISC BRAKES.

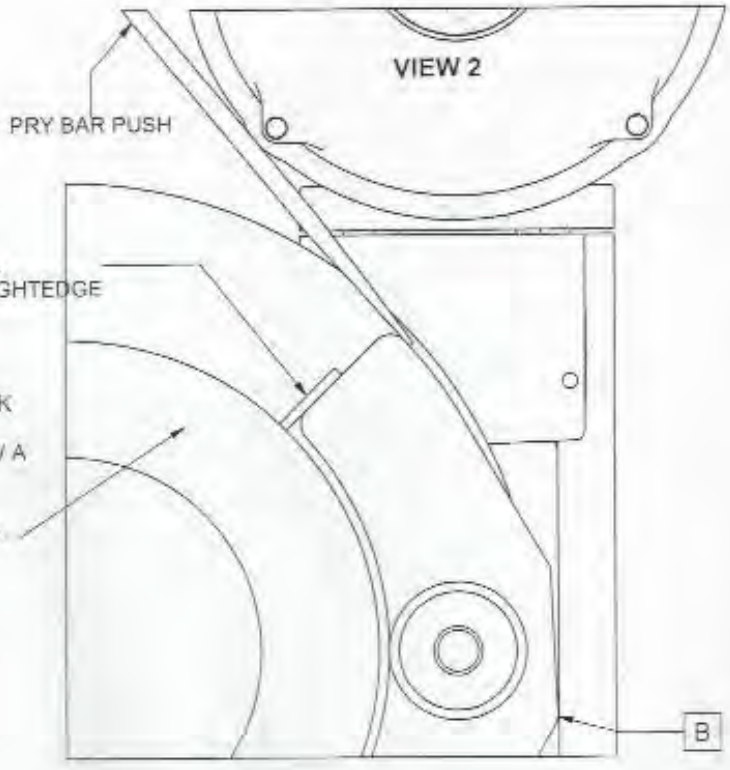
4) As soon as upgrade kits are available for the remaining DISC BRAKES, we will send them to you.

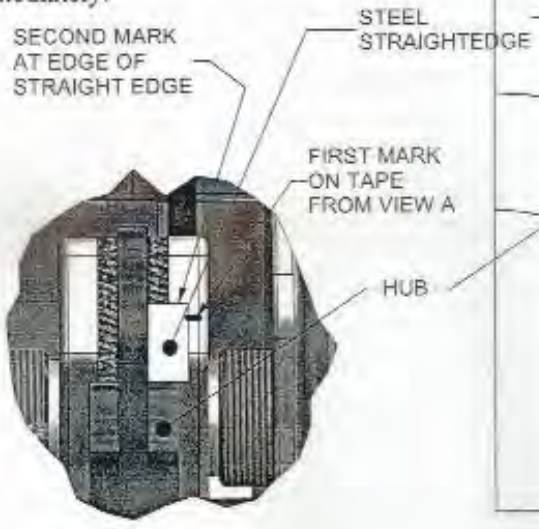
Equipment Needed:
Small Pry Bar
Masking Tape
Flat Stiff Steel Straightedge
(approximately 1" x 1")
Pencil

PROCEDURE FOR CHECKING BRAKE SHOE CLEARANCE

1) With power off, apply a piece of masking tape to the top of each brake shoe as illustrated this page.
2) Rock the shoe back (up) temporarily with a pry bar (or tap with a hammer). This will cause the back of the brake shoe flat to be against the brake housing (View 1, Point A).
3) Lay the flat steel strightedge against the brake disc hub on top of the shoe masking tape (see example view this page). Mark a line on the masking tape with a pencil.
4) Now use the pry bar to rock the shoe forward (down) temporarily (View 2, Point B). Using the same straight edge, mark a second line on the masking tape.
6) Remove the masking tape and measure the distance between the lines. The distance should be 3/32" or more. Record the job name and this measurement. If this measurement is less than 3/32" contact Hollister-Whitney Elevator Corp. immediately.







HOLLISTER-WHITNEY ELEVATOR CORPORATION

UPGRADE KITS INSTALLED:

H-W #	*Machine Qty & Type:*
A129573	(2) #64OH
A137034	(4) #54OH
A142564	(1) #44OH, (1) #54OH
A142682	(1) #64OH
A142697	(1) #54OH
A143743	(1) #54BS
A129923	(1) #44OH
A124456	(2) #44OH
A125064	(2) #54OH
A125065	(2) #54OH
A131227	(1) #44OH
A138302	(1) #54OH
A141537	(1) #54OH
A143035	(3) #54OH
A145759	(2) #44OH
A146081	(1) #44OH
A126549	(1) #44OH
A126690	(1) #44OH, (1) #54OH
A129287	(1) #54OH

HOLLISTER-WHITNEY ELEVATOR CORPORATION

UPGRADE KITS SENT (no confirmation of installation rec'd):

H-W #	*Machine Qty. & Type:*
A124416	(1) #54OH
A129571	(1) #44OH
A129572	(1) #44OH
A131150	(1) #64OH
A131687	(1) #44OH
A131688	(1) #44OH
A133028	(1) #64OH
A135441	(1) #64BS
A135949	(1) #54OH
A136936	(1) #64OH
A138601	(2) #64OH
A127581	(1) #44OH
A128106	(1) #54OD
A130795	(2) #54OH
A142563	(2) #54OH
A142696	(1) #64OH
A142698	(1) #64OH
A143886	(4) #54OH
A129328	(6) #54OH
A129478	(2) #64OH
A132188	(4) #44OH
A135137	(2) #64OH
A135634	(1) #54OH
A135978	(2) #54OH
A135979	(2) #54OH
A136467	(2) #64OD
A137565	(4) #64OH
A138967	(4) #54OH
A139144	(3) #54OH
A140442	(2) #54BS
A142602	(2)#54OH
A142603	(2) #44OH
A144564	(1) #54OH

HOLLISTER-WHITNEY ELEVATOR CORPORATION

A128708	(2) #44OH
A1229649	(1) #44OH, (1) #54OH
A127285	(1) #44BS
A129049	(2) #44OH
A129538	(2) #44OH
A131138	(2) #44OH
A133020	(1) #54OD
A134056	(1) #44OH
A135296	(1) #44OH
A136039	(1) #44OH
A136443	(2) #44OH
A138662	(1) #44OH
A138886	(1) #44BS
A138928	(2) #54OH
A138974	(1) #54OH
A142348	(1) #54OH
A144440	(2) #64OH
A144717	(1) #44OH, (1) #54OH
A125851	(1) #44OH
A127195	(2) #54OH
A128864	(2) #54OH
A129918	(2) #54OH
A135403	(3) #44OH
A135458	(3) #44OH
A137931	(1) #44OH
A138298	(2) #44OH
A138998	(1) #54OH
A138999	(1) #44OH
A139007	(2) #44OH
A141035	(2) #64OH
A141371	(2) #54OH
A141562	(1) #44OH
A144650	(3) #54OH
A125759	(1) #54OH
A127014	(2) #44OH
A135735	(1) #44OH, (1) #54OH

HOLLISTER-WHITNEY ELEVATOR CORPORATION

A141292	(2) #44OH
A142531	(1) #44OH
A142538	(1) #54OH
A143828	(2) #44OH
A128584	(1) #44OH
A144173	(2) #54OH
A125997	(2) #54OH
A125998	(2) #44OH
A128003	(2) #54OH
A128244	(1) #54OH, (1) #44OH
A128245	(2) #54OH
A133528	(1) #54OH
A133529	(3) #54OH
A136810	(3) #54OH
A142041	(2) #54OH
A142679	(1) #54OH
A129287	(1) #64OH
A131634	(1) #64BS
A125576	(1) #64OH
A135870	(1) #54OH
A135871	(2) #54OH

Elevating and Amusement Devices Safety Division	Ref. No.: 180 / 03	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: **March 17, 2003**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: **Chair Lifts with Counterweight Ropes – 'Inspection / Verification and/or Replacement'**

Sent to: **ALL Ski Lift Industry Stakeholders - CONTRACTORS IN GROUP 8**

1. INTRODUCTION

This Order is intended to alert and prevent the occurrence of a serious accident similar to the one that recently occurred on a chair lift in Ontario. In this accident the failure of the counterweight rope caused the catastrophic failure of the chair lift.

2. ORDER REQUIRING IMMEDIATE ACTION

2.1 Existing Counterweight Rope and Connections

2.1.1 **All counterweight ropes including their connections on all chair lifts** (used on circulating above-surface passenger ropeways) in Ontario shall be **IMMEDIATELY** inspected to verify their safety.

2.1.2 Qualified person(s) shall inspect the **ENTIRE LENGTH** of each counterweight rope and all its connections, and certify their safety.

2.1.3 Disassemble counterweight rope including its connections to inspect them entirely.

2.1.4 Acceptability or rejection of each counterweight rope and all its connection shall be based on the requirements of Clauses 11.27, 11.28, 11.29 and 11.30 of the CSA Z98-01 Standard on Passenger Ropeways.

2.1.5 Person(s) inspecting and certifying the safety of the counterweight rope shall complete the form entitled "Rope Nondestructive Test Report" contained in the Appendix E of the CSA Z98-01 Standard on Passenger Ropeways.

2.2 New Counterweight Rope and Connections

2.2.1 Where existing counterweight rope including all its connections is replaced, all of the new counterweight rope and all its connections must comply with the requirements of Clause 10 of the CSA Z98-01 Standard on Passenger Ropeways and Section 32(5) of Ontario Regulation 209/01 (Elevating Devices).

2.2.2 The new counterweight rope including all its connections shall be as specified by the manufacturer/designer of the chair lift.

2.2.3 A professional engineer shall perform the function of manufacturer/designer, where the manufacturer/designer is no longer in business.

3. INSTRUCTIONS

3.1 All documentation generated to prove compliance of this Order shall be included in the Maintenance Log as required by Ontario Regulation 209/01 (Elevating Devices).

3.2 The requirements under Section 2.1 do not apply if the existing counterweight rope and its connections are replaced with new ones, in accordance with Section 2.2 of this Order.

3.3 The requirements of this Order do not apply where a new counterweight rope and its connections were installed at the beginning of, or during, the year 2002 ski season. However, this must be reported in accordance with Section 3.4 of this Order.

3.4 The Director must be informed in writing by fax (# 416 325 4320) by **March 21, 2003** confirming compliance with this Order. The confirmation must refer to the installation number of the chair lift and specify the action taken to implement this Order.

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Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Elevating and Amusement Devices Safety Division	Ref. No.: 181 / 03	Rev. No.:
DIRECTOR'S ORDER	Date: June 27, 2003	Date:

IN THE MATTER OF:

THE TECHNICAL STANDARDS AND SAFETY ACT 2000,
S.O. 2000, c. 16
- and -
ONTARIO REGULATION 209/01 made under the
Technical Standards and Safety Act 2000
(Elevating Devices)

Subject: **ADOPTION OF CAN/CSA-B44-00 SAFETY CODE FOR ELEVATORS UPDATE NO. 1**

Sent to: **ALL CONTRACTORS IN SCOPE U & L-1,2,3,4,5**

1. ORDER

1.1 Adoption

a) Each newly installed or altered elevator, escalator, dumbwaiter, moving walk and material* lift for which the **DESIGN** is submitted to TSSA for registration on or after:

the 1st day of January 2004, shall conform to the requirements of:

CSA-B44-00 Safety Code for Elevators including **Update No. 1 dated September 2002 [B44-00U1-02].**

*this term replaces freight platform lifts

b) Compliance with this edition of the B44 Code shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

c) Submissions received between November 1, 2003 and December 31, 2003 may comply with B44-00 or B44-00U1-02. Any designs submitted before November 1, 2003 based on the new code update must be accompanied by a request for variance.

1.2 Modifications and clarifications

The Code adopted in 1.1 is subject to the following modifications and clarifications:

1.2.1 General

(a) Rules that are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted by this Order.
Note: NBCC means the National Building Code of Canada

(b) Rules identified as applicable "in jurisdictions enforcing NBCC" are adopted by this Order.

(c) Where there are duplicate rules under a same number, only the rules prefaced with a lower-case "c" are adopted by this Order.

Note: Prefix "c" identifies Canadian (B44) deviations from A17.1 requirements. Where Canadian Deviations have been deleted in the update (example c6.1.3.3.5) they no longer apply and the requirement not proceeded by a lower-case c will apply.

(d) Any additional rule prefaced with a lower case "c" is adopted by this Order.
Note: Where there is inconsistency between the Regulations and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Order.

1.2.2 Definitions (Section 1.3 of the Code) and terminology

(a) "building code" – Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 403/97 made under the Building Code Act 1997 or a later edition, commonly known as Ontario Building Code or OBC.

(b) The following terms shall be considered to mean the same as the corresponding terms used in Ontario Regulation 209/01:
- "elevators used for construction" – replaces the term "temporary elevator"
- "material lift" – replaces the term "freight platform lift"

1.2.3 Exemption of specific requirements

(a) Consistent with subsection 2.(2) of Ontario Regulation 209/01, the following sections of the Code are not adopted by this Order:
- Section 5.3 – Private Residence Elevators,
- Section 5.4 – Private Residence Inclined Elevators
- Section 5.8 – Shipboard Elevators
- Section 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices that are installed, located and controlled as specified in item 2(3)(j) of the Elevating Device Regulation 209/101
  Note: As stated in the Code, Section 5.7, 5.9 and 8.6 (except 8.6.12) are not part of the B44 Code

(b) Clause 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted with this Order.

(c) Section 8.7 – Alterations is adopted, with modifications and enforcement procedures as specified in Director's Order #164/02.

(d) Section 8.8 – Welding, is adopted, except where the requirements of the section are superseded by the requirements in Section 3 of Ontario Elevating Devices Regulation 209/2001, Code Adoption Document.

(e) Section 8.9 – Code Data Plate. The requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00.

(f) Requirements of elevator maintenance are adopted in accordance with Rule c8.6.12 and Appendix J of the Code. Maintenance records shall be kept in the log book, in accordance with c8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/2001.

(g) Section 8.11 - Periodic Inspection and Test Requirements are adopted with the following exemptions and modifications

(1) Requirements in Rules 8.11.2.2.7 and 8.11.3.2.3(f) for testing of standby or emergency power operation are not adopted with this Order.
Note: These periodic tests fall under jurisdiction of Fire Protection and Building Code Authorities.

(2) Requirement for Periodic Category One, Category Three and Category Five tests in Section 8.11 are not adopted with this Order.

2. INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act*.

(b) The CSA-B44-00 Safety Code for Elevators including Update No. 1, is available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3, telephone 1-800-463-6727, e-mail – sales@csa-international.org or web site www.csa.ca.

(c) Since the Regulation under the *Technical Standards and Safety Act* requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of and be familiar with the subject standard.

3. NOTES

Contractors are urged to study the B44-00 Code Update No. 1 carefully to ensure conformance by the specified date. Major revisions/additions in CSA-B44-00 Update No. 1 include:

a) 2.26.1.5.4 Revised - machine room inspection operation with open door circuits is now prohibited.
b) 2.27.1 Revised – Section on Emergency Communications completely rewritten. New "HELP" button replaces "ALARM" switch. Two-way communications means required on all elevators. For elevators with a travel over 60 ft. there must be a means of communicating to the car from a point in the building for emergency personnel. Includes new signage and visual indicator requirements.
c) 3.17.3 New - a plunger gripper shall be permitted to be provided for direct acting hydraulic elevators using hydraulic jacks equipped with plungers.
d) 6.1.3.3.5 New - loaded Gap Between Skirt and Step - The clearance (loaded gap) between the step tread and the adjacent skirt panel shall be not more than 5 mm (0.2 in.) when 110 N (25 lbf) is laterally applied from the step to the adjacent skirt panel.
e) 6.1.3.3.7 New - the escalator step/skirt performance index shall be:
    (1) ≥ 0.15; or
    (2) ≥ 0.25 when a skirt deflector device complying with the requirements of 6.1.3.3.8 is provided.
f) 6.1.3.3.8 New - skirt Deflector Devices (brushes) now permitted on escalators
g) 6.1.3.15 New requirement for pit drains in escalators
h) 6.1.6.3.13 Comb-Step Impact Devices – horizontal forces increased

Conformance with the above rules as well as all other rules in the CSA B44-00 , including Update No. 1 shall be demonstrated in the design submission or at the initial inspection, as applicable.

_____

Ted Dance, Director, TSS Act 2000
(Elevating Devices)

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 182 / 03	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: August 11, 2003	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- And -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000 (Elevating Devices)

Subject: **Actions To Mitigate Hazards & Causes for Detachments on "Tube Tows"**
Sent to: **ALL Ski Lift Industry Stakeholders - CONTRACTORS IN GROUP 8 & ALL Existing TUBE TOW Owners / Operators**

1. INTRODUCTION

This Order is intended to alert all ski industry stakeholders in Ontario to take immediate action to mitigate causes for inadvertent detachments of "tube tows" – secondary carriers and hazards encountered by the detached tubes. This order is in conjunction with Director's Safety Order ED-178-03.

Causes for inadvertent detachment of tubes and types of hazards encountered by the detached tubes were analyzed using the following sets of information:

- accidents/incidents information reported in the 2002-2003 ski season. Injuries varied from bruises to minor cuts, and one serious injury to a child;
- information gathered as a result of the Director's Ruling 178/03 "Actions & Reporting of Detachments on Tube Tows – Secondary Carriers" issued on 24 February 2003. Twenty-one detachments were reported over two weeks period. Three riders were injured. Bleeding lips, loose teeth, minor whiplash, and broken nose were the type of injuries; and
- at the time of issuance of the Director's Ruling 178/03, the TSSA inspectors tested 19 tube tows in Ontario according to the pre-established testing criteria by detaching tubes to verify ability to clear tow path in accordance with the requirements of Clause 8.2.4 and to bring runaway tube to a safe stop by means of crossfall/containment area along the tow path in accordance with Clause 8.2.5. These clauses are referenced in the CSA Z98. All 19 tube tows failed to comply with Clauses 8.2.4 and/or Clause 8.2.5. In some cases when tubes collided against tip of containment barriers, these tubes were either pushed against other tubes on the tow path and/or parts of tube tow.

This safety order was developed in consultation with the Ontario Ski Industry stakeholders with a view to:

- minimize detachment of tubes; and
- bring the detached tube from runaway to a safe stop.

2. ORDER REQUIRING IMMEDIATE ACTION

2.1 General

2.1.1 All existing and new tube tows shall conform with the requirements of the Section 2 of this Safety Order.

2.1.2 The word "tube(s)" has the same meaning as "secondary carrier(s)" used in Clause 8 of CAN/CSA-Z98-01 Standard including Supplement 1.

2.2 Connection of Tubes To Haul Rope

2.2.1 Manufacturers/designers of tube tows must verify that the type of tube attachment connection is compatible for their grip design.

2.2.2 Manufacturers/designers of tube tows must allow for a safety margin that will ensure that the tubes will not detach as a result of changes of tension force on the tether connecting the towing attachment to the tube. Changes of tension force on tether due to uneven tow path, foreseeable movement of passengers in tubes, passengers feet dragging on snow while seated in an acceptable position in tubes and acceleration/deceleration feature of tube tows shall be considered.

2.2.3 For tube tows with automatic detachment at predetermined unloading point, manufacturers/designers of tube tows shall specify minimum and maximum weight restrictions of tube users.

2.2.4 The designer/manufacturer shall specify the following: (Clause 8.5.2 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

a) acceptable orientation of attachments while unloaded and loaded from a specific reference point;

b) the minimum and maximum clearance measured from the snow surface for the haul rope and/or attachments;

c) user size; and

d) loading and unloading requirements.

2.3 Stop & Start Characteristics of Tube Tows

2.3.1 "Acceleration and deceleration shall be smooth over the full range of design loads and operating conditions so that secondary carriers shall not become detached or jerked because of any change in rate of acceleration or deceleration." (Clause 8.4.2 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.3.2 "Decelerating the ropeway over the full range shall not cause any secondary carrier to become detached." (Clause 8.13.1.2 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.4 Tubes & Towing Attachments

2.4.1 Tubes

2.4.1.1 Tube sizes shall match tow path design so that a detached tube will slide clear of the uphill path of any of the following tubes.

2.4.1.2 Tubes shall be designed to accommodate the passenger size.

2.4.2 Towing Attachments

2.4.2.1 The length of tube towing attachment shall be designed to maintain a minimum operational clearance from the snow along the tube tow-path and hauling rope while the tube is being hauled along the tow path.

2.4.2.2 "Attachments shall be designed to prevent sliding along the haul rope when

a) subjected to twice the pull required to move a loaded tube along the tow path at the steepest point; and
b) a tube is empty."(Clause 8.15.1 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.4.2.3 "Attachments shall be designed to prevent fingers, gloves, or clothing from being caught between the attachment and the haul rope." (Clause 8.15.2 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.4.2.4 "Fastening of the attachments to the haul rope shall not impair the strength of the rope." (Clause 8.15.3 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.4.2.5 "All attachments to the haul rope and components for pulling tubes shall have a factor of safety of not less than 5 based on ultimate strength of the unit and the maximum force that would be applied when hauling a fully loaded tube up the steepest point on the tow path." (Clause 8.15.4 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.4.2.6 Factor of safety of all attachments to the haul rope and components for pulling tubes shall be based upon their impact strength at low temperatures.

2.4.2.7 The designer/manufacturer shall specify the maximum tension force on all attachments to the haul rope and components for pulling tubes along their tow path.

2.4.2.8 The designer/manufacturer shall specify procedures for inspection of all attachments to the haul rope and components for pulling tubes to verify their safety. Inspection procedures shall include criteria to evaluate the necessity of their replacement.

2.4.2.9 "Attachments on the haul rope shall be repositioned in accordance with the designer's instructions." (Clause 8.15.5 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.5 Tow Path, Crossfall and Containment Barriers

2.5.1 Means to protect passenger in a tube against contacting any part of tube tow including grips shall be provided along the entire length of the tow path.

2.5.2 Means shall be provided to keep tubes on the pre-defined tow path.

2.5.3 Tow path shall have an upward slope only, except for the unloading area. (Clause 8.2.1 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.5.4 The tow path shall be designed and maintained to guide tubes so that no part of a tube is beneath any obstructions under any loading condition unless a minimum vertical clearance of 2 m is maintained. (Clause 8.2.3 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.5.5 The tow path shall have a crossfall and sufficient width to ensure that, should a tube inadvertently detach, the detached tube will slide clear of the uphill path of any following secondary carrier. (Clause 8.2.4 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.5.6 The maximum number of passengers to be loaded on any tube shall not exceed the manufacturer's design of both tube tow and tube. The capacity shall be posted at the loading area. (Clause 8.3.1 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.5.7 Tubes shall remain in contact with the tow path at all times. (Clause 8.7 of Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.5.8 The designer shall specify the method to verify the haul rope tension. (Clause 8.17 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

2.5.9 Containment barriers shall be in place along the crossfall of the tow path to stop and control any detached tube. (Clause 8.2.5 of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1)

3. CLARIFICATION

3.1 Section 2 of this Director's Order is not intended to replace any requirements under Section 8 "Ropeways for Secondary Carriers" of CAN/CSA-Z98-01 Passenger Ropeways and Conveyors Standard including its Supplement 1.

3.2 In this Safety Order the applicable requirements under Section 8 of the CSA Z98 have been supplemented with the new requirements to enhance safety of tubes being hauled by tube tows. The new requirements introduced in Section 2 of this Safety Order have been highlighted by shading them.

3.3 Sub-sections 2.5.5 and 2.5.9

These two subsections are intended to ensure that, should a tube inadvertently detach, it is channeled to a safe run out area with out colliding against other tube(s) on the tow path, tube tow device and any other obstructions. The following examples clarify the intent of these subsections:

- tow path shall be designed so detached tubes slide clear of the tow path to prevent the detached tube from colliding with other tubes on the tow path.

- crossfall shall be designed to channel the runaway tube to a safe run out area within containment zone

- the containment barrier(s) along the tow path is considered an obstruction if it becomes an obstacle and adversely affects the safety of passenger in the tube while stopping the runaway tube.

- tow path, crossfall and containment barrier(s) along the entire tow path shall be designed to prevent the runaway tube from being pushed against obstructions, such as other tubes, any part of the tube tow, etc.

4. COMPLIANCE

4.1 Documentation shall be submitted to the TSSA in accordance with the requirements of Sections 15 and 16 of the Elevating Devices Regulation # 209/01 made under the Technical Standards and Safety Act, 2000 for registration to demonstrate compliance of this Safety Order.

4.2 Documentation, submitted in accordance with the subsection 4.1, shall include acceptance tests and inspection procedures to demonstrate compliance with this Safety Order.

4.3 Upon registration of documents under subsection 4.1 of this Safety Order, the tube tow shall be inspected for compliance verification in accordance with Section 8 of the Elevating Devices Regulation # 209/01 made under the Technical Standards and Safety Act, 2000.

4.4 Verification process to ensure compliance to the Director's Order shall depend on the work done to the tube tow to achieve the objective of the Order. Section 26 of the Code Adoption Document shall apply with respect to alteration undertaken in order to comply with the Director's Order.

4.5 Before an existing or a new rope tow is placed in operation, compliance with this Safety Order shall be demonstrated in accordance with subsections 4.1, 4.2, 4.3 and 4.4.

This order is being made pursuant to the Technical Standards and Safety Act. Failure to comply with this order is an offence punishable upon conviction, to a fine of not more than $50,000, or imprisonment for a term of not more than one year or both, or if the person is a body corporate to a fine of not more than $1,000,000.

Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Elevating and Amusement Devices Safety Division	Ref. No.: 183/03	Rev. No.:
DIRECTOR'S ORDER	Date: **Dec. 1, 2003**	Date:

THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000 (Elevating Devices)

Subject: **Adoption of Supplement No. 1 of CSA B355-00, Lifts for Persons with Physical Disabilities**

Sent to: **All Elevator Contractors in Scope U6 and Consultants**

1. ORDER TO CONTRACTORS

Each **newly installed or altered** lift for persons with physical disabilities;

for which **a design submission is received by TSSA on or after the 1st day of June 2004**

shall fully conform to the requirements of the following standard:

CSA-B355-00 Lifts for Persons with Physical Disabilities Supplement No. 1, September 2002

Those jobs for which the design submission is received by TSSA before June 1, 2004 need only comply with CSA B355-00.

Each **newly installed and existing** lift for persons with physical disabilities shall; after the **1st day of June 2004** fully conform to the **maintenance requirements** of;

CSA-B355-00 Lifts for Persons with Physical Disabilities Supplement No. 1, September 2002 Appendix B

NOTES

a) *Standard CSA-B355-00 including Supplement No. 1 is available from CSA International, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3 – telephone 1-800-463-6727, e-mail – sales@csa-international.org*

b) *Contractors are urged to study all revisions and amendments, that are identified by the double delta symbol (ΔΔ) in the margin of the standard, to ensure that their lift designs, equipment and installations meet the standard requirements as of the specified date.*

2. DESIGN SUBMISSION TO DEMONSTRATE COMPLIANCE

2.1 Compliance with Supplement No. 1 of the 2000 edition of CSA B355 Standard shall be stated in item #192 of the TSSA specification form or in a separate affidavit.

2.2 Major revisions/additions in Supplement No. 1 of the CSA-B355-00 include:

(a) The requirement for anti-creep device to be both positively actuated and redundant has been modified to require redundancy and checking of redundancy only (6.6.6).

(b) New requirements for friction drives (6.8).

(c) New requirement for stair chairs that directional control devices in foldable armrests assemblies shall be inoperative unless the armrest is in the correct traveling position for operation of the chair (7.4.6).

(d) Requirements for protection in case of single failures and checking of redundancy (8.4.2). The occurrence of a single ground or the failure of any

- single magnetically operated switch, contactor or relay;
- static control device;
- leveling switch; or
- anti-creep switch

shall not:

(1) render any electrical protective device ineffective (see Clause 8.5) ; and

(2) permit the carriage to move beyond the automatic or anti-creep leveling zone, whichever applies.

Once the specified failure occurs, the carriage shall not be allowed to restart.

(e) New Appendix B added with requirements for maintenance of Lifts for Persons with Physical Disabilities. Minimum maintenance interval of six months. This maintenance requirement applies to both new and existing Lifts.

2.3 Conformance with all rules in CSA B355-00 including Supplement No. 1 shall be demonstrated in the design submission or at the initial inspection, as applicable.

Note: Special attention is drawn to the requirements in Clause 8.5 and 8.4.2. The design submission must include detailed analysis of every leveling circuit and each circuit that incorporates any electrical protective device [see guidelines in TSSA Specification Sheet forms (ED09089-05/97)].

3. INSTRUCTIONS

3.1 Regulations and Code Adoption Document

The CSA-B355-00 standard including Supplement No. 1 does not cover the location of, access to, and usage of the lifts. These factors are regulated by the Elevating Devices Code Adoption Document Part VII, section 36 to 44 under Regulation 209/01. Copies of the Elevating Devices Code Adoption Document are available from the TSSA Web Site at www.tssa.org.

3.2 Specific Code Adoption Document Requirements

Your attention is particularly drawn to provisions of the Elevating Device Code Adoption Document, requiring OWNERS:

- To prevent public access to specified lift types while in operation;
- To ensure that the lifts are used primarily for the transportation of persons with physical disabilities and that the operation is restricted to persons who have received instructions and training that emphasize the hazards associated with improper use of the lifts;
- To ensure assistance of a trained attendant to those persons with physical disabilities not previously trained in the use and operation of the lifts;

- To sign a report on the form supplied by TSSA;

The Code Adoption Document also:

- Requires that operating devices be controlled by a key or other means;
- Specifies responsibilities of persons operating specific types of lifts;
- Requires specific signage, notices, signaling devices, etc.

3.3 Specific Elevating Device Regulation209/01 Requirements

- Clause 34 states

"**34.** (1) Every owner of an elevating device and every contractor shall maintain a log book for each elevating device that they own or maintain, and the log book shall contain up-to-date data on,

(a) all maintenance functions required to be recorded in the log book by the applicable code or standard referred to in the code adoption document; and

(b) such other data as are required to be kept in the log book by this Regulation. O. Reg. 209/01, s. 34 (1).

(2) The log book shall be kept for a period of at least five years from the date of the last entry in the log book. O. Reg. 209/01, s. 34 (2).

(3) The log book data shall be readily available at the location of the elevating device to an inspector, maintenance mechanic and other persons designated by the owner. O. Reg. 209/01, s. 34 (3)."

Since this Order adopts the maintenance requirements of Appendix B, for all new and existing lifts for persons with physical disabilities, maintenance shall be provided and the maintenance functions shall be recorded in the log book

- Since the Regulation under the Technical Standards and Safety Act requires all mechanics (see definition of Mechanic) to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of Lifts for Persons with Physical Disabilities will obtain a copy of and be familiar with CSA Standard B355-00 including Supplement No. 1.

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Ted Dance, Director, TSS Act 2000, (Elevating Devices)

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 184 / 03	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: **September 24, 2003**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000
(Elevating Devices)

Subject: **All Passenger Ropeways with Counterweight Ropes – 'Inspection and Replacement Criteria for Ropes/Connections & Sheaves'**

Sent to: **ALL Ski Lift Industry Stakeholders - CONTRACTORS IN GROUP 8**

1. INTRODUCTION

This Order is an extension of the previous Director's Safety Order #180/03 "Chair Lifts with Counterweight Ropes – Inspection/Verification and or Replacement" dated March 17, 2003. The Order #180/03 was intended to alert and prevent the occurrence of a serious accident similar to the one that recently occurred on a chair lift in Ontario. In this accident the failure of the counterweight rope caused the catastrophic failure of the chair lift.

This Order applies to **all classes of ropeways** with counterweighted tensioning systems.

2. ORDER REQUIRING IMMEDIATE ACTION FOR ALL PASSENGER ROPEWAYS WITH COUNTEWEIGHT ROPES

2.1 Inspection

2.1.1 Entire length of counterweight ropes including their connections and sheaves shall be inspected for their safe use every year prior to operation of passenger ropeways.

2.1.2 The following criteria shall be followed for inspection of counterweight ropes including their connections:

(a) Disassemble counterweight rope including its connections to inspect them entirely.

(b) Nondestructive inspection of counterweight ropes including its connections shall conform with the requirements of Clause 11.27 "Nondestructive Testing of Ropes, Sleeves, and Sockets" of the CSA Z98-01 Standard on Passenger Ropeways including its Supplement # 1 dated December 2002.

(c) A copy of the interpretative report for the inspection of the counterweight rope shall be kept in the log book in accordance with Section 34 of Ontario Regulation 209/01 for Elevating Devices.

(d) The interpretative report referenced in subsection (c) shall be formatted according to the form entitled "Rope Nondestructive Test Report" contained in the Appendix E of the CSA Z98-01 Standard on Passenger Ropeways including its Supplement # 1 dated December 2002.

2.1.3 When unlined sheave grooves are used for wire rope, they shall be V-shaped and shall have rounded bottoms with a radius of not less than 55% of the rope diameter.

2.2 Replacement

2.2.1 Replacement of counterweight rope and all its connection shall be based on the requirements of Clause 11.30 of the CSA Z98-01 Standard on Passenger Ropeways including its Supplement # 1 dated December 2002.

2.2.2 Where the existing counterweight rope including all its connections is replaced, the new counterweight rope including all its connections shall be as specified by the manufacturer/designer of the chair lift.

2.2.3 A professional engineer shall perform the function of manufacturer/designer, where the manufacturer/designer is no longer in business.

3. INSTRUCTIONS

3.1 All documentation generated to prove compliance of this Order shall be included in the Maintenance Log as required by Ontario Regulation 209/01 (Elevating Devices).

3.2 For the year 2003 ski season, the requirements of this Order with the exception of Subsection 2.1.3 do not apply to those chair lifts that have documented proof of compliance with Section 3 of the Director's Safety Order # 180/03.

2.2.4 Wire ropes including their connections shall be maintained in accordance with the requirements of Section 11.28 of the CSA Z98-01 Standard on Passenger Ropeways including its Supplement # 1 dated December 2002.

4. CLARIFICATION

The requirements in this Safety Order are taken from the Ontario Regulation 209/01 and the CSA Z98-01 Standard on Passenger Ropeways including its Supplement # 1 dated December 2002.

This order is being made pursuant to the Technical Standards and Safety Act. Failure to comply with this order is an offence punishable upon conviction, to a fine of not more than $50,000, or imprisonment for a term of not more than one year or both, or if the person is a body corporate to a fine of not more than $1,000,000.

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Ted Dance, Director, TSS Act 2000, (Elevating Devices)

Elevating and Amusement Devices Safety Division	Ref. No.: 185 / 03	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: **September 24, 2003**	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000
(Elevating Devices)

Subject: **BM Manufactured Chair Lifts With Counterweighted Tensioning Systems**
Sent to: **ALL Ski Lift Industry Stakeholders - CONTRACTORS IN GROUP 8**

1. INTRODUCTION

This Order, which requires immediate implementation, supplements Leitner-Poma Service Bulletin # 2003-004 regarding counterweighted tensioning systems on those chair lifts manufactured by BM Lifts now owned by Leitner-Poma with clarifications and enhancements. The Leitner-Poma Service Bulletin is intended to alert and prevent the occurrence of a serious accident similar to the one that recently occurred on a chair lift in Ontario. In this accident the failure of the counterweight rope caused the catastrophic failure of the chair lift.

2. ORDER REQUIRING IMMEDIATE IMPLEMENTATION OF LEITNER-POMA SERVICE BULLETIN

2.1 General

(a) The Leitner-Poma Service Bulletin # 2003-004 dated July 30, 2003 attached with this Order applies to those chair lifts manufactured by BM Lifts now owned by Leitner-Poma.

(b) This Order applies to any chair lift owner whose name is missing from the Leitner-Poma Service Bulletin # 2003-004.

(c) Any chair lift owner who is not sure of the original manufacturer of chair lift shall contact the TSSA immediately for further direction.

(d) Any other chair lift that was altered to incorporate BM manufactured counterweighted tensioning terminal shall immediately contact both the TSSA and Leitner-Poma for further direction.

(e) With the exception of the requirements in the Leitner-Poma Service Bulletin # 2003-004, all other requirements specified in the Director's Safety Order # 184/03 "All Passenger Ropeways with Counterweight Ropes – Inspection and Replacement Criteria for Ropes/Connections & Sheaves" shall be applied to those chair lifts manufactured by BM Lifts now owned by Leitner-Poma.

2.2 Counterweighted Tensioning System

Counterweight tensioning rope shall be inspected and replaced in accordance with the Leitner-Poma Service Bulletin # 2003-004.

2.3 Counterweighted Tensioning Terminal Structure

(a) The structural integrity of counterweighted tensioning terminal shall be subjected to verification and reinforcing according to the Leitner-Poma Service Bulletin # 2003-004.

(b) The activities under the subsection (a) shall be considered an alteration under Subsection 26(2) of the Elevating Devices Code Adoption Document adopted by Ontario Regulation 209/01 made under the Technical Standards and Safety Act 2000.

(c) All documents resulting from the activities under the subsection (a) shall be submitted in accordance with Subsections 15(2) and 15(4) for registration under the Elevating Devices Ontario Regulation 209/01 made under the Technical Standards and Safety Act 2000.

3. INSTRUCTIONS

All documentation generated to prove compliance of this Order shall be included in the Maintenance Log as required by Ontario Regulation 209/01 (Elevating Devices).

This order is being made pursuant to the Technical Standards and Safety Act. Failure to comply with this order is an offence punishable upon conviction, to a fine of not more than $50,000, or imprisonment for a term of not more than one year or both, or if the person is a body corporate to a fine of not more than $1,000,000.

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Ted Dance, Director, TSS Act 2000, (Elevating Devices)

LEITNER-POMA SERVICE BULLETIN

Bulletin LPC 2003-004
July 30, 2003

TO:

Caledon Ski Club
Dagmar Resort
Devils Elbow Resort
Hidden Valley Highlands
Hidden Valley Resort
Hockley Valley Resort
Horseshoe Resort
Kamiskotia Snow Resort
Loch Lomond
Mansfield Ski Club
Marathon , Town of
Mt Dufour Ski Area
Mt Pakenham
Mt St-Louis Moonstone
North York Ski Center
Oshawa Ski Club
Searchmont Ski Resort
Sir Sams Ski Area
Snow Valley Resort
Talisman Mtn Resort

Re: BM Lifts chairlifts with counterweight systems for tensioning

As you may be aware, last winter one of the BM Lifts quads experienced failure of the tension rope. The lift was built in 1992 .

It was determined that the rope failure was caused by accumulated fatigue in the rope, as well as an unnoticed progressive mechanical wear of the rope due to rough surfaces of counterweight sheaves and their misalignment.

Due to occurrence of this failure, and the design of the tension system, which makes access to some parts of the cwt rope difficult, we feel it necessary to revise the inspection requirements for these ropes:

1. **Each year the entire length of the tension rope must be inspected by magnetic testing (and NOT visual inspection - as presently required by the CSA-Z98). The test results must be properly documented and certified.**

2. **Regardless of the rope condition tension ropes on these lifts must be replaced every five (5) years or 7500 hours of operation.**

In addition, prior to the next ski season all listed above lifts must be subjected to verification (and eventual reinforcing) of the connection between carriage runways and the supporting structure. During last winter's incident the tension rope break led to a considerable impact of the carriage against the stoppers, and consequential failure of this connection. Due to a variation in the designs, and differences in terminal configurations (drive/tension; return/tension) contact Leitner-Poma for specific recommendations and requirements.

Radu Petrut , P.Eng.
Leitner-Poma Canada

Elevating and Amusement Devices Safety Division	Ref. No.: 186 / 03	Rev. No.:
DIRECTOR'S ORDER	Date: November 1, 2003	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000
(Elevating Devices)

Subject: **Adoption of Supplement No. 1 dated December 2002 to CSA Z98-01 Passenger Ropeways Standard**
Sent to: **All contractors in Group 8 and submitting engineers**

1. INTRODUCTION

This bulletin adopts Z98S1-02 Supplement No. 1 to CAN/CSA Z98-01 including Erratum Z98S1-03 to the Supplement as an addition to the previous Director's Order # 167/02 informing stakeholders of the adoption of CAN/CSA Z98-01 Passenger Ropeways Standard in the Elevating Devices Code Adoption Document.

2. ORDER

2.1 Newly Installed or Altered Passenger Ropeway

(a) Each **newly** installed or altered passenger ropeway for which the **DESIGN** is submitted to the TSSA for registration on or after June 15, 2004 shall conform to the requirements of Z98S1-02 Supplement No. 1 to CAN/CSA Z98-01 including Erratum Z98S1-03 to the Supplement.

(b) Compliance with Subsection (a) shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

2.2 Existing Passenger Ropeway

(a) For the purpose of this Director's Order, "**existing"** means a passenger ropeway or part thereof for which DESIGN was registered prior to the June 15, 2004 adoption of Z98S1-02 Supplement No. 1.

(b) In the case of **existing** passenger ropeways the application of Z98S1-02 Supplement No. 1 including Erratum Z98S1-03 to the Supplement is restricted to the Section 11 "Inspection, Testing, Operation, and Maintenance of Passenger Ropeways", unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act.*

2.3 Every Passenger Ropeway

The appendix "K" referenced in the Z98S1-02 Supplement No. 1 shall be considered a mandatory part every passenger ropeway.

3. INSTRUCTIONS

a) The Z98S1-02 Supplement No. 1 to CAN/CSA Z98-01 including Erratum Z98S1-03 to the Supplement, is available from the Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario M9W 1R3, Telephone: 1-800-463-6727, e-mail: sales@csa-international.org or web site www.csa.ca.

b) The Regulation under the *Technical Standards and Safety Act* requires that all mechanics to have full knowledge the standards applicable to the passenger ropeways on which they are assigned to work. Thus, we would expect that the mechanics involved in the construction, installation, alterations, inspection, testing, and maintenance of passenger ropeways will obtain a copy of the subject standard including supplements and erratum and this Director's Order.

4. NOTES

- The major changes in the Z98S1-02 Supplement No. 1 to CAN/CSA Z98-01 are:

  I. **NEW** introduction of requirements for conveyors under Section 9 of the Z98S1-02 Supplement No. 1 to CAN/CSA Z98-01.

  II. Requirements for data acquisition system for above-surface ropeways using detachable grip under Clause 11.25.12 "Acceptance Tests and Inspection" and Clause 11.26 "Periodic Load Testing".

- Any passenger ropeway that is relocated shall meet all the requirements of the adopted standard in this bulletin and the Technical Standards and Safety Act, Ontario Regulation, and CAD.

- Attached with this bulletin is Erratum Z98S1-03 to the Supplement Z98S1-02.

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Ted Dance, Director under the Act

Reinstate 3.30.1.3 as it appeared in Z98-01

3.30.1.4

Only signal, communication, control, and safety circuits of 48 V (nominal) or less shall be carried between towers that support the ropeway.

Correct Table 7

Table 7

Revise heading in Table 7 in Supplement page 84 as follows:

Maximum number of broken wires **in one lay length.**

Reinstate 11.16.3.4 as it appeared in Z98-01

11.16.3.4

The following shall apply to the equipment that is provided and maintained for the purpose of emergency evacuation:

(a) when not in use, equipment shall be carefully stored in such a location that it is readily available for use on a specific ropeway or ropeways;
(b) prior to each season's operation and after each use, each device shall be thoroughly inspected and any worn or damaged components shall be replaced or repaired;
(c) all nonmetallic rope used for evacuation shall be of synthetic polyester fibre, such as Dacron or equivalent, or of a hard-lay nylon with a minimum diameter of 12.7 mm and a minimum breaking strength, when new, of 22.2 kN;
(d) no natural fibre or polypropylene ropes shall be used;
(e) all carabiners shall be of the locking type; and
(f) this equipment shall be designated for evacuation use only.

Elevating and Amusement Devices Safety Division	Ref. No.: 187 / 04	Rev. No.:
Information Bulletin	Date: **March 31, 2004**	Date:

Subject: **Lists Of Active Elevating Device Rulings and Bulletins As Of March 2004**

Sent to: **All Elevating Devices Contractors**

Status of Current Director's Rulings and Bulletins

1. Active Rulings - Enclosed is a list of Rulings/Bulletins that are active as of the date of this Bulletin.

2. All Rulings - Enclosed is a list of all Rulings/Bulletins that have been issued, which includes the status of the ones that have expired, or have been superseded or cancelled.

Note: The attached lists amends the previous cancelled Rulings list issued in 1998 in Bulletin 131-98.

All rulings are available for downloading at the TSSA website – www.tssa.org

Roland Hadaller, Manager of Engineering

Roger Neate, Operations Manager

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

ACTIVE (ED) RULINGS

Technical Standards & Safety Authority		INDEX of DIRECTOR'S ORDERS, RULINGS & BULLETINS
No.	**DATE**	**SUBJECT**
187/04	Mar-31-04	List of Active Elevating Device Rulings and Bulletins as of March 2004
183/03	Dec-01-03	Adoption of B355-00 Supplement#1 - Lifts for persons with physical disabilities
181/03	Jun-27-03	Adoption of B44-00 Update#1
179/03	May-12-03	Hollister/Whitney Disc Brake
177/03	May-12-03	Muffler Inserts
176/02	Aug-18-03	Sealing of Components on all Elevating Devices excluding Passenger Ropeways
175/02	Jun-23-03	Firefighter Emergency Operations [FEO], formerly 'SES'
174/02	Feb-24-03	Adoption of B311-02 Code
173/02	Nov-01-02	Retrofitting of elevators without car top maintenance
172/02	Nov-01-02	Elevators with in-car special emergency operation
171/02-r1	Sep-05-03	Cab Interior Modernization and / or Change in Cab Weight
170/02	Mar-20-02	Apprenticeship Requirement of Elevating Devices Mechanics-in-Training
166/01	Dec-17-01	LULA Type Elevators & Long Apron Plates, Travel Restrictions: Enclosed Vertical Platforms & LULA Elevators
165/02	Jul-24-02	US Elevator - Ascension 2000 Control - Door Monitor
164/02-r1	Dec-11-03	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-00
160/01	Aug-16-01	Elevator with inverted cylinders
159/01	Dec-13-01	Armor AD1 AD2 Controls - Shorts in circuits due to objects falling on relays mounted below
158/01	Feb-20-01	Schindler Escalators Inserts
154/00	Jul-31-00	Hollister/Whitney Governors – model 201, 205 & 208
152/00	Mar-15-00	Elevating Devices Mechanics Certification Process/Due Diligence
150/00-r2	Nov-17-00	Barricading Escalators/Moving Walk during maintenance
149/99	Jul-30-99	Elevators in residential buildings altered to conform with the Ontario Fire Code
148/99	Jun-28-99	Otis Electronic Touch Buttons, Maintenance procedures
147/99-r1	Dec-31-99	Garaventa Stair Plat. Lifts – Leading Edges Operation
146/99	Mar-15-99	Revision to Design Submissions, Simplified Procedure
143/99	Feb-08-99	In–ground cylinder corrosion - Contractors to develop and implement checking
142/98	Dec-30-98	"Contact Shields" on horizontally mounted Klockner – Moeller and Benedict + Jager
140/98	Dec-04-98	Turnbull / Dover Elev.; Door – zone – switch retrofit required
139/98	Dec-04-98	CSA-B44 Code – Section 12 - Five Year Governor Pull-Through Force Tests
138/98	Oct-20-98	Northern Elev. Traction Sheave Break ("Jammer")
137/98	Oct-20-98	GD45 Dover Machine Gear Mounting Bolt Failure
136/98	Oct-20-98	Benedict & Jager Relays – Horizontally Mounted
134/98	Jun-24-98	G.A.L/ Hollister –Whitney "Rope-Gripper"- Models #600/605/610 may need retrofit
132/98	Jul-24-98	Maintenance and Repair of Elevating Devices by Qualified Mechanics
131/98	Oct-20-98	(1)EAD Bulletin & Directors Orders Replacing Directors Ruling (2) Lists of cancelled & valid rulings as of October 98 [Superseded - see 187/04]
127/96	Nov-20-96	Interpretation of DR #105/93 – Rules for fire retrofit residential building
125/96	Mar-01-96	Retrofit of Pivot Pins on Northern Type N two Speed Door Relating Linkage
124/96	Jan-31-96	Safety Alert – Maintenance Hazards on Escalators
123/96	Jan-31-96	Order to Retrofit Dover 105B & G01015 Geared Machines
122/95	Sep-15-95	C.O. & 2 Spd Hall & Car Doors – Devices with 1/ 8" Dia. Air Cord of 7x7 Strand
121/95	Aug-01-95	Step Fatigue Test for Escalators
118/95	Jun-16-95	Fall Protection on Elevator Car Tops
117/95	Aug-05-95	Guidelines for Reporting of Accidents/Incidents
114/94	Jul-20-94	Inspection: By-Pass Switches and Door Monitoring System
110/93	Jul-14-93	Continuity of Common Ground on Controllers to be verified, Method for Checking Beckett VV Controllers

ACTIVE (ED) RULINGS

Technical Standards & Safety Authority		INDEX of DIRECTOR'S ORDERS, RULINGS & BULLETINS
No.	**DATE**	**SUBJECT**
109/93	Jul-14-93	Warning: Effectiveness of Safety Retainers Depends on Panel – Sill Clearances
108/93-r1	Mar-18-96	Relays in Safety Circuits and Wiring Changes on Horn / Armor
106/93	May-10-93	Alert – Use of Jumpers – Safe Trouble-shooting procedures required
105/93-r2	Oct-25-94	Rules for Fire Code Retrofit Elevators – Residential Buildings (O.Reg. 627 / 92 Fire Marshals Act)
104/93	Jan-20-93	Elevators w/Dover 105B or GD105 M/C's and MP-1 control retrofitting of M/C brakes
103/93-r2	Jan-05-95	Existing Elevator Door Reopening Devices - alteration to conform with B44 cl 2.13.5
102/93	Jan-20-93	M.A.C Interlocks - check immediately - attach maintenance instructions
99/92-r4	Dec-30-98	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard
97/92	Nov-13-92	Retrofitting of Elevators Single Slide Doors with Safety Retainers
96/92	Jun-22-92	Standardization of Spec .Sheet Entries for the New EDB Computer data bank
95/92	Jun-22-92	Information to installing Elevator Contractors Stop Switch on In-Car Emergency Operation Clause 3.12.15.8.2 (h)
93/92	Jun-24-92	Northern Elevator wiring changes in Levelling circuits per Northern Bulletin # 85-034
92/92	Jun-23-92	Northern Geared Elevators with VV Relay Tape controllers built before Sept. 91 may require wiring changes per Northern Bulletin # 91-063
91/92	Jun-02-92	Northern Elevator with Normic Controllers may require wiring changes
85/91-r1	Sep-18-91	Escalator Brake Setting – Follow up to Ruling # 65 / 88
82/90	Nov-21-90	Potential Hazard – Action by Elevator Maintenance Contractors
80/90	Oct-22-90	Revisions to Design Submissions Filed Prior to Registration
74/89	Jan-11-89	Fire Rating of Oversized Hoistway Door Assemblies
71/89	May-04-89	Re-Wiring on “Northern “ Elevators with “KUP” Style Relay Controllers
69/88	Oct-31-88	Gal Type “MO” and “MOCP” Interlock Assemblies
63/88	Jun-03-88	Beckett Elevators w/VV Drives to be revised to Eliminate Potentially Unsafe Conditions
61/88-r13	Jul-28-99	Retrofitting of Elevator Slide Doors w/ safety retainers - 1st amend.
60/88-r1	May-31-88	Fire Code Retrofit Elevators
59/88	Mar-31-88	Escalator Load Test on Initial Inspection - No type Test Certificate Available
50/87	May-06-87	Adoption of CAN/CSA Z256-M87 Construction Hoists
48/87	Jan-30-87	General Variance to Freight Platform Lifts Limitations: Floor Penetration and Travel
36/86	Apr-22-86	Hitch for Governor Rope must be secured
25/85	Jul-09-85	Potential Hazard created by Wear on Lock Beak and Lock Ledger
24/85	Jun-21-85	Unauthorized Modifications of Dover Door Latches may create potential hazard
17/84	Nov-16-84	Signs required if counterweight runby on elevators is not maximum allowed by the B44
16/84	Nov-16-84	Northern Instantaneous type ‘A’ Safeties Potentially Incapacitated by Misadjustment
13/84	May-16-84	Dover elevators without retiring cam
10/84	Mar-15-84	OTIS “R” governor – pins
07/83	Oct-01-83	MOLINE (Mac) door interlocks

ACTIVE (Ski) RULINGS

Technical Standards & Safety Authority		INDEX of DIRECTOR'S ORDERS, RULINGS & BULLETINS
No.	**DATE**	**SUBJECT**
186/03	Nov-01-03	Adoption of Z98S1-02 (Supplement #1) to CAN/CSA-Z98-01
185/03	Sep-24-03	BM Chair Lifts with CWT Tensioning
184/03	Sep-24-03	Inspection and Replacement Criteria for CWT Ropes
182/03	Aug-11-03	Actions to migitage hazards and causes for detachments on tube tows
180/03	Mar-17-03	Chair Lifts with Counterweight Ropes – 'Inspection / Verification and/or Replacement'
178/03	Feb-24-03	Reporting of Detachments on "Tube Tows" - Secondary Carriers
169/02-r1	Mar-05-03	Periodic Engineering Review and Assessment of Aging Above-Surface Passenger Ropeways
168/02	Jan-17-02	Periodic Load testing and Preseason Inspection - of Passenger Ropeways
145/99	Feb-16-99	Carriers on Borvig double Chair Lifts. Urgent Actions Required.
144/99	Feb-16-99	Cross-arm assemblies on Hallift bars lifts and/ or chair lifts Urgent Actions Required
133/98	Jul-20-98	Advisement of the Service Bulletin Number 1998-001 issued by Van Roll Tramways
128/96-r1	Jul-24-97	Support, hold-down & combination hold-down/support sheave assemblies on the chair lifts
111/93	Aug-13-93	Periodic Load testing of the Above Surface Passenger Ropeways

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No.	**DATE**	**SUBJECT**	**STATUS**
187/04	Mar-31-04	List of Active Elevating Device Rulings and Bulletins as of March 2004	Active
186/03	Nov-01-03	Adoption of Z98S1-02 (Supplement #1) to CAN/CSA-Z98-01	Active
185/03	Sep-24-03	BM Chair Lifts with CWT Tensioning	Active
184/03	Sep-24-03	Inspection and Replacement Criteria for CWT Ropes	Active
183/03	Dec-01-03	Adoption of B355-00 Supplement#1 - Lifts for persons with physical disabilities	Active
182/03	Aug-11-03	Actions to migitage hazards and causes for detachments on tube tows	Active
181/03	Jun-27-03	Adoption of B44-00 Update#1	Active
180/03	Mar-17-03	Chair Lifts with Counterweight Ropes – 'Inspection / Verification and/or Replacement'	Active
179/03	May-12-03	Hollister/Whitney Disc Brake	Active
178/03	Feb-24-03	Reporting of Detachments on "Tube Tows" - Secondary Carriers	Active
177/03	May-12-03	Muffler Inserts	Active
176/02	Aug-18-03	Sealing of Components on all Elevating Devices excluding Passenger Ropeways	Active
175/02	Jun-23-03	Firefighter Emergency Operations [FEO], formerly 'SES'	Active
174/02	Feb-24-03	Adoption of B311-02 Code	Active
173/02	Nov-01-02	Retrofitting of elevators without car top maintenance	Active
172/02	Nov-01-02	Elevators with in-car special emergency operation	Active
171/02-r1	Sep-05-03	Cab Interior Modernization and / or Change in Cab Weight	Active
171/02	Apr-03-03	Cab Interior Modernization and / or Change in Cab Weight	superseded - by rev
170/02	Mar-20-02	Apprenticeship Requirement of Elevating Devices Mechanics-in-Training	Active
169/02-r1	Mar-05-03	Periodic Engineering Review and Assessment of Aging Above-Surface Passenger Ropeways	Active
169/02	Feb-14-02	Periodic Engineering Review and Assessment of Aging Above-Surface Passenger Ropeways	superseded - by rev
168/02	Jan-17-02	Periodic Load testing and Preseason Inspection - of Passenger Ropeways	Active
167/01	Dec 31-01	Adoption of CSA Z98-01 Passenger Ropeways Standard - New Edition	Superseded - see 186/03
166/01	Dec-17-01	LULA Type Elevators & Long Apron Plates, Travel Restrictions: Enclosed Vertical Platforms & LULA Elevators	Active
165/02	Jul-24-02	US Elevator - Ascension 2000 Control - Door Monitor	Active
164/02-r1	Dec-11-03	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-00	Active
164/02	May-01-02	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-00	superseded - by rev
163/01	Jan-15-02	Maintenance Standards - Elev, D/W, Mat'l Lifts, Esc & MW	not issued
162/01	Aug-22-01	Listing of Elevators w/o Car Top Maintenance Stations	Superseded - see 172/02
161-01-r2	May-17-02	Adoption of B44-00 Code	Superseded - see 181/04
161/01-r1	Mar-07-02	Adoption of B44-00 Code	superseded - by rev
161/01	Aug-16-01	Adoption of B44-00 Code	superseded - by rev
160/01	Aug-16-01	Elevator with inverted cylinders	Active
159/01	Dec-13-01	Armor AD1 AD2 Controls - Shorts in circuits due to objects falling on relays mounted below	Active
158/01	Feb-20-01	Schindler Escalators Inserts	Active
157/01	Jan-10-01	Adoption of CSA B355-00, D10	Superseded - see 183/03
156/01	Dec-14-00	Firefighter's Elevators	Superseded - see 172/02
155/00	Sep-26-00	Hydraulic Elevator Specification Sheet	Superseded - New forms/code
154/00	Jul-31-00	Hollister/Whitney Governors – model 201, 205 & 208	Active
153/00	Mar-20-00	Electric Elevator Specification sheets – New format	Superseded - New forms/code
152/00	Mar-15-00	Elevating Devices Mechanics Certification Process/Due Diligence	Active
151/99	Nov-18-99	Potential Y2K Issues affecting Elevating Devices	Expired
150/00-r2	Nov-17-00	Barricading Escalators/Moving Walk during maintenance	Active
150/00-r1	Sep-26-00	Barricading Escalators/Moving Walk during maintenance	superseded - by rev
150/00	Jun-07-00	Barricading Escalators/Moving Walk during maintenance	superseded - by rev
149/99	Jul-30-99	Elevators in residential buildings altered to conform with the Ontario Fire Code	Active
148/99	Jun-28-99	Otis Electronic Touch Buttons, Maintenance procedures	Active
147/99-r1	Dec-31-99	Garaventa Stair Plat. Lifts – Leading Edges Operation	Active
147/99	Jun-30-99	Garaventa Stair Plat. Lifts – Leading Edges Operation	superseded - by rev
146/99	Mar-15-99	Revision to Design Submissions. Simplified Procedure	Active
145/99	Feb-16-99	Carriers on Borvig double Chair Lifts. Urgent Actions Required.	Active
144/99	Feb-16-99	Cross-arm assemblies on Hallift bars lifts and/ or chair lifts Urgent Actions Required	Active
143/99	Feb-08-99	In–ground cylinder corrosion - Contractors to develop and implement checking	Active
142/98	Dec-30-98	"Contact Shields" on horizontally mounted Klockner – Moeller and Benedict + Jager	Active
141/98	Dec-30-98	Adoption of B44S2 – 98 Supplement No.2 to CAN/CSA- B44-94 Safety code for Elev.	superseded - see 161/01
140/98	Dec-04-98	Turnbull / Dover Elev.; Door – zone – switch retrofit required	Active
139/98	Dec-04-98	CSA-B44 Code – Section 12 - Five Year Governor Pull-Through Force Tests	Active
138/98	Oct-20-98	Northern Elev. Traction Sheave Break ("Jammer")	Active
137/98	Oct-20-98	GD45 Dover Machine Gear Mounting Bolt Failure	Active
136/98	Oct-20-98	Benedict & Jager Relays – Horizontally Mounted	Active
135/98	Oct-20-98	Inspection operation w/open door circuits (CSA/B44 3.12.1.4.4) - Procedures	Superseded - by New Code

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No.	**DATE**	**SUBJECT**	**STATUS**
134/98	Jun-24-98	G.A.L/ Hollister –Whitney "Rope-Gripper"- Models #600/605/610 may need retrofit	Active
133/98	Jul-20-98	Advisement of the Service Bulletin Number 1998-001 issued by Van Roll Tramways	Active
132/98	Jul-24-98	Maintenance and Repair of Elevating Devices by Qualified Mechanics	Active
131/98	Oct-20-98	(1)EAD Bulletin & Directors Orders Replacing Directors Ruling (2) Lists of cancelled & valid rulings as of October 98 [Superseded - see 187/04]	Active (2) Superseded - see 187/04
130/98		Not issued	
129/97	Apr-02-97	Adoption of Supplement #1 – 1997 to CAN/CSA-B44-94	superseded - see 141/98
128/96-r1	Jul-24-97	Support, hold-down & combination hold-down/support sheave assemblies on the chair lifts	Active
128/96	Dec-13-96	Hold-down & combination hold-down/support sheave assemblies on the above-surface chair lifts	superseded - by rev
127/96	Nov-20-96	Interpretation of DR #105/93 – Rules for fire retrofit residential building	Active
126/96	Aug-06-96	Adoption of CSA-Z98-96 Passenger Ropeways	Superseded - see 167/01
125/96	Mar-01-96	Retrofit of Pivot Pins on Northern Type N two Speed Door Relating Linkage	Active
124/96	Jan-31-96	Safety Alert – Maintenance Hazards on Escalators	Active
123/96	Jan-31-96	Order to Retrofit Dover 105B & G01015 Geared Machines	Active
122/95	Sep-15-95	C.O. & 2 Spd Hall & Car Doors – Devices with 1/ 8" Dia. Air Cord of 7x7 Strand	Active
121/95	Aug-01-95	Step Fatigue Test for Escalators	Active
120/95	Aug-01-95	Replacements of Seals of Components Previously Sealed by an Inspector	Superseded - see 176/02
119/95	Jul-18-95	Maintenance and Repair of Elevating Devices by Qualified Mechanics	superseded - by DR 132/98
118/95	Jun-16-95	Fall Protection on Elevator Car Tops	Active
117/95	Aug-05-95	Guidelines for Reporting of Accidents/Incidents	Active
116/95-r1	Jul-30-96	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-94	Superseded - see 164/02
116/95	Feb-20-95	Alterations of Elevators, DW, Freight Platforms , Escalators & Moving Walks per CSA B44-94	superseded - by rev
115/94	Nov-04-94	Adoption of CSA B444-94, Safety code for Elevators	superseded - see 129/97
114/94	Jul-20-94	Inspection: By-Pass Switches and Door Monitoring System	Active
113/94-r1	Oct-21-94	Door Monitoring System	superseded - by New Code
113/94	Jul-20-94	Door Monitoring System	superseded - by rev
112/94-r2	Dec-06-94	Adoption of CSA B355-94 Lifts for Persons with Physical Disabilities	superseded - by New Code
112/94-r1	Nov-04-94	Adoption of CSA B355-94 Lifts for Persons with Physical Disabilities	superseded - by rev
112/94	Apr-26-94	Adoption of CSA B355-94 Lifts for Persons with Physical Disabilities	superseded - by rev
111/93	Aug-13-93	Periodic Load testing of the Above Surface Passenger Ropeways	Active
110/93	Jul-14-93	Continuity of Common Ground on Controllers to be verified, Method for Checking Beckett VV Controllers	Active
109/93	Jul-14-93	Warning: Effectiveness of Safety Retainers Depends on Panel – Sill Clearances	Active
108/93-r1	Mar-18-96	Relays in Safety Circuits and Wiring Changes on Horn / Armor	Active
108/93	Jul-12-93	Relays in Safety Circuits and Wiring Changes on Horn / Armor	superseded - by rev
107/93	Jun-21-93	Inconsistencies in reporting devices maintained in Ontario	Expired
106/93	May-10-93	Alert – Use of Jumpers – Safe Trouble-shooting procedures required	Active
105/93-r2	Oct-25-94	Rules for Fire Code Retrofit Elevators – Residential Buildings (O.Reg. 627 / 92 Fire Marshals Act)	Active
105/93-r1	Mar-01-94	Rules for Fire Code Retrofit Elevators – Residential Buildings (O.Reg. 627 / 92 Fire Marshals Act)	superseded - by rev
105/93	Feb-17-93	Rules for Fire Code Retrofit Elevators – Residential Buildings (O.Reg. 627 / 92 Fire Marshals Act)	superseded - by rev
104/93	Jan-20-93	Elevators w/Dover 105B or GD105 M/C's and MP-1 control retrofitting of M/C brakes	Active
103/93-r2	Jan-05-95	Existing Elevator Door Reopening Devices - alteration to conform with B44 cl 2.13.5	Active
103/93-r1	Jul-15-93	Existing Elevator Door Reopening Devices - alteration to conform with B44 cl 2.13.5	superseded - by rev
103/93	Jan-20-93	Existing Elevator Door Reopening Devices - alteration to conform with B44 cl 2.13.5	superseded - by rev
102/93	Jan-20-93	M.A.C Interlocks - check immediately - attach maintenance instructions	Active
101/ 93	Jan-13-93	Adoption of Supplement No. 1-92 to CAN/CSA-Z98-M91 Passenger Ropeways	superseded - by code
100/92	Jun-24-94	Major Alteration Inspection Prior to return to Service	superseded - see 164/02
99/92-r4	Dec-30-98	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	Active
99/92-r3	Oct-20-98	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	superseded - by rev
99/92-r2	Dec-02-94	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	superseded - by rev
99/92-r1	Feb-10-94	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	superseded - by rev
99/92	Oct-30-92	Maintenance of Elevators, D/W, Freight Plat, Esc, etc. –New Standard	superseded - by rev
98/92	Oct-13-92	Adoption of CAN/CSA-Z98-M91 Passenger Ropeways New Edition	superseded - by code
97/92	Nov-13-92	Retrofitting of Elevators Single Slide Doors with Safety Retainers	Active
96/92	Jun-22-92	Standardization of Spec .Sheet Entries for the New EDB Computer data bank	Active
95/92	Jun-22-92	Information to installing Elevator Contractors Stop Switch on In-Car Emergency Operation Clause 3.12.15.8.2 (h)	Active
94/92r1	Jan-20-93	Adoption of Supplement No. 1-1992 to CAN/CSA-B44-M90 Safety Code for Elevators	Cancelled
94/92	Jun-22-92	Adoption of Supplement No. 1-1992 to CAN/CSA-B44-M90 Safety Code for Elevators	superseded - by rev
93/92	Jun-24-92	Northern Elevator wiring changes in Levelling circuits per Northern Bulletin # 85-034	Active
92/92	Jun-23-92	Northern Geared Elevators with VV Relay Tape controllers built before Sept. 91 may require wiring changes per Northern Bulletin # 91-063	Active

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No.	**DATE**	**SUBJECT**	**STATUS**
91/92	Jun-02-92	Northern Elevator with Normic Controllers may require wiring changes	Active
90/92	Feb-09-92	Escalator installation # Changes	Expired
89/92	Jan-14-92	New Fees – Regulation 2/92	superseded – by new sched.
88/91		*Ruling 88 never issued*	*N/A*
87/91		*Ruling 87 never issued*	*N/A*
86/91	Oct-30-91	Work start date on major alterations to be reported to the Elevating Devices Branch	Cancelled - see DR 100/92
85/91-r1	Sep-18-91	Escalator Brake Setting – Follow up to Ruling # 65 / 88	Active
85/91	Sep-03-91	Escalator Brake Setting – Follow up to Ruling 65/68	superseded – by rev
84/91		*Ruling 84 never issued*	*N/A*
83/91	Feb-25-91	Retrofitting of Elevator Single Slide Doors with Safety Retainers – Procedure	Expired – time limit
82/90	Nov-21-90	Potential Hazard – Action by Elevator Maintenance Contractors	Active
81/90-r1	Sep-28-93	Supervision of "Mechanics in Training"	superseded – by O.Reg222/01
81/90	Nov-02-90	Supervision of "Mechanics in Training"	superseded – by rev
80/90	Oct-22-90	Revisions to Design Submissions Filed Prior to Registration	Active
79/90-r2	Mar-16-92	Hydraulic Cylinders Removal, Examination and Replacement	superseded – by DR 116
79/90-r1	Jan-13-92	Hydraulic Cylinders Removal, Examination and Replacement	superseded – by rev
79/90	Aug-03-90	Hydraulic Cylinders Removal, Examination and Replacement	superseded – by rev
78/90-r5	Jun-22-92	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	Cancelled
78/90-r4	May-27-91	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	superseded – by rev
78/90-r3	May-23-91	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	superseded – by rev
78/90-r2	Jan-17-91	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	superseded – by rev
78/90-r1	Oct-22-90	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	superseded – by rev
78/90	Jun-01-90	Adoption of CAN/CSA B44-M90 – Safety Code for Elevators	superseded – by rev
77/90	May-01-90	Observation Elevators – Cleaning of Glass Enclosures	superseded – by code
76/90	May-01-90	Cleaning of Glass Enclosures on Observation Elevators	superseded – by code
75/90	Feb-22-90	Return to Service Following a Minor Alteration	superseded – by DR#116
74/89	Jan-11-89	Fire Rating of Oversized Hoistway Door Assemblies	Active
73/89	Aug-14-89	New Fees under the Elevating Devices Act, O. Reg. No. 451/89	superseded – by new sched.
72/89	Jun-09-89	Maintenance Procedures	superseded – by code
71/89	May-04-89	Re-Wiring on "Northern " Elevators with "KUP" Style Relay Controllers	Active
70/89	Feb-23-89	Item 126 (Kinetic Energy) in Specification Sheet for Hyd. Elevators – Form #ID-29426 (Ed 11/88)	Expired
69/88	Oct-31-88	Gal Type "MO" and "MOCP" Interlock Assemblies	Active
68/88-r3	Feb-22-90	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	superseded – by code
68/88-r2	Jun-09-89	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	superseded – by rev
68/88-r1	Dec-19-88	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	superseded – by rev
68/88	Oct-27-88	Protection: Ascending Car Overspeed & Uncontrolled Car Lowspeed mov'mnt	superseded – by rev
67/88	Oct-27-88	Protection Against Uncontrolled Overspeed of Ascending Car	superseded – by ED CAD
66/88	Jun-27-88	Maintenance and Repair of Elevating Devices by Qualified Mechanics	superseded – by O.Reg.
65/88	Jun-10-88	Checking of Escalator Brake Setting	Expired
64/88	Jun-03-88	Relocated Elevating Devices Licensing Procedure and Applicable Standards	superseded – by ED CAD
63/88	Jun-03-88	Beckett Elevators w/VV Drives to be revised to Eliminate Potentially Unsafe Conditions	Active
62/88-r1	Nov-26-89	Door Safety Retainers – Add'l Design Req'mts for Hor. Slide Landing Doors	superseded – by code
62/88	Jun-03-88	Door Safety Retainers – Add'l Design Req'mts for Hor. Slide Landing Doors	superseded – by rev
61/88-r13	Jul-28-99	Retrofitting of Elevator Slide Doors w/ safety retainers - 1st amend.	Active
61/88-r12	Nov-01-93	Retrofitting of Elevator Slide Doors w/ safety retainers - Consolidation	see 61/88-r13
61/88-r11	Oct-18-93	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r10	Jun-01-92	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r9	Jan-10-92	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r8	Apr-12-91	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r7	Oct-20-90	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r6	Apr-30-90	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r5	Jan-22-90	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r4	Sep-26-89	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r3	Feb-24-89	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88-r2	Oct-12-88	Retrofitting …with Safety Retainers, Additional Designs	see 61/88-r13
61/88	May-01-88	Retrofitting of Elevator Slide Doors w/ safety retainers	Amended – see 61/88-r13
60/88-r1	May-31-88	Fire Code Retrofit Elevators	Active
60/88	Apr-18-88	Fire Code Retrofit Elevators	superseded – by rev
59/88	Mar-31-88	Escalator Load Test on Initial Inspection - No type Test Certificate Available	Active
58/88	Jan-27-88	Potential Failure of Sheave Shaft of Anglo Electromatic Traction Machine	Expired
57/87	Nov-16-87	Adoption of Supp.No.1 – 1987 to CAN3-B44-M85 Safety Code for Elevators	Cancelled
56/87	Nov-13-87	Oil Buffers Certification with C.3.3.5.10 of CAN3-B44-M87 required after January 1,1989	superseded – by code

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No.	**DATE**	**SUBJECT**	**STATUS**
55/87	Dec-01-87	Reporting of Maintenance Contractors	Expired
54/87	Dec-01-87	Reporting of Maintenance Contractors	Expired
53/87	Nov-06-87	Concrete Foundations for New Passenger Ropeways	Cancelled
52/87	Jun-02-87	Elevators – Emergency Signal Devices Clause 3.13 of CAN3-B44-M85	superseded - by code
51/87	Jun-02-87	New Hydraulic Elevators – Auxiliary Contact in Main Disconnect Switch	superseded - by code
50/87	May-06-87	Adoption of CAN/CSA Z256-M87 Construction Hoists	Active
49/87-r1	Jun-24-87	Escalators Type Tests - Revised	superseded – by code
49/87	Mar-19-87	Escalators Type Tests and Certification in accordance with Clause 8.11* of CAN3-B44-M85	superseded – by rev
48/87	Jan-30-87	General Variance to Freight Platform Lifts Limitations: Floor Penetration and Travel	Active
47/87-r1	Nov-19-87	New Electric Elevators: Acceptance	superseded – by code
47/87	Jan-19-87	New Electric Elevators: Acceptance	superseded – by rev
46/87	Jan-15-87	Adoption of CAN/CSA-B355-M86 Elevating Devices for the Handicapped	Cancelled
45/86	Dec-31-86	Adoption of Supp. No. 2-1986 to CAN3-Z98-M78 Passenger Ropeways	Cancelled
44/86	Nov-28-86	Horizontal Sliding Hoistway Doors	Superseded - see 61/88
43/86	Dec-01-86	Reporting of Maintenance Cont (Owner-contractors)	Expired
42/86	Dec-01-86	Reporting of Maintenance Contractors	Expired
41/86	Aug-01-86	New Fees under the Elevating Devices Act, Ontario Reg. 463/86	superseded – new fee sched.
40/86	*Jun-16-86*	*Amusement Devices Act, 1986 Ontario Regulation 248/86*	*superseded – by CAD*
39/86	Jun-13-86	Unauthorized Access to Elevator Hoistways and Car Tops	Cancelled
38/86	May-01-86	Section 40 – Compliance	Expired
37/86	Apr-22-86	Section 58 (1) of O.Reg. 229/81 ……..	superseded – by CAD
36/86	Apr-22-86	Hitch for Governor Rope must be secured	Active
35/86	Apr-22-86	New Fees Proposed Under the ED act	superseded – new fee sched.
34/86	Nov-22-86	Major Alterations	Cancelled
33/86	Jan-20-86	Reporting of Maintenance Contractors	Expired
32/86	Jan-20-86	Reporting of Maintenance Contractors	Expired
31/86	Jan-15-86	Adoption of CAN3-B44-M85- Safety Code for Elevators	superseded– by new code
30/85	Dec-10-85	1986 Updating of Registered Contractors Maintenance List - by Reg. 13 EDevices Act & Regs.	Cancelled
29/85	Nov-15-85	Amendment to EDB Ruling #22/85 – Section 40 of O.Reg.803/82	superseded – ED CAD 06/01
28/85	Sep-11-85	Minor Type 'A' and Minor Type 'B' Submission and Inspection Rules	Superseded - see 164/02
27/85	Nov-10-85	Adoption of Supplement No.1-1984 to CAN3-Z98-M78 Passenger ropeways	superseded – by new code
26/85-r1	Dec-27-85	Adoption of CAN3-B44-M85 Safety Code for Elevators	superseded – by new code
26/85	Sep-10-85	Adoption of CAN3-B44-M85 Safety Code for Elevators	superseded – by rev
25/85	Jul-09-85	Potential Hazard created by Wear on Lock Beak and Lock Ledger	Active
24/85	Jun-21-85	Unauthorized Modifications of Dover Door Latches may create potential hazard	Active
23/85	Apr-16-85	Important Compliance with Section 59 of Ontario Reg. 229/81 s.58 Required	superseded – ED CAD
22/85-r1	Aug-29-85	Important Section 40, Ontario Regulation 803/82 s.3-Compliance	superseded – by DR#29/85
22/85	Apr-16-85	Important Section 40, Ontario Regulation 803/82 s.3-Compliance	superseded – by rev
21/85	Jan-04-85	Retainers Required on New Slide Landing Doors	Cancelled
20/84	Dec-17-84	New Procedure for Reporting of Maintenance Contracts	Cancelled
19/84	Nov-19-84	Speed Limits – Workman's Construction Hoists	Cancelled
18/84	Nov-16-84	Safety Test Records – Section 23 of Ont. Reg. 229/81 – Detailed req'mnts for inspection & testing	superseded – by CAD
17/84	Nov-16-84	Signs required if counterweight runby on elevators is not maximum allowed by the B44	Active
16/84	Nov-16-84	Northern Instantaneous type 'A' Safeties Potentially Incapacitated by Misadjustment	Active
15/84	Nov-01-84	Temporary rules for automatic leveling on Vertical Platform "C"	superseded – by Code
14/84		*Ruling 14 never issued, however Issued as ruling 21/85*	*N/A*
13/84	May-16-84	Dover elevators without retiring cam	Active
12/84	Apr-13-84	BECKETT G79 governor	Expired
11/84	Mar-15-84	HW door gibs	Expired
10/84	Mar-15-84	OTIS "R" governor – pins	Active
09/83	Dec-20-83	Accidents & incidents reporting Provision of testing equipment ED pre-examination (form 29438)	Cancelled
08/83	Oct-24-83	Safe working practice on elevators	Cancelled
07/83	Oct-01-83	MOLINE (Mac) door interlocks	Active
06/83	Oct-11-83	HW enclosure, landing door & platforms new rules	superseded – by Code
05/83-r2	May-28-85	Testing of ski chair lift components & Non-Destructive Testing of Hauling Ropes	superseded – by Code
05/83-r1	Sep-26-83	Testing of ski chair lift components	superseded – by rev
05/83	Aug-24-83	Testing of ski chair lift components	superseded – by rev
04/83-r2	Sep-20-83	Emergency power & special emergency service	superseded – by Elevator Code
04/83-r1	Apr-14-83	Emergency power & special emergency service	superseded – by rev
04/82	Mar-30-83	Emergency power & special emergency service	superseded – by rev
03/82	Dec-15-82	Working practice on chair lifts	superseded – by ED CAD 06/01
02/82	Nov-24-82	Sprinklers in M/R	superseded – by Elevator Code
01/82	Nov-18-82	Reporting of Incidents, Use of jumper wires, Testing of safeties (method)	superseded – 106/93 & 99/92

Elevating and Amusement Devices Safety Division	Ref. No.: 188 / 05	Rev. No.:
DIRECTOR'S ORDER	Date: June 20, 2005	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000
(Elevating Devices)

Subject: **Change in Scope of EDM-B Certificate**
Effective immediately

Sent to: ALL ELEVATOR CONTRACTORS/ EDM-A AND EDM-B LICENCE HOLDERS

1. **Background**

There is no significant difference in the rack and pinion machines used on Construction Hoists [Z-185 devices] and those installed on permanent Manlifts [B-311 devices], which utilize rack and pinion drive other than the codes to which they are designed.

Construction Hoists must comply fully with the requirements of **CSA-Z185-M87** code while
Manlifts must comply fully with the requirements of **CSA-B311-02** code.

2. **Order**

The Director of the Certification and Training of Elevating Device Mechanics Regulation, Technical Standards & Safety Act, 2000, S.O. 2000, c. 16, pursuant to his authority as provided for in Section 36(3) of the Technical Standards & Safety Act, 2000 hereby orders the following:

Effective immediately the provisions of O.Reg 222/01 section 11.(1) are varied as follows:

EDM-B certificate

11. (1) A person who holds an EDM-B certificate may, without supervision, construct, install, alter, repair, maintain or test construction hoists and manlifts that utilize rack and pinion drives within the meaning of Ontario Regulation 209/01 (Elevating Devices) and the equipment and accessories essential to their operation but only if the person has demonstrated the essential skills required to work on construction hoists or rack and pinion manlifts and has had that experience documented and signed by the supervising certificate holder. O. Reg. 222/01, s. 11 (1).

3. **Note**

A holder of an EDM-A or EDM-B certificate who does does not have documented experience in this class of device shall not perform the functions refered to above without supervision by the holder of an EDM-A or EDM-B certificate who has documented experience on this class of device.

_____
Roland Hadaller, Director, TSS Act 2000, [Elevating Devices]

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 189/ 05	Rev. No.:
DIRECTOR'S ORDER	Date: September 23, 2005	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000
(Elevating Devices)

Subject: Amendment to Type 'B' Material Lifts Limitations Respecting Floor Penetration and Travel – Code Adoption Document requirements

Sent to: All ED Contractors

Introduction

Director's Ruling 48/87 provided the requirements that must be met in order to apply for a variance to allow a Freight Platform Lift to travel more than 5m or to penetrate more than one floor. This Director's Order supersedes Director's Ruling 48/87 for new Type 'B' Material Lift installations requiring a variance for total travel or number of floors penetrated. The scope of this Director's Order does not include Type 'A' Material Lifts.

1. Notice of Amendment to CAD

The Director of Elevating Devices hereby gives notice that pursuant to Section 4. of O.Reg. 223/01 the Elevating Devices Code Adoption Document**, Issued by the Technical Standards & Safety Authority dated** June 1, 2001**, with amendments is further amended.**
Section 6.(1) of the Code Adoption Document, as Amended By Director's Order 198/05, is further amended by adding the following clause "(s)" to the section.

6.(1)(s) Requirements 7.4.2(c) [penetration limited to one floor] and 7.4.2(d) [travel limited to 5m] of CSA B44-04, are not adopted for newly installed type 'B' material lifts, provided the installation fulfills the requirements of Director's Order 189/05.

2. Order & Requirements

2.1. Type 'B' Material Lifts exceeding 5 m travel or one penetrated floor must conform to 7.4.2(a),(b),(e),(f)&(g) except that "penetrated floor" shall be replaced with "uppermost penetrated floor" in clause 7.4.2(g)(1).

2.2. All Type 'B' Material Lifts exceeding 5 m travel or one penetrated floor must conform to the requirements in section 2, 3, and 8 in B44-04, as applicable to freight elevators except as permitted by exemptions listed in sections 3 and 4 or this Director's Order.

2.3. Sections 7.4, 7.5, and 7.6 of B44-04 do not apply except as referenced by sections 3 and 4 of this Director's Order.

2.4. All clause references in section 3 and 4 of this order are from CSA B44-04 unless otherwise stated.

2.5. Where the term "freight elevator" is used in a referenced requirement, it shall mean Type 'B' Material Lift, the term "elevator" shall mean Material Lift and where referenced clauses address requirements for "passenger elevators" exclusively, they shall not apply.

3. Exemptions from Section 2 of B44-04

3.1. ***[Glass in Hoistway]*** 2.1.1.2.2(d) does not apply. Glass shall not be permitted in hoistway construction.

3.2. ***[Entrances as part of Hoistway Construction]*** 2.1.1.2.3 shall apply. See 3.9 below for additional exemptions to section 2.11.

3.3. ***[Projections, Recesses, And Setbacks in Hoistway Enclosures]*** 2.1.6 applies except sills guards required by 2.11.10.1 are only necessary when car doors or gates are provided. 7.4.7.4 shall apply to recesses and projections when car doors or gates are not provided.

3.4. ***[Pits]*** 2.2 only applies when a pit greater than 600 mm in depth is provided voluntarily.

3.5. ***[Bottom Car Clearances and Runby]*** 2.4.1 to 2.4.4 do not apply. Clause 7.4.6.2.1 shall apply.

3.6. ***[Top Clearances and Runby]*** 2.4.6 to 2.4.11 do not apply. Clause 7.4.6.1.4 shall apply.

3.7. ***[Clearance between Apron and Pit]*** 2.5.1.6 does not apply except where a pit and apron are provided.

3.8. ***[Machine Rooms]*** 2.7 does not apply. The power unit and controller shall be enclosed and normally locked.

3.9. ***[Protection of Hoistway Openings]*** Protection of the hoistway shall conform to 2.11, except for the following exemptions:

- 3.9.1. ***[Access Openings]*** 2.11.1.4 does not apply.
- 3.9.2. ***[Types of Entrances]*** 2.11.2 does not apply. 7.4.13.2.2 and c7.4.13.2.2(e) shall apply.
- 3.9.3. ***[Location of Doors]*** 2.11.4 does not apply.
- 3.9.4. ***[Opening of Doors]*** 2.11.6 does not apply. 7.4.13.2.5 shall apply.
- 3.9.5. ***[Glass Doors]*** 2.11.7.2 does not apply.
- 3.9.6. ***[Sill Guards]*** 2.11.10.1 does not apply. 7.4.7.4 shall apply.
- 3.9.7. ***[Hinged Sills]*** 2.11.10.3 shall apply as modified by 7.4.13.2.9.
- 3.9.8. ***[Combination Panels]*** 2.11.13.5 does not apply.

3.10. ***[Interlock for Passenger Elevators]*** 2.12.1.4 does not apply.(Note: Interlock for Freight Elevators 2.12.1.5 does apply)

3.11. ***[Glass in Elevator Cars]*** 2.14.1.8 does not apply. Glass construction or lining is not permitted.

3.12. ***Car Doors and Gates]*** 2.14.4 shall apply except as altered by 7.5.1.2.2 through 7.5.1.2.7.

3.13. ***[Car Doors and Gates]*** 2.14.5 does not apply.

3.14. ***[Car Doors and Gates]*** 2.14.6 does not apply except as required by 7.5.1.2.

3.15. ***[Platform Apron]*** 2.15.9.4 does not apply except when provided with a suitable pit depth. The apron will extend a suitable amount for the pit depth provided up to a maximum extension defined by 2.15.9.4.

3.16. ***[Passengers on Material Lifts]*** 2.16.4 does not apply. No passengers permitted on material lifts.

3.17. ***[Passenger Sign]*** 2.16.5.1.3 does not apply. No passengers permitted on material lifts.

3.18. ***[Overloading]*** 2.16.6(b) does not apply. One-piece loads exceeding the rated load are not permitted.

3.19. ***[One-Piece Loads]*** 2.16.7 does not apply. One-piece loads exceeding the rated load are not permitted.

3.20. ***[Additional Requirements]*** 2.16.8 does not apply. No passengers permitted.

3.21. ***[Buffers and Bumpers]*** 2.22 only applies when buffers or bumpers are voluntarily provided.

3.22. ***[Terminal Stopping Device]*** 2.25 does not apply. Section 7.5.11.2 shall apply.

3.23. ***[Operating Devices and Control Equipment]*** 2.26 does not apply except where required by section 7.5.12.2.

3.24. ***[Emergency Operation and Signaling Devices]*** 2.27 does not apply except 2.27.1.1 when required by 2.11.1.3.

4. Exemptions from Section 3 of B44-04

4.1. ***[Automatic Exemptions]*** All exempted section 2 clauses that are referenced by Section 3 of B44-04 shall automatically be exempt for Hydraulic Type 'B' Material Lifts with greater than 5m travel or more than one penetrated floor. The alternate requirements of section 3 of this order will apply.

4.2. ***[Pits]*** 3.2 only applies when a pit greater than 600 mm in depth is provided voluntarily.

4.3. ***[Bottom Clearances]*** 3.4.1 does not apply. Clause 7.4.6.2.1 shall apply.

4.4. ***[Runby]*** 3.4.2 & 3.4.3 does not apply.

4.5. ***[Top Clearance]*** 3.4.4 to 3.4.8 does not apply. Clause 7.4.6.1.4 shall apply.

4.6. ***[Buffers]*** 3.22 only applies when buffers or bumpers are voluntarily provided or when required by 3.6.

4.7. ***[Terminal Stopping Device]*** 3.25 does not apply. Section 7.5.11.2 shall apply.

4.8. ***[Operating Devices and Control Equipment]*** 3.26 applies except as modified by section 7.5.12.2.

5. Notes

- This order replaces Director's Ruling 48/87 for newly installed devices.
- The intent of this order is to define a freight-carrying device that may be installed in a hoistway with a limited overhead or pit, but those travel which exceeds the normally permitted maximum of 5 metres for Type B Material Lifts.
- This order intentionally requires the extended travel material lift to meet all requirements of a freight elevator except those relating to the
    - pit,
    - overhead,
    - buffers,
    - car apron,
    - machine room, and
    - control.

  These items shall, as a minimum, meet the requirements of a material lift. To compensate for these reduced requirements, the device must comply to Type B material lift restrictions associated with: access, speed, and type of operation.
- The variance regarding travel and/or number of penetrated floors shall be clearly stated on the specification sheets submitted with the Application for Registration of a Design Submission.
- Order 189/05 shall be included in the Applied Code reference section, and the submitting engineer signing the design submission form shall ensure that the requirements of this ruling are met.

6. Effective Date

- This order is effective for all design submission received by TSSA for registration after the 1st day of January 2006.

_____

Roland Hadaller, Director, TSS Act 2000, (Elevating Devices)

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council .

Elevating and Amusement Devices Safety Division	Ref. No.: 190 / 04	Rev. No.:
Safety Alert Bulletin	Date: **June 1, 2004**	Date:

Subject: **Otis 15 AT / ATL Machine Sheave Bolts**

Sent to: **All Contractors & Owners**

1. INTRODUCTION & ALERT

Otis Elevator Company has issued a letter requiring inspection and possible maintenance of sheave bolts on the

15AT and 15ATL Machines

An incident involving the failure of the bolts, which secure the drive sheave to machine shaft, has prompted the release of this safety alert.

2. INSTRUCTIONS

2.1. Per the manufacturers recommendations, the bolts, which secure the sheave to the shaft, must be checked for proper torque. Contractors are required to follow the prescribed checks as outlined in the Otis Elevator Company letter referenced **Subject: 15ATL Machine Sheave Bolts** , dated March 1, 2004. (Attached)

2.2. Bolt torque must be between 165 ft-lbs and 185 ft-lbs. Bolts torqued to values above or below these settings must be replaced.

Notes:

a) Bolts found to be under torque shall be replaced. The concern is the length of time the bolts have been loose and the potential that the bolts have started to fatigue. Replacing the bolts ensures that this potential problem is resolved.
b) Wire binding should be found on all existing machines.
c) In order to check the torque the wire binding must be removed.
d) If the wire is missing confirm that the bolt torque is correct. If correct the wire binding must be reinstalled.
e) Lock washers should exist on all existing bolts. If the lock washers do not exist, Otis recommends following the Otis corrective instruction bulletin, ie., install the lock washers, new bolts, torguing and wire binding.
f) As the issue is related to bolt torque, Otis advises that this is a one time check.

2.3. The bolts, washers and wire are available for purchase through Unitec (Phone # 1-800-328-7840). The part numbers are as follows:

- Bolts ISO4017M16x35-8.8B (3 required)
- Lock Washer VP-904985 (3 required)
- Wire VP-912890 (in a 250' roll)

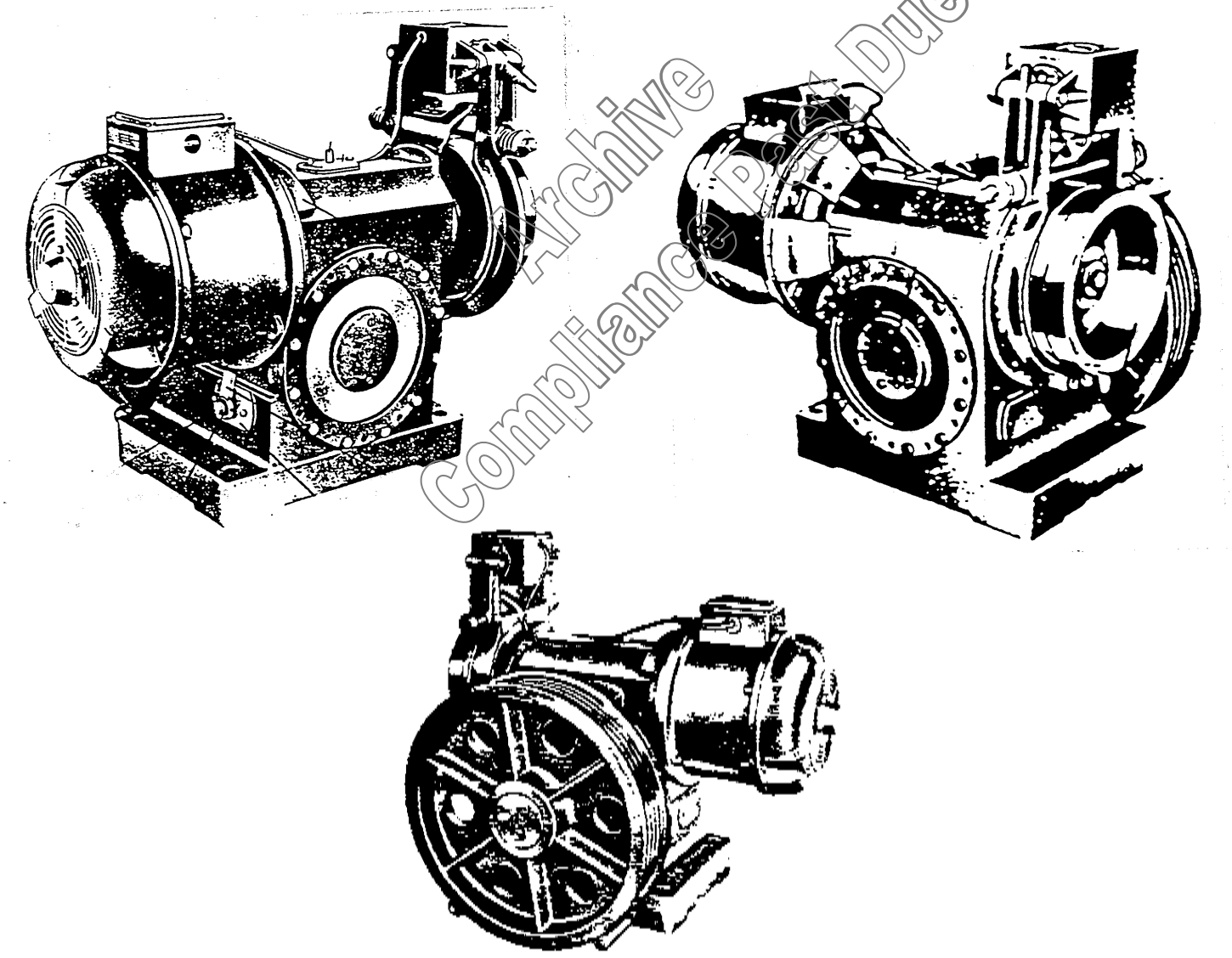
2.4. Contractors are advised to carry out these inspections during their next maintenance visit. It is expected that these inspections will be completed (and recorded per 2.5) no later than September 1, 2004.

2.5. Contractors who service installations with 15AT/ATL machines and have completed the requirements of the Otis bulletin are required to put a note in the log book indicating; **Verified per DR 190/04**, and shall include the date and mechanics name.

Roland Hadaller,
Engineering Manager
EDAD PROGRAM

Cy Gray
Operations Manager
EDAD PROGRAM

This Safety Alert has been developed in consultation with the Otis Elevator Company & the TSSA Elevating Devices Advisory Council .



Otis
A United Technologies Company

Otis Elevator Company
212 West Newberry Road
Bloomfield, Connecticut 06002

Date: March 1, 2004

To: Richard Kaczmarczyk: Otis-Canada

Doug Tripp: Otis-Canada

From: Douglas LaBrecque,
Otis Service Center
Otis Elevator Company-North American Operations

Subject: **15ATL Machine Sheave Bolts**

Cc: Ed Minich, (President Otis Canada, Inc.)

Otis Elevator Company is publishing this corrective instruction for all 15 AT and 15ATL machines. Otis has experienced a failure of the bolts for the sheave attachement to the shaft on a 15ATL traction unit in Alberta. We have checked other 15AT/15ATL machines, and have found the bolts not set to the correct torque. Therefore we recommend perfoming the following check on all units.

1. Remove the unit from Service.
2. Check that the bolts are torqued to 175 ft-lbs (± 10ft-lbs)
3. If the torque is correct, go to step # 7.
4. If not at this setting, replace the three (3) bolts with M16, grade 8.8 hex head bolts and three (3) lock washers.
5. Torque the new bolts to 175 ft-lbs (± 10ft-lbs).
6. Drill the bolt heads and secure with wire (5lbs gage).
7. If all else is okay with the unit, return the car to service.

As part of this procedure it is recommended that you also inspect the machine, sheave, ropes and other attachements.

Douglas B. LaBrecque
Manager, Service Engineering NSA

Otis Canada, Inc.
P.O. Box 550
710 Dorval Drive, Suite 202
Oakville, Ontario L6J 5B7
(905) 849-2620 Fax: (905) 849-6818
E-Mail: richard.kaczmarczyk@otis.com

Richard J. Kaczmarczyk
Regional Sales Manager - Service

Otis
A United Technologies Company

March 1, 2004

Mr. Roland Hadaller
Chief Engineer
Technical Standards & Safety Authority
Clarica Centre West Tower
3300 Bloor St. W., 4th Floor
Toronto, Ontario
M8X 2X4

Subject: 15ATL/15AT Machine Bolts

Dear Mr. Hadaller;

Recently a 15ATL machine in Edmonton, Alberta, maintained by Otis Canada, Inc., suffered a failure in the bolts that fasten the drive sheave to the shaft. Subsequent investigations indicated that the bolts on this unit were not set at the correct torque.

Otis is undertaking to check the torque of the drive sheave bolts on all 15ATL and 15AT machines covered by an Otis preventative maintenance contract. We will follow the steps outlined in the attached directive from our Service Engineering Manager, dated March 1, 2004.

We recommend that you notify other elevator maintenance contractors and building owners, of this issue and of the recommended corrective action to be taken.

If you require any additional information please do not hesitate to contact my office at (905) 849-2620.

Yours truly,

Richard Kaczmarczyk, P. Eng.
Regional Sales Manager – Service
Northern Region

Attach.

Elevating and Amusement Devices Safety Division	Ref. No.: 191/ 05	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: April 15, 2005	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: Dover 105 Machine Brake Failure
Dover PDQ Controller Motor Field Circuit
Sent to: All Elevator Contractors

The Director. Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act* hereby orders the following:

1. BACKGROUND

Miro Elevator reported to TSSA a failure of a Dover 105 machine brake. The installation also had a Dover PDQ Control. The Dover 105 machine brake has been the subject of previous MCCR Rulings, (see Directors Ruling 123/96 and Directors Ruling 104/93.) These rulings can be downloaded from the TSSA website. These rulings dealt with the following:

123/96 dealt with Dover 105 machine brakes that had formed brake arms (not cast brake arms).
104/93 dealt with Dover 105 machine brakes when used with Dover MP-1 controls.

In this case, the brake arms were castings and the control was a Dover PDQ and therefore not subject to the previous rulings. This installation had undergone annual machine brake maintenance per B44-00 Appendix J section J2.6.1 approximately 9 months earlier. Although the brake-activating pin had no signs of wear, it was found to be not moving freely in the brass bushing.

Miro recommended that the annual maintenance in the future should include a complete dismantle and cleaning.

Upon further investigation it was discovered that a number of electrical protective devices (MG key switch, emergency stop switches inside the car, along with other switches in the safety circuit) could disable the motor field voltage supply. Removing power from the Hoist motor Fields will result in a situation in which the elevator is able to move uncontrolled away from the floor, allowing the elevator to potentially gain excessive speed. Maintaining power to the fields allows the Hoist motor to regenerate onto the Generator Armature, providing a dynamic braking effect, limiting the speed at which the elevator can move.

Miro Elevator provided recommendations for changes to the PDQ motor field circuit, which have been reviewed by ThyssenKrupp Elevator (see attachment 1). Thyssen have stated that the proposed changes do not diminish any safety features of the PDQ control.

2. ORDERS

2.1 All contractors maintaining elevators with Dover PDQ controls with motor field circuits as shown in attachment 1 shall:

a) Jump out '**SC'** contacts in the Motor Field circuit (see attached schematic)
b) Jump out '**MG'** switch in the car (see attached schematic)
d) After completing the requirements of this safety alert put a note in the log book indicating; Serviced per DR 191/05, and include the date and mechanic's name.
e) Complete these changes no later than **October 15, 2005.**

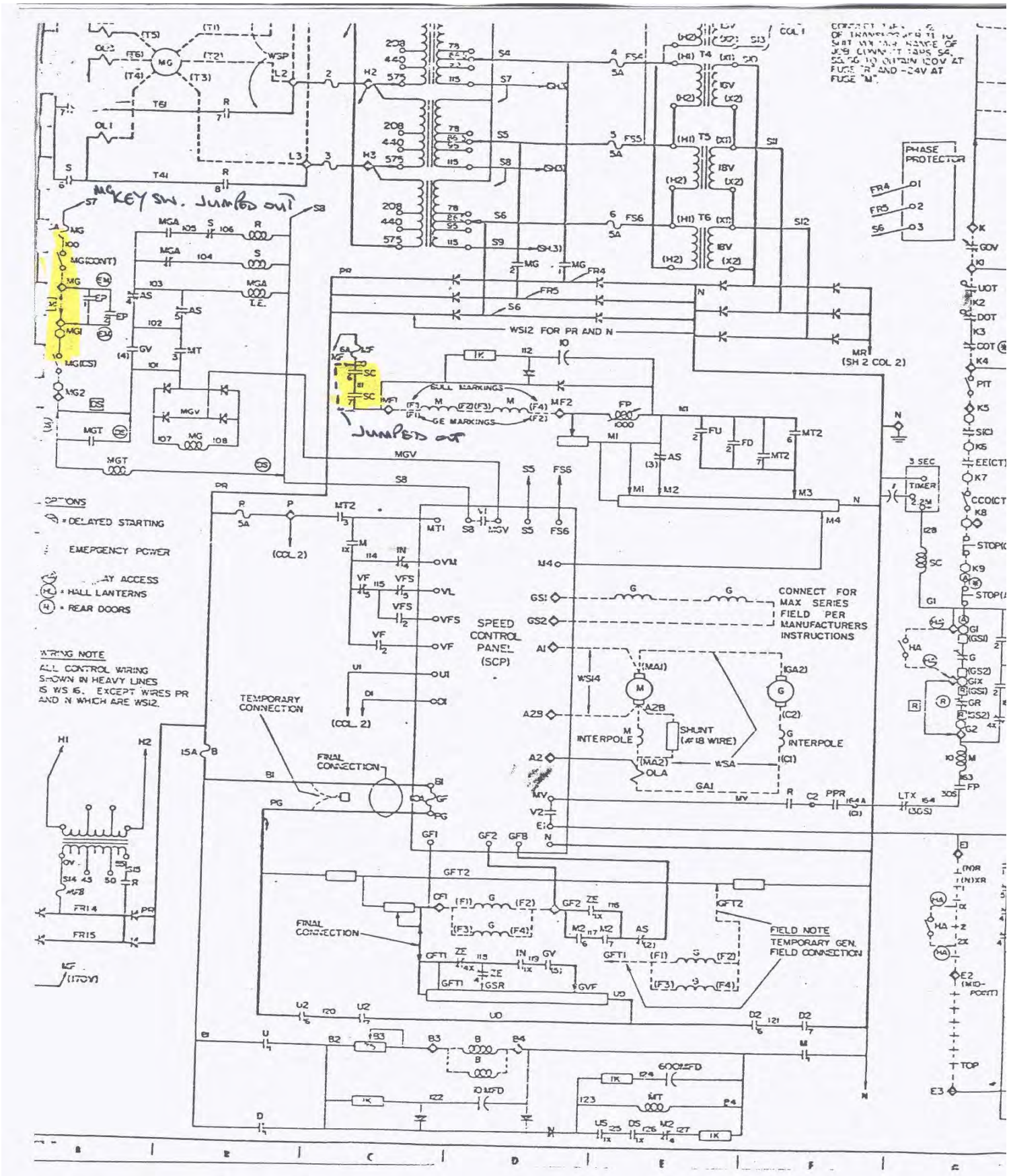
2.2 All contractors maintaining elevators with Dover 105 machines shall maintain the machine brake on an **annual basis** per Appendix J (J2.6) and shall:

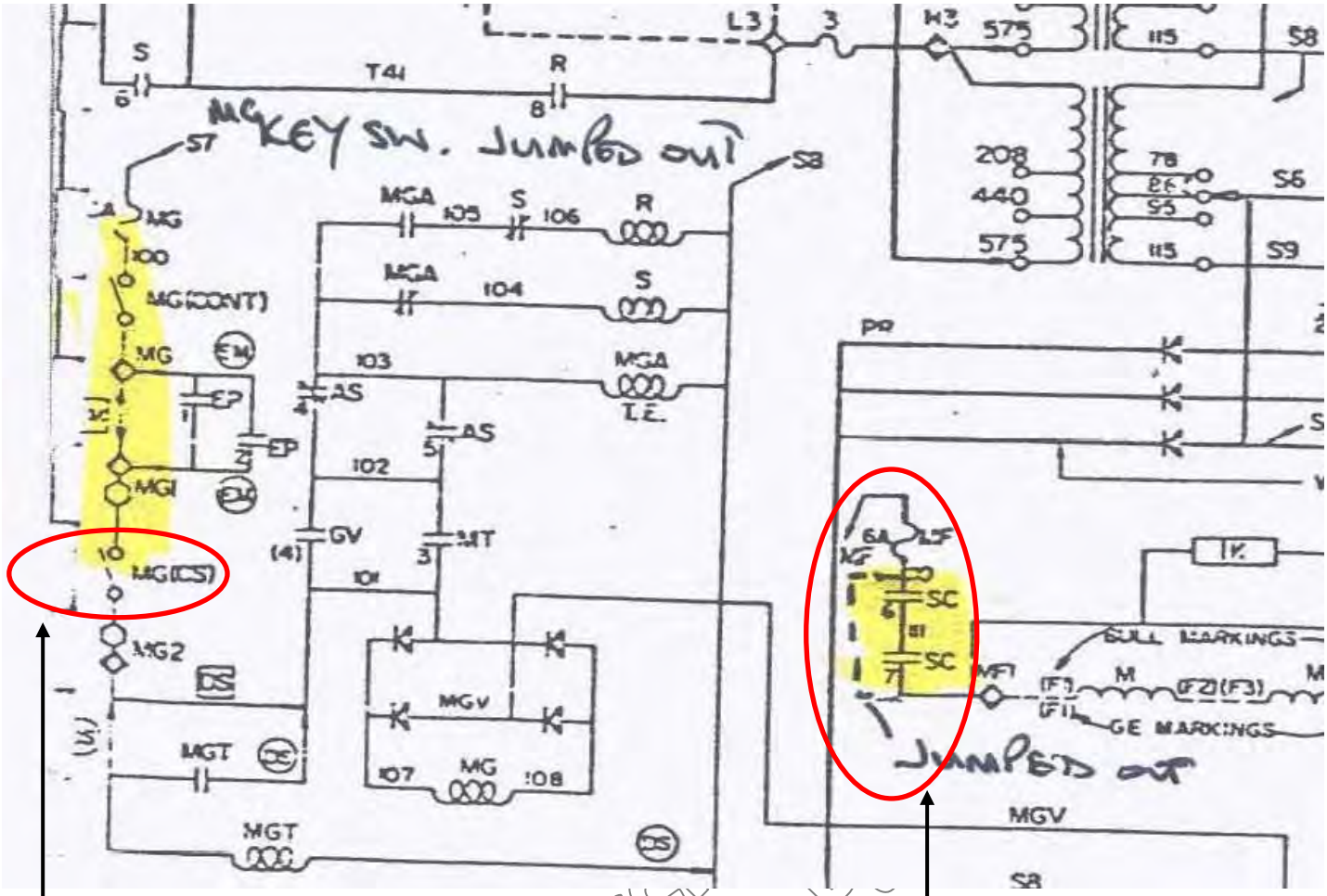
a) Make a note in the logbook to confirm that:
   1) The brake has been completely dismantled,
   2) All the pins and components were cleaned,
   3) The voltage was checked and adjusted per Director's Ruling 104/93 where applicable, and
   4) The brake was checked per Director's Ruling 123/96 where applicable

b) Permanently post the following reminder in the machine room for jobs with motor generator control:
"If elevator is re-levelling do not pull disconnect or operate MG switch in the machine room, except with empty car at top floor"

_____
Roland Hadaller, Director, TSS Act 2000, [Elevating Devices]

This Order has been developed in consultation with the Elevating Devices Advisory Council.


MG KEY SW. JUMPED OUT
JUMPED OUT
SPEED CONTROL PANEL (SCP)
CONNECT FOR MAX SERIES FIELD PER MANUFACTURERS INSTRUCTIONS
WSI2 FOR PR AND N
PHASE PROTECTOR
3 SEC TIMER
TEMPORARY CONNECTION
FINAL CONNECTION
FIELD NOTE TEMPORARY GEN. FIELD CONNECTION
SHUNT (#18 WIRE)
WIRING NOTE
ALL CONTROL WIRING SHOWN IN HEAVY LINES IS WS 16. EXCEPT WIRES PR AND N WHICH ARE WSI2.
OPTIONS
DELAYED STARTING
EMERGENCY POWER
HALL LANTERNS
REAR DOORS



Jump out Contact identified as MG (CS)

Jump out Contact identified 6 (SC) and 7(SC)

Elevating and Amusement Devices Safety Division	Ref. No.: 192 / 05	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: February 23, 2005	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000 (Elevating Devices)

Subject: Traction Sheave Brake (Sheave Jammer) Inspection and Testing Requirements

Sent to: All Elevating Device Contractors

The Director. Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act* hereby orders the following:

1. ORDER

1.1. All elevating device installations which incorporate the Traction Sheave Brake (Sheave Jammer) manufactured by ThyssenKrupp Northern Elevator, must be verified for proper set-up and ability to perform the functions required by:

1.1.1. **2.19 - Ascending Car Overspeed Protection and Unintended Car Movement Protection** as specified in B44-00, for elevators designed and installed to the B44-00 code

OR

1.1.2. **3.13.3 & 3.16.4 - Ascending Car Overspeed Protection and Car Uncontrolled Low Speed Protection (as applicable*)** as specified in B44-M90 thru B44 – 94 for elevators designed and installed to the B44- M90 thru B44 – 94 code.

**Note: Some elevators were installed with Ascending Car Overspeed Protection only (for historical records refer to DR 68/88 various revisions and DR 78/90) . For these installations, contractors are allowed to perform Ascending Car Overspeed testing or Uncontrolled Low Speed to ensure the device if functioning properly.*

2. INSTRUCTIONS

2.1. **No later than June 1st, 2005,** contractors shall carry out the necessary checks, adjustments and tests required to ensure that the device known as the Sheave Jammer is functioning properly.

2.2. Contractors shall carry out all of the identified areas of inspection and maintenance which have been listed in the ThyssenKrupp Northern Elevator Field Bulletin FB-04-1101 in the section titled '**Problem**:' See also DR 138/98 related to inspection & maintenance of Sheave Jammer frictional pads.

2.3. Contractor shall follow the corrective action plans identified in the bulletin under section titled '**Solution**:'

2.4. Once the sheave jammer is adjusted per the field bulletin, contractors shall carry out verification that the device will set as required in 2.4.1 or 2.4.2.

2.4.1. For elevating devices equipped with **Ascending Car Overspeed Protection and Unintended Car Movement Protection** the jammer shall set and prevent Unintended Car Movement greater than 1220mm (48") [2.19.2]. Testing shall consist of 2 consecutive "pass" **rollaway tests,** before permitting the elevator to be returned to service.

2.4.2. For elevating devices equipped with **Ascending Car Overspeed Protection only,** testing to verify that the jammer sets, can be performed via either; an **Ascending Car Overspeed** test or an **Uncontrolled Low Speed** set. Testing shall consist of 2 consecutive "pass" **tests,** before permitting the elevator to be returned to service.

2.5. The results of the tests, the date and the mechanics name shall be recorded on an installation specific log sheet (see attached bulletin, page 6 of 6), which is to be kept on site with the elevating devices maintenance log book.

2.6. **Future testings shall be conducted at 3 month intervals and shall follow the requirements of 2.4 and 2.5 above.**

2.7. **If a subsequent rollaway test, or ascending car overspeed test (performed at the 3 month interval) fails, the occurrence shall be reported by the contractor to TSSA within 30 days as per 117/95 section 3.2.(4) [reportable incidence]. Contractors shall then carry out the requirements listed in 2.2 thru 2.5**

Notification should be sent to:

TSSA Elevating Devices Fax No. 416-231-5435.

Forms are available on the web by following the links related to 'Report an Incident', and are also a part of Order 117.

3. BACKGROUND

3.1. Incidents have been reported to the TSSA where the means required in 2.19.2 Protection Against Unintended Car Movement have been activated but the emergency brake (sheave jammer) failed to perform the intended safety function as required by the code.

_____

Roland Hadaller, Director, TSS Act 2000, (Elevating Devices)

This Order has been developed in consultation with the ThyssenKrupp & the Elevating Devices Advisory Council.

ThyssenKrupp Northern Elevator

Final Copy: Revised February 21st, 2005

Field Bulletin Number: FB-04-1101
Please distribute a copy to all field personnel.
Reference equipment: Traction Sheave Brake (Sheave Jammer)

Problem:

Traction Sheave Brake (TSB) does not stop the car in the proper stopping distance (48") during the low speed roll away test.

There are multiple items listed below which cause this device not to operate properly:

1) **Operating surfaces are not clean and contain metal filings and rope debris.**
2) **Carbides are damaged or worn which will reduce friction during engagement.**
3) **Needle bearings (rollers), damaged or not free to operate.**
4) **The electrical TSB switch or wire to the switch comes in contact with carrier plate (lower plate) which restricts the upward motion of the device once activated.**
5) **Verify the solenoid is adjusted properly.**
6) **Gap tolerance between guide plate and sheave must be maintained.**
7) **Debris enters device after adjusting and testing.**

Solution:

Refer to the previous TSB Manual and ruling 138/98 herewith summarized for your information.

1) **Clean working surfaces and sweep area with a magnet to remove all filings and debris. On installations where the guide plates do not move freely remove the guide plate and clean all surfaces and rollers. Install the appropriate dust covers specified in the attached material list.**
2) **Replace guide plate with carbides if damaged or worn. Carbides are attached to the plates and cannot be replaced alone.**
3) **Inspect needle rollers when guide plate in the applied position (i.e. carbides are in full contact with the sheave), repeat in both directions and replace if damaged.**
4) **Ensure washer spacers are always used to prevent body of switch or the wire to the switch from coming in contact with stationary plate (carrier plate). This will permit free upward movement of the assembly.**
5) **With solenoid energised (TSB in the retracted position) press down on guide plate, IF you can move this plate downward then the solenoid adjusting nuts are not set properly. Tighten the adjusting nuts to draw the guide plate firmly onto the compression spring packs. Secure and lock with double nut.**
6) **Gap must be maintained on all sides, ensure to adjust the sheave jammer level with traction sheave. Gap of 0.0897" (equivalent to #13ga sheet metal).**
7) **Once completely serviced and adjusted, install the traction sheave brake dust cover (not applicable to basement applications) shown on Page 5 (Figures 1 & 2).**

ThyssenKrupp Northern Elevator
270 Finchdene Square
Toronto, Ontario M1X 1A5
Telephone: (416) 291-2549
Fax: (416) 291-4654
www.ThyssenKruppNorthern.com

Material required:

1) Refer to drawing 151-1200 (for TW151 & TW160 machines) and drawing 280-1180 (for TW-280 & TW-340 machines) for reference replacement part numbers for sheave jammer. Drawings are attached.
2) One of the following TSB dust covers parts depending on the type of machine to be adapted:

    a) PN# 151-1007-06 - TSB Dust Cover for TW-151 Machine
    b) PN# 160-1352-08 - TSB Dust Cover for TW-160 Machine - Meridian base.
    c) PN# 160-1352-09 - TSB Dust Cover for TW-160 Machine w/o Meridian base.
    d) PN# 280-1001-06 - TSB Dust Cover for TW-280 Machine
    e) PN# 340-1006-04 - TSB Dust Cover for TW-340 Machine

Item e) currently available other part numbers will be available after March 2005 (contact the factory for availability)

Future maintenance required:

Reference item 2.6 of the TSSA ruling 192/05

This field bulletin in no way supersedes any previous field bulletins; failure to comply may affect future warranty claims.
All work must be performed in accordance with established safety procedures and conform to local codes.

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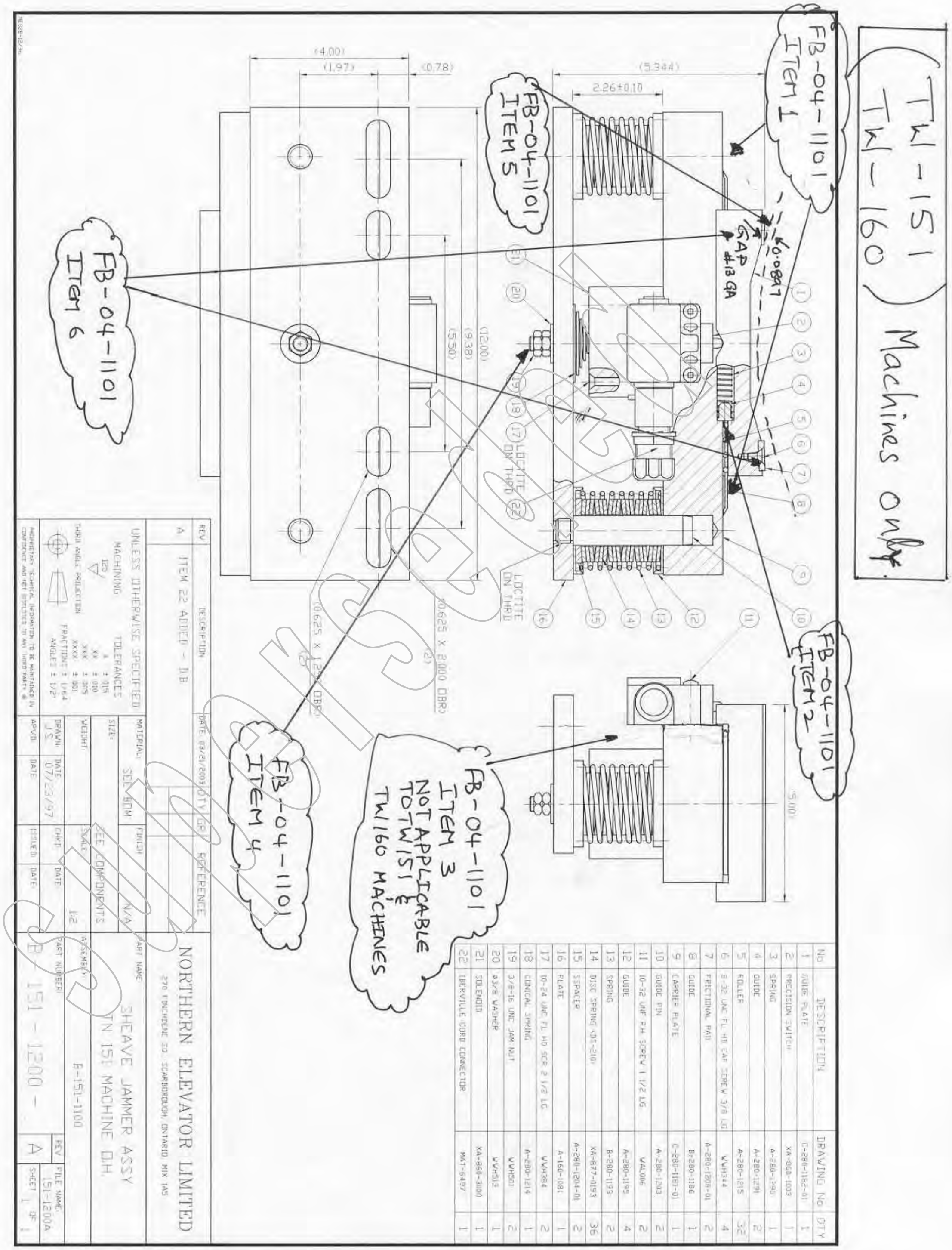

TW-151
TW-160
Machines only.
FB-04-1101 ITEM 1
FB-04-1101 ITEM 2
FB-04-1101 ITEM 3 NOT APPLICABLE TO TW151 & TW160 MACHINES
FB-04-1101 ITEM 4
FB-04-1101 ITEM 5
FB-04-1101 ITEM 6
0.0897
GAP #13 GA
LOCTITE ON THRD
0.625 X 2.000 DBR
0.625 X 1.25 DBR
No | DESCRIPTION | DRAWING No | QTY
1 GUIDE PLATE C-280-1162-01 1
2 PRECISION SWITCH XA-860-1003 1
3 SPRING A-280-1290 1
4 GUIDE A-280-1291 2
5 ROLLER A-280-1215 32
6 8-32 UNC FL HD CAP SCREW 3/8 LG WWH344 4
7 FRICTIONAL PAD A-280-1208-01 2
8 GUIDE B-280-1186 1
9 CARRIER PLATE C-280-1183-01 1
10 GUIDE PIN A-280-1203 2
11 10-32 UNF R.H. SCREW 1 1/2 LG. WAL006 2
12 GUIDE A-280-1195 4
13 SPRING B-280-1193 2
14 DISC SPRING (DS-210) XA-877-0193 36
15 SPACER A-280-1204-01 2
16 PLATE A-160-1081 1
17 10-24 UNC FL HD SCR 2 1/2 LG. WWH384 2
18 CONICAL SPRING A-280-1214 1
19 3/8-16 UNC JAM NUT WWH501 2
20 ø3/8 WASHER WWH513 1
21 SOLENOID XA-860-3000 1
22 IBERVILLE CORD CONNECTOR MAT-6497 1
REV A ITEM 22 ADDED - D.B. DATE 03/21/2003
NORTHERN ELEVATOR LIMITED
270 FINCHDENE SQ. SCARBOROUGH, ONTARIO M1X 1A5
UNLESS OTHERWISE SPECIFIED
MATERIAL: SEE BOM
FINISH: N/A
PART NAME: SHEAVE JAMMER ASSY TN 151 MACHINE D.H.
SIZE: SEE COMPONENTS
SCALE: 1:2
ASSEMBLY: B-151-1100
DRAWN: J.S. DATE: 07/23/97
PART NUMBER: B-151-1200-
REV A
FILE NAME: 151-1200A
SHEET 1 OF 1

Pg 3 of 6

(TW-280 TW-340) Machines Only.
FB-04-1101 ITEM 5
FB-04-1101 ITEM 1
FB-04-1101 ITEM 6
FB-04-1101 ITEM 2
FB-04-1101 ITEM 4
FB-04-1101 ITEM 3
WASHER SPACER REQUIRED
NORTHERN ELEVATOR LIMITED
D-280-1180-S
SECTION B-B
VIEW W2
VIEW W1
SECTION A-A
TRACTION SHEAVE
Pg 4 of 6

Figure 1. New Traction Sheave Brake dust Cover.

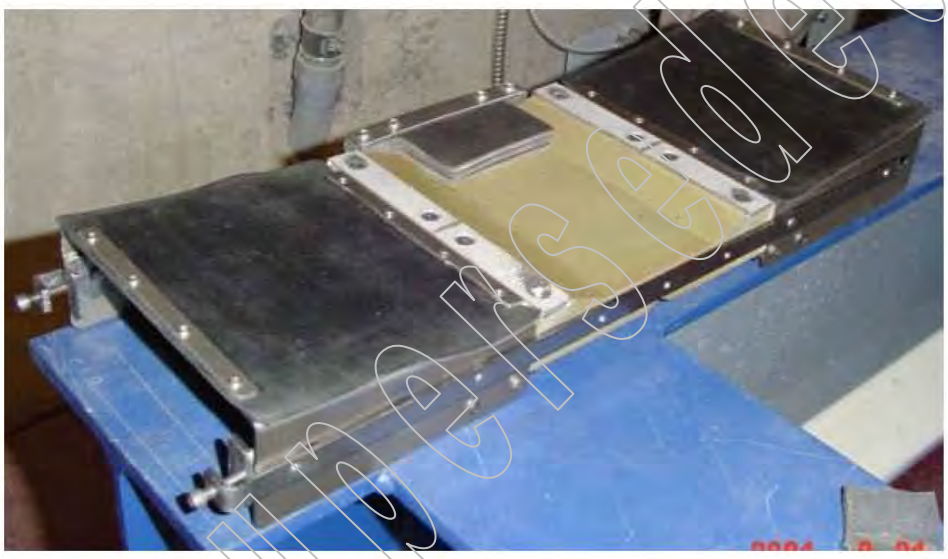

Figure 2. New Traction Sheave Brake dust Cover installed on guide plate.

Contact factory for material required.

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ThyssenKrupp Northern Elevator

Part of Field Bulletin Number: FB-04-1101

Traction Sheave Brake (Sheave Jammer) Maintenance Log.

Keep Copies of this log attached to the controller in machine room.

Empty car roll away test record to be kept in machine room Car Number _____			
Quarterly Inspection date	Test 1 Slide distance recorded (max 48")	Test 2 Slide distance recorded (max 48")	Tested By

ThyssenKrupp Northern Elevator
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Toronto, Ontario M1X 1A5
Telephone: (416) 291-2549
Fax: (416) 291-4654
www.ThyssenKruppNorthern.com

Elevating and Amusement Devices Safety Division	Ref. No.: 192 / 05	Rev. No.: 1
DIRECTOR'S SAFETY ORDER	Date: February 23, 2005	Date: July 15, 2005

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: Traction Sheave Brake (Sheave Jammer) Inspection and Testing Requirements

Sent to: All Elevating Device Contractors

The Director. Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act* hereby orders the following:

1. ORDER

1.1. All elevating device installations which incorporate the Traction Sheave Brake (Sheave Jammer) manufactured by ThyssenKrupp Northern Elevator, must be verified for proper set-up and ability to perform the functions required by:

1.1.1. **2.19 - Ascending Car Overspeed Protection and Unintended Car Movement Protection** as specified in B44-00, for elevators designed and installed to the B44-00 code

OR

1.1.2. **3.13.3 & 3.16.4 - Ascending Car Overspeed Protection and Car Uncontrolled Low Speed Protection (as applicable*)** as specified in B44-M90 thru B44 – 94 for elevators designed and installed to the B44- M90 thru B44 – 94 code.

**Note: Some elevators were installed with Ascending Car Overspeed Protection only (for historical records refer to DR 68/88 various revisions and DR 78/90) . For these installations, contractors are allowed to perform Ascending Car Overspeed testing or Uncontrolled Low Speed to ensure the device is functioning properly.*

2. INSTRUCTIONS

Per the requirements of the original order dated February 23rd, 2005 contractors where required to arrange testings and verifications;

2.1. **No later than June 1st, 2005,** contractors shall carry out the necessary checks, adjustments and tests required to ensure that the device known as the Sheave Jammer is functioning properly.
Contractors who have not adhered to this date shall do so immediately, to ensure the units under their maintenance are adjusted and working properly.

2.2. Contractors shall carry out all of the identified areas of inspection and maintenance which have been listed in the ThyssenKrupp Northern Elevator Field Bulletin FB-04-1101/Rev-A in the section titled '**Problem**:' See also DR 138/98 related to inspection & maintenance of Sheave Jammer frictional pads.
Note that the itemized areas of inspection and adjustment in the "Problem" section, are diagrammed in ballooned figures on sheet 3 of 5 of the field bulletin.

2.3. Contractor shall follow the corrective action plans identified in the bulletin under section titled '**Solution**:' With the release of this updated field bulletin, ThyssenKrupp has removed the requirement for the installation of the rubber debris cover, once the corrective actions in the "Solutions" section have been completed.

2.4. Once the sheave jammer is adjusted per the field bulletin, contractors shall carry out verification that the device will set as required in 2.4.1 or 2.4.2.

2.4.1. For elevating devices equipped with **Ascending Car Overspeed Protection and Unintended Car Movement Protection** the jammer shall set and prevent Unintended Car Movement greater than 1220mm (48") [2.19.2]. Testing shall consist of 2 consecutive "pass" **rollaway tests,** before permitting the elevator to be returned to service.

2.4.2. For elevating devices equipped with **Ascending Car Overspeed Protection only,** testing to verify that the jammer sets, can be performed via either; an **Ascending Car Overspeed** test or an **Uncontrolled Low Speed** set. Testing shall consist of 2 consecutive "pass" **tests,** before permitting the elevator to be returned to service.

2.5. The results of the tests, the date and the mechanics name shall be recorded on an installation specific log sheet (see attached bulletin, page 6 of 6), which is to be kept on site with the elevating devices maintenance log book.

2.6. Future testings shall be conducted at 3 month intervals and shall follow the requirements of 2.4 and 2.5 above.

2.7. If a subsequent rollaway test, or ascending car overspeed test (performed at the 3 month interval) fails, the occurrence shall be reported by the contractor to TSSA within 30 days as per 117/95 section 3.2.(4) [reportable incidence]. Contractors shall then carry out the requirements listed in 2.2 thru 2.5

Notification should be sent to:

TSSA Elevating Devices Fax No. 416-231-5435.
Forms are available on the web by following the links related to 'Report an Incident', and are also a part of Order 117.

2.8 Contractors are reminded of the requirements of B44 c8.6.12.2.3 Actions Respecting Defective Parts. Where a part directly affecting the safety of the operation is found to be defective, it shall be immediately adjusted, repaired, or replaced.

2.9 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete this order, you shall notify this office immediately. Indicate the installation numbers of the relevant elevators so that TSSA may issue an order to the owner to have the work completed.

3. BACKGROUND

3.1. Incidents have been reported to the TSSA where the means required in 2.19.2 Protection Against Unintended Car Movement have been activated but the emergency brake (sheave jammer) failed to perform the intended safety function as required by the code.

3.2. The testing requirements associated with this order (3 month intervals – 2 consecutive passes) are intended to be a temporary measure (~1 year) after which time either;

- the industry will be able to validate the rationale for return to annual testing (as required per c8.11.2.2.10) based on 100% track record following test period
- contractors will be able to validate the rationale for return of individual units to an annual testing cycle, provided the testing logs indicate a 100% track record, or
- other effective solutions have been implemented which ensure 100% confidence

_____

Roland Hadaller, Director, TSS Act 2000, (Elevating Devices)

This Order has been developed in consultation with the ThyssenKrupp & the Elevating Devices Advisory Council.

ThyssenKrupp Northern Elevator

Final Copy: Revised June-21th, 2005

Field Bulletin Number: FB-04-1101/Rev-A
Please distribute a copy to all field personnel.
Reference equipment: Traction Sheave Brake (Sheave Jammer)

Problem:

Traction Sheave Brake (TSB) does not stop the car in the proper stopping distance (48") during the low speed roll away test.

There are multiple items listed below which cause this device not to operate properly:
[Please refer to exhibits #F-3-2-1(c) & #151-1200X for typical details of the assembly units]

1) Operating surfaces are not clean and contain metal filings and rope debris.
2) Carbides are damaged or worn which will reduce friction during engagement.
3) Needle bearings (rollers), damaged or not free to operate.
4) The electrical TSB switch or wire to the switch comes in contact with carrier plate (lower plate) which restricts the upward motion of the device once activated.
5) Verify the solenoid is adjusted properly.
6) Gap tolerance between guide plate and sheave must be maintained.

Solution:

Refer to the previous TSB Manual and ruling 138/98 herewith summarized for your information. (Ref. items shown on dwg. #151-1200-X for clarity)).

1) Clean working surfaces and sweep area with a magnet to remove all filings and debris. On installations where the guide plates do not move freely remove the guide plate and clean all surfaces and rollers. ~~Install the appropriate dust covers specified in the attached material list~~.
2) Replace guide plate with carbides if damaged or worn. Carbides are attached to the plates and cannot be replaced alone.
3) Inspect needle rollers when guide plate in the applied position (i.e. carbides are in full contact with the sheave), repeat in both directions and replace if damaged.
4) Ensure washer spacers are always used to prevent body of switch or the wire to the switch from coming in contact with stationary plate (carrier plate). This will permit free upward movement of the assembly.
5) With solenoid energised (TSB in the retracted position) press down on guide plate, IF you can move this plate downward then the solenoid adjusting nuts are not set properly. Tighten the adjusting nuts to draw the guide plate firmly onto the compression spring packs. Secure and lock with double nut.
6) Gap must be maintained on all sides, ensure to adjust the sheave jammer level with traction sheave. Gap of 0.0897" (equivalent to #13ga sheet metal).

3300 Bloor Street West, 14th Floor, Centre Tower, Toronto, Ontario M8X 2X4
Telephone: 416-734-3300 Fax: 416-231-5435 Toll Free: 1-877-682-8772

Future maintenance required:

Reference item 2.6 of the TSSA ruling 192/05

This field bulletin in no way supersedes any previous field bulletins; failure to comply may affect future warranty claims.
All work must be performed in accordance with established safety procedures and conform to local codes.

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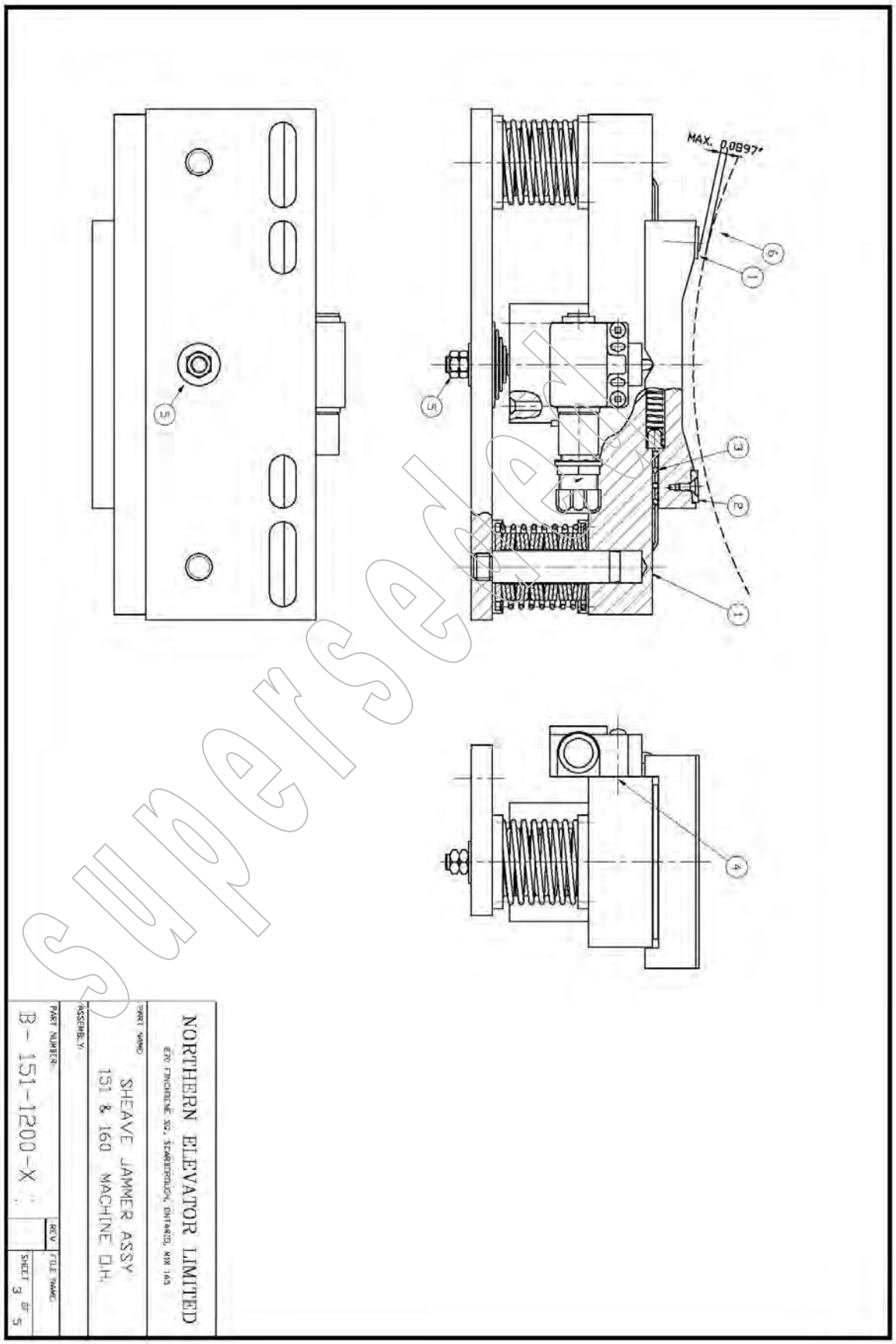
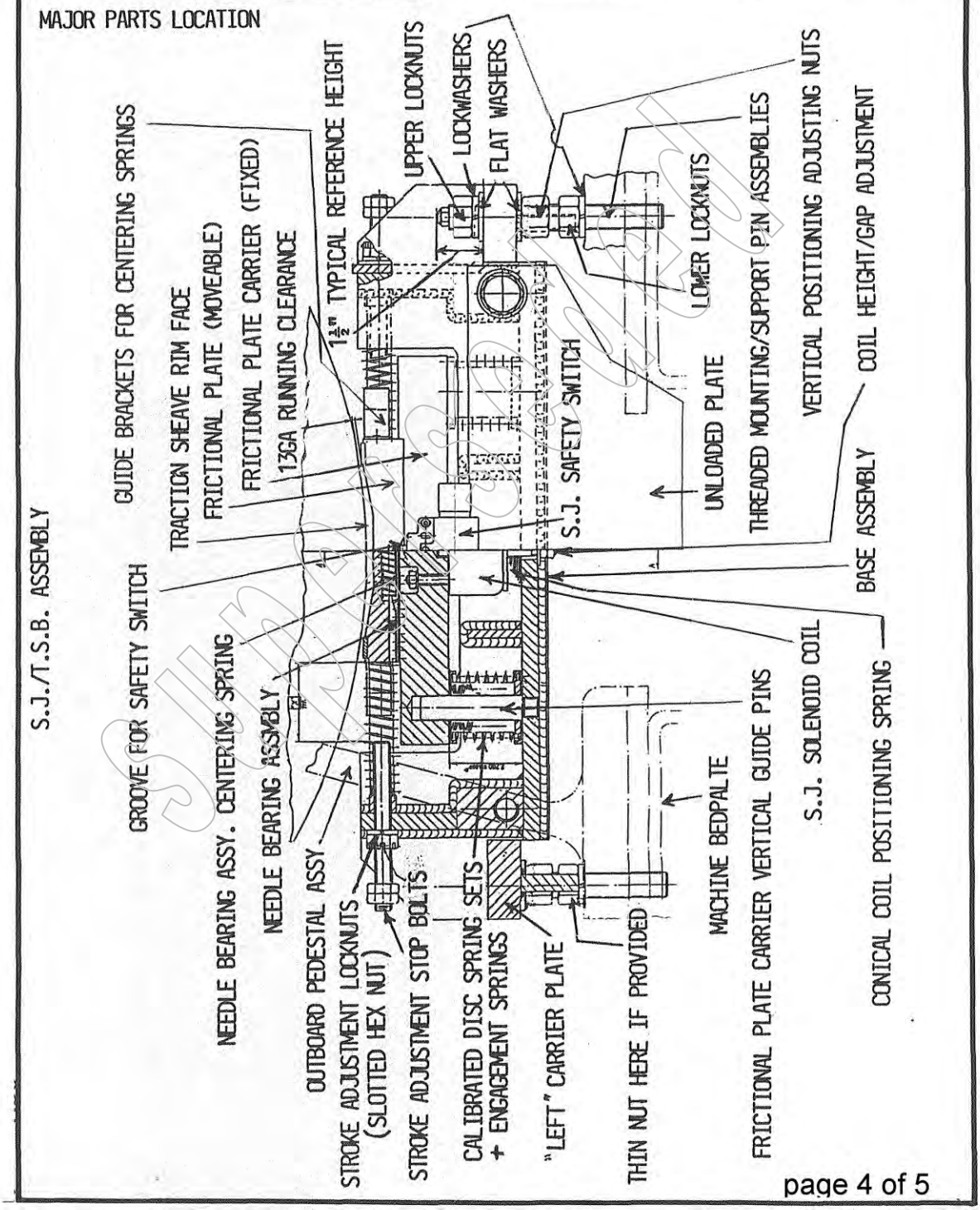

MAX. 0.0897"
NORTHERN ELEVATOR LIMITED
270 FINCHDENE SQ., SCARBOROUGH, ONTARIO, M1X 1A5
PART NAME:
SHEAVE JAMMER ASSY
151 & 160 MACHINE D.H.
ASSEMBLY
PART NUMBER:
B-151-1200-X
REV
FILE NAME:
SHEET 3 OF 5

SHEAVE JAMMER/TRACTION SHEAVE BRAKE - OVERHEAD MACHINE APPLICATION FIGURE # IA-7

MAJOR PARTS LOCATION



page 4 of 5

ThyssenKrupp Northern Elevator

Part of Field Bulletin Number: FB-04-1101/Rev-A

Traction Sheave Brake (Sheave Jammer) Maintenance Log.

Keep Copies of this log attached to the controller in machine room.

Empty car roll away test record to be kept in machine room Car Number _____			
Quarterly Inspection date	Test 1 Slide distance recorded (max 48")	Test 2 Slide distance recorded (max 48")	Tested By

ThyssenKrupp Northern Elevator
270 Finchdene Square
Toronto, Ontario M1X 1A5
Telephone: (416) 291-2549
Fax: (416) 291-4654
www.ThyssenKruppNorthern.com

Elevating and Amusement Devices Safety Division	Ref. No.: 192 / 05	Rev. No.: 2
DIRECTOR'S SAFETY ORDER	Date: February 23, 2005	Date: July 27, 2006

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: Traction Sheave Brake (Sheave Jammer) Inspection and Testing Requirements

Sent to: All Elevating Device Contractors and Mechanics

| Denotes revision 1 changes
‖ Denotes revision 2 changes

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act* hereby orders the following:

1. ORDER

1.1. All elevating device installations which incorporate the Traction Sheave Brake (Sheave Jammer) manufactured by ThyssenKrupp Northern Elevator, must be verified for proper set-up and ability to perform the functions required by:

1.1.1. **2.19 - Ascending Car Overspeed Protection and Unintended Car Movement Protection** as specified in B44-00, for elevators designed and installed to the B44-00 code

OR

1.1.2. **3.13.3 & 3.16.4 - Ascending Car Overspeed Protection and Car Uncontrolled Low Speed Protection (as applicable*)** as specified in B44-M90 thru B44 – 94 for elevators designed and installed to the B44- M90 thru B44 – 94 code.

**Note: Some elevators were installed with Ascending Car Overspeed Protection only (for historical records refer to DR 68/88 various revisions and DR 78/90) . For these installations, contractors are allowed to perform Ascending Car Overspeed testing or Uncontrolled Low Speed to ensure the device is functioning properly.*

‖ **1.2.** Not withstanding, the provisions of this order are superseded by the requirements specified in Directors Order 207/06.

2. INSTRUCTIONS

Per the requirements of the original order dated February 23rd, 2005 contractors where required to arrange testings and verifications;

2.1. **No later than June 1st, 2005,** contractors shall carry out the necessary checks, adjustments and tests required to ensure that the device known as the Sheave Jammer is functioning properly.
Contractors who have not adhered to this date shall do so immediately, to ensure the units under their maintenance are adjusted and working properly.

2.2. Contractors shall carry out all of the identified areas of inspection and maintenance which have been listed in the ThyssenKrupp Northern Elevator Field Bulletin FB-04-1101/Rev-A in the section titled '**Problem**:' See also DR 138/98 related to inspection & maintenance of Sheave Jammer frictional pads.
Note that the itemized areas of inspection and adjustment in the "Problem" section, are diagrammed in ballooned figures on sheet 3 of 5 of the field bulletin.

2.3. Contractor shall follow the corrective action plans identified in the bulletin under section titled '**Solution**:' With the release of this updated field bulletin, ThyssenKrupp has removed the requirement for the installation of the rubber debris cover, once the corrective actions in the "Solutions" section have been completed.

2.4. Once the sheave jammer is adjusted per the Thyssen field bulletin FB-04-1101/Rev-A, contractors shall carry out verification that the device will set as required in 2.4.1 or 2.4.2.
Note: Subsequent tests, per 2.6 of this Order (tests at the 3rd month interval), shall be made on the equipment prior to any cleaning or adjustment.

2.4.1. For elevating devices equipped with **Ascending Car Overspeed Protection and Unintended Car Movement Protection** the jammer shall set and prevent Unintended Car Movement greater than 1220mm (48") [2.19.2]. Testing shall consist of 2 consecutive "pass" **rollaway tests,** before permitting the elevator to be returned to service.
Note: Although any measured stopping distance below 1220mm is compliant with the code (for UCM testing), test records indicate that sheave jammers, which are set-up to stop elevators within very short distances, have a greater likelihood of stopping within a code compliant distance during subsequent testing.

2.4.2. For elevating devices equipped with **Ascending Car Overspeed Protection only,** testing to verify that the jammer sets, can be performed via either; an **Ascending Car Overspeed** test or an **Uncontrolled Low Speed** set. Testing shall consist of 2 consecutive "pass" **tests,** before permitting the elevator to be returned to service.

2.5. The results of the tests, the date and the mechanics name and signature shall be recorded on an installation specific log sheet (see attached bulletin, page 6 of 6), which is to be kept on site with the elevating devices maintenance log book.

2.6. **Future testing shall be conducted at 3 month intervals and shall follow the requirements of 2.4 and 2.5 above.**
Note: Future tests should be made prior to any cleaning or adjustment.

2.7. **Maintenance** of Sheave Jammers shall be completed at **monthly intervals**. Maintenance shall consist of cleaning, and activating the device while the elevator is stationary. Activation may consist of tripping the governor overpseed switch by hand and ensuring the solenoid and springs operate as intended.

2.8. **If a subsequent rollaway test, or ascending car overspeed test (performed at the 3 month interval) fails, the occurrence shall be reported by the contractor to TSSA within 30 days as per 117/95 section 3.2.(4) [reportable incidence]. Contractors shall then carry out the requirements listed in 2.2 thru 2.5.**

Notification should be sent to:

TSSA Elevating Devices Fax No. 416-231-5435.

Forms are available on the web by following the links related to 'Report an Incident', and are also a part of Order 117.

2.9 Contractors are reminded of the requirements of B44 c8.6.12.2.3 Actions Respecting Defective Parts. Where a part directly affecting the safety of the operation is found to be defective, it shall be immediately adjusted, repaired, or replaced.

2.10 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete this order, you shall notify this office immediately.

2.11 It is the responsibility of the Owner and the Contractor to remove every elevating device (which they own or maintain) from service until the initial testing (see item 2.1) and subsequent 3 month testing (see item 2.6) have been conducted in accordance with this order.

2.12 Until such time as the retrofit/replacement requirements of Directors Order 207/06 take effect, installations which are found to be in violation of this order (maintenance and testing requirements) will be issued a 7 day witness testing direction.

3. BACKGROUND

3.1. Incidents have been reported to the TSSA where the means required in 2.19.2 Protection Against Unintended Car Movement have been activated but the emergency brake (sheave jammer) failed to perform the intended safety function as required by the code.

3.2. The testing requirements associated with this order (3 month intervals – 2 consecutive passes) are intended to be a temporary measure (approximately 1 year) after which time either;

- the industry will be able to validate the rationale for return to annual testing (as required per c8.11.2.2.10) based on 100% track record following test period
- contractors will be able to validate the rationale for return of individual units to an annual testing cycle, provided the testing logs indicate a 100% track record, or
- other effective solutions have been implemented which ensure 100% confidence

3.3. Director's Safety Order 207/06 requires the replacement or retrofitting of all ThyssenKrupp Northern "sheave jammers". Until these sheave jammers have been replaced or retrofitted, this Order must be strictly adhered to.

_____

Roland Hadaller, P.Eng,
Director, appointed under the *Technical Standards and Safety Act, 2000*, (Elevating Devices)

This Order has been developed in consultation with the ThyssenKrupp & the Elevating Devices Advisory Council.

ThyssenKrupp Northern Elevator

Final Copy: Revised June-21th, 2005

Field Bulletin Number: FB-04-1101/Rev-A
Please distribute a copy to all field personnel.
Reference equipment: Traction Sheave Brake (Sheave Jammer)

Problem:

Traction Sheave Brake (TSB) does not stop the car in the proper stopping distance (48") during the low speed roll away test.

There are multiple items listed below which cause this device not to operate properly:
[Please refer to exhibits #F-3-2-1(c) & #151-1200X for typical details of the assembly units]

1) Operating surfaces are not clean and contain metal filings and rope debris.
2) Carbides are damaged or worn which will reduce friction during engagement.
3) Needle bearings (rollers), damaged or not free to operate.
4) The electrical TSB switch or wire to the switch comes in contact with carrier plate (lower plate) which restricts the upward motion of the device once activated.
5) Verify the solenoid is adjusted properly.
6) Gap tolerance between guide plate and sheave must be maintained.

Solution:

Refer to the previous TSB Manual and ruling 138/98 herewith summarized for your information. (Ref. items shown on dwg. #151-1200-X for clarity)).

1) Clean working surfaces and sweep area with a magnet to remove all filings and debris. On installations where the guide plates do not move freely remove the guide plate and clean all surfaces and rollers. ~~Install the appropriate dust covers specified in the attached material list~~.
2) Replace guide plate with carbides if damaged or worn. Carbides are attached to the plates and cannot be replaced alone.
3) Inspect needle rollers when guide plate in the applied position (i.e. carbides are in full contact with the sheave), repeat in both directions and replace if damaged.
4) Ensure washer spacers are always used to prevent body of switch or the wire to the switch from coming in contact with stationary plate (carrier plate). This will permit free upward movement of the assembly.
5) With solenoid energised (TSB in the retracted position) press down on guide plate, IF you can move this plate downward then the solenoid adjusting nuts are not set properly. Tighten the adjusting nuts to draw the guide plate firmly onto the compression spring packs. Secure and lock with double nut.
6) Gap must be maintained on all sides, ensure to adjust the sheave jammer level with traction sheave. Gap of 0.0897" (equivalent to #13ga sheet metal).

3300 Bloor Street West, 14th Floor, Centre Tower, Toronto, Ontario M8X 2X4
Telephone: 416-734-3300 Fax: 416-231-5435 Toll Free: 1-877-682-8772

Future maintenance required:

Reference item 2.6 of the TSSA ruling 192/05

This field bulletin in no way supersedes any previous field bulletins; failure to comply may affect future warranty claims.
All work must be performed in accordance with established safety procedures and conform to local codes.

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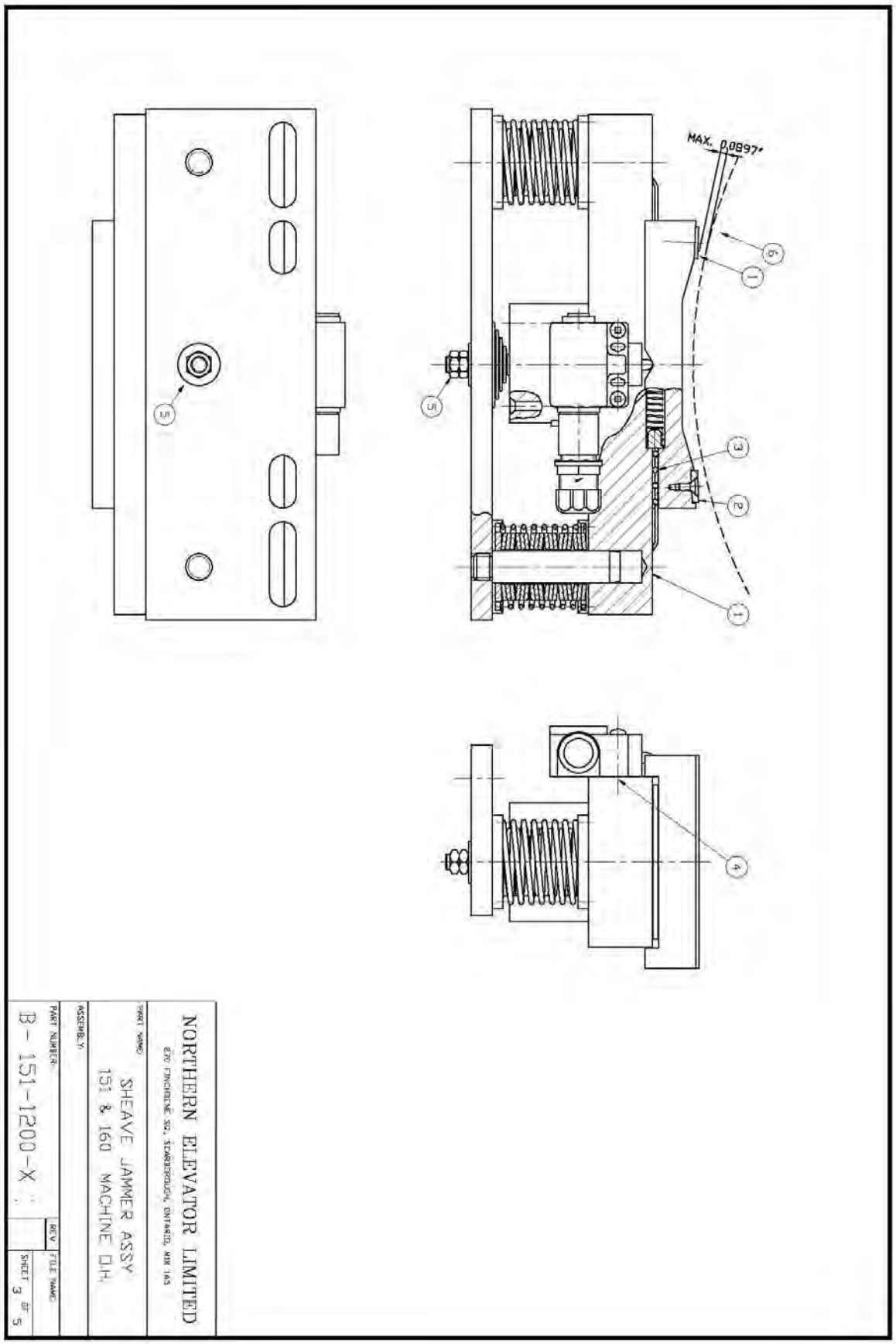
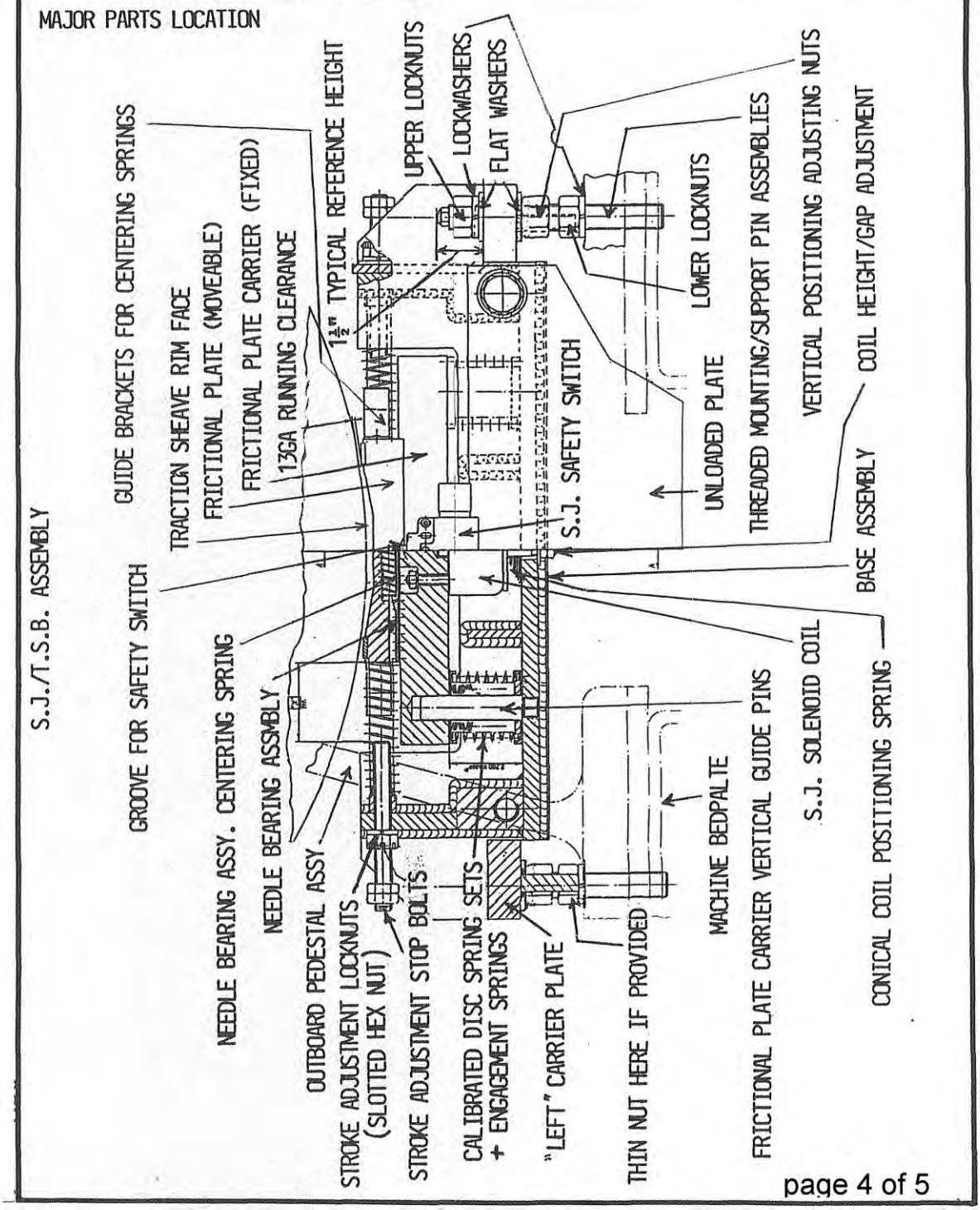

MAX. 0.0897"
NORTHERN ELEVATOR LIMITED
270 FINCHGENE SQ., SCARBOROUGH, ONTARIO, M1X 1A5
PART NAME:
SHEAVE JAMMER ASSY
151 & 160 MACHINE D.H.
ASSEMBLY
PART NUMBER:
B-151-1200-X
REV
FILE NAME:
SHEET 3 OF 5

SHEAVE JAMMER/TRACTION SHEAVE BRAKE - OVERHEAD MACHINE APPLICATION FIGURE # IA-7

MAJOR PARTS LOCATION



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ThyssenKrupp Northern Elevator

Part of Field Bulletin Number: FB-04-1101/Rev-A

Traction Sheave Brake (Sheave Jammer) Maintenance Log.

Keep Copies of this log attached to the controller in machine room.

Empty car roll away test record to be kept in machine room Car Number _____			
Quarterly Inspection date	Test 1 Slide distance recorded (max 48")	Test 2 Slide distance recorded (max 48")	Tested By

ThyssenKrupp Northern Elevator
270 Finchdene Square
Toronto, Ontario M1X 1A5
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Fax: (416) 291-4654
www.ThyssenKruppNorthern.com

Elevating and Amusement Devices Safety Division	Ref. No.: 193 / 05	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: February 8, 2005	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

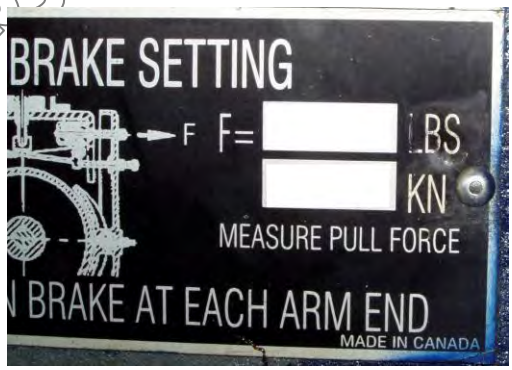
ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: ThyssenKrupp Northern TW-340 Machine,
Proper Setting of Brake Force & Brake Pin Replacement Requirement
Sent to: All Elevator Contractors

The Director. Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act* hereby orders the following:

1. INTRODUCTION

1.1. ThyssenKrupp Northern has released a Field Bulletin, FB-04-1103 – Revision 2, advising maintaining contractors on the requirement to replace Brake Arm Pins and the associated 'CirClips' (used on the TW-340 machine) with a factory available retrofit kit.

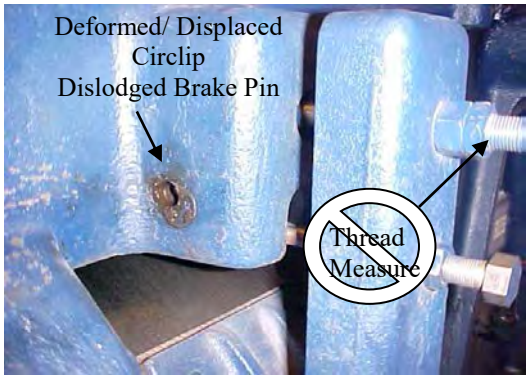


1.2. Additionally the Field Bulletin advises the proper procedure for setting the braking force on the TW-340 machine brake and how the force should be measured & recorded. (B44 2.24.8.5 Marking Plates for Brakes)
Measuring the length of exposed threaded rod (used to adjust the spring force) is NOT acceptable.
The bulletin offers an alternative factory-approved 'torque' method for measuring this force, however a corresponding marking tag is required.

2. ALERT

2.1. Worn or deformed circlips, used to retain the brake pin arms, have come free from their intended positions and have resulted in the brake arm pins becoming dislodged.

The result is a failed brake arm, with a single brake arm remaining to perform important safety functions.
Proper inspection and maintenance of this identified area is essential.



3. ORDERS

3.1. Contractors shall carry out the activities in 3.2 & 3.4 on their next scheduled maintenance visit.

3.2. Replace all brake arm pins and circlips [related to TW-340 machines] with new brake arm pins and cotter pins following the instructions in FB-04-1103 attached.

3.3. Ensure that the brake forces are adjusted uniformly so that each brake shoe is delivering 50% of the total braking force. Ensure the brake data tag properly records the required force (not thread length). If necessary replace and remark the data tag. See FB-04-1103 for details.

3.4. Record the above activities in the log book.

Roland Hadaller, Director, TSS Act2000, [Elevating Devices]

This Order has been developed in consultation with ThyssenKrupp, TSSA, and the Elevating Devices Advisory Council.

ThyssenKrupp Northern Elevator

January 27, 2005

Field Bulletin Number: FB-04-1103 - Revision 2 (for clarity as part of the TSSA Ref 193/05 attachment)

Please distribute a copy to all field personnel.

Reference equipment: TW-340 Machine

Problem:

1) There have been reports that the circlips on the brake arm pins can be displaced during normal equipment operation causing a dragging of the brake pad and reduced braking force on the TW-340 machine. This has been associated with the reuse of damaged retaining ring (circlips) or damaged brake arm pins.

2) Braking force measurement must not be referenced to the length of the exposed threaded rod on brake adjustments.

Solution:

1) The factory's recommendation is to replace the four brake lever/arm pins and eight circlips, with the replacement package part number PN# 340-2010 during the next scheduled machine maintenance.

2) Use either a fish scale applied independently to each brake arm to measure the force required for each brake arm, or use the second method describing the calibrated torque wrench procedure. These are the only two factory recommended methods for verifying and recording the brake settings. See attached pages 3 & 4 for procedure.

Material required:

Solution 1): Package PN# 340-2010 containing: (Refer to attached Drawing # 1 on Page 2)
- a) Brake lever/arm pin part # 340-2012– 2 pieces
- b) Brake arm pin part # 340-2011– 2 pieces
- c) Cotter pin part # WWH070 – 8 pieces

Solution 2): Consult with the factory for further information on tooling required.
Brake marking plate part number 340-1333 will be required to be applied to the machine, if the torque wrench method of measurement is to be used.

Note:
This field bulletin in no way supersedes any previous field bulletins; failure to comply may affect future warranty claims.
All work must be performed in accordance with established safety procedures and conform to local codes.

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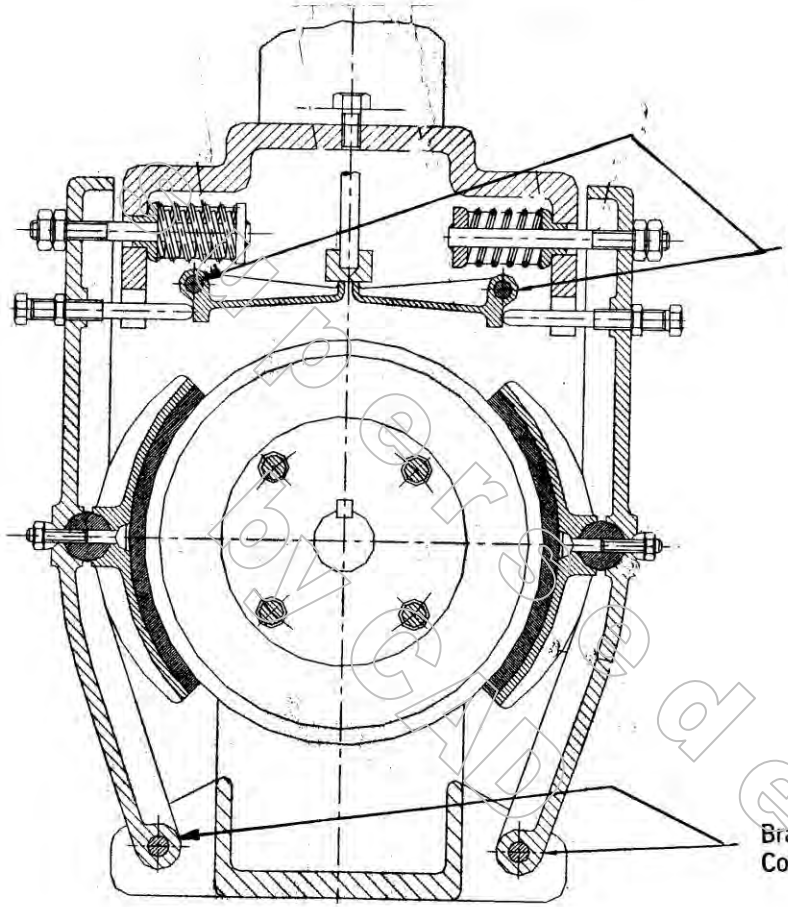

Drawing # 1

TW-340 Machine

FB 04-1103

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Putting Public Safety First

ThyssenKrupp Northern Elevator

Field Bulletin Number: FB-04-1103 Revision 2 – January 27th, 2005 (TSSA Ref 193/05 attachment)

The following is an additional factory approved procedure for setting and recording the equivalent spring force on the brakes arms of the TW-340 Machine.

Procedure for measuring force on brake arms:

The TW-340 machines' design does not permit easy external access to measure the brake spring length for the brake force settings. In addition to utilizing a fish scale for this measurement, this procedure provides an alternative method to verify / record the brake setting utilizing a calibrated torque wrench for the initial pre-commissioning tests of TW-340 machines.

Pre-set each brake arm to statically hold empty car.

a) Adjust EQUALLY BOTH (L & R) brake springs pre-compression to hold and decelerate empty car and 125% rated load conditions per Code requirements.

b) With reference to the attached photos 1 & 2, insert the torque wrench adapting socket to the motor extended shaft. Note for high capacities (above 2500lbs) the original fish scale method on the brake arms documented in the Machine manuals is the only easy solution for measuring the force.

c) Use torque wrench "dial indicator" to measure brake drum set torque at the following conditions:
   i. Empty car close to the upper landing (lift car)
   ii. 125% fully loaded car close to the bottom landing (lift counterweight)

d) Record the maximum of both torques values (note for tests i & ii one test will require clockwise and the second test will require anticlockwise rotation, this depends on the handing of the machine)

Note: Change of the actual counterweight balance, car weight, gear ratio, sheave diameter will void these setting references. If this occurs, the brakes must be recalibrated.

FOR SUBSEQUENT PERIODIC BRAKE WORK, REFER TO THESE TORQUE VALUES SETTINGS RECORDED IN THE MACHINE BRAKE DATA PLATE.

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Photo 1 - Apply adapting socket to the end of the motor shaft. (Contact factory for availability of socket.)

Photo 2 - Use a calibrated torque wrench to determine force required.

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Elevating and Amusement Devices Safety Division	Ref. No.: 195 / 06	Rev. No.:
Information / Interpretation Bulletin	Date: July 27, 2006	Date:

Subject: Examination, Test and Periodic Maintenance of Hollister-Whitney Rope Gripper for Ascending Car Overspeed (ACO) and Unintended Car Movement (UCM) Protection

Sent to: All elevating device contractors, consultants and mechanics

1.0 Introduction

In conjunction with Hollister-Whitney, TSSA is releasing this bulletin to bring awareness to **the manufacturers recommended** acceptance tests and periodic inspection criteria, for the product known as the Hollister-Whitney Rope Gripper, to ensure the device is set-up, tested and maintained properly.

See the attached pages for manufacturers recommendations.

2.0 Instructions for Field Staff

(a) Maintaining contractors shall provide their field staff with procedures to accurately test, maintain and verify the effectiveness of the protective equipment. (see attachments)
Note: Maintenance procedures should address the areas where lubrication and cleaning are critical to ensure proper operation.
(b) Field staff shall be advised that activating the protective device on stationary equipment does not comply with the annual test requirements of B44 section J.2.11.2.
(c) Assistance from the driving machine brake during ACO and UCM device testing is not permitted.

3.0 Period Testing Requirements to Ensure Compliance with B44

Contractors are reminded that B44 specifies the criteria for periodic testing. Additional information is also available in information bulletin 208/06.

4.0 Securing and Mounting of Rope Grippers

Contractors are reminded that rope gripper fastening shall be of an engineered design and shall follow the manufacturers recommendations.
Submission documents to TSSA for new rope gripper installation shall include details of the proposed engineered fastenings including reactions on the building.

Rob Kremer, P. Eng.,
Technical Leader, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

HOLLISTER-WHITNEY ROPE GRIPPER™
Recommended **Acceptance** Inspection Criteria For Models 620, 622, 624, 625, 626

WARNING: Whenever Working on Rope Gripper, KEEP HANDS CLEAR.
Forces created can cause injury.

Tests -Tests are performed after the Ropegripper has been installed per manufacturer instructions in the installation manual. All tests begin with the Ropegripper in the 'ready' position and the ON / OFF switch in the ON position

No	Description	Result	On Failure
1	With car not moving, move the ON / OFF switch into the OFF position	Ropegripper should activate and power should be removed from the driving machine and brake	Remove the car from service, check circuitry, retest before returning to service
2	UCM Test With the car sitting level at a floor and the car & hoistway doors open, manually open the brake and allow the car to drift up or down away from the floor. Note: For UP direction - use Empty car. For DOWN direction use and 125% load.	Ropegripper should activate in 10" (250 mm) and stop the car inside 48" (1220 mm), and power should be removed from the driving machine and brake. Manual reset is required.	Remove the car from service, check circuitry, retest before returning to service
3	ACO Test Manually lift the brake and overspeed the empty car ir the up direction so that the governor switch is activated	Ropegripper should activate and stop the car. Power removed from driving machine and brake. Manual reset is required.	Remove the car from service, check circuitry, retest before returning to service
3alt	ACO Alternate Test If it is impractical to overspeed the car, run the car in the up direction at high speed and manually trip the governor overspeed switch	Ropegripper should activate and stop the car. Power removed from the driving machine and brake. Manual reset required. **NOTE: Independantly check the governor tripping speed.**	Remove the car from service, check circuitry, retest before returning to service
4	With the ON / OFF switch in the OFF position, and the ropegripper clamping the ropes, place the pump valve in the manual mode	Manual mode microswitch contacts should open and the car should be prevented from running. Hand pump should work to open ropegripper.	Remove the car from service, check circuitry, retest before returning to service
5	With the ON /OFF switch in the OFF position and the ropegripper clamping the ropes, while manually activating the 'excessive wear' microswitch, move the ON / OFF switch to ON	The ropegripper **should not** reset. The car should be prevented from running.	Remove the car from service, check circuitry, retest before returning to service

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HOLLISTER-WHITNEY ROPE GRIPPER™
Recommended **Periodic** Inspection Criteria For Models 620, 622, 624, 625, 626

WARNING: Whenever Working on Rope Gripper, KEEP HANDS CLEAR.
Forces created can cause injury.

Visual Inspection - Observe the following conditions when inspecting a Ropegripper

No	Observe	Look For	Action
1	How the ropes pass between the stationary and movable shoes on the ropegripper	Ropes should be an even distance from the shoes - side to side and top to bottom. Ropes should almost touch the stationary shoe lining	Uneven ropes, or a gripper that is installed at a bad angle will cause excessive and accelerate brake lining wear. Test for proper operation. Requires corrective action (verify at acceptance).
2	The depth of the groove that the ropes have worn in the brake linings	A groove depth of no more than 3/16" (4.8 mm) - or a remaining lining thickness of less than 1/16" (1.6 mm)	3/16" (4.8 mm) is the maximum groove depth. Test for proper operation. The 'excessive wear' microswitch will soon keep the ropegripper from resetting. Linings should be replaced soon.
3	The distance that the rotating shaft extends up the power cam when the gripper is activated (clamping the ropes)	Rotating cam should make the corner at the bottom and extend about 1/2" (12.5 mm) up the power cam	Assuming that there is adequate lining thickness left, the wear shims can be used to return the rotating shaft to the correct position. Test for proper operation and shim between movable shoe and support block.
4	Hydraulic fluid level	With the Ropegripper in the 'ready' position, the pump resouvoir dip stick should show approimately 1" (25 mm) of fluid.	Low hydraulic fluid is not normal. Look for leaks. Test for proper operation. Fluid should be replaced immediately.
5	Exposed metal surfaces	A thin layer of general purpose grease on cam surface and the 4 shoe guides (recommended maintenance by manufacturer)	Rust has the potential to cause malfunction.Test for proper operation. Lightly lubricate moving parts.
6	Data Tag attached to the ropegripper	Masses & speeds that match or exceeed those of the the car (to be verified at acceptance)	Remove from service if the ropegripper capacities do not exceed those of the elevator.

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Elevating and Amusement Devices Safety Division	Ref. No.: 196 / 05	Rev. No.:
Information / Interpretation Bulletin	Date: April 14, 2005	Date:

Subject: B44-00 Update No. 1 Requirements Related to 2.27.1 Emergency Communication for Elevators

Sent to: All Contractors (except Ski Lift)

1. INTRODUCTION

As a result of a significant rewrite to Section 2.27.1 following the release of **B44-00 Update No. 1 September 2002**, TSSA is issuing the following bulletin as an interpretation and enforcement guideline.

Summary of Sections:

- **Section 2.27.1.1.1** specifies the requirement for a communication means between the car and a location in the building which is accessible to authorized and emergency personnel.
- **Section 2.27.1.1.2** specifies requirements when on-site building communication locations are not staffed 24 hours per day, and the requirement for an additional communication location to respond
- **Section 2.27.1.1.3** specifies the requirements for the in-car portion of the communications system.
- **Section 2.27.1.1.4** specifies additional requirements for the on-site building communication location when the elevator has a travel in excess of 18m.
- **Section 2.27.1.1.5** specifies the requirements related to backup power.

2. INTERPRETATION & ENFORCEMENT

Effective immediately, for completed to the B44-00U1-02 code edition, the following interpretation and enforcement shall apply.

2.1. [2.27.1.1.1 & 2.27.1.1.2] (General, Accessibility, & Staffing)

2.1.1. All elevators installed to the **B44-00 Update No. 1 September 2002** edition of the **Safety Code for Elevators** must be provided with an emergency communications system capable of directing calls for assistance, from the car to authorized personnel who are responsible for taking action.
Where communications are initiated from within the car and the call is not answered in 30 seconds, the call must automatically transfer to a location capable of providing live voice assistance.
Where on-site building communication stations are provided, they should be provided in locations that are readily accessible to designated personnel. Note; for elevators with travel in excess of 18m (60ft) the additional requirements of 2.27.1.1.4 apply.

2.1.2. Enforcement:

- Verify presence of an in-car communication station.
- If an on-site building communication station is provided [optional if travel <=18m, mandatory if travel>18m], verify that either,
  - The on-site building communication station is staffed 24/7 **or**
  - Elevator calls not answered in 30 second, are transfer to a live voice answering location.
- Elevators that do not have travel exceeding 18m (60ft), will not require an on-site building communication station.
- If an on-site building communication station is provided, it shall be accessible to **authorized** persons. This means that **any** location where authorized persons can gain access to, is considered acceptable.
  Note: Elevators with travel greater than 18m have different requirements, for access to the location, of the on-site building communication station. See 2.3.2 of this Order.

2.2. [2.27.1.1.3] (In-Car Phone Requirements)

2.2.1. Handset telephones are no longer permitted in the elevators (2.27.1.1.3(g)). Hands free phones are the only type of telephone device that may be used. Mandatory features are as follows:

a) An indicator light must be provided which activates when the call has been answered. (2.27.1.1.3(c))
b) The in-car phone must automatically transmit the location of the building and elevator number to authorized personnel on demand. (2.27.1.1.3(d))
c) After call acknowledgement indicator lights are illuminated, two way voice communication shall be available, and must be with a live voice (2.27.1.1.3(e) & (h).
d) The call must not disconnect until authorized personnel outside the car terminate the call. (2.27.1.1.3(f))
e) The push button to activate the hands free telephone shall be located between 890 mm and 1220 mm above the floor surface of the elevator. (2.27.1.1.3(a) and Appendix E8.3 & E10.1)
f) The push button to activate the hands free telephone shall be identified by a tactile (raised) telephone symbol. (2.26.12.4, table 2.26.12.1 & Appendix E8.4.4 / E10.2).
g) Instruction essential for use, if provided shall be both visual and tactile form (Appendix E10.3), and tactile characters shall be duplicated in Braille (Appendix E19.2.1)

2.2.2. Enforcement:

- Verify the functional features and correct installation and operation of requirements a) through g).
- Call initiating buttons that only utilize the wording "HELP" as identification, and do not include a phone symbol, as per (f) above, will be deemed acceptable.

2.3. [2.27.1.1.4] (Elevators with travel over 18m / 60ft)*

2.3.1. Elevators whose travel exceeds 18m (60ft) are required to conform to the additional requirements specified in 2.27.1.1.4.

a) An on-site building communications station must be provided to initiate two-way voice communication into each elevator individually without delay and must not require intervention from persons in the car. (2.27.1.1.4(a))
b) The initiating of communication via the on-site building station location, shall override any communications underway between the car and any communications to outside the building. (2.27.1.1.4(a))
c) A visual signal shall acknowledge the establishment of this communications link, and extinguish when the link is terminated. Only communication stations other than the in-car station, can terminate an established communications link. (2.27.1.1.4(b) &(c))
d) Instructions for operation of the two-way voice communication system shall be provided at the on-site building communication station. (2.27.1.1.4(d))

*Note: This requirement relates to the elevator's travel and should not be confused with the NBCC/OBC definition of high buildings. Some buildings, which do not meet the OBC definition of high buildings, may still require compliance to 2.27.1.1.4, due to the elevator's travel.

2.3.2. Enforcement:

- Where travel exceeds 18m verify conformance and operation of requirements a) through d).
- An on-site communication station shall be provided, and its location shall be accessible to **authorized** and **emergency** personnel as required by 2.27.1.1.1. A locked building manager's office or a machine room is not an accessible location.

2.4. [2.27.1.1.5] (Back Up Power)

2.4.1. All telephone equipment, both in the elevator (ie the in-car communication station) and at the on-site building communication station (where provided), which are normally connected to the building power supply, must be provided with backup power. The backup power can be from either an emergency power source or via batteries, and must allow operation of the communication system and indicator lights for a minimum of 4 hours should the building lose its regular power supply.

Note that telephones which are not connected to 120V power or transformed power, but rather, are directly connected to the "Public Switched Telephone Network or the Bell Central Office" are battery backed up by their nature and meet the backup requirement

2.4.2. Enforcement:

- Disconnecting the normal power supply to the in-car communication station and to the on-site building communication station (where provided) shall not prevent two way voice communications from being established
- All visual indications required under normal power shall continue to function under backup power arrangements

2.4.3. [2.27.1.2] (Alarm Bells)

An alarm bell is no longer required on passenger elevators, but is mandatory on freight elevators. If the freight elevator travel is more than 30m (100ft), the alarm bells shall be arranged so that one is on the car and the other at the designated level.

2.4.4. Enforcement:

- Verify conformance to above noted requirements.

2.5. <u>Interpretation of Section 8.7 as Related to Emergency Communications</u>

2.5.1. The requirements of 2.27.1 are applicable if any of the following Section 8.7 alterations are undertaken:

a) There is a change in type of service from freight to passenger or passenger to freight. (8.7.2.16.1)
b) There is a change in the type of motion control [AC, VVVF, DC, SCR, etc.]. (8.7.2.27.5)
c) There is a change in the operation control [CPPB, Automatic]. (8.7.2.27.6)
d) There is an alteration being made to the emergency telephone equipment [see 2.5.2 below for details]. (8.7.2.28)

2.5.2. For buildings voluntarily upgrading their emergency telephone equipment, an alteration to telephone equipment per 8.7.2.28 is deemed to have taken place when:

a) Telephone equipment is being installed where no previous form of communication existed.
b) Telephone equipment is being installed to replace or supplement an alarm bell.
c) Telephone equipment is being installed to replace an intercom system.
d) The power source of the telephone equipment is impacted. If the telephone equipment, which was originally powered by the public telephone system, is being changed to equipment that requires additional AC power to function, this is an alteration and requires additional power backup provisions per 2.27.1.1.5.

Notes:

1) A change from a corded hand set phone to a hands free phone set may be permitted as a repair, provided that the scope of the repair does not include any of the aspects listed in 2.5.2 above.
2) Changes to Car Operating Panels (COP's) often involve telephone equipment changes. As noted in 2.5.2(d) above, if the power source of the phone is impacted the requirements of 8.7.2.28 apply

3. INSTRUCTIONS

Contractors involved in modernization or alteration work should ensure that the appropriate level of paperwork is submitted for the specific alteration being undertaken.
The alterations listed in 2.5.1(a), (b) and (c) above are Major Alterations with a requirement to comply with Section 2.27.
The Alteration denoted in 2.5.1(d) above, and described in 2.5.2 above, require a Minor B Notification.

Roland Hadaller, Engineering Manager
EDAD PROGRAM

Roger Neate, Operations Manager
EDAD PROGRAM

This Bulletin has been developed in consultation with the TSSA Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 197/06	Rev. No.:
Information / Interpretation Bulletin	Date: March 17, 2006	Date:

Subject: Maintenance Requirements - Lifts for Persons with Physical Disabilities
Sent to: All Elevating Device Contractors in Scope U6, Consultants and Owners

1.0 INTRODUCTION

The Director's Order 183/03 dated December 1, 2003 adopted *Supplement No: 1 of the CSA B355-00, Lifts for Persons with Physical Disabilities*. The purpose of this Information Bulletin is as follows:

- To remind all Owners and Contractors of their obligations to comply with the **maintenance requirements** of *CSA B355-00*, *Lifts For Persons With Physical Disabilities*, and
- To outline the required maintenance activities and intervals, and
- To provide a summary of the minimum information requirements for the **maintenance log book** based on the maintenance activities found in the *CSA-B355-00, Lifts for Persons with Physical Disabilities Supplement No. 1, dated September 2002, Appendix B*

2.0 BACKGROUND

The Director's Order 183/03 dated December 1, 2003 adopted *Supplement No: 1 of the CSA B355-00, Lifts for Persons with Physical Disabilities*, and amended the *Elevating Devices Code Adoption Document*. The Director's Order 183/03 dated December 1, 2003 provides that after June 1, 2004:

> *Each newly installed and existing lift for persons with physical disabilities shall conform to the maintenance requirements of the CSA-B355-00, Lifts for Persons with Physical Disabilities Supplement No. 1, dated September 2002, Appendix B.*

Further, subsection 34.(1) of *Ontario Regulation 209/01* (Elevating Devices) also provides as follows:

> "**34.** (1) Every owner of an elevating device and every contractor shall maintain a log book for each elevating device that they own or maintain, and the log book shall contain up-to-date data on,
>
> (a) all maintenance functions required to be recorded in the log book by the applicable code or standard referred to in the code adoption document; and
>
> (b) such other data as are required to be kept in the log book by this Regulation. O.Reg.209/01, s.34 (1).

3.0 SPECIFIC REQUIREMENTS

3.1 General Maintenance and Summary of B355-00 - Appendix B

In addition to the general maintenance obligations under *Ontario Regulation 209/*01, the following maintenance requirements of *the CSA-B355-00, Lifts for Persons with Physical Disabilities Supplement No. 1, dated September 2002, Appendix B* shall be adhered to:

Clause B2.2 - Scope of Maintenance Required:

Each installation shall be maintained in accordance with the requirements of this Appendix and the original manufacturer's recommendations. The maintenance shall include:

(a) Inspections, examinations, and tests at required or scheduled intervals of all parts and functions of an installation in order to ensure up to a reasonable extent that the installation is in a safe operating condition;

(b) Cleaning, lubricating, and adjusting applicable components at regular intervals, and repairing or replacing all worn or defective components where necessary, to prevent the device from becoming unsafe for operation; and

(c) Repairing or replacing damaged or broken parts affecting the safe operation.

Note: In the case of discrepancy between the requirements of this Appendix and the manufacturer's recommendations, the more stringent requirement applies.

Clause B2.3 - Maintenance Intervals:

Unless otherwise specified in this Appendix, the maintenance required in Clause B2.2 shall be carried out at intervals no longer than 6 months. However, it may be possible that based on the age and inherent quality of the equipment, the frequency and method of usage, as well as the original manufacturer's recommendations, the maintenance methods may be amended or altered and required intervals may be reduced.

Note: Extreme duty lifts, such as a stair chair lift in a high-occupancy nursing home facility, will require an increased maintenance frequency.

TSSA Note: "Increased maintenance frequency" means, a shorter interval between maintenance visits. In no case shall maintenance intervals exceed 6 months.

Clause B2.4 - Actions Respecting Defective Parts:

"Where a defective part directly affecting the safety of the operation is identified, it shall be immediately adjusted, repaired, or replaced."

Clause B2.5 - Maintenance Personnel:

TSSA Note: The requirements in this Clause are not reproduced because these requirements are superseded by the *Ontario Regulation 222/01* (Certification and Training of Elevating Device Mechanics).

Clause B2.6 - Wiring Diagrams:

Up-to-date wiring diagrams detailing circuits of all electrical protective devices listed in Clauses 8.4 and 8.5 and primary directional circuits shall be available on-site at all times. Note: See additional requirements in item 3.3 of this bulletin.

Clause B3 - Maintenance Procedures Applicable to All Installations:

Covers safe practice of performing maintenance on a device, and returning to service for public use. In addition, the general housekeeping and lubrication requirements of the device components are also covered.

Clause B4 – Examination and Tests:

All items covered under Clause B4 are to be completed at intervals no longer than 12 months, unless otherwise specified.

Clause B5 – Other Devices:

Addition items not previously described in Clause B4, shall be tested and examined for proper operation as described.

Clause B6 – Repairs and Replacements:

General statements on quality of work and the criteria for replacement with regards to suspension means.

Clause B6.1.1 – Replacement Parts:

TSSA Note: Requirements in this Clause are not reproduced because these requirements are superseded by the *Ontario Regulation 209/01* (Elevating Devices).

Clause B7 – Maintenance of Screw and Nut Drives:

Maintenance requirements specific to Screw and Nut Drives

Clause B8 – Rack and Pinion Drives:

Maintenance requirements specific to Rack and Pinion Drives

Clause B9 – Chain and Chain Sprocket Drive:

Maintenance requirements specific to Chain and Chain Sprocket Drive

Clause B10 – Rope Chain and Rope Sprocket Drive:

Maintenance requirements specific to Rope Chain and Rope Sprocket Drive

3.2 Log Book Requirements

(a) The logbook shall, as a minimum, contain the following information:
(1) Building name and/or address,
(2) TSSA or MCCR installation number,
(3) Contractor's and Owner's name,
(4) Year and month when a specific task is performed,
(5) Appendix B clause number, and the description of the task performed at scheduled intervals.
(6) Other unscheduled maintenance tasks (see item b), and any applicable EAD Bulletin(s).
(7) Any general maintenance tasks performed during the maintenance visits.
(8) Printed names and signatures of the persons who performed the required tasks.

(b) If a safety related component is replaced by a component of a different manufacture and/or model, and the replacement does not constitute an alteration (no design submission is registered with TSSA) a document signed and sealed by a professional engineer, containing the description of the component, its make and model, shall be inserted in the logbook.

(c) The owner is responsible to ensure that the logbook is established, regularly updated, and that records are kept for the last 5 years and transferred to a new owner of the elevating device.

(d) The logbook will be retained in the machine room, or at the device. If it is kept in another location in the building, a notice will be posted in the machine room or at the device indicating the alternate location.

(e) Date, name and signature in the log book confirming examination and tests of safeties and governor in accordance with Appendix B4.2.2, or the type test certificate which has been accepted and filed with the Director and a copy placed in the logbook at the location of the device.

(f) If the owner's contractor utilizes a computerized log book system, then the owner may satisfy the requirement for maintenance of a log book by requiring the contractor to provide him with a record of the computerized log at a frequency of no longer than every 6 months and retain same at the location in accordance with "c" above. It should be noted that an inspector may, as

a consequence of findings during a periodic inspection, require the production of more recent records. Any follow-up inspection pertaining only to the production of the more recent records shall not incur the re-inspection fee.

All computerized log book systems shall otherwise conform fully with the requirements of "a" to "e" above. Electronic signatures are acceptable.

3.3 Wiring Diagrams (clause B2.6)

(a) If an up-to-date wiring diagram, detailing circuits of all electrical protective devices and primary directional circuits does not exist, the owner shall be responsible to obtain such diagrams (e.g. from the original manufacturer, a registered contractor, qualified consultant, etc.)

(b) The wiring diagram shall be available in the machine room, or at the location of device at all times.

(c) The wiring diagram shall be kept updated by the contractor performing any alterations or changes to the equipment.

Roland Hadaller, P. Eng.,
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the TSSA Elevating Devices Advisory Council .

B355 Clause	Description of Maintenance Task	Required Interval (Months)
B3	**General Maintenance**	
B3.2	Runways, Pit Area, Machine Area and Tops of Carriages	6
B3.3	Lubrication	as required
B3.4.1	**Hydraulic Components**	
(a)	Valves and Cylinder Packing Glands	6
(b)	Oil Leakage Collect from Cylinder	6
(c)	Oil Levels in the Reservoirs	6
B3.4.2	Relief Valve Test	12
B3.4.3	Cylinder Inspection and Leakage Test	12
B3.4.3	Exposed Cylinder Inspection Only	12
B3.5	**Controller Contactors and Relays**	**6**
B4	**Examination and Test**	
B4.2	Examination and Testing of the Safeties	12
B4.3	**Other Tests**	
B4.3.1	Failure Protection	12
B4.3.2	Governor Tripping Speed	12
B4.4	**Wire Ropes**	
B4.4.1	All Wire Ropes (except governor rope)	12
B4.4.1	Governor Rope	6
B4.4.2.3	Chain Suspension	12
B4.5	**Landing and Carriage Doors or Gates**	
(a)	Interlocks, Locks, and Contacts	6
(b)	Unlocking Devices	6
(c)	Vision panel	6
(d)	Self-Closing Device	6
(e)	Opening Force Test	6
B4.6	**Drive Machine Brakes**	
B4.6.1	Examination and Test of Brakes	12
B4.6.2	Unscheduled Brake Test	when required
B4.7	Carriage Emergency Lighting Test	12

B5	**Other Devices**	
(a)	Audiovisual warning signal	6
(b)	Emergency Battery Backup System	6
(c)	Power-Assisted Swing Doors or Gates	6
(d)	Emergency Moving of Carriage	6
(e)	Levelling Tolerances	6
(f)	Pressure Switch	12
(g)	Speed Limiting Devices	12
(h)	Sensitive Edges and Surfaces	6
(i)	Chair Carriage Rotation, Foldable Seat	6
(j)	Automatic Levelling	6
(k)	Alarm and Warning Signal	6
(l)	Operating Devices	6

B7	**Maintenance of Screw and Nut Drives**	
B7.1.1	General Maintenance of Screw and Nut Drive	12
B7.1.2	Backup Safety Nut	12
B7.2	Acme Thread Drive Screws	12

B8	**Rack and Pinion Drive**	
B8.1	Racks	
(a)	Lubricate if necessary	6
(b)	Verify Attachment Points	6
(c)	Examine the Rack for Wear	6
B8.2	Examine Wear on the Pinions	6

B9	**Chain and Chain Sprocket Drive**	
(a)	Examine Chain for Wear	12
(b)	Chain Tension Adjusted	6
(c)	Check for Alignment, and Wear on Sprockets	6

B10	**Rope Chain and Rope Sprocket Drive**	
(a)	Examine Rope Chain for Wear	12
(b)	Rope Tension	6
(c)	Check for Alignment, and Wear on Sprockets	6
(d)	Lubricated, and examined	12

Elevating and Amusement Devices Safety Division	Ref. No.: 197/06	Rev. No.: 1
Information / Interpretation Bulletin	Date: March 17, 2006	Date: Dec 5, 2006

Subject: Maintenance Requirements - Lifts for Persons with Physical Disabilities
Sent to: All Elevating Device Contractors in Scope U6, Consultants and Owners

1.0 INTRODUCTION

The Director's Order 183/03 dated December 1, 2003 adopted *Supplement No: 1 of the CSA B355-00, Lifts for Persons with Physical Disabilities*. The purpose of this Information Bulletin is as follows:

- To remind all Owners and Contractors of their obligations to comply with the **maintenance requirements** of *CSA B355-00, Lifts For Persons With Physical Disabilities*, and
- To outline the required maintenance activities and intervals, and
- To provide a summary of the minimum information requirements for the **maintenance log book** based on the maintenance activities found in the *CSA-B355-00, Lifts for Persons with Physical Disabilities Supplement No. 1, dated September 2002, Appendix B*

2.0 BACKGROUND

The Director's Order 183/03 dated December 1, 2003 adopted *Supplement No: 1 of the CSA B355-00, Lifts for Persons with Physical Disabilities*, and amended the *Elevating Devices Code Adoption Document*. The Director's Order 183/03 dated December 1, 2003 provides that after June 1, 2004:

> *Each newly installed and existing lift for persons with physical disabilities shall conform to the maintenance requirements of the CSA-B355-00, Lifts for Persons with Physical Disabilities Supplement No. 1, dated September 2002, Appendix B.*

Further, subsection 34.(1) of *Ontario Regulation 209/01* (Elevating Devices) also provides as follows:

> "**34.** (1) Every owner of an elevating device and every contractor shall maintain a log book for each elevating device that they own or maintain, and the log book shall contain up-to-date data on,
>
> (a) all maintenance functions required to be recorded in the log book by the applicable code or standard referred to in the code adoption document; and
>
> (b) such other data as are required to be kept in the log book by this Regulation. O.Reg.209/01, s.34 (1).

3.0 SPECIFIC REQUIREMENTS

3.1 General Maintenance and Summary of B355-00 - Appendix B

In addition to the general maintenance obligations under *Ontario Regulation 209/*01, the following maintenance requirements of *the CSA-B355-00, Lifts for Persons with Physical Disabilities Supplement No. 1, dated September 2002, Appendix B* shall be adhered to:

Note: "With the permission of Canadian Standards Association, some material is reproduced from *CSA Standard, B355-00, S1-02, Supplement No: 1* to *CAN/CSA-B355-00, Lifts for Persons with Physical Disabilities*, which is copyrighted by Canadian Standards Association, 178 Rexdale Blvd., Toronto, Ontario, M9W 1R3. While use of this material has been authorized, CSA shall not be responsible for the manner in which the information is presented, nor for any interpretations thereof. CSA Standards are available by contacting CSA at 1-800-463-6727 · 416-747-4044 or online at www.shopcsa.ca "

Clause B2.2 - Scope of Maintenance Required:

Each installation shall be maintained in accordance with the requirements of this Appendix and the original manufacturer's recommendations. The maintenance shall include:

(a) Inspections, examinations, and tests at required or scheduled intervals of all parts and functions of an installation in order to ensure up to a reasonable extent that the installation is in a safe operating condition;

(b) Cleaning, lubricating, and adjusting applicable components at regular intervals, and repairing or replacing all worn or defective components where necessary, to prevent the device from becoming unsafe for operation; and

(c) Repairing or replacing damaged or broken parts affecting the safe operation.

Note: In the case of discrepancy between the requirements of this Appendix and the manufacturer's recommendations, the more stringent requirement applies.

Clause B2.3 - Maintenance Intervals:

Unless otherwise specified in this Appendix, the maintenance required in Clause B2.2 shall be carried out at intervals no longer than 6 months. However, it may be possible that based on the age and inherent quality of the equipment, the frequency and method of usage, as well as the original manufacturer's recommendations, the maintenance methods may be amended or altered and required intervals may be reduced.

Note: Extreme duty lifts, such as a stair chair lift in a high-occupancy nursing home facility, will require an increased maintenance frequency.

TSSA Note: "Increased maintenance frequency" means, a shorter interval between maintenance visits. In no case shall maintenance intervals exceed 6 months.

Clause B2.4 - Actions Respecting Defective Parts:

"Where a defective part directly affecting the safety of the operation is identified, it shall be immediately adjusted, repaired, or replaced."

Clause B2.5 - Maintenance Personnel:

TSSA Note: The requirements in this Clause are not reproduced because these requirements are superseded by the *Ontario Regulation 222/01* (Certification and Training of Elevating Device Mechanics).

Clause B2.6 - Wiring Diagrams:

Up-to-date wiring diagrams detailing circuits of all electrical protective devices listed in Clauses 8.4 and 8.5 and primary directional circuits shall be available on-site at all times. Note: See additional requirements in item 3.3 of this bulletin.

Clause B3 - Maintenance Procedures Applicable to All Installations:

Covers safe practice of performing maintenance on a device, and returning to service for public use. In addition, the general housekeeping and lubrication requirements of the device components are also covered.

Clause B4 – Examination and Tests:

All items covered under Clause B4 are to be completed at intervals no longer than 12 months, unless otherwise specified.

Clause B5 – Other Devices:

Addition items not previously described in Clause B4, shall be tested and examined for proper operation as described.

Clause B6 – Repairs and Replacements:

General statements on quality of work and the criteria for replacement with regards to suspension means.

Clause B6.1.1 – Replacement Parts:

TSSA Note: Requirements in this Clause are not reproduced because these requirements are superseded by the *Ontario Regulation 209/01* (Elevating Devices).

Clause B7 – Maintenance of Screw and Nut Drives:

Maintenance requirements specific to Screw and Nut Drives

Clause B8 – Rack and Pinion Drives:

Maintenance requirements specific to Rack and Pinion Drives

Clause B9 – Chain and Chain Sprocket Drive:

Maintenance requirements specific to Chain and Chain Sprocket Drive

Clause B10 – Rope Chain and Rope Sprocket Drive:

Maintenance requirements specific to Rope Chain and Rope Sprocket Drive

3.2 Log Book Requirements

(a) The logbook shall, as a minimum, contain the following information:
(1) Building name and/or address,
(2) TSSA or MCCR installation number,
(3) Contractor's and Owner's name,
(4) Year and month when a specific task is performed,
(5) Appendix B clause number, and the description of the task performed at scheduled intervals.
(6) Other unscheduled maintenance tasks (see item b), and any applicable EAD Bulletin(s).
(7) Any general maintenance tasks performed during the maintenance visits.
(8) Printed names and signatures of the persons who performed the required tasks.

(b) If a safety related component is replaced by a component of a different manufacture and/or model, and the replacement does not constitute an alteration (no design submission is registered with TSSA) a document signed and sealed by a professional engineer, containing the description of the component, its make and model, shall be inserted in the logbook.

(c) The owner is responsible to ensure that the logbook is established, regularly updated, and that records are kept for the last 5 years and transferred to a new owner of the elevating device.

(d) The logbook will be retained in the machine room, or at the device. If it is kept in another location in the building, a notice will be posted in the machine room or at the device indicating the alternate location.

(e) Date, name and signature in the log book confirming examination and tests of safeties and governor in accordance with Appendix B4.2.2, or the type test certificate which has been accepted and filed with the Director and a copy placed in the logbook at the location of the device.

(f) If the owner's contractor utilizes a computerized log book system, then the owner may satisfy the requirement for maintenance of a log book by requiring the contractor to provide him with a record of the computerized log at a frequency of no longer than every 6 months and retain same at the location in accordance with "c" above. It should be noted that an inspector may, as

a consequence of findings during a periodic inspection, require the production of more recent records. Any follow-up inspection pertaining only to the production of the more recent records shall not incur the re-inspection fee.

All computerized log book systems shall otherwise conform fully with the requirements of "a" to "e" above. Electronic signatures are acceptable.

3.3 Wiring Diagrams (clause B2.6)

(a) If an up-to-date wiring diagram, detailing circuits of all electrical protective devices and primary directional circuits does not exist, the owner shall be responsible to obtain such diagrams (e.g. from the original manufacturer, a registered contractor, qualified consultant, etc.)

(b) The wiring diagram shall be available in the machine room, or at the location of device at all times.

(c) The wiring diagram shall be kept updated by the contractor performing any alterations or changes to the equipment.

Notes:

Revision 1, includes the detail related to log book task B4.1, corrections to the interval specified in B4.7 and B9(a) to match the details in Appendix B

Rob Kremer, P. Eng.,
Technical Leader , EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the TSSA Elevating Devices Advisory Council .

B355 Clause	Description of Maintenance Task	Required Interval (Months)
B3	**General Maintenance**	
B3.2	Runways, Pit Area, Machine Area and Tops of Carriages	6
B3.3	Lubrication	as required
B3.4.1	**Hydraulic Components**	
(a)	Valves and Cylinder Packing Glands	6
(b)	Oil Leakage Collect from Cylinder	6
(c)	Oil Levels in the Reservoirs	6
B3.4.2	Relief Valve Test	12
B3.4.3	Cylinder Inspection and Leakage Test	12
B3.4.3	Exposed Cylinder Inspection Only	12
B3.5	**Controller Contactors and Relays**	**6**
B4	**Examination and Test**	
B4.1	All parts and functions examined and tested	12
B4.2	Examination and Testing of the Safeties	12
B4.3	**Other Tests**	
B4.3.1	Failure Protection	12
B4.3.2	Governor Tripping Speed	12
B4.4	**Wire Ropes**	
B4.4.1	All Wire Ropes (except governor rope)	12
B4.4.1	Governor Rope	6
B4.4.2.3	Chain Suspension	12
B4.5	**Landing and Carriage Doors or Gates**	
(a)	Interlocks, Locks, and Contacts	6
(b)	Unlocking Devices	6
(c)	Vision panel	6
(d)	Self-Closing Device	6
(e)	Opening Force Test	6
B4.6	**Drive Machine Brakes**	
B4.6.1	Examination and Test of Brakes	12
B4.6.2	Unscheduled Brake Test	when required
B4.7	Carriage Emergency Lighting Test	6

B5	**Other Devices**	
(a)	Audiovisual warning signal	6
(b)	Emergency Battery Backup System	6
(c)	Power-Assisted Swing Doors or Gates	6
(d)	Emergency Moving of Carriage	6
(e)	Levelling Tolerances	6
(f)	Pressure Switch	12
(g)	Speed Limiting Devices	12
(h)	Sensitive Edges and Surfaces	6
(i)	Chair Carriage Rotation, Foldable Seat	6
(j)	Automatic Levelling	6
(k)	Alarm and Warning Signal	6
(l)	Operating Devices	6

B7	**Maintenance of Screw and Nut Drives**	
B7.1.1	General Maintenance of Screw and Nut Drive	12
B7.1.2	Backup Safety Nut	12
B7.2	Acme Thread Drive Screws	12

B8	**Rack and Pinion Drive**	
B8.1	Racks	
(a)	Lubricate if necessary	6
(b)	Verify Attachment Points	6
(c)	Examine the Rack for Wear	6
B8.2	Examine Wear on the Pinions	6

B9	**Chain and Chain Sprocket Drive**	
(a)	Examine Chain for Wear	6
(b)	Chain Tension Adjusted	6
(c)	Check for Alignment, and Wear on Sprockets	6

B10	**Rope Chain and Rope Sprocket Drive**	
(a)	Examine Rope Chain for Wear	12
(b)	Rope Tension	6
(c)	Check for Alignment, and Wear on Sprockets	6
(d)	Lubricated, and examined	12

Elevating and Amusement Devices Safety Division	Ref. No.: 198 / 05	Rev. No.:
DIRECTOR'S ORDER	Date: June 10, 2005	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16
- and -
ONTARIO REGULATION 209/01
(Elevating Devices)
-and-
ONTARIO REGULATION 223/01
made under the *Technical Standards and Safety Act* 2000

Subject: Adoption of CAN/CSA-B44-04 Safety Code for Elevators
Notice of Amendment to Code Adoption Document Effective January 1, 2006
Sent to: All Elevating Device Contractors

1. The Director of Elevating Devices hereby gives notice that pursuant to Section 4. of O.Reg. 223/01 the **Elevating Devices Code Adoption Document**, Issued by the Technical Standards & Safety Authority dated **June 1, 2001**, is amended as follows:

Section 6.(1) of the Code Adoption Document is revoked and replaced with the following:

6.(1) Every newly installed or altered elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of **CSA-B44-04; Safety Code for Elevators**, with the following modifications and clarifications:

(a) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted by this Order. *Note: NBCC means the National Building Code of Canada*

(b) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted

(c) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 403/97 made under the Building Code Act 1997 or a later edition, commonly known as Ontario Building Code or OBC.

(d) Where there are duplicate requirements under a same number, only the rules prefaced with a lower-case "c" are adopted by this Order. *Note: Prefix "c" identifies Canadian (B44) deviations from A17.1 requirements. (example c6.1.6.3.1(a))*

(e) Any additional rule prefaced with a lower case "c" is adopted. *Note: Where there is inconsistency between the Regulations and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Ammendment.*

(f) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted

(g) Section 5.3 – Private Residence Elevators, is not adopted

(h) Section 5.4 – Private Residence Inclined Elevators, is not adopted

(i) Section 5.8 – Shipboard Elevators, is not adopted

(j) "elevators used for construction" shall be considered to mean the same as the term "temporary elevator" used in Ontario Regulation 209/01

(k) Requirement 5.10.1.9.5(a) is not adopted, and the following is substituted for it: 'Elevators used for Construction' with car speeds up to 1.75 m/s (350 ft/min) shall comply with requirement 5.10.1.9.5(b)

(l) "material lift" shall be considered to mean the same as the term "freight platform lift" used in Ontario Regulation 209/01

(m) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that are installed, located and controlled as specified in item 2(3)(j) of the Elevating Device Regulation 209/101, are not adopted

(n) Section 8.7 – Alterations is adopted, with modifications and enforcement procedures as specified in Director's Order #164/02 including it's latest revision.

(o) Section 8.8 – Welding, is adopted, except where the requirements of the section are superseded by the requirements in Section 3 of the Ontario Elevating Devices Code Adoption Document.

(p) Section 8.9 – Code Data Plate is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00.

(q) Requirements of elevator maintenance are adopted in accordance with Rule c8.6.12 and Appendix J of the Code. Maintenance records shall be kept in the log book, in accordance with c8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/01.

(r) Section 8.11 - Periodic Inspection and Test Requirements are adopted with the following exemptions and modifications
   (1) Requirements in Rules 8.11.2.2.7 and 8.11.3.2.3(f) for testing of standby or emergency power operation are not adopted with this Order. *Note: These periodic tests fall under jurisdiction of Fire Protection and Building Code Authorities.*
   (2) Requirement for Periodic Category One, Category Three and Category Five tests in Section 8.11 are not adopted with this Order.

2. INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Regulation 209/01 under the *Technical Standards and Safety Act*.
(b) The CSA-B44-04 Safety Code for Elevators, is available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON, L4W 5N6, telephone 1-800-463-6727, 416 747 4044 or online www.shopcsa.ca.
(c) Since the Regulation under the *Technical Standards and Safety Act* requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of and be familiar with the subject standard.

3. NOTES

Contractors are urged to study the B44-04 Code carefully to ensure conformance by the specified date. Major revisions/additions in CSA-B44-04 include:

- 2.26.2.33 Firefighter's stop switch requirement – located in a separate cabinet in the car for use by the fireman. (See 2.27.3.3.7)
- 2.27.3.1.6(h) requires the visual signal remains active as long as the elevator is on FEO and now the entire area or outline of the symbol must illuminate. Audible signal to remain active with the door open and for 5 seconds after the door closes. Audible signal to be inactive when the car is at the recall level
- 2.27.3.3.1 requires door open and close buttons located in the fire operation panel (see 2.27.3.3.7). An additional door open button must also be provided in the car station when required by 2.13.3.3.2.
- 2.27.3.3.7 requires a separate Fire Operation Panel containing the Fire Operation Switch, call cancel button, Fireman's Stop Switch, door open and close buttons, an additional visual signal and operating instructions for the fireman. The location of the switches and buttons shall be as shown in Figure 2.27.3.3.7. If rear doors are provided, separate open and close buttons are required in this panel. The cover for the Fire Operation Panel must be openable by the same key as the Fire Operation Switch. The cover cannot be closed if the Fire Operation key is inserted in the switch. The cover is to be self locking.
- 3.19.2.5 Requires that hydraulic pipelines be identified on all accessible piping that is located outside the elevator machine room or hoistway, stating "Elevator Hydraulic Line" in letters that are at least 19 mm (0.75 in.) high in a contrasting color. The marking shall be visible after installation and applied at intervals not greater than 3 000 mm (120 in.).
- New Escalator designs using dynamic skirts are now recognized by the code. Several of the escalator rules are revised to recognize this new design.
- 6.1.5.3.1 (d) Escalator driving-machine brake data plate requirement revised to account for both fixed and variable torque brakes.
- 7.5.1.2.1 has been revised to clarify that type B material lifts do not require a car door or gate. If a car door or gate is provided, it shall comply with Requirement 2.14.4.1.

Conformance with the above rules as well as all other rules in the CSA B44-04 shall be demonstrated in the design submission or at the initial inspection, as applicable.

4. The Effective Date of said amendments are as follows:

4.1 DESIGN SUBMISSIONS received by TSSA for registration on or after the **1st day of January 2006**, shall conform to the requirements of CSA-B44-04 Safety Code for Elevators.

a) Compliance with this edition of the B44 Code shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

b) Submissions received between October 1, 2005 and December 31, 2005 may comply with B44-00 U1-02 or B44-04.

c) Any designs submitted before October 1, 2005 based on the B44-04 code must be accompanied by a request for variance.

4.2 The MAINTENANCE REQUIREMENTS of c.8.6.12 and Appendix J of B44-04, are effective as of the **1st day of January 2006.**

_____

Roland Hadaller, Director, TSS Act 2000, [Elevating Devices]

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 199 / 06	Rev. No.:
Information / Interpretation Bulletin	Date: April 3, 2006	Date:

Subject: Pre-Inspection Checklist for Passenger and Freight Elevators and Lifts for Persons with Physical Disabilities
Effective July 1, 2006

Sent to: **ALL CONTRACTORS with Scope related to B44 (Elevator's) and B355 Lifts**

1. INTRODUCTION

The purpose of this Bulletin is to introduce a *Pre-Inspection Checklist* for passenger and freight elevating devices and lifts for persons with physical disabilities, installed in the Province of Ontario. The *Pre-Inspection Checklist* is designed to communicate the minimum requirements necessary for **General Contractor's** or **Owner's** to complete, prior to requesting an initial inspection. This form is in addition to the completed "*Examination of an Elevating Device*" form required to be filled in by the **Elevator Contractor**.

2. ORDER

Effective **July 1st 2006**, the **Elevator Contractor** or **Consultant** who requests an inspection by TSSA, on a passenger elevator, freight elevator or lift for persons with physical disabilities, shall ensure that the **General Contractor** or the **Owner** has completed the *Pre-Inspection Checklist* for the applicable device, prior to requesting an inspection by TSSA. Failure to comply with this Director's Order will result in cancelled inspections, or withheld licenses, and/or additional inspection and travel costs applied to the elevator contractor.

3. INSTRUCTIONS

- The **Elevator Contractor** will contact their **General Contractor** or **Owner**, and provide a copy of the *Pre-Inspection Checklist* to be completed prior to requesting an inspection with TSSA, as outlined in section 2 of this Information Bulletin.

- An inspector may elect to request a copy of the completed *Pre-Inspection Checklist* prior to their arrival on site, as per section 19.(1)(a) of the Technical Standards and Safety Act, 2000.

- The **Elevator Contractor** shall carry out a preliminary examination of the device, and if necessary record deficiencies on the *Examination of an Elevating Device* form (ED 09092), to ensure that all work is completed in accordance with the registered design submission, and applicable codes and standards, as per section 25(1) of the Ontario Regulation 209/01.

- The **Elevator Contractor** will pay all fees to this authority that are associated with cancelled, delayed, or subsequent inspections, and any additional travel costs in failure to comply with this Information Bulletin, as per section 19(1)(b) of the Technical Standards and Safety Act, 2000, and section 44 (2) of the Ontario Regulation 209/01.

- The *Pre-Inspection Checklist* is available from the TSSA web site, www.tssa.org . Following the links related to "Elevating Devices" then "Forms"
    - *Pre-Inspection Checklist's* are currently available for:
        - Passenger and Freight Elevators
        - Lifts for Persons with Physical Disabilities

- Sample forms have been attached for reference.

4. BACKGROUND

- The *Pre-Inspection Checklist* was developed to reduce excessive amount of directives, and excess inspection and travel costs to both elevator contractors and TSSA. In addition, the intent was to create a consistency of preparedness amongst **Elevator Contractors**, **General Contractors**, and **Owners** with respect to the inspection of new and altered elevating devices.

5. NOTES

- The *Pre-Inspection Checklist* establishes the minimum requirement for the level of completion of the elevating device and related building issues, prior to requesting an inspection by TSSA.

- Any directives discovered at time of inspection will be scored in accordance with, the level of risk associated with 'injury or damage' to the general public, workers, equipment and/or property.

- The *Pre-Inspection Checklist* is not inclusive of all requirements of the applicable codes and standards.

- Checklists are updated from time to time and **Elevator Contractors** should ensure the latest version is in use. Versions with an incorrect calendar year will not be accepted.

Roger Neate, Operations Manager, EDAD Program

This Director's Order has been developed in consultation with the Elevating Devices Advisory Council.

Passenger & Freight Elevator Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

		Machine Room:	✓
		Machine Room Access:	
⊘		• Install an approved walkway from the roof access door to the machine room access door, if the roof slope exceeds 15 degrees from horizontal, or if the roof parapet or passageway is less than 1070 mm.	
	△	• Install a non-combustible, weather-resistant stair to machine room (if applicable)	
		Machine Room Door:	
	△	• Door self locking and self closing	
	△	• Key security code is designated for the machine room door only, and no other door in the building	
	△	• Ensure machine room door swing does not impede on controller and disconnect clearances	
	△	• Machine room door shall meet applicable building code requirements for fire rating	
		Machine Room Enclosure:	
	△	• Minimum headroom of 2134 mm maintained between floor and overhead equipment or ceiling	
	△	• Permanent machine room lighting (minimum 200 Lux at floor level)	
	△	• Complete machine room enclosure to meet building code fire separation	
	△	• Each receptacle shall be a GFCI type	
	△	• Machine room enclosure is fire rated to applicable building code requirements	
	△	• Provide means to maintain temperature and humidity levels to within manufacturers specifications	
	△	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with elevator equipment from the machine room enclosure	
	△	• Pipes permitted for roof drain of the machine room enclosure shall be covered for condensation or leakage, and shall exit the machine room at the closest point of entry.	
	△	• When permitted pipes, drains, tanks or similar equipment permitted in the machine room enclosure, shall not be installed directly above elevator equipment, or encroach on clearance requirements.	
	△	• If a sump pump, sub floor trough, or any other electrical conductive material (metal grates, etc.) is installed in the machine room floor, they shall be covered; the cover shall be securely fastened into place and covered with an isolation mat to eliminate the shock hazard.	
	△	• If a sump pump is installed in the machine room it shall have its own dedicated single supply receptacle, and is not required to be of the GFCI type.	
	△	• Smoke sensor installed (if elevator is equipped with firefighter's emergency operation, and the machine room is sprinklered)	
	△	• Ensure a clear horizontal path (minimum 450 mm) around all machine room equipment	
	△	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of controller, disconnect(s), and electrical equipment.	
	△	• Install guard rails (top and mid rails, kick plate) to eliminate trip and fall hazards within machine room enclosure	
	△	• Complete all machine room wiring	
		Main Disconnect Switch:	
⊘		• Correct rated fuses, or circuit breakers are installed	
⊘		• Lockable type	
	△	• Auxiliary contact for emergency lowering (positively opened mechanically, and the opening not solely dependent on springs)	
	△	• Identified to the related elevator equipment	
	△	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of disconnect	
		120V AC Car Light Disconnect Switch:	
⊘		• Lockable type	
⊘		• Correct rated fuse installed (maximum 15 amp)	
	△	• Identified to the related elevator equipment	
	△	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of disconnect	
		Firefighters Emergency Operation:	
⊘		• Manual emergency recall operation is functioning as specified	
	△	• Automatic emergency recall operation is functioning as specified	
	△	• Emergency Power or standby Power is functioning or able to simulate operation with elevator equipment as specified	

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Passenger & Freight Elevator Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

	△	• Central control facility or remote emergency recall switch is installed and functioning	
⊘		• A pit drain must be installed, if the elevator is provided with firefighter's emergency operation	
		Pit:	
		Pit Enclosure	
	△	• Permanent means shall be provided to prevent the accumulation of ground water in the pit	
	△	• Pit drains shall be designed with a positive means to prevent water, gases, and odours from entering the hoistway.	
⊘		• Sump pumps and their control equipment shall not be installed in elevator pits	
⊘		• Install a pit drain, if the elevator is provided with firefighter's emergency operation	
		•	
	△	• Each receptacle shall be a GFCI type	
⊘		• Permanent lighting shall be installed in the pit, with a illumination of not less than 100lx at the pit floor	
⊘		• The pit light shall be provided with a guard	
⊘		• The light switch shall be installed such that is easily accessible from the bottom landing door	
		Pit Access Ladder	
	△	• Shall be installed within 1000 mm horizontally from the unlocking means, of the bottom landing door	
	△	• Shall be designed to extend from the pit floor to appoint 1200 mm above the bottom landing door sill	
	△	• Shall be a minimum of 300 mm wide (if unavoidable obstructions are present, the width maybe reduced, but not less than 225 mm), with rungs, cleats or steps spaced no greater than 300 mm from centre, and a rung clearance of no less than 115 mm.	
	△	• Shall be fixed in place, and made of non-combustible material	
	△	• Shall be installed to avoid any obstructions within the ladder rungs, cleats or steps	
		Pit Access Door	
		• Door self locking, and self closing	
	△	• Key security code for pit access door shall be designated group 1, and shall not be part of a master key system	
	△	• The pit access door shall be provided with a visional panel (when applicable)	
	△	• Pit access door shall meet applicable building code requirements for fire rating	
		Hoistway:	
	△	• Eliminate all holes, recess and gaps in hoistway enclosure and ceiling	
	△	• Bevel all projections, setbacks, or recesses greater than 100 mm (75° to horizontal)	
	△	• Hoistway enclosure shall be designed to meet Building Code fire rating requirements	
	△	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with elevator equipment from the hoistway enclosure	
	△	• Remove all electrical wiring, raceways, and cables in the hoistway not directly in connection with the operation or function of the elevator	
		Elevator Car:	
⊘		• For buildings not continuously manned by authorized personnel, shall be provide a telephone inside the elevator which is connected to 24 hour emergency service	
	△	• For buildings with an elevator travel of greater than 18 m, shall be provided with a two-way conversation (telephone, intercom), readily accessible to emergency personnel within the building.	
	△	• Install the permanent flooring inside the car	
		Outside Hoistway:	
⊘		• Install permanent lighting at elevator entrances where occupancy of building is provided	
⊘		• Eliminate the tripping hazards at the landing sills (7 mm or greater)	

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Passenger & Freight Elevator Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

Instructions:

The General Contractor or Owner shall, prior to the Elevator Contractor requesting an inspection from the Technical Standard and Safety Authority (TSSA), complete the pre-inspection checklist. Failure to comply with this requirement will result in a cancelled inspection, or a withheld license of the device, and/or additional inspection and travel costs applied to the inspection fee.

The General Contractor or Owner shall complete the required information, and upon completion of the required task, check the applicable boxes listed in the right hand column of the Pre-Inspection Checklist.

The Elevator Contractor shall carry out a preliminary examination of the device, and once satisfied that all work is completed in accordance with the registered design submission, and applicable codes and standards, may request an inspection from TSSA.

The Pre-Inspection Checklist is a minimum requirement of completion of the device and related components, in order to request a TSSA inspection. Any directives discovered at time of inspection will be scored in accordance with, the level of risk associated with 'injury or damage' to the general public, workers, equipment and/or property. The Pre-Inspection Checklist is not inclusive to all requirements of the applicable codes and standards.

An inspector may elect to request a copy of the completed pre-inspection checklist prior to their arrival on site.

⦸ - The contractor must complete this code requirement, prior to requesting an inspection.

△ - The contractor must complete this code requirement prior to requesting an inspection for the last car in the bank of elevators. In the case of a car in a single hoistway, all requirements of the checklist must be completed.

For elevating devices removed from service, or a licence was not granted, a note on the body of the inspection report with the identified shutdown deficiencies, will be posted listing the responsible party, as outlined in the Pre-Inspection Checklist.

General Contractor or Owner_____

Location or Address of Installation_____

Date_____ Signature _____

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Lift for Persons with Physical Disabilities Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

	Machine Room:	✓
	Machine Room Door or Cabinet:	
⊘	• Provide a panel, or door that shall be normally locked, or fastened into place that requires tools to open.	
⊘	• Ensure machine room door swing does not impede on controller, cabinet, or disconnect clearances	
⊘	• Machine room door shall meet the applicable building code requirements for fire rating	
	Machine Room Enclosure:	
⊘	• Minimum headroom of 2000 mm maintained between floor and overhead equipment or ceiling	
⊘	• Permanent machine room lighting (minimum 100 Lux at the drive unit)	
⊘	• Complete machine room enclosure to meet the applicable building code fire separation	
⊘	• Each receptacle shall be a GFCI type	
⊘	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with the lift equipment from the machine room • Remove all electrical wiring, raceways, and cables in the runway not directly in connection with the operation or function of the lift from the machine room	
⊘	• If a sump pump, sub floor trough, or any other electrical conductive material (metal grates, etc.) is installed in the machine room floor, they shall be covered; the cover shall be securely fastened into place and covered with an isolation mat to eliminate the shock hazard.	
⊘	• If a sump pump is installed in the machine room it shall have its own dedicated single supply receptacle, and is not required to be of the GFCI type.	
⊘	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of controller, or cabinet	
⊘	• Install guard rails to eliminate trip and fall hazards within machine room enclosure	
⊘	• Complete all machine room wiring	
	Main Disconnect Switch:	
⊘	• Correct rated fuses, or circuit breakers are installed	
⊘	• Lockable type	
⊘	• Auxiliary contact for emergency lowering (positively opened mechanically, and the opening not solely dependent on springs)	
⊘	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of main disconnect	
	120V AC Car Light Disconnect Switch:	
⊘	• Lockable type	
⊘	• Correct rated fuse installed (maximum 15 amp)	
⊘	• Identified to related elevator equipment (if more than one device in the same machine room)	
⊘	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of car light disconnect	
	Pit:	
	Pit Enclosure	
⊘	• Where the entry of water from other sources is anticipated, provision (pit drain) shall be made to prevent accumulation in the pit. •	
⊘	• Pit drains shall be designed with a positive means to prevent water, gases, and odours from entering the hoistway.	
⊘	• Sump pumps and their control equipment shall not be installed in lift pits	
⊘	• Each receptacle shall be a GFCI type	
⊘	• Permanent lighting shall be installed in the pit, with a illumination of not less than 100 lx at the pit floor	
⊘	• The pit light shall be provided with a guard	
⊘	• The light switch shall be installed such that is easily accessible from the bottom landing door	
	Pit Access Ladder (If your pit depth is greater than 1000 mm from the sill of the access door)	
⊘	• Shall be designed to extend from the pit floor to appoint 1200 mm above the bottom landing door sill	
⊘	• Shall be a minimum of clearance of no less than 100 mm from the centre line of the rungs to the wall.	
⊘	• Shall be fixed in place, and made of non-combustible material	
⊘	• Shall be installed to avoid any obstructions within the ladder rungs, cleats or steps	
	Runway:	
⊘	• Eliminate all holes, recess and gaps in runway enclosure and ceiling	

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Lift for Persons with Physical Disabilities Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

⊘	• Runway enclosure shall be designed to meet Building Code fire rating requirements	
⊘	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with the lift equipment from the runway enclosure	
⊘	• Remove all electrical wiring, raceways, and cables in the runway not directly in connection with the operation or function of the lift	
⊘	• Remove all shearing, crushing, trapping, or abrading hazards in the runway. For example, recessions or projections such as banisters, handrails, window wells	
	Platform Enclosure:	
⊘	• Install the permanent flooring on the lift platform	
	Outside Runway:	
⊘	• Install permanent lighting at runway entrances	
⊘	• Eliminate the tripping hazards at the landing sills	
⊘	• Make the emergency lighting for the runway operative	
⊘	• Post permanent signage for instruction on how to obtain assistance with lift, if there is a barrier that exists between the contact place or person, an audible signal shall also be provide to alert the attendant	
	Runway Clearances:	
	Vertical Platform Lifts	
⊘	• A maximum of 15 mm from the access edge of the platform to the inner surface of the runway enclosure, where an enclosure is provided, including a landing door or gate	
⊘	• A maximum of 20 mm from the access edge of the platform to the vision panel on the landing door or gate	
⊘	• A maximum of 100 mm from the non-access side of the platform to the runway enclosure for enclosed vertical platform lifts (if applicable)	
⊘	• A minimum of 50 mm from the non-access side of the platform to the runway enclosure	
	Stair Lifts	
⊘	• All projections in excess of 30 mm into the runway shall be bevelled at an angle of 15 degrees or less to the line of travel if they are within the following distances to the adjacent side of the carriage • 600 mm, if the lift is equipped with a standing platform or wheelchair-and-attendant platform • 300 mm, if the lift is equipped with a wheelchair platform or chair carriage	
⊘	• Any part or edge of the carriage that could possibly be used as a supporting handhold shall have a clearance of not less than 50 mm from any part of the fixed installation, to prevent the trapping of a hand during the travel of the carriage	
⊘	• Any part or edge of the carriage that could possibly be used as a supporting handhold shall have a clearance of not less than 50 mm from any part of the fixed installation, to prevent the trapping of a hand during the travel of the carriage	
⊘	• Unless the shear hazard is otherwise minimized, a solid guard shall be provided in the intersecting angle of the runway and the ceiling or soffit where a stair lift penetrates a floor and where the penetrated ceiling or soffit is less than the following distances from any edge of the chair or platform • 600 mm, if the lift is equipped with a standing platform or wheelchair-and-attendant platform; and • 300 mm, if the lift is equipped with a chair carriage or wheelchair platform	
⊘	• The exposed edge of the shall have a vertical height of at least 350 mm, be coloured red, and present a minimum width of 25 mm and a minimum radius of 12 mm. The guard may be glass, if shatterproof.	

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Lift for Persons with Physical Disabilities Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

Instructions:

The General Contractor or Owner shall, prior to the Elevator Contractor requesting an inspection from the Technical Standard and Safety Authority (TSSA), complete the pre-inspection checklist. Failure to comply with this requirement will result in a cancelled inspection, or a withheld license of the device, and/or additional inspection and travel costs applied to the inspection fee.

The General Contractor or Owner shall complete the required information, and upon completion of the required task, check the applicable boxes listed in the right hand column of the Pre-Inspection Checklist.

The Elevator Contractor shall carry out a preliminary examination of the device, and once satisfied that all work is completed in accordance with the registered design submission, and applicable codes and standards, may request an inspection from TSSA.

The Pre-Inspection Checklist is a minimum requirement of completion of the device and related components, in order to request a TSSA inspection. Any directives discovered at time of inspection will be scored in accordance with, the level of risk associated with 'injury or damage' to the general public, workers, equipment and/or property. The Pre-Inspection Checklist is not inclusive to all requirements of the applicable codes and standards.

An inspector may elect to request a copy of the completed pre-inspection checklist prior to their arrival on site.

⦸ - The contractor must complete this code requirement, prior to requesting an inspection.

For elevating devices removed from service, or a licence was not granted, a note on the body of the inspection report with the identified shutdown deficiencies, will be posted listing the responsible party, as outlined in the Pre-Inspection Checklist.

General Contractor or Owner _____

Location or Address of Installation _____

Date _____ Signature _____

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Technical Standards and Safety Authority

14th Floor - Centre Tower
3300 Bloor Street West
Toronto, Ontario M8X 2X4
Tel. (416) 734-3331

Examination of an Elevating Device

Under Ontario's ***Technical Standards and Safety Act***
Elevating Devices Regulation

*15. - (1) Prior to arranging for an initial inspection of an elevating device, where a contractor installs or alters an elevating device he/she shall carry out a preliminary examination and satisfy himself/herself that all work has been completed, is in accordance with the registered design submission and that the installation or alteration complies with the requirements of the Act and regulation.

Installation Numbers				
Contractor				

Date of Examination: _____

Examiner's Name _____

Examiner's Signature _____

Mechanic's Certificate No. _____

☐ Mechanic
☐ Adjuster
☐ Supervisor

Examiner's Reference: To verify conformance, the examiner must refer to his/her copy of the registered design submission, including drawings, the standard covering the elevating device (with supplements) and his/her knowledge as a "mechanic" of Ontario's ***Technical Standards and Safety Act,*** Elevating Devices Regulation and relevant standards.

Deficiencies: An inspection may, in exceptional circumstances, proceed despite identified deficiencies. Arrangements must be made in advance with the inspector. These deficiencies must be listed below.

Limitations: The examiner is not required to pass judgement on design engineering aspects of the job covered by the engineer's statement on the design submission and the evaluation is limited to visible, physical components, features and performance of the elevating device, including parts and features of the structure covered by the standard.

Inspection: An initial inspection should be arranged no later than Thursday preceding the week in which the inspection is required. At that time, verbal assurance of the conformance and completion are required. (Exception - see Deficiencies.) When the inspector arrives he/she will not start his/her inspection until he/she receives this form, duly completed.

ED 09092 (09/04)

Distribution: White - give to TSSA Inspector Pink - Contractor's Record

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Putting Public Safety First

Elevating and Amusement Devices Safety Division	Ref. No.: 199 / 06	Rev. No.: 1
Information / Interpretation Bulletin	Date: April 3, 2006	Date: July 27, 2006

Subject: Pre-Inspection Checklist for Passenger and Freight Elevators and Lifts for Persons with Physical Disabilities
Effective September 1, 2006

Sent to: **All Contractors with Scope related to B44 (Elevator's) and B355 Lifts and Mechanics**

1. INTRODUCTION

The purpose of this Bulletin is to introduce a *Pre-Inspection Checklist* for newly installed passenger and freight elevating devices and lifts for persons with physical disabilities, installed in the Province of Ontario. The *Pre-Inspection Checklist* is designed to communicate the minimum requirements necessary for **General Contractor's** or **Owner's** to complete, prior to requesting an initial inspection. This form is in addition to the completed "*Examination of an Elevating Device*" form required to be filled in by the **Elevator Contractor**.

2. ORDER

Effective **September 1st 2006**, the **Elevator Contractor** or **Consultant** who requests an inspection by TSSA, on a newly installed passenger elevator, freight elevator or lift for persons with physical disabilities, shall ensure that the **General Contractor** or the **Owner** has completed the *Pre-Inspection Checklist* for the applicable device, prior to requesting an inspection by TSSA. Failure to comply with this Director's Order will result in cancelled inspections, or withheld licenses, and/or additional inspection and travel costs applied to the elevator contractor.

3. INSTRUCTIONS

- The **Elevator Contractor** will contact their **General Contractor** or **Owner**, and provide a copy of the *Pre-Inspection Checklist* to be completed prior to requesting an inspection with TSSA, as outlined in section 2 of this Information Bulletin.

- An inspector may elect to request a copy of the completed *Pre-Inspection Checklist* prior to their arrival on site, as per section 19.(1)(a) of the Technical Standards and Safety Act, 2000.

- The **Elevator Contractor** shall carry out a preliminary examination of the device, and if necessary record deficiencies on the *Examination of an Elevating Device* form (ED 09092), to ensure that all work is completed in accordance with the registered design submission, and applicable codes and standards, as per section 25(1) of the Ontario Regulation 209/01.

- The **Elevator Contractor** will pay all fees to this authority that are associated with cancelled, delayed, or subsequent inspections, and any additional travel costs in failure to comply with this Information Bulletin, as per section 19(1)(b) of the Technical Standards and Safety Act, 2000, and section 44 (2) of the Ontario Regulation 209/01.

- The *Pre-Inspection Checklist* is available from the TSSA web site, www.tssa.org . Following the links related to "Elevating Devices" then "Forms"
    - *Pre-Inspection Checklist's* are currently available for:
        - Passenger and Freight Elevators
        - Lifts for Persons with Physical Disabilities

- Sample forms have been attached for reference.

4. BACKGROUND

- The *Pre-Inspection Checklist* was developed to reduce excessive amount of directives, and excess inspection and travel costs to both elevator contractors and TSSA. In addition, the intent was to create a consistency of preparedness amongst **Elevator Contractors**, **General Contractors**, and **Owners** with respect to the inspection of new and altered elevating devices.
- For **alterations** to an existing passenger elevator, freight elevator or lift for persons with physical disabilities, **Elevator Contractors** should access the extent of General Contractor / Owner involvement and determine if a Pre-Inspection Checklist is warranted.

5. NOTES

- The *Pre-Inspection Checklist* establishes the minimum requirement for the level of completion of the elevating device and related building issues, prior to requesting an inspection by TSSA.

- Any directives discovered at time of inspection will be scored in accordance with, the level of risk associated with 'injury or damage' to the general public, workers, equipment and/or property.

- The *Pre-Inspection Checklist* is not inclusive of all requirements of the applicable codes and standards.

- Checklists are updated from time to time and **Elevator Contractors** should ensure the latest version is in use. Versions with an incorrect calendar year will not be accepted.

_____
Roger Neate, Operations Manager, EDAD Program

This Director's Order has been developed in consultation with the Elevating Devices Advisory Council.

Passenger & Freight Elevator Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

		Machine Room:	✓
		Machine Room Access:	
⊘		• Install an approved walkway from the roof access door to the machine room access door, if the roof slope exceeds 15 degrees from horizontal, or if the roof parapet or passageway is less than 1070 mm.	
	△	• Install a non-combustible, weather-resistant stair to machine room (if applicable)	
		Machine Room Door:	
	△	• Door self locking and self closing	
	△	• Key security code is designated for the machine room door only, and no other door in the building	
	△	• Ensure machine room door swing does not impede on controller and disconnect clearances	
	△	• Machine room door shall meet applicable building code requirements for fire rating	
		Machine Room Enclosure:	
	△	• Minimum headroom of 2134 mm maintained between floor and overhead equipment or ceiling	
	△	• Permanent machine room lighting (minimum 200 Lux at floor level)	
	△	• Complete machine room enclosure to meet building code fire separation	
	△	• Each receptacle shall be a GFCI type	
	△	• Machine room enclosure is fire rated to applicable building code requirements	
	△	• Provide means to maintain temperature and humidity levels to within manufacturers specifications	
	△	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with elevator equipment from the machine room enclosure	
	△	• Pipes permitted for roof drain of the machine room enclosure shall be covered for condensation or leakage, and shall exit the machine room at the closest point of entry.	
	△	• When permitted pipes, drains, tanks or similar equipment permitted in the machine room enclosure, shall not be installed directly above elevator equipment, or encroach on clearance requirements.	
	△	• If a sump pump, sub floor trough, or any other electrical conductive material (metal grates, etc.) is installed in the machine room floor, they shall be covered; the cover shall be securely fastened into place and covered with an isolation mat to eliminate the shock hazard.	
	△	• If a sump pump is installed in the machine room it shall have its own dedicated single supply receptacle, and is not required to be of the GFCI type.	
	△	• Smoke sensor installed (if elevator is equipped with firefighter's emergency operation, and the machine room is sprinklered)	
	△	• Ensure a clear horizontal path (minimum 450 mm) around all machine room equipment	
	△	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of controller, disconnect(s), and electrical equipment.	
	△	• Install guard rails (top and mid rails, kick plate) to eliminate trip and fall hazards within machine room enclosure	
	△	• Complete all machine room wiring	
		Main Disconnect Switch:	
⊘		• Correct rated fuses, or circuit breakers are installed	
⊘		• Lockable type	
	△	• Auxiliary contact for emergency lowering (positively opened mechanically, and the opening not solely dependent on springs)	
	△	• Identified to the related elevator equipment	
	△	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of disconnect	
		120V AC Car Light Disconnect Switch:	
⊘		• Lockable type	
⊘		• Correct rated fuse installed (maximum 15 amp)	
	△	• Identified to the related elevator equipment	
	△	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of disconnect	
		Firefighters Emergency Operation:	
⊘		• Manual emergency recall operation is functioning as specified	
	△	• Automatic emergency recall operation is functioning as specified	
	△	• Emergency Power or standby Power is functioning or able to simulate operation with elevator equipment as specified	

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Passenger & Freight Elevator Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

	△	• Central control facility or remote emergency recall switch is installed and functioning	
⊘		• A pit drain must be installed, if the elevator is provided with firefighter's emergency operation	
		Pit:	
		Pit Enclosure	
	△	• Permanent means shall be provided to prevent the accumulation of ground water in the pit	
	△	• Pit drains shall be designed with a positive means to prevent water, gases, and odours from entering the hoistway.	
⊘		• Sump pumps and their control equipment shall not be installed in elevator pits	
⊘		• Install a pit drain, if the elevator is provided with firefighter's emergency operation	
		•	
	△	• Each receptacle shall be a GFCI type	
⊘		• Permanent lighting shall be installed in the pit, with a illumination of not less than 100lx at the pit floor	
⊘		• The pit light shall be provided with a guard	
⊘		• The light switch shall be installed such that is easily accessible from the bottom landing door	
		Pit Access Ladder	
	△	• Shall be installed within 1000 mm horizontally from the unlocking means, of the bottom landing door	
	△	• Shall be designed to extend from the pit floor to appoint 1200 mm above the bottom landing door sill	
	△	• Shall be a minimum of 300 mm wide (if unavoidable obstructions are present, the width maybe reduced, but not less than 225 mm), with rungs, cleats or steps spaced no greater than 300 mm from centre, and a rung clearance of no less than 115 mm.	
	△	• Shall be fixed in place, and made of non-combustible material	
	△	• Shall be installed to avoid any obstructions within the ladder rungs, cleats or steps	
		Pit Access Door	
		• Door self locking, and self closing	
	△	• Key security code for pit access door shall be designated group 1, and shall not be part of a master key system	
	△	• The pit access door shall be provided with a visional panel (when applicable)	
	△	• Pit access door shall meet applicable building code requirements for fire rating	
		Hoistway:	
	△	• Eliminate all holes, recess and gaps in hoistway enclosure and ceiling	
	△	• Bevel all projections, setbacks, or recesses greater than 100 mm (75° to horizontal)	
	△	• Hoistway enclosure shall be designed to meet Building Code fire rating requirements	
	△	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with elevator equipment from the hoistway enclosure	
	△	• Remove all electrical wiring, raceways, and cables in the hoistway not directly in connection with the operation or function of the elevator	
		Elevator Car:	
⊘		• For buildings not continuously manned by authorized personnel, shall be provide a telephone inside the elevator which is connected to 24 hour emergency service	
	△	• For buildings with an elevator travel of greater than 18 m, shall be provided with a two-way conversation (telephone, intercom), readily accessible to emergency personnel within the building.	
	△	• Install the permanent flooring inside the car	
		Outside Hoistway:	
⊘		• Install permanent lighting at elevator entrances where occupancy of building is provided	
⊘		• Eliminate the tripping hazards at the landing sills (7 mm or greater)	

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Putting Public Safety First

Passenger & Freight Elevator Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

Instructions:

The General Contractor or Owner shall, prior to the Elevator Contractor requesting an inspection from the Technical Standard and Safety Authority (TSSA), complete the pre-inspection checklist. Failure to comply with this requirement will result in a cancelled inspection, or a withheld license of the device, and/or additional inspection and travel costs applied to the inspection fee.

The General Contractor or Owner shall complete the required information, and upon completion of the required task, check the applicable boxes listed in the right hand column of the Pre-Inspection Checklist.

The Elevator Contractor shall carry out a preliminary examination of the device, and once satisfied that all work is completed in accordance with the registered design submission, and applicable codes and standards, may request an inspection from TSSA.

The Pre-Inspection Checklist is a minimum requirement of completion of the device and related components, in order to request a TSSA inspection. Any directives discovered at time of inspection will be scored in accordance with, the level of risk associated with 'injury or damage' to the general public, workers, equipment and/or property. The Pre-Inspection Checklist is not inclusive to all requirements of the applicable codes and standards.

An inspector may elect to request a copy of the completed pre-inspection checklist prior to their arrival on site.

⊘ - The contractor must complete this code requirement, prior to requesting an inspection.

△ - The contractor must complete this code requirement prior to requesting an inspection for the last car in the bank of elevators. In the case of a car in a single hoistway, all requirements of the checklist must be completed.

For elevating devices removed from service, or a licence was not granted, a note on the body of the inspection report with the identified shutdown deficiencies, will be posted listing the responsible party, as outlined in the Pre-Inspection Checklist.

General Contractor or Owner_____

Location or Address of installation_____

Date_____ Signature _____

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Lift for Persons with Physical Disabilities Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

	Machine Room:	✔
	Machine Room Door or Cabinet:	
⊘	• Provide a panel, or door that shall be normally locked, or fastened into place that requires tools to open.	
⊘	• Ensure machine room door swing does not impede on controller, cabinet, or disconnect clearances	
⊘	• Machine room door shall meet the applicable building code requirements for fire rating	
	Machine Room Enclosure:	
⊘	• Minimum headroom of 2000 mm maintained between floor and overhead equipment or ceiling	
⊘	• Permanent machine room lighting (minimum 100 Lux at the drive unit)	
⊘	• Complete machine room enclosure to meet the applicable building code fire separation	
⊘	• Each receptacle shall be a GFCI type	
⊘	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with the lift equipment from the machine room • Remove all electrical wiring, raceways, and cables in the runway not directly in connection with the operation or function of the lift from the machine room	
⊘	• If a sump pump, sub floor trough, or any other electrical conductive material (metal grates, etc.) is installed in the machine room floor, they shall be covered; the cover shall be securely fastened into place and covered with an isolation mat to eliminate the shock hazard.	
⊘	• If a sump pump is installed in the machine room it shall have its own dedicated single supply receptacle, and is not required to be of the GFCI type.	
⊘	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of controller, or cabinet	
⊘	• Install guard rails to eliminate trip and fall hazards within machine room enclosure	
⊘	• Complete all machine room wiring	
	Main Disconnect Switch:	
⊘	• Correct rated fuses, or circuit breakers are installed	
⊘	• Lockable type	
⊘	• Auxiliary contact for emergency lowering (positively opened mechanically, and the opening not solely dependent on springs)	
⊘	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of main disconnect	
	120V AC Car Light Disconnect Switch:	
⊘	• Lockable type	
⊘	• Correct rated fuse installed (maximum 15 amp)	
⊘	• Identified to related elevator equipment (if more than one device in the same machine room)	
⊘	• Provide a clear unobstructed distance (minimum of 1000 mm) in front of car light disconnect	
	Pit:	
	Pit Enclosure	
⊘	• Where the entry of water from other sources is anticipated, provision (pit drain) shall be made to prevent accumulation in the pit. •	
⊘	• Pit drains shall be designed with a positive means to prevent water, gases, and odours from entering the hoistway.	
⊘	• Sump pumps and their control equipment shall not be installed in lift pits	
⊘	• Each receptacle shall be a GFCI type	
⊘	• Permanent lighting shall be installed in the pit, with a illumination of not less than 100 lx at the pit floor	
⊘	• The pit light shall be provided with a guard	
⊘	• The light switch shall be installed such that is easily accessible from the bottom landing door	
	Pit Access Ladder **(If your pit depth is greater than 1000 mm from the sill of the access door)**	
⊘	• Shall be designed to extend from the pit floor to appoint 1200 mm above the bottom landing door sill	
⊘	• Shall be a minimum of clearance of no less than 100 mm from the centre line of the rungs to the wall.	
⊘	• Shall be fixed in place, and made of non-combustible material	
⊘	• Shall be installed to avoid any obstructions within the ladder rungs, cleats or steps	
	Runway:	
⊘	• Eliminate all holes, recess and gaps in runway enclosure and ceiling	

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Lift for Persons with Physical Disabilities Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

⃠	• Runway enclosure shall be designed to meet Building Code fire rating requirements	
⃠	• Remove all pipes or ducts conveying gases, vapours, or liquids not used in connection with the lift equipment from the runway enclosure	
⃠	• Remove all electrical wiring, raceways, and cables in the runway not directly in connection with the operation or function of the lift	
⃠	• Remove all shearing, crushing, trapping, or abrading hazards in the runway. For example, recessions or projections such as banisters, handrails, window wells	
	Platform Enclosure:	
⃠	• Install the permanent flooring on the lift platform	
	Outside Runway:	
⃠	• Install permanent lighting at runway entrances	
⃠	• Eliminate the tripping hazards at the landing sills	
⃠	• Make the emergency lighting for the runway operative	
⃠	• Post permanent signage for instruction on how to obtain assistance with lift, if there is a barrier that exists between the contact place or person, an audible signal shall also be provide to alert the attendant	
	Runway Clearances:	
	Vertical Platform Lifts	
⃠	• A maximum of 15 mm from the access edge of the platform to the inner surface of the runway enclosure, where an enclosure is provided, including a landing door or gate	
⃠	• A maximum of 20 mm from the access edge of the platform to the vision panel on the landing door or gate	
⃠	• A maximum of 100 mm from the non-access side of the platform to the runway enclosure for enclosed vertical platform lifts (if applicable)	
⃠	• A minimum of 50 mm from the non-access side of the platform to the runway enclosure	
	Stair Lifts	
⃠	• All projections in excess of 30 mm into the runway shall be bevelled at an angle of 15 degrees or less to the line of travel if they are within the following distances to the adjacent side of the carriage • 600 mm, if the lift is equipped with a standing platform or wheelchair-and-attendant platform • 300 mm, if the lift is equipped with a wheelchair platform or chair carriage	
⃠	• Any part or edge of the carriage that could possibly be used as a supporting handhold shall have a clearance of not less than 50 mm from any part of the fixed installation, to prevent the trapping of a hand during the travel of the carriage	
⃠	• Any part or edge of the carriage that could possibly be used as a supporting handhold shall have a clearance of not less than 50 mm from any part of the fixed installation, to prevent the trapping of a hand during the travel of the carriage	
⃠	• Unless the shear hazard is otherwise minimized, a solid guard shall be provided in the intersecting angle of the runway and the ceiling or soffit where a stair lift penetrates a floor and where the penetrated ceiling or soffit is less than the following distances from any edge of the chair or platform • 600 mm, if the lift is equipped with a standing platform or wheelchair-and-attendant platform; and • 300 mm, if the lift is equipped with a chair carriage or wheelchair platform	
⃠	• The exposed edge of the shall have a vertical height of at least 350 mm, be coloured red, and present a minimum width of 25 mm and a minimum radius of 12 mm. The guard may be glass, if shatterproof.	

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Lift for Persons with Physical Disabilities Pre-Inspection Checklist 2005

(For use by General Contractors or Owner)

Instructions:

The General Contractor or Owner shall, prior to the Elevator Contractor requesting an inspection from the Technical Standard and Safety Authority (TSSA), complete the pre-inspection checklist. Failure to comply with this requirement will result in a cancelled inspection, or a withheld license of the device, and/or additional inspection and travel costs applied to the inspection fee.

The General Contractor or Owner shall complete the required information, and upon completion of the required task, check the applicable boxes listed in the right hand column of the Pre-Inspection Checklist.

The Elevator Contractor shall carry out a preliminary examination of the device, and once satisfied that all work is completed in accordance with the registered design submission, and applicable codes and standards, may request an inspection from TSSA.

The Pre-Inspection Checklist is a minimum requirement of completion of the device and related components, in order to request a TSSA inspection. Any directives discovered at time of inspection will be scored in accordance with, the level of risk associated with 'injury or damage' to the general public, workers, equipment and/or property. The Pre-Inspection Checklist is not inclusive to all requirements of the applicable codes and standards.

An inspector may elect to request a copy of the completed pre-inspection checklist prior to their arrival on site.

⦸ - The contractor must complete this code requirement, prior to requesting an inspection.

For elevating devices removed from service, or a licence was not granted, a note on the body of the inspection report with the identified shutdown deficiencies, will be posted listing the responsible party, as outlined in the Pre-Inspection Checklist.

General Contractor or Owner_____

Location or Address of Installation_____

Date_____ Signature _____

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Technical Standards and Safety Authority

14th Floor - Centre Tower
3300 Bloor Street West
Toronto, Ontario M8X 2X4
Tel. (416) 734-3331

Examination of an Elevating Device

Under Ontario's ***Technical Standards and Safety Act***
Elevating Devices Regulation

*15. - (1) Prior to arranging for an initial inspection of an elevating device, where a contractor installs or alters an elevating device he/she shall carry out a preliminary examination and satisfy himself/herself that all work has been completed, is in accordance with the registered design submission and that the installation or alteration complies with the requirements of the Act and regulation.

Installation Numbers				
Contractor				

Date of Examination: _____

Examiner's Name _____

Examiner's Signature _____

Mechanic's Certificate No. _____

☐ Mechanic
☐ Adjuster
☐ Supervisor

Examiner's Reference: To verify conformance, the examiner must refer to his/her copy of the registered design submission, including drawings, the standard covering the elevating device (with supplements) and his/her knowledge as a "mechanic" of Ontario's ***Technical Standards and Safety Act***, Elevating Devices Regulation and relevant standards.

Deficiencies: An inspection may, in exceptional circumstances, proceed despite identified deficiencies. Arrangements must be made in advance with the inspector. These deficiencies must be listed below.

Limitations: The examiner is not required to pass judgement on design engineering aspects of the job covered by the engineer's statement on the design submission and the evaluation is limited to visible, physical components, features and performance of the elevating device, including parts and features of the structure covered by the standard.

Inspection: An initial inspection should be arranged no later than Thursday preceding the week in which the inspection is required. At that time, verbal assurance of the conformance and completion are required. (Exception - see Deficiencies.) When the inspector arrives he/she will not start his/her inspection until he/she receives this form, duly completed.

ED 09092 (09/04)

Distribution: White - give to TSSA Inspector Pink - Contractor's Record

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Putting Public Safety First

Elevating and Amusement Devices Safety Division	Ref. No.: 200 / 05	Rev. No.:
DIRECTOR'S ORDER	Date: September 23, 2005	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
Technical Standards and Safety Act 2000
(Elevating Devices)

Subject:
- **Alterations of Elevators, Dumbwaiters, Material Lifts (Freight Platforms), Escalators and Moving Walks per the CSA B44-04 Code**
- **Procedure for Design Submissions and Inspections**

Sent to: **ALL ELEVATOR CONTRACTORS**

1. Introduction

1.1 As of January 1, 2006 this Order [200 /05] will replace Director's Order 164/02-r1.

1.2 With Director's Order # 198 / 05 you have been notified that the new edition **CAN/CSA-B44-04, Safety Code for Elevators** will apply to each **newly installed or altered** elevating device for which the DESIGN is submitted to the Technical Standards and Safety Authority (TSSA) for registration on or after the 1st day of January 2006.

1.3 The requirements for alterations are in Section 8.7 and e8.6.12.5 of the new Code. Contractors are advised to study the Code requirements when any alteration is to be carried out.

1.4 The purpose of this Director's Order is to:
(a) re-affirm which types of upgrades are classified as alterations
(b) indicate the format of submission paperwork required, by categorizing the work as "major" or "minor A" or "minor B".

1.5 Note that this Order applies only to the elevating devices listed in the subject. Alterations to all other elevating devices shall be carried out in accordance with Elevating Devices Regulations O.Reg.209/01 and previously established procedures.

2. Order to Contractors Carrying out Alterations

Each alteration to an elevating device listed in the subject, for which the DESIGN is submitted for registration to TSSA on or after the 1st day of January 2006, shall be carried out in accordance with this Order.

3. Alterations

3.1 Definitions

The term "alteration" is defined in the Ontario Regulation 209/01 as,

(a) "Alteration" means an alteration or replacement, removal or addition of any component or part of an elevating device that results in, or may result in, a change in the original design, inherent safety or operational characteristics of the elevating device, and "altered" has a corresponding meaning; and
Alteration — [B44 definition] any change to equipment, including its parts, components, and/or subsystems, other than maintenance, repair, or replacement;

and defines the scope of work which requires a submission and subsequently a field inspection. An alteration is essentially any work performed on a previously licensed elevating device, other than the work performed during:

(b) Maintenance (see sub-section 32(3) of O.Reg 209/01)

- an inspection and examination at regular intervals of all parts and functions of the elevating device;
- cleaning, lubricating and adjusting all its parts at regular intervals and repairing or replacing worn or defective components in order to prevent the device from becoming unsafe for operation;
- repairing or replacing damaged or broken parts;
- such other examinations or work as is required by this Regulation, the applicable code or standard referred to in the code adoption document or by an inspector.

Maintenance — [B44 definition] a process of routine examination, lubrication, cleaning, and adjustment of parts, components, and/or subsystems for the purpose of ensuring performance in accordance with the applicable Code requirements.

(c) Replacement — [B44 definition which means] the substitution of a device or component and/or subsystems, in its entirety, with a unit that is basically* the same as the original for the purpose of ensuring performance in accordance with applicable Code requirements,
except that replacements specified in 3.2(c) and (d) below, constitute an alteration, and

**Note: A replaced device, subsystem, component, or part, is "basically the same as the original" if it is 'identical' or 'similar', provided that the differences have no affect on safety, original design and operational characteristics.*

(d) Repair — [B44 definition which means] reconditioning or renewal of parts, components, and/or subsystems necessary to keep equipment in compliance with applicable Code requirements.

3.2 Types of alterations

Alterations, referred to in Sections 8.7 and c8.6.12.5 of the CSA B44-04 Code are listed in the enclosed tables in column 1: B44-00 rule number and in column 2, description of the alteration. In columns 3 to 6, each alteration is classified as one of the following types of alterations:

Note: Alterations identified with ★ are TSSA designated alterations in addition to those specified in B44-04.

(a) **Alteration / Modification / Change** (column 3) includes the scope of 3.1(a) and means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment.
Note that a change of the component make or model, without any other change, may constitute an alteration under this Director's Order (see item (d) below).

(b) **Addition** (column 4) includes the scope of 3.1(a) and means addition of a new component or a design feature, e.g. addition of top-of-car operating devices.

(c) **Replacement with same** (column 5) means: The substituted device, assembly or component is basically the same as the original, and either;

(1) B44- Section c8.6.12.5 classifies the specific replacements as alterations and requires that the substituted component and/or the elevating device as a whole meets the specific requirements of the latest Code edition, or

(2) this order recognizes the replacement of the noted item as an alteration, and requires an appropriate submission, as referenced in 1.4

(d) **Replacement with different make and model** (column 6) means that the substituted device, assembly or component is basically the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model and this order recognizes the replacement of the noted item as an alteration, and requires an appropriate submission, as referenced in 1.4.

Note: In addition to the work described in 3.2 and listed in the attachments, any other work performed on an elevating device, that results in a change to the inherent safety or operational characteristics will constitute an

alteration even though there may be no change in the original design. The list in the enclosed table, is not all inclusive.

3.3 Type of Design Submission

3.3.1 Type of the required design submission is specified in columns 3 to 6 of the enclosed tables, depending on whether the alteration work is leading to the "modification/change" (column 3), or "addition" (column 4) or "replacement with same" (column 5) or "replacement with different" (column 6), of an assembly, component, unit or feature. The entries in column 3 – 6 may be one of the following:

Major	-	means Major alterations
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
Blanks (column5&6)	-	work that would not constitute an alteration
mrr	-	means the designated scope of work is permitted under the requirements related to maintenance repair and replacement
n/a	-	means TSSA has permitted an exception to a compliance requirement, however, if another alteration activity requires compliance to the exempted requirement, the exemption no longer applies
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
★	-	TSSA designated alterations

Note: The definitions for "major" and "minor" alterations ,as defined in O.Regulation 209/01 have been used. Although "Minor A" and "Minor B" are no longer defined in O.Regulation 209/01,in this Order we continue to use terms "Minor A" and "Minor B" in order to facilitate the needs of the contractors respecting the timing, scope and format of submissions and inspections.

3.3.2 Where a design submission covers alterations to more than one component or feature, which would require different types of submissions, the type of such submission will be of the "highest rank", e.g. combination of Minor B and Major will be designated as a Major alteration.

4. Requirements for Design Submissions and Inspections

4.1 Major Alteration:

4.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

4.1.2 The alteration shall be inspected by TSSA prior to returning to service.

4.2 Minor Alteration type A and B:

4.2.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 10 working days after completion of a minor alteration. However, contractors are advised to submit the documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

4.2.2 Minor A and B alterations are permitted to be returned to service after work completion, however the contractor who completed the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration, and shall arrange for performance of tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.

4.3 Signatures

4.3.1 According to subsection 15(6) of O.Reg 209/01 the design submission for any Major or Minor A alteration shall bear the **signature and seal of the professional engineer** who prepared or approved the design submission based on subsection 15(9) of O.Reg 209/01. Electronically imaged / transmitted documents, which bear the **signature and seal of the professional engineer** are deemed acceptable.

4.3.2 In the case of Minor B alterations, an officer or director of the Company applying for registration may sign the design submission documents or the Notification, if the officer or director is a mechanic. Minor B's which are electronically transmitted shall be deemed acceptable provided that the signature box of the Minor B Notification form contains the name, designation and mechanic license number of a registered and licensed mechanic who supervised and is competent to oversee the scope of the minor B alteration. Example: Signature: John Smith, EDM-A, 00999999

4.4 Specification Forms

4.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries which are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as rope factor of safety (elec.) or cylinder column strength (hyd.)
- Sufficient details are to be provided to show compliance verification.

4.4.2 Items which are not affected by the alterations should be noted with either:

- **N/C** or **No Change** or
- The original entry followed by **Existing** (Example Car Wt.: 1812 kg - Existing)

4.4.3 Where a "major alteration" and "minor alteration" affects only a very few items, the abridged form may be used instead of the full specification form provided clarity is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry valves. (Example: 34. Rated Working Pressure: 3445 kPa

4.4.4 Some predefined templates exist for Minor B type alterations and are available from the web site. These templates shall be utilized where appropriate to ensure all relevant entries are completed and included in the submission. Multiple Minor B notification templates may be utilized to fully cover the scope of work and only one Minor B fee shall apply.

4.5 Alteration Checklist

4.5.1 The design submission for a Major or Minor A alteration must include an Alteration Checklist to assist in demonstrating compliance with Section 8.7 and must clearly specify the following:

(a) The B44-04 alteration Rule(s) applicable to the performed alteration(s) as in Column 1 of the table;
(b) The description of the alteration(s) in Column 2,
(c) List of all B44-04 design or other rules, which according to the alteration rule in (a) must be complied with, when the alteration in (b) is performed (see examples below), and
(d) Confirmation by the person who compiled the submission, that all design and other rules in (c) are complied with. (Mark with 'X' those items – see below)

Notes:

(i) An alteration checklist is not required for Minor B Notifications.

(ii) Tip: Sections of the alteration checklist, which are not included in the scope of the alteration work, should be hidden (using the row-hide feature in excel) prior to printing the checklist, in order to reduce the number of printed pages accompanying a submission.

Example: An alteration is being completed which includes interlock replacement. An exemption is permitted to the requirements of: a) car door restrictor b) unlocking devices and c) relocation of hoistway access switch, provided no other part of the alteration has a scope which requires conformance to 2.12 or 2.12.5 thru 2.12.7.

Conforms to B44 Mark with 'X'	1 B44-04 Reference Number	2a	2b Alteration Checklist for Director's Order 200 / 05 Scope of Alteration - B44 - 2004 Part, Section or Requirement	3 Type of Work: Alteration – Modification Change	4 Type of Work: Alteration – Addition	5 Type of Work: Replacement with – Basically Same	6 Type of Work: Replacement with – Different Make/Model
	Job Reference:			Submission Type Required			
	8.7.2		**Alterations to Electric Elevators**				
	8.7.2.11		Hoistway Door-Locking Devices, Access Switches & Parking Devices	⇩ See Below ⇩			
X	8.7.2.11.1		Interlocks	Major	Major	mrr	Minor B
x		2.12.1	General				
x		2.12.2	Interlocks				
x		2.12.4	Listing/Certification Locking Devices				
-		2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
-		2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
-		2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
x		2.24.8.3	Driving Machine Brake				

Example: A controller is to be replaced with a new controller & Alteration Rule 8.7.2.27.4 applies. Submitter verifies compliance to the MAIN Alteration Requirement (ie 8.7.2.27.4) and also identifies the individual items that the altered device will meet.

Conforms to B44 Mark with 'X'	1 B44-04 Reference Number	2a	2b Alteration Checklist for Director's Order 200 / 05 Scope of Alteration - B44 - 2004 Part, Section or Requirement	3 Type of Work: Alteration – Modification Change	4 Type of Work: Alteration – Addition	5 Type of Work: Replacement with – Basically Same	6 Type of Work: Replacement with – Different Make/Model
	Job Reference:			Submission Type Required			
	8.7.2		**Alterations to Electric Elevators**				
	8.7.2.27		Operating Devices and Control Equipment	⇩ See Below ⇩			
X	8.7.2.27.4		Controllers				
x	8.7.2.27.4(a)	Alteration to	Elevator Controller (as part of an alteration)	Major	-	see **c8.6.12.5.3.1**	
x		2.25.	Terminal Stopping Devices				
x		2.26.1.4	Inspection Operation				
x		2.26.1.5	Inspection Operation with Open Door Circuits				
x		2.26.4	Electrical Equipment and Wiring				
x		2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
x		2.26.6	Phase Protection of Motors				
x		2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
x		2.26.8	Release and Application of Driving-Machine Brakes				
x		2.26.9	Control & Operating Circuits				
		2.27.2	Emergency or Standby Power systems				
x		2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
		2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
		2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
		2.27.6	Firefighters' Emergency Operation - Inspection Operation				
		2.27.7	Firefighters' Emergency Operation - Operating Procedures				
x		2.27.8	Switch Keys				

Note: To assist our clients in completing the alteration checklist, TSSA will post on its Website (**www.tssa.org**) a fillable version of the Alteration Checklist in excel format (ED-200-05-xls.xls). The submitter should be able to utilize the tables to create a list of Rules required in 4.5.1(c) and as shown in the example.

4.5.2 The **8.7.x.x.x requirement numbers, which are** marked with 'X' in the Alterations Checklist, and which are shown in **BOLD** font, are **those items that are expected to be shown on the Code Data Plate**. From the examples above, **8.7.2.11.1** & **8.7.2.27.4** would be listed on the code data plate.

4.5.3 A 28-page Alteration checklist accompanies this order.

Roland Hadaller, Director, TSS Act 2000, [Elevating Devices]

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 203 / 06	Rev. No.:
Information / Interpretation Bulletin	Date: March 1, 2006	Date:

Subject: Use of Shopping Carts on Moving Walks
Sent to: Posted to TSSA Website, mailed to all elevating device contractors and consultants.

This bulletin is to provide direction to manufacturers, contractors and owners about the use of wheeled devices on horizontal and inclined moving walks.

Inclined Moving Walks (Slope >3º)

Shopping carts, strollers etc. will not be allowed on new inclined moving walk installations.

For inclined moving walk installations currently sold and reported to TSSA, where the owner intends to carry shopping carts, a variance request shall be forwarded to TSSA for consideration. See Hazard Mitigation.

For existing installations, TSSA will continue to work with owners and operators of existing inclined moving walk installations to address safety issues.

Horizontal Moving Walks

TSSA will not prohibit the use of wheeled devices on new horizontal moving walk installations with an incline of 3º or less, however a variance will be required to address safety issues, see Hazard Mitigation.

Hazard Mitigation

Per the requirements above, a variance may be granted, subject to conditions, to allow the use of wheeled devices, such as shopping carts or luggage carts, if the variance would not detrimentally affect the safe use of the moving walk or the health and safety of any person.

If a variance request is anticipated, TSSA will require the moving walk manufacturer, the cart manufacturer and the owner to work cooperatively to assess and mitigate the hazards.
Submission of the variance request shall be the responsibility of the owner.
The variance request shall include the moving walk manufacturer's assessment of the design suitability in relation to the use of the proposed wheeled device.
The variance must also address the owner's duties and responsibilities relating to patron usage and the ongoing maintenance of both the moving walk and the wheeled devices.

The variance application shall also include an assessment of all risks associated with the intended wheeled devices and propose mitigation strategies, including, but limited to, wheeled device stability, wheeled device size to tread width, wheel locks, and the wheeled device's ability to effectively disembark over the combplate.

These requirements apply to **new horizontal moving walk installations and both horizontal and inclined moving walk installations which are in progress.**
Note: Wheeled luggage is permissible on both horizontal and inclined moving walks and is exempt.

Moving Walk Signage

Initially, the hazards associated with wheeled devices on escalators were identified.

With the release of Canadian Standards Association, B44-00 *Safety Code for Elevators* (B44-00), the hazards associated with passenger use of wheeled devices on Moving Walks has been recognized in the code.

To mitigate these hazards, the B44-00 specified signage requirements and required the familiar "Passengers Only" caution to be affixed to Moving Walks.
The pictograph also included an additional universal graphic symbol prohibiting the use of "wheeled devices".

Since the release of the B44-00, the signage requirement for escalators has been extended to Moving Walks. See B44-00 and B44-04 requirement 6.2.6.8.1 for moving walks and 6.1.6.9.1 for escalators. Accordingly, all moving walks must display the required signage.

Roland Hadaller, P. Eng.,
Engineering Manager, EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 204 / 06	Rev. No.:
DIRECTOR'S ORDER	Date: January 20, 2006	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16
- and -
ONTARIO REGULATION 209/01
(Elevating Devices)

Subject: Adoption of ASME A17.1S-2005 Supplement to ASME A17.1-2004 Safety Code for Elevators Applicable ONLY to Machine-Room-Less Elevator Designs
Sent to: All Elevating Device Contractors

Pursuant to subsection 36.(3)(a) of the *Technical Standards and Safety Act, 2000*, the Director, subject to the conditions herein, authorizes and requires compliance with the *ASME A17.1S-2005 Supplement to the ASME A17.1-2004 Safety Code for Elevators.*

1. Application

1.1 Effective immediately, this Order shall apply to every **newly installed or altered machine-room-less elevator,** submitted to the Technical Standards and Safety Authority for registration.

2. Definition

2.1 **"machine-room-less elevator"** means any design or construction of elevator equipment configured so as to not utilize a traditional machine room.

3. Requirements for Compliance

3.1 Effective immediately, every newly installed or altered machine-room-less elevator, submitted to TSSA for registration, shall comply with the *ASME A17.1S-2005 Supplement to ASME A17.1-2004 Safety Code for Elevators*.

3.2 Notwithstanding section 3.1, the following exceptions shall apply:

a) Conformance with Addendum 'A' to the *A17.1-2004* is optional, and

b) exceptions to *A17.1-2004*, as printed in *B44-04* and prefaced with a lower-case "c", are adopted, except that, the requirements contained in section c.2.1.3.1.2 (b)(1) of the B44-04, are replaced by the requirements contained in section 2.7.6.3.4 of *A17.1S-2005*.

3.3 Every design submission for a machine-room-less elevator shall, in item 192 of the specification sheet or in a separate affidavit, indicate compliance with the *A17.1S-2005*.

Roland Hadaller, P.Eng.,
Director, appointed under the *Technical Standards and Safety Act, 2000.*

1. Background

Due to changes in technology and increased innovation, there has been a large increase in the number of machine-room-less elevator designs in the market place.

To address this issue the ASME A17 Standards Committee initiated a safety study, which ultimately resulted in the publication of, the ***ASME A17.1S-2005 Supplement to ASME A17.1-2004 Safety Code for Elevators*.**

Prior to the release of the ***ASME A17.1S-2005***, machine-room-less elevator designs were reviewed by the TSSA and assessed for compliance against this draft standard. The official release of the ***ASME A17.1S-2005*** has prompted TSSA to issue this adoption Order to formally authorize and require compliance with the *A17.1S-2005* for newly installed or altered machine-room-less elevators.

When the Canadian Standards Association releases the *CSA-B44* version of *A17.1S-2005*, TSSA will publish an amended code adoption document.

Copies of the A17.1S-2005 can be obtained from ASME.
Contact AMSE on the Web at www.asme.org/codes/
Or Contact Customer Service at:
E-mail: infocentral@asme.org
Phone: 1-800-843-2763

This Order has been developed in consultation with the Elevating Devices Advisory Council

Elevating and Amusement Devices Safety Division	Ref. No.: 206 / 07	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: January 11, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the *Technical Standards and Safety Act* 2000

Subject: Retrofit Order applicable to the O'Thompson Series 90 - Vector Controller with Hoistway Access Operation

Sent to: All Elevator Contractors

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 31 and 27 of the *Technical Standards & Safety Act* 2000 hereby orders the following:

1 Background

1.1. TSSA was made aware of an incident involving the O'Thompson Series 90 - Vector Controller during Hoistway Access Operation. The Access Key Switch located at the 2nd landing would bypass both 1st and 2nd floor hall door interlocks when actuated up or down. A field wiring error was responsible for the incident.

1.2. Upon further investigation a lack of redundancy in the hoistway access circuit (relays BAD, BAU, TAD, or TAU) used to bypass the car door contact and the hall door interlock was discovered. Single failure of any of these relays would unconditionally bypass the car door contact, one hall door interlock contact, and bypass the auxiliary car door open indication circuit.

2 Order to Contractors

2.1 If you maintain elevators with O'Thompson Series 90 – Vector Controller with hoistway access operation you must follow the procedure listed in Schindler Elevator Corporation's June 7, 2006 **Field Engineering Letter No. 49** (attached) to complete the upgrade. A record indicating that the upgrade has been completed must be entered in the log book.

2.1.1 Add a new relay **ACCX** (force guided contacts) as per attached electrical drawings (Sheets 4, 5, 6, 6A). Normally open contacts from ACCX will be used as redundant contacts to ACC, TAD, TAU, BAD, and BAU. A normally closed contact of ACCX inserted in the safety circuit will be used to monitor ACCX relay.

2.1.2 Check the complete operation of the hoistway access circuitry and verify the landing door interlocks field wiring before returning the elevator to automatic operation

2.1.3 After completing the requirements of this safety alert put a note in the log book indicating: Serviced per DR 206/07, and include the date, mechanic's printed name, signature and certificate number.

2.1.4 A permanent label shall be affixed to the controller's enclosure to indicate that the controller has been retrofitted per DR 206/07.

2.1.5 When carrying out the yearly maintenance, the contractor shall ensure that TAU, TAD, BAU, and BAD relays are in good operating condition.

2.2 If the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the owner to complete the work, you shall inform this office immediately, indicating the elevator installation numbers so we may issue an order to the owner to have the work completed.

2.3 This Safety Order is effective immediately.

2.4 Contractors undertaking the required control upgrade shall submit a Minor B Notification indicating;

- Retrofit of O'Thompson Series 90 - Vector Controller with Hoistway Access Operation per Director's Safety Order 206/07

2.5 This work shall be completed not later than June 30, 2007.

Note: Section 37 of the Act provides that "every person who fails to comply with an order; is guilty of an offence and on conviction is liable to a fine of not more than $50,000 or to imprisonment for a term of not more than one year, or to both, or, if the person is a body corporate, to a fine of not more than $1,000,000". 2000, c. 16, s.37 (1).

_____

Roland Hadaller Director, TSS Act 2000, (Elevating Devices)

Schindler Elevator Corporation

Schindler

FIELD ENGINEERING LETTER NO. 49

Retrofit of O'Thompson Series 90 Controller with Hoistway Access Operation

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TSSA has brought to our attention that failure of Hoistway access relay(s) may allow an elevator to potentially operate in an unsafe manner.

The problem should be rectified by the addition of a new force guided relay ACCX to create redundancy for access relays BAU, TAU, BAD, TAD and ACC.

We request therefore that circuits in O'Thompson Series 90 controllers having Hoistway Access operation be modified as per the attached procedure.

Aziz Rehman, P. Eng.
Engineering Manager

June 7, 2006

40 Cowdray Court
Scarborough, Ontario
Canada, M1S 1A1

Tel: (416) 332-5280
Fax: (416) 332-8276
www.ca.schindler.com

ISO 9001:2000 CERTIFIED

Procedure

Add a new force guided relay ACCX as per attached drawings (Sheets 4, 5, 6, & 6A).

The new force guided relay ACCX will be energized when in-car operation is activated.

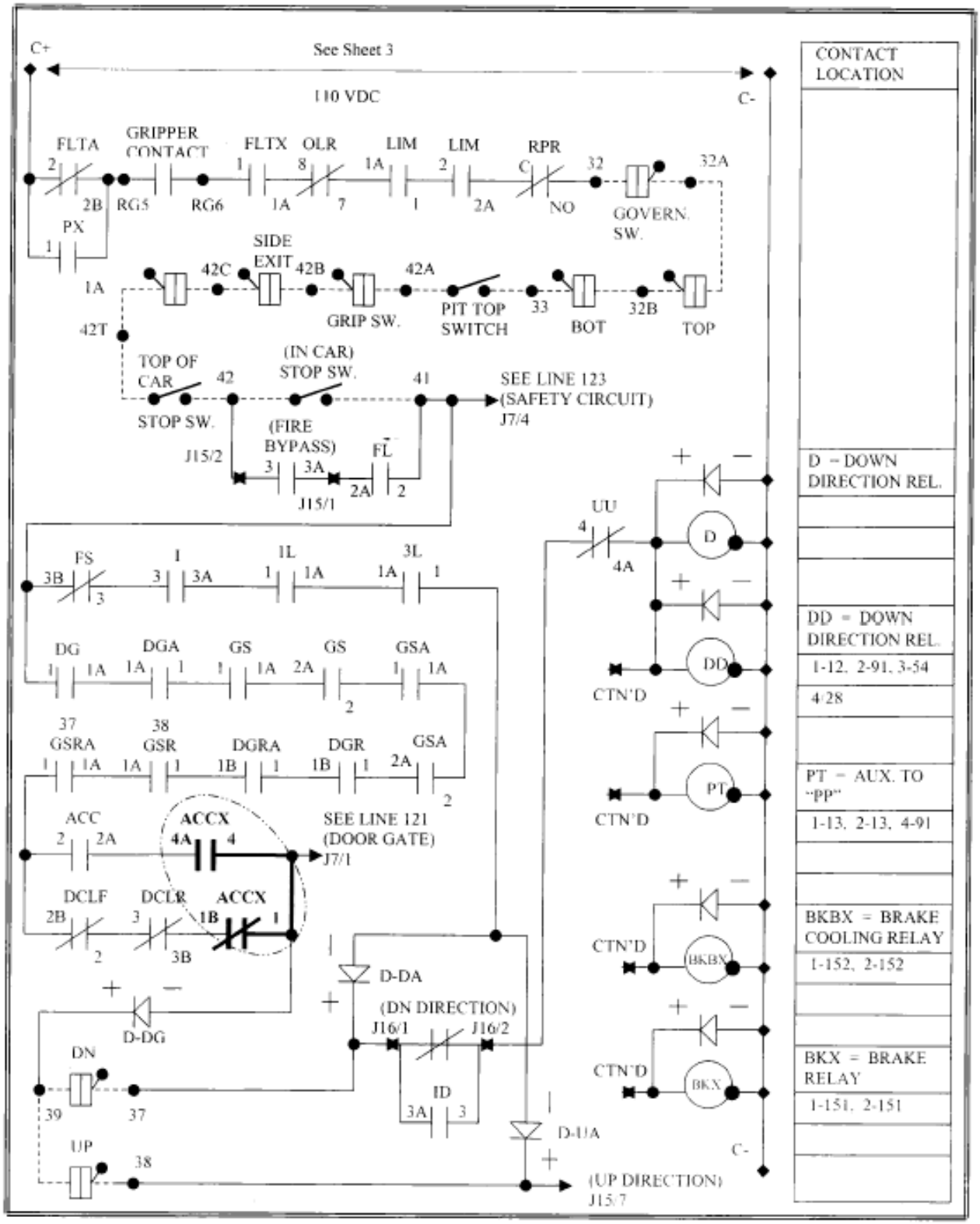
Normally open contacts from ACCX will be used to provide redundancy in the circuits controlling the access relay ACC, the door relay DG and gate relay GS, as well as the bypass of the door lock contacts connected in the safety circuit.

ACCX relay will also be monitored through one normally closed contact inserted in the safety circuit that will open, in the event of relay ACCX failure, to prevent the car from running.

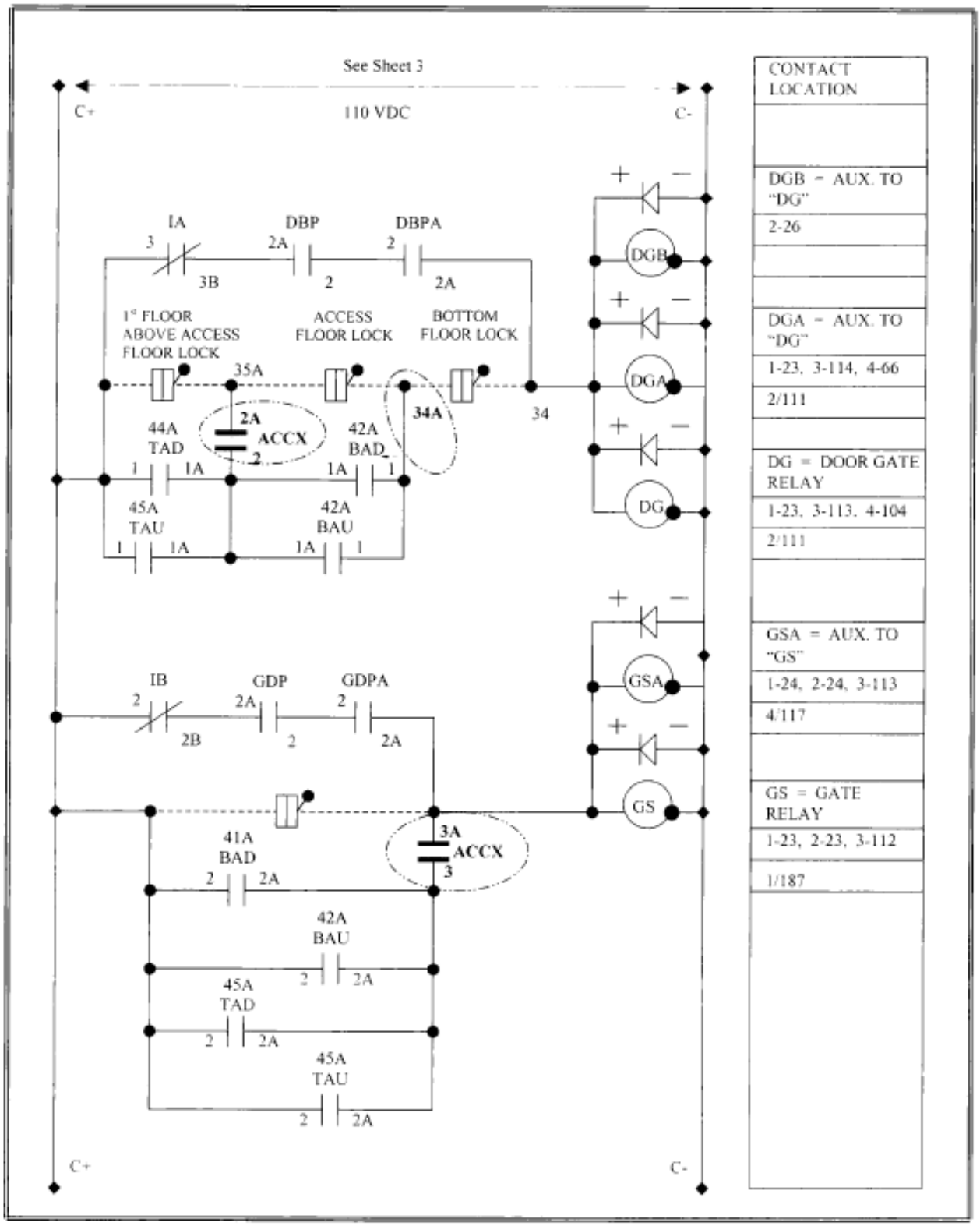
After the control changes have been made in accordance with the instructions, check the complete operation of the hoistway access system before returning the elevator to automatic operation.

40 Cowdrey Court
Scarborough, Ontario
Canada, M1S 1A1

Tel: (416) 332-8280
Fax: (416) 332-8276
www.ca.schindler.com



O'Thompson Co. Controller Type: Series 90-Vector	Sheet: 4



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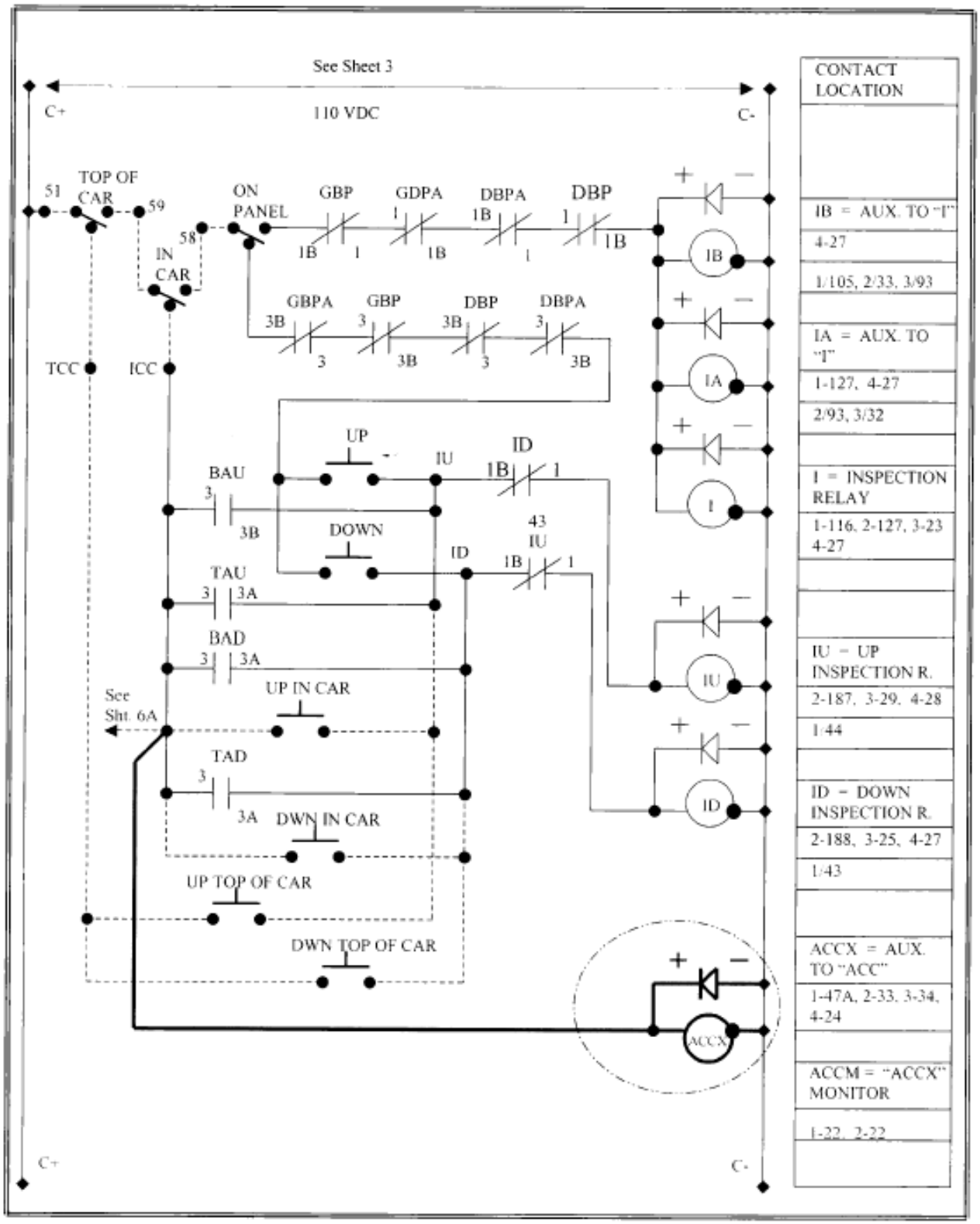
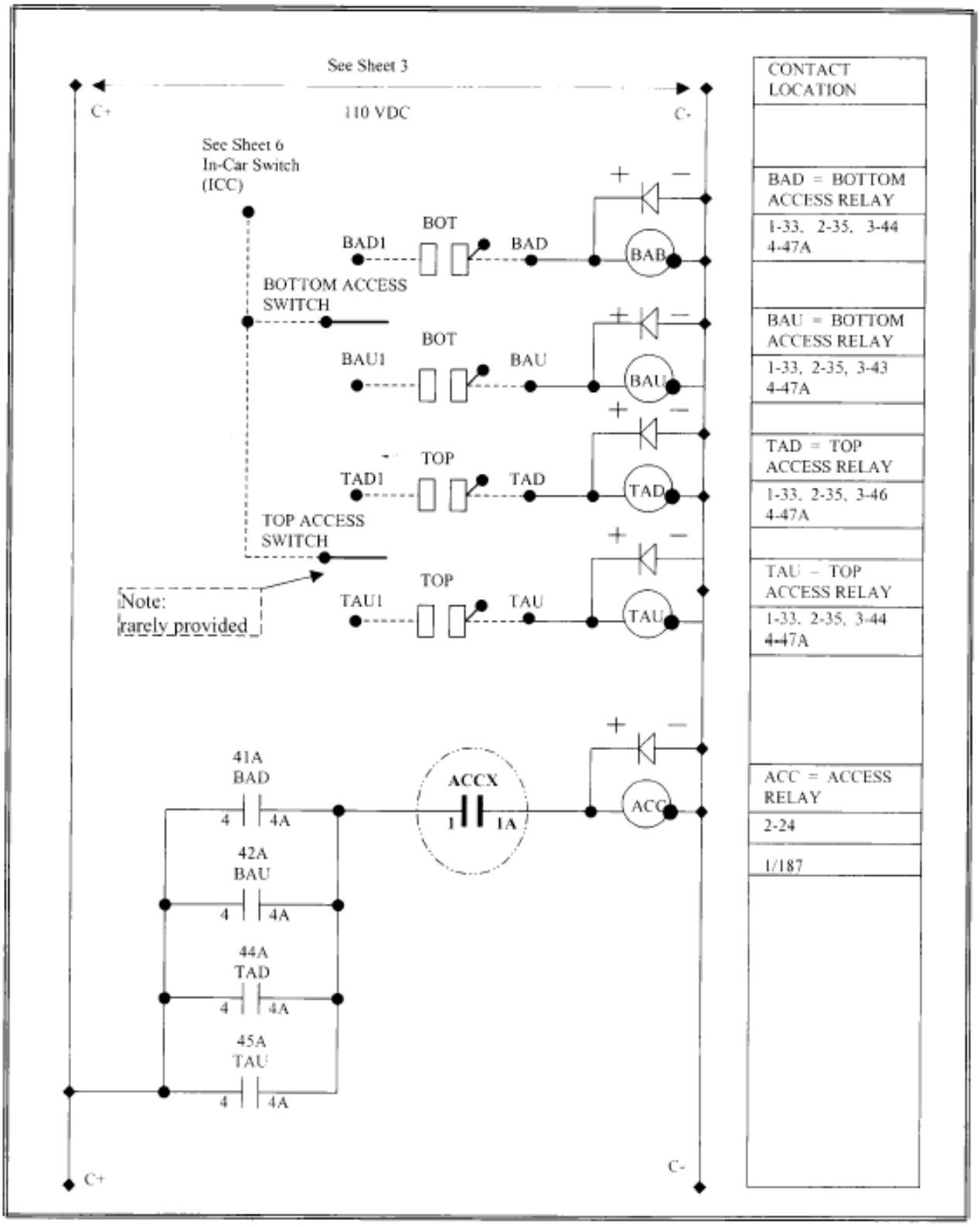
Controller Type: Series 90-Vector	



O'Thompson Co. Controller Type: Series 90-Vector	Sheet: 6



O'Thompson Co. Controller Type: Series 90-Vector	Sheet: 6A

Elevating and Amusement Devices Safety Division	Ref. No.: 207 / 06	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: July 27, 2006	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act, 2000* (Elevating Devices)

Subject: Replacement / Retrofit Order applicable to the ThyssenKrupp Emergency Braking Device known as the Traction Sheave Brake or Sheave Jammer

Sent to: All Elevating Device Contractors, Consultants, Owners and Mechanics

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 27 of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. ORDER

1.1. All elevating devices that incorporate a ThyssenKrupp Northern Elevator Traction Sheave Brake, known as the "Sheave Jammer" (manufactured by ThyssenKrupp Northern Elevator), **shall be replaced or retrofitted** with a device that meets the requirements specified by:

1.1.1. **2.19 - Ascending Car Overspeed Protection and Unintended Car Movement Protection** as specified in B44-00, for elevators which were designed and installed to the B44-00 code,

OR

1.1.2. **3.13.3 & 3.16.4 - Ascending Car Overspeed Protection and Car Uncontrolled Low Speed Protection (as applicable*)** as specified in B44-M90 through B44 – 94, for elevators which were designed and installed to the B44-M90 through B44 – 94 code.

Note: Some elevators were installed with Ascending Car Overspeed Protection only (for historical records refer to DR 68/88 and DR 78/90). For these installations, contractors shall replace or retrofit the sheave jammer with a device capable of providing Ascending Car Overspeed Protection, and may equip the installation with means to provide Uncontrolled Low Speed protection.* ***The required detection means is permitted to meet the applicable code at the time of the original sheave jammer installation.*

2. INSTRUCTIONS

2.1. **No later than August 1st, 2007,** contractors shall replace or retrofit the sheave jammer with a device capable of meeting the requirements in section 1.1 above.

2.2. This work shall be submitted to TSSA as a **Minor A Alteration**. The design submission shall be submitted for registration not later than 10 working days after completion of the minor alteration. The submission package shall include the following:

(a) The prescribed maintenance frequency of the new device,
(b) The prescribed maintenance procedures of the new device,
(c) The required testing frequency,
(d) A detailed testing procedure, to be followed at the interval specified in 2.2.(c),
Note: Testing procedures shall simulate dynamic conditions and shall reflect the failure(s) these devices are intended to protect.
(e) If the device has been relocated, include mounting and fastening details for the new device.
(f) Electrical schematics, as required, and
(g) The correct set-up, alignment, gaps and tolerance notes.
Note: In accordance with the alteration guidelines set forth in Director's Order 200/05, the proposed scope of work is a Minor A Alteration, and the detection means for **Ascending Car Overspeed** and **Unintended Car Movement** is permitted to conform to the applicable code at the time of the installation.

2.3. Contactors completing this work are permitted to return the elevating device back into service only after the following requirements have been complied with:
(a) The testing of the Ascending Car Overspeed **(ACO)** protection device, and the Unintended Car Movement protection device (or uncontrolled low speed protection device) **(UCM)**** confirm compliance with the applicable requirements of 1.1.1 or 1.1.2, when tested in accordance to the procedures provided in 2.2(d) above, and
(b) The log book contains an entry indicating **ACO** and **UCM**** protection have been successfully tested, including the date, name, signature and TSSA certificate number of the mechanic.
*** Note: Not applicable if the original installation did not include UCM protection, however compliance is required if UCM had been added subsequently, or added in response to this Order.*

2.4. The contractor who completes the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration. The contractor shall also conduct a performance test in the presence of the inspector. The registered design submission shall be available at the time of the special inspection.

2.5. Until the requirements of this Order are complied with, elevating devices shall continue to be subject to the requirements of Director's Safety Order 192/05, latest revision.

2.6. **It shall be the responsibility of the owner and contractor to remove every elevating device (which they own or maintain) from service that does not comply with this Order by August 1st, 2007.**

_____
Roland Hadaller, P.Eng,
Director, appointed under the *Technical Standards and Safety Act, 2000*, (Elevating Devices)

3. BACKGROUND

In support of the manufacturer's recommendations (see letter attached) & findings, and as a result of reported incidents & UCM tests witnessed by TSSA, there is unified concern and obvious reliability issues related to the emergency braking device known as the "Sheave Jammer" (manufactured by ThyssenKrupp Northern Elevator).
Following investigations and site evaluations, it has been determined that the original production model of the sheave jammer cannot be relied upon to function properly and protect against unintended car movement. In conjunction with the manufacturer's findings & recommendations and further evaluation by the TSSA, TSSA is requiring a replacement or retrofit of the sheave jammer with a device that meets the applicable requirements set forth in the Elevator Safety Code, B44.

This Order has been developed in consultation with the Elevating Devices Advisory Council.

ThyssenKrupp

May 17, 2006

Mr. Roland Hadaller
Vice President, Engineering
Technical Standards and Safety Authority
3300 Bloor Street West
14th Floor, Centre Tower
Toronto, ON M8X 2X4

Dear Mr. Hadaller,

This letter is in follow-up to discussions between ThyssenKrupp Elevator and the Technical Standards and Safety Authority regarding sheave jammers.

It is in our view, as the original equipment manufacturer, this model of up-directional safety should be either retrofitted or replaced as soon as possible.

If retrofitted, ThyssenKrupp Elevator can only sanction a retrofit kit as passed and accepted by our Engineers as well as conformance to Technical Standards and Safety Authority requirements.

Sincerely,

Kevin Lavallee

Kevin Lavallee
President and C.E.O.
ThyssenKrupp Elevator (Canada) Limited

Cc: Joe Kerr, ThyssenKrupp Elevator
Mahyar Pedram, ThyssenKrupp Northern Elevator

Elevating and Amusement Devices Safety Division	Ref. No.: 207 / 06	Rev. No.: 1
DIRECTOR'S SAFETY ORDER	Date: July 27, 2006	Date: Dec 5, 2006

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act, 2000* (Elevating Devices)

Subject: Replacement Order applicable to the ThyssenKrupp Emergency Braking Device known as the Traction Sheave Brake or Sheave Jammer

Sent to: All Elevating Device Contractors, Consultants, and Mechanics

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 27 of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. ORDER

1.1. All elevating devices that incorporate a ThyssenKrupp Northern Elevator Traction Sheave Brake, known as the "Sheave Jammer" (manufactured by ThyssenKrupp Northern Elevator), **shall be replaced** with a device that meets the requirements specified by:

1.1.1. **2.19 - Ascending Car Overspeed Protection and Unintended Car Movement Protection** as specified in B44-00, for elevators which were designed and installed to the B44-00 code,

OR

1.1.2. **3.13.3 & 3.16.4 - Ascending Car Overspeed Protection and Car Uncontrolled Low Speed Protection (as applicable*)** as specified in B44-M90 through B44 – 94, for elevators which were designed and installed to the B44- M90 through B44 – 94 code.

Note: Some elevators were installed with Ascending Car Overspeed Protection only (for historical records refer to DR 68/88 and DR 78/90). For these installations, contractors shall replace the sheave jammer with a device capable of providing Ascending Car Overspeed Protection, and may equip the installation with means to provide Uncontrolled Low Speed protection.* ***The required detection means is permitted to meet the applicable code at the time of the original sheave jammer installation.*

2. INSTRUCTIONS

2.1. **No later than August 1st, 2007,** contractors shall replace the sheave jammer with a device capable of meeting the requirements in section 1.1 above.

2.2. This work shall be submitted to TSSA as a **Minor A Alteration**. The design submission shall be submitted for registration not later than 10 working days after completion of the minor alteration. The submission package shall include the following:

(a) The prescribed maintenance frequency of the new device,7
(b) The prescribed maintenance procedures of the new device,
(c) The required testing frequency, if other than required by B44,
(d) A detailed testing procedure, to be followed at the interval specified in 2.2.(c),
    Note: Testing procedures shall simulate dynamic conditions as required in B44, and shall reflect the failure(s) these devices are intended to protect.
    i. ACO tests can be performed at rated speed in the up direction
    ii. UCM (up direction) shall be tested with no load
    iii. UCM (down direction) shall be tested with 125% rated load
(e) Include mounting and fastening details for the new device.
(f) Electrical schematics, as required, and
(g) The correct set-up, alignment, gaps and tolerance notes.

Note: In accordance with the alteration guidelines set forth in Director's Order 200/05, the proposed scope of work is a Minor A Alteration, and the detection means for **Ascending Car Overspeed** and **Unintended Car Movement** is permitted to conform to the applicable code at the time of the installation.

2.3. Contactors completing this work are permitted to return the elevating device back into service only after the following requirements have been complied with:
(a) The testing of the Ascending Car Overspeed **(ACO)** protection device, and the Unintended Car Movement protection device (or uncontrolled low speed protection device) **(UCM)**** confirm compliance with the applicable requirements of 1.1.1 or 1.1.2, when tested in accordance to the procedures provided in 2.2(d) above, and
(b) The log book contains an entry indicating **ACO** and **UCM**** protection have been successfully tested, including the date, name, signature and TSSA certificate number of the mechanic.
** *Note: Not applicable if the original installation did not include UCM protection, however compliance is required if UCM had been added subsequently, or added in response to this Order.*

2.4. The contractor who completes the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration. The contractor shall also conduct a performance test in the presence of the inspector. The performance test shall consist of the test and procedure specified in 2.2(d)ii. [unintended car movement – up direction with no load]. The registered design submission shall be available at the time of the special inspection.

2.5. Until the requirements of this Order are complied with, elevating devices shall continue to be subject to the requirements of Director's Safety Order 192/05, latest revision.

2.6. **It shall be the responsibility of the owner and contractor to remove every elevating device (which they own or maintain) from service that does not comply with this Order by August 1st, 2007.**

_____
Roland Hadaller, P.Eng,
Director, appointed under the *Technical Standards and Safety Act, 2000*, (Elevating Devices)

3. BACKGROUND

In support of the manufacturer's recommendations (see letter attached) & findings, and as a result of reported incidents & UCM tests witnessed by TSSA, there is unified concern and obvious reliability issues related to the emergency braking device known as the "Sheave Jammer" (manufactured by ThyssenKrupp Northern Elevator).

Following investigations and site evaluations, it has been determined that the original production model of the sheave jammer cannot be relied upon to function properly and protect against unintended car movement. In conjunction with the manufacturer's findings & recommendations, and further evaluation by the TSSA, TSSA is requiring a replacement of the sheave jammer with a device that meets the applicable requirements set forth in the Elevator Safety Code, B44.

The option to retrofit existing sheave jammers as previously referenced in revision '0' of this order, is no longer a permissible option. Subsequent testing of proposed sheave jammer retrofit kits have failed to demonstrate reliability & repeatability of B44 specified outcomes. Testing also confirms that even with high levels of set-up and maintenance, outcomes remain unpredictable.

Contractors are reminded that the **effective date for compliance has not changed** despite the removal of a retrofit option. Contractors are also advised to remind owners of their joint responsibility to comply with the requirements of 2.6 of this order.

ThyssenKrupp

May 17, 2006

Mr. Roland Hadaller
Vice President, Engineering
Technical Standards and Safety Authority
3300 Bloor Street West
14th Floor, Centre Tower
Toronto, ON M8X 2X4

Dear Mr. Hadaller,

This letter is in follow-up to discussions between ThyssenKrupp Elevator and the Technical Standards and Safety Authority regarding sheave jammers.

It is in our view, as the original equipment manufacturer, this model of up-directional safety should be either retrofitted or replaced as soon as possible.

If retrofitted, ThyssenKrupp Elevator can only sanction a retrofit kit as passed and accepted by our Engineers as well as conformance to Technical Standards and Safety Authority requirements.

Sincerely,

Kevin Lavallee

Kevin Lavallee
President and C.E.O.
ThyssenKrupp Elevator (Canada) Limited

Cc: Joe Kerr, ThyssenKrupp Elevator
Mahyar Pedram, ThyssenKrupp Northern Elevator

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 208 / 06	Rev. No.:
Information / Interpretation Bulletin	Date: July 27, 2006	Date:

Subject: Examination and test of free-fall, overspeed, and uncontrolled low-speed protection devices

Sent to: All elevating device contractors, consultants and mechanics

1.0 Introduction

This bulletin is intended to remind all contractors and maintenance personnel, of their obligations under the provisions of set forth in B44 and/or the Elevating Devices regulation 209/01. When performing annual testing of Ascending Car Overspeed (ACO) protection devices and Unintended Car Movement (UCM) protection devices, maintaining Contractors are reminded that:

(a) The examination and testing of ACO and UCM shall be completed annually.

- *unless the manufacturer specifies more frequent examination & tests*
- *see Director's Safety Order 192/05 for other testing frequency requirements for ThyssenKrupp "sheave jammer"*

(b) All maintenance and testing activities shall be recorded in a maintenance logbook.

(c) Compliance with the applicable requirements of section 2.19 of B44, can only be demonstrated through dynamic testing of the protective device (while the elevator is in motion), and when subject to a fault which represents a realistic failure, the device is designed to protect against.

(d) The failure of an ACO or UCM device during maintenance testing is a reportable incident.

This bulletin is being issued, over concerns that examinations, dynamic tests, log entries and incident reporting are not being performed as required.

2.0 Instructions for Field Staff

(a) Maintaining contractors shall provide their field staff with procedures to accurately test, maintain and verify the effectiveness of the protective equipment.

(b) Field staff shall be advised that activating the protective device on stationary equipment does not comply with the annual test requirements of B44 section J.2.11.2.

(c) Assistance from the driving machine brake during ACO and UCM device testing is not permitted.

3.0 Applicable Requirements from B44

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J.2.11 Examination and test of free-fall, overspeed, and uncontrolled low-speed protection devices

J.2.11.1 Examination

All parts relating to free-fall, overspeed, and uncontrolled low-speed protection devices shall be examined annually, following manufacturer's recommendations, to determine if they are in safe operating condition.

J.2.11.2 Inspections and tests

Inspections and tests, as required in 8.10.2.2.2(cc), shall be carried out annually, except that full-load tests shall not be required.

8.10.2.2.2 Machine room

(cc) Ascending Car Overspeed, and Unintended Car Motion Protection

(1) *Ascending Car Overspeed Protection*. The means to prevent ascending car overspeed shall be inspected and tested with no load in the car to verify conformance with 2.19.1.2.

(2) *Unintended Car Motion*. The means to prevent unintended car motion shall be inspected and tested to verify conformance with 2.19.2.2.

c8.6.12.2.5 Log book

A log pertaining to all maintenance activities specified in c8.6.12 (see also Appendix J) shall be maintained on site at all times by the maintenance contractor. The log shall contain, as a minimum, but not be limited to, detailed records of all tests, inspections, and other maintenance duties referred to in this Section that have been performed in the previous five years (see c8.6.12.4.1.1). For records kept in an electronic format, a hard copy shall be placed in the job site log within a maximum of three months of the initial recording.

c8.11.2.2.10 Ascending car overspeed protection and unintended car motion devices

(a) Examinations. All working parts of ascending car overspeed protection and unintended car motion devices shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 2.19.1.2(a) and 2.19.2.2(a).

(b) Tests. These devices shall be subjected to tests with no load in the car at the slowest operating speed* in the up direction.

* TSSA interprets this as being the elevators rated speed. There is no need to overspeed the car to perform the test.

Rob Kremer, P. Eng.,
Technical Leader, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 208 / 06	Rev. No.: 1
Information / Interpretation Bulletin	Date: July 27, 2006	Date: May 31, 2007

Subject: Examination and test of free-fall, overspeed, and uncontrolled low-speed protection devices

Sent to: All elevating device contractors, consultants and mechanics

1.0 Introduction

This bulletin is intended to remind all contractors and maintenance personnel, of their obligations under the provisions of set forth in B44 and/or the Elevating Devices regulation 209/01. When performing annual testing of Ascending Car Overspeed (ACO) protection devices and Unintended Car Movement (UCM) protection devices, maintaining Contractors are reminded that:

(a) The examination and testing of ACO and UCM shall be completed annually.

- *unless the manufacturer specifies more frequent examination & tests*
- *see Director's Safety Order 192/05 for other testing frequency requirements for ThyssenKrupp "sheave jammer"*

(b) All maintenance and testing activities shall be recorded in a maintenance logbook.

(c) Compliance with the applicable requirements of section 2.19 of B44, can only be demonstrated through dynamic testing of the protective device (while the elevator is in motion), and when subject to a fault which represents a realistic failure, the device is designed to protect against.

(d) The failure of an ACO or UCM device during maintenance testing is a reportable incident.

This bulletin is being issued, over concerns that examinations, dynamic tests, log entries and incident reporting are not being performed as required.

2.0 Instructions for Field Staff

(a) Maintaining contractors shall provide their field staff with procedures to accurately test, maintain and verify the effectiveness of the protective equipment.

(b) Field staff shall be advised that activating the protective device on stationary equipment does not comply with the annual test requirements of B44 section J.2.11.2.

(c) Assistance from the driving machine brake during ACO and UCM device testing is not permitted.

3.0 Applicable Requirements from B44

J.2.11 Examination and test of free-fall, overspeed, and uncontrolled low-speed protection devices

J.2.11.1 Examination

All parts relating to free-fall, overspeed, and uncontrolled low-speed protection devices shall be examined annually, following manufacturer's recommendations, to determine if they are in safe operating condition.

J.2.11.2 Inspections and tests

Inspections and tests, as required in 8.10.2.2.2(cc), shall be carried out annually, except that full-load tests shall not be required.

8.10.2.2.2 Machine room

(cc) Ascending Car Overspeed, and Unintended Car Motion Protection

(1) *Ascending Car Overspeed Protection*. The means to prevent ascending car overspeed shall be inspected and tested with no load in the car to verify conformance with 2.19.1.2.

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c8.11.2.2.10 Ascending car overspeed protection and unintended car motion devices

(a) Examinations. All working parts of ascending car overspeed protection and unintended car motion devices shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 2.19.1.2(a) and 2.19.2.2(a).

(b) Tests. These devices shall be subjected to tests with no load in the car at the slowest operating speed* in the up direction.

* for UCM testing, slowest operating speed means "rollaway speed from the floor due to imbalance" without brake assistance
for ACO testing, slowest operating speed means, at "inspection speed"

Rob Kremer, P. Eng.,
Technical Leader, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 209 / 06	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: March 10, 2006	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act* 2000 (Elevating Devices)

Subject: NDT & Inspection Requirements for Hangers and Chairs manufactured by BM Lifts Limited

Sent to: All Ski Lift Industry Stakeholders

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 31 and 27 of the *Technical Standards & Safety Act* 2000 hereby orders the following:

1. ORDER

1.1. All owners of chair lifts, with **hangers and chairs manufactured by BM Lifts Limited** shall **immediately** conduct magnetic particle non-destructive tests (NDT) of all BM hangers and chairs as detailed in the Immediate Action Service Bulletin dated March 10, 2006 issued by Leitner-Poma Canada Inc. Owners shall also conform to all other requirements set forth in the bulletin (see attached).

1.2. Lifts shall not operate until the magnetic particle NDT has been performed by a qualified technician and the result of ALL tests show no crack indications.

1.3. Results of the magnetic particle NDT shall be kept on site in the lift log book.

1.4. Chairs, on lifts returned to service, shall be visually inspected twice weekly for the remainder of the 2005-2006 season, as detailed in the Leitner Poma Bulletin (areas of inspection). These visual inspection activities shall be recorded in a log book.

1.5. This Order is effective immediately.

Note: Section 37 of the Act provides that "every person who fails to comply with an order; is guilty of an offence and on conviction is liable to a fine of not more than $50,000 or to imprisonment for a term of not more than one year, or to both, or, if the person is a body corporate, to a fine of not more than $1,000,000". 2000, c. 16, s.37 (1).

Roland Hadaller Director, TSS Act 2000, (Elevating Devices)

2. BACKGROUND

TSSA was made aware of an incident involving the failure of a chair hanger that was manufactured by BM Lifts in the area identified below. However all weld areas identified in the bulletin shall be checked.

LEITNER POMA

Immediate Action
Service Bulletin

AMENDMENT to March 7, 2006 Bulletin

March 10, 2006

To: All BM lift Customers

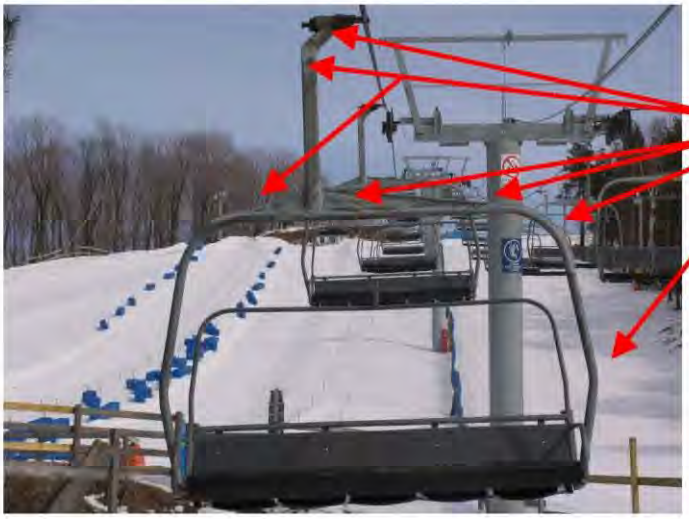
Re: Immediate NDT of 100% of ALL BM Hangers and Chairs.

NDT inspections conducted as a result of the March 7, 2006 bulletin have revealed crack indications on some BM carriers.

BM lifts shall not operate until Magnetic Particle NDT has been performed by a qualified technician and the results of the test show no crack indications. Only then will the lifts be put back into service.

BM lifts with Leitner or Poma carriers may be exempt or partially exempt from this bulletin. Please contact Leitner-Poma Canada if you have any questions.

3300 Bloor Street West, 14th Floor, Centre Tower, Toronto, Ontario M8X 2X4
Telephone: 416-734-3300 Fax: 416-231-5435 Toll Free: 1-877-682-8772
Putting Public Safety First



Areas of inspection Include all welds, bends and gussets.

1. All completed inspection reports shall be faxed to Leitner Poma at the fax number indicated below in item #4.

2. Leitner Poma recommends twice weekly visual inspection of 100% of the areas indicated for inspection in this bulletin for the remainder of the 2005-2006 season.

3. All testing results are to be completed by qualified, competently trained individuals and kept in the maintenance manual.

4. Please sign and fax this page back as acknowledgment of receipt to Leitner-Poma Canada at (705) 722-3170

Received and acknowledged by area representative:

Ski Area: _____

Print name: _____ Title:_____

X_____ Date: _____
(signature)

List Installation numbers effected by this bulletin:_____

Leitner-Poma Canada Inc.
74 Welham Road Barrie, Ontario L4N 8Y4
Tel. (705) 722-6605 Fax (705) 722-3170

3300 Bloor Street West, 14th Floor, Centre Tower, Toronto, Ontario M8X 2X4
Telephone: 416-734-3300 Fax: 416-231-5435 Toll Free: 1-877-682-8772

Elevating and Amusement Devices Safety Division	Ref. No.: 210 / 06	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: July 27, 2006	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the
***Technical Standards and Safety Act* 2000**
(Elevating Devices)

Subject: Replacement & NDT Inspection Requirements for Grips, Hangers and Chairs manufactured by BM Lifts Limited

Sent to: All Ski Lift Industry Stakeholders

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 31 and 27 of the *Technical Standards & Safety Act* 2000 hereby orders the following:

1. ORDER

1.1. Prior to operating for the 2006/2007 season, all owners of chair lifts, with **grips, hangers or chairs manufactured by BM Lifts Limited** shall conform to the requirements set forth in the attached manufacturers Service Bulletin dated April 17 as amended by the update bulletin of July 6th, 2006 issued by Leitner-Poma Canada Inc.

1.2. For all modifications to, or replacement of the BM grips, hangers and chairs, a **design submission** must be submitted to TSSA in accordance with section 15 of Ontario Regulation 209/01 (Elevating Devices).

1.3. Notwithstanding the provisions of the Leitner-Poma Service Bulletin and update, relating to visual inspections, all **visual inspection requirements** must be completed by a certified **Class A, B or F ski lift mechanic** or an NDT technician. All mechanics performing visual inspections must have first obtained specific training from Leitner-Poma Canada Inc. Mechanics should contact Leitner-Poma Canada Inc. for details on obtaining the training.

1.4. All **magnetic particle NDT requirements of the chairs and hangers**, or **wet fluorescent NDT of the BM grips** must be completed by a **qualified** NDT technician.

1.5. Results of the **magnetic particle, or wet fluorescent NDT** and **visual inspections** requirements shall be kept on site in the lift logbook, along with the name of the person who completed the tests and the date.

1.6. In the event that there are any indications of cracks or failures the owner or mechanic shall immediately remove the lift from service and notify TSSA. The device shall not be returned to service until authorized by TSSA.

1.7. Owners with category 2 (BM chairlift model years from 1982 to 1996)), must complete the Leitner-Poma Canada Inc. modification requirement prior to the 2006/2007 operating season as outlined in the July 6th, 2006 Leitner-Poma Information Update bulletin. Those owners with category 1 (BM chairlift model prior to 1982) or category 3 (Leitner BM chairlift model 1997 – 2002) must be assessed by Leitner Poma Canada Inc. and a NDT regime assigned to the BM designed components prior to the 2006/2007 operating season.

1.8. This Safety Order is effective immediately, and supersedes Safety Order 209-06.

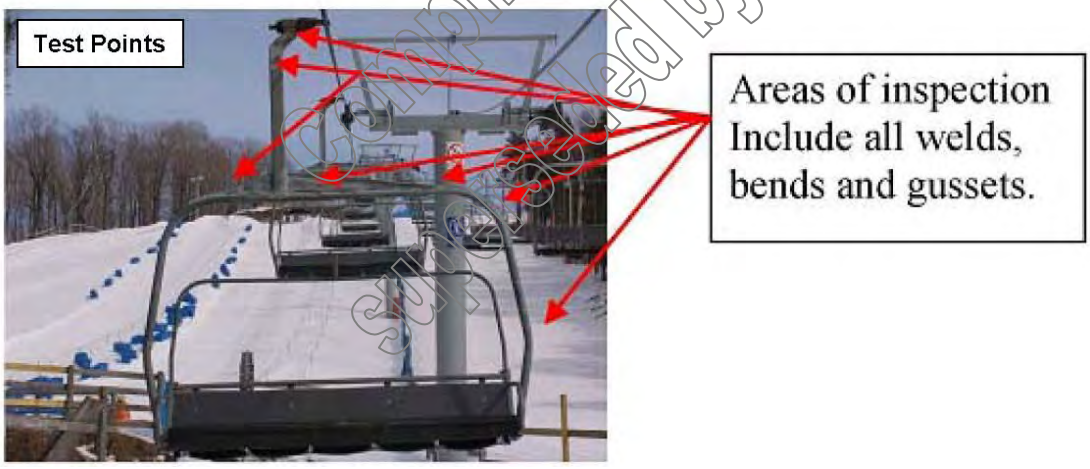
2. BACKGROUND

TSSA was made aware of an incident involving the failure of a chair hanger that was manufactured by BM Lifts in the area identified below. TSSA will work with Leitner-Poma Canada Inc to determine if continued visual inspection and NDT testing remains a feasible option for the 2007/2008 season.

Note: Section 37 of the Act provides that "every person who fails to comply with an order; is guilty of an offence and on conviction is liable to a fine of not more than $50,000 or to imprisonment for a term of not more than one year, or to both, or, if the person is a body corporate, to a fine of not more than $1,000,000". 2000, c. 16, s.37 (1).

_____

Roland Hadaller Director, TSS Act 2000, (Elevating Devices)



Quality + Simplicity = Reliability

IMPORTANT ANNOUNCEMENT REGARDING BM MANUFACTURERED GRIPS, HANGERS AND CHAIRS

IMMEDIATE RESPONSE REQUESTED

April 17, 2006

TO: OWNERS AND OPERATORS

Directors Order 209/06 has been superseded by Directors Order 210/06

This bulletin is further to the Leitner Poma Amended Immediate Action Service Bulletin dated March 7, 2006 and the Technical Standards and Safety Authority Director's Safety Order Reference no.: 209/06 dated March 10, 2006, regarding hangers and chairs manufactured by BM Lifts Limited. All owners of BM lifts and components must read and comply with this Bulletin and the Director's Safety Order.

In light of the recent failure of a BM manufactured hanger and further crack indications on BM manufactured grips, hangers and chairs, Leitner Poma will offer Leitner Poma designed replacement carriers for all BM units. Due to the difference in weight between the BM and Leitner Poma components, a reduction in capacity will result from the replacement carriers.

Leitner Poma will not be issuing a repair procedure for any BM grip, carrier or chair and will not be manufacturing replacement components using the BM design.

The pricing of these components will be directly related to the number of units we produce, and delivery dates will directly coincide with order dates. It is critical that Leitner Poma receives a response from each BM owner/operator in order to provide the best value for these replacement carriers.

Please note that until BM carriers are replaced, an enhanced NDT programme will be directed towards the ski area to enable continued operation. Leitner-Poma Canada Inc. believes that this programme is a reasonable precaution and recommends that it be completed per attached schedule and procedures.

Please complete the attached "DATA FORM" sheet and return to Leitner Poma at the fax number below before **April 21st**. Photo-copy sheets as necessary if you have multiple installations. (complete one sheet per chairlift) This information is important for our files and for quoting replacement components.

Leitner-Poma Canada Inc.
74 Welham Road Barrie, Ontario L4N 8Y4
Tel. (705) 722-6605 Fax (705) 722-3170

BM carrier NDT and replacement notice April 17 06

LEITNER POMA
Quality + Simplicity = Reliability

April 17, 2006

DATA FORM

BM Replacement Carrier Components

Date:_____

Name of Ski Area:_____

Lift Name:_____

Type of chairlift: ☐ Six ☐ Quad ☐ Triple ☐ Double ☐ Single

Installation number (TSSA or other provincial reg. #):_____

Model Year:_____

Number of BM grips on the line:_____

Number of BM hangers on the line:_____

Number of BM chairs on the line:_____

Rope size/construction:_____

Weight of complete carrier unit (grip, hanger, chair):_____ lbs. _____ kg.

Additional Information

Note any modifications/alterations done to the lift and any reference dates, registration numbers etc. (affix additional sheet if necessary)

_____

_____

_____

_____

_____

Leitner-Poma Canada Inc.
74 Welham Road Barrie, Ontario L4N 8Y4
Tel. (705) 722-6605 Fax (705) 722-3170

LEITNER POMA
Quality + Simplicity = Reliability

April 17, 2006

Non-Destructive Testing for BM chairs, hangers and grips

This regime is to be followed by owners and operators of BM chairlifts. Failure to implement this enhanced NTD protocol may result in component failure and possible injury or death.

Testing points as per areas indicated in photograph of complete carrier on the March 7th, 2006 bulletin and/or amended bulletin of March 10th, 2006 from Leitner-Poma Canada Inc.

Category 1 **BM chairlifts prior to 1982**

These devices will be required to be accessed by Leitner-Poma engineers. Each device will have a NDT regime designed for that device according to the findings of the assessment and the individual installation.

Category 2 **BM chairlifts model years from 1982 to 1996**

Lifts that are older than 15 years will need to have the chairs, hangers and grips visually inspected every 15 hours and then magnetic particle test of hanger and chair by a qualified NDT specialist every 60 hours.

Lifts younger than 15 years shall be visually inspected every 25 hours and magnetic particle test of the hanger and chair by a qualified NDT specialist every 75 hours.

Updated by Leitner-Poma bulletin of July 6, 2006 (see attached)

Category 3 **Leitner –BM chairlifts from 1997 to 2002**

These devices will be required to be accessed by Leitner-Poma engineers. Each device will have a NDT regime designed for that device according to the findings of the assessment and the individual installation. This applies to BM designed components only. Leitner Italy components are not part of this regime.

Leitner-Poma Canada Inc.
74 Welham Road Barrie, Ontario L4N 8Y4
Tel. (705) 722-6605 Fax (705) 722-3170

LEITNER POMA
Quality + Simplicity = Reliability

April 17, 2006

Non Destructive Testing Procedure

BM Grips, Hangers, Chairs

Annually

100 % magnetic particle (grips, hangers and chairs)

During Season (schedule determined by Category of equipment)

100 % **visual** of grips, hangers and chairs

1. Lift must be stopped.
2. Inspection must be done by registered ski lift mechanic, NDT technician, or owners designate with extensive training and experience with the device.
3. Inspection must be done in well lit location.
4. Results must be kept in a log book and available for review at any time.
5. Any indications must be reported to Leitner-Poma immediately.

100 % **Magnetic Particle NDT** of hangers and chairs

1. Regular magnetic particle NDT procedures must be followed and completed by NDT technician.
2. Grips are to be visually inspected on line as per normal visual procedure noted above.
3. Results must be kept in a log book and available for review at any time.
4. Any indications must be reported to Leitner-Poma immediately.

All welds, bends and connections on the hangers and chairs are to be inspected and tested. Normal procedure for NDT of grips shall remain in effect. Any indications found may result in rejection of that component. Reductions in capacity may require engineering review and design submission.

BM carrier NDT and replacement notice April 17 06

LEITNER POMA

Information Update

July 6, 2006
2 pages

To: BM lift Owners and Operators

Re: Latest developments with BM carriers

This is an update intended to communicate recent developments in our continued efforts to manage the BM carrier issue.

Chairs and hangers

Leitner Poma of America continues to work on design, fabrication and supply of replacement chairs and hangers. This is taking significant time as we want to use a chair that is of a slightly different design and lighter weight than our standard chair. Although I do not have availability, quantity and price as of yet, I will contact everyone as soon as I have this information. LPOA is still hoping to design, fabricate and supply some of these units in time for this winter.

Grips

As you all are aware, grip supply is a problem for this year. We are in the process of designing a hanger for use with the BM grip for those customers that decide to purchase new chairs this year. This hanger will then be adapted to a Poma grip as grips become available in the future. Again, please understand that this is a work in progress and final designs are not yet ready or approved.

Modify existing chairs and hangers (category 2)

The BM lifts that will be in operation without replacing the chairs will be required to conduct a modification. This modification will be designed and supplied by Leitner Poma and will involve welding gussets on both sides of the hanger to chair connection and a wrap around fishplate to the top of the hanger. Welding will require a CWB certified welder.

3300 Bloor Street West, 14th Floor, Centre Tower, Toronto, Ontario M8X 2X4
Telephone: 416-734-3300 Fax: 416-231-5435 Toll Free: 1-877-682-8772

Preliminary budget amounts are $250 to $300 per chair for the parts and the welding. The modification could be done at your area (inside) by field welders or by sending your chairs to Barrie. Field welding would be an hourly charge including travel. If you send your chairs to us then the charge could be refined to a cost per chair. Shipping, NDT test of repair and TSSA submission not included in above estimate.

If you have a local CWB certified welder, we could offer the procedure and supply the parts (about $75 per chair) and the ski area could manage the work but specific to our procedure.

Again, please remember these are estimations at this time and details are being refined.

New NDT regime for modified chairs

Modified chairs and hangers will conduct Magnetic Particle testing by a qualified NDT specialist. 100% of the hangers and chairs will be tested every **1,000 hours** or before each season of operation (summer/winter) and visual inspections conducted by trained personnel every **250 hours** of operation. The BM grips will be wet fluorescent tested as before to 100% annually and visual every 250 hrs while in operation. A detailed grip testing criteria is in development and will be provided.

We will be asking mechanics to attend a visual inspection seminar at the OSRA fall meeting and those mechanics are the only personnel from the area that will be considered qualified to conduct the visual inspections. The results of all ND Testing, including visuals, will be faxed to Leitner-Poma Canada in Barrie for our files.

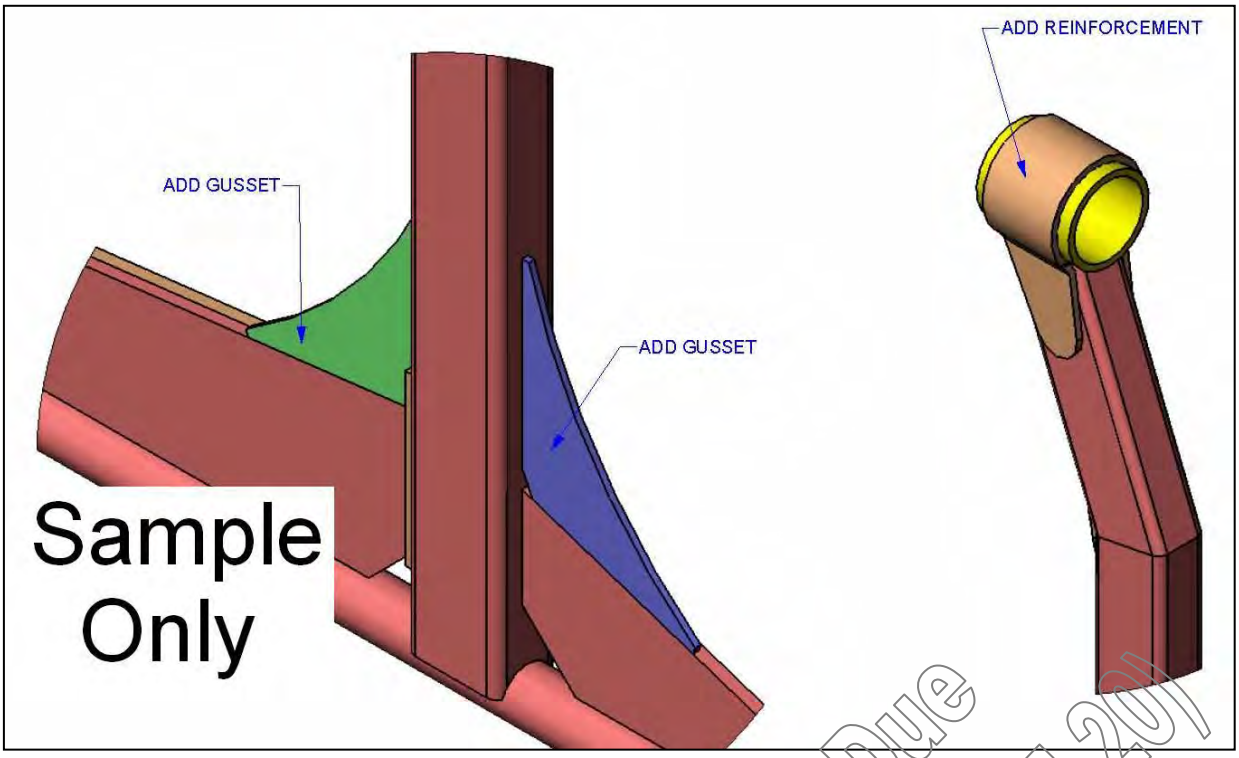
Recommendation

Leitner Poma recommends that the BM carriers (grips, hangers and chairs) be replaced as soon as possible. The modification allows more time for ski areas to plan for replacement.

I trust this helps alleviate some of the uncertainty surrounding this issue at this time. Thanks for your continued patience and I will be contacting each ski area as things continue to unfold.

As always, please call if you have any questions or concerns.

Leitner-Poma Canada Inc.
54 Welham Road Barrie, Ontario L4N 8Y4
Tel. (705) 722-6605 Fax (705) 722-3170



Extract from "Information Update – Latest developments with BM carriers" July 6, 2006 bulletin. Modifications to existing chairs and hangers – sample only – design to be in accordance with Leitner-Poma recommendations.

Summary of Options for the 2006 / 2007 Operating Season

Category 1 (1982 & earlier BM chairs lifts)	• Obtain an assessment of chairs by Leitner-Poma • Follow Leitner-Poma prescribed NDT testing regime
	• Obtain assessment by Leitner-Poma for possibility of hanger, chair and grip replacement
Category 2 (1982 to 1996 BM chairs lifts)	• Perform welding modifications (gussets & wraparound) as designed and supplied by Leitner-Poma (utilize a CWB certified welder) • Perform 100% Magnetic particle testing of modified hanger and chair by NDT specialist every 1000 hours or before each operating season • Perform 100% visual inspection of modified hanger and chair by trained personnel every 250 hours • Perform 100% wet fluorescent test of BM grips annually • Perform 100% visual inspection of BM grips every 250 hours
	• Install new chair and hanger on existing BM grip • Perform NDT (of grips, hangers and chairs) as defined by Leitner-Poma
	• Install new chair and hanger on new Leitner-Poma grip • Perform NDT (of grips, hangers and chairs) as defined by Leitner-Poma
Category 3 (1997 and newer BM chairs lifts)	• Obtain an assessment of chairs by Leitner-Poma • Follow Leitner-Poma prescribed NDT testing regime

Elevating and Amusement Devices Safety Division	Ref. No.: 211/ 06	Rev. No.:
DIRECTOR'S ORDER	Date: July 27, 2006	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act, 2000*
(Elevating Devices)

Subject: Common Firefighters' Emergency Operation (FEO) Key "FEO-K1"
Sent to: All Elevator Contractors

Pursuant to subsection 36.(3)(a) of the *Technical Standards and Safety Act, 2000,* the Director, subject to the conditions herein, authorizes the use of and requires compliance with the following:

1. INTRODUCTION

The current editions of the A17.1 and B44 Safety Codes for Elevators require that the Elevator Emergency Power Selector Switch, three-position Fire Recall Switch and the three-position Fire Operation Switch for all new elevators in a building, be operable by the same key.

With the publication of the 2006 edition of the Codes mentioned above, on or about January 2007, a requirement that a common key for the operation of the named switches will be introduced.

2. BACKGROUND

The Elevating Devices Advisory Council (EDAC), the Technical Standards and Safety Authority (TSSA), as well as the Office of the Ontario Fire Marshal and the firefighting community across Ontario support the implementation of a common key.

Currently each elevator installation, new or altered, has a key that is manufacturer specific. The new common key will be the standard key for operation of FEO systems regardless of manufacturer and applicable in all jurisdictions in North America.

The use of a standardized key will assist in reducing response times for firefighters during operations involving elevating devices for medical and fire or other emergencies. The common key will allow for emergency services to equip personnel with one key to access all newly installed or altered elevator systems provided with FEO.

The bitting code establishes the number of slots, depth of the slots and configuration of the key. This key will be of a tubular, 7 pin, style 137 construction and will have a bitting code of 6143521. The key will be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency

personnel, elevator equipment manufacturers and authorized personnel during checking of firefighters' emergency operation. The bitting code will be available for use by any manufacturer of key switches.

3. RECOMMENDATION

In advance of publication of the 2006 Code and with the support of EDAC, TSSA is requesting voluntary compliance of the elevator industry until January 1, 2007 for the Common FEO Key. TSSA is recommending the incorporation of the key to operate the Elevator Emergency Power Selector Switch, Fire Recall Switch and the Fire Operation Switch, on all new elevator installations provided with FEO.

Altered elevator installations, where FEO is altered or installed as part of the alteration shall incorporate the Common FEO Key to operate the Fire Recall Switch and the Fire Operation Switch.

There shall be a separate key for each named switch as required by code in clause 2.27.8. These keys shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key shall be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during checking of firefighters' emergency operation.

4. ORDER

4.1 Effective January 1, 2007 each newly installed elevator provided with FEO shall incorporate the Common FEO Key to operate the Elevator Emergency Power Selector Switch, Fire Recall Switch and the Fire Operation Switch.

Each elevator where FEO is altered or installed as part of the alteration shall incorporate the Common FEO Key to operate the Fire Recall Switch and the Fire Operation Switch.

There shall be a separate key for each named switch as required by clause 2.27.8 of the B-44 Code. These keys shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key shall be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during checking of firefighters' emergency operation.

4.2 DESIGN SUBMISSIONS received by TSSA for registration on or after the **1st day of January 2007**, shall conform to the requirements of 4.1 above.

_____

Roland Hadaller, P.Eng.,
Director, appointed under the *Technical Standards and Safety Act, 2000*, Ontario Regulation 209/01(Elevating Devices)

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 211/ 06	Rev. No.: 1
DIRECTOR'S ORDER	Date: July 27, 2006	Date: November 28, 2006

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 made under the *Technical Standards and Safety Act, 2000*
(Elevating Devices)

Subject: Common Firefighters' Emergency Operation (FEO) Key "FEO-K1"
Sent to: All Elevator Contractors

Pursuant to subsection 36.(3)(a) of the *Technical Standards and Safety Act, 2000,* the Director, subject to the conditions herein, authorizes the use of and requires compliance with the following:

1. INTRODUCTION

The current editions of the A17.1 and B44 Safety Codes for Elevators require that the Elevator Emergency Power Selector Switch, three-position Fire Recall Switch and the three-position Fire Operation Switch for all new elevators in a building, be operable by the same key.

With the publication of the 2006 edition of the Codes mentioned above, on or about January 2007, a requirement that a common key for the operation of the named switches will be introduced.

2. BACKGROUND

The Elevating Devices Advisory Council (EDAC), the Technical Standards and Safety Authority (TSSA), as well as the Office of the Ontario Fire Marshal and the firefighting community across Ontario support the implementation of a common key.

Currently each elevator installation, new or altered, has a key that is manufacturer specific. The new common key will be the standard key for operation of FEO systems regardless of manufacturer and applicable in all jurisdictions in North America.

The use of a standardized key will assist in reducing response times for firefighters during operations involving elevating devices for medical and fire or other emergencies. The common key will allow for emergency services to equip personnel with one key to access all newly installed or altered elevator systems provided with FEO.

The bitting code establishes the number of slots, depth of the slots and configuration of the key. This key will be of a tubular, 7 pin, style 137 construction and will have a bitting code of 6143521. The key will be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during

checking of firefighters' emergency operation. The bitting code will be available for use by any manufacturer of key switches.

3. RECOMMENDATION

In advance of publication of the 2006 Code and with the support of EDAC, TSSA is requesting voluntary compliance of the elevator industry until June 30, 2007 for the Common FEO Key. TSSA is recommending the incorporation of the key to operate the Elevator Emergency Power Selector Switch, Fire Recall Switch and the Fire Operation Switch, on all new elevator installations provided with FEO.

Altered elevator installations, where FEO is altered or installed as part of the alteration shall incorporate the Common FEO Key to operate the Fire Recall Switch and the Fire Operation Switch.

There shall be a separate key for each named switch as required by code in clause 2.27.8. These keys shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key shall be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during checking of firefighters' emergency operation.

4. ORDER

4.1. Effective June 30, 2007 each newly installed elevator provided with FEO shall incorporate the Common FEO Key to operate the Elevator Emergency Power Selector Switch, Fire Recall Switch and the Fire Operation Switch.

Each elevator where FEO is altered or installed as part of the alteration shall incorporate the Common FEO Key to operate the Fire Recall Switch and the Fire Operation Switch.

There shall be a separate key for each named switch as required by clause 2.27.8 of the B-44 Code. These keys shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key shall be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during checking of firefighters' emergency operation.

4.2. **DESIGN SUBMISSIONS** received by TSSA for registration on or after the **30th day of June 2007**, shall conform to the requirements of 4.1 above.

Notes: Revision 1, revised the compliance date based on input from industry.

Roland Hadaller, P.Eng.,
Director, appointed under the *Technical Standards and Safety Act, 2000*, Ontario Regulation 209/01(Elevating Devices)

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 211/ 06	Rev. No.: 2
DIRECTOR'S ORDER	Date: July 27, 2006	Date: May 1, 2007

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

Subject: Common Firefighters' Emergency Operation (FEO) Key "FEO-K1"
Sent to: All Elevator Contractors

Pursuant to subsection 36.(3)(a) of the *Technical Standards and Safety Act, 2000,* the Director, subject to the conditions herein, authorizes the use of and requires compliance with the following:

1. INTRODUCTION

The current editions of the A17.1 and B44 Safety Codes for Elevators require that the Elevator Emergency Power Selector Switch, three-position Fire Recall Switch and the three-position Fire Operation Switch for all new elevators in a building, be operable by the same key.

With the publication of the 2007 edition of the Codes mentioned above, sometime around January 2007, a requirement that a common key for the operation of the named switches will be introduced.

2. BACKGROUND

The Elevating Devices Advisory Council (EDAC), the Technical Standards and Safety Authority (TSSA), as well as the Office of the Ontario Fire Marshal and the firefighting community across Ontario support the implementation of a common key.

Currently each elevator installation, new or altered, has a key that is manufacturer specific. The new common key will be the standard key for operation of FEO systems regardless of manufacturer and applicable in all jurisdictions in North America.

The use of a standardized key will assist in reducing response times for firefighters during operations involving elevating devices for medical and fire or other emergencies. The common key will allow for emergency services to equip personnel with one key to access all newly installed or altered elevator systems provided with FEO.

The bitting code establishes the number of slots, depth of the slots and configuration of the key. This key will be of a tubular, 7 pin, style 137 construction and will have a bitting code of 6143521 starting at the tab sequenced clockwise as viewed from the barrel end of the key. The key will be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during checking of

firefighters' emergency operation. The bitting code will be available for use by any manufacturer of key switches.

3. RECOMMENDATION

In advance of publication of the 2007 Code and with the support of EDAC, TSSA is requesting voluntary compliance from the elevator industry prior to the January 1, 2008 implementation of the Common FEO Key. TSSA is recommending the incorporation of the key to operate the Elevator Emergency Power Selector Switch, Fire Recall Switch and the Fire Operation Switch, on all new elevator installations provided with FEO.

Altered elevator installations, where FEO is altered or installed as part of the alteration shall incorporate the Common FEO Key to operate the Fire Recall Switch and the Fire Operation Switch.

There shall be a separate key for each named switch as required by code in clause 2.27.8. These keys shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521 starting at the tab sequenced clockwise as viewed from the barrel end of the key. The key shall be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during checking of firefighters' emergency operation.

4. ORDER

4.1. Effective January 1, 2008 each newly installed elevator provided with FEO shall incorporate the Common FEO Key to operate the Elevator Emergency Power Selector Switch, Fire Recall Switch and the Fire Operation Switch.

Each elevator where FEO is altered or installed as part of the alteration shall incorporate the Common FEO Key to operate the Fire Recall Switch and the Fire Operation Switch.

There shall be a separate key for each named switch as required by clause 2.27.8 of the B-44 Code. These keys shall be of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521. The key shall be coded "FEO-K1". The possession of the "FEO-K1" key will be limited to elevator personnel, emergency personnel, elevator equipment manufacturers and authorized personnel during checking of firefighters' emergency operation.

4.2. DESIGN SUBMISSIONS received by TSSA for registration on or after January 1, 2008 shall conform to the requirements of 4.1 above.

Notes: Revision 1, revised the compliance date based on input from industry.
Notes: Revision 2, clarified direction of the bitting code, & revised the compliance date based on this new information.

Roland Hadaller, P.Eng.,
Director, appointed under the *Technical Standards and Safety Act, 2000*, Ontario Regulation 209/01(Elevating Devices)

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 212 / 07	Rev. No.:
DIRECTOR'S ORDER	Date: January 12, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act* 2000

Subject: **Amendment to the Elevating Devices Code Adoption Document Oil Loss Monitoring of Hydraulic Elevating Devices with buried cylinders or buried piping**

Sent to: **Elevator Contractors, Consultants and Elevating Device Mechanics**

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 published by the Technical Standards & Safety Authority is amended by adding the following:

Appendix A

HYDRAULIC ELEVATING DEVICES - OIL LOSS MONITORING PROGRAM

A. Oil Loss Monitoring Program

Definitions

"hydraulic elevating device" means a non-portable device for hoisting and lowering or moving persons or freight and includes an elevator, dumbwaiter, manlift, incline lift, construction hoist, stage lift, platform lift and special elevating device that incorporates one or more hydraulic cylinders.

Application

A.1.01 Every contractor who maintains a hydraulic elevating device **with buried cylinders or buried piping** shall ensure there is a written oil level monitoring program.

Purpose

A.2.01 The purpose of the oil loss monitoring program is to identify any loss of oil which cannot be accounted for in the hydraulic system.

Requirements for Compliance

A.3.01 If a contractor performs maintenance on a hydraulic elevating device **with buried cylinders or buried piping**, the contractor shall ensure that a written oil loss monitoring program is developed and maintained before the contractor performs work on the hydraulic elevating device. The oil loss monitoring program shall include,

Log (a) the requirement to provide an oil loss monitoring log book ("OLM log book") for each hydraulic elevating device **with buried cylinders or buried piping**;

Inst # (b) the requirement for the OLM log book to reference the elevating device installation number;

Reference mark (c) the requirement to establish a fixed reference point for the oil level and the requirement to mark the reference point on the tank, dip stick or other suitable location;

Record of mark (d) the requirement to record the location of the fixed oil reference point in the OLM log book;

Checking (e) the requirement to check that the oil level is at the established reference point when the device is level with the lowest landing during each scheduled maintenance visit;

Altering the oil reference level (f) if oil levels need to be intentionally adjusted, the requirement to document and record the changes to the established reference level and reason for establishing the new reference level

Add/remove record (g) the requirement to record in the OLM log book any quantity of oil added or removed from the hydraulic system;

Record of visit (h) that during each maintenance visit, even if no oil is added, the requirement to record in the OLM log book the oil level and the date of the scheduled maintenance visit;

Date of add/remove (i) if oil is added or removed, the requirement to record in the OLM log book the dates oil was added or removed from the hydraulic system;

Reason for add/remove (j) the requirement to record in the OLM log book the reason oil was added to or removed from the hydraulic system;

Record of signature (k) the requirement to record in the OLM log book the mechanic's printed and legible name, signature and certification number for every entry made;

Location of log (l) the requirement to keep the OLM log book in the machine room;

Retention of records (m) the OLM log book shall be kept of a period for at least five years from the date of the last entry in the OLM log book;

Max level (n) the requirement to never allow oil levels to exceed the fixed reference point for the oil level;

Frequency (o) the requirement to record in the OLM log book the frequency of oil monitoring activities;

Monthly visits (p) despite **A.3.01(o)**, the requirement that hydraulic elevating devices with buried cylinders installed prior to September 1978* shall be monitored on a monthly basis;

*Note: An elevator registered by MCCR after September 4, 1978, under Installation No. 31909 was provided with a safety bulkhead.

Oil loss (q) if there is any oil loss which cannot be accounted for, the requirement to immediately remove a hydraulic elevating device from service until the cause for the oil loss is determined and the cause and associated remedy noted in the OLM log book;

Reporting (r) the requirement to report in writing any oil loss attributed to leaks in buried cylinders or buried piping to the TSSA Elevating Devices Director within 7 days;

Training (s) the requirement to provide maintenance personnel adequate training related to the contractor's oil loss monitoring program;

Record of training (t) the requirement to maintain up-to-date written records showing who provided and who received the training referred to in **A.3.01(s)**, the nature of the training and the date when it was provided. A record of training shall be available to the TSSA upon request.

Posting of program (u) the requirement that the contractor's oil loss monitoring program be posted in the machine room,

Record of oil recovery (v) the requirement to record in the OLM log book the quantity of oil that has leaked from the hydraulic system into collection containers, before removal or return to the tank, and
Note: Oil returned to the tank via direct lines or scavenger pumps need not be recorded.

Storage containers (w) the requirement that the collection containers referred to in **A.3.01 (v)** shall not exceed 19 L (5 gal) per cylinder.

Effective Date

A.4.01 This amendment is effective on April 30, 2007.

Roland Hadaller, P. Eng.
Director, Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

BACKGROUND

In-ground hydraulic elevator cylinders (as well as piping) may corrode and develop an oil leak. If an oil leak develops in the hydraulic elevator cylinders (as well as piping) and insufficient steps are taken to correct the problem, the total failure of the cylinder may occur causing the car to overspeed in the down direction or free-fall.

The risk of corrosion affecting cylinders is greatest on cylinders installed without protective plastic casing. In April 1992 the code changed to require corrosion protection by means of a protective plastic casing. Clause ***4.18.3.8 Corrosion Protection,*** was introduced with the release of **B44-M90 Supplement 1 – 1992**, which was adopted through Director's Ruling #94/92.

The risk of corrosion and catastrophic cylinder failure is even greater on cylinders installed before September 1978, when the new requirement for a safety bulkhead (double cylinder head) was introduced. Clause ***4.18.3.7 Safety Bulkhead***, was introduced with the release of **B44-1975 Supplement 1 – 1977**.

Oil loss which cannot be accounted for, is an indication that corrosion may have developed and should be viewed as a critical warning indicator before further corrosion causes a catastrophic failure.

This Code Adoption Document amendment is to require contractors to implement an effective oil loss-monitoring program to remove the risk of catastrophic failure due to corrosion.

This amendment to the Code Adoption Document replaces Safety Alert Bulletin 143/99.

Elevating and Amusement Devices Safety Division	Ref. No.: 212 / 07	Rev. No.: 1
Elevating Devices Code Adoption Document - Amendment	Date: January 12, 2007	Date: February 23, 2009

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act* 2000

Subject: **Amendment to the Elevating Devices Code Adoption Document**
Oil Loss Monitoring of Hydraulic Elevating Devices with buried cylinders or buried piping (excluding B355 devices)

Sent to: **Elevator Contractors, Consultants and Elevating Device Mechanics**

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that Appendix "A" attached to the Elevating Devices Code Adoption Document dated June 1, 2001, as amended, published by the Technical Standards & Safety Authority is revoked and replaced by the following:

Appendix A

HYDRAULIC ELEVATING DEVICES - OIL LOSS MONITORING PROGRAM

A. Oil Loss Monitoring Program

Definitions

"hydraulic elevating device" means a non-portable device for hoisting and lowering or moving persons or freight and includes an elevator, dumbwaiter, manlift, incline lift, construction hoist, stage lift, platform lift and special elevating device that incorporates one or more hydraulic cylinders.

A.1 Application

A.1.01 Every contractor who maintains a hydraulic elevating device **with buried cylinders or buried piping** shall ensure there is a written oil loss monitoring program.

A.2 Purpose

A.2.01 The purpose of the oil loss monitoring program is to identify any loss of oil which cannot be accounted for in the hydraulic system.

A.3 Requirements for Compliance

A.3.01 If a contractor performs maintenance on a hydraulic elevating device **with buried cylinders or buried piping**, the contractor shall ensure that a written oil loss monitoring program is developed and maintained before the contractor performs work on the hydraulic elevating device. The oil loss monitoring program shall include:

Log

(a) the requirement to provide an oil loss monitoring log ("OLM log") for each hydraulic elevating device **with buried cylinders or buried piping**;

Inst #

(b) the requirement for the OLM log to reference the elevating device installation number;

Reference mark

(c) the requirement to establish a fixed reference level for the oil and the requirement to mark the reference level on the tank, dip stick or other suitable location via permanent means;

Note: "permanent" implies affixed in such a manner so as to not be easily removed or repositioned.

Record of mark

(d) the requirement to document in the OLM log the location of the mark for the fixed reference level;

Checking

(e) the requirement to check that the oil level is at the established reference point when the device is level with the lowest landing during each scheduled maintenance visit;

Altering the oil reference level

(f) if the fixed reference level needs to be intentionally adjusted, the requirement to document and record the changes to the established reference level and reason for establishing the new reference level

Add/remove record

(g) the requirement to record in the OLM log any quantity of oil added or removed from the hydraulic system;

Record of visit

(h) that during each maintenance visit, even if no oil is added, the requirement to record in the OLM log the oil level and the date of the scheduled maintenance visit;

Date of add/remove

(i) if oil is added or removed, the requirement to record in the OLM log the dates oil was added or removed from the hydraulic system;

Reason for add/remove

(j) the requirement to record in the OLM log the reason oil was added to or removed from the hydraulic system;

Record of signature

(k) the requirement to record in the OLM log the mechanic's printed and legible name, signature and certification number for every entry made;

Location of log

(l) the requirement to keep the OLM log in the elevator machine room, in a readily identifiable location;

Retention of records

(m) the requirement that the OLM log be kept in the elevator machine room for a period of at least five years from the date of the last entry in the OLM log;

Max level

(n) the requirement to never allow oil levels to exceed the fixed reference level for the oil level;

Frequency

(o) the requirement to record in the OLM log the frequency of oil monitoring activities;

Monthly visits for single bottom

(p) the requirement that, despite **A.3.01(o)**, hydraulic elevating devices with buried single bottom cylinders be monitored on a monthly basis;

Monthly visits per vintage unless Director notified

(q) installations registered by MCCR prior to September 4, 1978 with an installation number below 31909 shall be monitored monthly, unless a notification* (in the form provided by the TSSA) is sent to the Director, advising why the monthly requirements should not apply, and the registered notification is posted along with the OLM log;

Oil loss

(r) if there is any oil loss which cannot be accounted for, the requirement to immediately remove a hydraulic elevating device from service until the cause for the oil loss is determined and the cause and associated remedy noted in the OLM log;

Reporting

(s) the requirement to report in writing any oil loss attributed to leaks in buried cylinders or buried piping to the TSSA Elevating Devices Director within 7 days;

Training

(t) the requirement to provide maintenance personnel adequate training related to the contractor's oil loss monitoring program;

Record of training

(u) the requirement to maintain up-to-date written records showing who provided and who received the training referred to in **A.3.01(t)**, the nature of the training and the date when it was provided. A record of training shall be available to the TSSA upon request.

Posting of program

(v) the requirement that the contractor's oil loss monitoring program be posted or otherwise available in the machine room, and

Storage containers

(w) the requirement that the collection containers shall not exceed 19 L (5 gal) per cylinder.

A.3.02 Oil that is returned to the hydraulic system from recovery containers, either by manual means or automatically via scavenger pumps, need not be recorded.

Oil from recovery containers

Note: if oil from recovery containers is not suitable for return to the tank, it must be measured and an equivalent amount must be added to the system when recovery containers are emptied. If additional oil is needed to reach the fixed reference level it must be recorded as new oil.

A.4 Effective Date

A.4.01 This amendment is effective immediately.

A.5 *Notification

A.5.01 A Notification form can obtained from the TSSA web site at, www.tssa.org.
The "Subject" entry (box 5.0) should state: *Non Single Bottom Cylinder*
The "TSSA Reference No." entry (box 7.0) should state: *212/07-r1*

_____

Roland Hadaller, P. Eng.
Director, Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

BACKGROUND

In-ground hydraulic elevator cylinders (as well as piping) may corrode and develop an oil leak. If an oil leak develops in the hydraulic elevator cylinders (as well as piping) and insufficient steps are taken to correct the problem, the total failure of the cylinder may occur causing the car to overspeed in the down direction or free-fall.

The risk of corrosion affecting cylinders is greatest on cylinders installed without protective plastic casing. In April 1992 the code changed to require corrosion protection by means of a protective plastic casing. Clause ***4.18.3.8 Corrosion Protection***, was introduced with the release of **B44-M90 Supplement 1 – 1992**, which was adopted through Director's Ruling #94/92.

The risk of corrosion and catastrophic cylinder failure is even greater on cylinders installed before September 1978, when the new requirement for a safety bulkhead (double cylinder head) was introduced. Clause *4.18.3.7 Safety Bulkhead*, was introduced with the release of B44-1975 Supplement 1 – 1977.

Oil loss which cannot be accounted for, is an indication that corrosion may have developed and should be viewed as a critical warning indicator before further corrosion causes a catastrophic failure.

This Code Adoption Document amendment is to require contractors to implement an effective oil loss-monitoring program to remove the risk of catastrophic failure due to corrosion.

This amendment to the Code Adoption Document replaces Safety Alert Bulletin 143/99.

Elevating and Amusement Devices Safety Division	Ref. No.: 213 / 07	Rev. No.:
Elevating Devices Code Adoption - Amendment	Date: April 10, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01

(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Amendment to the Elevating Devices Code Adoption Document - Repair or Rebuild of a Type 'D' Rack and Pinion Safety

Sent to: All Elevating Device Contractors

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 published by the Technical Standards & Safety Authority is amended by adding the following to Part II:

1.

GENERAL TECHNICAL REQUIREMENTS

5.1(5) Any repair or rebuild of a type 'D' rack and pinion safety where the manufacturer has stated that such work shall only be performed by the manufacturer, may be either,

(a) repaired, rebuilt or replaced by the manufacturer; or

(b) repaired or rebuilt in accordance with a procedure certified by a professional engineer.

5.1(6) The procedure referred to in clause 5.1(5) shall be filed with the director and shall be available to the inspector upon request.

2. This amendment is effective immediately.

_____

Roland Hadaller, P. Eng.

Director, Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

BACKGROUND - ALIMAK SAFETY DEVICE

Some contractors have repaired Alimak Type 'D' Rack and Pinion safety devices on ALIMAK rack and pinion hoists and manlifts contrary to the manufacturer's recommended maintenance repair or replacement procedures. The manufacturer of these devices recommends that these safety devices only be repaired or replaced by the manufacturer.

Contractors are reminded that s.32 (2) of Ontario Regulation 209/01 (Elevating Devices) requires that maintenance of an elevating device be determined on the basis of specifications for maintenance of the manufacturer, manufacturers agent or of the contractor. Repair or replacement of these safety components is maintenance within the scope of the provisions of the regulation. Accordingly, these safeties shall either be repaired or replaced by the manufacturer or in the alternative be repaired or replaced in accordance with a procedure certified by a professional engineer. Such procedures shall be filed with TSSA engineering and be available to an inspector upon request.

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 214 / 09	Rev. No.:
DIRECTOR'S GUIDELINE	Date: January 6, 2010	Date:

Subject: Guideline for the reporting of
1) incidents
2) equipment exposed to harmful events affecting safe operation and
3) equipment found in a hazardous state (by a mechanic or owner)

Applicable to: All Passenger Ropeway Contractors, Consultants, Owners and Certificate Holders

1. Introduction

Ontario Regulation 209/01 (Elevating Devices) as amended by O.Reg 252/08, which came into effect on January 1, 2009, contains updated requirements related to the reporting of incidents.

Note: Passenger ropeways fall under the definition of elevating device, as defined by O.Reg 209/01. For the purpose of this guideline, and to facilitate its readability for the ski lift industry, the term elevating device (which covers passenger ropeways and conveyors) will be replaced with either passenger ropeway or ski lift.

2. Purpose of this Guideline

This guideline is intended to aid in compliance with section 36 of Ontario Regulation 209/01 (Elevating Devices) titled **Reporting of Incidents**. Section 36 requires that any incident involving a ski lift be reported to the Director. The specifics of this requirement vary depending on the nature of the incident.

The **Reporting of Incidents** section of the regulation addresses issues related to;

- types of incident(s),
- harmful events which may impact the safety of a device,
- devices found in a hazardous condition,
- who should report, method of reporting and reporting timelines,
- requirements related to preserving the scene,
- returning a device back into operation, and
- thorough investigation of incidents.

A copy of section 36 is attached as Appendix 'A'.

3. Intent

The intent of section 36 is to ensure that the Director is informed of all incidents related to ski lifts. Section 36 deals with not only actual incidents but also hazardous conditions where no injury or property damage has yet occurred. The reporting of instances or hazardous conditions can be an effective trigger for safety enhancements and it is vital to 'risk-informed decisions making' in order to manage public safety related to ski lifts. Legislated requirements for incident reporting allow the Director to make use of information obtained beyond that which is gained only from inspection activities.

4. Effective Date

The amended incident reporting section came into effect on January 1, 2009.

5. Returning Passenger Ropeways to Service

a) Subsection 36.(8) provides that no person shall return an elevating device to service after an incident until the cause of the incident or condition is identified, the safety of the device restored and an inspector gives permission to return the device to service.

b) Subject to compliance with all applicable incident reporting and notification requirements, an operator may return a passenger ropeway to service after an incident if:

i) The incident is investigated by a ski-lift mechanic certified for that device type or by a professional engineer, **and**
ii) The person conducting the investigation determines that the incident was solely due to the rider failing to load or unload properly, **and**
iii) The person conducting the investigation certifies the incident did not occur as a result of an issue with the passenger ropeway.

6. Incident Notification and Reporting Q&A's:

a) What is an incident?

The regulation defines an incident as follows:

"Incident" means an occurrence involving an elevator system, an elevating device or a component of an elevating device resulting in an adverse consequence to persons or property.

Note:

- Subsections 36.(1) and 36.(2) of the regulation specifically deal with "incidents".
- Subsections 36.(3) through 36.(5) do not deal with "incidents" but rather with "conditions".

b) Are reporting requirements connected to the severity of the 'incident'?

Yes.
Subsection 36.(1) details notification and reporting requirements for two categories of incident: "death", or "injury to a person that requires the services of a medical practitioner".

Subsection 36.(2) has notification and reporting requirements for minor incidents which are not covered in ss. 36.(1). A minor incident would be a personal injury where no medical practitioner was required or where there was property damage. Remember that a consequence to person or property = an incident.

c) What is meant by "services of a medical practitioner"?

The regulation defines medical practitioner as follows:

"medical practitioner" means a physician, nurse, dentist, chiropractor or physiotherapist legally qualified to practice their profession in Ontario, and a paramedic as defined under the Ambulance Act.

If any medical practitioner provided services as a result of the personal injury, then the notification and reporting requirements as described in ss. 36.(1) apply.

Note: If, for example, a paramedic responds to a call and provides medical services in connection with a ski lift incident, the owner and if applicable the maintenance or service contractor must both comply with the reporting requirements of ss. 36.(1) in relation to a death or serious injury.
If an incident occurs in connection with a ski lift where the services of a medical practitioner are not provided, the owner and if applicable the maintenance or service contractor must both comply with the reporting requirements of ss. 36.(2) in relation to a minor injury.

d) Do I need to report a personal injury which did not require the services of a medical practitioner (i.e. a more minor type injury)?

Yes.
Subsection 36.(2) of the regulation requires reporting incidents other than those described in ss. 36.(1). A personal injury that does not require the services of a medical practitioner would fall into this category.

e) Aside from the "incidents" described as

i)	**death:**	**in ss.36.(1),**
ii)	**injuries:**	**serious injuries in ss36.(1) and minor injuries in s36.(2), or**
iii)	**property damage:**	**in ss.36.(2)**

are there any other reportable events?

Yes.
Any time a ski lift is found to be in a condition where the safe operation of the equipment is affected (see ss. 36.(3)) or where there is an immediate hazard to the safety of persons or property [see ss. 36.(4) and ss. 36.(5)] the Director must be notified and a written report must be submitted.

f) When are the conditions of subsection 36.(3), that detail fire, flood or other significant water exposure, vandalism, impact or lightening strike, reportable?

Any time a ski lift has been negatively impacted to the extent that safe operation is questionable as a result of exposure to the conditions listed above, the owner and if applicable the maintenance or service contractor must both notify the Director and submit a written report of the incident to the Director.

g) What's the difference between subsections 36.(4) and 36.(5)?

Both of these provisions relate to the finding of the device in a condition which constitutes an immediate hazard. The difference depends on who finds or becomes aware of the hazard. Subsection 36.(4) applies if a mechanic finds the device in a hazardous state whereas subsection 36.(5) applies to licence holders.

h) What is meant by a "condition which constitutes an immediate hazard"?

A condition which constitutes an immediate hazard would be something that, if left unattended, would imminently cause death or serious injury to a person, also if the condition has the potential to cause

property damage it likely also exhibits the potential for serious injury. If a device is in a condition that constitutes an immediate hazard, it must be immediately removed from service.

i) What if the immediate hazard is something that can be fixed quickly through general maintenance or repair. Do I still need to report?

Yes.
If there was a potential for harm to persons or property the Director must be notified of the event or condition and a written report must be submitted.

j) If I comply with my notification and reporting requirements, can the device be returned to service?

Not if the incident or condition is of a type referred to in ss. 36.(1), ss. 36.(3), ss. 36.(4) or ss. 36.(5).
No person shall disturb the scene except for making the site safe or to facilitate rescue. Nothing is permitted to be done to the scene until an inspector gives permission to do so. No person is permitted to return the device to service until:

1. The cause of the incident or condition is identified;
2. The safety of the device is restored; and
3. The inspector has authorized the return to service.

See the exception found in section 5 of this guideline, "Returning Passenger Ropeways to Service".

k) If an incident [ss. 36.(1) or ss. 36.(2)] occurs or a condition as specified in ss. 36.(3), (4) or (5) is identified, can the device operate?

<table>
<tr><th colspan="4">Requirements for Device Operation</th></tr>
<tr><th>Reg ref.</th><th>Occurrence or Event</th><th>Operation of Equipment</th><th>Requirements before restoring operation</th></tr>
<tr><td rowspan="2">36.(1)</td><td>Death</td><td rowspan="2">Shut Down.
Cannot interfere with anything connected with the elevating device, except for making the site safe or rescue of injured persons, until an inspector gives permission</td><td rowspan="2">Operation only after:
1. cause is identified &
2. device safety is restored &
3. inspector gives permission</td></tr>
<tr><td>Injury requiring services of a medical practitioner</td></tr>
<tr><td>36.(2)</td><td>Injury other than 36.(1) or property damage</td><td>No shut down requirements</td><td>Safety of the device is restored</td></tr>
<tr><td>36.(3)</td><td>Equipment exposure to harmful events impacting safe operation</td><td rowspan="3">Shut Down.
Cannot interfere with anything connected with the elevating device, except for making the site safe or rescue of injured persons, until an inspector gives permission</td><td rowspan="3">Operation only after:
1. cause is identified &
2. device safety is restored &
3. inspector gives permission</td></tr>
<tr><td>36.(4)</td><td>Mechanic finds equipment in a condition that constitutes an immediate hazard</td></tr>
<tr><td>36.(5)</td><td>Licence holder finds or becomes aware of equipment in a condition that constitutes an immediate hazard</td></tr>
</table>

See exception found in section 5 of this guideline, "Returning Passenger Ropeways to Service".

l) Who is responsible to report?
What are the timelines for reporting?
What documentation is required?

Summary of Reporting Requirements			
Reg ref.	**Occurrence or Event**	**Notification**	**Written Reports**
36.(1)	Death Injury requiring services of a medical practitioner	Owner must notify the Director immediately	The contractor shall submit a written report to the Director within 24 hours of becoming aware of the incident
36.(2)	Injury other than 36.(1) or property damage	Owner and Contractor must notify the Director within 24 hours of becoming aware	The Owner and the Contractor shall submit a written reports to the Director within 7 days of becoming aware
36.(3)	Equipment exposure to harmful events impacting safe operation		
36.(4)	Mechanic finds equipment in a condition that constitutes an immediate hazard	The mechanic must notify the Owner or Contractor immediately	The licence holder shall submit a written report to the Director within 7 days of the finding
36.(5)	Licence holder finds or becomes aware of equipment in a condition that constitutes an immediate hazard	The licence holder must notify the Director within 24 hours of the finding	The licence holder shall submit a written report to the Director within 7 days of the finding

m) What information must be included in the report to the Director?

TSSA has a reporting form available on the www.tssa.org web site which must be used to capture the necessary information when reporting an incident. The regulation requires that full particulars of the incident / event are provided. Subsection 36.(6) provides as follows:

"The written report shall contain the results of an investigation carried out by the contractor following the incident or finding that the [...] device was in a condition that constituted an immediate hazard."

A copy of the reporting form is attached to this guideline.

n) Is it a requirement to use TSSA's reporting form?

Yes.
A written report must be submitted to the Director in the form provided by the Technical Standards and Safety Authority. A copy of this form is attached to this guideline.

o) Does the licence holder need to report the results of the investigation under ss. 36.(6)?

Yes.

It will be necessary for the licence holder to work with their maintenance contractor to complete the reporting form details. Subsection 36.(6) requires that contractors carry out an investigation following an incident or the finding of a hazardous condition. This information must be included in the licence holder's report to the Director.

While gathering information for the incident report, licence holders and contractors must be aware that during the investigation process, subsection 36.(7) requires that no person shall interfere with, disturb, destroy, carry away, or alter anything at the scene of or connected with the incident until an inspector gives permission to do so.

p) What are some examples of a condition that constitutes an immediate hazard (imminent potential for death or serious injury)?

While there are many possible conditions that could constitute an immediate hazard it is difficult to provide an exhaustive list. An immediate hazard is a condition that could result in death or serious injury to to persons if not immediately removed from service or rectified.
Here are a few examples of hazardous conditions*;

- A jumper is left on a safety circuit
- A safety related component is circumvented
- Missing or failed safety components
- A crack is discovered in an important weldment
- Failure of the tensioning system or components
- A single failure of a component which has created an immediate hazard condition
    - oil line or hydraulic cylinder failure
    - parted suspension or haul rope
    - brake failure
    - rope derailment

* to be considered an immediate hazard, the nature of these condition have a high probability to cause death or serious injury.

q) If a device is in a condition that does NOT constitute an immediate hazard [per Q&A (h) or (p)], but the condition poses an "<u>elevated exposure to risk</u>" to the public, can I voluntarily report the condition even though this is not covered by the regulation, and if so, how?

Yes. Voluntary reporting of conditions which pose an "**<u>elevated exposure to risk</u>**" to the public are welcomed and can aid in better risk informed decision making by the Director, the elevating devices safety program and TSSA's industry councils. The regulation defines the minimum requirements for reporting. The incident reporting form includes checkboxes used to specify the "occurrence type". To report a condition which poses an elevated exposure to risk select the occurrence type; "**voluntary reporting of an instance of elevated exposure to risk**".

Example of elevated risk might include:

- Repetitive misloads or unloads on the same device

r) What should I do if I am uncertain about my notification and reporting obligations?

If you are in doubt as to whether reporting is required, you are encouraged to report the finding, or contact TSSA's customer contact centre at 1 (877) 682-8772 for further clarification.

s) How do I Report?

An incident reporting form (specific to ski lifts) is available online at www.tssa.org
Incidents may be reported via:

- Telephone Notification - TSSA's customer contact centre at 1 (877) 682-8772
- Written Notification - via email to ski-incident@tssa.org

Where the regulation requires immediate reporting, see table "Summary of Reporting Requirements", reporting must be done by telephone.

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01(Elevating Devices) appointed under the *Technical Standards and Safety Act, 2000.*

This Guideline has been developed in consultation with the Ski Lift Advisory Council.

Appendix 'A'

From Ontario Regulation 209/01

INCIDENTS

Reporting of incidents

36. (1) Where an incident occurs in connection with an elevating device that results in the death of a person or injury to a person that requires the services of a medical practitioner,

(a) the owner of the device shall notify the director by telephone immediately; and

(b) the contractor maintaining the device shall submit to the director, in the form provided by the designated administrative authority, a written report giving full particulars within 24 hours of first becoming aware of the incident. O. Reg. 252/08, s. 21.

(2) Where an incident occurs in connection with an elevating device, other than an incident described in subsection (1), the owner and the contractor maintaining the device shall,

(a) notify the director by telephone or other means within 24 hours of first becoming aware of the incident;

(b) each submit to the director in the form provided by the designated administrative authority a written report giving full particulars within seven days of first becoming aware of the incident. O. Reg. 252/08, s. 21.

(3) Where there has been a fire, flood or other significant exposure to water, vandalism, impact or lightning strike that may adversely affect the safe operation of an elevating device, the owner and the contractor maintaining the device shall,

(a) notify the director by telephone or other means within 24 hours of first becoming aware of the condition that may adversely affect the safe operation of the device;

(b) each submit to the director, in the form provided by the designated administrative authority, a written report giving full particulars within seven days of first becoming aware of the condition. O. Reg. 252/08, s. 21.

(4) Where a mechanic finds that an elevating device is in a condition that constitutes an immediate hazard to the safety of a person or property, he or she shall immediately remove the device from service and notify the owner or contractor maintaining the device. O. Reg. 252/08, s. 21.

(5) Where a licence holder for an elevating device finds or becomes aware that the device is in a condition that constitutes an immediate hazard to the safety of a person or property, the licence holder shall,

(a) immediately remove the device from service;

(b) notify the director by telephone or other means within 24 hours of making the finding; and

(c) within seven days of making the finding, submit to the director in the form provided by the designated administrative authority a written report giving full particulars. O. Reg. 252/08, s. 21.

(6) The written report shall contain the results of an investigation carried out by the contractor following the incident or finding that the elevating device was in a condition that constituted an immediate hazard. O. Reg. 252/08, s. 21.

(7) Where an incident or condition of a type referred to in subsection (1), (3), (4) or (5) occurs, no person shall, except for the purpose of making the site safe or rescuing a person injured in the incident, interfere with, disturb, destroy, carry away or alter any wreckage, article or thing at the scene of or connected with the incident until an inspector gives permission to do so. O. Reg. 252/08, s. 21.

(8) No person shall return an elevating device referred to in subsection (1), (3), (4) or (5) to service until the cause of the incident or condition is identified, the safety of the device restored and an inspector gives permission to return the device to service. O. Reg. 252/08, s. 21.

(9) An investigation under this section shall be conducted in such manner as the director considers necessary in the circumstances. O. Reg. 252/08, s. 21.

Elevating and Amusement Devices Safety Division	Ref. No.: 215/07	Rev. No.:
Information / Interpretation Bulletin	Date: August 20, 2007	Date:

Subject: Outdoor Installation of Lifts For Persons With Physical Disabilities
Sent to: Elevator Contractors, Mechanics and Inspectors

1. INTRODUCTION

The location of, access to, and usage of lifts for persons with physical disabilities do not fall under the scope of CAN/CSA-B355-00S1-02, however Clause 4.1.1 requires that the whole lift and its components to be designed in accordance with acceptable engineering practice; the lift shall be constructed with suitable materials.

2. INTERPRETATION

The authority having jurisdiction (AHJ) regulates factors related to the location of, access to, and usage of the lifts covered by B355. Since the majority of elevating devices for persons with physical disabilities are located indoors, the existing requirements cover these types of installations.
The following instructions apply to devices and their components where installed outdoors and exposed to weather conditions.

3. INSTRUCTIONS

3.1. The controller shall be enclosed in an enclosure (B355, Clause 8.4.3.2). Where the controller is directly exposed to precipitation, its enclosure shall be at least Type 3R (see C22.1-02, Table 65) certified, marked, and properly installed following manufacturer's instructions.

3.2. Operating devices (see B355-00S1-02, Clause 8.2.2 including note) shall be protected against exposure to precipitation and installed following manufacturer's instructions, or shall be certified for at least Type 3R applications; they shall be marked, and properly installed, following manufacturer's instructions.

3.3. Conduit fittings where used and directly exposed to precipitation shall be certified for at least Type 3R applications and shall be installed following manufacturer's instructions.
Flexible conduits, where used and directly exposed to precipitation shall be "liquid-tight" type.

3.4. Wires, cables, flexible cords directly exposed to precipitation shall be suitable for wet locations/exposure to the weather, certified and marked as per C22.1 Table 11, and Table 19.

3.5. Wires, cables, or flexible cords, used to provide flexible connections (e.g.: traveling cables), exposed to extreme cold (under - 30°C) shall be certified for the appropriate low temperature (e.g.: -40°C).

3.6. The owner is responsible for maintaining the elevating device and its access path free of snow and ice.

3.7. A statement in Box 189 of the Specification Sheet must be included:

"This elevating device has been designed and constructed for use in an outdoor application"

Note: Submitting Engineer must provide information in Box 189 to confirm suitability of the following components, where applicable:

a) Motors and driving machines
   i) Where directly exposed to precipitation and/or
   ii) Where extreme low temperatures occur.
b) Hydraulic fluids (grade and/or oil tank heater)
c) Components providing lubrication of various mechanisms (e.g.: lubricator on an ACME screw drive nut.)

Rob Kremer, P. Eng.,
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

	Elevating and Amusement Devices Safety Division	Ref. No.: 216 / 07	Rev. No.:
	Elevating Devices Code Adoption Document - Amendment	Date: September 1, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01

(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Adoption of CAN/CSA-Z185-M87 (R2001) Safety Code for Personnel Hoists, CAN/CSA-Z256-M87 (R2006) Safety Code for Material Hoists, and ANSI A10.22-2007 American National Standard for Rope-Guided and Nonguided Worker's Hoists.

Sent to: All Elevating Device Contractors

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD) published by the Technical Standards & Safety Authority, as amended, is further amended as follows;

1.0 Change to Definitions

Part I, General, 1. Definitions of the CAD is amended by adding the following:

common-mode failure, means the result of an event(s) which because of dependencies, causes a coincidence of failure states of components in two or more separate channels of a redundancy system, leading to the defined system failing to perform its intended function.

software system failure, means a behaviour of the software, including its support (host) hardware, that is not in accordance with the intended function.

solid-state device, means an element that can control current flow without moving parts.

2.0 Change to General Technical Requirements

2.1 Part II, General Technical Requirements of the CAD is amended by adding the following:

4.(c) except the requirements of 4.(b) are not applicable to Construction Hoists.

3.0 Change to Part VI Construction Hoists

3.1 Part VI, Construction Hoists **section 31.(1)** of the CAD is revoked and replaced with the following:

31.(1) Every construction hoist shall conform to the following:

a) workers' rail-guided construction hoists shall conform to CAN/CSA-Z185-M87 (R2001) Safety Code for Personnel Hoists;

b) workers' rope-guided construction hoists shall conform to American National Standard ANSI/ASSE A10.22-2007 Safety Requirements for Rope-Guided and Non-Guided Worker's Hoists.

c) material construction hoists shall conform to CAN/CSA-Z256-M87 (R2006) Safety Code for Material Hoists.

3.2 Part VI, Construction Hoists section 35. of the CAD is renumbered as 35.(1)

3.3 Part VI, Construction Hoists section 35.(2) is added as follows:

35.(2) In addition to the requirements of 31.(1)(a), workers' rail-guided construction hoists shall conform to the following:

a) Clause 14.4.2 of CAN/CSA-Z185-M87 (R2001) shall be replaced with the following;
The occurrence of a single ground or a software system failure or the failure of
i) a switch which does not have contacts that are positively separated;
ii) a contactor;
iii) a relay; or
iv) a solid state device;
shall not render any electrical protective device ineffective.

b) Redundant software systems used to satisfy the requirements of a) shall have a level of diversification sufficient to avoid common mode failures.

c) Clause 18.1.1(c) of CAN/CSA-Z185-M87 (R2001) shall be replaced with:
Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

e) Workers' construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase.

3.4 Part VI, Construction Hoists section 35.(3) is added as follows:

35.(3) In addition to the requirements of 31.(1)(b), workers' rope-guided construction hoists shall conform to the following:

a) The occurrence of a single ground or a software system failure or the failure of
   i) a switch which does not have contacts that are positively separated;
   ii) a contactor;
   iii) a relay; or
   iv) a solid state device;
   shall not render the, deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake ineffective.

   Note: Requirements only apply to the circuits in which the ceadman control switch, the limit switches which prevent overtravel, or the automatic friction brake are used and not to the devices themselves.

b) Redundant software systems used to satisfy the requirements of **i)** shall have a level of diversification sufficient to avoid common mode failures.

c) Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render the Deadman Control Switch, Limit Switches, or the Automatic Friction Brake ineffective and shall not cause the cage to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

d) All references to NFPA 70 (Clause 2.1, Clause 3.24, and Clause 4.13 of ANSI A10.22-2007) shall be replaced with OESC 23rd Edition-2002.

3.5 Part VI, Construction Hoists section 35.(4) is added as follows:

35.(4) In addition to the requirements of 31.(1)(c), material construction hoists shall conform to the following:

a) Clause 15.3.2 of CAN/CSA-Z256-M87 (R2006) shall be replaced with the following;
   The occurrence of a single ground or a software system failure or the failure of
   i) a switch which does not have contacts that are positively separated;
   ii) a contactor;
   iii) a relay; or
   iv) a solid state device;
   shall not render any electrical protective device ineffective.

b) Redundant software systems used to satisfy the requirements of a) shall have a level of diversification sufficient to avoid common mode failures.

c) Clause 19.1.3 of CAN/CSA-Z256-M87 (R2006) shall be replaced with:
   Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

e) Material construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase.

4.0 Effective Date

This Code adoption Document Amendment is effective September 1, 2007.

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices)
made under the *Technical Standards and Safety Act, 2000*.

5.0 Background

Due to changes in technology, Construction Hoists have begun to incorporate solid-state devices and software systems into safety circuits replacing traditional hard-wired switches and relays. The CAN/CSA-Z185, CAN/CSA-Z256, and ANSI A10.22 standards are silent with regards to the use of these technologies, and therefore additional rules are required to ensure the continued safe operation of Construction Hoists. With the acknowledgement of designs which incorporate software systems and solid state controls in safety circuits, electromagnetic interference from radio frequency transmitters and cell phones is a hazard which must be ruled out by electromagnetic compatibility testing where required.

The CAN/CSA-Z185-M87 (R2001) Safety Code for Personnel Hoists and CAN/CSA-Z256-M87 (R2006) Safety Code for Material Hoists, are available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON, L4W 5N6, telephone: 1-800-463-6727, 416-747-4044 or online www.shopcsa.ca

The ANSI A10.22-2007 American National Standard for Rope-Guided and Nonguided Worker's Hoists is available from the American National Standards Institute, 25 West 43rd Street, 4th floor, New York, NY 10036, telephone: 1-212-642-4900 or online webstore.ansi.org

The EN 12016:2004 Electromagnetic Compatibility – Product Family Standard for Lifts, Escalators and Passenger Conveyors is available from BSI British Standards, 389 Chiswick High Road, London, W4 4AL, United Kingdom, telephone +44 (0)20-8996-9001, or online www.bsonline.bsi-global.com

This Order has been developed in consultation with the Construction Hoist Industry

Elevating and Amusement Devices Safety Division	Ref. No.: 218/ 07	Rev. No.:
Enforcement Procedure Bulletin	Date: December 4, 2007	Date:

Subject: Periodic Inspections and Follow-Ups to Periodic Inspections on elevating devices (excludes passenger ropeway devices)

Sent to: Elevator Contractors, Mechanics and Owners

1. INTRODUCTION

TSSA has recognized a noticeable trend of non-compliance of both safety and maintenance related directions during its periodic inspection activities. Many of these directions are not being resolved in a timely manner. Failure by owners and elevator contractors to resolve these directions in the specified time limits are exposing the public to unnecessary risk and are resulting in unnecessary follow-up inspections by TSSA to deal with unresolved issues.

The purpose of this Enforcement Procedure is to advise industry stakeholders of TSSA's revised enforcement procedures as related to periodic inspections, and follow-up to periodic inspections. These procedures are designed to provide an incentive to contractors and owners who receive directions and resolve those directions in the times specified (by offering voluntary reporting of compliance), while providing disincentives to owners and contractors who receive directions but fail to resolve them in a timely manner.

2. VOLUNTARY REPORTING OF COMPLIANCE

TSSA believes that the existing process of allowing persons to voluntarily report when compliance has been achieved is an effective tool that benefits both industry stakeholders and TSSA while not adversely affecting public safety. As a result, TSSA inspectors will continue to offer voluntary reporting of compliance on all low risk directions.

TSSA will not be offering voluntary reporting of compliance on the following:

- Any high risk directions
- Any overdue yearly, two year or five year inspections, tests or maintenance tasks
- Any directions associated with oil loss monitoring Director's Order 212/07
- Any directions which request a submission as a result of an alteration
- Any directions associated with a Director's Orders which has a past due date for compliance

To facilitate in the use of voluntary reporting of compliance and to ensure that contractors are fully aware of any directions issued, TSSA inspectors will issue the inspection report to the licensee or the building representative, and will leave a copy with the logbook or email a copy to the maintenance contractor.

In the absence of a voluntary compliance mechanism, the owner would always be paying for a follow up inspection. Should voluntary reporting of compliance be used, with the owner or contractor confirming that all directions have been resolved within the prescribed time limit, the owner will

avoid the cost of a follow-up inspection. Audit inspections at the discretion of the inspector may result, however costs will only apply if non-compliance is found. This benefits the owner by saving the cost of a follow-up inspection and enables TSSA resources to focus on other safety issues.

3. COMPLIANCE INCENTIVES AND DISINCENTIVES

Voluntary Reporting of Compliance Offered, Directions Completed, and Reported to TSSA (no cost)
Where voluntary reporting of compliance is offered and reported as complete, no additional fees will apply.

Voluntary Reporting of Compliance Offered, Directions Completed, but not Reported to TSSA (1x regular inspection rate)
Where an inspector performs a follow-up inspection and finds that the directions have been completed, but the owner or contractor did not submit the voluntary reporting of compliance, the owner shall be billed at the regular rate for inspection with a minimum one-hour charge (normal fee).

Directions NOT Completed within Timelines (2x regular inspection rate)
Where an inspector performs a follow up inspection and finds that the directions **have not been completed**, the owner shall be billed **twice the regular rate for the inspection (minimum one hour charge x 2)**. The directive will remain outstanding and will be subjected to an additional follow up and associated fees.

Where directions have not been completed, the inspector shall at his or her discretion, allow an additional period of time to resolve the directions, **remove the device from service, or recommend to the Director administrative penalties or additional enforcement actions up to and including charges under the** *Technical Standards and Safety Act.*

This enforcement procedure is effective **March 1, 2008.**

4. NOTES

Voluntary reporting of compliance will not be granted on inspection reports where one or more of the directions are not eligible for voluntary reporting of compliance despite the fact that some of them on their own may have been eligible.

Rob Kremer, P. Eng.,
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Order has been developed in consultation with the Elevating Devices Advisory Council

Elevating and Amusement Devices Safety Division	Ref. No.: 218/ 07	Rev. No.: 1
Enforcement Procedure Bulletin	Date: December 4, 2007	Date: January 11, 2011

Subject: Periodic Inspections, Minor Alterations and Follow-Up Inspections on elevating devices (excludes passenger ropeway devices)

Applicable to: Elevator Owners, Contractors and Mechanics

1. INTRODUCTION

TSSA has recognized a noticeable trend of non-compliance of both safety and maintenance related directions during its periodic inspection activities. Many of these directions are not being resolved in a timely manner. Failure by owners and elevator contractors to resolve these directions in the specified time limits are exposing the public to unnecessary risk and are resulting in unnecessary follow-up inspections by TSSA to deal with unresolved issues.

The purpose of this Enforcement Procedure is to advise industry stakeholders of TSSA's revised enforcement procedures as related to periodic inspections, and follow-up to periodic inspections. These procedures are designed to provide an incentive to contractors and owners who receive directions and resolve those directions in the times specified (by offering voluntary reporting of compliance), while providing disincentives to owners and contractors who receive directions but fail to resolve them in a timely manner.

2. REVISION 1 NOTES

The original release of 218/07 advised elevating device owners and contractors that TSSA was increasing some 'follow-up inspection' charges by a factor of two times (**2X**) if the 'follow-up inspection' was in response to a prior 'follow-up inspection'.

This **2X** charge became effective March 1, 2008 and was intended to persuade owners and contractors to address their inspection directions within the provided time frame, and avoid a **2X** re-inspection charge. Ultimately this would allow TSSA to divert valuable inspection resources to higher priority issues (such as 'periodic' and 'initial' inspections).

Despite some improvement in compliance timelines over the past two and half years as a result of a **2X** charge deterrent, in conjunction with additional enforcement strategies such as shutting down elevators for specific non-compliances, TSSA continues to observe significant non-compliances to the completion timelines issued during a periodic inspections.

In an effort to further drive compliance, revision 1 of Enforcement Procedure 218/07 revises the 2X charge multiplier to a 3X charge multiplier.
Additionally, this multiplier will be applied to follow-up inspections related to Minor Alterations.

In many circumstances a 'follow-up inspection' may not be avoidable, however if the inspection directives identified during either a 'periodic inspection' or "minor alteration inspection" are resolved within the time frame issued by the inspector then charge multipliers will not be utilized, thereby saving contractors or owners from additional fees and saving a return visit by a TSSA inspector.

3. RESOURCE ALLOCATION and FOLLOW-UP VISITS

From September 1, 2009 to September 1, 2010 TSSA conducted 18,606 periodic inspections.
As a result of these periodic inspections, a 1st time follow-up visit was required 11,759 times, which represents a 63% return rate by TSSA inspectors to perform these follow-up visits. In many cases a follow-up visit could have been avoided if proper & adequate maintenance was being conducted.

During the same time period, TSSA conducted 7,635 follow-up inspections **on top of a prior follow-up inspection**. (These 7635 follow-ups to a follow-up would have been subject to the **2X** charge. In future this will be a **3X** charge.)

In the same time period, 593 Minor A alterations and 2687 Minor B alterations where inspected, requiring, 197 and 1068 follow-up inspections respectively, suggesting a re-inspection by TSSA inspectors was required 33% and 40% of the time on alteration work.

4. VOLUNTARY REPORTING OF COMPLIANCE (VC)

TSSA believes that the existing process of allowing persons to voluntarily report when compliance has been achieved is an effective tool that benefits both industry stakeholders and TSSA while not adversely affecting public safety. As a result, TSSA inspectors will continue to offer voluntary reporting of compliance on all low risk directions.

TSSA will not be offering voluntary reporting of compliance on the following:

- Any high risk directions
- Any overdue yearly, two year or five year inspections, tests or maintenance tasks
- Any directions associated with oil loss monitoring Director's Order 212/07
- Any directions which request a submission as a result of an alteration
- Any directions associated with a Director's Orders which has a past due date for compliance

To facilitate the use of voluntary reporting of compliance and to ensure that contractors are fully aware of any directions issued, TSSA inspectors will issue the inspection report to the licensee or the building representative, and the maintenance contractor.

In the absence of a voluntary compliance mechanism, the owner, and now the contractor for incomplete alteration work directives, would always be paying for a follow up inspection. Should voluntary reporting of compliance be used, with the owner or contractor confirming that all directions have been resolved within the prescribed time limit, the owner or contractor will avoid the cost of the associated follow-up inspection. Audit inspections at the discretion of the EDAD Program may result, however fees would only apply if inspection directives where not completed.

If VC is offered, it is essential that owners or contractors complete the directions and report the VC within the allotted time. Failure to complete and report will result in a follow-up inspection and a minimum 1X charge in lieu of No Inspection Charge.

Note: VC may be subject to an audit. Where audit inspections find full compliance, a no charge audit inspection will result, however a 3X charge will apply if the directives are found to be incomplete.

5. FEE INCENTIVES AND DISINCENTIVES

5.1. No Inspection Charge

Where 'VC' voluntary reporting of compliance is offered and reported as complete, no additional fees will apply.

Note: Fees will apply if an audit inspection is performed and reveals the work was not completed. A 3X charge will be applied and the TSSA shutdown policy will apply.
Voluntary reporting of compliance will not be granted on inspection reports where one or more of the directions are not eligible for voluntary reporting of compliance.

5.2. 1X Inspection Charge*

Where an inspector performs a first time follow-up inspection in response to a shut down or conditional pass inspection and finds that the directions have been completed (inspection outcome = pass), the owner or contractor, as appropriate for the inspection, shall be billed a 1X charge for the inspection.

5.3. 3X Inspection Charge*

Where an inspector performs a follow up inspection and finds that the directions have not been completed, the owner or contractor (as appropriate) shall be billed a **3X** charge for the inspection. The directive will remain outstanding and will be subjected to an additional follow up inspection and the TSSA shutdown policy will be applied.

Where directions have not been completed, the inspector shall allow an additional period of time to resolve the directions or shall remove the device from service (in accordance with TSSA's "Shutdown Policy"). Additional enforcement actions up to and including charges under the *Technical Standards and Safety Act* may apply.

* Inspection Charge:
A regular inspection includes half hour travel time per site plus actual inspection time. There is a minimum billable time of one hour per site.

6. INFORMATION NOTES ON AN INSPECTION REPORT

Where Order(s) have been issued with Compliance Date timelines (see Fig 1.),

Orders Issued To: <name>

Line	Reference and Order(s)	Compliance Date
--	Car enclosure other: Repair or replace the damaged directional arrows in the cab.	SEP 13, 2010
--	Make both in car emergency lights operational.	SEP 13, 2010

Fig 1.

the Standard Notes area of the ED Inspection Report (see Fig 2.) will be populated with information notes advising about additional fee consequences.

Standard Notes
Where an inspector performs a follow up inspection and finds that the order(s) have not been completed,

Fig 2.

6.1. Standard Note (Directions Found)

"Where an inspector performs a follow up inspection and finds that the order(s) have not been completed, the owner (for periodic inspection issues) or the contractor (for minor alteration issues) will be billed at three times the regular charge for inspection. The order(s) will remain outstanding and will be subject to an additional follow up inspection. [A regular inspection includes half hour travel time per site plus actual inspection time. There is a minimum billable time of one hour per site.]"

This standard note is applicable whenever orders are issued or are outstanding on an inspection report.

6.2. Standard Note (Directions Found, VC Eligible)

"Voluntary compliance guidelines: This report is eligible for the voluntary reporting of compliance option. YOU MUST EXERCISE THIS OPTION TO AVOID ADDITIONAL FEES. Reporting requirements are as follows;
1. All inspectors orders (directions) appearing on the inspection report must be complied with.
2. A person who has legal signing authority on behalf of the owner or the ED contractor must FAX or EMAIL completion of the voluntary compliance option on or before the last compliance date appearing on the inspection report. For more information please contact TSSA at 1-877-682-8772.
Note: Voluntary compliance is subject to an audit process which may result in additional inspection fees. It is an offence to knowingly make a false statement or to furnish false information under The Act, the regulations or a ministers order; Technical Standards and Safety Act, 2000; sect. 37."

Fax Instructions: Provide printed name, signature and date and FAX TO: 416 – 231 - 5435
(Printed Name, Signature, Date) _____

Email Instructions: Send an EMAIL complete with the following information to vcreporting@tssa.org
1. Service Request # <_____> 2. Reference Number(s): <_____> 3. Inspection Address: <_____>
4. The statement: I < insert name > acknowledge completion of ALL outstanding directions.

This standard note is applicable whenever voluntary compliance reporting is granted.

7. EFFECTIVE DATE

The three times fee note (in 6.1) will appear on inspections reports whenever directions are issued on or after **April 1, 2011.**

8. DEFINITION OF TERMS USED IN THIS ENFORCEMENT PROCEDURE:

"periodic inspection" means an inspection by an inspector carried out at intervals determined by the director for the purpose of ensuring the safe operation of an elevating device; (fees payable by the owner)

"follow-up inspection" means an inspection by an inspector that is made following a periodic inspection, a special inspection, a minor A or minor B alteration inspection; also refers to an inspection in response to overdue directives from a prior follow-up; (fees payable by owner or contractor - depending on the inspection type prior to the follow-up)

"pass" means no directives were issued at this time

"conditional pass" means directives have been issued, however the device is permitted to operate under the terms of the inspection order.

"voluntary compliance" or "VC" means a low safety risk directive has been issued for which completion of the outstanding directive can be voluntarily reported to avoid re-inspection fees

"conditional pass w/VC option" means directives have been issued, however voluntary report of compliance has been allowed due to the low risk nature of the safety directive

"shut down" means issues have been identified that require the device to be removed from service

"audit" means an inspection carried out at the discretion of the inspector in response to reporting of VC (fees payable by owner or contractor - depending on the inspection type prior to the audit inspection)

"Minor A or Minor B" is a submission type dictated by an alteration scope (inspection fees are payable by the contractor)

9. INSPECTION FLOW AND FEE FLOW DIAGRAM

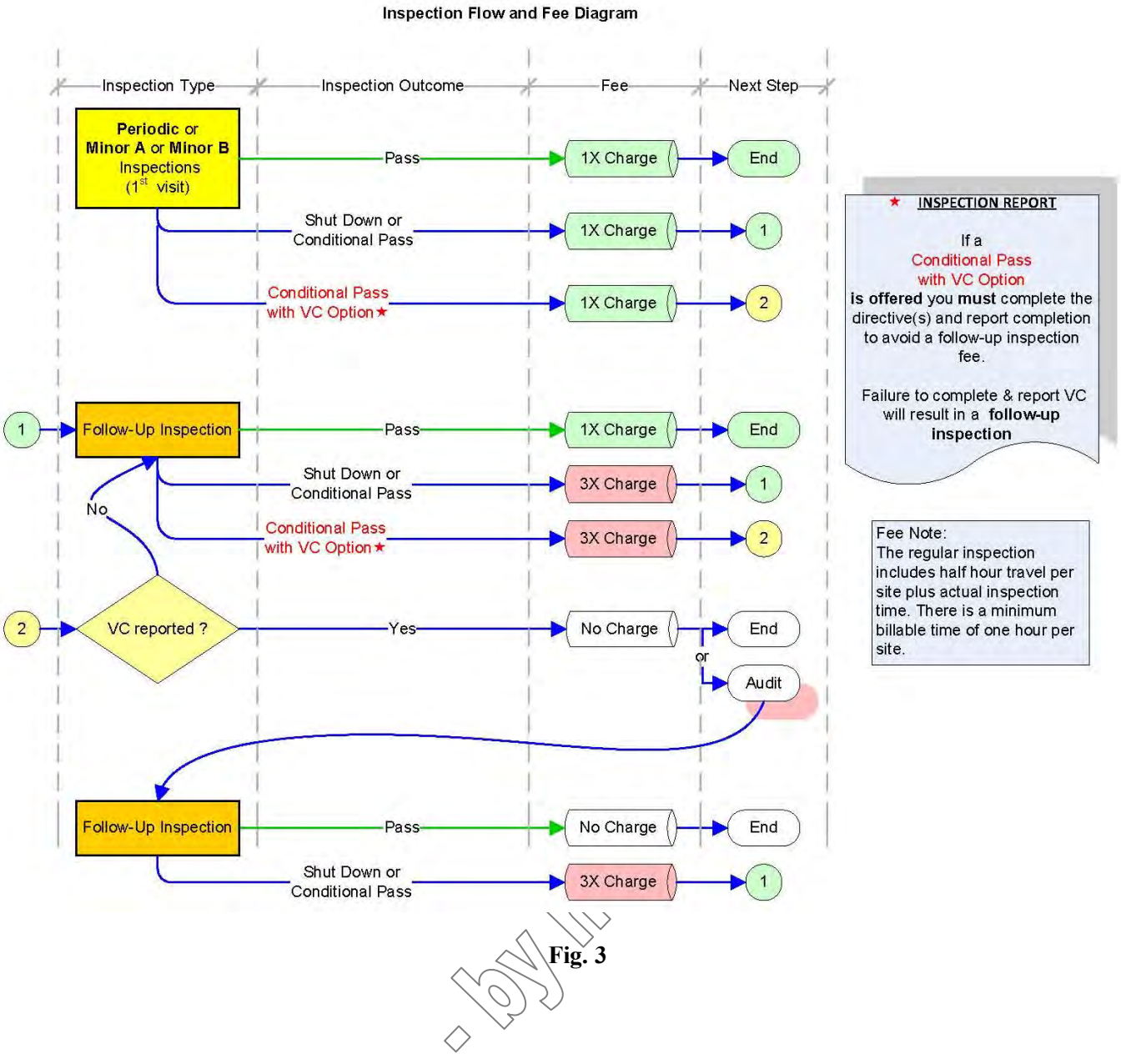


Fig. 3

Marc Tevyaw
Technical Specialist, EDAD Program

Rob Kremer, P. Eng.,
Engineering Manager, EDAD Program

This Order has been developed in consultation with the Elevating Devices Advisory Council

Elevating and Amusement Devices Safety Division	Ref. No.: 219 / 07	Rev. No.:
DIRECTOR'S ORDER	Date: October 12, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

Subject: Fire Code Retrofitting of elevators in buildings with hotel occupancies in conformance with Article 9.9.5.3. of the Ontario Fire Code

Sent to: All Elevator Contractors

Pursuant to subsection 36.(3)(a) of the *Technical Standards and Safety Act, 2000,* the Director, subject to the conditions herein, authorizes the use of and requires compliance with the following:

1. ORDER TO CONTRACTORS RETROFITTING EXISTING ELEVATORS

For fire code retrofits per Article 9.9.5.3 of
a) Ontario Regulation 388/97 including the amending Ontario Regulation 144/06 made under the Fire Protection and Prevention Act 1997 (for installations prior to November 21, 2007) or
b) Ontario Regulation 213/07 (for installations on or after to November 21, 2007,
the following requirements apply:

1.1 Where elevators, in buildings with hotel occupancies having a vertical distance between grade and the floor of the top storey exceeding 18m, are retrofitted "for use by firefighters", the retrofitting of such elevators shall additionally conform to one of the following:

a) CAN/CSA - B44-00 including Update No. 2, Safety Code for Elevators,
b) CAN/CSA - B44-04 Safety Code for Elevators, or
c) CAN/CSA - B44-07 Safety Code for Elevators (see Code Adoption Document Amendment 225/07)
Note: conformance to future code editions will also be permitted

1.2 Where Article 9.9.5.3 (*Elevators for firefighters' use*) requires only **one** elevator in a group to be designated as the firefighters' elevator, this order requires that **all** elevators in the group shall be provided with the following B44 Safety Code for Elevator features:
a) phase one operation conforming to 2.27.3.1 *(Phase I Emergency Recall Operation - **manual**)* and
b) phase two operation conforming to 2.27.3.3 *(Phase II Emergency In-Car Operation)* and
c) phase one operation conforming to 2.27.3.2 *(Phase I Emergency Recall Operation - **automatic**)* if required by the Ontario Building Code.

1.3 In accordance with Ontario Regulation 209/01 made under the ***Technical Standards and Safety Act, 2000***, any work on existing elevators leading to the designation of "Fire Code Retrofitted Hotel-Elevator", constitutes a "minor alteration type A".

1.4 All markings of elevators, retrofitted under Article 9.9.5.3 of the Ontario Fire Code shall be in compliance with the B44 Elevator Safety Code requirements. The 50 mm Fire Fighter Hat displayed at the entrance frame shall be yellow to identify the hotel fire code retrofit designation.

1.5 Elevators retrofitted under Article 9.9.5.3 of the Ontario Fire Code shall also conform to Director's Order 211 /06 which requires a common key for operation of FEO.

1.6 A design submission, covering the alteration, must be submitted to TSSA within ten working days after the completion of the alteration and must include the following:

a) a key plan to show the location of all elevators controlled by the recall switch,

b) a statement in the specification sheet that "all elevators (provide installation numbers) are recalled by the same recall switch", and

c) identification of which B44 code edition referenced in section 1.1 above will be used in the design and testing of the "Firefighters Emergency Operation" (FEO) system.

1.7 The **contractor** who completed the alteration **shall arrange** for a special inspection to be carried out not later than 60 days from the date of the completion of the alteration. If elevator(s) are to be returned to service before the inspection, the installing contractor must ensure that the safety of the elevator is not adversely affected by the alteration.

_____

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01(Elevating Devices) made under the *Technical Standards and Safety Act, 2000.*

2. BACKGROUND

2.1 Ontario Regulation 144/06 amending Ontario Regulation 388/97 (Fire Code) came into effect on January 1, 2007.

2.2 Ontario Regulation 388/97 is revoked on November 21, 2007.

2.3 Ontario Regulation 213/07 comes in force on November 21, 2007.

2.4 Article 9.9.5.3, retrofitting of *Elevators for firefighter's use*, is required to be completed by January 1, 2012, per Article 9.1.3.1.

2.5 Enforcement of owner compliance with the retrofit regulation will rest with those having jurisdictional authority under the Ontario Fire Code. The Technical Standards & Safety Authority (TSSA) enforces rules and standards applicable to the retrofitted features of the elevator.

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 220/07	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: June 22, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the *Technical Standards and Safety Act 2000*

Subject: MONTGOMERY HR ESCALATOR DC BRAKE ADJUSTMENT ALERT
Sent to: All Elevating devices Contractors, Consultants and Owners

The Director, Elevating Devices Regulation (O.Reg.209/01) pursuant to his authority under section 14.(1) of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. ORDER

1.1 On every maintenance visit, to all Montgomery HR Escalators having a DC shoe-type brake, that is maintained by your company, contractors shall perform the brake slide test set out in Box 1 of Kone Escalator Instruction 2007-04 (see attached). Should an HR escalator take more than half a step to stop when running in the down direction under no load, the contractor shall carry out the torque test and check the wear reserve as set out in Boxes 2 and 3 prior to returning the escalator to service.

1.2 No later than 90 days from the effective date of this order, contractors shall have completed a brake slide test, a brake torque test and a brake wear reserve check as set out in Boxes 1, 2, and 3 of KONE ESCALATOR INSTRUCTION 2007-04. (see attached)

1.3 If oil is found on the brake pad, the brake pad shall be replaced before the escalator is returned to service, and an oil drip guard shall be installed over the brake shoes to prevent future oil contamination.

1.4 Every action in 1.1, 1.2 and 1.3 above shall be noted in the log book, together with mechanic's name, signature and date, and, in addition:

a) the empty down slide distance shall be noted every visit .

b) the brake wear reserve gap shall be noted if adjustments are made.

1.5 This order is effective immediately

_____

Roland Hadaller, P.Eng., Director, Elevating Devices Regulation appointed under the *Technical Standards & Safety Act, 2000*

2. NOTES:

2.1 If replacement brake pads or complete shoes are installed, the linings must be burnished to achieve full contact with the pulley. Since burnishing may generate excessive heat, ensure brakes cool to ambient temperature before making adjustments per Boxes 2 and 3 of KONE Escalator Instruction 2007-04.

2.2 If adjustments are required to the brake, the brake wear reserve as set by the brass adjusting screw (referred to in box 3) shall be checked. The head of this screw may have to be ground down to get the required clearance (min. 0.060" air gap) when the brake is applied

2.3 Check that there is equal clearance between upper and lower brake shoes and the brake drum to ensure the brake is not dragging. This clearance can be adjusted using bolts of Stop A and then Stop B, as shown in the drawing of the Montgomery DC Brake.

2.4 If adjustments are required to the brake, the brake lifting micro-switch shall be checked and if necessary properly adjusted. The micro-switch operates just as the upper shoe fully opens, in order to reduce the coil voltage and prevent coil overheating. It also holds in the motor contactors. If the switch operates too soon the voltage will drop before the brake is fully lifted. This may cause the pads to drag and excessively wear. If the switch operates too late (or not at all), the run circuit will not latch causing it not to start or shut down.

3. BACKGROUND

Investigations following a recent accident raised concerns that Montgomery DC shoe type brakes may not be able to stop their rated load if not properly set up and maintained. Accordingly, KONE Inc. has issued enhanced maintenance procedures as Escalator Instruction 2007-04, and TSSA has issued this Director's Safety Order.

This Order has been developed in consultation with the Elevating Devices Advisory Council

Head Office Engineering

April 5, 2007

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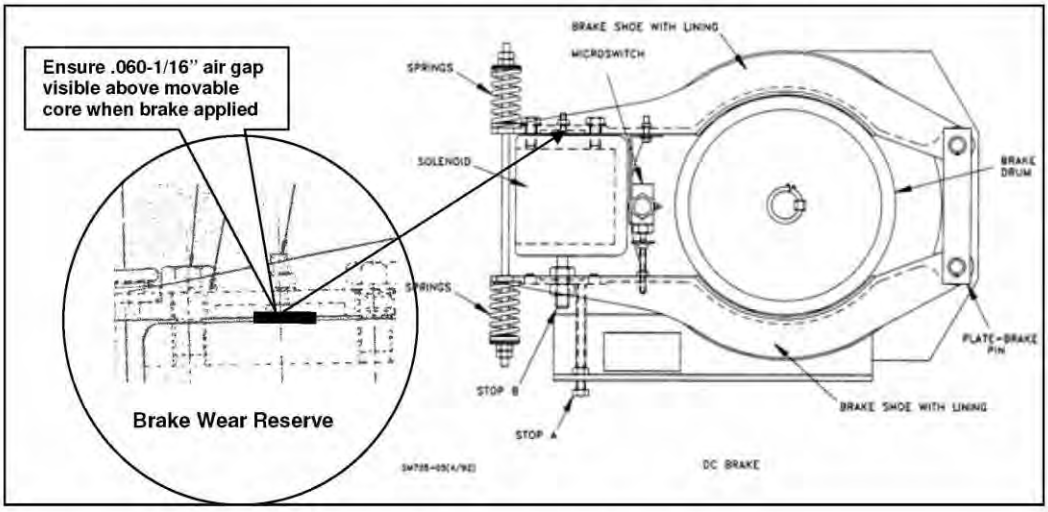
CANADA
Tel 416-252-6151
Fax 416-252-3624
al.brown@kone.com

ESCALATOR INSTRUCTION 2007-04

RE: MONTGOMERY HR ESCALATOR DC SHOE BRAKES INSPECTION AND TEST PROCEDURES

Investigations following a recent occurrence indicate that it would be useful to issue enhanced brake inspection and test procedures for MONTGOMERY HR ESCALATORS with DC SHOE BRAKES, to ensure stopping ability as the linings wear.

MONTGOMERY HR ESCALATOR DC SHOE BRAKE CHARACTERISTICS



End View of DC Shoe Brake

The Montgomery HR escalator DC shoe brake has a single push solenoid. Upon energization, its plunger pushes down on Stop B, opening the bottom shoe until it reaches stop A, then continues to open the top shoe. A micro-switch operates just as this upper shoe is fully open, to reduce the coil voltage and prevent coil overheating. It also holds in the motor contactors.

The empty down stopping slide distance always indicates the holding ability of this brake. The rated empty down stopping distance for this brake is 4-6 inches for 20 ft rise at 90 fpm at room temperature. **Under no circumstances may this empty down stopping slide exceed half a step or 8 inches.**

1. BRAKE SLIDE - VISUAL CHECK REQUIRED EVERY VISIT

a) On every maintenance visit to every MONTGOMERY HR ESCALATOR with DC SHOE BRAKES, the maintainer must press the stop pushbutton and visually **verify that the empty escalator running in the down direction at 90 fpm appears to stop within half a step or 8 inches.**

b) If the observed slide exceeds half a step or 8 inches, the unit must be immediately removed from service, and barricaded to prevent passenger from using it as a staircase, until the brake meets the torque, slide, and wear reserve requirements in boxes 2) and 3) below.

c) This stop pushbutton check is required by the B44 Safety Code Appendix J.

2. BRAKE TORQUE – TORQUE TEST REQUIRED ANNUALLY

a) Annually the maintainer must use a calibrated torque wrench to verify that each Montgomery HR escalator DC shoe brake has **45-55 lb-ft torque** as follows:

1. To access the brake, remove 1 or 2 steps, and then move the step gap over the motor.
2. Turn off power to the escalator at the disconnect switch on the controller and lock it out.
3. Ensure that any newly installed pads are properly burnished..
4. Measure the amount of torque required to turn the brake drum through the closed shoes.
5. Tighten or loosen both torque springs equally to set torque to 45-55 lb-ft (60-75 n-m).
6. Lock the spring settings by placing two nuts on both ends of the spring rod.
7. (This is a good opportunity to also apply a few drops of oil to the holes of the brake shoe castings to lubricate the brake shoe pins and prevent the shoe from locking up on the pin.)
8. Restore power to escalator at disconnect switch and run the escalator.
9. Visually verify that empty down stopping slide distance of a standard escalator is 4-6 inches. Re-adjust springs, replace linings, or re-burnish brakes if necessary.

b) Note this examination in the Log Book, together with maintainer's name and date.

3. BRAKE WEAR RESERVE - CHECK REQUIRED ANNUALLY

a) Annually the maintainer must ensure that whenever the escalator is stopped and the brake is applied, **the DC brake solenoid core has at least .060" space above it. This is to ensure a space into which the core can move as the brake lining wears.** Using a flashlight if necessary, ensure that at least a 0.060" air gap is visible above the core (see illustration). While a "60 thou" spark plug gap setting gauge is useful, a visual check is sufficient. Note: Modify brass screw head if necessary to ensure gap.

b) Note this examination in the Log Book, together with maintainer's name and date.

KONE Inc.,

A. D. Brown, P.Eng.,
Vice President Engineering

Elevating and Amusement Devices Safety Division	Ref. No.: 221/ 07	Rev. No.:
Safety Alert Bulletin	Date: February 16, 2007	Date:

Subject: Falling from Chair Lifts Hazard
Sent to: All Ski Lift Industry Stakeholders

1. INTRODUCTION

In response to a number of recently reported incidents involving children falling out of chairlifts at resorts within Ontario, a Risk Reduction Group (RRG) has been formed comprised of industry stakeholders including ski operators, manufacturers and the TSSA. The mandate of the RRG is to examine recorded occurrences of persons falling from chairlifts and to make recommendations for short term initiatives and long term solutions that will drive the province toward zero incidents of this type.

2. ALERT

Be advised that current initiatives are in progress to meet the RRG's long term objectives. This bulletin outlines some of the short term objectives that require active and diligent participation of all industry stakeholders in order for successful movement towards zero incidents. With only a few weeks of the 2006/07 season left, **immediate** action is required.

3. INSTRUCTIONS

Short Term Objective: Raise Awareness Now

Effective immediately, all licensees shall review their current policies and procedures regarding lift operations, attendant training, and the placement of signs. Share with your staff the contents of this bulletin.

Club policies and procedures shall be reinforced to operators, attendants and ski school instructors, specifically with regards to young children on chairlifts, the proper place to lift the bar, defining and monitoring acceptable behaviour on a chair lift, and attendant placement during loading/unloading.

Short Term Objective: Information Gathering to support Long Term Initiatives

You should have already received a copy of a letter from the Ontario Snow Resorts Association regarding this issue, and a copy has been attached for your reference. Additionally, a questionnaire has been created jointly by the TSSA and the RRG in an effort to assist in the RRG in their long term initiatives. The questionnaire can be filled in by hand, and faxed to (416) 231-7525. For an electronic copy of the form, please visit the TSSA website at www.tssa.org. Completed copies of the questionnaire can be emailed to Jim Palmer at jpalmer@tssa.org.
Your response is required on or before March 7, 2007.

Rob Kremer, P. Eng.,
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Safety Bulletin has been developed in consultation with the Ontario Snow Resorts Association.

Elevating and Amusement Devices Safety Division	Ref. No.: 222/07	Rev. No.:
Enforcement Procedure Bulletin	Date: April 23, 2007	Date:

Subject: TSSA Grounding and Bonding Enforcement Procedure
Sent to: Elevator Contractors, Mechanics and Inspectors

1. INTRODUCTION

There have been instances where inspection has revealed situations where the existing electrical grounding and bonding means does not meet the requirements of Section 10 of C22.1 The following procedure has been prepared to provide guidance to elevator inspectors when completing inspections **on new or altered installations** and to inform contractors and mechanics of the need to ensure adequate grounding and bonding.

* See Appendix A for Definitions of terms used in this Bulletin.

2. INTERPRETATION & ENFORCEMENT

Inspectors shall ensure that power is disconnected prior to checking grounding and bonding on controllers, disconnects, door locks, etc.

2.1 Initial Inspection of New Installations

1. Check to ensure that the controller is bonded to the metal enclosure of the disconnect with a bonding conductor which is either; bare copper, or insulated and having a continuous outer finish that is either green or green with one or more yellow stripes.
2. Check all grounding lugs in disconnect, controller, etc. to ensure that they are secure.
3. Check the continuity of the bonding means between the controller and disconnect. (Perform check with disconnect door closed)
4. Randomly pick a minimum of 10% of the landing door locks to ensure that the bonding conductor is present and secure. If any bonding wire is missing, then 100% shall be inspected.
5. Randomly pick a minimum of 10% of the hall call stations to ensure that the bonding conductor is present and secure. If any bonding wire is missing, then 100% shall be inspected.
6. When completing the single ground test it shall be conducted at the furthest point from the controller. For example grounding the bottom floor door lock when the controller is located at the top of the building. The single ground test will result in an instantaneous failure or interruption of the supply voltage. When a single ground occurs the car shall not be permitted to restart. (Where provided, follow manufacturer specific test procedures)
   Note: The disconnecting means shall be in the "ON" position (the source of power shall be connected to the controller) when conducting the "single ground" test.

   NOTE: The inspector shall remember that flexible conduit cannot be used as a bonding means; however rigid metal conduit or electrical metal tubing (EMT) may. If flex is running to the disconnect, you must have a bonding wire, however if rigid metal conduit or EMT is installed correctly, it may be used as a bond to ground. This is the same for landing door locks and hall call stations.

2.2 Initial Inspection on Alterations

The inspector shall keep in mind the scope of the alteration when completing an inspection on an altered device. All new and modified equipment and wiring shall be installed in accordance with the current Edition of C22.1.

1. When an alteration includes the controller:

- Controller installed as part of an alteration – Clause 8.7.2.27.4
- Change in type of motion control – Clause 8.7.2.27.5, or
- Change in type of operation control – Clause 8.7.2.27.6), the following shall be completed:

1. Check to ensure that the controller is bonded to the metal enclosure of the disconnect with a bonding conductor which is either; bare copper, or insulated and having a continuous outer finish that is either green or green with one or more yellow stripes.
2. Check all grounding lugs in disconnect, controller, etc. to ensure that they are secure.
3. Check the continuity of the bonding means between the controller and disconnect. (Perform check with disconnect door closed)

2. When an alteration includes the landing door locks:

- modification, change or replacement with a different make/model

One of the options below will be followed;

1. Where a bonding conductor is not provided (e.g. the armour of an existing metal flexible conduit continues to be used as bonding means), the single ground test shall be conducted (see Initial inspection on new installations, Item 6). The single ground test will result in an instantaneous failure or interruption of the supply voltage. The inspector shall visually verify the integrity of the metal flexible conduit at all landings.
2. If a bonding wire is provided, randomly pick a minimum of 10% of the landing door locks to ensure that the bonding conductor is present and secure. If any bonding wire is missing, then 100% shall be inspected.

3. When landing call stations,
operating at more than 30 V are **replaced** or installed **(added)** as part of an alteration**:**

One of the options below will be followed;

1. Where a bonding conductor is not provided (e.g. the armour of an existing metal flexible conduit continues to be used as bonding means), the single ground test shall be conducted (see Initial inspection on new installations, Item 6). The single ground test will result in an instantaneous failure or interruption of the supply voltage.
2. If a bonding wire is provided randomly pick a minimum of 10% of the landing call stations to ensure that the bonding conductor is present and secure. If any bonding wire is missing, then inspect 100 % of hall call stations to ensure that the bonding conductor is present and secure.

2.3 Incident/Accident Investigation

When an incident occurs which indicates that bonding to ground was not effective, a direction shall be issued to ensure that related components of the elevating device are checked for bonding.

3. EFFECTIVE DATE

This enforcement procedure is effective on alterations and new installations submitted to TSSA on or after October 1, 2007

Rob Kremer, Engineering Manager
EDAD Program

Roger Neate, Operations Manager
EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

APPENDIX – A

Definitions and references

Grounding means a permanent and continuous conductive path to the earth with sufficient ampacity to carry any fault current liable to be imposed on it, and of a sufficiently low impedance to limit the voltage rise above ground and to facilitate the operation of the protective devices in the circuit;

Bonding means a low impedance path obtained by permanently joining all non-current-carrying metal parts to assure electrical continuity and having the capacity to conduct safely any current likely to be imposed on it;

Bonding conductor means a conductor which connects the non-current-carrying parts of electrical equipment, raceways, or enclosures to the service equipment or system grounding conductor;

Raceway means any channel designed for holding wires, cables, or busbars, and, unless otherwise qualified in the Rules of the Canadian Electrical Code, Part I, the term includes conduit (rigid and flexible, metal and nonmetallic), electrical metallic and nonmetallic tubing, underfloor raceways, cellular floors, surface raceways, wireways, cable trays, busways, and auxiliary gutters;
Conduit means a raceway of circular cross-section, other than electrical metallic tubing and electrical nonmetallic tubing, into which it is intended that conductors be drawn;

Flexible metal conduit means a metal conduit which may be easily bent without the use of tools;

Rigid metal conduit means a rigid conduit of metal made to the same dimensions as standard pipe and
suitable for threading with standard pipe threads;

Electrical metallic tubing means a raceway of metal having circular cross-section into which it is intended that conductors be drawn and which has a wall thinner than that of rigid metal conduit and an outside diameter sufficiently different from that of rigid conduit to render it impracticable for anyone to thread it with standard pipe thread;

Where rigid metal conduit or other metal raceway is used for bonding, the methods described in Rules 10-600 thru 10-614 of Part I of the Canadian Electrical Code, Part I (C22.1), shall be used.

Elevating and Amusement Devices Safety Division	Ref. No.: 223/ 08	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: February 1, 2008	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

Subject: Inspection of structural welds on elevating devices manufactured by Uni-Tech Elevator & Lift Inc. or Liftech Elevator Co.

Sent to: All Elevator Contractors, Mechanics, and Owners of affected devices

The Director, Elevating Devices Ontario Regulation 209/01 pursuant to his authority under subsection 14.(1) of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. ORDER

1.1. No later than November 1st, 2008, all owners of elevating devices manufactured by Uni-Tech Elevator & Lift Inc. or Liftech Elevator Co. shall,

a) have the integrity of the structural welds of these elevating devices assessed;
b) where necessary have welds repaired or modified; and
c) utilize registered elevating device maintenance contractors to facilitate in the inspection and subsequent reporting requirements.

Note: A list of the affected devices is attached for reference.

1.2. If you are an **owner** of an installation manufactured by Uni-Tech elevator & Lift Inc. or Liftech Elevator Co. and the device is not on the attached list of affected devices, you are required to,

a) contact this office with details of the installation by fax (416) 251-7525 or email eddesignsubmittal@tssa.org; and
b) fulfill the requirements of this Safety Order.

1.3. If you are a **maintenance contractor** of an installation manufactured by Uni-Tech elevator & Lift Inc. or Liftech Elevator Co. and the device is not on the attached list of affected devices, you are required to,

a) contact this office with details of the installation by fax (416) 251-7525 or email eddesignsubmittal@tssa.org; and
b) provide a copy of this Director's Safety Order to the owner for their action.

1.4. All structural welds shall be non-destructively tested (visual inspection) by a Canadian Welding Bureau (CWB) certified welding inspector. A list of certified companies or individual welding inspectors can be found on the CWB web site at http://www.cwbgroup.org/.

1.5. If an installation has previously received confirmation of weld integrity or has previously undergone the necessary assessment of welds and passed, a copy of the report or a letter confirming this activity in the form of a notice of notification (Minor B) shall be forwarded by the owner or contractor to this office by fax to (416) 251-7525 or by email to eddesignsubmittal@tssa.org.

1.6. In the event that there are any indications of weld cracks, weld failures or welds that are identified as deficient the owner or contractor shall,

a) immediately remove the lift from service;
b) notify the Director as per subsection 35 of Ontario Regulation 209/01 via fax to (416) 251-7525 or by email to eddesignsubmittal@tssa.org and include the installation number and nature of the defect; and
c) arrange for the repair or replacement of welds by a certified welder in accordance to subsection 3.2 of the Elevating Devices Code Adoption Document.

1.7. Where welds are repaired, contractors shall,
a) submit to TSSA a Minor B notification;
b) include the name of the CWB certified welder or company;
c) include a copy of the CWB certified weld inspectors report; and
d) be permitted to return the device to service (no site inspection required).

1.8. Where welds are modified, contractors shall,
a) submit to TSSA a Minor A alteration;
b) include the name of the CWB certified welder or company;
c) include a copy of the CWB certified weld inspectors report;
d) include weld drawings;
e) be permitted to return the device to service; and
f) arrange for a special inspection by a TSSA inspector not later than 60 days from the date of the completion of the alteration.

1.9. This Safety Order is effective immediately. If you are a maintenance contractor and the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete this Safety Order by the November 1st, 2008 deadline you shall notify this office immediately and indicate the installation numbers of the relevant elevators.

2. INSTRUCTIONS

2.1. All inspections, tests, repairs and alterations shall be performed under the supervision of an elevator mechanic as per subsection 24.(1) of the Ontario Regulations 209/01.

2.2. All welding of a steel structure on an elevating device shall conform to the requirements of CSA Standard W59-03, Welded Steel Construction (Metal Arc Welding).

2.3. Structural welds are considered to be those critical welds whose failure could cause an unsafe or hazardous condition. Welds to be inspected shall include, but not be limited to, areas such as the hydraulic jack and support assembly, cross head, car frame and structural uprights, etc.

2.4 The contractor who completes a Minor A alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration. The registered design submission shall be available at the time of the special inspection.

2.5 As a reminder any person who carries out an inspection shall ensure that the elevating device is in a safe operating condition and shall take all steps and reasonable precautions in the circumstances to ensure that the parts and functions will remain in a safe operating condition until the next scheduled inspection and examination in accordance to subsection 32.(4) of the Ontario Regulations 209/01.

2.6 It shall be the responsibility of the owner to engage the contractor for the safe removal of every elevating device (which they own) from service that does not comply with this Order by November 1st, 2008.

2.7 Detail drawings of the welds can be obtained from the manufacturer.

Uni-Tech Elevator and Lift Inc.
751 McKay Road, Unit #5
Pickering, Ontario
L1W 3C7
Phone: (905) 686-8342 / (800) 670-7416
Fax: (905) 686-8111

3. BACKGROUND

3.1. The Technical Standard & Safety Authority (TSSA) was made aware of several defective structural welds on elevating devices manufactured by Uni-Tech Elevator & Lift Inc. or Liftech Elevator Co. Upon further investigation it was discovered that the structural welds were not installed in accordance to the requirements of W47.1-03 Certification of Companies for Fusion Welding of Steel.

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Roland Hadaller, Director, Ontario Regulations 209/01(Elevating Devices) made under the *Technical Standards and Safety Act*, *2000*

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Installation Number	Elevating Device Location Address			ED DeviceType	Status
					Weld Assessment Required
					No Authorization from Owner for Weld Assessment
					Assessment Complete - Not Submitted
					Complete (Assessed / Submitted)
					Dismantled
					Shut Down
69076	R R 2 HIGHWAY 7	SHARBOT LAKE	K0K 2P0	Stair Platform Lift-D	Weld Assessment Required
68102	500 MAJOR MACKENZIE DR E	RICHMOND HILL	K0M 1K0	Vertical Pltfm Lift-C	Weld Assessment Required
66164	35 WYCHWOOD CR	FENELON FALLS	K0M 1N0	Vertical Pltfm Lift-C	Weld Assessment Required
67868	1090 HIGHBURY AVE	LONDON	K1R 5B2	Stair Platform Lift-D	Weld Assessment Required
67868	400 ALBERT ST	OTTAWA	K1R 5B2		Weld Assessment Required
72820	391 GLADSTONE AVE	OTTAWA	K2P 0Y9	Stair Platform Lift-D	Weld Assessment Required
82079	41 COURTHOUSE SQ	BROCKVILLE	K6V 7N3		Weld Assessment Required
68108	95 CHURCH ST N	AJAX	K7H 3C5	Vertical Pltfm Lift-D	Weld Assessment Required
69103	324 JOHN ST N	ARNPRIOR	K7S 2P6	Vertical Pltfm Lift-C	Weld Assessment Required
69104	324 JOHN ST N	ARNPRIOR	K7S 2P6	Vertical Pltfm Lift-C	Weld Assessment Required
76177	76 ROBINSON ST	PETERBOROUGH	K9H 1E8	Vertical Pltfm Lift-C	Weld Assessment Required
76178	76 ROBINSON ST	PETERBOROUGH	K9H 1E8	Vertical Pltfm Lift-C	Weld Assessment Required
81814	550 ERSKINE AVE	PETERBOROUGH	K9J 5T4	Vertical Pltfm Lift-C	Weld Assessment Required
77534	260 KENT ST	LINDSAY	K9V 4R2	Vertical Pltfm Lift-C	Weld Assessment Required
77537	260 KENT ST	LINDSAY	K9V 4R2	Vertical Pltfm Lift-C	Weld Assessment Required
77541	260 KENT ST	LINDSAY	K9V 4R2	Vertical Pltfm Lift-C	Weld Assessment Required
77871	6 PARKSIDE ST	MINDEN	K9V 4S7	Vertical Pltfm Lift-C	Weld Assessment Required
77872	8 JAMES ST	OMEMEE	K9V 4S7	Vertical Pltfm Lift-C	Weld Assessment Required
76179	200 ALBERT ST	LINDSAY	K9V 5R6	Vertical Pltfm Lift-C	Weld Assessment Required
64340	BROCK ST	UXBRIDGE	L0C 1K0	Stair Platform Lift-D	Weld Assessment Required
70109	1315 RIVER RD	WASAGA BEACH	L0L 2P0	Vertical Pltfm Lift-C	Weld Assessment Required
77092	1 NIAGARA ON THE GREEN BLVD	NIAGARA ON THE LAKE	L0S 1J0	Freight Platform Lift-B	Weld Assessment Required
73317	191 CHURCH ST	BOWMANVILLE	L1C 1T8	Vertical Pltfm Lift-C	Weld Assessment Required
79965	350 LONGWORTH	BOWMANVILLE	L1C 5J5	Vertical Pltfm Lift-C	Weld Assessment Required
78943	75 MEADOWGLADE	COURTICE	L1H	Vertical Pltfm Lift-C	Weld Assessment Required
69143	700 STEVENSON RD N	OSHAWA	L1J 5P5	Vertical Pltfm Lift-C	Weld Assessment Required
69144	700 STEVENSON RD N	OSHAWA	L1J 5P5	Vertical Pltfm Lift-C	Weld Assessment Required
69429	1610 CHAMPLAIN AVE	WHITBY	L1N 6A7	Vertical Pltfm Lift-C	Weld Assessment Required
65697	20 FOREST HEIGHTS ST	WHITBY	L1R 1T5	Vertical Pltfm Lift-C	Weld Assessment Required
68105	6234 OSPREY BLVD	MISSISSAUGA	L1R 1Z7	Vertical Pltfm Lift-C	Weld Assessment Required
64579	1000 DRYDEN BLVD	WHITBY	L1R 2A2	Vertical Pltfm Lift-C	Weld Assessment Required
65309	1020 DRYDEN BLVD	WHITBY	L1R 2A2	Vertical Pltfm Lift-C	Weld Assessment Required
68104	HWY 35	COBOCONK	L1S 6A9	Vertical Pltfm Lift-C	Weld Assessment Required
72091	25 SULLIVAN DR	AJAX	L1T 3L3	Vertical Pltfm Lift-C	Weld Assessment Required
66163	15 BENNETT AVE	AJAX	L1T 3P1	Stair Platform Lift-D	Weld Assessment Required
79964	190 CHURCH ST	ST CATHARINES	L2R 3E9	Vertical Pltfm Lift-C	Weld Assessment Required
65179	191 CARLTON ST	ST CATHARINES	L2R 7P4	Freight Platform Lift-B	Weld Assessment Required
71023	240 THOROLD RD	WELLAND	L3C 3W2	Vertical Pltfm Lift-C	Weld Assessment Required
69428	261 ONTARIO ST	GRIMSBY	L3M 5J2	Vertical Pltfm Lift-C	Weld Assessment Required
75346	730 COCHRANE DR	MARKHAM	L3R 8E1	Freight Platform Lift-B	Weld Assessment Required
66368	525 HIGHGLEN AVE	MARKHAM	L3S 3L5	Vertical Pltfm Lift-C	Weld Assessment Required
84498	61 RUSSEL JARVIS DR	MARKHAM	L3S 4B1	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
80331	399 ELSON STREET	MARKHAM	L3S 4R8	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
77538	300 COMMERCE VALLEY DR E	MARKHAM	L3T	Dumbwaiter	Weld Assessment Required
82957	161 SAWMILL VALLEY DR	NEWMARKET	L3X	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
74950	715 KINGSMERE AVE	NEWMARKET	L3X 1L4	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
69170	480 KEITH AVE	NEWMARKET	L3X 1V5	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
75782	200 CLEARMEADOW BLVD	NEWMARKET	L3X 2E4	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
72674	40 HURON HEIGHTS DR	NEWMARKET	L3Y 3J9	Vertical Pltfm Lift-C	Weld Assessment Required
73183	330 BURFORD ST	NEWMARKET	L3Y 6L1	Vertical Pltfm Lift-C	Weld Assessment Required
39759	17440 YONGE ST	NEWMARKET	L3Y 6Y9	Freight Platform Lift-B	Weld Assessment Required
71747	345 HARRY WALKER PKWY	NEWMARKET	L3Y 8P6	Passenger Elevator	Weld Assessment Required
71748	345 HARRY WALKER PKWY	NEWMARKET	L3Y 8P6	Passenger Elevator	Weld Assessment Required
72995	300 GLAD PARK AVE	STOUFFVILLE	L4A 1E5	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
72675	183 BRAMBLE CRES	STOUFFVILLE	L4A 7Z1	Vertical Pltfm Lift-C	Weld Assessment Required
64492	124 BLACKMORE AV	RICHMOND HILL	L4B 2B1	Vertical Pltfm Lift-C	Weld Assessment Required
73316	121 LARRATT STREET	RICHMOND HILL	L4C 0E6	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
67969	1280 BRAESIDE DR	OAKVILLE	L4C 1J2	Vertical Pltfm Lift-C	Weld Assessment Required
74408	118 HILLSVIEW DR	RICHMOND HILL	L4C 1T2	Vertical Pltfm Lift-C	Weld Assessment Required
75676	400 MILL ST	RICHMOND HILL	L4C 4B9	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
75677	400 MILL ST	RICHMOND HILL	L4C 4B9	Vertical Pltfm Lift-C	Weld Assessment Required

Installation Number	Elevating Device Location Address			ED DeviceType	Status
					Weld Assessment Required
					No Authorization from Owner for Weld Assessment
					Assessment Complete - Not Submitted
					Complete (Assessed / Submitted)
					Dismantled
					Shut Down
74844	6 SCOTT DR	RICHMOND HILL	L4C 6V6	Passenger Elevator	Weld Assessment Required
82955	121 ROLLINGHILL RD	RICHMOND HILL	L4E 4L2	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
84497	195 SILVER MAPLE DR	RICHMOND HILL	L4E 4Z1	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
73792	39 DUNNING AVE	AURORA	L4G 1A2	Vertical Pltfm Lift-C	Weld Assessment Required
73793	330 INDUSTRIAL PKY N	AURORA	L4G 4C3	Vertical Pltfm Lift-C	Weld Assessment Required
74947	120 AURORA HEIGHTS DR	AURORA	L4G 6C4	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
75746	415 STONE RD	AURORA	L4G 6Z5	Vertical Pltfm Lift-C	Weld Assessment Required
84490	171 MARIA ANTONIA RD	WOODBRIDGE	L4H	Vertical Pltfm Lift-C	Weld Assessment Required
81862	366 MULLEN DR	THORNHILL	L4J 2P3	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
81863	366 MULLEN DR	THORNHILL	L4J 2P3	Vertical Pltfm Lift-C	Weld Assessment Required
64844	65 BROWNRIDGE DR	THORNHILL	L4J 7R8	Vertical Pltfm Lift-C	Weld Assessment Required
75675	8881 MARTIN GROVE RD	WOODBRIDGE	L4L	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
72996	86 GAMBLE ST	WOODBRIDGE	L4L 1R2	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
74948	250 CORONATION ST	WOODBRIDGE	L4L 6H3	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
74949	140 GREENPARK BLVD	WOODBRIDGE	L4L 6Z6	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
75781	250 BLUE WILLOW	VAUGHAN	L4L 9E1	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
78941	180 FARMSTEAD ROAD	RICHMOND HILL	L4S	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
74673	35 SQUIRE DR	RICHMOND HILL	L4S 1C6	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
67650	11300 BAYVIEW AVE	RICHMOND HILL	L4S 1L4		Weld Assessment Required
80333	180 ALAMO HEIGHTS DR	RICHMOND HILL	L4S 2P3	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
64046	4120 DIXIE RD	MISSISSAUGA	L4W 4V8	Freight Platform Lift-B	Weld Assessment Required
76408	2350 HURONTARIO ST S	MISSISSAUGA	L5B 1N1	Vertical Pltfm Lift-C	Weld Assessment Required
76411	2350 HURONTARIO ST S	MISSISSAUGA	L5B 1N1	Vertical Pltfm Lift-C	Weld Assessment Required
74663	309 RATHBURN RD W	MISSISSAUGA	L5B 4C1	Freight Platform Lift-B	Weld Assessment Required
75112	450 HILLCREST AVE	MISSISSAUGA	L5B 4J3	Vertical Pltfm Lift-C	Weld Assessment Required
65047	1576 DUNDAS ST W	MISSISSAUGA	L5C 1E5	Vertical Pltfm Lift-C	Weld Assessment Required
73720	2266 COUNCIL RING RD	MISSISSAUGA	L5L 1C1	Vertical Pltfm Lift-C	Weld Assessment Required
63942	3215 THORNCREST DR	MISSISSAUGA	L5L 4K7	Vertical Pltfm Lift-C	Weld Assessment Required
64491	3240 GARTHWOOD RD	MISSISSAUGA	L5L 5A3	Vertical Pltfm Lift-C	Weld Assessment Required
77584	2200 EGLINTON AV W	MISSISSAUGA	L5M 2N1	Vertical Pltfm Lift-C	Weld Assessment Required
63928	1715 WILLOW WAY	MISSISSAUGA	L5M 3W5	Vertical Pltfm Lift-C	Weld Assessment Required
82956	1830 MEADOWVALE BLVD	MISSISSAUGA	L5N	Vertical Pltfm Lift-C	Weld Assessment Required
83598	1830 MEADOWVALE BLVD	MISSISSAUGA	L5N	Stair Platform Lift-D	Weld Assessment Required
68103	70 BROOKHAVEN DR	NORTH YORK	L5N 3X4	Vertical Pltfm Lift-C	Weld Assessment Required
65023	3700 TRELAWNY CIR	MISSISSAUGA	L5N 5J7	Vertical Pltfm Lift-C	Weld Assessment Required
66655	3420 TRELAWNY CIR	MISSISSAUGA	L5N 6N6	Vertical Pltfm Lift-C	Weld Assessment Required
77170	5100 SALISHAN CIRCLE	MISSISSAUGA	L5N 7Z1	Vertical Pltfm Lift-C	Weld Assessment Required
77172	1455 SAMUELSON CIRCLE	MISSISSAUGA	L5N 7Z2	Vertical Pltfm Lift-C	Weld Assessment Required
66708	50 BRISTOL RD W	MISSISSAUGA	L5R 3K3	Vertical Pltfm Lift-C	Weld Assessment Required
77358	5735 WHITEHORN AVE	MISSISSAUGA	L5V	Vertical Pltfm Lift-C	Weld Assessment Required
73314	1075 SWINBOURNE DRIVE	MISSISSAUGA	L5V 1B9	Vertical Pltfm Lift-C	Weld Assessment Required
73638	5187 FALLINGBROOK DR	MISSISSAUGA	L5V 1N7	Vertical Pltfm Lift-C	Weld Assessment Required
73778	79 AVRO RD	MAPLE	L6A 1Y3	Vertical Pltfm Lift-C	Weld Assessment Required
75783	155 MELVILLE AVE	MAPLE	L6A 1Y9	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
73315	251 MELVILLE AVENUE	MAPLE	L6A 1Z1	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
74953	230 HAWKER RD	MAPLE	L6A 2R2	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
76074	400 ST JOAN OF ARC AVE	VAUGHAN	L6A 2S8	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
72885	230 CALVERT RD	MARKHAM	L6C 1T5	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
76076	130 CASTLEMORE AVE	MARKHAM	L6C 2P9	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
80335	168 STONEBRIDGE DRIVE	MARKHAM	L6C 2Z8	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
80334	171 MINGAY AVENUE	MARKHAM	L6E 1H8	Vertical Pltfm Lift-C	Complete (Assessed / Submitted)
67178	851 MOUNT PLEASANT RD	TORONTO	L6J 2A4	Vertical Pltfm Lift-C	Weld Assessment Required
78419	2912 WESTOAK TRAIL	OAKVILLE	L6M 3S1	Vertical Pltfm Lift-C	Weld Assessment Required
72089	35 BLACK OAK DR	BRAMPTON	L6R 1B9	Vertical Pltfm Lift-C	Weld Assessment Required
73744	25 MOUNTAINBERRY RD	BRAMPTON	L6R 1J3	Vertical Pltfm Lift-C	Weld Assessment Required
77171	28 RED RIVER DR	BRAMPTON	L6R 2H9	Vertical Pltfm Lift-C	Weld Assessment Required
81860	450 FERNFOREST DR	BRAMPTON	L6R 2P7	Vertical Pltfm Lift-C	Weld Assessment Required
81865	450 FERNFOREST DR	BRAMPTON	L6R 2P7	Vertical Pltfm Lift-C	Weld Assessment Required
77091	285 GREAT LAKES DR	BRAMPTON	L6R 2R8	Vertical Pltfm Lift-C	Weld Assessment Required
76085	2 HEATH DR	BRAMPTON	L6S 1E6	Vertical Pltfm Lift-C	Weld Assessment Required
63467	7945 BRAMALEA RD	BRAMPTON	L6T 4J9	Freight Platform Lift-B	Weld Assessment Required

Installation Number	Elevating Device Location Address			ED DeviceType	Status
					Weld Assessment Required
					No Authorization from Owner for Weld Assessment
					Assessment Complete - Not Submitted
					Complete (Assessed / Submitted)
					Dismantled
					Shut Down
73348	20 UNION STREET	BRAMPTON	L6V 1R2	Vertical Pltfm Lift-C	Weld Assessment Required
73349	20 UNION STREET	BRAMPTON	L6V 1R2	Vertical Pltfm Lift-C	Weld Assessment Required
63927	15 FINCHAM AVE	BRAMPTON	L6X 3V2	Vertical Pltfm Lift-D	Weld Assessment Required
72090	121 ROYAL ORCHARD DR	BRAMPTON	L6X 4K9	Vertical Pltfm Lift-C	Weld Assessment Required
75473	50 LADORE DR	BRAMPTON	L6Y 1V5	Vertical Pltfm Lift-C	Weld Assessment Required
76075	103 MALTA AVE	BRAMPTON	L6Y 4C8	Vertical Pltfm Lift-C	Weld Assessment Required
73718	60 STERRITT DR	BRAMPTON	L6Y 5B6	Vertical Pltfm Lift-C	Weld Assessment Required
80296	83 MCCRIMMON DRIVE	BRAMPTON	L7A 2Z3	Stair Platform Lift-D	Weld Assessment Required
80330	83 MCCRIMMON DRIVE	BRAMPTON	L7A 2Z3	Vertical Pltfm Lift-C	Weld Assessment Required
81864	61 ALLAN RD	BOLTON	L7E 1P7	Vertical Pltfm Lift-C	Weld Assessment Required
75113	299 LANDSBRIDGE ST	BOLTON	L7E 2K4	Vertical Pltfm Lift-C	Weld Assessment Required
77916	221 GUELPH ST	GEORGETOWN	L7G 4A8	Special Elevator LULA	Weld Assessment Required
74691	2 DUNCAN DR	GEORGETOWN	L7G 4L7	Vertical Pltfm Lift-C	Weld Assessment Required
74823	5205 NEW ST	BURLINGTON	L7L 1V3	Vertical Pltfm Lift-C	Weld Assessment Required
74822	200 KENWOOD AVE	BURLINGTON	L7L 4L8	Vertical Pltfm Lift-C	Weld Assessment Required
78417	5070 DRYDEN AVE	BURLINGTON	L7L 6G8	Vertical Pltfm Lift-C	Weld Assessment Required
61553	3230 FAIRVIEW ST	BURLINGTON	L7N 3H5	Freight Elevator	Weld Assessment Required
75747	127 GRAYS RD	STONEY CREEK	L8E 1V6	Stair Platform Lift-D	Weld Assessment Required
37109	1089 BARTON ST E	HAMILTON	L8H 2V2	Freight Platform Lift-B	Weld Assessment Required
71068	135 FOREST AVE	HAMILTON	L8N 1X6	Vertical Pltfm Lift-C	Weld Assessment Required
76746	2274 OLD LESLIE ST	NORTH YORK	M0M 1A1	Freight Platform Lift-B	Weld Assessment Required
64755	61 CANMORE BLVD	SCARBOROUGH	M1C 3T7	Vertical Pltfm Lift-C	Weld Assessment Required
75334	4698 KINGSTON RD	SCARBOROUGH	M1E 2P9	Vertical Pltfm Lift-C	Weld Assessment Required
73743	61 HOLMFIRTH TERR	SCARBOROUGH	M1G 1G8	Vertical Pltfm Lift-C	Weld Assessment Required
74012	61 HOLMFIRTH TERR	SCARBOROUGH	M1G 1G8	Stair Platform Lift-D	Weld Assessment Required
74011	15 LUELLA ST	SCARBOROUGH	M1J 3P2	Stair Platform Lift-D	Weld Assessment Required
73808	110 BYNG AVE	TORONTO	M1L 3P1	Vertical Pltfm Lift-C	Weld Assessment Required
76330	2447 KINGSTON RD	SCARBOROUGH	M1N 1V4	Freight Platform Lift-B	Weld Assessment Required
61503	130 FUNDY BAY BLVD	SCARBOROUGH	M1W 3G1	Vertical Pltfm Lift-C	Weld Assessment Required
73294	35 CHURCH AV	TORONTO	M2N 6X6	Vertical Pltfm Lift-C	Weld Assessment Required
73795	60 ROCKFORD RD	NORTH YORK	M2R 3A7	Vertical Pltfm Lift-C	Weld Assessment Required
73295	55 GATEWAY BLVD.	NORTH YORK	M3C 1B4	Vertical Pltfm Lift-C	Weld Assessment Required
74946	200 WILMINGTON AVE	DOWNSVIEW	M3H 5J8	Vertical Pltfm Lift-C	Weld Assessment Required
78420	88 POND ST	TORONTO	M3J 1P3	Freight Platform Lift-B	Weld Assessment Required
80369	4700 KEELE ST	TORONTO	M3J 1P3	Freight Platform Lift-B	Weld Assessment Required
63466	21 DON VALLEY PKWY	TORONTO	M4M 1B6	Freight Platform Lift-B	Weld Assessment Required
67730	1090 HIGHBURY AVE	LONDON	M4P 2L5	Passenger Elevator	Weld Assessment Required
39783	50 GOULD ST	TORONTO	M5B 1E8	Vertical Pltfm Lift-C	Weld Assessment Required
73099	170 JARVIS ST	TORONTO	M5B 2B7	Passenger Elevator	Weld Assessment Required
72744	1717 AVENUE ROAD	NORTH YORK	M5M 3Y5	Vertical Pltfm Lift-C	Weld Assessment Required
70590	7 BERRYMAN ST	TORONTO	M5R 1M7	Vertical Pltfm Lift-C	Weld Assessment Required
76073	70 D'ARCY ST	TORONTO	M5T 1K1	Vertical Pltfm Lift-C	Weld Assessment Required
79060	224 RICHMOND ST W	TORONTO	M5V 1V6	Dumbwaiter	Weld Assessment Required
37158	2451 DUFFERIN ST	TORONTO	M6B 3P6	Freight Platform Lift-B	Weld Assessment Required
73794	101 ENGLEMOUNT AVE	NORTH YORK	M6B 4L5	Vertical Pltfm Lift-C	Weld Assessment Required
77503	2189 DUFFERIN ST	TORONTO	M6E 3R9	Freight Platform Lift-B	Weld Assessment Required
66538	66 DUFFERIN PARK AVE	TORONTO	M6H 1J6	Vertical Pltfm Lift-C	Weld Assessment Required
60282	93 MARGUERETTA ST	TORONTO	M6H 3S4	Vertical Pltfm Lift-C	Weld Assessment Required
82790	1566 DUNDAS ST W	TORONTO	M6K 1T8	Freight Platform Lift-B	Weld Assessment Required
67995	400 ALBERT ST	OTTAWA	M6M 4N8	Vertical Pltfm Lift-C	Weld Assessment Required
74359	100 SIDNEY BELSEY CRES	TORONTO	M6M 5H6	Vertical Pltfm Lift-C	Weld Assessment Required
79568	125 EVELYN CRES	TORONTO	M6P 3E3	Vertical Pltfm Lift-C	Weld Assessment Required
79570	125 EVELYN CRES	TORONTO	M6P 3E3	Vertical Pltfm Lift-C	Weld Assessment Required
79600	125 EVELYN CRES	TORONTO	M6P 3E3	Stair Platform Lift-D	Weld Assessment Required
68126	95 WALLER ST	WHITBY	M8V 1B7	Vertical Pltfm Lift-C	Weld Assessment Required
75333	2 HIGH MEADOW PLACE	TORONTO	M9L 2Z5	Vertical Pltfm Lift-C	Weld Assessment Required
71574	3395 WESTON RD	NORTH YORK	M9M 2V9	Vertical Pltfm Lift-C	Weld Assessment Required
64302	77 BELFIELD RD	ETOBICOKE	M9W 1G6	Freight Platform Lift-B	Weld Assessment Required
73260	225 CLAIRVILLE DRIVE	REXDALE	M9W 6K9	Freight Platform Lift-B	Weld Assessment Required
69978	79 MARIA ST	TAVISTOCK	N0B 2R0	Vertical Pltfm Lift-C	Weld Assessment Required
69979	79 MARIA ST	TAVISTOCK	N0B 2R0	Stair Platform Lift-D	Weld Assessment Required

Installation Number	Elevating Device Location Address			ED DeviceType	Status Weld Assessment Required No Authorization from Owner for Weld Assessment Assessment Complete - Not Submitted Complete (Assessed / Submitted) Dismantled Shut Down
71555	21 MCGIVERN ST	WALKERTON	N0G 2V0	Vertical Pltfm Lift-C	Weld Assessment Required
71556	21 MCGIVERN ST	WALKERTON	N0G 2V0	Vertical Pltfm Lift-C	Weld Assessment Required
70841	2452 GIDEON DR	DELAWARE	N0L 1E0	Vertical Pltfm Lift-C	Weld Assessment Required
69700	RIDGETOWN COLLEGE	RIDGETOWN	N0P 2C0	Passenger Elevator	Weld Assessment Required
69701	RIDGETOWN COLLEGE	RIDGETOWN	N0P 2C0	Passenger Elevator	Weld Assessment Required
69702	RIDGETOWN COLLEGE	RIDGETOWN	N0P 2C0	Passenger Elevator	Weld Assessment Required
80573	200 GORDON ST	GUELPH	N1G 1K1	Passenger Elevator	Weld Assessment Required
69257	43 MCGILVRAY ST	GUELPH	N1G 2W1	Passenger Elevator	Weld Assessment Required
74821	670 WILLOW RD	GUELPH	N1H 8K2	Vertical Pltfm Lift-C	Weld Assessment Required
74824	670 WILLOW RD	GUELPH	N1H 8K2	Vertical Pltfm Lift-C	Weld Assessment Required
37767	75 DUNDAS ST	CAMBRIDGE	N1R 5N6	Freight Platform Lift-B	Weld Assessment Required
74432	270 STRASBURG RD	KITCHENER	N2E 3M6	Vertical Pltfm Lift-C	Weld Assessment Required
69839	255 KING ST N	WATERLOO	N2J 4V2	Vertical Pltfm Lift-C	Weld Assessment Required
72088	660 GLEN FORREST BLVD	WATERLOO	N2L 4K2	Vertical Pltfm Lift-C	Weld Assessment Required
68665	R R 3	PERTH	N5Y 4V9	Passenger Elevator	Weld Assessment Required
68666	2379 LAKE SHORE BLVD W	ETOBICOKE	N5Y 4V9	Passenger Elevator	Weld Assessment Required
69919	700 CHRISTINA ST N	SARNIA	N7V 3C2	Passenger Elevator	Weld Assessment Required
71508	3100 HOWARD AVE	WINDSOR	N8X 3Y8	Vertical Pltfm Lift-C	Weld Assessment Required
70667	PLACER DOME CANADA LTD	SOUTH PORCUPINE	P0N 1H0		Weld Assessment Required
73742	HIGHWAY 614	MANITOUWADGE	P0T 2C0	Vertical Pltfm Lift-C	Weld Assessment Required
65347	MINE RD	BALMERTOWN	P0V 1C0	Vertical Pltfm Lift-C	Weld Assessment Required
73454	33 KING WILLIAM ST	HUNTSVILLE	P1H	Passenger Elevator	Weld Assessment Required
64857	216 MATHESON ST S	KENORA	P9N 1V2		Weld Assessment Required

Elevating and Amusement Devices Safety Division	Ref. No.: 223/ 08	Rev. No.: 1
DIRECTOR'S SAFETY ORDER	Date: February 1, 2008	Date: March 4, 2008

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

Subject: Inspection of structural welds on elevating devices manufactured by Uni-Tech Elevator & Lift Inc. or Liftech Elevator Co.

Sent to: All Elevator Contractors, Mechanics, and Owners of affected devices

The Director, Elevating Devices Ontario Regulation 209/01 pursuant to his authority under subsection 14.(1) of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. ORDER

1.1. No later than November 1st, 2008, all owners of elevating devices manufactured by Uni-Tech Elevator & Lift Inc. or Liftech Elevator Co. shall,

a) have the integrity of the structural welds of these elevating devices assessed;
b) where necessary have welds repaired or modified; and
c) utilize registered elevating device maintenance contractors to facilitate in the inspection and subsequent reporting requirements.

Note: A list of the affected devices is attached for reference.

1.2. If you are an **owner** of an installation manufactured by Uni-Tech elevator & Lift Inc. or Liftech Elevator Co. and the device is not on the attached list of affected devices, you are required to,

a) contact this office with details of the installation by fax (416) 251-7525 or email eddesignsubmittal@tssa.org; and
b) fulfill the requirements of this Safety Order.

1.3. If you are a **maintenance contractor** of an installation manufactured by Uni-Tech elevator & Lift Inc. or Liftech Elevator Co. and the device is not on the attached list of affected devices, you are required to,

a) contact this office with details of the installation by fax (416) 251-7525 or email eddesignsubmittal@tssa.org; and
b) provide a copy of this Director's Safety Order to the owner for their action.

1.4. All structural welds shall be non-destructively tested (visual inspection) by a Canadian Welding Bureau (CWB) certified welding inspector. A list of certified companies or individual welding inspectors can be found on the CWB web site at http://www.cwbgroup.org/.

1.5. If an installation has received confirmation of weld integrity or has previously undergone the necessary assessment of welds and passed, a copy of the report or a letter confirming this activity in the form of a notice of notification (Minor B) shall be forwarded by the owner or contractor to this office by fax to (416) 251-7525 or by email to eddesignsubmittal@tssa.org.

1.6. In the event that there are any indications of weld cracks, weld failures or welds that are identified as deficient the owner or contractor shall,

a) immediately remove the lift from service;
b) notify the Director as per subsection 35 of Ontario Regulation 209/01 via fax to (416) 251-7525 or by email to eddesignsubmittal@tssa.org and include the installation number and nature of the defect; and
c) arrange for the repair or replacement of welds by a certified welder in accordance to subsection 3.2 of the Elevating Devices Code Adoption Document.

1.7. Where welds are repaired, contractors shall,
a) submit to TSSA a Minor B notification;
b) include the name of the CWB certified welder or company;
c) include a copy of the CWB certified weld inspectors report; and
d) be permitted to return the device to service (no site inspection required).

1.8. Where welds are modified, contractors shall,
a) submit to TSSA a Minor A alteration;
b) include the name of the CWB certified welder or company;
c) include a copy of the CWB certified weld inspectors report;
d) include weld drawings;
e) be permitted to return the device to service; and
f) arrange for a special inspection by a TSSA inspector not later than 60 days from the date of the completion of the alteration.

1.9. This Safety Order is effective immediately. If you are a maintenance contractor and the required work does not constitute a part of your maintenance contract, and you cannot obtain authorization from the elevator owner to complete this Safety Order by the November 1st, 2008 deadline you shall notify this office immediately and indicate the installation numbers of the relevant elevators.

2. INSTRUCTIONS

2.1. All inspections, tests, repairs and alterations shall be performed under the supervision of an elevator mechanic as per subsection 24.(1) of the Ontario Regulations 209/01.

2.2. All welding of a steel structure on an elevating device shall conform to the requirements of CSA Standard W59-03, Welded Steel Construction (Metal Arc Welding).

2.3. Structural welds are considered to be those critical welds whose failure could cause an unsafe or hazardous condition. Welds to be inspected shall include, but not be limited to, areas such as the hydraulic jack and support assembly, cross head, car frame and structural uprights, etc.

2.4 The contractor who completes a Minor A alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration. The registered design submission shall be available at the time of the special inspection.

2.5 As a reminder any person who carries out an inspection shall ensure that the elevating device is in a safe operating condition and shall take all steps and reasonable precautions in the circumstances to ensure that the parts and functions will remain in a safe operating condition until the next scheduled inspection and examination in accordance to subsection 32.(4) of the Ontario Regulations 209/01.

2.6 It shall be the responsibility of the owner to engage the contractor for the safe removal of every elevating device (which they own) from service that does not comply with this Order by November 1st, 2008.

2.7 Detail drawings of the welds can be obtained from the manufacturer.

Uni-Tech Elevator and Lift Inc.
751 McKay Road, Unit #5
Pickering, Ontario
L1W 3C7
Phone: (905) 686-8342 / (800) 670-7416
Fax: (905) 686-8111

3. BACKGROUND

3.1. The Technical Standard & Safety Authority (TSSA) was made aware of several defective structural welds on elevating devices manufactured by Uni-Tech Elevator & Lift Inc. or Liftech Elevator Co. Upon further investigation it was discovered that the structural welds were not installed in accordance to the requirements of W47.1-03 Certification of Companies for Fusion Welding of Steel.

4. NOTES

a) The attached table of device installations has been corrected in Revision 1.
b) No further action is required for devices identified as Complete (Assessed / Submitted) or Dismantled.

R. Hadaller

Roland Hadaller, Director, Ontario Regulations 209/01(Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Installation Number	Device Address	Device City	Device-PC	Status
				Weld Assessment Required
				No Authorization from Owner for Weld Assessment
				Assessment Complete - Not Submitted
				Complete (Assessed - Submitted)
				Dismantled
				Shut Down
69076	R R 2 HIGHWAY 7	SHARBOT LAKE	K0K 2P0	Weld Assessment Required
68102	HWY 35	COBOCONK	K0M 1K0	Weld Assessment Required
66164	35 WYCHWOOD CR	FENELON FALLS	K0M 1N0	Weld Assessment Required
85021	1171 KENASTON RD	OTTAWA	K1B 3N9	Weld Assessment Required
67868	400 ALBERT ST	OTTAWA	K1R 5B2	Weld Assessment Required
72820	391 GLADSTONE AVE	OTTAWA	K2P 0Y9	Weld Assessment Required
68108	R R 3	PERTH	K7H 3C5	Weld Assessment Required
69103	324 JOHN ST N	ARNPRIOR	K7S 2P6	Weld Assessment Required
69104	324 JOHN ST N	ARNPRIOR	K7S 2P6	Weld Assessment Required
64341	HARDER DR & AVONDALE RD	BELLEVILLE	K8N 5B2	Dismantled
76177	76 ROBINSON ST	PETERBOROUGH	K9H 1E8	Weld Assessment Required
76178	76 ROBINSON ST	PETERBOROUGH	K9H 1E8	Weld Assessment Required
81814	550 ERSKINE AVE	PETERBOROUGH	K9J 5T4	Weld Assessment Required
60242	377 KENT ST W	LINDSAY	K9V 3S1	Dismantled
77534	260 KENT ST	LINDSAY	K9V 4R2	Weld Assessment Required
77537	260 KENT ST	LINDSAY	K9V 4R2	Weld Assessment Required
77541	260 KENT ST	LINDSAY	K9V 4R2	Weld Assessment Required
77871	6 PARKSIDE ST	MINDEN	K9V 4S7	Weld Assessment Required
77872	8 JAMES ST	OMEMEE	K9V 4S7	Weld Assessment Required
76179	200 ALBERT ST	LINDSAY	K9V 5R6	Weld Assessment Required
64340	BROCK ST	UXBRIDGE	L0C 1K0	Weld Assessment Required
69169	2 NOLAN RD	TOTTENHAM	L0G 1W0	Dismantled
70109	1315 RIVER RD	WASAGA BEACH	L0L 2P0	Weld Assessment Required
77092	1 NIAGARA ON THE GREEN BLVD	NIAGARA ON THE LAKE	L0S 1J0	Weld Assessment Required
73317	191 CHURCH ST	BOWMANVILLE	L1C 1T8	Weld Assessment Required
79965	350 LONGWORTH	BOWMANVILLE	L1C 5J5	Weld Assessment Required
78943	75 MEADOWGLADE	COURTICE	L1H	Weld Assessment Required
69143	700 STEVENSON RD N	OSHAWA	L1J 5P5	Weld Assessment Required
69144	700 STEVENSON RD N	OSHAWA	L1J 5P5	Weld Assessment Required
69429	1610 CHAMPLAIN AVE	WHITBY	L1N 6A7	Weld Assessment Required
84109	1702 TRICONT AVE	WHITBY	L1N 7C3	Weld Assessment Required
65697	20 FOREST HEIGHTS ST	WHITBY	L1R 1T5	Weld Assessment Required
68105	95 WALLER ST	WHITBY	L1R 1Z7	Weld Assessment Required
64579	1000 DRYDEN BLVD	WHITBY	L1R 2A2	Weld Assessment Required
65309	1020 DRYDEN BLVD	WHITBY	L1R 2A2	Weld Assessment Required
68104	95 CHURCH ST N	AJAX	L1S 6A9	Weld Assessment Required
72091	25 SULLIVAN DR	AJAX	L1T 3L3	Weld Assessment Required
66163	15 BENNETT AVE	AJAX	L1T 3P1	Weld Assessment Required
66266	910 MCKAY RD	PICKERING	L1W 3Y7	Weld Assessment Required
79964	190 CHURCH ST	ST CATHARINES	L2R 3E9	Weld Assessment Required
65179	191 CARLTON ST	ST CATHARINES	L2R 7P4	Weld Assessment Required
71023	240 THOROLD RD	WELLAND	L3C 3W2	Weld Assessment Required
69428	261 ONTARIO ST	GRIMSBY	L3M 5J2	Weld Assessment Required
75346	730 COCHRANE DR	MARKHAM	L3R 8E1	Weld Assessment Required
66368	525 HIGHGLEN AVE	MARKHAM	L3S 3L5	Weld Assessment Required
84498	61 RUSSEL JARVIS DR	MARKHAM	L3S 4B1	Complete (Assessed - Submitted)
80331	399 ELSON STREET	MARKHAM	L3S 4R8	Complete (Assessed - Submitted)
~~77538~~	~~300 COMMERCE VALLEY DR E~~	~~MARKHAM~~	~~L3T~~	~~Weld Assessment Required~~
82957	161 SAWMILL VALLEY DR	NEWMARKET	L3X	Complete (Assessed - Submitted)
74950	715 KINGSMERE AVE	NEWMARKET	L3X 1L4	Complete (Assessed - Submitted)
69170	480 KEITH AVE	NEWMARKET	L3X 1V5	Complete (Assessed - Submitted)
75782	200 CLEARMEADOW BLVD	NEWMARKET	L3X 2E4	Complete (Assessed - Submitted)
72674	40 HURON HEIGHTS DR	NEWMARKET	L3Y 3J9	Weld Assessment Required
73183	330 BURFORD ST	NEWMARKET	L3Y 6L1	Weld Assessment Required
39759	17440 YONGE ST	NEWMARKET	L3Y 6Y9	Weld Assessment Required
71747	345 HARRY WALKER PKWY	NEWMARKET	L3Y 8P6	Weld Assessment Required
71748	345 HARRY WALKER PKWY	NEWMARKET	L3Y 8P6	Weld Assessment Required
72995	300 GLAD PARK AVE	STOUFFVILLE	L4A 1E5	Complete (Assessed - Submitted)
72675	183 BRAMBLE CRES	STOUFFVILLE	L4A 7Z1	Weld Assessment Required
64492	124 BLACKMORE AV	RICHMOND HILL	L4B 2B1	Weld Assessment Required

Installation Number	Device Address	Device City	Device-PC	Status
				Weld Assessment Required
				No Authorization from Owner for Weld Assessment
				Assessment Complete - Not Submitted
				Complete (Assessed - Submitted)
				Dismantled
				Shut Down
73316	121 LARRATT STREET	RICHMOND HILL	L4C 0E6	Complete (Assessed - Submitted)
67969	500 MAJOR MACKENZIE DR E	RICHMOND HILL	L4C 1J2	Weld Assessment Required
74408	118 HILLSVIEW DR	RICHMOND HILL	L4C 1T2	Weld Assessment Required
75676	400 MILL ST	RICHMOND HILL	L4C 4B9	Complete (Assessed - Submitted)
75677	400 MILL ST	RICHMOND HILL	L4C 4B9	Weld Assessment Required
74844	6 SCOTT DR	RICHMOND HILL	L4C 6V6	Weld Assessment Required
82955	121 ROLLINGHILL RD	RICHMOND HILL	L4E 4L2	Complete (Assessed - Submitted)
84497	195 SILVER MAPLE DR	RICHMOND HILL	L4E 4Z1	Complete (Assessed - Submitted)
73792	39 DUNNING AVE	AURORA	L4G 1A2	Weld Assessment Required
73793	330 INDUSTRIAL PKY N	AURORA	L4G 4C3	Weld Assessment Required
74947	120 AURORA HEIGHTS DR	AURORA	L4G 6C4	Complete (Assessed - Submitted)
75746	415 STONE RD	AURORA	L4G 6Z5	Weld Assessment Required
84490	171 MARIA ANTONIA RD	WOODBRIDGE	L4H	Weld Assessment Required
81862	366 MULLEN DR	THORNHILL	L4J 2P3	Complete (Assessed - Submitted)
81863	366 MULLEN DR	THORNHILL	L4J 2P3	Weld Assessment Required
64844	65 BROWNRIDGE DR	THORNHILL	L4J 7R8	Weld Assessment Required
75675	8881 MARTIN GROVE RD	WOODBRIDGE	L4L	Complete (Assessed - Submitted)
72996	86 GAMBLE ST	WOODBRIDGE	L4L 1R2	Complete (Assessed - Submitted)
74948	250 CORONATION ST	WOODBRIDGE	L4L 6H3	Complete (Assessed - Submitted)
74949	140 GREENPARK BLVD	WOODBRIDGE	L4L 6Z6	Complete (Assessed - Submitted)
75781	250 BLUE WILLOW	VAUGHAN	L4L 9E1	Complete (Assessed - Submitted)
78941	180 FARMSTEAD ROAD	RICHMOND HILL	L4S	Complete (Assessed - Submitted)
74673	35 SQUIRE DR	RICHMOND HILL	L4S 1C6	Complete (Assessed - Submitted)
80333	180 ALAMO HEIGHTS DR	RICHMOND HILL	L4S 2P3	Complete (Assessed - Submitted)
64046	4120 DIXIE RD	MISSISSAUGA	L4W 4V8	Weld Assessment Required
76408	2350 HURONTARIO ST S	MISSISSAUGA	L5B 1N1	Weld Assessment Required
76411	2350 HURONTARIO ST S	MISSISSAUGA	L5B 1N1	Weld Assessment Required
74663	309 RATHBURN RD W	MISSISSAUGA	L5B 4C1	Weld Assessment Required
75112	450 HILLCREST AVE	MISSISSAUGA	L5B 4J3	Weld Assessment Required
65047	1576 DUNDAS ST W	MISSISSAUGA	L5C 1E5	Weld Assessment Required
73720	2266 COUNCIL RING RD	MISSISSAUGA	L5L 1C1	Weld Assessment Required
63942	3215 THORNCREST DR	MISSISSAUGA	L5L 4K7	Weld Assessment Required
64491	3240 GARTHWOOD RD	MISSISSAUGA	L5L 5A3	Weld Assessment Required
77584	2200 EGLINTON AV W	MISSISSAUGA	L5M 2N1	Weld Assessment Required
63928	1715 WILLOW WAY	MISSISSAUGA	L5M 3W5	Weld Assessment Required
82956	1830 MEADOWVALE BLVD	MISSISSAUGA	L5N	Weld Assessment Required
83598	1830 MEADOWVALE BLVD	MISSISSAUGA	L5N	Weld Assessment Required
68103	6234 OSPREY BLVD	MISSISSAUGA	L5N 3X4	Weld Assessment Required
65023	3700 TRELAWNY CIR	MISSISSAUGA	L5N 5J7	Weld Assessment Required
66655	3420 TRELAWNY CIR	MISSISSAUGA	L5N 6N6	Weld Assessment Required
77170	5100 SALISHAN CIRCLE	MISSISSAUGA	L5N 7Z1	Weld Assessment Required
77172	1455 SAMUELSON CIRCLE	MISSISSAUGA	L5N 7Z2	Weld Assessment Required
66708	50 BRISTOL RD W	MISSISSAUGA	L5R 3K3	Weld Assessment Required
77358	5735 WHITEHORN AVE	MISSISSAUGA	L5V	Weld Assessment Required
73314	1075 SWINBOURNE DRIVE	MISSISSAUGA	L5V 1B9	Weld Assessment Required
73638	5187 FALLINGBROOK DR	MISSISSAUGA	L5V 1N7	Weld Assessment Required
73778	79 AVRO RD	MAPLE	L6A 1Y3	Weld Assessment Required
75783	155 MELVILLE AVENUE	MAPLE	L6A 1Y9	Complete (Assessed - Submitted)
73315	251 MELVILLE AVENUE	MAPLE	L6A 1Z1	Complete (Assessed - Submitted)
74953	230 HAWKER RD	MAPLE	L6A 2R2	Complete (Assessed - Submitted)
76074	400 ST JOAN OF ARC AVE	VAUGHAN	L6A 2S8	Complete (Assessed - Submitted)
72885	230 CALVERT RD	MARKHAM	L6C 1T5	Complete (Assessed - Submitted)
76076	130 CASTLEMORE AVE	MARKHAM	L6C 2P9	Complete (Assessed - Submitted)
80335	168 STONEBRIDGE DRIVE	MARKHAM	L6C 2Z8	Complete (Assessed - Submitted)
80334	171 MINGAY AVENUE	MARKHAM	L6E 1H8	Complete (Assessed - Submitted)
67178	1280 BRAESIDE DR	OAKVILLE	L6J 2A4	Weld Assessment Required
78419	2912 WESTOAK TRAIL	OAKVILLE	L6M 3S1	Weld Assessment Required
72089	35 BLACK OAK DR	BRAMPTON	L6R 1B9	Weld Assessment Required
73744	25 MOUNTAINBERRY RD	BRAMPTON	L6R 1J3	Weld Assessment Required
77171	28 RED RIVER DR	BRAMPTON	L6R 2H9	Weld Assessment Required

Installation Number	Device Address	Device City	Device-PC	Status
				Weld Assessment Required
				No Authorization from Owner for Weld Assessment
				Assessment Complete - Not Submitted
				Complete (Assessed - Submitted)
				Dismantled
				Shut Down
81860	450 FERNFOREST DR	BRAMPTON	L6R 2P7	Weld Assessment Required
81865	450 FERNFOREST DR	BRAMPTON	L6R 2P7	Weld Assessment Required
77091	285 GREAT LAKES DR	BRAMPTON	L6R 2R8	Weld Assessment Required
76085	2 HEATH DR	BRAMPTON	L6S 1E6	Weld Assessment Required
63467	7945 BRAMALEA RD	BRAMPTON	L6T 4J9	Weld Assessment Required
73348	20 UNION STREET	BRAMPTON	L6V 1R2	Weld Assessment Required
73349	20 UNION STREET	BRAMPTON	L6V 1R2	Weld Assessment Required
63927	15 FINCHAM AVE	BRAMPTON	L6X 3V2	Weld Assessment Required
72090	121 ROYAL ORCHARD DR	BRAMPTON	L6X 4K9	Weld Assessment Required
75473	50 LADORE DR	BRAMPTON	L6Y 1V5	Weld Assessment Required
76075	103 MALTA AVE	BRAMPTON	L6Y 4C8	Weld Assessment Required
73718	60 STERRITT DR	BRAMPTON	L6Y 5B6	Weld Assessment Required
80296	83 MCCRIMMON DRIVE	BRAMPTON	L7A 2Z3	Weld Assessment Required
80330	83 MCCRIMMON DRIVE	BRAMPTON	L7A 2Z3	Weld Assessment Required
81864	61 ALLAN RD	BOLTON	L7E 1P7	Weld Assessment Required
75113	299 LANDSBRIDGE ST	BOLTON	L7E 2K4	Weld Assessment Required
77916	221 GUELPH ST	GEORGETOWN	L7G 4A8	Weld Assessment Required
74691	2 DUNCAN DR	GEORGETOWN	L7G 4L7	Weld Assessment Required
74823	5205 NEW ST	BURLINGTON	L7L 1V3	Weld Assessment Required
74822	200 KENWOOD AVE	BURLINGTON	L7L 4L8	Weld Assessment Required
78417	5070 DRYDEN AVE	BURLINGTON	L7L 6G8	Weld Assessment Required
61553	3230 FAIRVIEW ST	BURLINGTON	L7N 3H5	Weld Assessment Required
69369	1182 NORTH SHORE BLVD	BURLINGTON	L7R 3Z9	Dismantled
75747	127 GRAYS RD	STONEY CREEK	L8E 1V6	Weld Assessment Required
37109	1089 BARTON ST E	HAMILTON	L8H 2V2	Weld Assessment Required
71068	135 FOREST AVE	HAMILTON	L8N 1X6	Weld Assessment Required
70646	39 THIRD AVE S	UXBRIDGE	L9P 1K5	Dismantled
75757	2274 OLD LESLIE ST	NORTH YORK	M0M 1A1	Weld Assessment Required
76746	2274 OLD LESLIE ST	NORTH YORK	M0M 1A1	Weld Assessment Required
64755	61 CANMORE BLVD	SCARBOROUGH	M1C 3T7	Weld Assessment Required
75334	4698 KINGSTON RD	SCARBOROUGH	M1E 2P9	Weld Assessment Required
73743	61 HOLMFIRTH TERR	SCARBOROUGH	M1G 1G8	Weld Assessment Required
74012	61 HOLMFIRTH TERR	SCARBOROUGH	M1G 1G8	Weld Assessment Required
74011	15 LUELLA ST	SCARBOROUGH	M1J 3P2	Weld Assessment Required
73808	110 BYNG AVE	TORONTO	M1L 3P1	Weld Assessment Required
70856	725 WARDEN AVE	SCARBOROUGH	M1L 4R7	Dismantled
76330	2447 KINGSTON RD	SCARBOROUGH	M1N 1V4	Weld Assessment Required
61503	130 FUNDY BAY BLVD	SCARBOROUGH	M1W 3G1	Weld Assessment Required
39291	1019 SHEPPARD AVE E	WILLOWDALE	M2K 1C2	Dismantled
~~73284~~	~~35 CHURCH AV~~	~~TORONTO~~	~~M2N 6X6~~	~~Weld Assessment Required~~
~~73795~~	~~69 ROCKFORD RD~~	~~NORTH YORK~~	~~M2R 3A7~~	~~Weld Assessment Required~~
~~73285~~	~~55 GATEWAY BLVD.~~	~~NORTH YORK~~	~~M3C 1B4~~	~~Weld Assessment Required~~
74946	200 WILMINGTON AVE	DOWNSVIEW	M3H 5J8	Weld Assessment Required
78420	88 POND ST	TORONTO	M3J 1P3	Weld Assessment Required
80369	4700 KEELE ST	TORONTO	M3J 1P3	Weld Assessment Required
63466	21 DON VALLEY PKWY	TORONTO	M4M 1B6	Weld Assessment Required
67730	851 MOUNT PLEASANT RD	TORONTO	M4P 2L5	Weld Assessment Required
39783	50 GOULD ST	TORONTO	M5B 1E8	Weld Assessment Required
~~73000~~	~~170 JARVIS ST~~	~~TORONTO~~	~~M5B 2B7~~	~~Weld Assessment Required~~
72744	1717 AVENUE ROAD	NORTH YORK	M5M 3Y5	Weld Assessment Required
70590	7 BERRYMAN ST	TORONTO	M5R 1M7	Weld Assessment Required
76073	70 D'ARCY ST	TORONTO	M5T 1K1	Weld Assessment Required
~~73000~~	~~224 RICHMOND ST W~~	~~TORONTO~~	~~M5V 1V6~~	~~Weld Assessment Required~~
37158	2451 DUFFERIN ST	TORONTO	M6B 3P6	Weld Assessment Required
73794	101 ENGLEMOUNT AVE	NORTH YORK	M6B 4L5	Weld Assessment Required
77503	2189 DUFFERIN ST	TORONTO	M6E 3R9	Weld Assessment Required
66538	66 DUFFERIN PARK AVE	TORONTO	M6H 1J6	Weld Assessment Required
60282	93 MARGUERETTA ST	TORONTO	M6H 3S4	Weld Assessment Required
82790	1566 DUNDAS ST W	TORONTO	M6K 1T8	Weld Assessment Required
67995	70 BROOKHAVEN DR	NORTH YORK	M6M 4N8	Weld Assessment Required

Installation Number	Device Address	Device City	Device-PC	Status
				Weld Assessment Required
				No Authorization from Owner for Weld Assessment
				Assessment Complete - Not Submitted
				Complete (Assessed - Submitted)
				Dismantled
				Shut Down
74359	100 SIDNEY BELSEY CRES	TORONTO	M6M 5H6	Weld Assessment Required
79568	125 EVELYN CRES	TORONTO	M6P 3E3	Weld Assessment Required
79570	125 EVELYN CRES	TORONTO	M6P 3E3	Weld Assessment Required
79600	125 EVELYN CRES	TORONTO	M6P 3E3	Weld Assessment Required
75472	1900 LAKESHORE BLVD W	TORONTO	M6S 1A1	Weld Assessment Required
68126	2379 LAKE SHORE BLVD W	ETOBICOKE	M8V 1B7	Weld Assessment Required
66400	86 MONTGOMERY RD	ETOBICOKE	M9A 3N5	Weld Assessment Required
75333	2 HIGH MEADOW PLACE	TORONTO	M9L 2Z5	Weld Assessment Required
71574	3395 WESTON RD	NORTH YORK	M9M 2V9	Weld Assessment Required
85141	1 WARRENDALE CRT	TORONTO	M9V 1P9	Weld Assessment Required
64302	77 BELFIELD RD	ETOBICOKE	M9W 1G6	Weld Assessment Required
73164	2625D WESTON RD	TORONTO	M9W 3W2	Dismantled
73260	225 CLAIRVILLE DRIVE	REXDALE	M9W 6K9	Weld Assessment Required
85885	745 CHIEFSWOOD RD	OSHWEKEN	N0A 1M0	Weld Assessment Required
69978	79 MARIA ST	TAVISTOCK	N0B 2R0	Weld Assessment Required
69979	79 MARIA ST	TAVISTOCK	N0B 2R0	Weld Assessment Required
71555	21 MCGIVERN ST	WALKERTON	N0G 2V0	Weld Assessment Required
71556	21 MCGIVERN ST	WALKERTON	N0G 2V0	Weld Assessment Required
70841	2452 GIDEON DR	DELAWARE	N0L 1E0	Weld Assessment Required
69700	RIDGETOWN COLLEGE	RIDGETOWN	N0P 2C0	Weld Assessment Required
69701	RIDGETOWN COLLEGE	RIDGETOWN	N0P 2C0	Weld Assessment Required
69702	RIDGETOWN COLLEGE	RIDGETOWN	N0P 2C0	Weld Assessment Required
80573	200 GORDON ST	GUELPH	N1G 1K1	Weld Assessment Required
69257	43 MCGILVRAY ST	GUELPH	N1G 2W1	Weld Assessment Required
74821	670 WILLOW RD	GUELPH	N1H 8K2	Weld Assessment Required
74824	670 WILLOW RD	GUELPH	N1H 8K2	Weld Assessment Required
37767	75 DUNDAS ST	CAMBRIDGE	N1R 5N6	Weld Assessment Required
74432	270 STRASBURG RD	KITCHENER	N2E 3M6	Weld Assessment Required
69839	255 KING ST N	WATERLOO	N2J 4V2	Weld Assessment Required
72088	660 GLEN FORREST BLVD	WATERLOO	N2L 4K2	Weld Assessment Required
68665	1090 HIGHBURY AVE	LONDON	N5Y 4V9	Weld Assessment Required
68666	1090 HIGHBURY AVE	LONDON	N5Y 4V9	Weld Assessment Required
70773	780 DULANEY DR	LONDON	N6C 3W4	Dismantled
69919	700 CHRISTINA ST N	SARNIA	N7V 3C2	Weld Assessment Required
71508	3100 HOWARD AVE	WINDSOR	N8X 3Y8	Weld Assessment Required
70667	PLACER DOME CANADA LTD	SOUTH PORCUPINE	P0N 1H0	Weld Assessment Required
73742	HIGHWAY 614	MANITOUWADGE	P0T 2C0	Weld Assessment Required
65347	MINE RD	BALMERTOWN	P0V 1C0	Weld Assessment Required
73454	33 KING WILLIAM ST	HUNTSVILLE	P1H	Weld Assessment Required

	Elevating and Amusement Devices Safety Division	Ref. No.: 224 / 07	Rev. No.:
	DIRECTOR'S GUIDELINES	Date: June 25, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the
***Technical Standards and Safety Act,* 2000**

- and -

Section 24 of the Elevating Devices Code Adoption Document
dated June 1, 2001, as amended

Subject: Periodic Engineering Review and Assessment of Above-surface Passenger Ropeways (Aging Ski Lifts)

Sent to: **All Passenger Ropeway Contractors and Consultants**

1. DIRECTOR'S GUIDELINES

1.1 General

1. All persons operating above-surface passenger ropeways in Ontario shall comply with Section 24 of the Elevating Devices Code Adoption Document, adopted in the Elevating Devices Regulation, and in accordance with the requirements stated in this Guideline.

1.2 Frequency for Periodic Engineering Review and Assessment

1. All above-surface passenger ropeways shall be subject to periodic engineering assessment as follows:
   - **a) first or initial engineering assessment:**
     - maximum 22,500 hours of operation,
     - without exceeding 15 years from the initial start-up;
     ("initial start-up" means first permitted for use anywhere.)
   - **b) second engineering assessment:**
     - maximum 37,500 hours of operation,
     - without exceeding 25 years;
   - **c) third engineering assessment:**
     - maximum 45,000 hours of operation,
     - without exceeding 30 years;
   - **d) subsequent periodic engineering assessments:**
     - at every interval of 7,500 hours of operation,
     - without exceeding 5 years after the third engineering assessment.

2. Despite the frequency stated in 1.2.1, reporting due dates may deviate somewhat as permitted by the Director. Where such deviations occur the next reporting date noted on the registered copy of the Periodic Engineering Review and Assessment report will apply. For a current listing of device

installation numbers and their next scheduled frequency for the Periodic Engineering Review and Assessment, contact TSSA or obtain a copy of the **Aging Ski-Lift Periodic Engineering Review and Assessment Schedule** from the web site, www.tssa.org.

It is expected that by the end of 2007 all above-surface passenger ropeways made on and prior to 1992 will have submitted an engineering review and assessment as originally scheduled in Table # 1 of Director's Order 169/02.

1.3 Periodic Engineering Review and Assessment of Above-surface Passenger Ropeways

1. The Periodic Engineering Review and Assessment shall identify passenger ropeway parts that are affected by:
   a) **fatigue** and **vibration** of both **moving components** and **fixed structures** causing cracks and fractures of connections and parent metal; and
   b) **environmental factors** like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components, and shall determine the extent of their deterioration, and evaluate their security at time intervals established in section 1.2 of this bulletin.

2. The following sources shall be used as guides to appraise the security of the passenger ropeway parts:

   a) The latest version of CSA Standard Z98
   The latest version of CSA Standard Z98 shall be used as a guide to establish criteria to assess safety of parts impacted by an aging ropeway. Those parts of passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements of the latest adopted version of CSA Standard Z98, and

   b) The requirements by Manufacturer/Designer of the Passenger Ropeway
   The requirements by Manufacturer/Designer of the Passenger Ropeway shall be used as a guide for those parts of the passenger ropeway installation requiring alteration, replacement and/or repair shall meet the requirements established by the manufacturer/designer of the passenger ropeway. Where manufacturer or designer is no longer in business, an engineer shall establish requirements for alteration, replacement and/or repair, and

   c) Non-Destructive Testing of Critical Components
   Non-Destructive Testing of Critical Components shall be undertaken for all above-surface passenger ropeway critical components. Any components to be tested that are not directly accessible shall be disassembled. The method of non-destructive, acceptance/rejection criteria, and other tolerances shall be in accordance with the specification specified by the manufacturer/ designer. Where manufacturer or designer is no longer in business, an engineer shall perform that action.

   Critical components are those parts of ropeway, the failure of which would immediately jeopardize passenger safety. The list of critical components of an above-surface ropeway shall include, but not be limited to the following:

   MOVING COMPONENTS:
   - Carrier, including grip, hanger, chair, or gondola;
   - Drive and return sheaves including shafts;
   - Line sheave assemblies and their attachments;
   - Tension systems and their attachments; and
   - Wire rope, including haul ropes, track ropes and counterweight ropes

FIXED STRUCTURES

- Drive terminal structure;
- Return terminal structure;
- Towers and cross-arms; and
- Catwalks

Identification of every critical component of an above-surface passenger ropeway shall be based on its definition and requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways. According to the CSA Standard Z98, critical component means " a component or system of components, the failure of which would immediately jeopardize passenger safety".

All critical components shall be tabulated with identification, including the type of non-destructive testing conducted, rejection/acceptance criteria, findings, and recommendations. The recommendations may contain establishing program of inspection/maintenance, steps to repair, replace, and/or alter the critical components.

1.4 **Reporting Engineering Review and Assessment Findings**

1. A professional engineer shall certify the engineering review/assessment report. The report shall address:
   a) guidelines established in Section 1.3; and
   b) the requirements to correct all non-compliance related findings to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

2. An owner shall attest that he/she will comply with the requirements of the certified engineering review and assessment report to achieve compliance with the requirements of Section 24 of the CAD under the Elevating Devices Regulation.

1.5 **Compliance**

1. The engineering review and assessment report prepared in accordance with the requirements of Section 1.4 of this Guideline shall be submitted to the Technical Standards and Safety Authority (TSSA) for its registration.
2. Prior to registering the report, TSSA shall evaluate an engineering and assessment report for its technical integrity and conformance to the requirements of this Guideline. The report shall be registered without conditions, registered with conditions or rejected with explanation.
3. An owner of an above-surface passenger ropeway shall not operate the ropeway prior to the registration of the certified engineering review and assessment report.
4. The requirements of Directors Order 169/02-r1 have been superseded with the release of this Guideline.

2. BACKGROUND

2.1 **General**

The Elevating Devices Regulation made under the *Technical Standards and Safety Act (TSS Act)* adopts the Elevating Devices Code Adoption Document (CAD). This Guideline is prepared in keeping with the Section 24 of the CAD that reads:

"Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director."

Section 24 of the CAD is intended to deal with the impact on the safety of above-surface passenger ropeway as a result of its age. Even though a ropeway is maintained to keep up with its original or current design/manufacturing specification during its life, over the period of time the following elements will still weaken parts of the ropeway that can fail accidentally:

- Fatigue and vibration of both moving components and fixed structures causing cracks and fractures of connections and parent metal; and
- Environmental factors like snow, ice, rain, temperature, humidity, and dust causing corrosion and deterioration of structural, mechanical and electrical components.

Above-surface passenger ropeways include those ropeways on which passengers are transported in rope-supported carriers and are not in contact with the ground or snow surface. Chair lifts, gondola lifts, and reversible ropeways are above-surface passenger ropeways.

Periodic engineering review and assessment of every above-surface passenger ropeway will ensure continued compliance with the TSS Act, Elevating Devices Regulation, and CAD, which in turn is intended to ensure continued operational safety.

This Guideline expounds upon the following criteria to meet the intent of Section 24:
- frequency for periodic engineering review and assessments;
- guidelines for periodic engineering review and assessment of above-surface passenger ropeways;
- reporting engineering review and assessment findings; and
- compliance.

This Guideline has been developed in consultation with the TSSA Ski Industry Advisory Technical Committee.

3. INSTRUCTIONS

1. Those recommendations of the engineering review and assessment report requiring major and minor alterations of the above-surface passenger ropeway shall be dealt in accordance with the requirements of the Technical Standards and Safety Act, Elevating Devices Ontario Regulation, and Code Adoption Document. All alterations may be submitted as one design submission. The design submission for major alteration(s) must be registered and inspected prior to the operation of the ropeway.

2. The fee prescribed in the fee schedule for evaluation of engineering review and assessment report will be charged to the submitter of the report.

3. Four copies of the engineering review and assessment report shall be submitted to TSSA. Upon registration of the report, TSSA will retain two copies (one for TSSA engineering & one for TSSA inspection), distribute one copy to the owner and one to the engineer.

4. Where the latest adopted version of CSA Standard Z98 – Passenger Ropeways and this Guideline requires action by a designer or manufacturer who is no longer in business, that action shall be performed by a professional engineer as defined in the Elevating Devices Regulation.

5. This Guideline establishes in-depth inspection and compliance requirements to ensure security of critical components of an above-surface passenger ropeway. In order to expedite registration of "Reporting Engineering Review and Assessment Findings" in accordance with Section 1.4 of this Guideline, it is critical that consistent "methodology" is applied to confirm compliance with this Guideline:

- Compile "as built" specification of the ropeway necessary to assess security of critical components of an above-surface passenger ropeway.
- Identify critical components of an above-surface passenger ropeway subjected to fatigue, vibration, and environmental exposure for their inspection.
- Prepare list of critical components and non-destructive testing methods to be applied for their inspection.
- Where critical components to be inspected are not directly accessible, any disassembling required must be performed where deemed necessary.
- Evaluate the findings of the inspection with a view to confirm the security of critical components.
- Determine action (repair, replacement and/or alteration) taken or to be taken to secure the integrity of critical components.

6. Necessary non-destructive testing (NDT) may be spread (staggered) over a period not exceeding five years to assist planning for compliance with this Guideline in accordance with the "Frequency for Periodic Engineering Review and Assessment" established in Section 1.2.

7. The current "Periodic Engineering Review and Assessment" Report confirming compliance with this Guideline in keeping with the "Frequency for Periodic Engineering Review and Assessment" established in Section 1.2 shall be linked by reference to all previous "Periodic Engineering Review and Assessment" Report(s) for a specific passenger ropeway in order to justify and resolve the following conditions (where applicable):

   - Next NDT cycle (other than Section 1.2 of this Director's Order) for newly replaced parts identified in the previous "Periodic Engineering Review and Assessment" Report(s);
   - Compliance with all outstanding recommendations and conclusions identified in the previous "Periodic Engineering Review and Assessment" Report(s);
   - Compliance with "Notice of Registration of Design Submission with Conditions" attached to previous "Periodic Engineering Review and Assessment" Report(s) registered with the TSSA.

8. The current "Periodic Engineering Review and Assessment" Report shall be linked to previous (where applicable) "Periodic Engineering Review and Assessment" Reports for a specific passenger ropeway by referencing the design submission (DS) number listed under "Notice of Registration of Design Submission with Conditions" attached with the previous "Engineering Review and Assessment" Report registered with the TSSA.

9. This Guideline is not intended to replace any requirements contained in the latest adopted version of CSA Standard Z98 – Passenger Ropeways and Ontario Regulation.

10. This is a reminder that "Operation and Maintenance" requirements under Section 32 of the Ontario Regulation must be adhered at all times. When replacing parts of a ropeway, Section 32(5) of the Ontario Regulation applies. All work must be performed by qualified persons.

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Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01(Elevating Devices) appointed under the *Technical Standards and Safety Act, 2000*,

This Guideline has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 225 / 07	Rev. No.:
Elevating Devices Code Adoption Document - Amendment	Date: July 16, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Adoption of ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and
ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

Sent to: All Elevating Device Contractors, Consultants and Elevating Device Mechanics

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards & Safety Authority is further amended as follows;

1.0 Change to Part III Elevators, Dumbwaiters, Escalators, Moving Walks, Material Lifts and Freight Platform lifts

Effective January 1, 2008, Section 6.(1) of the CAD is revoked and replaced by the following:

6.(1)(a) Every newly installed or altered elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of;

(1) ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators, and
(2) CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, except
(3) The requirements of (1) are adopted with the following modifications and clarifications:

(a) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(b) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(c) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 350/06 made under the Building Code Act 1992 or a later edition, commonly known as Ontario Building Code or OBC;

(d) Where there is inconsistency between the Regulations and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(e) Requirement 2.14.1.8.3 is not adopted;

Note: Glass and mirror shall conform to the requirements of 2.14.1.8.1, 2.14.1.8.2, 2.14.1.8.4. Type 3C film reinforced silver mirror is not permitted for use in elevators. The standard CAN/CGSB-12.5 was revoked by Canadian General Standards Board in May 2004.

(f) Requirement 2.27.3.2.2 is adopted as written, with the following clarification;

Where the building fire alarm system is identified to activate Phase 1, fire alarm initiating devices and not pull stations shall be used to initiate either the designated or alternate level recall.
Note: Fire alarm initiating devices are referred to as fire detectors (smoke or heat) in the NBCC to ensure initiation of recall by automatic means only;

(g) Requirement 2.27.3.2.4(a) is revoked and the following substituted:

2.27.3.2.4(a) the activation of a fire alarm initiating device specified in 2.27.3.2.1(a) or 2.27.3.2.2(a) that is located at the designated level, shall cause all elevators serving that level to be recalled to an alternate level, unless Phase I Emergency Recall is in effect.
Note 2.27.3.2.2(a) was 2.27.3.2.2(b) in the code;

(h) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(i) Section 5.3 – Private Residence Elevators, is not adopted;

(j) Section 5.4 – Private Residence Inclined Elevators, is not adopted;

(k) Section 5.7 – Special Purpose Personnel Elevators, is not adopted;

(l) Section 5.8 – Shipboard Elevators, is not adopted;

(m) Section 5.9 – Mine Elevators, is not adopted;

(n) "Elevators used for construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

(o) Requirement 5.10.1.9.5(a) is revoked and the following substituted:

5.10.1.9.5(a) For elevators with car speeds of up to 1.75 m/s (350 ft/min), hoistway doors or gates shall be provided with devices that comply with the requirements of 5.10.1.9.5(b);

(p) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(q) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item 2(3)(j) of the Elevating Device Regulation 209/01, are not adopted;

(r) The requirements of 8.6.1 through 8.6.11 are not adopted, except:
   i) 8.6.3.2 Replacement of a Single Suspension Rope
   ii) 8.6.8.2 Step-to-Skirt Clearance
   iii) 8.6.9.2.1 Comb replacement requirements
   iv) 8.6.11.5 Escalator or Moving Walk Startup
   are adopted;

(s) Requirements of elevator maintenance are adopted in accordance with 8.6.12 of the B44-07 Code, and are supplemented with:
   i) the additional maintenance requirements identified in CSA Standard B44.2-07, which are adopted and,
   ii) The 'Replacement of specific elevator components' from CAN/CSA B44-04 Safety Code for Elevators, sections c8.6.12.5.4 to c8.6.12.5.7 are adopted;

(t) Maintenance records shall be kept in the log book, in accordance with 8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/01;

(u) Section 8.7 – Alterations, is adopted, with modifications and enforcement procedures as specified in Director's Order #226/07 including it's latest revision;

(v) Section 8.8 – Welding, is not adopted. The requirements in Section 3 of the Elevating Devices Code Adoption Document apply;

(w) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;

(x) Section 8.11 - Periodic Inspection and Test Requirements, are not adopted, except for 8.11.2.2.6, and;

(y) Requirement 8.11.2.2.6 Firefighters' Emergency Operation is revoked and the following substituted:

   8.11.2.2.6 Firefighters' Emergency Operation.
   (a) Firefighters' emergency operation shall be tested to determine conformance with the applicable requirements.
   (b) All elevators provided with firefighters' emergency operation shall be subjected annually to Phase I recall by use of the key switch, and a minimum of one-floor operation on Phase II. Deficiencies shall be corrected.
   (c) A record of findings shall be available to elevator personnel and the authority having jurisdiction. *Note: Conformance to these test requirements are the responsibility of the building owners as part of the elevator maintenance*.

6.(1)(b) Where conformance with the prescriptive requirements in 6.1(a) are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

2. INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Elevating Device Regulation 209/01.

(b) The ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and the CSA B44.2 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators are available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON, L4W 5N6, telephone 1-800-463-6727, 416 747 4044 or online www.shopcsa.ca.

(c) Since the Elevating Device Regulation 209/01 requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of the Regulation and applicable codes and be familiar with the subject standard.

(d) Electronic copies of the
- *Technical Standards and Safety Act, 2000,* and
- Elevating Devices Regulation 209/01

can be obtained free of charge from Government of Ontario web site http://www.e-laws.gov.on.ca/ or from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act.

(e) Electronic copies of the
- Elevating Devices Code Adoption Document

can be obtained free of charge from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act

3. NOTES

3.1 Contractors are urged to study **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators** carefully to ensure conformance by the specified date.

Major revisions/additions in CSA-B44-07 include:
- A new rule to require fire emergency operation on **all** automatic elevators (2.27.3),
- Type 3C Silver Mirrored glass in no longer permitted for use in elevators,
- Seismic requirements (section 8.4) now apply in Canada,
- The recommended maintenance intervals in Appendix J are deleted from this code and are published as a separate standard – CSA Standard B44.2-07,
- Alteration requirements are further clarified in Director's Order 226/07.
- Recognition of the new Performance Base Code A17.7/B44.7,
- Machine room-less elevator requirements are now included in the body of the code,
- A new rule to allow the use of SIL rated electrical protective devices (2.26.4.3.2),
- A new rule to allow the use of certified SIL-rated software systems to solely remove the power from the motor and brake (2.26.9.4) and
- Revised requirements for motor control using AC and DC drives (2.26.9.5 & 2.26.9.6),

3.2 **Conformance with the above requirements as well as all other requirements in** ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators **shall be demonstrated in the design submission or at the initial inspection, as applicable.**

4. The Effective Date of said amendments are as follows:

4.1 **DESIGN SUBMISSIONS** received by TSSA for registration on or after the **1st day of January 2008**, shall conform to the requirements of **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators**.

a) Compliance with this edition of the **ASME A17.1-2007/CSA B44-07** shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

b) Submissions received between October 1, 2007 and December 31, 2007 may comply with the codes adopted for this time period or **ASME A17.1-2007/CSA B44-07**.

c) Any designs submitted before October 1, 2007 based on the **ASME A17.1-2007/CSA B44-07** code must be accompanied by a request for variance.

d) Pre-applications submitted in advance of the implementation of **ASME A17.1-2007/CSA B44-07,** in order to conform to an earlier edition of B44 shall be followed up with a complete submission by **July 1, 2008.**

4.2 **The MAINTENANCE REQUIREMENTS** of 8.6. of **ASME A17.1-2007/CSA B44-07**, and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks as adopted above, are effective as of the **1st day of January 2008.**

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Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000.*

This Order has been developed in consultation with the Elevating Devices Advisory Council

	Elevating and Amusement Devices Safety Division	Ref. No.: 225 / 07	Rev. No.: 1
	Elevating Devices Code Adoption Document - Amendment	Date: July 16, 2007	Date: November 30, 2007

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Adoption of ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and
ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

Sent to: All Elevating Device Contractors, Consultants and Elevating Device Mechanics

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards & Safety Authority is further amended as follows;

1.0 Change to Part III Elevators, Dumbwaiters, Escalators, Moving Walks, Material Lifts and Freight Platform lifts

Effective January 1, 2008, Section 6.(1) of the CAD is revoked and replaced by the following:

6.(1)(a) Every newly installed or altered elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of;

(1) ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators, and
(2) CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, except
(3) The requirements of (1) are adopted with the following modifications and clarifications:

(a) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(b) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(c) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 350/06 made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;

(d) Where there is inconsistency between the Regulations and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(e) Requirement 2.2.2.7 is not adopted;

(f) Requirement 2.14.1.8.3 is not adopted;

Note: Glass and mirror shall conform to the requirements of 2.14.1.8.1, 2.14.1.8.2, 2.14.1.8.4. Type 3C film reinforced silver mirror is not permitted for use in elevators. The standard CAN/CGSB-12.5 was revoked by Canadian General Standards Board in May 2004.

(g) Requirement 2.14.2.1 is revoked and the following substituted;

2.14.2.1 Material for Car Enclosures, Enclosure Linings, and Floor Coverings. All materials exposed to the car interior and the hoistway shall be metal, glass, or shall conform to 2.14.2.1.1 through 2.14.2.1.4.

2.14.2.1.1 in not adopted.
2.14.2.1.2 In jurisdictions enforcing the NBCC:
(a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3 and 2.14.2.1.4 shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723 or CAN/ULC-S102:

(1) flame spread rating of 0 to 75
(2) smoke development of 0 to 450

(b) where the building is designated by the building code as a high building, materials in their end-use configuration shall have a flame spread rating for walls and ceiling of 0 to 25, with smoke development of 0 to 100, based on the test conducted in accordance with the requirements of CAN/ULC-S102.
(c) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development of 0 to 300, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2.

2.14.2.1.3
Padded protective linings, for temporary use in passenger cars during the handling of freight, shall be of materials conforming to either 2.14.2.1.1(a) or (b), or 2.14.2.1.2(a), whichever is applicable. The protective lining shall clear the floor by not less than 100 mm (4 in.).

2.14.2.1.4 Handrails, operating devices, ventilating devices, signal fixtures, audio and visual communication devices, and their housings are not required to conform to 2.14.2.1.

(h) Requirement 2.27.3 is revoked and the following substituted:
2.27.3 Firefighters' Emergency Operation: Automatic Elevators
Firefighters' Emergency Operation shall apply to all automatic elevators except where the hoistway or a portion thereof is not required to be fire-resistive construction (see 2.1.1.1), the rise does not exceed 2 000 mm (80 in.), and the hoistway does not penetrate a floor.
NOTE (2.27.3): When the structure (building, etc.) is located in a flood hazard area, the alternate and designated levels (see 8.12.1) should be above the base flood elevation.
Note: Independent of the requirements in NBCC, Phase I recall shall include the requirements of both 2.27.3.1 and 2.27.3.2.

(i) Requirement 2.27.3.2.2 is revoked and the following substituted;

2.27.3.2.2 Smoke detectors or fire detectors (fire alarm initiating devices), shall be installed, to provide outputs from the fire alarm system to the elevator controller(s) to automatically initiate Phase I Emergency Recall Operation, and shall be located
(a) at each floor served by the elevator
(b) in the associated elevator machine room, control space, or control room.
The installation of these detectors shall be in conformance with the requirements of the NBCC.
NOTE (2.27.3.2.2): Fire alarm initiating devices are referred to as fire detectors in the NBCC.

Where the building fire alarm system is identified to activate Phase 1, fire alarm initiating devices and not pull stations shall be used to initiate either the designated or alternate level recall.
Note: Fire alarm initiating devices are referred to as fire detectors (smoke or heat) in the NBCC to ensure initiation of recall by automatic means only;

(j) Requirement 2.27.3.2.4(a) is revoked and the following substituted:

2.27.3.2.4(a) the activation of a fire alarm initiating device specified in 2.27.3.2.1(a) or 2.27.3.2.2(a) that is located at the designated level, shall cause all elevators serving that level to be recalled to an alternate level, unless Phase I Emergency Recall is in effect.
Note 2.27.3.2.2(a) was 2.27.3.2.2(b) in the code;

(k) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(l) Sections 5.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(m) Sections 5.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(n) Sections 5.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(o) Sections 5.8 and 8.7.5.8 – Shipboard Elevators, are not adopted;

(p) Sections 5.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(q) "Elevators used for construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

(r) Requirement 5.10.1.9.5(a) is revoked and the following substituted:
5.10.1.9.5(a) For elevators with car speeds of up to 1.75 m/s (350 ft/min), hoistway doors or gates shall be provided with devices that comply with the requirements of 5.10.1.9.5(b);

(s) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(t) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item 2(3)(j) of the Elevating Device Regulation 209/01, are not adopted;

(u) The requirements of 8.6.1 through 8.6.11 are not adopted, except:
i) 8.6.3.2 Replacement of a Single Suspension Rope
ii) 8.6.8.2 Step-to-Skirt Clearance
iii) 8.6.8.4.1 & 8.6.9.2.1 Comb replacement requirements

iv) 8.6.8.4.2 & 8.6.9.2.2 Comb teeth meshing requirements
v) 8.6.11.5 Escalator or Moving Walk Startup are adopted
vi) 8.6.11.6 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1
vii) 8.6.11.7 Egress and Reentry Procedure From Working Areas on 2.7.5.1.3 or 2.7.5.2.3
viii) 8.6.11.8 Operating Instructions for Retractable Platforms;

(v) Requirements of elevator maintenance are adopted in accordance with 8.6.12 of the B44-07 Code, and are supplemented with:
i) the additional maintenance requirements identified in CSA Standard B44.2-07, which are adopted and,
ii) The 'Replacement of specific elevator components' from CAN/CSA B44-04 Safety Code for Elevators, sections c8.6.12.5.4 to c8.6.12.5.7 are adopted;

(w) Maintenance records shall be kept in the log book, in accordance with 8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/01;

(x) Section 8.7 – Alterations, is adopted, with modifications and enforcement procedures as specified below and in Director's Order #226/07 including it's latest revision;

(y) Requirement 8.7.2.27.4(a) is revoked and the following substituted:

8.7.2.27.4 Controllers
(a) Where a controller is installed as part of an alteration, it shall conform to 2.25, 2.26.1.4, 2.26.1.5, 2.26.4 through 2.26.9, and where required by NBCC at the time of the original installation to 2.27.2 through 2.27.8.

(z) Requirement 8.7.2.27.6(g) is revoked and the following substituted:

(g) Emergency operation and signaling devices where required by NBCC at the time of the original installation shall be provided and shall conform to 2.27.

(aa) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(bb) Section 8.8 – Welding, is not adopted. The requirements in Section 3 of the Elevating Devices Code Adoption Document apply;

(cc) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;
(dd) Section 8.11 - Periodic Inspection and Test Requirements, are not adopted, except for 8.11.2.2.6, and;

(ee) Requirement 8.11.2.2.6 Firefighters' Emergency Operation is revoked and the following substituted:

8.11.2.2.6 Firefighters' Emergency Operation.
(a) Firefighters' emergency operation shall be tested to determine conformance with the applicable requirements.
(b) All elevators provided with firefighters' emergency operation shall be subjected annually to Phase I recall by use of the key switch, and a minimum of one-floor operation on Phase II. Deficiencies shall be corrected.

(c) A record of findings shall be available to elevator personnel and the authority having jurisdiction. *Note: Conformance to these test requirements are the responsibility of the building owners as part of the elevator maintenance*.

6.(1)(b) Where conformance with the prescriptive requirements in 6.1(a) are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

2. INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Elevating Device Regulation 209/01.

(b) The ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and the CSA B44.2 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators are available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON, L4W 5N6, telephone 1-800-463-6727, 416 747 4044 or online www.shopcsa.ca.

(c) Since the Elevating Device Regulation 209/01 requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of the Regulation and applicable codes and be familiar with the subject standard.

(d) Electronic copies of the
- *Technical Standards and Safety Act, 2000,* and
- Elevating Devices Regulation 209/01

can be obtained free of charge from Government of Ontario web site http://www.e-laws.gov.on.ca/ or from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act.

(e) Electronic copies of the
- Elevating Devices Code Adoption Document

can be obtained free of charge from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act

3. NOTES

3.1 Contractors are urged to study **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators** carefully to ensure conformance by the specified date.

Major revisions/additions in CSA-B44-07 include:
- A new rule to require automatic fire emergency operation on **all** automatic elevators* (2.27.3),
- Type 3C Silver Mirrored glass in no longer permitted for use in elevators,
- Flame and smoke development ratings for cab walls and ceilings in low buildings are more stringent,
- Seismic requirements (section 8.4) now apply in Canada,
- The recommended maintenance intervals in Appendix J are deleted from this code and are published as a separate standard – CSA Standard B44.2-07,
- Alteration requirements are further clarified in Director's Order 226/07.
- Recognition of the new Performance Base Code A17.7/B44.7,
- Machine room-less elevator requirements are now included in the body of the code,
- A new rule to allow the use of SIL rated electrical protective devices (2.26.4.3.2),

- A new rule to allow the use of certified SIL-rated software systems to solely remove the power from the motor and brake (2.26.9.4) and
- Revised requirements for motor control using AC and DC drives (2.26.9.5 & 2.26.9.6),

* The rationale from the B44 committee, confirms that the intent of the technical revision to section 2.27.3 found in the B44-07 code, was to require mandatory automatic recall and phase 2 operation on all automatic elevators.

3.2 **Conformance with the above requirements as well as all other requirements in** ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators **shall be demonstrated in the design submission or at the initial inspection, as applicable.**

4. **The Effective Date of said amendments are as follows:**

4.1 **DESIGN SUBMISSIONS** received by TSSA for registration on or after the **1st day of January 2008**, shall conform to the requirements of **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators**.

a) Compliance with this edition of the **ASME A17.1-2007/CSA B44-07** shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

b) Submissions received between October 1, 2007 and December 31, 2007 may comply with the codes adopted for this time period or **ASME A17.1-2007/CSA B44-07**.

c) Any designs submitted before October 1, 2007 based on the **ASME A17.1-2007/CSA B44-07** code must be accompanied by a request for variance.

d) Pre-applications submitted in advance of the implementation of **ASME A17.1-2007/CSA B44-07,** in order to conform to an earlier edition of B44 shall be followed up with a complete submission by **July 1, 2008.**

4.2 **The MAINTENANCE REQUIREMENTS** of 8.6. of **ASME A17.1-2007/CSA B44-07**, and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks as adopted above, are effective as of the **1st day of January 2008.**

_____

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000.*

This Order has been developed in consultation with the Elevating Devices Advisory Council

Elevating and Amusement Devices Safety Division	Ref. No.: 225 / 07	Rev. No.: 2
Elevating Devices Code Adoption Document - Amendment	Date: July 16, 2007	Date: May 13, 2008

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Adoption of ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and
ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

Sent to: All Elevating Device Contractors, Consultants and Elevating Device Mechanics

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards & Safety Authority is further amended as follows;

1.0 Change to Part III Elevators, Dumbwaiters, Escalators, Moving Walks, Material Lifts and Freight Platform lifts

Effective January 1, 2008, Section 6.(1) of the CAD is revoked and replaced by the following:

6.(1)(a) Every newly installed or altered elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of;

(1) ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators, and
(2) CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, except
(3) The requirements of (1) are adopted with the following modifications and clarifications:

(a) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(b) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(c) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 350/06 made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;

(d) Where there is inconsistency between the Regulations and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(e) Requirement 2.2.2.7 is not adopted;

(f) Requirement 2.14.1.8.3 is not adopted;

Note: Glass and mirror shall conform to the requirements of 2.14.1.8.1, 2.14.1.8.2, 2.14.1.8.4. Type 3C film reinforced silver mirror is not permitted for use in elevators. The standard CAN/CGSB-12.5 was revoked by Canadian General Standards Board in May 2004.

(g) Requirement 2.14.2.1 is revoked and the following substituted;

2.14.2.1 Material for Car Enclosures, Enclosure Linings, and Floor Coverings. All materials exposed to the car interior and the hoistway shall be metal, glass, or shall conform to 2.14.2.1.1 through 2.14.2.1.4.

2.14.2.1.1 is not adopted.
2.14.2.1.2 In jurisdictions enforcing the NBCC:
(a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3 and 2.14.2.1.4 shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723 or CAN/ULC-S102:

(1) flame spread rating of 0 to 75
(2) smoke development of 0 to 450

(b) floor surfaces shall have a flame spread rating of 0 to 300, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2

(c) where the building is designated by the building code as a high building:

(1) materials in their end-use configuration shall have a flame spread rating for walls and ceiling of 0 to 25 with smoke development of 0 to 100 based on the test conducted in accordance with the requirements of CAN/ULC-S102.
(2) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development of 0 to 300 based on the test conducted in accordance with the requirements of CAN/ULC-S102.2.

2.14.2.1.3
Padded protective linings, for temporary use in passenger cars during the handling of freight, shall be of materials conforming to either 2.14.2.1.1(a) or (b), or 2.14.2.1.2(a), whichever is applicable. The protective lining shall clear the floor by not less than 100 mm (4 in.).

2.14.2.1.4 Handrails, operating devices, ventilating devices, signal fixtures, audio and visual communication devices, and their housings are not required to conform to 2.14.2.1.

(h) Requirement 2.27.3 is revoked and the following substituted:
2.27.3 Firefighters' Emergency Operation: Automatic Elevators
Firefighters' Emergency Operation shall apply to all automatic elevators except where the hoistway or a portion thereof is not required to be fire-resistive construction (see 2.1.1.1), the rise does not exceed 2 000 mm (80 in.), and the hoistway does not penetrate a floor.

NOTE (2.27.3): When the structure (building, etc.) is located in a flood hazard area, the alternate and designated levels (see 8.12.1) should be above the base flood elevation.
Note: Independent of the requirements in NBCC, Phase I recall shall include the requirements of both 2.27.3.1 and 2.27.3.2.

(i) Requirement 2.27.3.2.2 is revoked and the following substituted;

2.27.3.2.2 Smoke detectors or fire detectors (fire alarm initiating devices), shall be installed, to provide outputs from the fire alarm system to the elevator controller(s) to automatically initiate Phase I Emergency Recall Operation, and shall be located
(a) at each floor served by the elevator
(b) in the associated elevator machine room, control space, or control room.
The installation of these detectors shall be in conformance with the requirements of the NBCC.
NOTE (2.27.3.2.2): Fire alarm initiating devices are referred to as fire detectors in the NBCC.

Where the building fire alarm system is identified to activate Phase 1, fire alarm initiating devices and not pull stations shall be used to initiate either the designated or alternate level recall.
Note: Fire alarm initiating devices are referred to as fire detectors (smoke or heat) in the NBCC to ensure initiation of recall by automatic means only;

(j) Requirement 2.27.3.2.4(a) is revoked and the following substituted:

2.27.3.2.4(a) the activation of a fire alarm initiating device specified in 2.27.3.2.1(a) or 2.27.3.2.2(a) that is located at the designated level, shall cause all elevators serving that level to be recalled to an alternate level, unless Phase I Emergency Recall is in effect.
Note 2.27.3.2.2(a) was 2.27.3.2.2(b) in the code;

(k) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(l) Sections 5.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(m) Sections 5.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(n) Sections 5.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(o) Sections 5.8 and 8.7.5.8 – Shipboard Elevators, are not adopted;

(p) Sections 5.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(q) "Elevators used for construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

(r) Requirement 5.10.1.9.5(a) is revoked and the following substituted:
5.10.1.9.5(a) For elevators with car speeds of up to 1.75 m/s (350 ft/min), hoistway doors or gates shall be provided with devices that comply with the requirements of 5.10.1.9.5(b);

(s) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(t) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item 2(3)(j) of the Elevating Device Regulation 209/01, are not adopted;

(u) The requirements of 8.6.1 through 8.6.11 are not adopted, except:
- i) 8.6.3.2 Replacement of a Single Suspension Rope
- ii) 8.6.8.2 Step-to-Skirt Clearance
- iii) 8.6.8.4.1 & 8.6.9.2.1 Comb replacement requirements
- iv) 8.6.8.4.2 & 8.6.9.2.2 Comb teeth meshing requirements
- v) 8.6.11.5 Escalator or Moving Walk Startup are adopted
- vi) 8.6.11.6 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1
- vii) 8.6.11.7 Egress and Reentry Procedure From Working Areas on 2.7.5.1.3 or 2.7.5.2.3
- viii) 8.6.11.8 Operating Instructions for Retractable Platforms;

(v) Requirements of elevator maintenance are adopted in accordance with 8.6.12 of the B44-07 Code, and are supplemented with:
- i) the additional maintenance requirements identified in CSA Standard B44.2-07, which are adopted and,
- ii) The 'Replacement of specific elevator components' from CAN/CSA B44-04 Safety Code for Elevators, sections c8.6.12.5.4 to c8.6.12.5.7 are adopted;

(w) Maintenance records shall be kept in the log book, in accordance with 8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/01;

(x) Section 8.7 – Alterations, is adopted, with modifications and enforcement procedures as specified below and in Director's Order #226/07 including it's latest revision;

(y) Requirement 8.7.2.27.4(a) is revoked and the following substituted:
8.7.2.27.4 Controllers
(a) Where a controller is installed as part of an alteration, it shall conform to 2.25, 2.26.1.4, 2.26.1.5, 2.26.4 through 2.26.9, and where required by NBCC at the time of the original installation to 2.27.2 through 2.27.8.

(z) equirement 8.7.2.27.5 is revoked and the following substituted:

Where there is a change in the type of motion control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to
- (1) 2.11.1 except;
  - (a) existing entrance openings less than 2030mm in height or 800mm in width are permitted to be retained
  - (b) requirement 2.11.1.4
- (2) 2.11.2 through 2.11.6, except 2.11.6.3
- (3) 2.11.8, 2.11.9
- (4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
- (5) 2.11.12.8,
- (6) 2.12, except;
  - (a) requirement 2.12.2.4.3 to allow a minimum engagement of 6mm
  - (b) 2.12.4, 2.12.5 and
- (7) 2.13.

(b) Car enclosures and car doors or gates shall conform to 2.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements are not required:
(1) requirements 2.14.1.3, 2.14.1.5.1,
(2) car top enclosures are not required to meet the design requirements of 2.14.1.6, but shall meet the loading requirements specified
(3) requirement 2.14.1.7.1 applies only to the extent the existing vertical clearances allow
(4) requirement 2.14.1.8, 2.14.1.9 and 2.14.1.10
(5) requirements 2.14.2.1, 2.14.2.3, through 2.14.2.6
(6) requirement 2.14.3
(7) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
(8) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
(9) requirement 2.14.6.2.2 except 2.14.5 shall be as amended above
(10) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that
(1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
(2) the pitch diameter of speed governor sheaves and tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 2.16.8(e), (f), (g) and (h).
(e) The terminal stopping devices shall conform to 2.25
(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
(g) In jurisdictions enforcing NBCC, emergency operation and signaling devices where required by NBCC shall be provided and shall conform to 2.27
(h) Car overspeed protection and unintended movement protection shall conform to 2.19.

(aa) Requirement 8.7.2.27.6(g) is revoked and the following substituted:

(g) Emergency operation and signaling devices where required by NBCC at the time of the original installation shall be provided and shall conform to 2.27.

(bb) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(cc) Section 8.8 – Welding, is not adopted. The requirements in Section 3 of the Elevating Devices Code Adoption Document apply;

(dd) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;

(ee) Section 8.11 - Periodic Inspection and Test Requirements, are not adopted, except for 8.11.2.2.6, and;

(ff) Requirement 8.11.2.2.6 Firefighters' Emergency Operation is revoked and the following substituted:

8.11.2.2.6 Firefighters' Emergency Operation.
(a) Firefighters' emergency operation shall be tested to determine conformance with the applicable requirements.
(b) All elevators provided with firefighters' emergency operation shall be subjected annually to Phase I recall by use of the key switch, and a minimum of one-floor operation on Phase II. Deficiencies shall be corrected.
(c) A record of findings shall be available to elevator personnel and the authority having jurisdiction. *Note: Conformance to these test requirements are the responsibility of the building owners as part of the elevator maintenance*.

(4) The requirements of 6.(1)(a)(2) are adopted with the following modifications and clarifications:

(a) The requirements of B44.2-07 are applicable to all elevating devices covered in B44-07 as amended in 6.(1)(a)(3) above, and includes limited use/limited application elevators, material lifts and freight platform lifts.

(b) Where monthly maintenance frequencies identified in B44.2-07 are extended,
i) the altered frequencies must taking into account the age and inherent quality of the equipment, the frequency and method of usage, and the recommendation(s) by either the original manufacturer, or manufacturer's agent, or the maintaining contractor,
ii) the owner and maintenance contractor shall agree in writing to the altered frequencies,
iii) the log book shall either capture this agreement or make reference to another document where such an agreement is made,
iv) a copy of the altered frequency agreement the shall be made available to TSSA upon request, and
v) the new maintenance frequencies shall not exceed three (3) months.

6.(1)(b) Where conformance with the prescriptive requirements in 6.1(a) are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

2. INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Elevating Device Regulation 209/01.

(b) The ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and the CSA B44.2 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators are available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON, L4W 5N6, telephone 1-800-463-6727, 416 747 4044 or online www.shopcsa.ca.

(c) Since the Elevating Device Regulation 209/01 requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of the Regulation and applicable codes and be familiar with the subject standard.

(d) Electronic copies of the
- *Technical Standards and Safety Act, 2000,* and
- Elevating Devices Regulation 209/01

can be obtained free of charge from Government of Ontario web site http://www.e-laws.gov.on.ca/ or from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act.

(e) Electronic copies of the
- Elevating Devices Code Adoption Document

can be obtained free of charge from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act

3. NOTES

3.1 Contractors are urged to study **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators** carefully to ensure conformance by the specified date.

Major revisions/additions in CSA-B44-07 include:
- A new rule to require automatic fire emergency operation on **all** automatic elevators* (2.27.3),
- Type 3C Silver Mirrored glass in no longer permitted for use in elevators,
- Flame and smoke development ratings for cab walls and ceilings in low buildings are more stringent,
- Seismic requirements (section 8.4) now apply in Canada,
- The recommended maintenance intervals in Appendix J are deleted from this code and are published as a separate standard – CSA Standard B44.2-07,
- Alteration requirements are further clarified in Director's Order 226/07.
- Recognition of the new Performance Base Code A17.7/B44.7,
- Machine room-less elevator requirements are now included in the body of the code,
- A new rule to allow the use of SIL rated electrical protective devices (2.26.4.3.2),
- A new rule to allow the use of certified SIL-rated software systems to solely remove the power from the motor and brake (2.26.9.4) and
- Revised requirements for motor control using AC and DC drives (2.26.9.5 & 2.26.9.6),

* The rationale from the B44 committee, confirms that the intent of the technical revision to section 2.27.3 found in the B44-07 code, was to require mandatory automatic recall and phase 2 operation on all automatic elevators.

3.2 **Conformance with the above requirements as well as all other requirements in** ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators **shall be demonstrated in the design submission or at the initial inspection, as applicable.**

3.3 Even though B44.2 establishes fixed maintenance frequencies, tasks which have historically required monthly maintenance are permitted to be extended if the requirements of 6.(1)(a)(4) are complied with, but in no case shall these frequencies extend beyond three months. Note: The permission to extend frequencies is based upon previous practice captured in Directors Order 99/92.

4. The Effective Date of said amendments are as follows:

4.1 **DESIGN SUBMISSIONS** received by TSSA for registration on or after the **1st day of January 2008**, shall conform to the requirements of **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators**.

a) Compliance with this edition of the **ASME A17.1-2007/CSA B44-07** shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

b) Submissions received between October 1, 2007 and December 31, 2007 may comply with the codes adopted for this time period or **ASME A17.1-2007/CSA B44-07**.

c) Any designs submitted before October 1, 2007 based on the **ASME A17.1-2007/CSA B44-07** code must be accompanied by a request for variance.

d) Pre-applications submitted in advance of the implementation of **ASME A17.1-2007/CSA B44-07,** in order to conform to an earlier edition of B44 shall be followed up with a complete submission by **July 1, 2008.**

4.2 **The MAINTENANCE REQUIREMENTS** of 8.6. of **ASME A17.1-2007/CSA B44-07**, and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks as adopted above, are effective as of the **1st day of January 2008.**

_____

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000.*

This Order has been developed in consultation with the Elevating Devices Advisory Council

	Ref. No.:	Rev. No.:
Elevating and Amusement Devices Safety Division	225 / 07	3
Elevating Devices Code Adoption Document - Amendment	Date: July 16, 2007	Date: March 2, 2009

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Adoption of ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and
ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

Sent to: All Elevating Device Contractors, Consultants and Elevating Device Mechanics

The Director of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards & Safety Authority is further amended as follows;

1.0 Change to Part III Elevators, Dumbwaiters, Escalators, Moving Walks, Material Lifts and Freight Platform lifts

Effective immediately, Section 6.(1) of the CAD is revoked and replaced by the following:

6.(1)(a) Every elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of:

(1) ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators, and

(2) CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, except

(3) The requirements of (1) are adopted with the following modifications and clarifications:

(a) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(b) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(c) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to Ontario Regulation

350/06 made under the *Building Code Act, 1992*, as amended, commonly known as Ontario Building Code or OBC;

(d) Where there is inconsistency between the Regulation and this Code (e.g. Rule 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(e) Requirement 2.2.2.7 (restriction on sump pumps in pits) is not adopted;

(f) Requirement 2.14.1.8.3 (3C film-reinforced mirror) is not adopted;

Note: Glass and mirror shall conform to the requirements of 2.14.1.8.1, 2.14.1.8.2, 2.14.1.8.4. Type 3C film-reinforced silver mirror is not permitted for use in elevators. The standard CAN/CGSB-12.5 was revoked by Canadian General Standards Board in May 2004.

(g) Requirement 2.14.2.1 is revoked and the following substituted;

CAD 2.14.2.1 Material for Car Enclosures, Enclosure Linings, and Floor Coverings. *All materials exposed to the car interior and the hoistway shall be metal, glass, or shall conform to 2.14.2.1.1 through 2.14.2.1.4.*

2.14.2.1.1 is not adopted.

CAD 2.14.2.1.2 *In jurisdictions enforcing the NBCC:*
(a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3 and 2.14.2.1.4 shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723 or CAN/ULC-S102:

(1) flame spread rating of 0 to 75
(2) smoke development of 0 to 450

(b) floor surfaces shall have a flame spread rating of 0 to 300, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2

(c) where the building is designated by the building code as a high building:

(1) materials in their end-use configuration shall have a flame spread rating for walls and ceiling of 0 to 25 with smoke development of 0 to 100 based on the test conducted in accordance with the requirements of CAN/ULC-S102.
(2) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development of 0 to 300 based on the test conducted in accordance with the requirements of CAN/ULC-S102.2.

CAD 2.14.2.1.3
Padded protective linings, for temporary use in passenger cars during the handling of freight, shall be of materials conforming to 2.14.2.1.2(a). The protective lining shall clear the floor by not less than 100 mm (4 in.).

CAD 2.14.2.1.4 *Handrails, operating devices, ventilating devices, signal fixtures, audio and visual communication devices, and their housings are not required to conform to 2.14.2.1.*

(h) Introduction to requirement 2.27.3 is revoked and the following introduction is substituted:

CAD 2.27.3 Firefighters' Emergency Operation: Automatic Elevators
Firefighters' Emergency Operation shall apply to all automatic elevators except where the hoistway or a portion thereof is not required to be fire-resistive construction (see 2.1.1.1), the rise does not exceed 2000 mm (80 in.), and the hoistway does not penetrate a floor.
NOTE (2.27.3): When the structure (building, etc.) is located in a flood hazard area, the alternate and designated levels (see 8.12.1) should be above the base flood elevation.
Note: Independent of the requirements in NBCC, Phase I recall shall include the requirements of both 2.27.3.1 and 2.27.3.2.
Note: Requirements 2.27.3.1 through 2.27.3.5 are adopted or adopted as amended below.

(i) Requirement 2.27.3.2.2 is revoked and the following substituted;

CAD 2.27.3.2.2
(a) Smoke detectors or fire detectors (fire alarm initiating devices)[1] shall be installed to provide a signal, either directly or through the fire alarm system, to the elevator controller(s) to automatically initiate Phase I Emergency Recall Operation, and shall be located
(1) at each floor served by the elevator
(2) in the associated elevator machine room, control space, or control room.

(b) The installation of these detectors shall be in conformance with the requirements of the NBCC. Despite (a), fire detectors located outside the machine room, control space, or control room need not be provided within a floor area if the floor area is sprinklered and the sprinkler system is electrically supervised in conformance with NBCC.

(c) Where the building fire alarm system is identified to activate Phase 1, pull stations shall not be used to initiate either the designated or alternate level recall[2].
NOTE:
[1] Fire alarm initiating devices are referred to as fire detectors (smoke or heat) in the NBCC
[2] To ensure initiation of recall by automatic means only.

(j) Requirement 2.27.3.2.4(a) is revoked and the following substituted:

CAD 2.27.3.2.4(a) *the activation of a fire alarm initiating device specified in 2.27.3.2.1(a) or 2.27.3.2.2(a) that is located at the designated level, shall cause all elevators serving that level to be recalled to an alternate level, unless Phase I Emergency Recall is in effect.*
Note 2.27.3.2.2(a) was 2.27.3.2.2(b) in the code;

(k) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(l) Sections 5.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(m) Sections 5.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(n) Sections 5.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(o) Sections 5.8 and 8.7.5.8 – Shipboard Elevators, are not adopted;

(p) Sections 5.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(q) "Elevators used for construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

(r) Requirement 5.10.1.9.5(a) is revoked and the following substituted:

CAD 5.10.1.9.5(a) *For elevators with car speeds of up to 1.75 m/s (350 ft/min), hoistway doors or gates shall be provided with devices that comply with the requirements of 5.10.1.9.5(b);*

(s) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(t) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item 2(3)(j) of the Elevating Device Regulation 209/01, are not adopted;

(u) The requirements of 8.6.1 through 8.6.11 are not adopted, except:

i) 8.6.1.6.3(d) *"use of jumpers"*
ii) 8.6.3.2 Replacement of a Single Suspension Rope
iii) 8.6.8.2 Step-to-Skirt Clearance
iv) 8.6.8.4.1 & 8.6.9.2.1 Comb replacement requirements
v) 8.6.8.4.2 & 8.6.9.2.2 Comb teeth meshing requirements
vi) 8.6.11.5 Escalator or Moving Walk Startup are adopted
vii) 8.6.11.6 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1
viii) 8.6.11.7 Egress and Reentry Procedure From Working Areas on 2.7.5.1.3 or 2.7.5.2.3
ix) 8.6.11.8 Operating Instructions for Retractable Platforms;

(v) Requirements of elevator maintenance are adopted in accordance with 8.6.12 of the B44-07 Code, and are supplemented with:

i) the additional maintenance requirements identified in CSA Standard B44.2-07, which are adopted and,
ii) The 'Replacement of specific elevator components' from CAN/CSA B44-04 Safety Code for Elevators, sections c8.6.12.5.4 to c8.6.12.5.7 are adopted;

(w) Maintenance records shall be kept in the log book, in accordance with 8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/01;

(x) Section 8.7 – Alterations, is adopted, with modifications and enforcement procedures as specified below and in Director's Order #226/07 including its latest revision;

(y) Requirement 8.7.2.27.4(a) is revoked and the following substituted:

CAD 8.7.2.27.4 Controllers
(a) Where a controller is installed as part of an alteration, it shall conform to 2.25, 2.26.1.4, 2.26.1.5, 2.26.4 through 2.26.9, and where
(1) required by NBCC at the time of the original installation to 2.27.2 through 2.27.8, ***CAD*** *2.27.3 and the provisions of Director's Order 226/07 as specified in subsection (x) above;*
(2) provided voluntarily shall conform to 2.27, ***CAD*** *2.27.3 and the provisions of Director's Order 226/07 as specified in subsection (x) above.*

(z) Requirement 8.7.2.27.5 is revoked and the following substituted:

CAD 8.7.2.27.5 Change in Type of Motion Control

Where there is a change in the type of motion control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to

- *(1) 2.11.1 except;*
  - *(a) existing entrance openings less than 2030mm in height or 800mm in width are permitted to be retained*
  - *(b) requirement 2.11.1.4*
- *(2) 2.11.2 through 2.11.6, except 2.11.6.3*
- *(3) 2.11.8, 2.11.9*
- *(4) 2.11.11.8 for horizontally sliding center opening and single speed entrances*
- *(5) 2.11.12.8,*
- *(6) 2.12, except;*
  - *(a) requirement 2.12.2.4.3 to allow a minimum engagement of 6mm*
  - *(b) 2.12.4, 2.12.5 and*
- *(7) 2.13.*

(b) Car enclosures and car doors or gates shall conform to 2.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:

- *(1) requirements 2.14.1.3, 2.14.1.5.1,*
- *(2) car top enclosures are not required to meet the design requirements of 2.14.1.6, but shall meet the loading requirements specified*
- *(3) requirement 2.14.1.7.1 applies only to the extent the existing vertical clearances allow*
- *(4) requirement 2.14.1.8, 2.14.1.9 and 2.14.1.10*
- *(5) requirements 2.14.2.1, 2.14.2.3, through 2.14.2.6*
- *(6) requirement 2.14.3*
- *(7) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6*
- *(8) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8*
- *(9) requirement 2.14.6.2.2 except 2.14.5 shall be as amended above*
- *(10) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4*

(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that

(1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and

(2) the pitch diameter of speed governor sheaves and tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 2.16.8(e), (f), (g) and (h).

(e) The terminal stopping devices shall conform to 2.25

(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.

(g) Emergency operation and signaling devices where

*(1) required by NBCC at the time of the original installation shall be provided and shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection (x) above;*

*(2) provided voluntarily shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection (x) above.*

(h) Car overspeed protection and unintended movement protection shall conform to 2.19.

(aa) Requirement 8.7.2.27.6(g) is revoked and the following substituted:

CAD 8.7.2.27.6 Change in Type of Operation Control

(g) Emergency operation and signaling devices where

*(1) required by NBCC at the time of the original installation shall be provided and shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection (x) above;*

*(2) provided voluntarily shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection (x) above.*

(bb) Requirement 8.7.2.28 is adopted with the following modifications and clarifications:

CAD 8.7.2.28 Emergency Operation and Signaling Devices

Where an alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to 2.27.1, 2.27.2 and the FEO operation (or equivalent) of any car shall not be diminished and shall match or exceed the highest level of FEO features (or equivalent) that existed on any car in the group prior to the alteration.

(cc) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(dd) Section 8.8 – Welding, is not adopted. The requirements in Section 3 of the Elevating Devices Code Adoption Document apply;

(ee) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;

(ff) Section 8.11 - Periodic Inspection and Test Requirements, is not adopted, except for 8.11.2.2.6, and;

(gg) Requirement 8.11.2.2.6 Firefighters' Emergency Operation is revoked and the following substituted:

CAD 8.11.2.2.6 Firefighters' Emergency Operation.

(a) Firefighters' emergency operation shall be tested to determine conformance with the applicable requirements.

(b) All elevators provided with firefighters' emergency operation shall be subjected annually to Phase I recall by use of the key switch, and a minimum of one-floor operation on Phase II. Deficiencies shall be corrected.

(c) A record of findings shall be available to elevator personnel and the authority having jurisdiction. Note: Conformance to these test requirements are the responsibility of the building owners as part of the elevator maintenance.

(4) The requirements of 6.(1)(a)(2) are adopted with the following modifications and clarifications:

(a) The requirements of B44.2-07 are applicable to all elevating devices covered in B44-07 as amended in 6.(1)(a)(3) above, and includes limited use/limited application elevators, material lifts and freight platform lifts.

(b) B44.2-07 requirement 4.6.1 Plunger return test applies, except that testing with full-load shall not be required

(c) Where frequencies of maintenance, examinations or inspections identified in B44.2-07 are extended,

i) the altered maintenance, examination and/or inspection frequencies must take into account the age and inherent quality of the equipment, the frequency and method of usage, and the recommendation(s) by either the original manufacturer, or manufacturer's agent, or the maintaining contractor,

ii) the owner and maintenance contractor shall agree in writing to the altered maintenance, examination and/or inspection frequencies,

iii) the log book shall either capture this agreement or make reference to another document where such an agreement is made,

iv) a copy of the altered maintenance, examination and/or inspection frequency agreement shall be made available to TSSA upon request, and

v) the interval between maintenance visits shall not exceed three (3) months.

vi) The frequency of tests** identified in B44.2 shall not be altered.

vii) Despite the allowance to adjust maintenance, examination or inspection frequencies as stated above, the frequency of activities listed in B44.2-07 section 5.2.1 shall not be altered.

**where the terms:

'operate'- (or equivalent thereof), such as "*governors shall be operated by hand"*

'check'- (or equivalent thereof), such as "*skirt switches shall be checked*"

are used, the frequency of these tests shall not be altered.

6.(1)(b) Where the prescriptive requirements in 6.1(a) are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

2.0 INSTRUCTIONS

(a) In the case of existing elevators, escalators, etc., the application of any newly adopted code is restricted to the sections covering the inspection, testing, maintenance and use of the elevating devices, unless otherwise required by the Elevating Device Regulation 209/01.

(b) The ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators and the CSA B44.2 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, and ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators are available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON, L4W 5N6, telephone 1-800-463-6727, 416 747 4044 or online www.shopcsa.ca.

(c) Since the Elevating Device Regulation 209/01 requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, we would expect that the mechanics involved in the construction, installation and maintenance of elevators, escalators, etc. will obtain a copy of the Regulation and applicable codes and be familiar with the subject standard.

(d) Electronic copies of the
- *Technical Standards and Safety Act, 2000,* and
- Elevating Devices Regulation 209/01

can be obtained free of charge from Government of Ontario web site http://www.e-laws.gov.on.ca/ or from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act.

(e) Electronic copies of the
- Elevating Devices Code Adoption Document

can be obtained free of charge from the TSSA web site at
http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act

3.0 NOTES

3.1 Contractors are urged to study **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators** carefully to ensure conformance by the specified date.

Major revisions/additions in CSA-B44-07 include:

- A new rule to require automatic fire emergency operation on **all** automatic elevators* (2.27.3),
  - refer to CAD 2.27.3 in this document for modified requirements
- Type 3C Silver Mirrored glass is no longer permitted for use in elevators,
  - refer to 6.(1)(a)(3)(f) of this document
- Flame and smoke development ratings for cab walls and ceilings in low buildings are more stringent,
  - refer to CAD 2.14 requirements in this document
- Seismic requirements (section 8.4) now apply in Canada,
- The recommended maintenance intervals in Appendix J are deleted from this code and are published as a separate standard – CSA Standard B44.2-07,
- Alteration requirements are further clarified in the latest revision of Director's Order 226/07.
- Recognition of the new Performance Base Code A17.7/B44.7,
- Machine room-less elevator requirements are now included in the body of the code,
- A new rule to allow the use of SIL rated electrical protective devices (2.26.4.3.2),
- A new rule to allow the use of certified SIL-rated software systems to solely remove the power from the motor and brake (2.26.9.4) and
- Revised requirements for motor control using AC and DC drives (2.26.9.5 & 2.26.9.6),

* The rationale from the B44 committee, confirms that the intent of the technical revision to section 2.27.3 found in the B44-07 code, was to require mandatory automatic recall and phase 2 operation on all automatic elevators.

3.2 **Conformance with the above requirements as well as all other requirements in** ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators **shall be demonstrated in the design submission or at the initial inspection, as applicable.**

3.3 Even though B44.2 establishes fixed maintenance frequencies, tasks which have historically required monthly maintenance are permitted to be extended if the requirements of 6.(1)(a)(4) are complied with, but in no case shall the interval between maintenance visits extend beyond three months. Note: The permission to extend frequencies is based upon previous practice captured in Directors Order 99/92.

4.0 **The Effective Dates of said amendments are as follows:**

4.1 **DESIGN SUBMISSIONS** received by TSSA for registration on or after the **1st day of January 2008**, shall conform to the requirements of **ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators**.

a) Compliance with this edition of the **ASME A17.1-2007/CSA B44-07** shall be stated in the design submission, in item 192 of the specification sheet or in a separate affidavit.

b) Submissions received between October 1, 2007 and December 31, 2007 may comply with the codes adopted for this time period or **ASME A17.1-2007/CSA B44-07**.

c) Any designs submitted before October 1, 2007 based on the **ASME A17.1-2007/CSA B44-07** code must be accompanied by a request for variance.

d) Pre-applications submitted in advance of the implementation of **ASME A17.1-2007/CSA B44-07,** in order to conform to an earlier edition of B44 shall be followed up with a complete submission by **July 1, 2008.**

4.2 **The MAINTENANCE REQUIREMENTS** of 8.6. of **ASME A17.1-2007/CSA B44-07**, and CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks as adopted above, are effective as of the **1st day of January 2008.**

_____

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000.*

This Order has been developed in consultation with the Elevating Devices Advisory Council

Elevating and Amusement Devices Safety Division	Ref. No.: 226 / 07	Rev. No.:
DIRECTOR'S ORDER	Date: November 26, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the
Technical Standards and Safety Act 2000

Subject:
- **Alterations of Elevators, Dumbwaiters, Material Lifts, Freight Platforms, Escalators and Moving Walks per the CSA B44-07 Code**
- **Procedure for Design Submissions and Inspections**

Sent to: **ALL ELEVATOR CONTRACTORS**

1. Introduction

1.1 As of January 1, 2008, Director's Order 200/05 is revoked and replaced with the requirements of Director's Order 226/07.

1.2 With the release of Elevating Devices Code Adoption Amendment – 225/07 you have been notified that the new edition **CSA-B44-07, Safety Code for Elevators** will apply to each **newly installed or altered** elevating device for which the DESIGN is submitted to the Technical Standards and Safety Authority (TSSA) for registration on or after the 1st day of January 2008.

1.3 The requirements for alterations are in Section 8.7 and 8.6.12.5 of the new Code. Contractors are advised to study the Code requirements when any alteration is to be carried out.

1.4 The purpose of this Director's Order is to:
(a) re-affirm which types of upgrades are classified as alterations
(b) indicate the format of submission paperwork required, by categorizing the work as "major" or "minor A" or "minor B".

1.5 Included in this Director's Order is an Alteration Checklist (similar to that provided in 200/05). Changes from the 200/05 checklist are denoted on the new 226/07 checklist in red text. Aside from changes resulting from B44-07 code changes, red text is also used to show changes intended to provide clarity. Where changes are intended to introduce a new TSSA specific requirement these changes are also identified with a ★ on the checklist.

2. Application

This order applies to work carried out on those elevating devices which are the subject of the Code Adoption Document Amendment 225/07 and includes: elevators, dumbwaiters, material lifts, freight platforms, escalators, moving walks, rack and pinion elevators, screw column elevators, hand elevators, inclined elevators, LULA elevators, power sidewalk elevators, and rooftop elevators.

3. Order to Contractors Carrying out Alterations

Each alteration to an elevating device listed in section 2. Application, for which the DESIGN is submitted for registration to TSSA on or after the 1st day of January 2008, shall be carried out in accordance with this Order.

4. Definitions

(a) **"alteration":**

i) means an alteration or replacement, removal or addition of any component or part of an elevating device that results in, or may result in, a change in the original design, inherent safety or operational characteristics of the elevating device, and "altered" has a corresponding meaning (O.Reg. 209/01);
ii) any change to equipment, including its parts, components, and/or subsystems, other than maintenance, repair, or replacement (CSA B44-07);

(b) **alteration, as part of an:** a repair or replacement that is included with other work that is classified as an alteration (CSA B44-07);

(c) **maintenance:** means,
i) regularly scheduled work or other action taken to ensure that an elevating device is and will remain in safe operating condition and 'maintain' has a corresponding meaning (O.Reg. 209/01);
ii) and includes, an inspection and examination at regular intervals of all parts and functions of the elevating device (O.Reg. 209/01s.32(3));
iii) cleaning, lubricating and adjusting all its parts at regular intervals and repairing or replacing worn or defective components in order to prevent the device from becoming unsafe for operation (O.Reg.209/01 s.32(3));
iv) repairing or replacing damaged or broken parts (O.Reg. 209/01s.32(3));
v) such other examinations or work as is required by this Regulation, the applicable code or standard referred to in the code adoption document or by an inspector (O.Reg. 209/01s.32(3)).
vi) a process of routine examination, lubrication, cleaning, and adjustment of parts, components, and/or subsystems for the purpose of ensuring performance in accordance with the applicable Code requirements (CSA B44-07);

(d) **replacement:** the substitution of a device or component and/or subsystems, in its entirety, with a unit that is the same as the original for the purpose of ensuring performance in accordance with applicable Code requirements (CSA B44-07);

(e) **repair:** reconditioning or renewal of parts, components, and/or subsystems necessary to keep equipment in compliance with applicable Code requirements (CSA B44-07).

5. Alterations

5.1 Work performed on an elevating device other than worked performed, as maintenance, repair, or replacement is an alteration. Part 8, Section 8.6 of the B44-07 Safety Code for Elevators deals with "Maintenance, Repair, and Replacement", while Section 8.7 of the code deals with "Alterations". This order elaborates on these requirements and includes a 33 page alteration checklist, which extracts the various alterations, and in table form displays a list of applicable sub requirements. The "Alteration Checklist" also identifies the required submission type required by TSSA. (see 8 Alteration Checklist for more information about this table)

5.2 **Type of Alteration Work**

Columns 3 to 6 of the alteration checklist classify the type of work as one of the following types:

(a) **Alteration: Modification / Change** (column 3)
means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment.
Note that a change of the component make or model, without any other change, may constitute an alteration under this Director's Order (see item (d) below).

(b) **Alteration: Addition** (column 4)
means addition of a new component or a design feature, not previously provided e.g. addition of top-of-car operating devices.

(c) **Replacement with same** (column 5)
means the substituted device, assembly or component is the same as the original, and either;

(i) B44- Section 8.6.12.5 classifies the specific replacements as alterations and requires that the substituted component and/or the elevating device as a whole meets the specific requirements of the latest Code edition, or

(ii) this order recognizes the replacement of the noted item as an alteration, and requires an appropriate submission, as referenced in 1.4

(d) **Replacement with different make and model** (column 6)
means that the substituted device, assembly or component is the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model and this order recognizes the replacement of the noted item as an alteration, and requires an appropriate submission, as referenced in 1.4.

Note: In addition to the work described in 5.2 and listed in the checklist, any other work performed on an elevating device, that results in a change to the inherent safety or operational characteristics will constitute an alteration even though there may be no change in the original design. The list in the enclosed checklist, is not all inclusive.

6. Type of Design Submission

6.1 Based on the type of alteration work, as per 5.2 above, columns 3 to 6 of the alteration checklist provide additional information to determine the type of the submission required. The entries in columns 3 – 6 may be one of the following:

Major	-	means Major alterations
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
Blanks (columns5&6)	-	work that would not constitute an alteration
mrr	-	means the designated scope of work is permitted under the requirements related to maintenance repair and replacement
n/a	-	means TSSA has permitted an exception to a compliance requirement, however, if another alteration activity requires compliance to the exempted requirement, the exemption no longer applies
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
variance	-	this activity can only be considered after approval of a variance
★	-	TSSA designated alteration or requirement

Note: The definitions for "major" and "minor" alterations ,as defined in O.Regulation 209/01 have been used. Although "Minor A" and "Minor B" are no longer defined in O.Regulation 209/01,in this Order we continue to use terms "Minor A" and "Minor B" in order to facilitate the needs of the contractors respecting the timing, scope and format of submissions and inspections.

7. Requirements for Design Submissions and Inspections

7.1 A design submission or notification (in the case of a Minor B) must clearly specify, for each alteration covered, whether the type of the alteration work is a "modification", or "addition", or "replacement".

7.2 Where a design submission covers alterations to more than one component or feature, which would require different types of submissions, the type of such submission will be of the "highest rank", e.g. combination of Minor B and Major will be designated as a Major alteration.

7.2.1 Major Alteration:

7.2.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

7.2.1.2 The alteration shall be inspected by TSSA prior to returning to service.

7.2.2 Minor Alteration type A and B:

7.2.1.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 10 working days after completion of a minor alteration. However, contractors are advised to submit the documents in

advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

7.2.1.2 Minor A and B alterations are permitted to be returned to service after work completion, however the contractor who completed the alteration shall arrange for a "special inspection" to be carried out not later than 60 days from the date of the completion of the alteration, and shall arrange for performance of tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.

7.3 Signatures

7.3.1 According to subsection 15(6) of O.Reg 209/01 the design submission for any Major or Minor A alteration shall bear the **signature and seal of the professional engineer** who prepared or approved the design submission. Electronically imaged / transmitted documents, which bear the **signature and seal of the professional engineer** are deemed acceptable.

7.3.2 In the case of Minor B alterations, an officer or director of the Company applying for registration may sign the design submission documents or the Notification, if the officer or director is a mechanic. Minor B's that are electronically transmitted shall be deemed acceptable provided that the signature box of the Minor B Notification form contains the name, designation and mechanic license number of a registered and licensed mechanic who supervised and is competent to oversee the scope of the minor B alteration. Example: Signature: John Smith, EDM-A, 00999999

7.4 Specification Forms

7.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries which are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as rope factor of safety (elec.) or cylinder column strength (hyd.)
- Sufficient details are to be provided to show compliance verification.

7.4.2 Items which are not affected by the alterations should be noted with either:

- **N/C** or **No Change** or
- The original entry followed by **Existing** (Example Car Wt.: 1812 kg - Existing)

7.4.3 Where a "major alteration" and "minor alteration" affects only a very few items, the abridged form may be used instead of the full specification form provided clarity is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry valves. (Example: 34. Rated Working Pressure: 3445 kPa

7.4.4 Some predefined templates exist for Minor B type alterations and are available from the TSSA web site. These templates shall be utilized where appropriate to ensure all relevant entries are completed and included in the submission. Multiple Minor B notification templates may be utilized to fully cover the scope of work and only one Minor B fee shall apply.

7.5 Submitting an Alteration Checklist

7.5.1 The design submission for a Major or Minor A alteration must include an Alteration Checklist to assist in demonstrating compliance with Section 8.7 of the code or any other items listed in Column 1 of the checklist and must clearly specify the following:

(a) The scope of the alteration as identified with an 'X' in column 0 adjacent to the primary scope of the alteration

(b) An 'x' placed in column 0, adjacent to all relevant sub requirements

7.5.2 An alteration checklist is not required for Minor B Notifications.

7.5.3 Sections of the alteration checklist, which are not included in the scope of the alteration work, should be hidden (using the row-hide feature in excel) prior to printing the checklist, in order to reduce the number of printed pages accompanying a submission.

7.5.4 To assist our clients in completing the alteration checklist, TSSA will post on its Website (**www.tssa.org**) a fillable version of the Alteration Checklist in excel format (ED-226-07-xls.xls).

7.5.5 The **B44-07 reference numbers, shown in column 1 and which are** marked with 'X' in the Alterations Checklist, (also shown in **BOLD** font), are **those items that are required to be shown on the Code Data Plate** as per section 8.9 of B44.

7.5.6 A 33-page Alteration checklist accompanies this order.

8 Alteration Checklist

8.1 The alteration checklist provides information useful to contractors, submitting engineers, reviewing engineers and inspectors for determining:

- scope of the work,
- requirements associated with specified scope, including ;
  - exemptions to a requirement (where n/a is shown)
  - additional TSSA requirements (where ★ is provided)
- type of submission required (Major, Minor A, Minor B) – depending on the type of alteration work being performed

(See Fig 1)

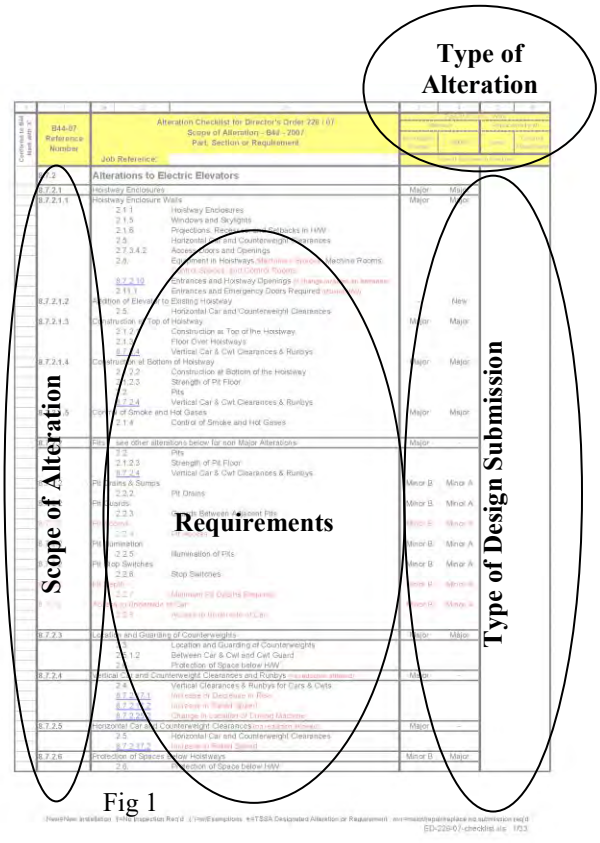

Fig 1

8.2 Parts of the Checklist (See Fig 2)

8.2.1 Column 0:

Column 0 is used to define the scope and applicable sub requirements.

- The scope of an alteration shall be denoted by placing an 'X' adjacent to the applicable alteration section.
- Sub requirements related to the alteration are mandatory* and shall also be identified with an 'x'.

*unless the sub requirements are unrelated to the device being altered.

8.2.2 Column 1:

Column 1 is the scope reference number, and is the same number which should appear on the alteration data tag, and

- provides either the B44-07 reference number, or
- a TSSA reference number. TSSA reference numbers are denoted as follows;
  - 8.7.2.12★1 ★1 denotes the first TSSA designated alteration under section 8.7.2.12
  - 8.7.2.12★2 ★2 denotes the second TSSA designated alteration under section 8.7.2.12
  - DO 173/02 denotes an alteration as required by the noted Directors Order
  - O.Reg 209/01s30 denotes a requirement contained in the Regulation

Note: Alterations identified with ★ are TSSA designated alterations in addition to those specified in B44-07, or ★ items are supplemental requirements under a given alteration scope.

8.2.3 Column 2a, 2b and 2c:

Column 2 describes the scope and applicable sub requirements.

- Column 2a is the primary title of the alteration activity (e.g. interlocks)
- Column 2b is the list of sub requirements by reference number (e.g. 2.12.1, 2.12.2…)
- Column 2c is a description of the referenced sub requirement. (e.g. General, Interlocks,…)

8.2.4 Column 3, 4, 5 and 6:

The headings of Columns 3 to 6 define the "Type of Alteration Work" as, Modification Change, Addition, Replacement with Same, and Replacement with Different. See 5.2 of this order.

The contents of Columns 3 to 6 define the "Type of Design Submission" as, Major Alteration, Minor A Alteration, or Minor B – Notification. See 5.3 of this order.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07 Scope of Alteration - B44 - 2007 Part, Section or Requirement** **Job Reference:**			Type of Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Submission Type Required			
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
X	**8.7.2.11.1**	Interlocks			Major	Major	mrr	Minor B
x			2.12.1	General				
x			2.12.2	Interlocks				
x			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
x			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
x			2.24.8.3	Driving Machine Brake				
X	**8.7.2.12**	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
x			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
x			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
x			8.7.2.10.5	Marking of Entrance Assemblies				
x		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
X	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
x			2.13.	Power Operation of Hoistway Doors and Car Doors				
X	DO 173/02	★ Addition of Top-of-Car Operating Device			-	Minor A		

Fig 2 – Sample Alteration Checklist

Figure 2 Notes:

A – indicates 8.7.2.11.1 Interlocks is part of the alteration scope

B – indicates which sub requirements have been included (2.12.5 and 2.12.7 are excluded, ok due to specific exemption)

C – n/a denotes that TSSA has made this requirement optional (note compliance to 2.12.6 was provided)

D – specifies the submission type – In the example a Minor A alteration is required to be submitted

E – this subrequirement related to vertical slide entrances, was not selected as it is not applicable to the installation

F – compliance to 2.13 is a TSSA supplemental requirement

G – shows two TSSA designated alterations, one denoted as 8.7.2.12*1, the other per DO 173/02.

Roland Hadaller, P.Eng.

Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the Technical Standards & Safety Act, 2000

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.2	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor A		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor A		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.2.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			2.6.	Protection of Space below H/W				
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			2.4.	Vertical Clearances & Runbys for Cars & Cwts				
			8.7.2.17.1	Increase or Decrease in Rise				
			8.7.2.17.2	Increase in Rated Speed				
			8.7.2.25.2	Change in Location of Driving Machine				
	8.7.2.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			8.7.2.17.2	Increase in Rated Speed				
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major		
			2.6.	Protection of Space below H/W				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7★1	Enclosures - Control Rooms and Control Spaces						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1	General Requirements					
		2.7.3.2	Access Across Roofs					
		2.7.3.3	Means of Access					
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4	Access Doors and Openings					
		2.7.3.5	Stop Switch for Machinery Space or Control Spaces					
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4	Headroom in M/C Rooms					
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1	Lighting					
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2	Temperature & Humidity					
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms			Minor B	Minor B		
		Installation of New (electrical, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.	Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) C22.1 as required					
		Alteration of Existing (electrical, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.	Equipment in Hoistways and Machine Rooms					
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		Building reactions increased by more than 5%						
		2.9.	Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.					
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-	Major	Major
		2.11.	Protection of H/W Openings					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	hanger /track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.12	Entrances, Vertical Slide Type				
	sills (a)		2.11.10.3	Hinged Hoistway Landing Sills	Minor B		Minor B	
			2.11.12.1	Landing Sills				
	frames (b)		2.11.12.2	Entrances Frames	Minor B		Minor B	
			8.7.2.10.5	Marking of Entrance Assemblies				
	rails (c)		2.11.12.3	Rails	mrr		mrr	
	panels (d)		2.11.12.3	Rails	Minor A		Minor A	
			2.11.12.4	Panels				
			2.11.12.5	Guides				
			2.11.12.6	Counterweighting or Counterbalancing				
			2.11.12.8	Pull Straps				
			8.7.2.10.5	Marking of Entrance Assemblies				
	guides (e)		2.11.12.5	Guides				
	sill guard (f)		2.11.12.7	Sill Guards	mrr		mrr	
	straps (g)		2.11.12.8	Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.13	Entrances, Swing Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.10.3	Hinged Hoistway Landing Sills				
			2.11.13.1	Landing Sills				
	frames (b)		2.11.13.2	Entrance Frames	Minor B		Minor B	
			2.11.13.4	Hinges				
			8.7.2.10.5	Marking of Entrance Assemblies				
	panels (c)		2.11.13.3	Panels	Minor B		Minor B	
			2.11.13.4	Hinges				
			2.11.13.5	Marking				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hinges (d)		2.11.13.4	Hinges	mrr		mrr	

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
			8.7.2.10.5(a)	NBCC requirements				
	8.7.2.10★1	★ Removing Service To a Floor				Minor B		
				Bolt entrances shut				
				Remove Interlock From Safety String				
				If Adding Door In front Of Entrance, Gap btwn doors <=125mm				
				Remove COP Floor Button				
			2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.2	Interlocks				
			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
			2.24.8.3	Driving Machine Brake				
	8.7.2.11.2	Mechanical Locks and Electric Contacts			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.3	H/W Door Combination Mechanical Locks & Contacts				
			2.12.4	Listing/Certification Locking Devices				
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8	Braking Systems & Driving Machine Brakes				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
	8.7.2.11.4	Access Switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8.3	Driving Machine Brake				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.1.4	Inspection Operation				
	8.7.2.11★1	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
			2.11.11.8	Hoistway Door Safety Retainers				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates				
			2.13.5	Reopening Device for Power Operated Car Doors or Gates				
				if FEO provided, door opening & closing to PHI &II at time of install				

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	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.15.		Car Frames & Platforms				
		2.17		Car and counterweight safeties				
		8.7.2.15.1		Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
		2.14.1.2		Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
		2.14.1.5		Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
		2.14.1.8		Glass in Elevator Cars				
		2.14.1.8.1		Enclosures include glass				
		2.14.1.8.2		Lining of Walls or Ceilings include glass				
		2.14.1.8.3		Not Adopted - Type 3C in not permitted, except if mrr			mrr	
		2.14.1.8.4		Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
		2.14.1.9		Equipment Inside Cars				
			(a)	Handrails				
			(b)	fastening devices for protective linings				
			(c)	ceiling mounted hooks/tracks				
			(d)	picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
			(e)	conveyor tracks in freights				
			(f)	heating or cooling equipment				
	8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
		2.8.1.1		electrical equipment & wiring				
		2.14.1.2.3		securing of enclosure equipment				
		2.14.2.4		Headroom in Elevator Cars				
	8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
		2.14.2.3		Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
		2.14.7		Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
		2.16.1.2		Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials			DR 171		Minor B	DR 171
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing	n/a		n/a	n/a
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
				Directors Order 171				
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing	n/a			
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	8.7.2.14★4	★ Car Top Railing			Minor B	Minor A		
		2.14.1.7		Railing and Equipment on Top of Cars				
		2.4		Vertical Car & Cwt Clearances & Runbys				

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	8.7.2.15	Car Frames and Platforms				⇩ See Below ⇩		
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-		Major
		2.15.	Car Frames & Platforms					
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		record weight on Aux. Data Tag						
	DR 171/02	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		record weight on Aux. Data Tag						
		engineering assessment of related items (except 2.24.3)						
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-		
		DR 171/02	★ record weight on Aux. Data Tag					
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.15.9	Platform Guards (Aprons)					
		2.16.	Capacity & Loading					
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.20.	Suspension Ropes & Connections					
		2.21.(*)	Counterweights					
		2.22.(*)	Buffers & Bumpers					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		2.24.(*)	Driving Machines & Sheaves					
		8.7.2.9	Machinery and Sheave Beams, Supports, Foundations					
	8.7.2.16	Capacity, Loading, and Classification			Major	-		
	8.7.2.16.1	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.22 (*)	Buffers & Bumpers					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.17.(*)	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.16.	Capacity & Loading					
		2.20.	Suspension Ropes & Connections					
		2.24.(*)	Driving Machines & Sheaves					
		2.25.	Terminal Stopping Devices					
		2.26.	Operating Devices and Control Equipment					
		2.27.	Emergency Operation & Signaling Devices					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
	8.7.2.16.2	Change in Class of Loading: [from any class to any other class ie A, B, C1, C2, C3]			Major	-		
		2.16.2	Minimum Rated Load for Freight Elevators					
		8.7.2.16.4	Increase in Rated Load					
	8.7.2.16.3	Carrying of Passengers on Freight Elevators			Major	-		
		2.16.4	Carrying of Passengers on Freight Elevators					
		2.16.4.1	not accessible to general public					
		2.16.4.2	rated load not less than required by 2.16.1					
		2.16.4.3	conforms to 2.16.8 Passenger Overload in Down Direction					
		2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)					
		2.16.4.5	car doors to 2.14.5 Passenger Car Doors					
		2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings					
		2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door					
		2.16.4.8	Fs for suspension ropes to Table 2.20.3					
		2.16.4.9	Power Operated vertical doors to 2.16.4.9(a) to (e)					
		★	apron guard to ED CAD or extent pit permits					
		★	2.16.5 Signs Required in Freight Elevator Cars					

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	8.7.2.16.4	Increase in Rated Load			Major	-		
				Car doors or gates shall be provided at all car entrances				
			2.14.4	New to: Passenger & Frt Car Doors & Gates, General Req'mts				
			2.14.5	New to: Passenger Car Doors				
			2.14.6	New to: Freight Elevator Car Doors and Gates				
			2.15.(*)	Car Frames & Platforms- ★apron guard to ED CAD/as pit permits				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.	Driving Machines & Sheaves				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
	8.7.2.17	Change in Rise or Rated Speed			Major	-		
	8.7.2.17.1	Increase or Decrease in Rise			Major	-		
			2.25.	Terminal Stopping Devices				
				retain drum m/c, travel increase < 4570mm				
			2.4.(*)	Vertical Clearances & Runbys for Cars & Cwts				
				If decrease in rise is at lowest end then;				
				2.2.4 Access to Pits				
				2.2.5 Illumination of Pits				
				2.2.6 Stop Switches				
	8.7.2.17.2	Increase in Rated Speed			Major	-		
	8.7.2.17.2(a)	Increase in Rated Speed on a Winding Drum machine			Major	-		
				Increase in Rated Speed of a winding drum m/c prohibited				
			8.7.2.17.2(c)	except in 8.7.2.17.2(c)				
	8.7.2.17.2(b)	Increase in Rated Speed greater than10% & greater than 0.20m/s			Major	-		
			2.4.2	Minimum Bottom Runby for Counterweighted Elevators				
			2.4.3	Minimum Bottom Runby for Uncounterweighted Elevators				
			2.4.4	Maximum Bottom Runby				
			2.4.5	Counterweight Runby Data Plate				
			2.4.6	Top Car Clearances for Counterweighted Elevators				
			2.4.7	Top Car Clearances for Uncounterweighted Elevators				
			2.4.8	Vertical Clearances with Underslung Car Frames				
			2.4.9	Top Counterweight Clearances				
			2.4.10	Overhead Clearances - w/No Overhead Beams				
			2.4.11	Equipment on Top of Car Not Permitted to Strike O/H				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.22.(*)	Buffers & Bumpers				
				Car doors or gates shall be provided at all car entrances				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.16.	Capacity & Loading				
			2.24.	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.20.	Suspension Ropes & Connections				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
	8.7.2.17.2(c)	Increase in Rated Speed less than 10% & less than 0.20m/s			Major	-		
				new spd <.75 for type A safeties				
				new spd <1 w/spring buffer, 2.18.2.1&.2				
			2.18.2.1	Car speed governors				
			2.18.2.2	counterweight speed governors				
			8.7.2.27.3	Change in Power Supply				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2.17.3	Decrease in Rated Speed			Major	-		
		2.4.	Vertical Clearances & Runbys for Cars & Cwts					
		2.18.2	Tripping Speeds for Speed Governors					
		2.16.	Capacity & Loading					
		2.16.3(*)	Capacity and Data Plates					
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
		2.26.4.3	Positively Opened Contacts					
	8.7.2.18	Car and Counterweight Safeties			Major	Major	⇩See Below ⇩	
	8.7.2.18.1	New Car Safeties			-	Major	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.18.2	New Cwt Safeties			-	Major	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.18.3	Existing Car Safeties				-	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.18.3	Existing Cwt Safeties			Major	-	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.	Speed Governors				mrr	Minor A
	8.7.2.19	2.17.15	Governor Rope Releasing Carriers				mrr	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
			2.18.6 Design Gov'r Rope Retarding Means for Type B Safeties					
			2.18.7 Traction between Speed Governor Rope & Sheave					
		& testing to	2.17.3 Function and Stopping Distances of Safeties					
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection (ACO & UCM)			Minor A	Major	mrr	Minor A
		2.19.	Ascending Car Overspd & Unintended Car Movement Protection if part of an alteration which includes; change in motion control - 8.7.2.27.5 replacement of an Elevator Controller 8.6.12.5.3.1 or 8.7.2.27.4					
	8.7.2.20★1	★	If Elevators Controllers are pre-B44-00 & have ACO & UCM		Minor A	-	mrr	Minor A
		2.19.	ACO & UCM Protection, EXCEPT◆					
			◆ detection means to B44-M90 or the code at time of install					
		8.9.	◆ Code Data tag to reflect code at time of install					
	8.7.2.20★2	★	If Elevators Controllers are pre-B44-00 & have ACO ONLY		Minor A	-	mrr	Minor A
		2.19.1	ACO Protection Only, EXCEPT◆					
		2.19.3	Emergency Brake EXCEPT◆					
			◆ detection means to B44-M90 or the code at time of install					
		8.9.	◆ Code Data tag to reflect code at time of install					
	8.7.2.20★3	★	Voluntary Addition of Both ACO and UCM where previously not provided			Minor A		
		2.19.	ACO & UCM Protection EXCEPT◆					
			◆ detection means to B44-M90 code or later					
		2.7.	Machinery Spaces, Machine Rooms Control Spaces & Control Rooms					
			as applicable to the equipment installation					
		8.9.	◆ Code Data tag to reflect code edition used for the alteration					

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					Type of Submission Required			
	8.7.2.21	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.2.21.1	Change in Number of, or Diameter of Ropes			Major	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.2.21.1	Change in Material / Grade of Ropes			Minor A	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B		
		2.20.5	Suspension Rope Equalizers					
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices			Major	Major		
		2.20.	Suspension Ropes & Connections					
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.2.23	Car and Counterweight Buffers and Bumpers (oil buffer only in column 6)			Major	-	mrr	Minor B
		2.22.(*)	Buffers & Bumpers					
	8.7.2.24	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
	8.7.2.25	Driving Machines and Sheaves			⇩ See Below ⇩			
	8.7.2.25.1	Alterations to	Driving Machines & Sheaves		Major	Major		
	8.7.2.25.1(a)	Installation of	Driving Machine Replaced (as part of an alteration)		-	-	see **8.6.12.5.2**	
		2.7.2	Maintenance Path and Clearance (★editorially omitted)					
		2.7.2.3	Maintenance Clearance in Machine Rooms & Control Rooms					
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		2.10.1	Guarding of Equipment					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		2.20.	Suspension Ropes & Connections					
		2.24.	Driving Machines & Sheaves					
		2.26.8	Release and Application of Driving-Machine Brakes					
	8.7.2.25.1(b)	Alterations to	Driving Machine Components - affected component complies w/		Major			
		2.24.2	Sheaves and Drums				mrr	Major
		2.24.3	Factor of Safety for Driving Machines and Sheaves					
		2.24.4	Fasteners Transmitting Load					
		2.24.5	Shafts Fillets and Keys					
		2.24.6	Cast-Iron Worms and Worm Gears					
		2.24.7	Friction Gearing and Clutches					
		2.24.8	Braking Systems & Driving Machine Brakes				mrr	Major
		2.24.9	Indirect-Driving Machines					
		2.26.8	Release and Application of Driving-Machine Brakes					
	8.7.2.25.1(c)	Change of	Driving Machine Sheave		Major	-	mrr	Major
		2.24.2	Sheaves and Drums					
		2.24.3	Factor of Safety for Driving Machines and Sheaves					
		2.24.4	Fasteners Transmitting Load					
		2.20.	Suspension Ropes & Connections					

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					Type of Submission Required			
	8.6.12.5.2	Replacement of		Driving Machine	-	-	Major	
			8.7.2.25.1(a)					
			2.7.2	Maintenance Path and Clearance (★editorially omitted)				
			2.7.2.3	Access to Machinery Spaces/Rooms, Control Spaces/Rooms				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.19.	ACO & UCM Protection, Except ◆				
			◆8.7.2.20★3	if replacement is machine only & ACO / UCM not previously provided				
			2.20.	Suspension Ropes & Connections				
			2.24.	Driving Machines & Sheaves				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.2	Change in Location of Driving Machine			Major	-		
	8.7.2.25.2(a)	Change in Location of Driving Machine w/ no change in Rise			Major	-		
			2.7.2	Maintenance Path and Clearance (★editorially omitted)				
			2.7.2.3	Access to Machinery Spaces/Rooms, Control Spaces/Rooms				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.24.2.3	Traction				
	8.7.2.25.2(b)	Change in Location of Driving Machine w/ change in Rise			Major	-		
			Part 2 (*)	Electric Elevators				
			8.7.2.5	see also				
			8.7.2.10	see also				
	8.7.2.25★1	★ Replacement of worm and/or gear (specify make)			-	-	mrr	Minor A
	8.7.2.25★2	★ Addition of Machine Guarding			Minor B		mrr	mrr
			2.10.1	Guarding of Equipment				
	8.7.2.26	Terminal-Stopping Devices			Minor B	Minor B		
			2.25.	Terminal Stopping Devices				
	8.7.2.27	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.2.27.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
			2.26.1.4	Inspection Operation				
	DO 173/02	★		Addition of Top-of-Car Operating Device	-	Minor A		
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			2.26.1.6	Operation in Leveling or Truck Zone				
	8.7.2.27★1	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	Inspection Operation with Open Door Circuits				
	8.7.2.27★2	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				
	8.7.2.27.3	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
			2.26.1.1	Types of Operation				
			2.26.1.2	For Car-Switch Operation Elevators				
			2.26.1.3	Add'l Operating Devices for Elevators carrying 1pc. load > than Rated				
			2.26.1.4	Inspection Operation				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.9	Control & Operating Circuits				
			2.26.10	Absorption of Regenerated Power				
		new / modified equipment and wiring to:						
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
		brakes to:						
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.8	Release and Application of Driving-Machine Brakes				
		winding drum to:						
			2.25.3.5	Additional Req'mts for Winding Drum Machines				
				see 8.7.2.17.2(b) Increase in Rated Speed				

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	8.7.2.27.4	Controllers						
	8.7.2.27.4(a)	Installation of		Elevator Controller (as part of an alteration)	Major	-	see **8.6.12.5.3.1**	
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4	Electrical Equipment and Wiring				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.27.2	Emergency or Standby Power systems				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				
	8.6.12.5.3.1	Replacement of		Elevator Controller	-	-	Major	
			8.7.2.27.4(a)					
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4	Electrical Equipment and Wiring				
				- Including Clearances to CSA C22.1				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.27.2	Emergency or Standby Power systems				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				
		★	2.7.5.2	Temperature and Humidity				
	8.7.2.27★3	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.2.27.4(b)	Installation of		Door Controller (as part of an alteration)	Minor A	-	see **8.6.12.5.3.2**	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.6.12.5.3.2	Installation of		Door Controller	-	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				

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					Type of Submission Required			
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices - where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
	8.7.2.27★4	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.13.5.4	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				
	8.7.2.27★5	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access when on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.1.6(l)	- shall not prevent PHI				
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
			DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys				

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	8.7.2.27.7	Removal of emergency stop switch on passenger elevators remove all related markings / engravings & provide an in-car stop switch to:			Minor B	-		
			2.26.2.21	In-car stop switch				
		★	2.26.4.3	Positively Opened Contacts				
		★	2.26.9.3(a)	Single failure does not render In-Car Stop Sw ineffective				
	8.7.2.27.8	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A		
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators Manual PHI Recall is mandatory Automatic PHI Recall by FAID's is mandatory				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Layout Drawings ★ See also provisions of 175/02				
	8.7.2.28	Addition of Elevator to a Group			-	Minor A		
			2.27.	Emergency Operation & Signaling Devices - Mandatory *notes re: 2.27.3 FEO for Automatic Elevators* Manual PHI Recall is mandatory Automatic PHI Recall by FAID's is mandatory				
	DO 175/02	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install conformance to auto recall based on F.S. at time of install			Minor B			
	DO 219/07	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order 219/07 Firefighter Operation to B44-00U2 or Firefighter Operation to B44-04 or Firefighter Operation to B44-07 Manual PHI Recall is mandatory Automatic PHI Recall by FAID's if required by NBCC or B44-07			Minor B	Minor A		

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	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.2	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor A		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor A		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			3.5.	Horizontal car and Counterweight Clearances				
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				

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	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major		
		3.6.		Protection of Spaces below Hoistway				
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	Minor A	-		
		CSA C22.1		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7★1	Enclosures - Control Rooms and Control Spaces						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	Minor A	-		
		CSA C22.1		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1		General Requirements				
		2.7.3.2		Access Across Roofs				
		2.7.3.3		Means of Access				
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4		Access Doors and Openings				
		2.7.3.5		Stop Switch in O/H M/C Space in the H/W				
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4		Headroom in M/C Rooms				
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2		Temperature & Humidity				
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B		
		Installation of New (electrical, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.		Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) C22.1 as required				
		Alteration of Existing (electrical, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.		Machinery & Sheave Beams, Supports, Foundation				
		Building reactions increased by more than 5%						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-		
		2.11.		Protection of H/W Openings				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2		Types of Entrances				
		2.11.3		Closing of Hoistway Doors				
		2.11.4		Location of Horizontally Sliding or Swinging H/W Doors				
		2.11.5		Projection of Entrances & Equip. Beyond Land'g Sills				
		2.11.6		Opening of Hoistway Doors				
		2.11.7		Glass in Hoistway Doors				
		2.11.8		Weights for Closing or Balancing Doors				
		8.7.2.10.5		Marking of Entrance Assemblies				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				

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					Type of Submission Required			
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.12	Entrances, Vertical Slide Type				
	sills (a)		2.11.10.3	Hinged Hoistway Landing Sills	Minor B		Minor B	
			2.11.12.1	Landing Sills				
	frames (b)		2.11.12.2	Entrances Frames	Minor B		Minor B	
			8.7.2.10.5	Marking of Entrance Assemblies				
	rails (c)		2.11.12.3	Rails	mrr		mrr	
	panels (d)		2.11.12.4	Panels	Minor A		Minor A	
			2.11.12.3	Rails				
			2.11.12.5	Guides				
			2.11.12.6	Counterweighting or Counterbalancing				
			2.11.12.8	Pull Straps				
			8.7.2.10.5	Marking of Entrance Assemblies				
	guides (e)		2.11.12.5	Guides				
	sill guard (f)		2.11.12.7	Sill Guards	mrr		mrr	
	straps (g)		2.11.12.8	Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.13	Entrances, Swing Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.10.3	Hinged Hoistway Landing Sills				
			2.11.13.1	Landing Sills				
	frames (b)		2.11.13.2	Entrance Frames	Minor B		Minor B	
			2.11.13.4	Hinges				
			8.7.2.10.5	Marking of Entrance Assemblies				
	panels (c)		2.11.13.3	Panels	Minor B		Minor B	
			2.11.13.4	Hinges				
			2.11.13.5	Marking				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hinges (d)		2.11.13.4	Hinges	mrr		mrr	

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					Type of Submission Required			
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
			8.7.2.10.5(a)	NBCC requirements				
	8.7.2.10★1	★ Removing Service To a Floor				Minor B		
				Bolt entrances shut				
				Remove Interlock From Safety String				
				If Adding Door In front Of Entrance, Gap btwn doors <=125mm				
				Remove COP Floor Button				
			2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
	8.7.3.11	Hoistway Door-Locking Devices				See 8.7.2.11		
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices				⇩ See Below ⇩		
	8.7.2.11.1	Interlocks			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.2	Interlocks				
			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.3	H/W Door Combination Mechanical Locks & Contacts				
			2.12.4	Listing/Certification Locking Devices				
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8	Braking Systems & Driving Machine Brakes				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
	8.7.2.11★1	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
			2.11.11.8	Hoistway Door Safety Retainers				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
			8.7.3.10	Hoistway Entrances and Openings				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★2	★ Replacement of Door Reopening Device				See 8.7.2.13		
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates				
			2.13.5	Reopening Device for Power Operated Car Doors or Gates				
				if FEO provided, door opening & closing to PHI &II at time of install				
	8.7.3.13	Car Enclosures				See 8.7.2.14		
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination				⇩ See Below ⇩		
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				

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	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass				
			2.14.1.8.3	Not Adopted - Type 3C in not permitted, except if mrr			mrr	
			2.14.1.8.4	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
	8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.1.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
	8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials			DR 171		Minor B	DR 171
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing	n/a		n/a	n/a
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
				Directors Order 171				
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing	n/a			
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	8.7.2.14★4	★ Car Top Railing			Minor B	Minor A		
			2.14.1.7	Railing and Equipment on Top of Cars				
			2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.3.14	Car Frames and Platforms			Major	-	Major	
			3.15.	Car Frames & Platforms				
	8.7.3.15	Safeties		Car or Cwt (plunger gripper see 8.7.3.23.7)	⇩ See Below ⇩			
	8.7.3.15.1	Car Safeties			-	Major	mrr	Minor A
			3.17.1	Car Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.2	Counterweight Safeties			-	Major	mrr	Minor A
			3.17.2	Counterweight Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				

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					Type of Submission Required			
	8.7.3.15.3	Alteration to existing Car or Counterweight Safeties			Major	-	mrr	Minor A
		3.17(*)		Car and counterweight safeties and plunger gripper				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		3.28.		Layout Data				
	8.7.3.16	Governors and Governor Ropes			See 8.7.2.19			
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.		Speed Governors			mrr	Minor A
	8.7.2.19	2.17.15		Governor Rope Releasing Carriers			mrr	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
				2.18.6 Design of Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
		& testing to		2.17.3 Function and Stopping Distances of Safeties				
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1		Entrances and Emergency Doors Required				
		2.11.2		Types of Entrances				
		2.11.3		Closing of Hoistway Doors				
		2.11.5		Projection of Entrances & Equip. Beyond Land'g Sills				
		2.11.6		Opening of Hoistway Doors				
		2.11.7		Glass in Hoistway Doors				
		2.11.8		Weights for Closing or Balancing Doors				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				
		2.22.(*)		Buffers & Bumpers				
		3.22.2		Counterweight Buffers				
		3.14.		Car: Enclosure, Doors, Gates, Illumination				
		3.15.		Car Frames & Platforms				
		3.17.		Car and Counterweight Safeties				
		3.21.		Counterweights				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		2.18.(*)		Speed Governors				
		3.16.		Capacity & Loading				
		3.18.		Hydraulic Jacks				
		3.19.		Valves, Pressure Piping, and Fittings				
		3.20.		Ropes and Rope Connections				
		3.24.		Hydraulic Machines and Tanks				
		3.25.		Terminal-Stopping Devices				
		3.26.		Operating Devices and Control Equipment				
		3.27.		Emergency Operation and Signaling Devices				
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
		2.16.2		Minimum Rated Load for Freight Elevators				
		3.16.		Capacity & Loading				
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
		3.16.4		2.16.4 except 2.16.4.3				
		2.16.4		Carrying of Passengers on Freight Elevators				
		2.16.4.1		not accessible to general public				
		2.16.4.2		rated load not less than required by 2.16.1				
		2.16.4.4		H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)				
		2.16.4.5		car doors to 2.14.5 Passenger Car Doors				
		2.16.4.6		car enclosure openings to 2.14.2.2 Prohibited Openings				
		2.16.4.7		conforms to 2.12.5 Restricted Opening of H/W or Car Door				
		2.16.4.8		Fs for suspension ropes to Table 2.20.3				
		2.16.4.9		Power Operated vertical doors to 2.16.4.9(a) to (e)				
		★		apron guard to ED CAD or extent pit permits				
		★		2.16.5 Signs Required in Freight Elevator Cars				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.3.20	Increase in Rated Load			Major	-		
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			3.16.	Capacity & Loading				
			3.17.	Car and Counterweight Safeties				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			3.22.	Buffers and Bumpers				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			8.7.3.23.4	Increase in Working Pressure				
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		record weight on Aux. Data Tag						
	DR 171/02	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		record weight on Aux. Data Tag						
		engineering assessment of related items (except 2.24.3)						
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
			DR 171/02	Car: Enclosure, Doors, Gates, Illumination				
			3.14.	Car: Enclosure, Doors, Gates, Illumination	n/a			
			3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			3.16.	Capacity & Loading				
			3.17.	Car and Counterweight Safeties				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			3.22.	Buffers and Bumpers				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.24.5	Counterweight Sheaves				
			8.7.3.23.4	Increase in Working Pressure				
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.22.1	Increase or Decrease in Rise			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.4.1	Bottom Car Clearance				
			3.4.2	Minimum Bottom and Top Car Runby				
			3.4.3	Car Top and Bottom Maximum Runby				
			3.18.2	Plungers				
				If decrease in rise is at lowest end then;				
			2.2.4	Access to Pits				
			2.2.5	Illumination of Pits				
			2.2.6	Stop Switches				
	8.7.3.22.2	Increase in Rated Speed			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			3.17.(*)	Car and Counterweight Safeties				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.20.	Ropes and Rope Connections				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.22.3	Decrease in Rated Speed			Major	-		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		2.18.2	Tripping Speeds for Speed Governors					
		3.16.	Capacity & Loading					
		3.16.3(b)	Capacity & data plates					
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
	8.7.3.23	Hydraulic Equipment				⇩ See Below ⇩		
	8.7.3.23.1	Alteration to	Hydraulic Jacks		Major	-		
		3.18.	Hydraulic Jacks					
	c8.6.12.5.4.1	Replacement of	Hydraulic Jacks		-	-	Major	
		3.18.	Hydraulic Jacks					
	8.7.3.23.2	Alteration to	Plungers		Major	-		
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	c8.6.12.5.4.2	Replacement of	Plungers		-	-	Minor A	
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	8.7.3.23.3	Alteration to	Cylinders		Major	-		
		3.18.3	Cylinders - Installed as part of Alteration					
		3.18.3	Cylinder is Altered					
		3.18.3	Cylinder is Sleeved		Minor B			
		3.18.4.1	Metal Stops and/or Other Means					
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	c8.6.12.5.4.3	Replacement of	Cylinders		-	-	Minor A	
		3.18.3	Cylinders - Installed as part of Alteration					
		3.18.3	Cylinder is Altered					
		3.18.3	Cylinder is Sleeved					
		3.18.4.1	Metal Stops and/or Other Means					
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
		3.18.(*)	Hydraulic Jacks					
		3.19.(*)	Valves, Pressure Piping, and Fittings					
		3.24.1	Marking Plates					
		3.24.2	Tanks					
		3.24.3	Atmosphere Storage and Discharge Tanks					
		3.24.4	Welding					
	8.7.3.23.5	Change in Location of Hydraulic Jack			Major	-		
		Part 3	Hydraulic Elevators					
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
		3.26.8	Pressure Switch					
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
		3.17.3	Plunger Gripper					
		3.1.1(b)	strength of pit floor					
		3.22.1	no strike when buffers compressed					
	8.7.3.24	Alteration to	Relief or Check Valves or Pressure Piping or Fittings		Minor A	Minor A	see c8.6.12.5.2	
	c8.6.12.5.5.2	Replacement of	Relief or Check Valves or Pressure Piping or Fittings				Minor B	
		3.19.	replacement of relief valve or check valve or piping or fittings					
	8.7.3.24	Alteration to	Control Valves		Minor A	-	see c8.6.12.5.5	
	c8.6.12.5.5.1	Replacement of	Control Valves				Minor B	
		3.19.	replacement of control valve					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
		2.20.5	Suspension Rope Equalizers					
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.3.26	Counterweights - Addition of			-	Major		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		3.6.	Protection of Spaces below Hoistway					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		3.15.	Car Frames & Platforms					
		3.17.2	Counterweight Safeties					
		3.18.	Hydraulic Jacks					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		8.7.3.3	Location and Guarding of Counterweights					
	8.7.3.27	Car Buffers and Bumpers (oil buffer only in column 6)			Major	-	mrr	Minor B
		3.21.	Counterweights					
		3.22.2(*)	Counterweight Buffers					
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.29	Alteration to	Tanks		Minor B	-	see c8.6.12.5.6	
		3.24.	Hydraulic Machines and Tanks					
	8.7.3.29★1	★ Addition of Oil Cooler				Minor B		
			CSA C22.1					
		2.7.2	Maintenance Path and Clearance					
		DO 212/07	A.3.01(c) if buried					
	c8.6.12.5.6	Replacement of	Tanks		-	-	Minor B	
		3.24.	Hydraulic Machines and Tanks					
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
		3.25.	Terminal-Stopping Devices					
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
		3.26.2	Inspection Operation					
	DO 173/02	Addition of Top-of-Car Operating Device			-	Minor A		

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			3.26.3.2	Operation in Leveling or Truck Zone				
	8.7.3.31.3	Alteration to		Anti-Creep Leveling Device	Minor B	-		
			3.26.3.1	Anti-Creep Operation				
	c8.6.12.5.7	Replacement of		Anti-Creep Leveling Device	-	-	Minor B	
			3.26.3.1	Anti-Creep Operation				
	8.7.3.31★1	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	Inspection Operation with Open Door Circuits				
	8.7.3.31★2	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
			3.26.1	Operating Devices and Control Equipment				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6(*)	Control and Operating Circuits				
	8.7.3.31★3	★ Addition of Soft Start				Minor A		
			2.26.4.1 & 2	CSA C22.1 & B44.1 certified				
			3.26.5	Phase-Reversal and Failure Protection				
	8.7.3.31★4	★ Addition of Power Efficiency Increasing Device				Minor B		
		B44.1 certified						
			2.26.4.1 & 2	CSA C22.1 & B44.1 certified				
	8.7.3.31.5	Controllers						
	8.7.3.31.5(a)	Installation of		Elevator Controller (as part of an alteration)	Major	-	see **c8.6.12.5.3.1**	
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.10	Auxiliary Power Lowering Operation				
			3.25.	Terminal-Stopping Devices				
		★	2.7.5.2	Temperature and Humidity				
		★	3.27. (*)	Firefighters' Emergency Operation - Automatic Elevators - where required by NBCC				
				except 2.27.1 and 2.27.2				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	c8.6.12.5.3.1	Replacement of		Elevator Controller	-	-	Major	
			8.7.3.31.5(a)					
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4.1	Electrical Equipment and Wiring - Including Clearances to CSA C22.1				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.10	Auxiliary Power Lowering Operation				
			3.25.	Terminal-Stopping Devices				
		★	2.7.5.2	Temperature and Humidity				
		★	3.27. (*)	Firefighters' Emergency Operation - Automatic Elevators - where required by NBCC except 2.27.1 and 2.27.2 indicate if Manual PHI Recall is provided indicate if Automatic PHI Recall by FAID's is provided				
	8.7.3.31★5	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring Electrical testing as per the original design submission tests				
	8.7.3.31.5(b)	Installation of		Door Controller (as part of an alteration)	Minor A	-	see **c8.6.12.5.3.1**	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	c8.6.12.5.3.1	Replacement of		Door Controller	-	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			3.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC indicate if Manual PHI Recall is provided indicate if Automatic PHI Recall by FAID's is provided				
	8.7.3.31.7	Change in Type of Operation Control (CPPB, Automatic)			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			3.12.1	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			3.13.	Power Operation of H/W Doors and Car Doors				
			3.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			3.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC indicate if Manual PHI Recall is provided indicate if Automatic PHI Recall by FAID's is provided				
	8.7.3.31★6	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.13.5.4	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.31★7	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
		OBC-3.2.6.5(4) - shall not prevent floor access When on FEO						
		D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use						
		2.27.3.1.6(l)	- shall not prevent PHI					
		2.27.3.3.1(i)	- permit travel to all landings when on PH II					
		2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II					
		DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys					
	8.7.3.31.8	Emergency Operation and Signaling Devices						
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
		2.27.1	Car Emergency Signaling Devices					
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
		2.27.2	Emergency Or Standby Power systems					
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
		3.27. (*)	Emergency Operation and Signaling Devices					
			★ except 2.27.1 and 2.27.2					
			Manual PHI Recall is mandatory					
			Automatic PHI Recall by FAID's is mandatory					
	DO 175/02	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install			Minor B			
		conformance to auto recall based on F.S. at time of install						
		requirements of DO 175/02						
	DO 219/07	★ Emerg. Recall Upgrade Voluntary to Fire Code Retrofit Order 219/07			Minor B	Minor A		
		Firefighter Operation to B44-00U2 or						
		Firefighter Operation to B44-04 or						
		Firefighter Operation to B44-07						
		Manual PHI Recall is mandatory						
		Automatic PHI Recall by FAID's if required by NBCC or B44-07						
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B		
		3.26.10	Auxiliary Power Lowering Operation					
	8.7.3.31.10	Removal of emergency stop switch on passenger elevators			Minor B	Minor B		
		remove all related markings / engravings & provide an in-car stop switch to:						
		2.26.2.21	In-car stop switch					
		2.26.4.3	Positively Opened Contacts					
		2.26.9.3(a)	single failure does not render In-Car Stop Switch ineffective					
		3.26.4.2	deceleration rate <1g, anticreep must still function					
	8.7.3.31.11	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			Major	Major	mrr	Major
		if device meets 2.26.4.3.2 (PES)						
		3.26.2	Electrical Protective Devices - for specified device					
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			-	Minor A	mrr	
		if device meets 2.26.4.3.1						
		3.26.2	Electrical Protective Devices - for specified device					

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					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
		4.1.	Rack and Pinion Elevators					
	8.7.4.2	Screw-Column Elevators			Major	-		
		4.2.	Screw-Column Elevators					
	8.7.4.3	Hand Elevators			Major	-		
	8.7.4.3.1	Hoistway Enclosures and Machinery Space			Major	-		
		4.3.1	Hoistways, H/W Enclosures, and Related Construction					
		4.3.4	Enclosures for Machines and Control Equipment					
	8.7.4.3.2	Top Car and Counterweight Clearances			Major	-		
		4.3.3	Top Clearances					
	8.7.4.3.3	Hoistway Entrances			Major	-		
		4.3.6	Hoistway Entrances					
		4.3.7	Hoistway Gates for Landing Openings					
		4.3.8	Hoistway-Door & Hoistway Gate Locking Devices					
	8.7.4.3.4	Car Enclosures			Major	-		
		4.3.9	Car Enclosures					
		4.3.11	Car Frames and Platforms					
	8.7.4.3.5	Car Frame and Platform			Major	-		
		4.3.11	Car Frames and Platforms					
		4.3.12	Car Compartments					
		4.3.13	Cars Counterbalancing One Another					
		4.3.16	Suspension Means					
	8.7.4.3.6	Capacity and Loading			Major	-		
		4.3.14.1	Minimum Rated Load					
		4.3.14.2	Capacity Plate					
		4.3.19.1	Drive Machine & Sheaves - Factors or Safety					
		4.3.19.2	Driving-Machines					
		4.3.16	Suspension Means					
	8.7.4.3.7	Increase in Rise			Major	-		
		4.3.3.1	Top Car Clearances					
		4.3.3.2	Top Counterweight Clearance					
		4.3.15	Car Safeties					
		4.3.16	Suspension Means					
	8.7.4.3.8	Guide Rails and Fastenings			Major	-		
		4.3.18.1	Guide Rails - Material and Finish					
		4.3.18.2	Strength of Rails and Fastenings					
		4.3.18.3	Extension of Guide Rails at Top & Bottom of H/W					
	8.7.4.3.9	Overhead Beams and Supports			Major	-		
		4.3.5.1	Overhead Beams and Supports					
		4.3.5.2	Access to Machines and Sheaves					
	8.7.4.3.10	Power Attachments			Major	-		

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-		
			5.1.	Inclined Elevators compliance to specific 5.1 sections based on alteration scope	variance			
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	8.7.5.2★1	★	8.7.2	Alterations to Electric Elevator & as modified in Section 5.2				
	8.7.5.2★2	★	8.7.3	Alterations to Hydraulic Elevator & as modified in Section 5.2				
	8.7.5.5	Power Sidewalk Elevators			Major	-		
	8.7.5.5.1	Changes in Electrical Wiring or Electrical Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
	8.7.5.5.2	Sidewalk Door			Major	-		
			5.5.1.11.2	Horizontal Openings in Sidewalks and Exterior Areas				
			5.5.1.11.3	Hinged Type Swing Sidewalk Doors				
			5.5.1.11.4	Vertical Lifting Sidewalk Covers				
	8.7.5.5.3	Change in Car Enclosure, Car Doors, and Gates			Major	-		
			5.5.1.14	Car Enclosure, Car Doors and Gates, Illumination				
	8.7.5.5.4	Bow-Irons and Stanchions			Major	-		
			5.5.1.15.2	Bow-Irons and Stanchions				
	8.7.5.5.5	Increase in Rated Load			Major	-		
			5.5.1.16	Capacity and Loading				
			5.5.1.18	Speed Governors				
			5.5.1.21	Buffers and Bumpers				
			5.5.1.25.4	Maximum Rated Speed				
	8.7.5.5.6	Increase in Rated Speed			Major	-		
			5.5.1.15	Car Frames and Platforms				
			5.5.1.16	Capacity and Loading				
			5.5.1.19	Suspension Ropes				
			5.5.1.22	Guide Rails				
	8.7.5.5.7	Existing Driving Machine			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.9	Machinery and Sheave Beams, Supports, and Foundations				
			5.5.1.23	Driving Machines and Sheaves				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.5.8	Change in Type of Operating Devices and/or Control Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.6	Rooftop Elevators			Major	-		
			5.6.	Rooftop Elevators				
	8.7.5.7	Special Purpose Personnel Elevators			see CAN/CSA B311			

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	8.7.6.1	Alterations to Escalators						
	8.7.6.1.1	Change to component parts			mrr	-	mrr	
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.1.1	Addition of Components or Devices			see 8.7.6.1		-	
				see applicable 8.7.6.1 requirements for that device				
	8.7.6.1.2	Relocation of Escalator			New	-		
			6.1.	Escalators				
	ED CAD 15.(2)	★ Repositioning of Escalator (within the same building)			Major			
			6.1.3.3.9	Guard at ceiling intersection				
			6.1.3.3.10	Anti-Slide Devices				
			6.1.3.3.11	Deck Barricades				
			6.1.3.4.3	Guards				
			6.1.3.6.6	Floor Opening Protection Adjacent to Escalator Wellway				
			6.1.3.12	Headroom				
			6.1.6.9.1	Caution Signs				
			6.1.7.4.2	certification to B44.1 does not apply				
			6.1.3.6.5	number of flat steps does not apply				
	8.7.6.1.3	Protection of Floor Openings			Minor A	-		
			6.1.1.1	Protection Required				
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.1.2.1	Protection Required				
	8.7.6.1.5	Construction Requirements						
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-		
			6.1.3.2	Geometry				
	8.7.6.1.5(c)	Any Alteration to the Balustrades			Minor A	Minor A		
			6.1.3.3	Balustrades				
			6.1.3.3.1	Construction				
			6.1.3.3.2	Strength				
			6.1.3.3.3	Use of Glass or Plastic				
			6.1.3.3.4	Interior Low Deck				
			6.1.3.3.5	Loaded Gap between Skirt & Step				
			6.1.3.3.6	Skirt Panels				
			6.1.3.3.7	Dynamic Skirt Panels				
			6.1.3.3.8	Dynamic Skirt Panel Loaded Gap				
			6.1.3.3.9	Step/Skirt Performance Index				
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.5(d)	Deflector Devices			Minor B		mrr	
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.6	Handrails or Handrail System			Minor A	-		
			6.1.3.2.2	Geometry - Handrail				
			6.1.3.4.1	Handrails - Type Required				
			6.1.3.4.2	Extension Beyond Combplate				
			6.1.3.4.3	Guards (hand or finger)				
			6.1.3.4.4	Handrails - Splicing				
			6.1.3.4.6	Handrail Clearance				
			6.1.6.3.12	Handrail Entry Device				
			6.1.6.4	Handrail Speed Monitoring Device				
	8.7.6.1★1	★ Addition of Handrail Advertising			mrr	variance		
				Variance to 6.1.6.9.2, provide maintenance program				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.1.7	Step System - any alteration to the step system			Major	-	mrr	Minor B
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5 (*)	Steps				
			6.1.3.6	Entrance and Egress Ends				
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.4	Factor of Safety - Steps				
			6.1.3.11	Chains				
			6.1.6.3.3	Broken Step-Chain Device				
			6.1.6.3.9	Step Upthrust Device				
			6.1.6.3.11	Step Level Device				
			6.1.6.3.14	Step Lateral Displacement Device				
			6.1.6.5	Missing Step Device				
	8.7.6.1.8	Combplates			Minor A	-		
			6.1.6.3.13	Comb-Step Impact Devices				
	8.7.6.1.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding - see Code Adoption Document				
			6.1.3.7	Trusses of Girders				
			6.1.3.9.1	Structural Load				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
	8.7.6.1.9	New Escalator into Existing Trusses			New	-		
			6.1.	Escalators				
	8.7.6.1.10	Step Wheel Tracks			Major	-		
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
			8.7.1.4	Welding - see Code Adoption Document				
	8.7.6.1.11	Rated Load and Speed			Major	-		
			6.1.	Escalators				
	8.7.6.1.12	Driving Machine, Motor, and Brake						
	8.7.6.1.12(a)	Driving Machine			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.4	Broken Drive-Chain Device				
			6.1.6.3.8	reversal Stop Device				
	8.7.6.1.12(b)	Driving Motor			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.2	Speed Governor				
			6.1.6.3.8	reversal Stop Device				
			6.1.6.3.10	Disconnected Motor Safety Device				
	8.7.6.1.12(c)	Machine Brake			Major	-		
			6.1.3.9.3	Brake				
			6.1.3.10.2	Factor of Safety - Driving Machine Parts				
			6.1.5.3.1	Escalator Driving-Machine Brake				

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					Type of Submission Required			
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A		
			6.1.6	Operating and Safety Devices (for that device)				
	8.7.6.1★2	★	Removal of step demarcation lights		Minor A	-	-	
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5.4	Clearance between Steps				
			6.1.3.5.5	Slotting of Steps and Treads				
			6.1.3.5.6	Step Demarcation				
			6.1.3.6.2	Distinction Between Comb and Step				
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.1.7	Lighting, Access, and Electrical Work				
	8.7.6.1.15	Entrance and Egress			Major	-		
			6.1.3.6.1	Combplates				
			6.1.3.6.2	Distinction Between Comb and Step				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
	8.7.6.1.16	Controller - Installed as part of an alteration			Major	-	-	
			6.1.6.10	Control and Operating Circuits				
			6.1.6.11	Electrically Power Safety Devices				
			6.1.6.12	Installation of Capacitors.. To Make EPD's Ineffective				
			6.1.6.13	Completion of Maintenance Circuits				
			6.1.6.14	Escalator Manual Reset				
			6.1.6.15	Contractors and Relays for Use in Critical Operating Circuits				
	8.7.6.1★3	★	Controller - Replacement of		-	-	Major	
			8.7.6.1.16	Controller				
	8.7.6.1★4	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.6.1★5	★	Addition of Soft start		-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				

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					Type of Submission Required			
	8.7.6.2	Alterations to Moving Walks						
	8.7.6.2.1	Change to component parts			mrr	-		mrr
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.2.1	Addition of Components or Devices			see 8.7.6.2			-
				see applicable 8.7.6.2 requirements for that device				
	8.7.6.2.2	Relocation of Moving Walk			New	-		
			6.2.	Moving Walks				
	8.7.6.2.3	Protection of Floor Openings			Minor A	-		
			6.2.1.1	Protection Required				
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.2.2.1	Protection of Supports - Protection Required				
	8.7.6.2.5	Construction Requirements - Angle of Inclination			Major	-		
			6.2.	Moving Walks				
	8.7.6.2.5	Construction Requirements - Geometry			Major	-		
			6.2.3.2	Geometry				
	8.7.6.2.5	Construction Requirements - Balustrades			Minor A	Minor A		
			6.2.3.3	Balustrades				
	8.7.6.2.6	Handrails			Minor A	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.4	Handrails				
			6.2.6.3.10	Handrail Entry Device				
			6.2.6.4	Handrail Speed Monitoring Device				
	8.7.6.2.7	Treadway System			Major	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.3.5	Skirtless Balustrade				
			6.2.3.3.6	Skirt Panels				
			6.2.3.5	Pallet-Type Treadway				
			6.2.3.6(*)	Belt-Type Treadway				
			6.2.3.8	Entrance and Egress Ends				
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11	Design Factors of Safety				
			6.2.3.12.4	Pallet Factor of Safety				
			6.2.3.12.5	Belt Factor of Safety				
			6.2.3.13	Chain Drives				
			6.2.6.3.3	Broken Treadway Device				
			6.2.6.5	Missing Pallet Device				
			6.2.6.3.9	Pallet Level Device				
	8.7.6.2.8	Combplates			Minor A	-		
			6.2.3.8	Entrance and Egress Ends				
			6.2.6.3.11	Comb-Pallet Impact Devices				
	8.7.6.2.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding - see Code Adoption Document				
			6.2.3.9	Supporting Structure				
			6.2.3.10.1	Structural Load				
			6.2.3.12.1	Trusses & Supports based on max static load				
	8.7.6.2.9	New Moving Walk into Existing Truss			New	-		
			6.2.	Moving Walks				
	8.7.6.2.10	Track System			Major	-		
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11.1	Trusses & Supports based on max static load				
			8.7.1.4	Welding - see Code Adoption Document				
	8.7.6.2.11	Rated Load and Speed			Major	-		
			6.2.	Moving Walks				

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			Type of Submission Required			
	8.7.6.2.12	Driving Machine	Major	-		
		6.2.3.10.2 Machinery Load				
		6.2.3.11.2 Factor of Safety for Drive Machine Parts				
		6.2.3.11.3 Factor of Safety for Power Transmission members				
		6.2.3.13 Chain Drives				
		6.2.3.14 V-Belt Drives				
		6.2.3.15 Headroom				
		6.2.4 Rated Speed				
		6.2.5.1 Connection Between Driving Machine and Main Drive Shaft				
		6.2.5.3.1 Moving Walk Driving-Machine Brakes				
		6.2.5.3.2 Main Drive Shaft Brake				
		6.2.6.3.4 Broken Drive-Chain Device				
		6.2.6.3.8 Disconnected Motor Safety Device				
	8.7.6.2.12	Drive Motor	Major	-		
		6.2.3.10.2 Machinery Load				
		6.2.3.11.2 Factor of Safety for Drive Machine Parts				
		6.2.3.11.3 Factor of Safety for Power Transmission members				
		6.2.4 Rated Speed				
		6.2.5.2 Driving Motor				
		6.2.5.3.1 Moving Walk Driving-Machine Brakes				
		6.2.6.3.2 Speed Governor				
		6.2.6.3.7 Reversal Stop Device				
		6.2.6.3.8 Disconnected Motor Safety Device				
	8.7.6.2.12	Machine Brake	Major	-		
		6.2.3.10.3 Brake				
		6.2.3.11.2 Factor of Safety for Drive Machine Parts				
		6.2.3.11.3 Factor of Safety for Power Transmission members				
		6.2.5.3.1 Moving Walk Driving-Machine Brakes				
		6.2.5.3.2 Main Drive Shaft Brake				
	8.7.6.2.13	Operating and Safety Devices	Minor A	Minor A		
		6.2.6 Operating and Safety Devices (for that device)				
	8.7.6.2.14	Lighting, Access, and Electrical Work	Minor B	Minor B		
		6.2.7 Lighting, Access, and Electrical Work				
	8.7.6.2.15	Controller - Installed as part of an alteration	Major	-	-	
		6.2.6.9 Control and Operating Circuits				
		6.2.6.10 Electrically Power Safety Devices				
		6.2.6.11 Installation of Capacitors.. To Make EPD's Ineffective				
		6.2.6.12 Completion of Maintenance Circuits				
		6.2.6.13 Moving Walk Manual Reset				
		6.2.6.14 Contractors and Relays for Use in Critical Operating Circuits				
	8.7.6.2★1	★ Controller - Replacement of	-	-	Major	
		8.7.6.1.16 Controller				
	8.7.6.2★2	Relocation of Controller (if control wiring disconnected - reconnected)	Major			
		2.8.2 Electrical Equipment and Wiring				
		Electrical testing as per the original design submission tests				
	8.7.6.2★3	★ Addition of Soft start	-	Minor A		
		for control systems built to B44-00 and later				
		6.1.7.4 Electrical Equipment and Wiring				
		6.1.6.10.1 Occurrence of a single ground				
		6.1.6.10.2 Redundancy to be checked				
		6.1.6.10.3 Motors with Static control				
		for control systems built prior to B44-00				
		6.1.7.4 Electrical Equipment and Wiring				

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	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.2	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor A		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor A		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.2.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			2.6.	Protection of Space below H/W				
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			2.4.	Vertical Clearances & Runbys for Cars & Cwts				
			8.7.2.17.1	Increase or Decrease in Rise				
			8.7.2.17.2	Increase in Rated Speed				
			8.7.2.25.2	Change in Location of Driving Machine				
	8.7.2.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			8.7.2.17.2	Increase in Rated Speed				
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major		
			2.6.	Protection of Space below H/W				

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	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7★1	Enclosures - Control Rooms and Control Spaces						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1	General Requirements					
		2.7.3.2	Access Across Roofs					
		2.7.3.3	Means of Access					
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4	Access Doors and Openings					
		2.7.3.5	Stop Switch for Machinery Space or Control Spaces					
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4	Headroom in M/C Rooms					
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1	Lighting					
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2	Temperature & Humidity					
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms			Minor B	Minor B		
		Installation of New (electrical, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.	Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) C22.1 as required					
		Alteration of Existing (electrical, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.	Equipment in Hoistways and Machine Rooms					
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		Building reactions increased by more than 5%						
		2.9.	Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.					
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-	Major	Major
		2.11.	Protection of H/W Openings					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	hanger /track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.12	Entrances, Vertical Slide Type				
	sills (a)		2.11.10.3	Hinged Hoistway Landing Sills	Minor B		Minor B	
			2.11.12.1	Landing Sills				
	frames (b)		2.11.12.2	Entrances Frames	Minor B		Minor B	
			8.7.2.10.5	Marking of Entrance Assemblies				
	rails (c)		2.11.12.3	Rails	mrr		mrr	
	panels (d)		2.11.12.3	Rails	Minor A		Minor A	
			2.11.12.4	Panels				
			2.11.12.5	Guides				
			2.11.12.6	Counterweighting or Counterbalancing				
			2.11.12.8	Pull Straps				
			8.7.2.10.5	Marking of Entrance Assemblies				
	guides (e)		2.11.12.5	Guides				
	sill guard (f)		2.11.12.7	Sill Guards	mrr		mrr	
	straps (g)		2.11.12.8	Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.13	Entrances, Swing Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.10.3	Hinged Hoistway Landing Sills				
			2.11.13.1	Landing Sills				
	frames (b)		2.11.13.2	Entrance Frames	Minor B		Minor B	
			2.11.13.4	Hinges				
			8.7.2.10.5	Marking of Entrance Assemblies				
	panels (c)		2.11.13.3	Panels	Minor B		Minor B	
			2.11.13.4	Hinges				
			2.11.13.5	Marking				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hinges (d)		2.11.13.4	Hinges	mrr		mrr	

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	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
			8.7.2.10.5(a)	NBCC requirements				
	8.7.2.10★1	★ Removing Service To a Floor				Minor B		
				Bolt entrances shut				
				Remove Interlock From Safety String				
				If Adding Door In front Of Entrance, Gap btwn doors <=125mm				
				Remove COP Floor Button				
			2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.2	Interlocks				
			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
			2.24.8.3	Driving Machine Brake				
	8.7.2.11.2	Mechanical Locks and Electric Contacts			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.3	H/W Door Combination Mechanical Locks & Contacts				
			2.12.4	Listing/Certification Locking Devices				
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8	Braking Systems & Driving Machine Brakes				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
	8.7.2.11.4	Access Switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8.3	Driving Machine Brake				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.1.4	Inspection Operation				
	8.7.2.11★1	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
			2.11.11.8	Hoistway Door Safety Retainers				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates				
			2.13.5	Reopening Device for Power Operated Car Doors or Gates				
				if FEO provided, door opening & closing to PHI &II at time of install				

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	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.15.		Car Frames & Platforms				
		2.17		Car and counterweight safeties				
		8.7.2.15.1		Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
		2.14.1.2		Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
		2.14.1.5		Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
		2.14.1.8		Glass in Elevator Cars				
		2.14.1.8.1		Enclosures include glass				
		2.14.1.8.2		Lining of Walls or Ceilings include glass				
		2.14.1.8.3		Not Adopted - Type 3C in not permitted, except if mrr			mrr	
		2.14.1.8.4		Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
		2.14.1.9		Equipment Inside Cars				
			(a)	Handrails				
			(b)	fastening devices for protective linings				
			(c)	ceiling mounted hooks/tracks				
			(d)	picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
			(e)	conveyor tracks in freights				
			(f)	heating or cooling equipment				
	8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
		2.8.1.1		electrical equipment & wiring				
		2.14.1.2.3		securing of enclosure equipment				
		2.14.2.4		Headroom in Elevator Cars				
	8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
		2.14.2.3		Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
		2.14.7		Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
		2.16.1.2		Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials			DR 171		Minor B	DR 171
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing	n/a		n/a	n/a
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
				Directors Order 171				
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing	n/a			
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	8.7.2.14★4	★ Car Top Railing			Minor B	Minor A		
		2.14.1.7		Railing and Equipment on Top of Cars				
		2.4		Vertical Car & Cwt Clearances & Runbys				

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	8.7.2.15	Car Frames and Platforms				⇩ See Below ⇩		
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-		Major
		2.15.	Car Frames & Platforms					
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		record weight on Aux. Data Tag						
	DR 171/02	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		record weight on Aux. Data Tag						
		engineering assessment of related items (except 2.24.3)						
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-		
		DR 171/02	★ record weight on Aux. Data Tag					
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.15.9	Platform Guards (Aprons)					
		2.16.	Capacity & Loading					
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.20.	Suspension Ropes & Connections					
		2.21.(*)	Counterweights					
		2.22.(*)	Buffers & Bumpers					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		2.24.(*)	Driving Machines & Sheaves					
		8.7.2.9	Machinery and Sheave Beams, Supports, Foundations					
	8.7.2.16	Capacity, Loading, and Classification			Major	-		
	8.7.2.16.1	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.22 (*)	Buffers & Bumpers					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.17.(*)	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.16.	Capacity & Loading					
		2.20.	Suspension Ropes & Connections					
		2.24.(*)	Driving Machines & Sheaves					
		2.25.	Terminal Stopping Devices					
		2.26.	Operating Devices and Control Equipment					
		2.27.	Emergency Operation & Signaling Devices					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
	8.7.2.16.2	Change in Class of Loading: [from any class to any other class ie A, B, C1, C2, C3]			Major	-		
		2.16.2	Minimum Rated Load for Freight Elevators					
		8.7.2.16.4	Increase in Rated Load					
	8.7.2.16.3	Carrying of Passengers on Freight Elevators			Major	-		
		2.16.4	Carrying of Passengers on Freight Elevators					
		2.16.4.1	not accessible to general public					
		2.16.4.2	rated load not less than required by 2.16.1					
		2.16.4.3	conforms to 2.16.8 Passenger Overload in Down Direction					
		2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)					
		2.16.4.5	car doors to 2.14.5 Passenger Car Doors					
		2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings					
		2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door					
		2.16.4.8	Fs for suspension ropes to Table 2.20.3					
		2.16.4.9	Power Operated vertical doors to 2.16.4.9(a) to (e)					
		★	apron guard to ED CAD or extent pit permits					
		★	2.16.5 Signs Required in Freight Elevator Cars					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2.16.4	Increase in Rated Load			Major	-		
				Car doors or gates shall be provided at all car entrances				
			2.14.4	New to: Passenger & Frt Car Doors & Gates, General Req'mts				
			2.14.5	New to: Passenger Car Doors				
			2.14.6	New to: Freight Elevator Car Doors and Gates				
			2.15.(*)	Car Frames & Platforms- ★apron guard to ED CAD/as pit permits				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.	Driving Machines & Sheaves				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
	8.7.2.17	Change in Rise or Rated Speed			Major	-		
	8.7.2.17.1	Increase or Decrease in Rise			Major	-		
			2.25.	Terminal Stopping Devices				
				retain drum m/c, travel increase < 4570mm				
			2.4.(*)	Vertical Clearances & Runbys for Cars & Cwts				
				If decrease in rise is at lowest end then;				
				2.2.4 Access to Pits				
				2.2.5 Illumination of Pits				
				2.2.6 Stop Switches				
	8.7.2.17.2	Increase in Rated Speed			Major	-		
	8.7.2.17.2(a)	Increase in Rated Speed on a Winding Drum machine			Major	-		
				Increase in Rated Speed of a winding drum m/c prohibited				
			8.7.2.17.2(c)	except in 8.7.2.17.2(c)				
	8.7.2.17.2(b)	Increase in Rated Speed greater than10% & greater than 0.20m/s			Major	-		
			2.4.2	Minimum Bottom Runby for Counterweighted Elevators				
			2.4.3	Minimum Bottom Runby for Uncounterweighted Elevators				
			2.4.4	Maximum Bottom Runby				
			2.4.5	Counterweight Runby Data Plate				
			2.4.6	Top Car Clearances for Counterweighted Elevators				
			2.4.7	Top Car Clearances for Uncounterweighted Elevators				
			2.4.8	Vertical Clearances with Underslung Car Frames				
			2.4.9	Top Counterweight Clearances				
			2.4.10	Overhead Clearances - w/No Overhead Beams				
			2.4.11	Equipment on Top of Car Not Permitted to Strike O/H				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.22.(*)	Buffers & Bumpers				
				Car doors or gates shall be provided at all car entrances				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.16.	Capacity & Loading				
			2.24.	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.20.	Suspension Ropes & Connections				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
	8.7.2.17.2(c)	Increase in Rated Speed less than 10% & less than 0.20m/s			Major	-		
				new spd <.75 for type A safeties				
				new spd <1 w/spring buffer, 2.18.2.1&.2				
			2.18.2.1	Car speed governors				
			2.18.2.2	counterweight speed governors				
			8.7.2.27.3	Change in Power Supply				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2.17.3	Decrease in Rated Speed			Major	-		
		2.4.	Vertical Clearances & Runbys for Cars & Cwts					
		2.18.2	Tripping Speeds for Speed Governors					
		2.16.	Capacity & Loading					
		2.16.3(*)	Capacity and Data Plates					
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
		2.26.4.3	Positively Opened Contacts					
	8.7.2.18	Car and Counterweight Safeties			Major	Major	⇩See Below ⇩	
	8.7.2.18.1	New Car Safeties			-	Major	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.18.2	New Cwt Safeties			-	Major	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.18.3	Existing Car Safeties				-	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.18.3	Existing Cwt Safeties			Major	-	mrr	Minor A
		2.17.	Car & Cwt Safeties					
		2.18.	Speed Governors					
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
		8.7.2.19	Speed Governors and Governor Ropes					
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.	Speed Governors				mrr	Minor A
	8.7.2.19	2.17.15	Governor Rope Releasing Carriers				mrr	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
			2.18.6 Design Gov'r Rope Retarding Means for Type B Safeties					
			2.18.7 Traction between Speed Governor Rope & Sheave					
		& testing to	2.17.3 Function and Stopping Distances of Safeties					
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection (ACO & UCM)			Minor A	Major	mrr	Minor A
		2.19.	Ascending Car Overspd & Unintended Car Movement Protection if part of an alteration which includes; change in motion control - 8.7.2.27.5 replacement of an Elevator Controller 8.6.12.5.3.1 or 8.7.2.27.4					
	8.7.2.20★1	★	If Elevators Controllers are pre-B44-00 & have ACO & UCM		Minor A	-	mrr	Minor A
		2.19.	ACO & UCM Protection, EXCEPT◆					
			◆ detection means to B44-M90 or the code at time of install					
		8.9.	◆ Code Data tag to reflect code at time of install					
	8.7.2.20★2	★	If Elevators Controllers are pre-B44-00 & have ACO ONLY		Minor A	-	mrr	Minor A
		2.19.1	ACO Protection Only, EXCEPT◆					
		2.19.3	Emergency Brake EXCEPT◆					
			◆ detection means to B44-M90 or the code at time of install					
		8.9.	◆ Code Data tag to reflect code at time of install					
	8.7.2.20★3	★	Voluntary Addition of Both ACO and UCM where previously not provided			Minor A		
		2.19.	ACO & UCM Protection EXCEPT◆					
			◆ detection means to B44-M90 code or later					
		2.7.	Machinery Spaces, Machine Rooms Control Spaces & Control Rooms					
			as applicable to the equipment installation					
		8.9.	◆ Code Data tag to reflect code edition used for the alteration					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.21	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.2.21.1	Change in Number of, or Diameter of Ropes			Major	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.2.21.1	Change in Material / Grade of Ropes			Minor A	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B		
		2.20.5	Suspension Rope Equalizers					
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices			Major	Major		
		2.20.	Suspension Ropes & Connections					
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.2.23	Car and Counterweight Buffers and Bumpers (oil buffer only in column 6)			Major	-	mrr	Minor B
		2.22.(*)	Buffers & Bumpers					
	8.7.2.24	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
	8.7.2.25	Driving Machines and Sheaves			⇩ See Below ⇩			
	8.7.2.25.1	Alterations to	Driving Machines & Sheaves		Major	Major		
	8.7.2.25.1(a)	Installation of	Driving Machine Replaced (as part of an alteration)		-	-	see **8.6.12.5.2**	
		2.7.2	Maintenance Path and Clearance (★editorially omitted)					
		2.7.2.3	Maintenance Clearance in Machine Rooms & Control Rooms					
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		2.10.1	Guarding of Equipment					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		2.20.	Suspension Ropes & Connections					
		2.24.	Driving Machines & Sheaves					
		2.26.8	Release and Application of Driving-Machine Brakes					
	8.7.2.25.1(b)	Alterations to	Driving Machine Components - affected component complies w/		Major			
		2.24.2	Sheaves and Drums				mrr	Major
		2.24.3	Factor of Safety for Driving Machines and Sheaves					
		2.24.4	Fasteners Transmitting Load					
		2.24.5	Shafts Fillets and Keys					
		2.24.6	Cast-Iron Worms and Worm Gears					
		2.24.7	Friction Gearing and Clutches					
		2.24.8	Braking Systems & Driving Machine Brakes				mrr	Major
		2.24.9	Indirect-Driving Machines					
		2.26.8	Release and Application of Driving-Machine Brakes					
	8.7.2.25.1(c)	Change of	Driving Machine Sheave		Major	-	mrr	Major
		2.24.2	Sheaves and Drums					
		2.24.3	Factor of Safety for Driving Machines and Sheaves					
		2.24.4	Fasteners Transmitting Load					
		2.20.	Suspension Ropes & Connections					

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					Type of Submission Required			
	8.6.12.5.2	Replacement of		Driving Machine	-	-	Major	
			8.7.2.25.1(a)					
			2.7.2	Maintenance Path and Clearance (★editorially omitted)				
			2.7.2.3	Access to Machinery Spaces/Rooms, Control Spaces/Rooms				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.19.	ACO & UCM Protection, Except ◆				
			◆8.7.2.20★3	if replacement is machine only & ACO / UCM not previously provided				
			2.20.	Suspension Ropes & Connections				
			2.24.	Driving Machines & Sheaves				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.2	Change in Location of Driving Machine			Major	-		
	8.7.2.25.2(a)	Change in Location of Driving Machine w/ no change in Rise			Major	-		
			2.7.2	Maintenance Path and Clearance (★editorially omitted)				
			2.7.2.3	Access to Machinery Spaces/Rooms, Control Spaces/Rooms				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.24.2.3	Traction				
	8.7.2.25.2(b)	Change in Location of Driving Machine w/ change in Rise			Major	-		
			Part 2 (*)	Electric Elevators				
			8.7.2.5	see also				
			8.7.2.10	see also				
	8.7.2.25★1	★ Replacement of worm and/or gear (specify make)			-	-	mrr	Minor A
	8.7.2.25★2	★ Addition of Machine Guarding			Minor B		mrr	mrr
			2.10.1	Guarding of Equipment				
	8.7.2.26	Terminal-Stopping Devices			Minor B	Minor B		
			2.25.	Terminal Stopping Devices				
	8.7.2.27	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.2.27.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
			2.26.1.4	Inspection Operation				
	DO 173/02	★		Addition of Top-of-Car Operating Device	-	Minor A		
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			2.26.1.6	Operation in Leveling or Truck Zone				
	8.7.2.27★1	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	Inspection Operation with Open Door Circuits				
	8.7.2.27★2	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				
	8.7.2.27.3	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
			2.26.1.1	Types of Operation				
			2.26.1.2	For Car-Switch Operation Elevators				
			2.26.1.3	Add'l Operating Devices for Elevators carrying 1pc. load > than Rated				
			2.26.1.4	Inspection Operation				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.9	Control & Operating Circuits				
			2.26.10	Absorption of Regenerated Power				
		new / modified equipment and wiring to:						
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
		brakes to:						
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.8	Release and Application of Driving-Machine Brakes				
		winding drum to:						
			2.25.3.5	Additional Req'mts for Winding Drum Machines				
				see 8.7.2.17.2(b) Increase in Rated Speed				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2.27.4	Controllers						
	8.7.2.27.4(a)	Installation of		Elevator Controller (as part of an alteration)	Major	-	see **8.6.12.5.3.1**	
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4	Electrical Equipment and Wiring				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.27.2	Emergency or Standby Power systems				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				
	8.6.12.5.3.1	Replacement of		Elevator Controller	-	-	Major	
			8.7.2.27.4(a)					
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4	Electrical Equipment and Wiring				
				- Including Clearances to CSA C22.1				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.27.2	Emergency or Standby Power systems				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				
		★	2.7.5.2	Temperature and Humidity				
	8.7.2.27★3	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.2.27.4(b)	Installation of		Door Controller (as part of an alteration)	Minor A	-	see **8.6.12.5.3.2**	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.6.12.5.3.2	Installation of		Door Controller	-	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				

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Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change / Addition		Replacement with: Same / Different Make/Model	
					Type of Submission Required			
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices - where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				
	8.7.2.27★4	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.13.5.4	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				
	8.7.2.27★5	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access when on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.1.6(l)	- shall not prevent PHI				
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
			DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.2.27.7	Removal of emergency stop switch on passenger elevators remove all related markings / engravings & provide an in-car stop switch to:			Minor B	-		
			2.26.2.21	In-car stop switch				
		★	2.26.4.3	Positively Opened Contacts				
		★	2.26.9.3(a)	Single failure does not render In-Car Stop Sw ineffective				
	8.7.2.27.8	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A		
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators Manual PHI Recall is mandatory Automatic PHI Recall by FAID's is mandatory				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Layout Drawings ★ See also provisions of 175/02				
	8.7.2.28	Addition of Elevator to a Group			-	Minor A		
			2.27.	Emergency Operation & Signaling Devices - Mandatory *notes re: 2.27.3 FEO for Automatic Elevators* Manual PHI Recall is mandatory Automatic PHI Recall by FAID's is mandatory				
	DO 175/02	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install conformance to auto recall based on F.S. at time of install			Minor B			
	DO 219/07	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order 219/07 Firefighter Operation to B44-00U2 or Firefighter Operation to B44-04 or Firefighter Operation to B44-07 Manual PHI Recall is mandatory Automatic PHI Recall by FAID's if required by NBCC or B44-07			Minor B	Minor A		

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	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.2	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor A		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor A		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			3.5.	Horizontal car and Counterweight Clearances				
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				

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	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major		
		3.6.		Protection of Spaces below Hoistway				
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	Minor A	-		
		CSA C22.1		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7★1	Enclosures - Control Rooms and Control Spaces						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	Minor A	-		
		CSA C22.1		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1		General Requirements				
		2.7.3.2		Access Across Roofs				
		2.7.3.3		Means of Access				
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4		Access Doors and Openings				
		2.7.3.5		Stop Switch in O/H M/C Space in the H/W				
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4		Headroom in M/C Rooms				
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2		Temperature & Humidity				
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B		
		Installation of New (electrical, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.		Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) C22.1 as required				
		Alteration of Existing (electrical, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.		Machinery & Sheave Beams, Supports, Foundation				
		Building reactions increased by more than 5%						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-		
		2.11.		Protection of H/W Openings				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2		Types of Entrances				
		2.11.3		Closing of Hoistway Doors				
		2.11.4		Location of Horizontally Sliding or Swinging H/W Doors				
		2.11.5		Projection of Entrances & Equip. Beyond Land'g Sills				
		2.11.6		Opening of Hoistway Doors				
		2.11.7		Glass in Hoistway Doors				
		2.11.8		Weights for Closing or Balancing Doors				
		8.7.2.10.5		Marking of Entrance Assemblies				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				

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					Type of Submission Required			
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.12	Entrances, Vertical Slide Type				
	sills (a)		2.11.10.3	Hinged Hoistway Landing Sills	Minor B		Minor B	
			2.11.12.1	Landing Sills				
	frames (b)		2.11.12.2	Entrances Frames	Minor B		Minor B	
			8.7.2.10.5	Marking of Entrance Assemblies				
	rails (c)		2.11.12.3	Rails	mrr		mrr	
	panels (d)		2.11.12.4	Panels	Minor A		Minor A	
			2.11.12.3	Rails				
			2.11.12.5	Guides				
			2.11.12.6	Counterweighting or Counterbalancing				
			2.11.12.8	Pull Straps				
			8.7.2.10.5	Marking of Entrance Assemblies				
	guides (e)		2.11.12.5	Guides				
	sill guard (f)		2.11.12.7	Sill Guards	mrr		mrr	
	straps (g)		2.11.12.8	Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.13	Entrances, Swing Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.10.3	Hinged Hoistway Landing Sills				
			2.11.13.1	Landing Sills				
	frames (b)		2.11.13.2	Entrance Frames	Minor B		Minor B	
			2.11.13.4	Hinges				
			8.7.2.10.5	Marking of Entrance Assemblies				
	panels (c)		2.11.13.3	Panels	Minor B		Minor B	
			2.11.13.4	Hinges				
			2.11.13.5	Marking				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hinges (d)		2.11.13.4	Hinges	mrr		mrr	

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					Type of Submission Required			
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
			8.7.2.10.5(a)	NBCC requirements				
	8.7.2.10★1	★ Removing Service To a Floor				Minor B		
				Bolt entrances shut				
				Remove Interlock From Safety String				
				If Adding Door In front Of Entrance, Gap btwn doors <=125mm				
				Remove COP Floor Button				
			2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
	8.7.3.11	Hoistway Door-Locking Devices				See 8.7.2.11		
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices				⇩ See Below ⇩		
	8.7.2.11.1	Interlocks			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.2	Interlocks				
			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.3	H/W Door Combination Mechanical Locks & Contacts				
			2.12.4	Listing/Certification Locking Devices				
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8	Braking Systems & Driving Machine Brakes				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
	8.7.2.11★1	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
			2.11.11.8	Hoistway Door Safety Retainers				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
			8.7.3.10	Hoistway Entrances and Openings				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★2	★ Replacement of Door Reopening Device				See 8.7.2.13		
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates				
			2.13.5	Reopening Device for Power Operated Car Doors or Gates				
				if FEO provided, door opening & closing to PHI &II at time of install				
	8.7.3.13	Car Enclosures				See 8.7.2.14		
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination				⇩ See Below ⇩		
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				

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	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass				
			2.14.1.8.3	Not Adopted - Type 3C in not permitted, except if mrr			mrr	
			2.14.1.8.4	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
	8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.1.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
	8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials			DR 171		Minor B	DR 171
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing	n/a		n/a	n/a
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
				Directors Order 171				
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing	n/a			
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	8.7.2.14★4	★ Car Top Railing			Minor B	Minor A		
			2.14.1.7	Railing and Equipment on Top of Cars				
			2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.3.14	Car Frames and Platforms			Major	-	Major	
			3.15.	Car Frames & Platforms				
	8.7.3.15	Safeties		Car or Cwt (plunger gripper see 8.7.3.23.7)	⇩ See Below ⇩			
	8.7.3.15.1	Car Safeties			-	Major	mrr	Minor A
			3.17.1	Car Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.2	Counterweight Safeties			-	Major	mrr	Minor A
			3.17.2	Counterweight Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.15.3	Alteration to existing Car or Counterweight Safeties			Major	-	mrr	Minor A
		3.17(*)		Car and counterweight safeties and plunger gripper				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		3.28.		Layout Data				
	8.7.3.16	Governors and Governor Ropes			See 8.7.2.19			
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.		Speed Governors			mrr	Minor A
	8.7.2.19	2.17.15		Governor Rope Releasing Carriers			mrr	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
				2.18.6 Design of Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
		& testing to		2.17.3 Function and Stopping Distances of Safeties				
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1		Entrances and Emergency Doors Required				
		2.11.2		Types of Entrances				
		2.11.3		Closing of Hoistway Doors				
		2.11.5		Projection of Entrances & Equip. Beyond Land'g Sills				
		2.11.6		Opening of Hoistway Doors				
		2.11.7		Glass in Hoistway Doors				
		2.11.8		Weights for Closing or Balancing Doors				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				
		2.22.(*)		Buffers & Bumpers				
		3.22.2		Counterweight Buffers				
		3.14.		Car: Enclosure, Doors, Gates, Illumination				
		3.15.		Car Frames & Platforms				
		3.17.		Car and Counterweight Safeties				
		3.21.		Counterweights				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		2.18.(*)		Speed Governors				
		3.16.		Capacity & Loading				
		3.18.		Hydraulic Jacks				
		3.19.		Valves, Pressure Piping, and Fittings				
		3.20.		Ropes and Rope Connections				
		3.24.		Hydraulic Machines and Tanks				
		3.25.		Terminal-Stopping Devices				
		3.26.		Operating Devices and Control Equipment				
		3.27.		Emergency Operation and Signaling Devices				
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
		2.16.2		Minimum Rated Load for Freight Elevators				
		3.16.		Capacity & Loading				
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
		3.16.4		2.16.4 except 2.16.4.3				
		2.16.4		Carrying of Passengers on Freight Elevators				
		2.16.4.1		not accessible to general public				
		2.16.4.2		rated load not less than required by 2.16.1				
		2.16.4.4		H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)				
		2.16.4.5		car doors to 2.14.5 Passenger Car Doors				
		2.16.4.6		car enclosure openings to 2.14.2.2 Prohibited Openings				
		2.16.4.7		conforms to 2.12.5 Restricted Opening of H/W or Car Door				
		2.16.4.8		Fs for suspension ropes to Table 2.20.3				
		2.16.4.9		Power Operated vertical doors to 2.16.4.9(a) to (e)				
		★		apron guard to ED CAD or extent pit permits				
		★		2.16.5 Signs Required in Freight Elevator Cars				

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	8.7.3.20	Increase in Rated Load			Major	-		
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			3.16.	Capacity & Loading				
			3.17.	Car and Counterweight Safeties				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			3.22.	Buffers and Bumpers				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			8.7.3.23.4	Increase in Working Pressure				
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		record weight on Aux. Data Tag						
	DR 171/02	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		record weight on Aux. Data Tag						
		engineering assessment of related items (except 2.24.3)						
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
			DR 171/02	Car: Enclosure, Doors, Gates, Illumination				
			3.14.	Car: Enclosure, Doors, Gates, Illumination	n/a			
			3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			3.16.	Capacity & Loading				
			3.17.	Car and Counterweight Safeties				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			3.22.	Buffers and Bumpers				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.24.5	Counterweight Sheaves				
			8.7.3.23.4	Increase in Working Pressure				
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.22.1	Increase or Decrease in Rise			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.4.1	Bottom Car Clearance				
			3.4.2	Minimum Bottom and Top Car Runby				
			3.4.3	Car Top and Bottom Maximum Runby				
			3.18.2	Plungers				
				If decrease in rise is at lowest end then;				
			2.2.4	Access to Pits				
			2.2.5	Illumination of Pits				
			2.2.6	Stop Switches				
	8.7.3.22.2	Increase in Rated Speed			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			3.17.(*)	Car and Counterweight Safeties				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.20.	Ropes and Rope Connections				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.22.3	Decrease in Rated Speed			Major	-		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		2.18.2	Tripping Speeds for Speed Governors					
		3.16.	Capacity & Loading					
		3.16.3(b)	Capacity & data plates					
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
	8.7.3.23	Hydraulic Equipment				⇩ See Below ⇩		
	8.7.3.23.1	Alteration to	Hydraulic Jacks		Major	-		
		3.18.	Hydraulic Jacks					
	c8.6.12.5.4.1	Replacement of	Hydraulic Jacks		-	-	Major	
		3.18.	Hydraulic Jacks					
	8.7.3.23.2	Alteration to	Plungers		Major	-		
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	c8.6.12.5.4.2	Replacement of	Plungers		-	-	Minor A	
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	8.7.3.23.3	Alteration to	Cylinders		Major	-		
		3.18.3	Cylinders - Installed as part of Alteration					
		3.18.3	Cylinder is Altered					
		3.18.3	Cylinder is Sleeved		Minor B			
		3.18.4.1	Metal Stops and/or Other Means					
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	c8.6.12.5.4.3	Replacement of	Cylinders		-	-	Minor A	
		3.18.3	Cylinders - Installed as part of Alteration					
		3.18.3	Cylinder is Altered					
		3.18.3	Cylinder is Sleeved					
		3.18.4.1	Metal Stops and/or Other Means					
		3.18.1.2	Roped-Hydraulic Elevator					
		3.18.2	Plungers					
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
		3.18.(*)	Hydraulic Jacks					
		3.19.(*)	Valves, Pressure Piping, and Fittings					
		3.24.1	Marking Plates					
		3.24.2	Tanks					
		3.24.3	Atmosphere Storage and Discharge Tanks					
		3.24.4	Welding					
	8.7.3.23.5	Change in Location of Hydraulic Jack			Major	-		
		Part 3	Hydraulic Elevators					
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
		3.26.8	Pressure Switch					
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
		3.17.3	Plunger Gripper					
		3.1.1(b)	strength of pit floor					
		3.22.1	no strike when buffers compressed					
	8.7.3.24	Alteration to	Relief or Check Valves or Pressure Piping or Fittings		Minor A	Minor A	see c8.6.12.5.2	
	c8.6.12.5.5.2	Replacement of	Relief or Check Valves or Pressure Piping or Fittings				Minor B	
		3.19.	replacement of relief valve or check valve or piping or fittings					
	8.7.3.24	Alteration to	Control Valves		Minor A	-	see c8.6.12.5.5	
	c8.6.12.5.5.1	Replacement of	Control Valves				Minor B	
		3.19.	replacement of control valve					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
		2.20.5	Suspension Rope Equalizers					
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.3.26	Counterweights - Addition of			-	Major		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		3.6.	Protection of Spaces below Hoistway					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		3.15.	Car Frames & Platforms					
		3.17.2	Counterweight Safeties					
		3.18.	Hydraulic Jacks					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		8.7.3.3	Location and Guarding of Counterweights					
	8.7.3.27	Car Buffers and Bumpers (oil buffer only in column 6)			Major	-	mrr	Minor B
		3.21.	Counterweights					
		3.22.2(*)	Counterweight Buffers					
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.29	Alteration to	Tanks		Minor B	-	see c8.6.12.5.6	
		3.24.	Hydraulic Machines and Tanks					
	8.7.3.29★1	★ Addition of Oil Cooler				Minor B		
			CSA C22.1					
		2.7.2	Maintenance Path and Clearance					
		DO 212/07	A.3.01(c) if buried					
	c8.6.12.5.6	Replacement of	Tanks		-	-	Minor B	
		3.24.	Hydraulic Machines and Tanks					
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
		3.25.	Terminal-Stopping Devices					
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
		3.26.2	Inspection Operation					
	DO 173/02	Addition of Top-of-Car Operating Device			-	Minor A		

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					Type of Submission Required			
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			3.26.3.2	Operation in Leveling or Truck Zone				
	8.7.3.31.3	Alteration to		Anti-Creep Leveling Device	Minor B	-		
			3.26.3.1	Anti-Creep Operation				
	c8.6.12.5.7	Replacement of		Anti-Creep Leveling Device	-	-	Minor B	
			3.26.3.1	Anti-Creep Operation				
	8.7.3.31★1	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	Inspection Operation with Open Door Circuits				
	8.7.3.31★2	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
			3.26.1	Operating Devices and Control Equipment				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6(*)	Control and Operating Circuits				
	8.7.3.31★3	★ Addition of Soft Start				Minor A		
			2.26.4.1 & 2	CSA C22.1 & B44.1 certified				
			3.26.5	Phase-Reversal and Failure Protection				
	8.7.3.31★4	★ Addition of Power Efficiency Increasing Device				Minor B		
		B44.1 certified						
			2.26.4.1 & 2	CSA C22.1 & B44.1 certified				
	8.7.3.31.5	Controllers						
	8.7.3.31.5(a)	Installation of		Elevator Controller (as part of an alteration)	Major	-	see **c8.6.12.5.3.1**	
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.10	Auxiliary Power Lowering Operation				
			3.25.	Terminal-Stopping Devices				
		★	2.7.5.2	Temperature and Humidity				
		★	3.27. (*)	Firefighters' Emergency Operation - Automatic Elevators - where required by NBCC				
				except 2.27.1 and 2.27.2				
				indicate if Manual PHI Recall is provided				
				indicate if Automatic PHI Recall by FAID's is provided				

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					Type of Submission Required			
	c8.6.12.5.3.1	Replacement of		Elevator Controller	-	-	Major	
			8.7.3.31.5(a)					
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4.1	Electrical Equipment and Wiring - Including Clearances to CSA C22.1				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.10	Auxiliary Power Lowering Operation				
			3.25.	Terminal-Stopping Devices				
		★	2.7.5.2	Temperature and Humidity				
		★	3.27. (*)	Firefighters' Emergency Operation - Automatic Elevators - where required by NBCC except 2.27.1 and 2.27.2 indicate if Manual PHI Recall is provided indicate if Automatic PHI Recall by FAID's is provided				
	8.7.3.31★5	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring Electrical testing as per the original design submission tests				
	8.7.3.31.5(b)	Installation of		Door Controller (as part of an alteration)	Minor A	-	see **c8.6.12.5.3.1**	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	c8.6.12.5.3.1	Replacement of		Door Controller	-	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			3.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC indicate if Manual PHI Recall is provided indicate if Automatic PHI Recall by FAID's is provided				
	8.7.3.31.7	Change in Type of Operation Control (CPPB, Automatic)			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			3.12.1	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			3.13.	Power Operation of H/W Doors and Car Doors				
			3.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			3.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC indicate if Manual PHI Recall is provided indicate if Automatic PHI Recall by FAID's is provided				
	8.7.3.31★6	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.13.5.4	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.31★7	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
		OBC-3.2.6.5(4) - shall not prevent floor access When on FEO						
		D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use						
		2.27.3.1.6(l)	- shall not prevent PHI					
		2.27.3.3.1(i)	- permit travel to all landings when on PH II					
		2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II					
		DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys					
	8.7.3.31.8	Emergency Operation and Signaling Devices						
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
		2.27.1	Car Emergency Signaling Devices					
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
		2.27.2	Emergency Or Standby Power systems					
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
		3.27. (*)	Emergency Operation and Signaling Devices					
			★ except 2.27.1 and 2.27.2					
			Manual PHI Recall is mandatory					
			Automatic PHI Recall by FAID's is mandatory					
	DO 175/02	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install			Minor B			
		conformance to auto recall based on F.S. at time of install						
		requirements of DO 175/02						
	DO 219/07	★ Emerg. Recall Upgrade Voluntary to Fire Code Retrofit Order 219/07			Minor B	Minor A		
		Firefighter Operation to B44-00U2 or						
		Firefighter Operation to B44-04 or						
		Firefighter Operation to B44-07						
		Manual PHI Recall is mandatory						
		Automatic PHI Recall by FAID's if required by NBCC or B44-07						
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B		
		3.26.10	Auxiliary Power Lowering Operation					
	8.7.3.31.10	Removal of emergency stop switch on passenger elevators			Minor B	Minor B		
		remove all related markings / engravings & provide an in-car stop switch to:						
		2.26.2.21	In-car stop switch					
		2.26.4.3	Positively Opened Contacts					
		2.26.9.3(a)	single failure does not render In-Car Stop Switch ineffective					
		3.26.4.2	deceleration rate <1g, anticreep must still function					
	8.7.3.31.11	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			Major	Major	mrr	Major
		if device meets 2.26.4.3.2 (PES)						
		3.26.2	Electrical Protective Devices - for specified device					
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			-	Minor A	mrr	
		if device meets 2.26.4.3.1						
		3.26.2	Electrical Protective Devices - for specified device					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
		4.1.	Rack and Pinion Elevators					
	8.7.4.2	Screw-Column Elevators			Major	-		
		4.2.	Screw-Column Elevators					
	8.7.4.3	Hand Elevators			Major	-		
	8.7.4.3.1	Hoistway Enclosures and Machinery Space			Major	-		
		4.3.1	Hoistways, H/W Enclosures, and Related Construction					
		4.3.4	Enclosures for Machines and Control Equipment					
	8.7.4.3.2	Top Car and Counterweight Clearances			Major	-		
		4.3.3	Top Clearances					
	8.7.4.3.3	Hoistway Entrances			Major	-		
		4.3.6	Hoistway Entrances					
		4.3.7	Hoistway Gates for Landing Openings					
		4.3.8	Hoistway-Door & Hoistway Gate Locking Devices					
	8.7.4.3.4	Car Enclosures			Major	-		
		4.3.9	Car Enclosures					
		4.3.11	Car Frames and Platforms					
	8.7.4.3.5	Car Frame and Platform			Major	-		
		4.3.11	Car Frames and Platforms					
		4.3.12	Car Compartments					
		4.3.13	Cars Counterbalancing One Another					
		4.3.16	Suspension Means					
	8.7.4.3.6	Capacity and Loading			Major	-		
		4.3.14.1	Minimum Rated Load					
		4.3.14.2	Capacity Plate					
		4.3.19.1	Drive Machine & Sheaves - Factors or Safety					
		4.3.19.2	Driving-Machines					
		4.3.16	Suspension Means					
	8.7.4.3.7	Increase in Rise			Major	-		
		4.3.3.1	Top Car Clearances					
		4.3.3.2	Top Counterweight Clearance					
		4.3.15	Car Safeties					
		4.3.16	Suspension Means					
	8.7.4.3.8	Guide Rails and Fastenings			Major	-		
		4.3.18.1	Guide Rails - Material and Finish					
		4.3.18.2	Strength of Rails and Fastenings					
		4.3.18.3	Extension of Guide Rails at Top & Bottom of H/W					
	8.7.4.3.9	Overhead Beams and Supports			Major	-		
		4.3.5.1	Overhead Beams and Supports					
		4.3.5.2	Access to Machines and Sheaves					
	8.7.4.3.10	Power Attachments			Major	-		

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	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-		
			5.1.	Inclined Elevators compliance to specific 5.1 sections based on alteration scope	variance			
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	8.7.5.2★1	★	8.7.2	Alterations to Electric Elevator & as modified in Section 5.2				
	8.7.5.2★2	★	8.7.3	Alterations to Hydraulic Elevator & as modified in Section 5.2				
	8.7.5.5	Power Sidewalk Elevators			Major	-		
	8.7.5.5.1	Changes in Electrical Wiring or Electrical Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
	8.7.5.5.2	Sidewalk Door			Major	-		
			5.5.1.11.2	Horizontal Openings in Sidewalks and Exterior Areas				
			5.5.1.11.3	Hinged Type Swing Sidewalk Doors				
			5.5.1.11.4	Vertical Lifting Sidewalk Covers				
	8.7.5.5.3	Change in Car Enclosure, Car Doors, and Gates			Major	-		
			5.5.1.14	Car Enclosure, Car Doors and Gates, Illumination				
	8.7.5.5.4	Bow-Irons and Stanchions			Major	-		
			5.5.1.15.2	Bow-Irons and Stanchions				
	8.7.5.5.5	Increase in Rated Load			Major	-		
			5.5.1.16	Capacity and Loading				
			5.5.1.18	Speed Governors				
			5.5.1.21	Buffers and Bumpers				
			5.5.1.25.4	Maximum Rated Speed				
	8.7.5.5.6	Increase in Rated Speed			Major	-		
			5.5.1.15	Car Frames and Platforms				
			5.5.1.16	Capacity and Loading				
			5.5.1.19	Suspension Ropes				
			5.5.1.22	Guide Rails				
	8.7.5.5.7	Existing Driving Machine			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.9	Machinery and Sheave Beams, Supports, and Foundations				
			5.5.1.23	Driving Machines and Sheaves				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.5.8	Change in Type of Operating Devices and/or Control Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.6	Rooftop Elevators			Major	-		
			5.6.	Rooftop Elevators				
	8.7.5.7	Special Purpose Personnel Elevators			see CAN/CSA B311			

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	8.7.6.1	Alterations to Escalators						
	8.7.6.1.1	Change to component parts			mrr	-	mrr	
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.1.1	Addition of Components or Devices			see 8.7.6.1		-	
				see applicable 8.7.6.1 requirements for that device				
	8.7.6.1.2	Relocation of Escalator			New	-		
			6.1.	Escalators				
	ED CAD 15.(2)	★ Repositioning of Escalator (within the same building)			Major			
			6.1.3.3.9	Guard at ceiling intersection				
			6.1.3.3.10	Anti-Slide Devices				
			6.1.3.3.11	Deck Barricades				
			6.1.3.4.3	Guards				
			6.1.3.6.6	Floor Opening Protection Adjacent to Escalator Wellway				
			6.1.3.12	Headroom				
			6.1.6.9.1	Caution Signs				
			6.1.7.4.2	certification to B44.1 does not apply				
			6.1.3.6.5	number of flat steps does not apply				
	8.7.6.1.3	Protection of Floor Openings			Minor A	-		
			6.1.1.1	Protection Required				
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.1.2.1	Protection Required				
	8.7.6.1.5	Construction Requirements						
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-		
			6.1.3.2	Geometry				
	8.7.6.1.5(c)	Any Alteration to the Balustrades			Minor A	Minor A		
			6.1.3.3	Balustrades				
			6.1.3.3.1	Construction				
			6.1.3.3.2	Strength				
			6.1.3.3.3	Use of Glass or Plastic				
			6.1.3.3.4	Interior Low Deck				
			6.1.3.3.5	Loaded Gap between Skirt & Step				
			6.1.3.3.6	Skirt Panels				
			6.1.3.3.7	Dynamic Skirt Panels				
			6.1.3.3.8	Dynamic Skirt Panel Loaded Gap				
			6.1.3.3.9	Step/Skirt Performance Index				
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.5(d)	Deflector Devices			Minor B		mrr	
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.6	Handrails or Handrail System			Minor A	-		
			6.1.3.2.2	Geometry - Handrail				
			6.1.3.4.1	Handrails - Type Required				
			6.1.3.4.2	Extension Beyond Combplate				
			6.1.3.4.3	Guards (hand or finger)				
			6.1.3.4.4	Handrails - Splicing				
			6.1.3.4.6	Handrail Clearance				
			6.1.6.3.12	Handrail Entry Device				
			6.1.6.4	Handrail Speed Monitoring Device				
	8.7.6.1★1	★ Addition of Handrail Advertising			mrr	variance		
				Variance to 6.1.6.9.2, provide maintenance program				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.1.7	Step System - any alteration to the step system			Major	-	mrr	Minor B
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5 (*)	Steps				
			6.1.3.6	Entrance and Egress Ends				
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.4	Factor of Safety - Steps				
			6.1.3.11	Chains				
			6.1.6.3.3	Broken Step-Chain Device				
			6.1.6.3.9	Step Upthrust Device				
			6.1.6.3.11	Step Level Device				
			6.1.6.3.14	Step Lateral Displacement Device				
			6.1.6.5	Missing Step Device				
	8.7.6.1.8	Combplates			Minor A	-		
			6.1.6.3.13	Comb-Step Impact Devices				
	8.7.6.1.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding - see Code Adoption Document				
			6.1.3.7	Trusses of Girders				
			6.1.3.9.1	Structural Load				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
	8.7.6.1.9	New Escalator into Existing Trusses			New	-		
			6.1.	Escalators				
	8.7.6.1.10	Step Wheel Tracks			Major	-		
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
			8.7.1.4	Welding - see Code Adoption Document				
	8.7.6.1.11	Rated Load and Speed			Major	-		
			6.1.	Escalators				
	8.7.6.1.12	Driving Machine, Motor, and Brake						
	8.7.6.1.12(a)	Driving Machine			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.4	Broken Drive-Chain Device				
			6.1.6.3.8	reversal Stop Device				
	8.7.6.1.12(b)	Driving Motor			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.2	Speed Governor				
			6.1.6.3.8	reversal Stop Device				
			6.1.6.3.10	Disconnected Motor Safety Device				
	8.7.6.1.12(c)	Machine Brake			Major	-		
			6.1.3.9.3	Brake				
			6.1.3.10.2	Factor of Safety - Driving Machine Parts				
			6.1.5.3.1	Escalator Driving-Machine Brake				

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					Type of Submission Required			
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A		
			6.1.6	Operating and Safety Devices (for that device)				
	8.7.6.1★2	★	Removal of step demarcation lights		Minor A	-	-	
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5.4	Clearance between Steps				
			6.1.3.5.5	Slotting of Steps and Treads				
			6.1.3.5.6	Step Demarcation				
			6.1.3.6.2	Distinction Between Comb and Step				
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.1.7	Lighting, Access, and Electrical Work				
	8.7.6.1.15	Entrance and Egress			Major	-		
			6.1.3.6.1	Combplates				
			6.1.3.6.2	Distinction Between Comb and Step				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
	8.7.6.1.16	Controller - Installed as part of an alteration			Major	-	-	
			6.1.6.10	Control and Operating Circuits				
			6.1.6.11	Electrically Power Safety Devices				
			6.1.6.12	Installation of Capacitors.. To Make EPD's Ineffective				
			6.1.6.13	Completion of Maintenance Circuits				
			6.1.6.14	Escalator Manual Reset				
			6.1.6.15	Contractors and Relays for Use in Critical Operating Circuits				
	8.7.6.1★3	★	Controller - Replacement of		-	-	Major	
			8.7.6.1.16	Controller				
	8.7.6.1★4	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.6.1★5	★	Addition of Soft start		-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				

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					Type of Submission Required			
	8.7.6.2	Alterations to Moving Walks						
	8.7.6.2.1	Change to component parts			mrr	-		mrr
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.2.1	Addition of Components or Devices			see 8.7.6.2			-
				see applicable 8.7.6.2 requirements for that device				
	8.7.6.2.2	Relocation of Moving Walk			New	-		
			6.2.	Moving Walks				
	8.7.6.2.3	Protection of Floor Openings			Minor A	-		
			6.2.1.1	Protection Required				
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.2.2.1	Protection of Supports - Protection Required				
	8.7.6.2.5	Construction Requirements - Angle of Inclination			Major	-		
			6.2.	Moving Walks				
	8.7.6.2.5	Construction Requirements - Geometry			Major	-		
			6.2.3.2	Geometry				
	8.7.6.2.5	Construction Requirements - Balustrades			Minor A	Minor A		
			6.2.3.3	Balustrades				
	8.7.6.2.6	Handrails			Minor A	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.4	Handrails				
			6.2.6.3.10	Handrail Entry Device				
			6.2.6.4	Handrail Speed Monitoring Device				
	8.7.6.2.7	Treadway System			Major	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.3.5	Skirtless Balustrade				
			6.2.3.3.6	Skirt Panels				
			6.2.3.5	Pallet-Type Treadway				
			6.2.3.6(*)	Belt-Type Treadway				
			6.2.3.8	Entrance and Egress Ends				
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11	Design Factors of Safety				
			6.2.3.12.4	Pallet Factor of Safety				
			6.2.3.12.5	Belt Factor of Safety				
			6.2.3.13	Chain Drives				
			6.2.6.3.3	Broken Treadway Device				
			6.2.6.5	Missing Pallet Device				
			6.2.6.3.9	Pallet Level Device				
	8.7.6.2.8	Combplates			Minor A	-		
			6.2.3.8	Entrance and Egress Ends				
			6.2.6.3.11	Comb-Pallet Impact Devices				
	8.7.6.2.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding - see Code Adoption Document				
			6.2.3.9	Supporting Structure				
			6.2.3.10.1	Structural Load				
			6.2.3.12.1	Trusses & Supports based on max static load				
	8.7.6.2.9	New Moving Walk into Existing Truss			New	-		
			6.2.	Moving Walks				
	8.7.6.2.10	Track System			Major	-		
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11.1	Trusses & Supports based on max static load				
			8.7.1.4	Welding - see Code Adoption Document				
	8.7.6.2.11	Rated Load and Speed			Major	-		
			6.2.	Moving Walks				

Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:	Type of Alteration Work: Alteration – Modification Change	Alteration – Addition	Replacement with – Same	Replacement with – Different Make/Model
			Type of Submission Required			
	8.7.6.2.12	Driving Machine	Major	-		
		6.2.3.10.2 Machinery Load				
		6.2.3.11.2 Factor of Safety for Drive Machine Parts				
		6.2.3.11.3 Factor of Safety for Power Transmission members				
		6.2.3.13 Chain Drives				
		6.2.3.14 V-Belt Drives				
		6.2.3.15 Headroom				
		6.2.4 Rated Speed				
		6.2.5.1 Connection Between Driving Machine and Main Drive Shaft				
		6.2.5.3.1 Moving Walk Driving-Machine Brakes				
		6.2.5.3.2 Main Drive Shaft Brake				
		6.2.6.3.4 Broken Drive-Chain Device				
		6.2.6.3.8 Disconnected Motor Safety Device				
	8.7.6.2.12	Drive Motor	Major	-		
		6.2.3.10.2 Machinery Load				
		6.2.3.11.2 Factor of Safety for Drive Machine Parts				
		6.2.3.11.3 Factor of Safety for Power Transmission members				
		6.2.4 Rated Speed				
		6.2.5.2 Driving Motor				
		6.2.5.3.1 Moving Walk Driving-Machine Brakes				
		6.2.6.3.2 Speed Governor				
		6.2.6.3.7 Reversal Stop Device				
		6.2.6.3.8 Disconnected Motor Safety Device				
	8.7.6.2.12	Machine Brake	Major	-		
		6.2.3.10.3 Brake				
		6.2.3.11.2 Factor of Safety for Drive Machine Parts				
		6.2.3.11.3 Factor of Safety for Power Transmission members				
		6.2.5.3.1 Moving Walk Driving-Machine Brakes				
		6.2.5.3.2 Main Drive Shaft Brake				
	8.7.6.2.13	Operating and Safety Devices	Minor A	Minor A		
		6.2.6 Operating and Safety Devices (for that device)				
	8.7.6.2.14	Lighting, Access, and Electrical Work	Minor B	Minor B		
		6.2.7 Lighting, Access, and Electrical Work				
	8.7.6.2.15	Controller - Installed as part of an alteration	Major	-	-	
		6.2.6.9 Control and Operating Circuits				
		6.2.6.10 Electrically Power Safety Devices				
		6.2.6.11 Installation of Capacitors.. To Make EPD's Ineffective				
		6.2.6.12 Completion of Maintenance Circuits				
		6.2.6.13 Moving Walk Manual Reset				
		6.2.6.14 Contractors and Relays for Use in Critical Operating Circuits				
	8.7.6.2★1	★ Controller - Replacement of	-	-	Major	
		8.7.6.1.16 Controller				
	8.7.6.2★2	Relocation of Controller (if control wiring disconnected - reconnected)	Major			
		2.8.2 Electrical Equipment and Wiring				
		Electrical testing as per the original design submission tests				
	8.7.6.2★3	★ Addition of Soft start	-	Minor A		
		for control systems built to B44-00 and later				
		6.1.7.4 Electrical Equipment and Wiring				
		6.1.6.10.1 Occurrence of a single ground				
		6.1.6.10.2 Redundancy to be checked				
		6.1.6.10.3 Motors with Static control				
		for control systems built prior to B44-00				
		6.1.7.4 Electrical Equipment and Wiring				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.7	Alterations to Dumbwaiters and Material Lifts						
	8.7.7.1	Dumbwaiters and Material Lifts Without Automatic Transfer Devices			Major	-		
		Alteration to a Power and Hand Dumbwaiters			Major	-		
			7.1.	Power and Hand Dumbwaiters				
			7.2.	Electric and Hand Dumbwaiters				
			7.3.	Hydraulic Dumbwaiters				
		Alteration to a Material Lifts			Major	-		
			7.4.	Material Lifts				
			7.5.	Electric Material Lifts				
			7.6.	Hydraulic Material Lifts				
	8.7.7.1.1	General Alterations other than 8.7.7.1.2			Major	-		
			Part 7	Dumbwaiters and Material Lifts				
	8.7.7.1.2	Increase in Rated Load			Major	-		
			7.2.(*)	Electric and Hand Dumbwaiters w/o Transfer Devices				
			7.3.(*)	Hydraulic Dumbwaiters w/o Transfer Devices				
			7.4.	Material Lifts				
			7.5.	Electric Material Lifts				
			7.6.	Hydraulic Material Lifts				
	8.7.7.2	Addition of Automatic Transfer Device			Major	-		
			Part 2	Electric Elevators				
			Part 3	Hydraulic Elevators				
	8.7.7.3.1	Material Lifts and Dumbwaiters With Automatic Transfer Devices			N/A	N/A		
				exempt if requirements of CAD 2.3(j) are met				
	8.7.7.3.2	Material Lifts and Dumbwaiters - remove Transfer Device			New	-		
			7.1. to 7.3.	for Dumbwaiters				
			7.4. to 7.6	Material Lifts w/o Transfer Devices				
	8.7.7.3.3	Material Lifts altered to an Elevator			New	-		
			Part 2	Electric Elevators				
			Part 3	Hydraulic Elevators				
	8.7.7.3.4	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W			New	-		
			7.1.	Power and Hand Dumbwaiters w/Auto Transfer Devices				
			7.2.	Electric and Hand Dumbwaiters w/o Transfer Devices				
			7.3.	Hydraulic Dumbwaiters w/o Transfer Devices				
	225/07	Alterations to Freight Platform Lifts						
	225/07	★ Alteration to a Type 'A' Freight Platform Lift			Major	-		
			7.4.	as applicable to Material Lifts Type 'B' ◆				
			7.5.	as applicable to Material Lifts Type 'B' ◆				
			7.6.	as applicable to Material Lifts Type 'B' ◆				
				◆ excluding requirements related to in-car operating devices & Riders				
	225/07	★ Alteration to a Type 'B' Freight Platform Lift			Major	-		
			7.4.	as applicable to Material Lifts Type 'B'				
			7.5.	as applicable to Material Lifts Type 'B'				
			7.6.	as applicable to Material Lifts Type 'B'				

Elevating and Amusement Devices Safety Division	Ref. No.: 226 / 07	Rev. No.: 1
DIRECTOR'S ORDER	Date: November 26, 2007	Date: March 2, 2009

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the
Technical Standards and Safety Act 2000

Subject:
- **Alterations of Elevators, Dumbwaiters, Material Lifts, Freight Platforms, Escalators and Moving Walks per the CSA B44-07 Code**
- **Procedure for Design Submissions and Inspections**

Sent to: **ALL ELEVATOR CONTRACTORS**

1. Introduction

1.1 As of January 1, 2008, Director's Order 200/05 is revoked and replaced with the requirements of Director's Order 226/07. Revision 1 of this document is effective immediately.

1.2 With the release of Elevating Devices Code Adoption (CAD) Amendment – 225/07 you have been notified that the new edition **CSA-B44-07, Safety Code for Elevators** will apply to each **newly installed or altered** elevating device for which the DESIGN is submitted to the Technical Standards and Safety Authority (TSSA) for registration on or after the 1st day of January 2008.

1.3 The requirements for alterations are in Section 8.7 and 8.6.12.5 of the new Code. Contractors are advised to study the Code requirements when any alteration is to be carried out.

1.4 The purpose of this Director's Order is to:
(a) advise which types of upgrades are classified as alterations
(b) indicate the format of the submission required, by categorizing the work as "major" or "minor A" or "minor B".
(c) supplement the adoption of B44-07 Section 8.7 "Alterations"

1.5 Attached to this Director's Order is the Alteration Checklist (similar to that provided in 200/05).
(a) Changes from the 200/05 Checklist are denoted on the new 226/07 Checklist in red text. Red text has also been used to show changes intended to provide clarity.
(b) Where changes are intended to introduce a new TSSA-specific requirement these changes are identified with a ★ on the Checklist.
(c) Where B44 requirements are impacted either by this order or by Code Adoption Amendment - 225/07, those changes are noted with pink highlight on the Alteration Checklist
(d) The changes in the Alteration Checklist related to revision 1 are shown in green text
(e) A reference to the CAD in the Alteration Checklist in column 2a is an indication that the stated requirement has been amended. Users should refer to the latest CAD Amendment #225/07 for details

2. Application

This Order applies to work carried out on those elevating devices which are the subject of the Code Adoption Document Amendment 225/07 and includes: elevators, dumbwaiters, material lifts, freight platforms, escalators, moving walks, rack and pinion elevators, screw column elevators, hand elevators, inclined elevators, LULA elevators, power sidewalk elevators, and rooftop elevators.

3. Order to Contractors Carrying out Alterations

Each alteration to an elevating device listed in section 2. Application, for which the DESIGN is submitted for registration to TSSA on or after the 1st day of January 2008, shall be carried out in accordance with this Order.

4. Definitions

(a) **"alteration":**
- i) means an alteration or replacement, removal or addition of any component or part of an elevating device that results in, or may result in, a change in the original design, inherent safety or operational characteristics of the elevating device, and "altered" has a corresponding meaning (O.Reg. 209/01);
- ii) any change to equipment, including its parts, components, and/or subsystems, other than maintenance, repair, or replacement (CSA B44-07);

(b) **alteration, as part of an:** a repair or replacement that is included with other work that is classified as an alteration (CSA B44-07);

(c) **maintenance:** means,
- i) regularly scheduled work or other action taken to ensure that an elevating device is and will remain in safe operating condition and 'maintain' has a corresponding meaning (O.Reg. 209/01);
- ii) and includes, an inspection and examination at regular intervals of all parts and functions of the elevating device (O.Reg. 209/01s.32(3));
- iii) cleaning, lubricating and adjusting all its parts at regular intervals and repairing or replacing worn or defective components in order to prevent the device from becoming unsafe for operation (O.Reg.209/01 s.32(3));
- iv) repairing or replacing damaged or broken parts (O.Reg. 209/01s.32(3));
- v) such other examinations or work as is required by this Regulation, the applicable code or standard referred to in the code adoption document or by an inspector (O.Reg. 209/01s.32(3)).
- vi) a process of routine examination, lubrication, cleaning, and adjustment of parts, components, and/or subsystems for the purpose of ensuring performance in accordance with the applicable Code requirements (CSA B44-07);

(d) **replacement:** the substitution of a device or component and/or subsystems, in its entirety, with a unit that is the same as the original for the purpose of ensuring performance in accordance with applicable Code requirements (CSA B44-07);

(e) **repair:** reconditioning or renewal of parts, components, and/or subsystems necessary to keep equipment in compliance with applicable Code requirements (CSA B44-07).

5. Alterations

5.1 Work performed on an elevating device other than worked performed as maintenance, repair, or replacement is an alteration. Part 8, Section 8.6 of the B44-07 Safety Code for Elevators deals with "Maintenance, Repair, and Replacement", while Section 8.7 of the code deals with "Alterations". This order elaborates on these requirements and includes a 33 page Alteration Checklist, which extracts the various alterations, and in table form displays a list of applicable sub-requirements. The "Alteration Checklist" also identifies the type of submission required by TSSA. (see 8 Alteration Checklist for more information about this table)

5.2 **Type of Alteration Work**

Columns 3 to 6 of the Alteration Checklist classify the type of work as one of the following types:

(a) **Alteration: Modification / Change** (column 3)
means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment.
Note that a change of the component make or model, without any other change, may constitute an alteration under this Director's Order (see item (d) below).

(b) **Alteration: Addition** (column 4)
means addition of a new component or a design feature, not previously provided e.g. addition of top-of-car operating devices.

(c) **Replacement with same** (column 5)
means the substituted device, assembly or component is the same as the original, and either;
(i) B44- Section 8.6.12.5 classifies the specific replacements as alterations and requires that the substituted component and/or the elevating device as a whole meets the specific requirements of the latest Code edition, or
(ii) this order recognizes the replacement of the noted item as an alteration, and requires an appropriate submission, as referenced in 1.4

(d) **Replacement with different make and model** (column 6)
means that the substituted device, assembly or component is the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model and this order recognizes the replacement of the noted item as an alteration, and requires an appropriate submission, as referenced in 1.4.

Note: In addition to the work described in 5.2 and listed in the Checklist, any other work performed on an elevating device that results in a change to the inherent safety or operational characteristics will constitute an alteration, even though there may be no change in the original design. The list in the attached Checklist is not all-inclusive.

6. Type of Design Submission

6.1 Based on the type of alteration work, as per 5.2 above, the Alteration Checklist provides additional information to determine the type of the submission required. The entries in the various columns may be one of the following:

Major	-	means Major alterations
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
Blanks (columns5&6)	-	work that would not constitute an alteration
mrr	-	means the designated scope of work is permitted under the requirements related to maintenance repair and replacement
n/a	-	means TSSA has permitted an exception to a compliance requirement however, if another alteration activity requires compliance to the exempted requirement, the exemption no longer applies
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
variance	-	this activity can only be considered after approval of a variance
★	-	TSSA-designated alteration or requirement
CAD	-	a reference to the CAD in the Alteration Checklist in column 2a is an indication that the stated requirement has been amended. Users should refer to the latest CAD Amendment #225/07 for details.

Note: The definitions for "major" and "minor" alterations as defined in O.Regulation 209/01 have been used. Although "Minor A" and "Minor B" are no longer defined in Ontario Regulation 209/01,in this Order we continue to use terms "Minor A" and "Minor B" in order to facilitate the needs of the contractors respecting the timing, scope and format of submissions and inspections.

7. Requirements for Design Submissions and Inspections

7.1 A design submission or notification (in the case of a Minor B) must clearly specify, for each alteration covered, whether the type of the alteration work is a "modification", or "addition", or "replacement".

7.2 Where a design submission covers alterations to more than one component or feature, which would require different types of submissions, the type of such submission will be of the "highest rank", e.g. combination of Minor B and Major will be designated as a Major alteration.

7.2.1 Major Alteration:

7.2.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

7.2.1.2 The alteration shall be inspected by TSSA prior to returning to service.

7.2.2 Minor Alteration type A and B:

7.2.1.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 30 days after returning the elevating device to service. However, contractors are advised to submit the documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.
[1]Effective January 1, 2009, the design submission shall be submitted for registration not later than 30 days after completion of a minor alteration.

7.2.1.2 Minor A and B alterations are permitted to be returned to service after work completion, however, the contractor who completed the alteration shall arrange for a "special inspection" to be carried out not later than[2] 60 days from the date of the completion of the alteration, and shall arrange for performance of tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.
[2]Effective January 1, 2009, the contractor who completed the minor alteration shall ensure that a "special inspection" has been requested within 60 days after returning the elevator to service.

7.3 Signatures

7.3.1 According to subsection 15.(6) of O.Reg 209/01, all individual documents composing the design submission for any Major or Minor A alteration shall bear the **signature and seal, or electronic equivalent, of the professional engineer** who prepared or approved the design submission.

7.3.2 In the case of Minor B alterations, an officer or director of the Company applying for registration may sign the design submission documents or the Notification, if the officer or director is a mechanic. Minor B's that are electronically transmitted shall be deemed acceptable provided that the signature box of the Minor B Notification form contains the name, designation and mechanic license number of a registered and licensed mechanic who supervised and is competent to oversee the scope of the minor B alteration. Example: Signature: John Smith, EDM-A, 00999999

7.4 Specification Forms

7.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries which are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as rope factor of safety (elec.) or cylinder column strength (hyd.)
- Sufficient details are to be provided to show compliance verification.

A list of altered components should also be summarized in box 189 (or equivalent).

7.4.2 Items which are not affected by the alterations should be noted with either:

- **N/C** or **No Change** or
- The **Original Entry** followed by **Existing.** Example Car Wt.: **1812 kg - Existing**

7.4.3 Where a "major alteration" and "minor alteration" affects only a very few items, the abridged form may be used instead of the full specification form provided clarity is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry values. (Example: 34. Rated Working Pressure: 3445 kPa)

7.4.4 Some predefined templates exist for Minor B type alterations and are available from the TSSA web site. These templates shall be utilized where appropriate to ensure all relevant entries are completed and included in the submission. Multiple Minor B notification templates may be utilized to fully cover the scope of work and only one Minor B fee shall apply.

7.5 Submitting an Alteration Checklist

7.5.1 The design submission for a Major or Minor A alteration must include an Alteration Checklist to assist in demonstrating compliance with Section 8.7 of the code or any other items listed in Column 1 of the Checklist and must clearly specify the following:

(a) The scope of the alteration as identified with an 'X' in column 0 adjacent to the primary scope of the alteration

(b) An 'x' placed in column 0, adjacent to all relevant sub requirements

7.5.2 An Alteration Checklist is not required for Minor B Notifications.

7.5.3 Sections of the Alteration Checklist, which are not included in the scope of the alteration work, should be hidden (using the row-hide feature in excel) prior to printing the Checklist, in order to reduce the number of printed pages accompanying a submission.

7.5.4 To assist our clients in completing the Alteration Checklist, TSSA will post on its Website (**www.tssa.org**) a fillable version of the Alteration Checklist in excel format (ED-226-07-xls.xls).

7.5.5 The **B44-07 reference numbers, shown in column 1 and which are** marked with 'X' in the Alterations Checklist, (also shown in **BOLD** font), are **those items that are required to be shown on the Code Data Plate** as per section 8.9 of B44.

7.5.6 A 33-page Alteration Checklist accompanies this Order.

8 Alteration Checklist

8.1 The Alteration Checklist provides information useful to contractors, submitting engineers, reviewing engineers and inspectors for determining:

- scope of the work,
- requirements associated with specified scope, including ;
  - exemptions to a requirement (where n/a is shown)
  - additional TSSA requirements (where ★ is provided)
- type of submission required (Major, Minor A, Minor B) – depending on the type of alteration work being performed

(See Fig 1)

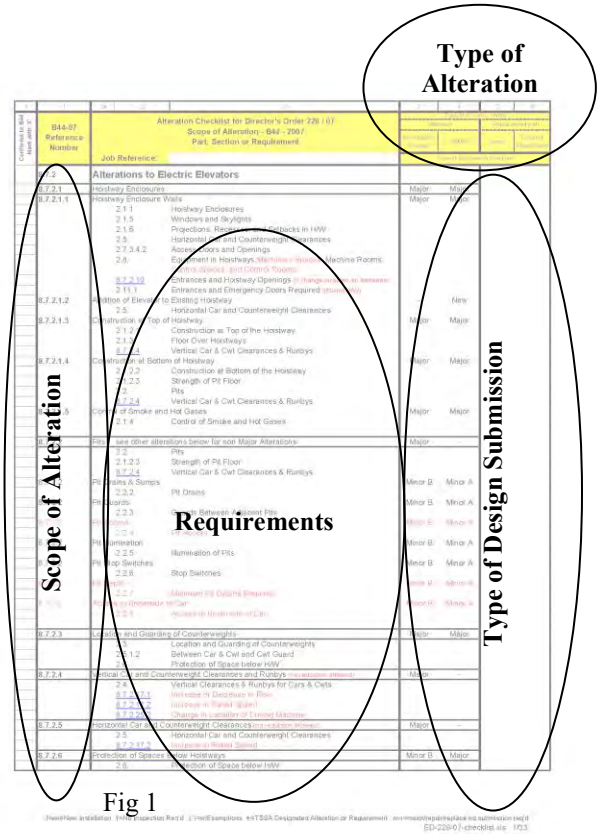

Fig 1

8.2 Parts of the Checklist (See Fig 2)

8.2.1 Column 0:

Column 0 is used to define the scope and applicable sub-requirements.

- The scope of an alteration shall be denoted by placing an 'X' adjacent to the applicable alteration section.
- Sub-requirements related to the alteration are mandatory* and shall also be identified with an 'x'.

*unless the sub requirements are unrelated to the device being altered.

8.2.2 Column 1:

Column 1 is the scope reference number, and is the same number which should appear on the alteration data tag, and

- provides either the B44-07 reference number, or
- a TSSA reference number. TSSA reference numbers are denoted as follows;
  - 8.7.2.12★1 ★1 denotes the first TSSA designated alteration under section 8.7.2.12
  - 8.7.2.12★2 ★2 denotes the second TSSA designated alteration under section 8.7.2.12
  - DO 173/02 denotes an alteration as required by the noted Directors Order
  - O.Reg 209/01s30 denotes a requirement contained in the Regulation

Note: Alterations identified with ★ are TSSA-designated alterations in addition to those specified in B44-07, or ★ items are supplemental requirements under a given alteration scope.

8.2.3 Column 2a, 2b and 2c:

Column 2 describes the scope and applicable sub requirements.

- Column 2a is the primary title of the alteration activity (e.g. interlocks)
- Column 2b is the list of sub requirements by reference number (e.g. 2.12.1, 2.12.2…)
- Column 2c is a description of the referenced sub requirement. (e.g. General, Interlocks,…)

8.2.4 Column 3, 4, 5 and 6:

The headings of Columns 3 to 6 define the "Type of Alteration Work" as Modification Change, Addition, Replacement with Same, and Replacement with Different. See 5.2 of this order.

The contents of Columns 3 to 6 define the "Type of Design Submission" as, Major Alteration, Minor A Alteration, or Minor B – Notification. See 5.3 of this order.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Submission Type Required			
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
X	8.7.2.11.1	Interlocks			Major	Major	mrr	Minor B
x			2.12.1	General				
x			2.12.2	Interlocks				
x			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
x			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
x			2.24.8.3	Driving Machine Brake				
X	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
x			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
x			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
x			8.7.2.10.5	Marking of Entrance Assemblies				
x		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
X	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
x			2.13.	Power Operation of Hoistway Doors and Car Doors				
X	DO 173/02	★ Addition of Top-of-Car Operating Device			-	Minor A		
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators				

A – indicates 8.7.2.11.1 Interlocks is part of the alteration scope
B – indicates which sub-requirements have been included (2.12.5 and 2.12.7 are excluded, ok due to specific exemption)
C – n/a denotes that TSSA has made this requirement optional (note compliance to 2.12.6 was indicated in this example)
D – specifies the submission type – In the example a Minor A alteration is required to be submitted
E – this sub-requirement, related to vertical slide entrances, was not selected as it is not applicable to the installation
F – compliance to 2.13 is a TSSA-designated supplemental requirement
G – shows two TSSA-designated alterations, one denoted as 8.7.2.12*1, the other per DO 173/02.
H – a reference to CAD on the Alteration Checklist in column 2a is an indication that the stated requirement has been amended; users should refer to the latest CAD Amendment #225/07 for details

Fig 2 – Sample Alteration Checklist

Roland Hadaller, P.Eng.

Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards & Safety Act, 2000*

This Director's Order has been developed in consultation with the TSSA Elevating Devices Advisory Council.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.2	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.2.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			2.6.	Protection of Space below H/W				
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			2.4.	Vertical Clearances & Runbys for Cars & Cwts				
			8.7.2.17.1	Increase or Decrease in Rise				
			8.7.2.17.2	Increase in Rated Speed				
			8.7.2.25.2	Change in Location of Driving Machine				
	8.7.2.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			8.7.2.17.2	Increase in Rated Speed				
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major		
			2.6.	Protection of Space below H/W				

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Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7★1	Enclosures - Control Rooms and Control Spaces						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1	General Requirements					
		2.7.3.2	Access Across Roofs					
		2.7.3.3	Means of Access					
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4	Access Doors and Openings					
		2.7.3.5	Stop Switch for Machinery Space or Control Spaces					
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4	Headroom in M/C Rooms					
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1	Lighting					
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2	Temperature & Humidity					
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms			Minor B	Minor B	mmr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.	Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) C22.1 as required					
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.	Equipment in Hoistways and Machine Rooms					
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		Building reactions increased by more than 5%						
		2.9.	Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.					
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-	Major	Major
		2.11.	Protection of H/W Openings					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	hanger /track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.12	Entrances, Vertical Slide Type				
	sills (a)		2.11.10.3	Hinged Hoistway Landing Sills	Minor B		Minor B	
			2.11.12.1	Landing Sills				
	frames (b)		2.11.12.2	Entrances Frames	Minor B		Minor B	
			8.7.2.10.5	Marking of Entrance Assemblies				
	rails (c)		2.11.12.3	Rails	mrr		mrr	
	panels (d)		2.11.12.3	Rails	Minor A		Minor A	
			2.11.12.4	Panels				
			2.11.12.5	Guides				
			2.11.12.6	Counterweighting or Counterbalancing				
			2.11.12.8	Pull Straps				
			8.7.2.10.5	Marking of Entrance Assemblies				
	guides (e)		2.11.12.5	Guides				
	sill guard (f)		2.11.12.7	Sill Guards	mrr		mrr	
	straps (g)		2.11.12.8	Pull Straps				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.13	Entrances, Swing Type				
	sills (a)		2.11.10.1	Landing-Sill Guards		Minor B	Minor B	
			2.11.10.3	Hinged Hoistway Landing Sills				
			2.11.13.1	Landing Sills				
	frames (b)		2.11.13.2	Entrance Frames		Minor B	Minor B	
			2.11.13.4	Hinges				
			8.7.2.10.5	Marking of Entrance Assemblies				
	panels (c)		2.11.13.3	Panels		Minor B	Minor B	
			2.11.13.4	Hinges				
			2.11.13.5	Marking				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hinges (d)		2.11.13.4	Hinges		mrr	mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
			8.7.2.10.5(a)	NBCC requirements				
	8.7.2.10★1	★ Removing Service To a Floor				Minor B		
				Bolt entrances shut				
				Remove Interlock From Safety String				
				If Adding Door In front Of Entrance, Gap btwn doors <=125mm				
				Remove COP Floor Button				
			2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
			2.12.7	Hoistway Access Switches - if floor was previously the access location				
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.2	Interlocks				
			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
			2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
			2.24.8.3	Driving Machine Brake				
	8.7.2.11.2	Mechanical Locks and Electric Contacts			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.3	H/W Door Combination Mechanical Locks & Contacts				
			2.12.4	Listing/Certification Locking Devices				
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8	Braking Systems & Driving Machine Brakes				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
	8.7.2.11.4	Access Switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8.3	Driving Machine Brake				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.1.4	Inspection Operation				
	8.7.2.11★1	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
			2.11.11.8	Hoistway Door Safety Retainers				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				

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					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates				
			2.13.5	Reopening Device for Power Operated Car Doors or Gates				
				if FEO provided, door opening & closing to PHI &II at time of install				
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
		CAD	2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass				
		CAD	2.14.1.8.3	Not Adopted - Type 3C in not permitted, except if mrr			mrr	
			2.14.1.8.4	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
	8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
	8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				

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					Type of Submission Required			
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials			DR 171		Minor B	DR 171
		CAD 2.14.		Car: Enclosure, Doors, Gates, Illumination enclosure material flame ratings shall not be diminished 2.14.1.7 car top railing 2.14.7.1.3 auxiliary lighting 2.14.7.1.4 car top light & outlet Directors Order 171	n/a		n/a	n/a
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
		CAD 2.14.		Car: Enclosure, Doors, Gates, Illumination 2.14.1.7 car top railing 2.14.7.1.3 auxiliary lighting 2.14.7.1.4 car top light & outlet	n/a			
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	8.7.2.14★4	★ Car Top Railing			Minor B	Minor A		
			2.14.1.7	Railing and Equipment on Top of Cars				
			2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-	Major	
			2.15.	Car Frames & Platforms				
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		record weight on Aux. Data Tag						
	DR 171/02	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		record weight on Aux. Data Tag						
		engineering assessment of related items (except 2.24.3)						
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-		
			DR 171/02	★ record weight on Aux. Data Tag				
			2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			2.15.9	Platform Guards (Aprons)				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.(*)	Driving Machines & Sheaves				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.16	Capacity, Loading, and Classification			Major	-		
	8.7.2.16.1	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.22 (*)	Buffers & Bumpers				
		CAD	2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	**railing - to the extent the existing vertical clearances allow**				
			2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.16.	Capacity & Loading				
			2.20.	Suspension Ropes & Connections				
			2.24.(*)	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices				
			2.27.1	Car Emergency Signaling Devices				
			2.27.2	Emergency or Standby Power Systems				
		CAD	**2.27.3**	Firefighters' Emergency Operation - Automatic Elevators ★				
	EP 228/07			★ see provisions of EP 228/07				
				★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided				
				★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided also				
				Phase 1 Recall & Phase 2 In-car provided **OR**				
				Phase 1 Recall only - no Phase 2 In-car provided				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
	8.7.2.16.2	Change in Class of Loading: [from any class to any other class ie A, B, C1, C2, C3]			Major	-		
			2.16.2	Minimum Rated Load for Freight Elevators				
			8.7.2.16.4	Increase in Rated Load				
	8.7.2.16.3	Carrying of Passengers on Freight Elevators			Major	-		
			2.16.4	Carrying of Passengers on Freight Elevators				
			2.16.4.1	not accessible to general public				
			2.16.4.2	rated load not less than required by 2.16.1				
			2.16.4.3	conforms to 2.16.8 Passenger Overload in Down Direction				
			2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)				
			2.16.4.5	car doors to 2.14.5 Passenger Car Doors				
			2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings				
			2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door				
			2.16.4.8	Fs for suspension ropes to Table 2.20.3				
			2.16.4.9	Power Operated vertical doors to 2.16.4.9(a) to (e)				
			★	apron guard to ED CAD or extent pit permits				
			★	2.16.5 Signs Required in Freight Elevator Cars				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.16.4	Increase in Rated Load			Major	-		
				Car doors or gates shall be provided at all car entrances				
			2.14.4	New to: Passenger & Frt Car Doors & Gates, General Req'mts				
			2.14.5	New to: Passenger Car Doors				
			2.14.6	New to: Freight Elevator Car Doors and Gates				
			2.15.(*)	Car Frames & Platforms- ★apron guard to ED CAD/as pit permits				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.	Driving Machines & Sheaves				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
	8.7.2.17	Change in Rise or Rated Speed			Major	-		
	8.7.2.17.1	Increase or Decrease in Rise			Major	-		
			2.25.	Terminal Stopping Devices				
				retain drum m/c, travel increase < 4570mm				
			2.4.(*)	Vertical Clearances & Runbys for Cars & Cwts				
				If decrease in rise is at lowest end then;				
				2.2.4 Access to Pits				
				2.2.5 Illumination of Pits				
				2.2.6 Stop Switches				
	8.7.2.17.2	Increase in Rated Speed			Major	-		
	8.7.2.17.2(a)	Increase in Rated Speed on a Winding Drum machine			Major	-		
				Increase in Rated Speed of a winding drum m/c prohibited				
			8.7.2.17.2(c)	except as permitted 8.7.2.17.2(c)				
	8.7.2.17.2(b)	Increase in Rated Speed except as per 8.7.2.17.2(c)			Major	-		
			2.4.2	Minimum Bottom Runby for Counterweighted Elevators				
			2.4.3	Minimum Bottom Runby for Uncounterweighted Elevators				
			2.4.4	Maximum Bottom Runby				
			2.4.5	Counterweight Runby Data Plate				
			2.4.6	Top Car Clearances for Counterweighted Elevators				
			2.4.7	Top Car Clearances for Uncounterweighted Elevators				
			2.4.8	Vertical Clearances with Underslung Car Frames				
			2.4.9	Top Counterweight Clearances				
			2.4.10	Overhead Clearances - w/No Overhead Beams				
			2.4.11	Equipment on Top of Car Not Permitted to Strike O/H				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.22.(*)	Buffers & Bumpers				
				Car doors or gates shall be provided at all car entrances				
		CAD	2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.16.	Capacity & Loading				
			2.24.	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.20.	Suspension Ropes & Connections				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.17.2(c)	Increase in Rated Speed less than 10% & less than 0.20m/s			Major	-		
				new spd <.75 for type A safeties				
				new spd <1 w/spring buffer, 2.18.2.1&.2				
			2.18.2.1	Car speed governors				
			2.18.2.2	counterweight speed governors				
			8.7.2.27.3	Change in Power Supply				
	8.7.2.17.3	Decrease in Rated Speed			Major	-		
			2.4.	Vertical Clearances & Runbys for Cars & Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			2.16.	Capacity & Loading				
			2.16.3(*)	Capacity and Data Plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
	8.7.2.18	Car and Counterweight Safeties			Major	Major	⇩See Below ⇩	
	8.7.2.18.1	New Car Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.2	New Cwt Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Car Safeties				-	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Cwt Safeties			Major	-	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19		2.18.	Speed Governors			mrr	Minor A
	8.7.2.19		2.17.15	Governor Rope Releasing Carriers			mrr	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
				2.18.6 Design Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
			& testing to	2.17.3 Function and Stopping Distances of Safeties				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection (ACO & UCM)			Minor A	Major	mrr	Minor A
			2.19.	Ascending Car Overspd & Unintended Car Movement Protection if part of an alteration which includes; change in motion control - 8.7.2.27.5 replacement of an Elevator Controller 8.6.12.5.3.1 or 8.7.2.27.4				
	8.7.2.20★1	★ If Elevators Controllers are pre-B44-00 & have ACO & UCM			Minor A	-	mrr	Minor A
			2.19.	ACO & UCM Protection, EXCEPT✦				
				✦ detection means to B44-M90 or the code at time of install				
			8.9.	✦ Code Data tag to reflect code at time of install				
	8.7.2.20★2	★ If Elevators Controllers are pre-B44-00 & have ACO ONLY			Minor A	-	mrr	Minor A
			2.19.1	ACO Protection Only, EXCEPT✦				
			2.19.3	Emergency Brake EXCEPT✦				
				✦ detection means to B44-M90 or the code at time of install				
			8.9.	✦ Code Data tag to reflect code at time of install				
	8.7.2.20★3	★ Voluntary Addition of Both ACO and UCM where previously not provided				Minor A		
			2.19.	ACO & UCM Protection EXCEPT✦				
				✦ detection means to B44-M90 code or later				
			2.7.	Machinery Spaces, Machine Rooms Control Spaces & Control Rooms				
				as applicable to the equipment installation				
			8.9.	✦ Code Data tag to reflect code edition used for the alteration				
	8.7.2.21	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.2.21.1	Change in Number of, or Diameter of Ropes			Major	-		
			2.20.	Suspension Ropes & Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.2.21.1	Change in Material / Grade of Ropes			Minor A	-		
			2.20.	Suspension Ropes & Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B		
			2.20.5	Suspension Rope Equalizers				
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices			Major	Major		
			2.20.	Suspension Ropes & Connections				
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
			2.21.	Counterweights				
			8.7.2.22.2	Rod Type Counterweights				
			8.7.2.3	Location and Guarding of Counterweights				
	8.7.2.22.2	Rod Type Cwt - can retain if:						
				Minimum of 2 suspension and 2 tie rods				
				Suspension rods:				
			2.21.2.1	Material - Cwt Frames & Rods				
			2.21.2.3	Factor of Safety				
				Tie Rods:				
			2.21.1.2	Retention of Weight Sections				
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.2.23	Car and Counterweight Buffers and Bumpers (oil buffer only in column 6)			Major	-	mrr	Minor B
			2.22.(*)	Buffers & Bumpers				
	8.7.2.24	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.25	Driving Machines and Sheaves			⇩ See Below ⇩			
	8.7.2.25.1	Alterations to		Driving Machines & Sheaves	Major	Major		
	8.7.2.25.1(a)	Installation of		Driving Machine Replaced (as part of an alteration)	-	-	see **8.6.12.5.2**	
			2.7.2	Maintenance Path and Clearance (★editorially omitted)				
			2.7.2.3	Maintenance Clearance in Machine Rooms & Control Rooms				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.24.	Driving Machines & Sheaves				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.1(b)	Alterations to		Driving Machine Components - affected component complies w/	Major			
			2.24.2	Sheaves and Drums			mrr	Major
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.24.5	Shafts Fillets and Keys				
			2.24.6	Cast-Iron Worms and Worm Gears				
			2.24.7	Friction Gearing and Clutches				
			2.24.8	Braking Systems & Driving Machine Brakes			mrr	Major
			2.24.9	Indirect-Driving Machines				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.1(c)	Change of		Driving Machine Sheave	Major	-	mrr	Major
			2.24.2	Sheaves and Drums				
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.20.	Suspension Ropes & Connections				
	8.6.12.5.2	Replacement of		Driving Machine	-	-	Major	
			8.7.2.25.1(a)					
			2.7.2	Maintenance Path and Clearance (★editorially omitted)				
			2.7.2.3	Access to Machinery Spaces/Rooms, Control Spaces/Rooms				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.19.	ACO & UCM Protection, Except ✦				
			✦8.7.2.20★3	if replacement is machine only, ACO / UCM w/reduced detection req'mts permitted				
			2.20.	Suspension Ropes & Connections				
			2.24.	Driving Machines & Sheaves				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.2	Change in Location of		Driving Machine	Major	-		
	8.7.2.25.2(a)	Change in Location of		Driving Machine w/ no change in Rise	Major	-		
			2.7.2	Maintenance Path and Clearance (★editorially omitted)				
			2.7.2.3	Access to Machinery Spaces/Rooms, Control Spaces/Rooms				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.24.2.3	Traction				
	8.7.2.25.2(b)	Change in Location of		Driving Machine w/ change in Rise	Major	-		
			Part 2 (*)	Electric Elevators				
			8.7.2.5	see also				
			8.7.2.10	see also				
	8.7.2.25★1	★ Replacement of worm and/or gear (specify make)			-	-	mrr	Minor A
	8.7.2.25★2	★ Addition of Machine Guarding				Minor B	mrr	mrr
			2.10.1	Guarding of Equipment				
	DSO 235/09	★ Addition of a Motor to an ERM Machine				Minor A	-	-
			2.24.3	Factors of Safety for Driving Machines				
			2.24.3.1	Factor of Safety Based on Alternating / Reversing Stresses				
			2.24.3.2	Factor of Safety at Emergency Braking				
			2.24.4	Fasteners Transmitting Load				
			2.24.4.1	Fasteners and Rigid Connections				
			2.24.5	Shafts Fillets and Keys				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.26	Terminal-Stopping Devices			Minor B	Minor B		
			2.25.	Terminal Stopping Devices				
	8.7.2.27	Operating Devices and Control Equipment				⇩ See Below ⇩		
	8.7.2.27.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
			2.26.1.4	Inspection Operation				
	DO 173/02	★	Addition of Top-of-Car Operating Device		-	Minor A		
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			2.26.1.6	Operation in Leveling or Truck Zone				
	8.7.2.27★1	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	Inspection Operation with Open Door Circuits				
	8.7.2.27★2	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				
	8.7.2.27.3	Change in Power Supply (a) voltage, frequency or # of phases or (b) AC to DC , DC to AC or (c) combination of DC & AC, then			Major	-		
		electrical to:						
			2.26.1.1	Types of Operation				
			2.26.1.2	For Car-Switch Operation Elevators				
			2.26.1.3	Add'l Operating Devices for Elevators carrying 1pc. load > than Rated				
			2.26.1.4	Inspection Operation				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.9	Control & Operating Circuits				
			2.26.10	Absorption of Regenerated Power				
		new / modified equipment and wiring to:						
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
		brakes to:						
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.8	Release and Application of Driving-Machine Brakes				
		winding drum to:						
			2.25.3.5	Additional Req'mts for Winding Drum Machines				
				see 8.7.2.17.2(b) Increase in Rated Speed				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.4	Controllers						
	8.7.2.27.4(a)	Installation of		Elevator Controller (as part of an alteration)	Major	-	see **8.6.12.5.3.1**	
		CAD	8.7.2.27.4(a)	Elevator Controller				
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4	Electrical Equipment and Wiring				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.27.2	Emergency or Standby Power systems				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★~~where required by NBCC~~				
	EP 228/07			★ see provisions of EP 228/07				
				★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided				
				★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided also				
				Phase 1 Recall & Phase 2 In-car provided **OR**				
				Phase 1 Recall only - no Phase 2 In-car provided				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				
		★	2.7.9.2	Temperature and Humidity				
	8.6.12.5.3.1	Replacement of		Elevator Controller	-	-	Major	
		CAD	8.7.2.27.4(a)	Elevator Controller				
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4	Electrical Equipment and Wiring - Including Clearances to CSA C22.1				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.27.2	Emergency or Standby Power systems				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★~~where required by NBCC~~				
	EP 228/07			★ see provisions of EP 228/07				
				★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided				
				★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided also				
				Phase 1 Recall & Phase 2 In-car provided **OR**				
				Phase 1 Recall only - no Phase 2 In-car provided				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Switch Keys				
		★	2.7.9.2	Temperature and Humidity				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.27★3	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.2.27.4(b)	Installation of		Door Controller (as part of an alteration)	Minor A	-	see **8.6.12.5.3.2**	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.6.12.5.3.2	Installation of		Door Controller	-	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR			Major	-		
		CAD	**8.7.2.27.5**	Change in Type of Motion Control				
			2.11.1**(*)**	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6**(*)**	Opening of Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.11.8	**Hoistway Door Safety Retainers**				
			2.11.12.8	**Pull Straps**				
			2.12.**(*)**	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
		CAD	2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	**railing - to the extent the existing vertical clearances allow**				
			2.16.**(*)**	Capacity & Loading				
			2.17.**(*)**	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices - where required by NBCC, **or provided voluntarily**				
			2.27.1	Car Emergency Signaling Devices				
			2.27.2	Emergency ro Standby Power Systems				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★				
	EP 228/07			★ see provisions of EP 228/07				
				★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:				
				Manual PHI Recall only is provided				
				Automatic PHI Recall by FAID's is provided				
				★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided also				
				Phase 1 Recall & Phase 2 In-car provided **OR**				
				Phase 1 Recall only - no Phase 2 In-car provided				
				~~indicate if Manual PHI Recall is provided~~				
				~~indicate if Automatic PHI Recall by FAID's is provided~~				
		★	2.7.9.2	Temperature and Humidity				

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Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC			Major	-		
		CAD	8.7.2.27.6	Change in Type of Operation Control				
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
		CAD	2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices - ★ ~~where required by NBCC~~				
			2.27.1	Car Emergency Signaling Devices				
			2.27.2	Emergency or Standby Power Systems				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★				
	EP 228/07			★ see provisions of EP 228/07				
				★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:				
				Manual PHI Recall only is provided				
				Automatic PHI Recall by FAID's is provided				
				★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided also				
				Phase 1 Recall & Phase 2 In-car provided **OR**				
				Phase 1 Recall only - no Phase 2 In-car provided				
				~~indicate if Manual PHI Recall is provided~~				
				~~indicate if Automatic PHI Recall by FAID's is provided~~				
		★	2.7.9.2	Temperature and Humidity				
	8.7.2.27★4	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.13.5.4	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				
	8.7.2.27★5	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access when on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.1.6(l)	- shall not prevent PHI				
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
			DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys				
	8.7.2.27.7	Removal of emergency stop switch on passenger elevators			Minor B	-		
				remove all related markings / engravings & provide an in-car stop switch to:				
			2.26.2.21	In-car stop switch				
		★	2.26.4.3	Positively Opened Contacts				
		★	2.26.9.3(a)	Single failure does not render In-Car Stop Sw ineffective				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.27.8	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A		
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators Manual PHI Recall is mandatory Automatic PHI Recall by FAID's is mandatory				
			2.27.4	Firefighters' Emergency Operation - Non-Automatic Elevators				
			2.27.5	Firefighters' Emergency Operation - Automatic Elevators w/Attendant				
			2.27.6	Firefighters' Emergency Operation - Inspection Operation				
			2.27.7	Firefighters' Emergency Operation - Operating Procedures				
			2.27.8	Layout Drawings ★ See ~~also~~ provisions of 175/02				
	8.7.2.28	Addition of Elevator to a Group			-	Minor A		
			2.27.	Emergency Operation & Signaling Devices ~~- Mandatory~~				
			2.27.1	Car Emergency Signaling Devices				
			2.27.2	Emergency or Standby Power Systems				
		CAD	8.7.2.28	Emergency Operation & Signaling Devices ★ FEO feature (or equivalent) matches car w/ highest FEO requirements ~~*notes re: 2.27.3 FEO for Automatic Elevators*~~ ~~Manual PHI Recall is mandatory~~ ~~Automatic PHI Recall by FAID's is mandatory~~				
	DO 175/02	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of instal conformance to auto recall based on F.S. at time of install				Minor B		
	DO 219/07	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order 219/07			Minor B	Minor A		
	EP 228/07	see provisions of EP 228/07 Firefighter Operation to B44-00U2 or Firefighter Operation to B44-04 or Firefighter Operation to B44-07 ~~Manual PHI Recall is mandatory~~ ~~Automatic PHI Recall by FAID's if required by NBCC or B44-07~~						

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Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.2	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			3.5.	Horizontal car and Counterweight Clearances				
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work: Alteration – Modification Change	Alteration – Addition	Replacement with – Same	Replacement with – Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.	Horizontal Car and Counterweight Clearances					
		8.7.3.22.1	Increase or Decrease in Rise					
		8.7.3.22.2	Increase in Rated Speed					
		8.7.3.23.5	Change in Location of Hydraulic Jack					
	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major		
		3.6.	Protection of Spaces below Hoistway					
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7★1	Enclosures - Control Rooms and Control Spaces						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		CSA C22.1	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1	General Requirements					
		2.7.3.2	Access Across Roofs					
		2.7.3.3	Means of Access					
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4	Access Doors and Openings					
		2.7.3.5	Stop Switch in O/H M/C Space in the H/W					
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4	Headroom in M/C Rooms					
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1	Lighting					
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2	Temperature & Humidity					
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts)			-	Minor B		
		also installation of Monitoring Equipment, HVAC						
		2.8.	Equipment in Hoistways and Machine Rooms					
			CSA Labeling (or equivalent)					
			C22.1 as required					
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.	Equipment in Hoistways and Machine Rooms					
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		Building reactions increased by more than 5%						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
			adequacy of building structure verified by P.Eng.					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-		
			2.11.	Protection of H/W Openings				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.12	Entrances, Vertical Slide Type					
	sills (a)	2.11.10.3	Hinged Hoistway Landing Sills		Minor B		Minor B	
		2.11.12.1	Landing Sills					
	frames (b)	2.11.12.2	Entrances Frames		Minor B		Minor B	
		8.7.2.10.5	Marking of Entrance Assemblies					
	rails (c)	2.11.12.3	Rails		mrr		mrr	
	panels (d)	2.11.12.4	Panels		Minor A		Minor A	
		2.11.12.3	Rails					
		2.11.12.5	Guides					
		2.11.12.6	Counterweighting or Counterbalancing					
		2.11.12.8	Pull Straps					
		8.7.2.10.5	Marking of Entrance Assemblies					
	guides (e)	2.11.12.5	Guides					
	sill guard (f)	2.11.12.7	Sill Guards		mrr		mrr	
	straps (g)	2.11.12.8	Pull Straps					
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.13	Entrances, Swing Type					
	sills (a)	2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.10.3	Hinged Hoistway Landing Sills					
		2.11.13.1	Landing Sills					
	frames (b)	2.11.13.2	Entrance Frames		Minor B		Minor B	
		2.11.13.4	Hinges					
		8.7.2.10.5	Marking of Entrance Assemblies					
	panels (c)	2.11.13.3	Panels		Minor B		Minor B	
		2.11.13.4	Hinges					
		2.11.13.5	Marking					
		8.7.2.10.5	Marking of Entrance Assemblies					
	hinges (d)	2.11.13.4	Hinges		mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
			Fire Protection Rating not less then existing entrance					
		8.7.2.10.5(a)	NBCC requirements					
	8.7.2.10★1	★ Removing Service To a Floor			Minor B			
			Bolt entrances shut					
			Remove Interlock From Safety String					
			If Adding Door In front Of Entrance, Gap btwn doors <=125mm					
			Remove COP Floor Button					
		2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II					
		2.12.7	Hoistway Access Switches - if floor was previously the access location					
	8.7.3.11	Hoistway Door-Locking Devices			See 8.7.2.11			
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			Major	Major	mrr	Minor B
		2.12.1	General					
		2.12.2	Interlocks					
		2.12.4	Listing/Certification Locking Devices					
		2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)				n/a	
		2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)				n/a	
		2.12.7	Hoistway Access Switches (n/a for column 5,6)				n/a	

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.11.2	Mechanical Locks and Electric Contacts			Major	Major	mrr	Minor B
			2.12.1	General				
			2.12.3	H/W Door Combination Mechanical Locks & Contacts				
			2.12.4	Listing/Certification Locking Devices				
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8	Braking Systems & Driving Machine Brakes				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
	8.7.2.11.4	Access switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
			2.24.8.3	Driving Machine Brake				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.1.4	Inspection Operation				
	8.7.2.11★1	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
			2.11.11.8	Hoistway Door Safety Retainers				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
			8.7.3.10	Hoistway Entrances and Openings				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.12★2	★ Replacement of Door Reopening Device			See 8.7.2.13			
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates				
			2.13.5	Reopening Device for Power Operated Car Doors or Gates if FEO provided, door opening & closing to PHI &II at time of install				
	8.7.3.13	Car Enclosures			See 8.7.2.14			
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
		CAD	2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass				
		CAD	2.14.1.8.3	Not Adopted - Type 3C in not permitted, except if mrr			mrr	
			2.14.1.8.4	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
	8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials			DR 171		Minor B	DR 171
		CAD 2.14.		Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing	n/a		n/a	n/a
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
				Directors Order 171				
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
		CAD 2.14.		Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing	n/a			
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	8.7.2.14★4	★ Car Top Railing			Minor B	Minor A		
			2.14.1.7	Railing and Equipment on Top of Cars				
			2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.3.14	Car Frames and Platforms			Major	-	Major	
			3.15.	Car Frames & Platforms				
	8.7.3.15	Safeties		Car or Cwt (plunger gripper see 8.7.3.23.7)	⇩ See Below ⇩			
	8.7.3.15.1	Car Safeties			-	Major	mrr	Minor A
			3.17.1	Car Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.2	Counterweight Safeties			-	Major	mrr	Minor A
			3.17.2	Counterweight Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.3	Alteration to existing Car or Counterweight Safeties			Major	-	mrr	Minor A
			3.17(*)	Car and counterweight safeties and plunger gripper				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.16	Governors and Governor Ropes					See 8.7.2.19	
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19		2.18.	Speed Governors			mrr	Minor A
	8.7.2.19		2.17.15	Governor Rope Releasing Carriers			mrr	mrr
	8.7.2.19			Governor Ropes of different material or Construction to:			Minor B	Minor B
				2.18.6 Design of Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
			& testing to	2.17.3 Function and Stopping Distances of Safeties				
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.22.(*)	Buffers & Bumpers				
			3.22.2	Counterweight Buffers				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
		CAD	2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	**railing - to the extent the existing vertical clearances allow**				
			3.15.	Car Frames & Platforms				
			3.17.	Car and Counterweight Safeties				
			3.21.	Counterweights				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			2.18.(*)	Speed Governors				
			3.16.	Capacity & Loading				
			3.18.	Hydraulic Jacks				
			3.19.	Valves, Pressure Piping, and Fittings				
			3.20.	Ropes and Rope Connections				
			3.24.	Hydraulic Machines and Tanks				
			3.25.	Terminal-Stopping Devices				
			3.26.	Operating Devices and Control Equipment				
			3.27.	Emergency Operation and Signaling Devices				
			2.27.1	Car Emergency Signaling Devices				
			2.27.2	Emergency or Standby Power Systems				
		CAD	**2.27.3**	Firefighters' Emergency Operation - Automatic Elevators ★				
				★ see provisions of EP 228/07				
	EP 228/07			★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:				
				Manual PHI Recall only is provided				
				Automatic PHI Recall by FAID's is provided				
				★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided also				
				Phase 1 Recall & Phase 2 In-car provided **OR**				
				Phase 1 Recall only - no Phase 2 In-car provided				
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
			2.16.2	Minimum Rated Load for Freight Elevators				
			3.16.	Capacity & Loading				

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Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
			3.16.4	2.16.4 except 2.16.4.3				
			2.16.4	Carrying of Passengers on Freight Elevators				
			2.16.4.1	not accessible to general public				
			2.16.4.2	rated load not less than required by 2.16.1				
			2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)				
			2.16.4.5	car doors to 2.14.5 Passenger Car Doors				
			2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings				
			2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door				
			2.16.4.8	Fs for suspension ropes to Table 2.20.3				
			2.16.4.9	Power Operated vertical doors to 2.16.4.9(a) to (e)				
			★	apron guard to ED CAD or extent pit permits				
			★	2.16.5 Signs Required in Freight Elevator Cars				
	8.7.3.20	Increase in Rated Load			Major	-		
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
		CAD	2.14.	Car: Enclosure, Doors, Gates, Illumination				
			3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			3.16.	Capacity & Loading				
			3.17.	Car and Counterweight Safeties				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			3.22.	Buffers and Bumpers				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			8.7.3.23.4	Increase in Working Pressure				
	DR 171/02	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		record weight on Aux. Data Tag						
	DR 171/02	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		record weight on Aux. Data Tag						
		engineering assessment of related items (except 2.24.3)						
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
			DR 171/02	Car: Enclosure, Doors, Gates, Illumination				
			3.14.	Car: Enclosure, Doors, Gates, Illumination	n/a			
		CAD	2.14.	Car: Enclosure, Doors, Gates, Illumination				
			3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			3.16.	Capacity & Loading				
			3.17.	Car and Counterweight Safeties				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			3.22.	Buffers and Bumpers				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.24.5	Counterweight Sheaves				
			8.7.3.23.4	Increase in Working Pressure				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.22.1	Increase or Decrease in Rise			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.4.1	Bottom Car Clearance				
			3.4.2	Minimum Bottom and Top Car Runby				
			3.4.3	Car Top and Bottom Maximum Runby				
			3.18.2	Plungers				
				If decrease in rise is at lowest end then;				
			2.2.4	Access to Pits				
			2.2.5	Illumination of Pits				
			2.2.6	Stop Switches				
	8.7.3.22.2	Increase in Rated Speed			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
		CAD	**2.14.**	Car: Enclosure, Doors, Gates, Illumination				
			3.17.(*)	Car and Counterweight Safeties				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.20.	Ropes and Rope Connections				
	8.7.3.22.3	Decrease in Rated Speed			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			3.16.	Capacity & Loading				
			3.16.3(b)	Capacity & data plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.23	Hydraulic Equipment			⇩ See Below ⇩			
	8.7.3.23.1	Alteration to		Hydraulic Jacks	Major	-		
		3.18.		Hydraulic Jacks				
	8.6.12.5.4.1	Replacement of		Hydraulic Jacks	-	-	Major	
		3.18.		Hydraulic Jacks				
	8.7.3.23.2	Alteration to		Plungers	Major	-		
		3.18.1.2		Roped-Hydraulic Elevator				
		3.18.2		Plungers				
	8.6.12.5.4.2	Replacement of		Plungers	-	-	Minor A	
		3.18.1.2		Roped-Hydraulic Elevator				
		3.18.2		Plungers				
	8.7.3.23.3	Alteration to		Cylinders	Major	-		
		3.18.3		Cylinders - Installed as part of Alteration				
		3.18.3		Cylinder is Altered				
		3.18.3		Cylinder is Sleeved	Minor B			
		3.18.4.1		Metal Stops and/or Other Means				
		3.18.1.2		Roped-Hydraulic Elevator				
		3.18.2		Plungers				
	8.6.12.5.4.3	Replacement of		Cylinders	-	-	Minor A	
		3.18.3		Cylinders - Installed as part of Alteration				
		3.18.3		Cylinder is Altered				
		3.18.3		Cylinder is Sleeved				
		3.18.4.1		Metal Stops and/or Other Means				
		3.18.1.2		Roped-Hydraulic Elevator				
		3.18.2		Plungers				
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
		3.18.(*)		Hydraulic Jacks				
		3.19.(*)		Valves, Pressure Piping, and Fittings				
		3.24.1		Marking Plates				
		3.24.2		Tanks				
		3.24.3		Atmosphere Storage and Discharge Tanks				
		3.24.4		Welding				
	8.7.3.23.5	Change in Location of Hydraulic Jack			Major	-		
		Part 3		Hydraulic Elevators				
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
		3.26.8		Pressure Switch				
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
		3.17.3		Plunger Gripper				
		3.1.1(b)		strength of pit floor				
		3.22.1		no strike when buffers compressed				
	8.7.3.24	Alteration to		Relief or Check Valves or Pressure Piping or Fittings	Minor A	Minor A	see 8.6.12.5.2	
	8.6.12.5.5.2	Replacement of		Relief or Check Valves or Pressure Piping or Fittings			Minor B	
		3.19.		replacement of relief valve or check valve or piping or fittings				
	8.7.3.24	Alteration to		Control Valves	Minor A	-	see 8.6.12.5.5	
	8.6.12.5.5.1	Replacement of		Control Valves			Minor B	
		3.19.		replacement of control valve				

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					Type of Submission Required			
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
		3.20.	Ropes and Rope Connections					
			PEO to certify retained sheaves w/different ropes are satisfactory					
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
		2.20.5	Suspension Rope Equalizers					
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.3.26	Counterweights - Addition of			-	Major		
		3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts					
		3.6.	Protection of Spaces below Hoistway					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		CAD 2.14.	Car: Enclosure, Doors, Gates, Illumination					
		3.15.	Car Frames & Platforms					
		3.17.2	Counterweight Safeties					
		3.18.	Hydraulic Jacks					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		8.7.3.3	Location and Guarding of Counterweights					
	8.7.3.27	Car Buffers and Bumpers (oil buffer only in column 6)			Major	-	mrr	Minor B
		3.21.	Counterweights					
		3.22.2(*)	Counterweight Buffers					
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.29	Alteration to	Tanks		Minor B	-	see 8.6.12.5.6	
		3.24.	Hydraulic Machines and Tanks					
	8.7.3.29★1	★ Addition of Oil Cooler				Minor B		
			CSA C22.1					
		2.7.2	Maintenance Path and Clearance					
		DO 212/07	A.3.01(c) if buried					
	8.6.12.5.6	Replacement of	Tanks		-	-	Minor B	
		3.24.	Hydraulic Machines and Tanks					
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
		3.25.	Terminal-Stopping Devices					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
		3.26.2	Inspection Operation					
	DO 173/02	Addition of Top-of-Car Operating Device			-	Minor A		
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
		3.26.3.2	Operation in Leveling or Truck Zone					
	8.7.3.31.3	Alteration to	Anti-Creep Leveling Device		Minor B	-		
		3.26.3.1	Anti-Creep Operation					
	8.6.12.5.7	Replacement of	Anti-Creep Leveling Device		-	-	Minor B	
		3.26.3.1	Anti-Creep Operation					
	8.7.3.31★1	★ Door By-Pass Switches			Minor A	Minor A		
		2.26.1.5	Inspection Operation with Open Door Circuits					
	8.7.3.31★2	★ Door Monitoring System			Minor A	Minor A		
		2.26.5	System to Prevent Auto Operation w/faulty Door Contacts					
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
		3.26.1	Operating Devices and Control Equipment					
		3.26.4	Electrical Protective Devices					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.6(*)	Control and Operating Circuits					
	8.7.3.31★3	★ Addition of Soft Start				Minor A		
		2.26.4.1 & 2	CSA C22.1 & B44.1 certified					
		3.26.5	Phase-Reversal and Failure Protection					
	8.7.3.31★4	★ Addition of Power Efficiency Increasing Device				Minor B		
		B44.1 certified						
		2.26.4.1 & 2	CSA C22.1 & B44.1 certified					
	8.7.3.31.5	Controllers						
	8.7.3.31.5(a)	Installation of	Elevator Controller (as part of an alteration)		Major	-	see **8.6.12.5.3.1**	
		2.26.1.4	Inspection Operation					
		2.26.1.5	Inspection Operation with Open Door Circuits					
		2.26.4.1	Electrical Equipment and Wiring					
		2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling					
		2.26.4.3	Positively Opened Contacts					
		2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts					
		2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective					
		3.26.2	Inspection Operation					
		3.26.3	Anti-Creep and Leveling Operation					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.7	Recycling Operation for Multiple or Telescopic Plungers					
		3.26.10	Auxiliary Power Lowering Operation					
		3.25.	Terminal-Stopping Devices					
		★ 2.7.9.2	Temperature and Humidity					
		★ 3.27. (*)	Firefighters' Emergency Operation - Automatic Elevators - ~~where required by NBCC~~					
			except 2.27.1 and 2.27.2					
		CAD 2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★					
			★ see provisions of EP 228/07					
			★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:					
			Manual PHI Recall only is provided					
			Automatic PHI Recall by FAID's is provided					
			★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:					
			Manual PHI Recall is provided					
			Automatic PHI Recall by FAID's is provided also					
			Phase 1 Recall & Phase 2 In-car provided **OR**					
			Phase 1 Recall only - no Phase 2 In-car provided					
			~~indicate if Manual PHI Recall is provided~~					
			~~indicate if Automatic PHI Recall by FAID's is provided~~					

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.6.12.5.3.1	Replacement of		Elevator Controller	-	-	Major	
			8.7.3.31.5(a)					
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.4.1	Electrical Equipment and Wiring - Including Clearances to CSA C22.1				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.10	Auxiliary Power Lowering Operation				
			3.25.	Terminal-Stopping Devices				
		★	2.7.9.2	Temperature and Humidity				
		★	3.27. (*)	Firefighters' Emergency Operation - Automatic Elevators - ~~where required by NBCC~~ except 2.27.1 and 2.27.2				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★ ★ see provisions of EP 228/07 ★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via: Manual PHI Recall only is provided Automatic PHI Recall by FAID's is provided ★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided: Manual PHI Recall is provided Automatic PHI Recall by FAID's is provided also Phase 1 Recall & Phase 2 In-car provided **OR** Phase 1 Recall only - no Phase 2 In-car provided ~~indicate if Manual PHI Recall is provided~~ ~~indicate if Automatic PHI Recall by FAID's is provided~~				
	8.7.3.31★5	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring Electrical testing as per the original design submission tests				
	8.7.3.31.5(b)	Installation of		Door Controller (as part of an alteration)	Minor A	-	see **8.6.12.5.3.1**	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.6.12.5.3.1	Replacement of		Door Controller	-	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			3.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC, **or provided voluntarily**				
			2.27.1	Car Emergency Signaling Devices				
			2.27.2	Emergency or Standby Power Systems				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★ ★ see provisions of EP 228/07 ★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via: Manual PHI Recall only is provided Automatic PHI Recall by FAID's is provided ★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided: Manual PHI Recall is provided Automatic PHI Recall by FAID's is provided also Phase 1 Recall & Phase 2 In-car provided **OR** Phase 1 Recall only - no Phase 2 In-car provided ~~indicate if Manual PHI Recall is provided~~ ~~indicate if Automatic PHI Recall by FAID's is provided~~				

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Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.7	Change in Type of Operation Control (CPPB, Automatic)			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			3.12.1	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			3.13.	Power Operation of H/W Doors and Car Doors				
			3.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
		CAD	2.14.	Car: Enclosure, Doors, Gates, Illumination				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			3.27.	Emergency Operation & Signaling Devices - ★ where required by NBCC, **or provided voluntarily**				
			2.27.1	Car Emergency Signaling Devices				
			2.27.2	Emergency or Standby Power Systems				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators - ★				
				★ see provisions of EP 228/07				
				★ to the same level of activation (or greater) as required by NBCC at time of original installation, Activation is via:				
				Manual PHI Recall only is provided				
				Automatic PHI Recall by FAID's is provided				
				★ if voluntarily provided (not required by NBCC or Fire Code) Activation is via / Feature Provided:				
				Manual PHI Recall is provided				
				Automatic PHI Recall by FAID's is provided also				
				Phase 1 Recall & Phase 2 In-car provided **OR**				
				Phase 1 Recall only - no Phase 2 In-car provided				
				~~indicate if Manual PHI Recall is provided~~				
				~~indicate if Automatic PHI Recall by FAID's is provided~~				
		★	2.7.9.2	Temperature and Humidity				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.3.31★6	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.13.5.4	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				
	8.7.3.31★7	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access When on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.1.6(l)	- shall not prevent PHI				
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
			DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys				
	8.7.3.31.8	Emergency Operation and Signaling Devices						
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
			3.27. (*)	Emergency Operation and Signaling Devices				
		CAD	2.27.3	Firefighters' Emergency Operation - Automatic Elevators★				
				★ except 2.27.1 and 2.27.2				
				Manual PHI Recall is mandatory				
				Automatic PHI Recall by FAID's is mandatory				
	DO 175/02	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of instal			Minor B			
				conformance to auto recall based on F.S. at time of install				
				requirements of DO 175/02				
	DO 219/07	★ Emerg. Recall Upgrade Voluntary to Fire Code Retrofit Order 219/07			Minor B	Minor A		
	EP 228/07			see provisions of EP 228/07				
				Firefighter Operation to B44-00U2 or				
				Firefighter Operation to B44-04 or				
				Firefighter Operation to B44-07				
				~~Manual PHI Recall is mandatory~~				
				~~Automatic PHI Recall by FAID's if required by NBCC or B44-07~~				
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B		
			3.26.10	Auxiliary Power Lowering Operation				
				include testing procedure				
	8.7.3.31.10	Removal of emergency stop switch on passenger elevators			Minor B	Minor B		
				remove all related markings / engravings & provide an in-car stop switch to:				
			2.26.2.21	In-car stop switch				
			2.26.4.3	Positively Opened Contacts				
			2.26.9.3(a)	single failure does not render In-Car Stop Switch ineffective				
			3.26.4.2	deceleration rate <1g, anticreep must still function				
	8.7.3.31.11	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			Major	Major	mrr	Major
				if device meets 2.26.4.3.2 (PES)				
			3.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			-	Minor A	mrr	
				if device meets 2.26.4.3.1				
			3.26.2	Electrical Protective Devices - for specified device				

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Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
			4.1.	Rack and Pinion Elevators				
	8.7.4.2	Screw-Column Elevators			Major	-		
			4.2.	Screw-Column Elevators				
	8.7.4.3	Hand Elevators			Major	-		
	8.7.4.3.1	Hoistway Enclosures and Machinery Space			Major	-		
			4.3.1	Hoistways, H/W Enclosures, and Related Construction				
			4.3.4	Enclosures for Machines and Control Equipment				
	8.7.4.3.2	Top Car and Counterweight Clearances			Major	-		
			4.3.3	Top Clearances				
	8.7.4.3.3	Hoistway Entrances			Major	-		
			4.3.6	Hoistway Entrances				
			4.3.7	Hoistway Gates for Landing Openings				
			4.3.8	Hoistway-Door & Hoistway Gate Locking Devices				
	8.7.4.3.4	Car Enclosures			Major	-		
			4.3.9	Car Enclosures				
			4.3.11	Car Frames and Platforms				
	8.7.4.3.5	Car Frame and Platform			Major	-		
			4.3.11	Car Frames and Platforms				
			4.3.12	Car Compartments				
			4.3.13	Cars Counterbalancing One Another				
			4.3.16	Suspension Means				
	8.7.4.3.6	Capacity and Loading			Major	-		
			4.3.14.1	Minimum Rated Load				
			4.3.14.2	Capacity Plate				
			4.3.19.1	Drive Machine & Sheaves - Factors or Safety				
			4.3.19.2	Driving-Machines				
			4.3.16	Suspension Means				
	8.7.4.3.7	Increase in Rise			Major	-		
			4.3.3.1	Top Car Clearances				
			4.3.3.2	Top Counterweight Clearance				
			4.3.15	Car Safeties				
			4.3.16	Suspension Means				
	8.7.4.3.8	Guide Rails and Fastenings			Major	-		
			4.3.18.1	Guide Rails - Material and Finish				
			4.3.18.2	Strength of Rails and Fastenings				
			4.3.18.3	Extension of Guide Rails at Top & Bottom of H/W				
	8.7.4.3.9	Overhead Beams and Supports			Major	-		
			4.3.5.1	Overhead Beams and Supports				
			4.3.5.2	Access to Machines and Sheaves				
	8.7.4.3.10	Power Attachments			Major	-		

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-		
			5.1.	Inclined Elevators				
				compliance to specific 5.1 sections based on alteration scope	variance			
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	8.7.5.2★1	★	8.7.2	Alterations to Electric Elevator & as modified in Section 5.2				
	8.7.5.2★2	★	8.7.3	Alterations to Hydraulic Elevator & as modified in Section 5.2				
	8.7.5.5	Power Sidewalk Elevators			Major	-		
	8.7.5.5.1	Changes in Electrical Wiring or Electrical Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
	8.7.5.5.2	Sidewalk Door			Major	-		
			5.5.1.11.2	Horizontal Openings in Sidewalks and Exterior Areas				
			5.5.1.11.3	Hinged Type Swing Sidewalk Doors				
			5.5.1.11.4	Vertical Lifting Sidewalk Covers				
	8.7.5.5.3	Change in Car Enclosure, Car Doors, and Gates			Major	-		
			5.5.1.14	Car Enclosure, Car Doors and Gates, Illumination				
	8.7.5.5.4	Bow-Irons and Stanchions			Major	-		
			5.5.1.15.2	Bow-Irons and Stanchions				
	8.7.5.5.5	Increase in Rated Load			Major	-		
			5.5.1.16	Capacity and Loading				
			5.5.1.18	Speed Governors				
			5.5.1.21	Buffers and Bumpers				
			5.5.1.25.4	Maximum Rated Speed				
	8.7.5.5.6	Increase in Rated Speed			Major	-		
			5.5.1.15	Car Frames and Platforms				
			5.5.1.16	Capacity and Loading				
			5.5.1.19	Suspension Ropes				
			5.5.1.22	Guide Rails				
	8.7.5.5.7	Existing Driving Machine			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.9	Machinery and Sheave Beams, Supports, and Foundations				
			5.5.1.23	Driving Machines and Sheaves				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.5.8	Change in Type of Operating Devices and/or Control Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.6	Rooftop Elevators			Major	-		
			5.6.	Rooftop Elevators				
	8.7.5.7	Special Purpose Personnel Elevators			see CAN/CSA B311			

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Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.1	Alterations to Escalators						
	8.7.6.1.1	Change to component parts			mrr	-		mrr
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.1.1	Addition of Components or Devices			see 8.7.6.1			-
				see applicable 8.7.6.1 requirements for that device				
	8.7.6.1.2	Relocation of Escalator			New	-		
			6.1.	Escalators				
	ED CAD 15.(2)	★ Repositioning of Escalator (within the same building)			Major			
			6.1.3.3.11	Guard at ceiling intersection				
			6.1.3.3.12	Anti-Slide Devices				
			6.1.3.3.13	Deck Barricades				
			6.1.3.4.3	Guards				
			6.1.3.6.6	Floor Opening Protection Adjacent to Escalator Wellway				
			6.1.3.12	Headroom				
			6.1.6.9.1	Caution Signs				
			6.1.7.4.2	certification to B44.1 does not apply				
			6.1.3.6.5	number of flat steps does not apply				
	8.7.6.1.3	Protection of Floor Openings			Minor A	-		
			6.1.1.1	Protection Required				
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.1.2.1	Protection Required				
	8.7.6.1.5	Construction Requirements						
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-		
			6.1.3.2	Geometry				
	8.7.6.1.5(c)	Any Alteration to the Balustrades			Minor A	Minor A		
			6.1.3.3	Balustrades				
			6.1.3.3.1	Construction				
			6.1.3.3.2	Strength				
			6.1.3.3.3	Use of Glass or Plastic				
			6.1.3.3.4	Interior Low Deck				
			6.1.3.3.5	Loaded Gap between Skirt & Step				
			6.1.3.3.6	Skirt Panels				
			6.1.3.3.7	Dynamic Skirt Panels				
			6.1.3.3.8	Dynamic Skirt Panel Loaded Gap				
			6.1.3.3.9	Step/Skirt Performance Index				
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.5(d)	Deflector Devices			Minor B			mrr
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.6	Handrails or Handrail System			Minor A	-		
			6.1.3.2.2	Geometry - Handrail				
			6.1.3.4.1	Handrails - Type Required				
			6.1.3.4.2	Extension Beyond Combplate				
			6.1.3.4.3	Guards (hand or finger)				
			6.1.3.4.4	Handrails - Splicing				
			6.1.3.4.6	Handrail Clearance				
			6.1.6.3.12	Handrail Entry Device				
			6.1.6.4	Handrail Speed Monitoring Device				
	8.7.6.1★1	★ Addition of Handrail Advertising			mrr	variance		
				Variance to 6.1.6.9.2, provide maintenance program				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.6.1.7	Step System - any alteration to the step system			Major	-	mrr	Minor B
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5 (*)	Steps				
			6.1.3.6	Entrance and Egress Ends				
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.4	Factor of Safety - Steps				
			6.1.3.11	Chains				
			6.1.6.3.3	Broken Step-Chain Device				
			6.1.6.3.9	Step Upthrust Device				
			6.1.6.3.11	Step Level Device				
			6.1.6.3.14	Step Lateral Displacement Device				
			6.1.6.5	Missing Step Device				
	8.7.6.1.8	Combplates			Minor A	-		
			6.1.6.3.13	Comb-Step Impact Devices				
	8.7.6.1.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding - see Code Adoption Document				
			6.1.3.7	Trusses of Girders				
			6.1.3.9.1	Structural Load				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
	8.7.6.1.9	New Escalator into Existing Trusses			New	-		
			6.1.	Escalators				
	8.7.6.1.10	Step Wheel Tracks			Major	-		
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
			8.7.1.4	Welding - see Code Adoption Document				
	8.7.6.1.11	Rated Load and Speed			Major	-		
			6.1.	Escalators				
	8.7.6.1.12	Driving Machine, Motor, and Brake						
	8.7.6.1.12(a)	Driving Machine			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.4	Broken Drive-Chain Device				
			6.1.6.3.8	reversal Stop Device				
	8.7.6.1.12(b)	Driving Motor			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.2	Speed Governor				
			6.1.6.3.8	reversal Stop Device				
			6.1.6.3.10	Disconnected Motor Safety Device				
	8.7.6.1.12(c)	Machine Brake			Major	-		
			6.1.3.9.3	Brake				
			6.1.3.10.2	Factor of Safety - Driving Machine Parts				
			6.1.5.3.1	Escalator Driving-Machine Brake				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement**			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
		Job Reference:			Type of Submission Required			
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A		
			6.1.6	Operating and Safety Devices (for that device)				
	8.7.6.1★2	★		Removal of step demarcation lights	Minor A	-	-	
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5.4	Clearance between Steps				
			6.1.3.5.5	Slotting of Steps and Treads				
			6.1.3.5.6	Step Demarcation				
			6.1.3.6.2	Distinction Between Comb and Step				
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.1.7	Lighting, Access, and Electrical Work				
	8.7.6.1.15	Entrance and Egress			Major	-		
			6.1.3.6.1	Combplates				
			6.1.3.6.2	Distinction Between Comb and Step				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
	8.7.6.1.16	Controller - Installed as part of an alteration			Major	-	-	
			6.1.6.10	Control and Operating Circuits				
			6.1.6.11	Electrically Power Safety Devices				
			6.1.6.12	Installation of Capacitors.. To Make EPD's Ineffective				
			6.1.6.13	Completion of Maintenance Circuits				
			6.1.6.14	Escalator Manual Reset				
			6.1.6.15	Contractors and Relays for Use in Critical Operating Circuits				
	8.7.6.1★3	★		Controller - Replacement of	-	-	Major	
			8.7.6.1.16	Controller				
	8.7.6.1★4	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.6.1★5	★		Addition of Soft start	-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.2	Alterations to Moving Walks						
	8.7.6.2.1	Change to component parts			mrr	-		mrr
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.2.1	Addition of Components or Devices			see 8.7.6.2			-
				see applicable 8.7.6.2 requirements for that device				
	8.7.6.2.2	Relocation of Moving Walk			New	-		
			6.2.	Moving Walks				
	8.7.6.2.3	Protection of Floor Openings			Minor A	-		
			6.2.1.1	Protection Required				
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.2.2.1	Protection of Supports - Protection Required				
	8.7.6.2.5	Construction Requirements - Angle of Inclination			Major	-		
			6.2.	Moving Walks				
	8.7.6.2.5	Construction Requirements - Geometry			Major	-		
			6.2.3.2	Geometry				
	8.7.6.2.5	Construction Requirements - Balustrades			Minor A	Minor A		
			6.2.3.3	Balustrades				
	8.7.6.2.6	Handrails			Minor A	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.4	Handrails				
			6.2.6.3.10	Handrail Entry Device				
			6.2.6.4	Handrail Speed Monitoring Device				
	8.7.6.2.7	Treadway System			Major	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.3.5	Skirtless Balustrade				
			6.2.3.3.6	Skirt Panels				
			6.2.3.5	Pallet-Type Treadway				
			6.2.3.6(*)	Belt-Type Treadway				
			6.2.3.8	Entrance and Egress Ends				
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11	Design Factors of Safety				
			6.2.3.12.4	Pallet Factor of Safety				
			6.2.3.12.5	Belt Factor of Safety				
			6.2.3.13	Chain Drives				
			6.2.6.3.3	Broken Treadway Device				
			6.2.6.5	Missing Pallet Device				
			6.2.6.3.9	Pallet Level Device				
	8.7.6.2.8	Combplates			Minor A	-		
			6.2.3.8	Entrance and Egress Ends				
			6.2.6.3.11	Comb-Pallet Impact Devices				
	8.7.6.2.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding - see Code Adoption Document				
			6.2.3.9	Supporting Structure				
			6.2.3.10.1	Structural Load				
			6.2.3.12.1	Trusses & Supports based on max static load				
	8.7.6.2.9	New Moving Walk into Existing Truss			New	-		
			6.2.	Moving Walks				
	8.7.6.2.10	Track System			Major	-		
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11.1	Trusses & Supports based on max static load				
			8.7.1.4	Welding - see Code Adoption Document				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-07 Reference Number**	**Alteration Checklist for Director's Order 226 / 07-r1** **Scope of Alteration - B44 - 2007** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.2.11	Rated Load and Speed			Major	-		
			6.2.	Moving Walks				
	8.7.6.2.12	Driving Machine			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.3.13	Chain Drives				
			6.2.3.14	V-Belt Drives				
			6.2.3.15	Headroom				
			6.2.4	Rated Speed				
			6.2.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
			6.2.6.3.4	Broken Drive-Chain Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Drive Motor			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.4	Rated Speed				
			6.2.5.2	Driving Motor				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.6.3.2	Speed Governor				
			6.2.6.3.7	Reversal Stop Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Machine Brake			Major	-		
			6.2.3.10.3	Brake				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
	8.7.6.2.13	Operating and Safety Devices			Minor A	Minor A		
			6.2.6	Operating and Safety Devices (for that device)				
	8.7.6.2.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.2.7	Lighting, Access, and Electrical Work				
	8.7.6.2.15	Controller - Installed as part of an alteration			Major	-	-	
			6.2.6.9	Control and Operating Circuits				
			6.2.6.10	Electrically Power Safety Devices				
			6.2.6.11	Installation of Capacitors.. To Make EPD's Ineffective				
			6.2.6.12	Completion of Maintenance Circuits				
			6.2.6.13	Moving Walk Manual Reset				
			6.2.6.14	Contractors and Relays for Use in Critical Operating Circuits				
	8.7.6.2★1	★	Controller - Replacement of		-	-	Major	
			8.7.6.1.16	Controller				
	8.7.6.2★2	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.6.2★3	★	Addition of Soft start		-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-07 Reference Number	Alteration Checklist for Director's Order 226 / 07-r1 Scope of Alteration - B44 - 2007 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.7	Alterations to Dumbwaiters and Material Lifts						
	8.7.7.1	Dumbwaiters and Material Lifts Without Automatic Transfer Devices			Major	-		
		Alteration to a Power and Hand Dumbwaiters			Major	-		
			7.1.	Power and Hand Dumbwaiters				
			7.2.	Electric and Hand Dumbwaiters				
			7.3.	Hydraulic Dumbwaiters				
		Alteration to a Material Lifts			Major	-		
			7.4.	Material Lifts				
			7.5.	Electric Material Lifts				
			7.6.	Hydraulic Material Lifts				
	8.7.7.1.1	General Alterations other than 8.7.7.1.2			Major	-		
			Part 7	Dumbwaiters and Material Lifts				
	8.7.7.1.2	Increase in Rated Load			Major	-		
			7.2.(*)	Electric and Hand Dumbwaiters w/o Transfer Devices				
			7.3.(*)	Hydraulic Dumbwaiters w/o Transfer Devices				
			7.4.	Material Lifts				
			7.5.	Electric Material Lifts				
			7.6.	Hydraulic Material Lifts				
	8.7.7.2	Addition of Automatic Transfer Device			Major	-		
			Part 2	Electric Elevators				
			Part 3	Hydraulic Elevators				
	8.7.7.3.1	Material Lifts and Dumbwaiters With Automatic Transfer Devices			N/A	N/A		
				exempt if requirements of CAD 2.3(j) are met				
	8.7.7.3.2	Material Lifts and Dumbwaiters - remove Transfer Device			New	-		
			7.1. to 7.3.	for Dumbwaiters				
			7.4. to 7.6	Material Lifts w/o Transfer Devices				
	8.7.7.3.3	Material Lifts altered to an Elevator			New	-		
			Part 2	Electric Elevators				
			Part 3	Hydraulic Elevators				
	8.7.7.3.4	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W			New	-		
			7.1.	Power and Hand Dumbwaiters w/Auto Transfer Devices				
			7.2.	Electric and Hand Dumbwaiters w/o Transfer Devices				
			7.3.	Hydraulic Dumbwaiters w/o Transfer Devices				
	225/07	Alterations to Freight Platform Lifts						
	225/07	★ Alteration to a Type 'A' Freight Platform Lift			Major	-		
			7.4.	as applicable to Material Lifts Type 'B' ✦				
			7.5.	as applicable to Material Lifts Type 'B' ✦				
			7.6.	as applicable to Material Lifts Type 'B' ✦				
				✦ excluding requirements related to in-car operating devices & Riders				
	225/07	★ Alteration to a Type 'B' Freight Platform Lift			Major	-		
			7.4.	as applicable to Material Lifts Type 'B'				
			7.5.	as applicable to Material Lifts Type 'B'				
			7.6.	as applicable to Material Lifts Type 'B'				

Elevating and Amusement Devices Safety Division	Ref. No.: 227 / 07	Rev. No.:
Information / Interpretation Bulletin	Date: July 3, 2007	Date:

Subject: Replacement of ThyssenKrupp Traction Sheave Brake or Sheave Jammer in relation to Director's Safety Order 207/06 revision 1 (December 5,2006)

Sent to: All elevating device contractors, consultants and mechanics

1.0 Introduction

a) This bulletin is intended to remind all contractors and maintenance personnel, of the requirements to replace all ThyssenKrupp Northern Elevator sheave brakes (sheave jammer) **no later than August 1, 2007** as per Director's Safety Order 207/06 revision 1. It is also intended to advise industry members and owners of the process to follow in the event that they are unable to meet the **August 1, 2007 deadline** due to back ordered replacement devices.

b) Contractors and Owners are reminded that devices which are not in compliance with Directors' Safety Order 207/06 rev. 1 **OR** have not applied for a variance as detailed in Section 2.0 below by **August 1st 2007**, must remove their elevating device(s) from service.

2.0 Variance Application - Instructions to Owners and or Contractors

Owners or contractors who have a signed contract or purchase order for the replacement of the sheave jammer may apply to the Director for a variance in which they may request an extension to the deadline. The application for variance shall include the following:

a) A completed and signed Variance Application form. The application must indicate why the August 1st, 2007 deadline cannot be met as well as the date the equipment is expected to be received and the date by which it will be installed and fully operational. Given the original deadline has not been met, it is expected that the completion date shown on the variance application will be as soon as possible after the equipment is received. Copies of the Application for Variance are available on the TSSA website: http://www.tssa.org/regulated/elevating/elevatingForms.asp

b) A copy of the purchase order or contract between the owner and elevator contractor. Pricing may be deleted or blacked out.

c) A copy of the "**Traction Sheave Brake (Sheave Jammer) Maintenance Log"** (page 8 of Director's Safety Order 192/05 rev. 2) with the result of no less than last two quarterly tests with pass results (requirement 2.5 of Director's Safety Order 192/05) showing the current sheave jammer is being maintained to optimum levels, to provide mitigation of hazards while the replacement order is delayed.

d) A statement from the owner and the maintaining contractor indicating that they will continue to conduct quarterly testing and monthly maintenance of the existing sheave jammer as required by in Director's Safety Order 192/05 rev. 2 until such time as all requirements of Director's Safety Order 207/06 rev. 1 have been met.

3.0 Prior to Completion of Work

Contractors are reminded that prior to requesting an on site inspection for the replacement of the sheave jammer, the contractor is required to:

a) submit a Minor A Alteration to TSSA not later than 10 working days, and arrange for a "special inspection" to be carried out not later than 60 days after, for a performance test in the presence of a TSSA.
b) include in the minor A submission those items listed in Section 2.2 of Director's Safety Order 207/06 rev. 1

Rob Kremer, P. Eng.,
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

Elevating and Amusement Devices Safety Division	Ref. No.: 228 / 07	Rev. No.:
Enforcement Procedure Bulletin	Date: October 1, 2007	Date:

Subject: TSSA Enforcement Procedure and Minimum Requirements for Activation of Firefighters' Emergency Operation (FEO) on Elevators subjected to an Alteration

Sent to: Elevator Contractors, Mechanics and Inspectors

1. INTRODUCTION

An increasing number of elevator installations are being altered in existing buildings and in many cases include an upgrade to current code requirements for Firefighters' Emergency Operation. The following procedure has been prepared to provide guidance to elevator inspectors when completing inspections **on altered installations where activation of FEO is through various fire alarm initiating devices (FAID's) connected to the building fire alarm system** and to inform contractors and mechanics of the minimum requirements for these types of installations.

This enforcement procedure is only to be used when performing an inspection on an alteration to an existing elevating device.

* See Appendix A for Definitions of terms used in this Bulletin.

2. ISSUE

When completing initial inspections on altered devices inspectors are finding various fire alarm initiating devices (FAID) hooked up to the fire alarm system. Section 2.27.3.2.2(a) of CSA B44 Safety Code for Elevators stipulates that automatic recall shall activate if initiated by a smoke detector or the building fire alarm system.

The confusion is in the text that states or the building fire alarm system, this interpretation will help to create consistency on alteration inspections.

3. INTERPRETATION & ENFORCEMENT

The following must be met in order to have **automatic recall**:

- If the building is equipped with a sprinkler system on every floor;
  - it is acceptable to allow the buildings fire system pressure switch to recall the elevators,
  - the buildings fire system pressure shall be tested at the time of inspection.
- If the machine room has a sprinkler;
  - a smoke detector must be provided as per the CSA B44 code.
- If the building is equipped with hall pull stations at every floor;
  - there must as a minimum be a smoke detector at the main floor that will send the elevator to the alternate recall level.
  - **the pull station at the main recall level, although part of the building fire alarm system shall not recall the elevators.**

Note: FEO testing will be per the applicable FEO checklist.

The inspector must keep in mind that a combination of the above mentioned may be encountered. There are currently proposed changes before the code committee that will stipulate that every floor must have a dedicated smoke detector or heat detector where the environment is not suitable for smoke detectors.

4. RATIONALE

This enforcement procedure will eliminate the possibility of the elevator being recalled to the designated landing by a pull station at the designated landing in the event that the designated landing is the fire floor and cause the elevator to recall to an alternate level as a result of dedicated smoke detector.

To ensure that initiation of Phase 1 operation is by automatic means and that pull-stations are not used at the designated landing on existing buildings. Pull stations are not deemed to be fire detectors.

5. EFFECTIVE DATE

This enforcement procedure is effective immediately.

Rob Kremer, Engineering Manager
EDAD Program

Roger Neate, Operations Manager
EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

APPENDIX – A

Definitions and references

CSA B44-04 Requirement 2.27.3.2.2

In jurisdictions enforcing the NBCC, automatic Emergency Recall Operation shall be permitted when the following devices, complying with the requirements in the NBCC, initiate the operation:
(a) smoke detectors installed in each elevator lobby, or the building fire alarm system
(b) smoke detectors installed in the elevator lobby at the designated level, if that floor area is not sprinklered throughout
(c) smoke detectors installed in the machine room if the machine room is sprinklered

Fire Alarm Initiating Devices are referred to as fire detectors in the National Building Code of Canada (NBCC). ***Fire detector*** means a device that detects a fire condition and automatically initiates an electrical signal to actuate an *alert signal* or *alarm signal* and includes *heat detectors* and *smoke detectors*.

Ontario Building Code

3.2.4.14. Elevator Emergency Return

(1) Except as permitted by Sentence (3), in a *building* having elevators that serve *storeys* above the *first storey* and that are equipped with an automatic emergency recall feature, *smoke detectors* shall be installed in the elevator lobbies on the recall level so that when these *smoke detectors* are actuated, the elevators will automatically return directly to an alternate floor level.

(2) *Smoke detectors* required by Sentence (1) shall be designed as part of the *building* fire alarm system.

3.2.6.8. Emergency Operation of Elevators

(5) Automatic emergency recall operation shall be provided for all elevators serving *storeys* above the *first storey* in unsprinklered *buildings*.

Elevating and Amusement Devices Safety Division	Ref. No.: 228 / 07	Rev. No.: 1
Enforcement Procedure Bulletin	Date: October 1, 2007	Date: December 22, 2008

Subject: TSSA Enforcement Procedure and Minimum Requirements for Activation of Firefighters' Emergency Operation (FEO) on **Elevators subjected to an Alteration**

Sent to: Elevator Contractors, Mechanics and Inspectors

1. INTRODUCTION

An increasing number of elevator installations are being altered in existing buildings and in many cases include requirements related to Firefighters' Emergency Operation. The following enforcement procedure has been prepared to provide guidance to contractors, consultants, mechanics and elevator inspectors when FEO is being added or altered.

2. CODE ADOPTION DOCUMENT (CAD) REQUIREMENTS

The requirements for Firefighter's Emergency Operation (section 2.27.3 of B44-07) have been amended by ED CAD Amendment Document 225/07.

CAD 2.27.3 requires **automatic recall** on all newly installed automatic elevators, regardless of building height. B44 section 8.7 Alterations, requires compliance with 2.27.3 (see CAD 2.27.3) when specific alterations are undertaken.

The interpretation and enforcement information contained in this document and the provisions in ED CAD Amendment Document 225/07 and in Director's Order 226/07 are all intended to explain the requirements for altered installations where FEO is a sub-requirement of a selected alteration. (example: 2.27.3 is a sub-requirement of Alteration 8.7.2.27.4).

If the intent is to provide a fully compliant FEO installation, like that required for a new installation, the alteration scope should reference 8.7.2.28 for electric elevators or 8.7.3.31.8(c) for hydraulic elevators – in which case this enforcement procedure bulletin is not applicable.

If the alteration is to an installation originally installed under B44-07 or later this enforcement procedure bulletin is not applicable.

3. INTERPRETATION & ENFORCEMENT

It is not the intent that existing buildings, modernized under the alteration requirements of B44 section 8.7, have their building fire alarm systems fully upgraded to meet the latest design requirements for new elevators. However, some conditions apply.

For **High buildings**◇ see Table 3.1 (below), which illustrates the FEO initiation requirements before and after an FEO-related alteration.

For ***other buildings*** * see subsection 3.2 *Other Buildings* (below), which specifies the minimum requirements for an FEO-related alteration.

3.1 ◇For High Buildings per the *Ontario Building Code* (OBC)

OBC High Building				
	The Recall Method Prior to Alteration[5]		**The Recall Method After Alteration[4]**	
Unsprinklered	Manual Recall Only	- NOT PERMITTED	Manual Recall Only	- NOT PERMITTED
	Auto Recall by SD's or BFAS (Recall by PS	- REQUIRED - permitted)[1,6]	Auto Recall by SD's or BFAS (Recall by PS	- REQUIRED - see notes)[1,2,6]
	Alternate Level SD at Recall Level	- REQUIRED - REQUIRED[7]	Alternate Level SD at Recall Level	- REQUIRED - REQUIRED[7]
Sprinklered	Manual Recall	- REQUIRED	Manual Recall	- REQUIRED
	Auto Recall by SD's Auto Recall by BFAS	- permitted[3] - permitted[3]	Auto Recall by SD's Auto Recall BFAS	- permitted - permitted
	(Recall by PS	- permitted)[1,6]	(Recall by PS	- see notes)[1,2,6]

Table 3.1

SD Smoke Detectors
BFAS Building Fire Alarm System - per OBC BFAS must include SD's - includes manual pull stations
PS Pull Stations
1 Pull Stations[2] are part of the BFAS, and can therefore initiate recall
2 Not permitted for new installations or alterations to devices ORIGINALLY installed to B44-07 or later
3 Not required by OBC
4 There is no intention to force existing buildings to install a BFAS or SD's in order to meet the full requirements of 2.27.3 of B44-07 (full auto-recall)
5 These elevating devices where installed to an edition of B44 prior to B44-07
6 Activation of this device will cause the elevator to recall to the Recall Level
7 Activation of this device will cause the elevator to recall to the Alternate Level

3.2 *For *Other Buildings* (*Buildings that are not covered by the OBC High Building Designation)

For buildings where the OBC did not impose requirements for a building fire alarm system or for low buildings with elevator equipment installed prior to the B44-07 code, Firefighter's Emergency Operation (FEO) or equivalent was not mandatory. **In these cases, the addition of FEO during an alteration is voluntary.**

The addition of FEO (as a sub-requirement of a selected alteration) shall conform to **CAD 2.27.3 with the following exceptions**:

- Manual recall is permitted.
- Phase 1 Recall without Phase 2 In-Car Operation is permitted.
- The use of pull stations to initiate recall is permitted, provided all the requirements in **Table 3.1** for high buildings are met.
- Automatic Recall initiated by Fire Alarm Initiating Devices (FAIDs) dedicated solely to elevator recall can be provided as a means to initiate automatic recall. A full BFAS is not necessary.
- Under no circumstances shall the method of recall be diminished below what was provided at the time of the original installation or any subsequent enhancement to the method of recall if the method was upgraded.

3.3 Additional Information

The following points are applicable to **automatic recall**:

- If the building is equipped with a sprinkler system on every floor;
  - it is acceptable to allow the building's fire system pressure switch to recall the elevators.

- If the machine room has a sprinkler;
  - a smoke detector must be provided (see CSA B44 code).

Note: FEO testing will be per the applicable FEO checklist.

4. RATIONALE

While the latest edition of the B44 Safety Code for Elevators expands on previous FEO requirements for new installations, existing buildings and their elevator systems may not be capable of meeting today's requirements without significant building upgrades. So, while it is not the intent to require an FEO system that is equivalent to a new installation, any alteration involving an FEO upgrade must meet the requirements of 3.1 or 3.2 as appropriate. The purpose of this enforcement procedure is to provide guidance when FEO is being added or altered.

If the pull station in an unsprinklered building located at the designated level (main recall floor) can cause the elevator to recall (to the main recall floor), this enforcement procedure highlights the requirements to provide a dedicated smoke detector at the designated level (main recall floor) which will force the elevator to recall to an alternate level (alternate recall floor).

Also recognized is the need on occasion to provide at least a minimum level of protection, such as the addition of phase 1 only. This will ensure elevators are recalled and thus excluded from use during a fire emergency.

5. EFFECTIVE DATE

This enforcement procedure is effective immediately.

Rob Kremer, Engineering Manager
EDAD Program

Roger Neate, Operations Manager
EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

APPENDIX – A

Definitions and references

CSA B44-04 Requirement 2.27.3.2.2

In jurisdictions enforcing the NBCC, automatic Emergency Recall Operation shall be permitted when the following devices, complying with the requirements in the NBCC, initiate the operation:

(a) smoke detectors installed in each elevator lobby, or the building fire alarm system

(b) smoke detectors installed in the elevator lobby at the designated level, if that floor area is not sprinklered throughout

(c) smoke detectors installed in the machine room if the machine room is sprinklered

Fire Alarm Initiating Devices are referred to as fire detectors in the National Building Code of Canada (NBCC). ***Fire detector*** means a device that detects a fire condition and automatically initiates an electrical signal to actuate an *alert signal* or *alarm signal* and includes *heat detectors* and *smoke detectors*.

Ontario Building Code (97)

3.2.4.14. Elevator Emergency Return

(1) Except as permitted by Sentence (3), in a *building* having elevators that serve *storeys* above the *first storey* and that are equipped with an automatic emergency recall feature, *smoke detectors* shall be installed in the elevator lobbies on the recall level so that when these *smoke detectors* are actuated, the elevators will automatically return directly to an alternate floor level.

(2) *Smoke detectors* required by Sentence (1) shall be designed as part of the *building* fire alarm system.

(3) The alternate floor recall feature required by Sentence (1) is not required if the *floor area* containing the recall level is *sprinklered*.

◇3.2.6.Additional Requirements for High Buildings

3.2.6.1. Application

(1) This Subsection applies to a building

(a) of Group A, D, E or F major occupancy classification that is more than

(i) 36 m high, measured between grade and the floor level of the top storey, or

(ii) 18 m high, measured between grade and the floor level of the top storey, and in which the cumulative or total occupant load on or above any storey above grade, other than the first storey, divided by 1.8 times the width in metres of all exit stairs at that storey, exceeds 300,

(b) containing a Group B major occupancy in which the floor level of the highest storey of that major occupancy is more than 18 m above grade,

(c) containing a floor area or part of a floor area located above the third storey designed or intended As a Group B, Division 2 or 3 occupancy, and

(d) containing a Group C major occupancy whose floor level is more than 18 m above grade.

3.2.6.8. Emergency Operation of Elevators

(1) Manual emergency recall shall be provided for all elevators serving *storeys* above the *first storey*.

(5) Automatic emergency recall operation shall be provided for all elevators serving *storeys* above the *first storey* in unsprinklered *buildings*.

(6) The automatic emergency recall feature in Sentence (5) shall be actuated by

(a) *smoke detectors* installed in each elevator lobby on each storey, or

(b) the *building* fire alarm system.

(7) *Smoke detectors* in Sentence (6) shall be designed as part of the *building* fire alarm system.

Elevating and Amusement Devices Safety Division	Ref. No.: 229/07	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: October 10, 2007	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices)
made under the ***Technical Standards and Safety Act* 2000**

Subject: Required changes to unloading areas of chair lifts for the 2007/08 season
Sent to: All Chair Lift Owners / Operators

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under the *Technical Standards & Safety Act* 2000 hereby orders the following:

1. ORDER

1.1. Prior to operating for the 2007/2008 season, all owners of chair lifts will remove all "Prepare to Unload" sign(s) from the lift towers, structures or terminals.

1.2. Prior to operating for the 2007/2008 season, all owners of chair lifts shall relocate the "Raise Restraining Device" sign and install an additional sign as follows:

a) The "Raise Restraining Device" sign (with pictogram) shall be removed from its current location, and relocated to the "Lift Bar Point". A new sign shall be mounted directly underneath the "Raise Restraining Device" sign that conveys the message "Raise Bar Here" and includes an arrow pointing to the "Lift Bar Point". See Figure 1.

b) The signs shall be installed along the unloading path, just before the unloading terminal. These signs shall be in compliance with CSA Z98-01, Section 3.32. Note that the location of the sign along the unloading path is different for fixed and detachable lifts.

c) The signs shall be placed in clear view of the chair occupants at approximate eye level to the average rider and be free of obstructions. The signs can be mounted to the right or left of the lift path, and the Resort has the option to put two new signs, one on each side of the path if preferred. The yellow and red "New" sign as shown in Figure 1 below is optional.

d) Where a "Raise Restraining Device" sign was not already present, or is illegible due to damage or age, a new sign shall be installed at the "Lift Bar Point".

Fixed Grips – "Lift Bar Point"

e) The location of the "Lift Bar Point" is determined by the horizontal distance based on time, in seconds from the actual unloading point.

To calculate location for sign placement: determine location of the “unloading point” and measure back to the “Lift Bar Point”, a distance of “A” metres. (See Figure 2 / Table 1)

Distance “A” (metres) = Lift speed (metre/second) x 4 seconds

The height of the sign is dependent on the height of the chair at the “Lift Bar Point”. The sign shall be placed in clear view of the chair occupants at approximate eye level to the average rider. Dimensions are shown in Figure 2 below, with acceptable maximum and minimum values listed in Table 1.

Detachable Grips – “Lift Bar Point”

f) The sign(s) shall be placed at the entrance to the unloading terminal.

Figure 1: Example of Acceptable Signs for Lift Bar Point

Figure 2: Location of Raise Bar Point at Typical FIXED GRIP Unload Station

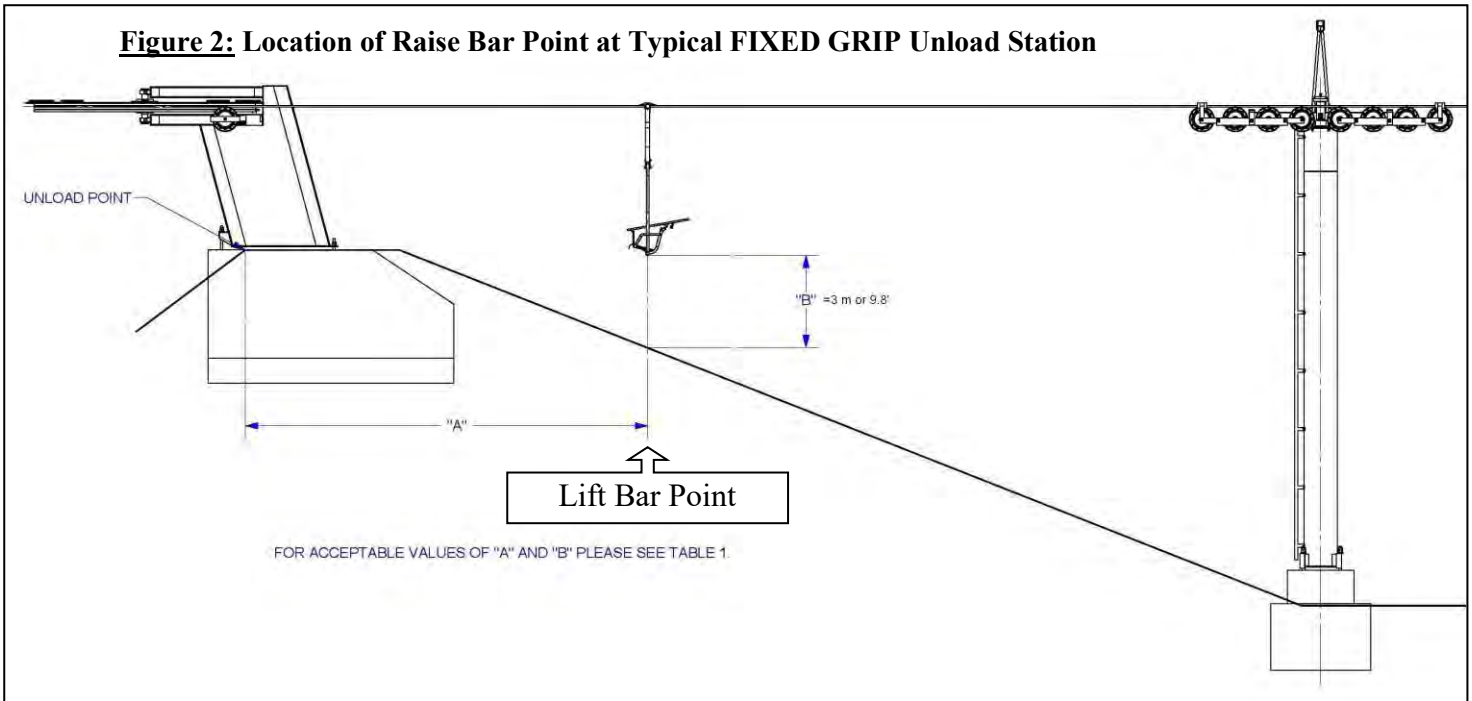

Table 1
Minimum & Maximum Values of "A" and "B" Based on Lift Speed

LIFT SPEED (m/s)	LIFT SPEED (fpm)	REQUIRED MINIMUM		RECOMMENDED MAXIMUM	
		Horizontal distance 'A' (metres) to SIGN	Horizontal distance 'A' (feet) to SIGN	Vertical distance 'B' (metres)	Vertical distance 'B' (feet)
1.5	295.3	6.0	19.7	3.0	9.8
1.6	315.0	6.4	21.0	3.0	9.8
1.7	334.6	6.8	22.3	3.0	9.8
1.8	354.3	7.2	23.6	3.0	9.8
1.9	374.0	7.6	24.9	3.0	9.8
2.0	393.7	8.0	26.2	3.0	9.8
2.1	413.4	8.4	27.6	3.0	9.8
2.2	433.1	8.8	28.9	3.0	9.8
2.3	452.8	9.2	30.2	3.0	9.8
2.4	472.4	9.6	31.5	3.0	9.8
2.5	492.1	10.0	32.8	3.0	9.8
2.6	511.8	10.4	34.1	3.0	9.8
2.7	531.5	10.8	35.4	3.0	9.8
2.8	551.2	11.2	36.7	3.0	9.8

1.3. Ongoing observation and feedback from the ski industry is critical to a successful drive toward zero falls. To monitor the effects of changes to the unloading area, at least three times during the 2007/2008 season, all owners of chair lifts shall report information as follows:

a) Ski resort operators shall observe a minimum of **100 unloads** from each chairlift, at three separate times during the ski season and record on the available form the distance patrons are raising the restraining device prior to the UNLOAD Point.

b) Complete one form and provide the results of the 100 unload observations for each chair lift during each of the following time frames:

- Christmas Break: December 26 to January 1
- Mid Season: February 1 to 5
- March Break: March 10 to 14

c) The required form for data collection will be available in downloadable format from the website by October 31st, 2007. This information shall be submitted to TSSA by e-mailing to zerofalls@tssa.org or faxing to 416-231-7525 within 14 days of the corresponding week's end: January 15th, February 19th and March 28th respectively.

1.4. Variances

If any directions contained within this Order cannot be met, a variance application must be submitted. The variance shall be submitted in a form acceptable to the Director, and shall detail the reasons why compliance is not possible, and shall detail the alternative means of improvement that will be implemented.

http://www.tssa.org/regulated/ski/skiForms.asp

Note: Photographs submitted with variance applications must be sent as attachments to an email, sent in paper copy or on a compact disc via regular post. A facsimile of a photograph does not yield a useful image.

Note: Section 37 of the Act provides that "every person who fails to comply with an order; is guilty of an offence and on conviction is liable to a fine of not more than $50,000 or to imprisonment for a term of not more than one year, or to both, if the person is a body corporate, to a fine of not more than $1,000,000.

_____
Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000,*

This Director's Order has been developed in consultation with the Ontario Snow Resorts Association.

2. BACKGROUND

On January 4, 2007, two small children fell out of different chair lifts on the same day. TSSA investigated these incidents and formed a Risk Reduction Group (RRG) to investigate and provide recommendations.

Data collection is showing that for many patrons, the 'Prepare to Unload' (PTU) sign is synonymous with "Lift Bar" and because the PTU sign is most commonly mounted on the last tower before the unloading terminal, patrons are lifting the bar far before it is necessary and often at excessive heights. Evidence is suggesting that regardless of the individual interpretation, the PTU sign has become a trigger to lift the restraining device despite the terrain or height of the chair.

3. INTRODUCTION

The RRG was formed in January of 2007 and consisted of ski industry representatives, the TSSA, manufacturers, and industry consulting engineers. The required changes defined in this bulletin are due in part to feedback received from the ski industry and the data obtained from the questionnaires distributed with Safety Alert Bulletin 221/07. Changes defined herein do not define an all-encompassing solution to the issue of children falling from chair lifts, but instead, comprise the beginning of an iterative and ongoing process.

The RRG has defined four separate and equally important focus areas in need of change and improvement:

1. Public Education
2. Staff Training
3. Designate "Lift Bar Point"
4. Minimize the possible fall distance at the "Lift Bar Point"

4. ADDITIONAL RECOMMENDATIONS

4.1. Public Education

The public is any person that rides a chair lift. This group can be divided into two subgroups: the experienced and the beginner. The approach to education of these two groups must be different, but are equally important. Beginners come without preconceived ideas or bad habits. The experienced will be riding with beginners, setting the example and influencing beginners far beyond their first lesson.

4.1.1 Educate the Beginners

The majority of beginners will take a ski lesson at some point. This is an ideal opportunity to educate the public not only in methods for learning to ski or snowboard, but also to make it to the top of the lift safely and to unload properly. Snow school training should focus on promotion of 'Look Load Lower' (LLL) and client supervision.

New and updated LLL posters will be available for 2007/08. This year, take a look at your current signs and consider removing non-mandated obsolete or aging signs that contribute to sign noise. Consider posting the new LLL posters at the bottom of beginner lifts.

4.1.2 Re-Educate the Experienced Skier/Snowboarder

Experienced skiers and snowboarders can be some of the worst offenders when it comes to lifting the bar too early. Their familiarity with the process and complacency when it comes to safety rules is not only putting themselves in danger, but the children who are riding along with them. These groups must be re-educated.

Industry-wide involvement is required to change the current attitudes of the public. The season ticket holders, the members and the expert skiers need to be re-educated on the acceptable point to lift the bar. This education, and a change in attitude of resort employees, in parallel with new signs and the appearance of the unload area change will put into motion a change in the attitudes of all skiers within Ontario.

Returning skiers/snowboarders will notice the new signs and the change in appearance of the unloading area. Lift attendants at the loading and unloading stations should be instructed to continue to enforce the rules and instruct patrons to lower the bar upon departure of the loading station, and to keep the bar down until reaching the "LIFT BAR POINT". An elevated level of surveillance and enforcement is recommended as a way to capture the attention of seasoned skiers and snowboarders.

4.2. Staff Training

Management shall prepare procedures and observe their unloading and loading attendants at the beginning of the season with the following questions in mind:

- Is enough supervision present at the loading station to minimize the risk of misloads?
- Can the loading station attendant(s) adequately supervise chair loading and also ensure that patrons are putting the bar down?
- Who has the responsibility to instruct patrons in the chair to put their bar down? Are they aware of their responsibilities?
- How will the unload station attendant communicate to patrons who are lifting the bar too early?
- Are the attendants trained on how to handle situations with patrons who do not follow the rules?
- Do we have a policy regarding patrons who repeatedly break rules? How do we catch repeat offenders?
- Do we have a policy regarding inexperienced skiers/snowboarders who are riding alone?
- Are all groups (Ski School, Ski Patrol, Lift Attendants, Public) aware of our current and/or new policies?

4.3. Minimizing the Fall Distance at the Lift Bar Point

It is recommended that the possible fall distance be limited to no more than 3 metres at the "Lift Bar Point".

Instructing patrons to raise the restraining device only when at the unloading station or only in locations where the distance to the ground in within acceptable limits is the ideal, the intention is to minimize the potential fall distance without creating another hazard. It is also important to minimize the risk of injury by providing surfaces beneath the unloading zone that are the least likely to cause serious injury, and ideally, absorb impact.

Fill can be added to decrease the possible fall distance at the "LIFT BAR POINT". Temporary fill such as hay bails could be used and covered with snow.

Alternatively, where fill cannot be used to reduce the distance to within an acceptable 3 metre range, safety nets can be installed. Where a safety net is installed, a 'Minor A' type submission shall be submitted.

4.4. Best Practices

A useful list of best practices created by the RRG titled "Working together to Stop Falls From Carriers" is attached to this director's order for your review and reference.

Working together to STOP…

Falls from Carriers

The intent of this best practices document is to assist the ski industry with their training and operating procedures. The primary focus is to work to eliminate chairlift rider incidents. Through this initiative we can educate novice and young chairlift riders and ski industry personnel to promote, practice and participate in safe chairlift use and operation protocols throughout Ontario. The body best suited for delivery of each point is illustrated in brackets.

1. Talk to first time riders about proper methods of loading, riding and unloading. *(Ski Professionals, Ski Patrol, Lift Operations)*
2. Younger riders may need multiple reminders of proper methods of loading, riding and unloading. *(Ski Professionals, Ski Patrol, Lift Operations)*
3. Ensure that all signage is visible. *(Lift Operations)*
4. Ensure that all signage is understood. *(Ski Professionals, Ski Patrol, Lift Operations, TSSA)*
5. Introduce and promote the Look Load and Lower programme. *(Ski Professionals, Ski Patrol, Lift Operations, TSSA)*
6. Consider taking poles away from novice and young riders. (Ski Professionals, Ski Patrol, Lift Operations)
7. Use additional personal in the line up to help organize and educate riders. *(Ski Professionals, Ski Patrol, Lift Operations)*
8. Critique the position of the lift operator(s) and provide constructive feedback if necessary. *(Lift Operations)*
9. Critique the loading and unloading ramps and provide constructive feedback if necessary. *(Lift Operations)*
10. Verbalize to riders to lower restraining device and not to raise it too early. *(Ski Professionals, Ski Patrol, Lift Operations)*
11. Verbalize to young riders not to "shimmy out" onto the seat edge prior to the unloading ramp. *(Ski Professionals, Ski Patrol)*
12. Ensure the "Raise Restraining Device" sign is not located too far from unloading area. *(Lift Operations, TSSA)*
13. Reward young riders that practice safe riding. *(Ski Professionals, Ski Patrol)*
14. Strongly endorse a "no-nonsense" policy and enforce it. *(Ski Professionals, Ski Patrol, Lift Operations)*
15. Promote friendly communication and cross training between ski area departments. Work together to promote safety and encourage best practices. (special encouragement between snow school and coaches, ski patrol and lift operations). *(Ski Professionals, Ski Patrol, Lift Operations)*

	Elevating and Amusement Devices Safety Division	Ref. No.: 231 / 08	Rev. No.:
	Enforcement Procedure Bulletin	Date: November 27, 2008	Date:

Subject: Safe Roof Top Access to Elevating Device Machinery Spaces
Sent to: Owners, Contractors and Consultants

1. INTRODUCTION

The elevating devices regulation provides requirements related to safe access to elevating device machinery spaces where passage over roof tops is required. In this regard, Ontario Regulation 209/01 (Elevating Devices) requires:

37. Every owner of an elevating device shall ensure that,
(a) there is unobstructed access to and egress from the elevating device;
(b) there is a safe and unobstructed access to the machinery space, including the electrical equipment, of the elevating device regardless of weather conditions; O.Reg.209/01,s.37

This regulatory requirement applies to all new and existing installations.
In addition, the B44 Safety Code for Elevators that was applicable at the time of the original elevating device installation may have specific requirements related to roof top walkways.

This information bulletin clarifies the minimum safety requirements applicable to the building based on the original installation date of the elevator equipment.

2. GENERAL REQUIREMENT

All building owners that have a roof top parapet less than 1070 mm (42") in height at the perimeter of the building, (subject to the requirements in section 4) shall have either:

- an engineered safety system in place, or
- a walkway and railing★ as required by the applicable edition of CSA B44 Safety Code for Elevators

to provide for safe access of workers where passage across roof tops is required to access machinery spaces.

3. BACKGROUND

Prior to B44-M85 Safety Code for Elevators the need for a walkway and railing applied if the roof slope was more than 15 degrees. With the release of the 1985 edition of CSA Standard CAN3-B44-M85 - Safety Code of Elevators (effective for design submissions received after April 1, 1986, or initial inspections after October 1, 1986), a new requirement was published regarding access across roof tops. If the roof top did not have a 1070mm high parapet around the access way a "substantial walkway not less than 600mm wide, equipped with a standard railing 1070mm high" was required.

4. INSTRUCTIONS

4.1. <u>All Buildings with passageways over roof tops must address the following:</u>

- Safe, unobstructed passage
  - o walkways with railings★ (or lifelines as permitted in 4.3)
  - o snow removal as needed

- secure footing
- no standing water

- Adequate lighting
  - Where natural lighting is inadequate to ensure the safety of any worker, artificial lighting shall be provided and shadows and glare shall be reduced to a minimum.

- Upkeep of safety equipment
  - Every building walkway, lifeline, and fixed ladder must also be maintained in safe and proper working order to prevent any risk of injury.

4.2. For Buildings where Elevator installations required compliance to an edition prior to B44-M85

Buildings affected by a B44 edition prior to B44-M85, where the roof does not have a parapet greater than 1070 mm in height at the perimeter (and where no railing requirements was specified by B44), shall be provided with:

a) a lifeline that is engineered to accommodate a travel restraint (safety belt) or fall arrest system in accordance to current requirements of the Occupational Health and Safety Regulations, or
b) a walkway and railing[1] for compliance with O.Reg 209/01,s.37, or
c) equivalent safety such as a new means of access to eliminate the hazard.

4.3. For Buildings where Elevator installations required compliance with B44-M85 or later:

Buildings affected by B44-M85 or later editions shall have a walkway and railing★. An engineered lifeline will only be permitted as a temporary solution during the construction phase of the walkway.

4.4. ★Walkway and Railing Requirements

Where a walkway and railing is required, it shall meet the applicable requirements of:

a) the Occupational Health and Safety Regulation O.Reg 851 OR
b) the B44 Safety Code for Elevators applicable at the time of the installation.

Reference Document	Walkway and Railing Requirements				
	Width (mm)	Height (mm)	Midrail	Toeboard	Other requirements
OH&S O.Reg 213/91[1]		900 to 1100		100mm 89mm if wood	Detailed strength requirements
OH&S O.Reg 851	550 min	910 to 1070		125mm high, only if tools or other objects may fall on a worker	Strength to OBC
B44-M85	600	1070	yes	no	2500 mm post spacing
B44-94					
B44-00					2400 mm post spacing
A17.1S-2005 / B44-04S1-06 to B44-07				100mm high[2]	B44 includes strength values which are not referenced by the roof top access rule

[1] Provided as a reference only – applicable only during construction of the building
[2] Enforcement of A17.1S-2005 / B44-04S1-06 was effective January 20, 2006 for all MRL installations. Enforcement of B44-07 began January 1, 2008

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5. ENFORCEMENT

5.1. Where walkways and railings are required (4.3), as a minimum they must meet the following:

a) 550 mm wide
b) 910 - 1100mm high top rail
c) A mid rail
d) Strength no less than required by OH&S Act – R.R.O. 1990 Reg. 851

Installations built / commissioned to B44-07 shall also be provide with:
e) 100 mm high toe board

6. Sample Summary of Owner Responsibilities

Owners of buildings with **walkways installed to B44-M85 or later** are required to:

- Provide safe roof top access to machinery space in the form of a B44 or OH&S compliant railing and walkway are required by [Reg/Code: B44-M85 to B4-94 clause 2.3.3.2 / B44-00 or later requirement 2.7.3.2.2 / O.Reg 209/01, s.37]

Owners of buildings with **walkways installed prior to B44-M85** are required to:

- Provide safe roof top access to machinery space in the form of a B44 or OH&S compliant railing and walkway or an OH&S compliant lifeline as required by [Reg/Code: O.Reg 209/01, s.37]

With respect to **lighting requirements** owners must:

- Provide adequate lighting for safe roof top access to the elevator machinery space per [Reg/Code: O.Reg 209/01, s.37]

With respect to **walkways or railings or lighting** owners must ensure:

- Safe roof top access to machinery spaces shall be maintained per [Reg/Code: O.Reg 209/01, s.37]

Failure to comply with these requirements may result in additional inspection fees, loss of service of your elevating device, or enforcement action under the *Technical Standard and Safety Act, 2000*.

Every person who contravenes or fails to comply with any provision of the *Technical Standards and Safety Act, 2000* or regulations is guilty of an offence punishable on conviction is liable to a fine of not more than $50,000 or imprisonment for a term of not more than one year or both, or if the person is a body corporate to a fine of not more than $1,000,000.

7. SUPPORTING DOCUMENTATION

7.1. Referenced Documents

- Technical Standard and Safety Act, 2000, S.O 2000
- Ontario Regulation 209/01 (Elevating Devices)
- Occupational Health and Safety Act, R.S.O 1990
- Occupational Health and Safety Act – R.R.O. 1990 Reg. 851 Industrial Establishments
- Occupational Health and Safety Act – O.Reg 231/91 Construction Projects
- Building Code Act, 1992 - O. Reg. 350/06
- CAN/CSA B44 Safety Code for Elevators (B44), as amended (by Directors Orders or as specified by the Elevating Devices Code Adoption Document)
- CAN/CSA Z259 Connecting Components for Personal Fall Arrest Systems (PFAS)

7.2. Section References

Occupational Health and Safety Act – R.R.O. 1990 Reg. 851 (Industrial Establishments)

14. (1) A guardrail shall,
    (a) have a top rail located not less than 91 and not more than 107 centimetres above the surface to be guarded;
    (b) have a mid rail;
    (c) if tools or other objects may fall on a worker, have a toe-board that extends from the surface to be guarded to a height of at least 125 millimetres; and
    (d) be free of splinters and protruding nails.
(2) A guardrail shall be constructed to meet the structural requirements for guards as set out in the Building Code. R.R.O. 1990, Reg. 851, s. 14.

Building Code Act, 1992 - O. Reg. 350/06

3.4.6.4. Handrails

(9) Handrails and their supports shall be designed and constructed to withstand the loading values obtained from the nonconcurrent application of,
    (a) a concentrated load not less than 0.9 kN (200 lb-f) applied at any point and in any direction for all handrails, and
    (b) a uniform load not less than 0.7 kN/m (157 lb-f) applied in any direction to handrails not located within dwelling units.

A17.1-2007 / B44-07 Safety Code for Elevators

2.10.2.4 Strength of Standard Railing

When forces are applied separately:

- no permanent deformation is permitted
- deflection shall not be more than 75mm (3 in.)

Forces:

a) 890 N (200 lbf) lateral or downward, at any point along the top rail.
b) 666 N (150 lbf) lateral or downward, at any point along the intermediate rail
c) 225 N (50 lbf) lateral direction to the toe-board.

B44 Sections related to access via roof tops

- B44-1975 to B44-94 2.3.3.2 Access Across Roofs
- B44-00 2.7.3.2 Access Across Roofs
- B44-04, B44-07, 2.7.3.2 Passage Across Roofs

Rob Kremer, P. Eng.,
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the TSSA Elevating Devices Advisory Council.

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Elevating and Amusement Devices Safety Division	Ref. No.: 232/ 08	Rev. No.:
DIRECTOR'S ORDER	Date: November 25, 2008	Date:

IN THE MATTER OF

The *Technical Standards And Safety Act, 2000*,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 222/01
(Certification and Training of Elevating Device Mechanics)
made under the
Technical Standards and Safety Act, 2000

Subject: Elevating Device Mechanic Continuing Education Requirements
Sent to: All Mechanics, Mechanics-in-Training, Registered Contractors and Training Providers

Pursuant to subsection 32.(1) of the *Technical Standards and Safety Act, 2000*, the Director hereby orders the following:

1. ORDER

1.1 **Effective January 1, 2011**, all classes of Elevating Device Mechanics (EDMs) shall fully complete the continuing education requirement as a condition of each certificate renewal.

1.2 An applicant for a certificate renewal, regardless of class, shall complete the continuing education requirement approved by the director that is delivered by a training organization approved by the director.

1.3 An application for renewal shall include proof the applicant successfully completed the continuing education requirement.

2. BACKGROUND

A coroner's inquest into the death of an elevator mechanic made two recommendations related to continuous education for elevator mechanics. These recommendations are shown below:

- *"All elevator mechanics shall undertake periodic refresher training to ensure that they maintain their competency, particularly in areas where specific training and/or knowledge has not been utilized on a regular basis."*
- [TSSA] *"EDMA, the Mechanics' licensing authority, shall adopt a reporting system whereby licensed mechanics would submit a summary of education, training and job experience gained during the previous two years, as a condition of re-certification."*

These recommendations were discussed at the Training & Certification Advisory Board (TCAB) which formed a subcommittee to develop continuing education training requirements for elevator

mechanics. The subcommittee presented their proposal to the TCAB who endorsed the 12 hours of continuing education. As a result, all Elevating Device Mechanics will require continuing education credits in order to renew their mechanic's certificate.

Proof of 12 hours of Continuing Education within the renewal cycle must be submitted to TSSA and shall include the following:

- 6 hours classroom instruction on Safe Work Practices and related topics that may include product specific safety applications or procedures;
- 3 hours on Act, Code, Regulations and Directors Orders/Bulletins, but not limited to the foregoing, and
- 3 hours on Technical Training related to the elevator industry, which may include cross discipline training involving curriculum that may have an impact on the elevator trade.

EDM-Ts who are <u>enrolled</u> in classroom Apprenticeship training by an Accredited Training Provider are exempt from these requirements as long as the training has taken place within the renewal cycle.

Proof of all continuing education credits must be received by TSSA either prior to submitting a renewal application or attached to the renewal application. Proof must be in the format set out by TSSA and issued by an approved training organization. Any credits issued by organizations not accredited, will not be accepted.

In order to provide elevator mechanics with at least two years notice of the requirement so they can arrange for the training, this Order is **effective January 1, 2011. Renewal applicants with an expiry date of January 1, 2011 or later must have successfully completed the continuing education requirements before submitting a renewal application. The continuing education requirement applies to each and every certificate renewal.**

NOTES:

1. Only certificates from accredited training providers will be accepted as proof of completion of the continuing education requirements.

2. Accredited Training Providers of Continuing Education will be listed on the TSSA website and will be updated accordingly.

Roland Hadaller, P. Eng.
Director, Elevating Devices Regulation,
Technical Standards and Safety Act, 2000

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council and Training & Certification Advisory Board.

Elevating and Amusement Devices Safety Division	Ref. No.: 232/08	Rev. No.: 1.
DIRECTOR'S ORDER	Date: November 25, 2008	Date: August 1, 2012

IN THE MATTER OF

The *Technical Standards And Safety Act, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 222/01
(Certification and Training of Elevating Device Mechanics)
made under the
Technical Standards and Safety Act, 2000

Subject: Elevating Device Mechanic Continuing Education Requirements
Sent to: All Mechanics, Mechanics-in-Training, Registered Contractors and Training Providers

Pursuant to subsection 32.(1) of the *Technical Standards and Safety Act, 2000* (the "Act"), the Director hereby orders the following:

1. ORDER

1.1.1 **Effective January 1, 2011**, all classes of Elevating Device Mechanics (EDMs) shall fully complete the continuing education requirement as a condition of each certificate renewal.

1.1.2 The continuing education requirement referred to in clause 1.1.1 of this order shall include instruction on the following topics:

a) 6 hours on safe work practices and related topics that may include product-specific safety applications or procedures;
b) 3 hours on the Act, its regulations, applicable code(s), director's orders/bulletins, and related topics; and
c) 3 hours on technical training related to the elevator industry, which may include cross-discipline training involving curriculum that may have an impact on the elevator trade.

1.2.1 An applicant for a certificate renewal, regardless of certificate class, shall receive the continuing education training referred to in clause 1.1.1 of this order from an accredited training provider approved by the director.

1.3.1 An application for renewal shall include proof that the applicant has successfully completed the continuing education requirement referred to in clause 1.1.1 of this order.

1.3.2 Proof of completion of the continuing education requirement referred to in clause 1.1.1 of this order must be received by TSSA either prior to submitting a renewal application or as an attachment to the renewal application.

1.3.3 The proof of completion referred to in clause 1.3.1 of this order shall be submitted in the format set out by TSSA and must be issued by an accredited training provider.

1.4 EDM-T certificate holders who are enrolled in and attending classroom apprenticeship training (towards an EDM-A certificate) or a classroom training program (towards an EDM-B through EDM-F certificate) through an accredited training provider are exempt from the requirements of this order, so long as the training has taken place since the previous renewal.

2. BACKGROUND

A coroner's inquest into the death of an elevator mechanic made two recommendations related to continuous education for elevator mechanics. These recommendations are shown below:

- *"All elevator mechanics shall undertake periodic refresher training to ensure that they maintain their competency, particularly in areas where specific training and/or knowledge has not been utilized on a regular basis."*
- *"[TSSA] shall adopt a reporting system whereby licensed mechanics would submit a summary of education, training and job experience gained during the previous two years, as a condition of re-certification."*

These recommendations were discussed at the Training & Certification Advisory Board (TCAB) which formed a subcommittee to develop continuing education training requirements for elevator mechanics. The subcommittee presented their proposal to the TCAB who endorsed the 12 hours of continuing education. As a result, all Elevating Device Mechanics will require continuing education credits in order to renew their mechanic's certificate.

The revised Order is **effective January 1, 2013. Renewal applicants with an expiry date of January 1, 2013 or later must have successfully completed the continuing education requirements before submitting a renewal application. The continuing education requirement applies to each and every certificate renewal.**

NOTES:

1. Only certificates from accredited training providers will be accepted as proof of completion of the continuing education requirements. Training received from non-accredited training providers will not be accepted.

2. Only Training Providers listed on the TSSA website are to be considered accredited.

Roland Hadaller, P. Eng.
Director, Elevating Devices Regulation,
Technical Standards and Safety Act, 2000

This Order has been developed in consultation with the Elevating Devices Advisory Council and Training & Certification Advisory Board.

Elevating and Amusement Devices Safety Division	Ref. No.: 233/08	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: November 3, 2008	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices)
made under the ***Technical Standards and Safety Act* 2000**

Subject: Continued data collection and monitoring
Sent to: All Chair Lift Owners / Operators

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under the *Technical Standards & Safety Act* 2000 hereby orders the following:

1. ORDER

1.1 In continuation with Director's Order 229/07, ongoing monitoring and feedback is required by all owners of chair lifts during the 2008/09 season. Operations Managers shall:

a) Observe a minimum of **100 unloads** from each chairlift, at two designated times during the upcoming season and record the distance patrons are raising the restraining device prior to the 'unload point'. Explanation of the measurements required can be found in D.S.O. 229/07 or in the data collection form.

b) Complete one form for each chair lift and provide the results during each of the following weeks:

Survey Period	**Date Report due to TSSA**
January 12 - 18, 2009	February 1, 2009
February 16 - 22, 2009	March 8, 2009

c) Email the completed forms to zerofalls@tssa.org or fax to 416-734-5435 by the deadlines given above. The updated form for results reporting will be available for download from the TSSA website: www.tssa.org.

d) The data collection must be completed by, or under the direct supervision of the Operations Manager or equivalent. The same person should complete the data collection at both times.

Note: Section 37 of the Act provides that "every person who fails to comply with an order; is guilty of an offence and on conviction is liable to a fine of not more than $50,000 or to imprisonment for a term of not more than one year, or to both, if the person is a body corporate, to a fine of not more than $1,000,000.

_____
Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000,*

This Director's Order has been developed in consultation with the Zero Falls Risk Reduction Group.

2. BACKGROUND

The Zero Falls Risk Reduction Group (RRG) was formed in January of 2007. As a result of the efforts of the group, a data collection exercise was initiated in parallel with sign changes, in addition to recommendations for improving and promoting public education, resort policy changes as well as staff training.

3. INTRODUCTION

The intention of the continued data collection is for ongoing monitoring of short-term progress. The results from the first season have been positive: the public education and enforcement efforts of Operators and Lift Attendants have resulted in a 24% reduction in the time exposure to risk[1] of from 2006/07 to 2007/08. Resorts with greater enforcement and a zero tolerance policy reported excellent compliance.

Suggestions or questions can be directed to zerofalls@tssa.org

[1] Time Exposure to Risk is defined as the time a chair lift passenger is exposed to the risk of a fall of greater than 3m after the safety bar is lifted.

Elevating and Amusement Devices Safety Division	Ref. No.: 233/08	Rev. No.: 01
DIRECTOR'S SAFETY ORDER	Date: November 3, 2008	Date: Feb 6, 2009

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices)
made under the ***Technical Standards and Safety Act* 2000**

Subject: Continued data collection and monitoring
Sent to: All Chair Lift Owners / Operators

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under the *Technical Standards & Safety Act* 2000 hereby orders the following:

1. ORDER

1.1 In continuation with Director's Order 229/07, ongoing monitoring and feedback is required by all owners of chair lifts during the 2008/09 season. Operations Managers shall:

a) Observe a minimum of **100 unloads** from each chairlift, at two designated times during the upcoming season and record the distance patrons are raising the restraining device prior to the 'unload point'. Explanation of the measurements required can be found in D.S.O. 229/07 or in the data collection form.

b) Complete one form for each chair lift and provide the results during each of the following weeks:

Survey Period	**Date Report due to TSSA**
January 12 - 18, 2009	February 1, 2009
February 16 - 22, 2009	March 8, 2009

c) Email the completed forms to zerofalls@tssa.org or fax to 416-**231**-5435 by the deadlines given above. The updated form for results reporting will be available for download from the TSSA website: www.tssa.org.

d) The data collection must be completed by, or under the direct supervision of the Operations Manager or equivalent. The same person should complete the data collection at both times.

Note: Section 37 of the Act provides that "every person who fails to comply with an order; is guilty of an offence and on conviction is liable to a fine of not more than $50,000 or to imprisonment for a term of not more than one year, or to both, if the person is a body corporate, to a fine of not more than $1,000,000.

_____
Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000,*

This Director's Order has been developed in consultation with the Zero Falls Risk Reduction Group.

2. BACKGROUND

The Zero Falls Risk Reduction Group (RRG) was formed in January of 2007. As a result of the efforts of the group, a data collection exercise was initiated in parallel with sign changes, in addition to recommendations for improving and promoting public education, resort policy changes as well as staff training.

3. INTRODUCTION

The intention of the continued data collection is for ongoing monitoring of short-term progress. The results from the first season have been positive: the public education and enforcement efforts of Operators and Lift Attendants have resulted in a 24% reduction in the time exposure to risk[1] of from 2006/07 to 2007/08. Resorts with greater enforcement and a zero tolerance policy reported excellent compliance.

Suggestions or questions can be directed to zerofalls@tssa.org

[1] Time Exposure to Risk is defined as the time a chair lift passenger is exposed to the risk of a fall of greater than 3m after the safety bar is lifted.

Elevating and Amusement Devices Safety Division	Ref. No.: 234 / 09	Rev. No.:
Enforcement Procedure Bulletin	Date: June 11, 2009	Date:

Subject: Plunger Gripper Inspection and Testing Frequency
Sent to: Contractors, Consultants and Elevating Device Mechanics

1. INTRODUCTION

This enforcement procedure bulletin is intended to clarify the requirement for inspection and testing of plunger grippers.

Despite plunger grippers not being specifically addressed in *B44.2 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks*, the requirements to inspect and test safety devices and overspeed devices exist in the elevating device regulation.

2. REQUIREMENTS

Ontario Regulation 209/01 (Elevating Devices) provides:

33. (1) Where maintenance is carried out on an elevator, dumbwaiter, lift for persons with physical disabilities or a freight platform lift that is equipped with a safety device, overspeed and uncontrolled low speed protective device, the maintenance referred to in subsection 32 (3) shall include an inspection and testing of such devices in accordance with requirements for periodic inspection set out in the code adoption document. O. Reg. 209/01, s. 33 (1).

33. (4) The inspection and tests required under subsections (1), (2) and (3) shall be carried out at intervals determined in accordance with subsection 32 (2) as long as the interval between the inspections or tests is not longer than 12 months. O. Reg. 209/01, s. 33 (4).

Plunger grippers are safety devices as referenced in subsection 33.(1) above, and must therefore be inspected and tested in accordance with requirements for periodic inspection. As specified in subsection 33.(4) above, the interval between these inspections and tests shall not exceed 12 months.

3. PROCEDURE

Contractors shall ensure that elevating device installations which incorporate a plunger gripper conform to the following:

a) The plunger gripper and its related activation means shall be inspected and tested at intervals not exceeding 12 months.
b) Testing of the plunger gripper is permitted with no load in the car and with the car moving in the down direction.
c) Testing may be done at any speed up to and including the rated speed of the installation.
d) Successful test results shall be recorded and signed off in a log book.

4. SUPPORTING DOCUMENTATION

- Ontario Regulation 209/01, (Elevating Devices)

This enforcement procedure bulletin is effective immediately.

Rob Kremer, P. Eng.,
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

This Bulletin has been developed in consultation with the TSSA Elevating Devices Advisory Council.

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Elevating and Amusement Devices Safety Division	Ref. No.: 235 / 09	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: June 11, 2009	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*

Subject: Addition of an Electric Motor to Northern ERM Machine
Applicable to: Owners, Contractors, Consultants and EDM Mechanics

Pursuant to his authority under subsections 14.(1) and 30.(1) of the *Technical Standards and Safety Act, 2000*, *the Director* orders the following:

1. ORDER

1.1. Not later than September 1, 2009, all contractors who maintain installations where Northern ERM machines have been altered by the addition of a motor to the end of the original motor shall report these elevating devices and their locations to TSSA on the attached reporting form.

2. INTRODUCTION

There are some elevator installations where electric motors have been added to existing Northern ERM Machines.

A motor replacement that does not result in a change in the original design, inherent safety or operational characteristics of the elevating device falls under the category of "Maintenance, Repair and Replacement" and will not require an alteration design submission. Motor additions to ERM machines that were performed in the past may have been done on the assumption that this activity was a motor replacement and therefore no alteration paperwork was forwarded to TSSA. Recent interactions between TSSA and elevator industry contractors have resulted in a clarifying of the requirements.

Ontario Regulation 209/01 defines "alteration" as follows:

> **alteration:** means an alteration or replacement, removal or addition of any component or part of an elevating device that results in, or may result in, a change in the original design, inherent safety or operational characteristics of the elevating device, and "altered" has a corresponding meaning;

The addition of a motor to a driving machine (as opposed to a motor replacement) is classified as an alteration and requires an alteration submission. (See Attachment 'A' for reference photo).

3. REPORTING

Upon identification of an altered ERM installation as described in this safety order, contractors shall report the findings to TSSA on the form provided.

If an alteration design submission has not been submitted for the altered ERM installation, TSSA will issue a direction to the owner requesting an engineering design submission for the alteration work.

4. ENGINEERING ASSESSMENT and DESIGN SUBMISSION

As a minimum, an engineering assessment of the alteration shall consider the following B44 requirements:

a) Section 8.7.2.25.1 of B44 deals with alterations made to driving machine components and requires the affected components to conform to 2.24.2 through 2.24.9 and 2.26.8.
Specific focus should be given to the following B44 code requirements:

2.24.3	Factors of Safety for Driving Machines
2.24.3.1	Factor of Safety Based on Alternating / Reversing Stresses
2.24.3.2	Factor of Safety at Emergency Braking
2.24.4	Fasteners Transmitting Load
2.24.4.1	Fasteners and Rigid Connections
2.24.5	Shafts Fillets and Keys

b) Where the electric motor was once secured to the machine frame and foot mounted motors are now provided, the assessment should consider the adequacy of the new motor mounting / fastening details.

c) Section 8.7.2.8 of B44 deals with electrical equipment, wiring, pipes, and ducts in hoistways and machine rooms. The assessment should ensure that the installation of new electrical equipment, wiring, raceways, cables, or ducts shall conform to the applicable requirements of section 2.8 of B44.

d) The assessment shall be forwarded to TSSA in the form of a Minor A alteration.

5. INSPECTION

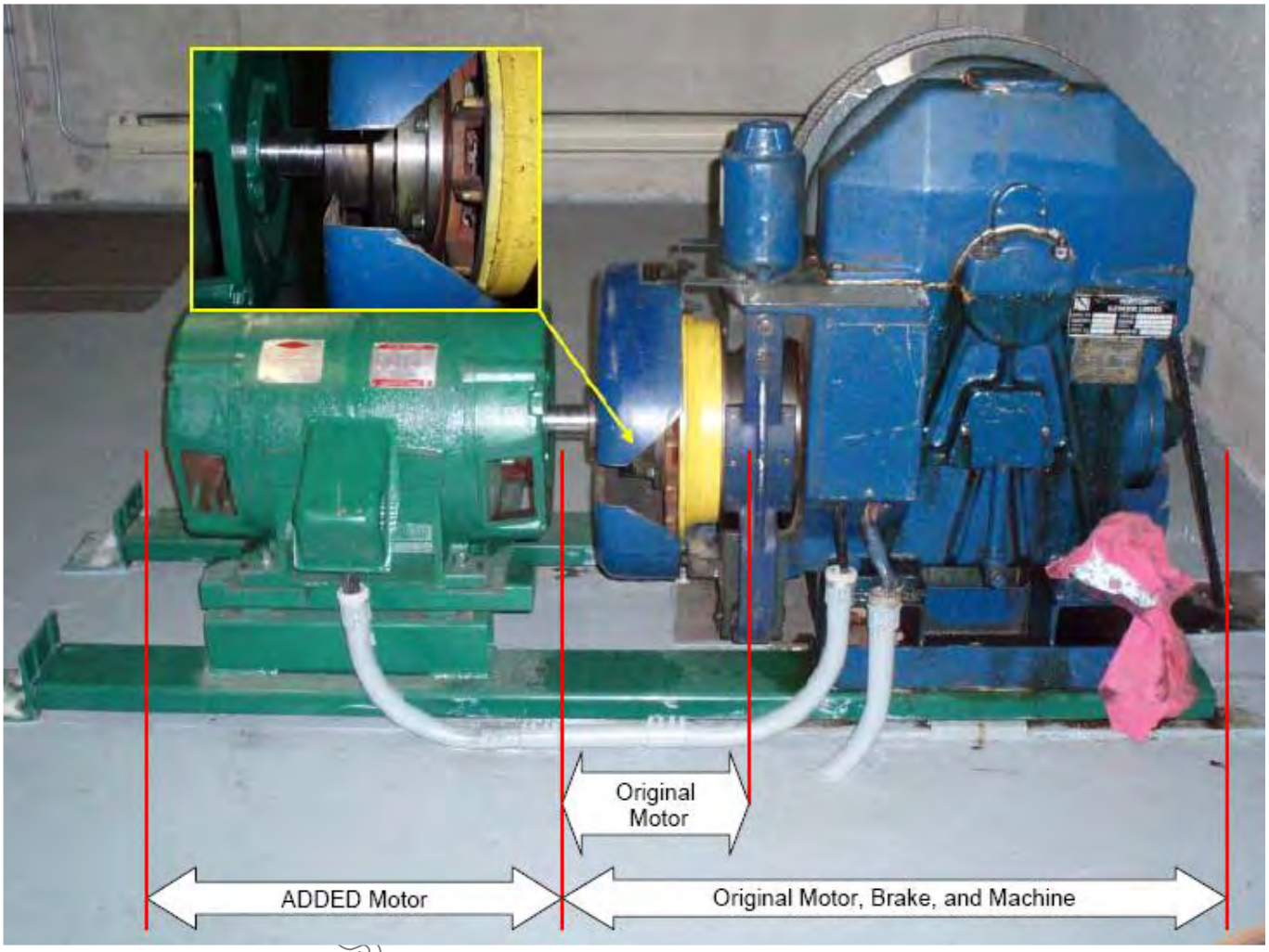
These installations will be subject to a field inspection. Upon completion of a site inspection contractors are required to record in a maintenance log book that the requirements of 235/09 have been complied with.

_____

Roland Hadaller, P.Eng.
Director, Ontario Regulations 209/01(Elevating Devices) made under the *Technical Standards and Safety Act*, *2000*

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Attachment 'A'



Notes:

1. Original Motor is still existing – not replaced.
2. Added motor is bolted to existing motor and foot mounted.
3. In this example channels have been added to extend the machine base.
4. Wiring & conduit have been added to supply the added motor.

Elevating and Amusement Devices Safety Division	Ref. No.: 235 / 09
DIRECTOR'S SAFETY ORDER REPORTING FORM	

Subject: Addition of an Electric Motor to Northern ERM Machine

Contractor to return this form via fax or email to:

Attention: Director of Elevating Devices
Fax: 416 231 5435
Email: eddesignsubmittal@tssa.org

The elevating device(s) identified with installation number(s):

_____
Installation Number(s)

and located at:

_____
ED Device Address

has been altered via the addition of an electric motor to the existing motor as described in Director's Safety Order 235/09.

Name of person completing this reporting form _____
print name

Position / Title _____

Name of Firm _____

Elevating and Amusement Devices Safety Division	Ref. No.: 236 / 08	Rev. No.:
Safety Alert Bulletin	Date: December 18, 2008	Date:

Subject: Structural failure due to water intrusion & ice expansion
Sent to: All Chair Lift Owners / Operators

1. INTRODUCTION
   A recent incident on a ski lift in British Columbia involving tower failure due to water intrusion has prompted the release of this safety alert.

2. ALERT
   The possibility of structural failure exists in circumstances where there is a potential for water to accumulate inside any enclosed structural assembly. This is due to the freezing of water and the resulting expansion of ice.

   Doppelmayr CTEC issued Safety Alert Bulletin SA-06-022 on December 31, 2006, which noted that accumulated water within tower tubes can have catastrophic effects upon structural integrity when it freezes.

3. INSTRUCTIONS
   While the Dopplemayr bulletin specifically referenced a particular model of tower, it should be noted that any tower design that has a sealed base, or other structural assembly that may accumulate water, could similarly be affected if there is a pathway for water intrusion.

   All chair lift owners/operators should immediately perform a close visual inspection of their above-ground passenger ropeways including all tower components and tower bases, for signs of water accumulation inside any structure. Evidence of such may appear as bulging, weeping or cracks in the welds. As an additional precaution, operators should perform soundings of any hollow structural component. For towers, it is suggested to strike the vertical face of the tower at several locations in an ascending order starting from the tower base along the entire tower length with a dead-blow hammer. A solid dead sound compared to a more bell-like (hollow) tone may indicate the presence of water in the tower. If any indications are noted, the owner/operator should immediately remove the device from service and contact the manufacturer for further instructions. TSSA should also be notified.

   Where drain holes at the tower base are provided, operators should maintain the functionality of the drain holes. Care must be taken to eliminate or minimize any obvious source of water intrusion.

4. BACKGROUND
   The Doppelmayr CTEC bulletin SA-06-022 was originally issued in response to a specific incident. A copy of this bulletin is available at: http://www.tssa.org/regulated/ski/skiSafety.asp?loc3=mfrbulletins

   On December 16, 2008, an incident occurred at Whistler Blackcomb in BC in which a tower sustained a structural failure. The owner of the device indicated that this failure occurred after water seeped into the tower and froze, causing the tower splice to rupture.

   TSSA is issuing this safety alert bulletin in response to both incidents and to create a greater awareness of the hazards of water intrusion in towers.

Rob Kremer, P.Eng.
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

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Elevating and Amusement Devices Safety Division	Ref. No.: 237 / 08	Rev. No.:
Safety Alert Bulletin	Date: December 23, 2008	Date:

Subject: Maintaining Safe Clearances Around Chair Lift Carriers
Sent to: All Chair Lift Owners / Operators

1. INTRODUCTION

A recent incident on a ski lift in Ontario where snow making equipment inadvertently rotated into the path of a chairlift and came in contact with a chair and passenger has prompted the release of this safety alert.

2. ALERT

All chair lift owners are reminded of the importance of continually ensuring that entire length of the ropeway is kept clear of any objects that may come in contact with the carriers or rope. Attention should also be paid to equipment that may not normally be in the path but has the capability of moving into the path such as pivoting or rotating snowmaking guns.

3. INSTRUCTIONS

All owners are reminded of the requirement to perform a daily visual inspection of the entire length of the ropeway as per 11.12.1 of the CSA Z98 Passenger Ropeways standard.

4. BACKGROUND

TSSA recently investigated an incident where new snow making equipment was installed in the vicinity of a chairlift. Over a period of time, the gun rotated into the path of the carriers, became entangled with a chair and seriously injured a passenger.

TSSA is issuing this safety alert bulletin in response to this incident to create a greater awareness of the hazards of equipment near passenger ropeways.

Rob Kremer, P.Eng.
Engineering Manager, EDAD Program

Roger Neate
Operations Manager, EDAD Program

	Elevating and Amusement Devices Safety Division	Ref. No.: 238 / 09	Rev. No.:
	Elevating Devices Code Adoption Document - Amendment	Date: January 29, 2010	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Adoption of CSA B355-09, Lifts for Persons with Physical Disabilities

Sent to: All Elevating Device Contractors, Consultants and Elevating Device Mechanics

The Director of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards & Safety Authority is further amended as follows;

1.0 Change to Part VII ELEVATING DEVICES FOR PERSONS WITH PHYSICAL DISABILITIES

Effective August 1, 2010,
Section 36 of the CAD is revoked and replaced by the following:

36.(1) Each newly installed lift for persons with physical disabilities shall conform to the requirements of CSA Standard B355-09, Lifts for persons with physical disabilities and any applicable changes set out in the CAD.

36.(2) All lifts for persons with physical disabilities shall conform to the maintenance requirements of CSA B355-09 Lifts for persons with physical disabilities Annex B and any applicable changes set out in the CAD.

Subsection 41.(d) of the CAD is revoked and replaced by the following:

(d) provide instruction to users that an unoccupied platform of an unenclosed stair platform lift shall not be called or sent from a landing station unless it is in the raised and folded position.

Part VII Elevating Devices for Persons with Physical Disabilities is amended with the addition of section 45:

45. (1) Maintenance Log Book
The log book shall, as a minimum, contain the following information:
(a) Building name and/or address,
(b) TSSA or MCCR installation number,
(c) Contractor's and Owner's name,
(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,
(f) The printed name(s) and signature(s) of the person(s) who completed the required maintenance task.
(g) Where a part directly affecting the safe operation of the elevating device is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted, repaired or replaced.

45.(2) Location of the Log Book
(a) The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice shall be posted in the machine room indicating the alternate location.

2.0 INSTRUCTIONS

(a) The CSA Standard B355-09, Lifts for Persons with Physical Disabilities is available from the Canadian Standards Association, 5060 Spectrum Way, Suite 100, Mississauga, ON, L4W 5N6, telephone 1-800-463-6727, 416 747 4044 or online www.shopcsa.ca.

(b) Elevating Device Regulation 209/01 requires all mechanics to have full knowledge of the codes applicable to the elevating devices on which they are assigned to work, and therefore mechanics involved in the construction, installation and maintenance of lifts for persons with physical disabilities shall be familiar with the Regulation, applicable codes and subject requirements.

(c) Electronic copies of the
- *Technical Standards and Safety Act, 2000,* and
- Elevating Devices Regulation 209/01

can be obtained free of charge from Government of Ontario web site http://www.e-laws.gov.on.ca/ or from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act.

(d) Electronic copies of the
- Elevating Devices Code Adoption Document

can be obtained free of charge from the TSSA web site at http://www.tssa.org/regulated/elevating/elevatingSafety.asp?loc3=act

3.0 NOTES

3.1 Contractors are urged to study **CSA Standard B355-09, Lifts for Persons with Physical Disabilities** carefully to ensure conformance by the specified date.

Major revisions / additions in CSA-B355-09 from CSA-B355S1-02 include:
- New definitions added for
  - Levelling
  - Levelling Device
  - Levelling Device, anti-creep
  - Levelling Device, automatic
  - Levelling zone

- 4.1.3 600mm dimension was 500mm
- 4.8.3 Emergency lighting shall consist of at least 2 lights

- 5.1.3 600mm dimension was 500mm

- 5.2.3.1 Last sentence added to remind designers that a control circuit failure shall not render the interlock function ineffective. Does not require interlock recertification but control circuits must be in compliance.
- 5.4.2(a) Access to the pit **shall** be by means of lowest landing door.

- 6.1.4. New requirement for manual moving of the carriage.
- 6.4.1.2 Updated reference for roller chains to ANSI/ASME B29.100
- 6.4.1.3 Connecting links of chain to be as strong as chain
- 6.4.1.4 Chains must lie in a single plane (2 dimensional plane)
- 6.6.2.1.2 Revised to allow relief pressure of up to 150% of working pressure, old 6.6.2.1.3 deleted
- 6.6.2.3 Title changed to add the word "Manual" and new requirement to show the direction of operations for lowering the carriage
- 6.6.2.4 Modified re: location of the shutoff valve.
- 6.6.6 The words "levelling device" added to the title

- 7.2.3.1 The words "where applicable" added
- 7.2.5.1(b) Modified – safeties to operate simultaneously, etc.
- 7.2.6.2 Clarified by adding the words "except the seat"
- 7.4.2 Clarified to allow the seat height to be reduced
- 7.4.6 Clarified by adding the words "of the chair"
- 7.6.3.2 Safety flap dimension increased to 152mm.
- 7.7.3 600mm dimension was 500mm

- 8.1.2 Electrical equipment shall conform to CAN/CSA-B44.1/ASME A17.5
- 8.2.4.1 Travel restriction re automatic leveling deleted
- 8.3.3 Revised requirements for emergency operation
- 8.4.2 Protection in case of failure completely rewritten. Must now protect against a single failure of:
  - a single switch that does not have contacts that are positively separated mechanically (includes magnetically operated switch)
  - device that limits the unlocking zone or leveling zone
- 8.4.2.3 modified re:
  - when to check redundant devices and,
  - when a failure is detected, when to shut down the lift
- 8.5.2.1(c) modified to require a push to stop device
- 8.5.2.1(d) modified to allow 8.5.2.2 and 8.5.2.3 device to be constant pressure
- 8.5.11 new requirement for manual moving device

- Section 10 new requirement for alterations
- Table 1 corrected

3.2 Conformance with the above requirements as well as all other requirements in CSA Standard B355-09, Lifts for persons with physical disabilities shall be demonstrated in the design submission and at the initial inspection, as applicable.

3.3 Annex B of B355-09 establishes fixed maintenance frequencies and requires at least two maintenance visits per year.

4.0 EFFECTIVE DATES FOR DESIGN SUBMISSIONS

4.1 **Design submissions** received by TSSA for registration on or after the **1st day of August 2010**, shall demonstrate conformance to the requirements of CSA Standard B355-09, Lifts for Persons with Physical Disabilities.

a) Compliance with CSA Standard B355-09 shall be stated in the design submission specification sheets or in a separate affidavit.

b) Submissions received between **June 1, 2010** and **July 31, 2010** may comply with B355-00 including supplement B355s1-02 or CSA Standard B355-09.

c) Any designs submitted before **June 1, 2010** and based on the CSA Standard B355-09 code must be accompanied by a request for variance.

d) Pre-applications will not be accepted.
- Complete submissions, for installations designed to B355-00 including supplement B355s1-02 must be received before **August 1, 2010**
- Device submissions received on or after**August 1, 2010** must comply with B355-09.

Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*.

This Order has been developed in consultation with the Elevating Devices Advisory Council

	Elevating and Amusement Devices Safety Division	Ref. No.: 239 / 10	Rev. No.:
	Elevating Devices Code Adoption Document - Amendment	Date: June 21, 2010	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Annual Testing of Firefighters' Emergency Operation
Applicable to: Elevator Owners &/or Licensees, Elevator Contractors, Mechanics and Inspectors

The Director of Ontario Regulation 209/01 (Elevating Devices) pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference) hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards & Safety Authority is further amended as follows:

1.0 Change to Part III Elevators, Dumbwaiters, Escalators, Moving Walks, Material Lifts and Freight Platform lifts

Effective January 1, 2011,

Section 6.(1)(ff) of the CAD is revoked and replaced by the following:

(ff) Section 8.11 - Periodic Inspection and Test Requirements, are not adopted

Section 6.(1)(gg) of the CAD is revoked and replaced by the following:

(gg) Firefighters' Emergency Operation

(a) Elevators that incorporate any form of Firefighters' Emergency Operation are required to have this operating mode tested on an annual basis to verify that the firefighters' feature is operational and ready for use by firefighters or emergency personnel if required during a fire or other emergency.

(b) The required inspection checks of this operating mode shall either be recorded on the **"Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks"** form provided by the designated administrative authority or on a form containing not less than the tests prescribed on this form.

(c) The owner or the owner's authorized agent may perform the necessary annual testing provided they are trained and instructed in the use of Firefighters' Emergency Operation.

(d) A record of findings shall be made and recorded and shall be available to elevator personnel and to the authority having jurisdiction. Any deficiencies identified during the testing shall be rectified. Note: It is the responsibility of the elevating devices owner to ensure firefighters' emergency operation testing is performed annually.

2.0 OVERVIEW

Elevator owners and/or licensees are required to test the basic functionality of their elevators' Firefighters' Emergency Operation features, where this mode of operation is provided. Testing shall be performed annually.

Tests performed on or after January 1, 2011 shall utilize the **"Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks"** form (attached), or shall cover the inspection checks required by this form. A fillable copy of the form is available at www.tssa.org.

The **"Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks"** form has been prepared to provide guidance to building owners, elevator contractors, mechanics and inspectors regarding the minimum expectations around these annual testing requirements.

3.0 BACKGROUND

In 1975 the elevator safety code introduced for the first time a new operating mode aimed at firefighter's that offered them control of an elevator so that in a fire or other emergency they could command the elevators travel as needed.

Since the introduction of this feature in 1975, there have been a number operational changes and name changes associated with this form of operating mode.

The current elevator code refers to this operating mode as **"Firefighters' Emergency Operation" (FEO)**, but elevators installed under other editions of B44 Safety Code for Elevators may have referred to this operating mode as:

- **Fire Recall / Fire Service,**
- **Firefighters' Recall / Firefighters' Service, or**
- **Special Emergency Recall / Special Emergency Service.**

Despite the various names given to this fire operating mode, any elevator system that incorporates a form of firefighter operation is required to have this operating mode tested.

The different names used to reference these operating modes should not be confused with the term Firefighters' Elevator, which is a reference to an elevator specifically identified for firefighter use as specified in the building code.

Annual testing is to verify that the firefighters' feature is operational and that it is ready for use by firefighters or emergency personnel if required during a fire or other emergency. Annual testing need not be as extensive as the acceptance test that was conducted during the inspection when the elevator was first commissioned for public use. This requirement however does not prevent a more comprehensive verification of the firefighter's feature. A minimum number of tests are included in the attached **"**Maintenance Checklist for **Firefighters' Emergency Operation - Record of Inspection Checks"** check sheet.

4.0 DEFINITIONS

Authorized Personnel: persons who have been instructed in the operation of the equipment and designated by the owner to use the equipment;

Elevator Personnel: persons who have been trained in the construction, maintenance, repair, inspection, or testing of equipment;

Emergency Personnel: persons who have been trained in the operation of emergency or standby power and firefighters' emergency operation or emergency evacuation;

Phase I Emergency Recall Operation: the operation of an elevator where it is automatically or manually recalled to the recall level and removed from normal service because of activation of firefighters' emergency operation;

Phase II Emergency In-Car Operation: the operation of an elevator by firefighters where the travel is under their control.

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Roland Hadaller, P. Eng.
Director, Ontario Regulation 209/01 (Elevating Devices) made under the Technical Standards and Safety Act, 2000

This Code Adoption Document has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks

Installation No:		Date of Test:	
Tested by:		Last Tested on :	

Item	Description	Pass	Fail
1	Check for availability of the key used to initiate recall of elevators. Available to only authorized, emergency and elevator personnel. A separate key shall be provided for each switch.[1]		
2	Recall the elevator to the recall level by use of the Phase 1 recall switch located in the lobby of the designated landing.		
3	Verify that the same key can be used to initiate Phase 2 operation in the car.		
4	Verify that the in-car Fire Operation switch functions as follows: (Switch should be marked as either: "OFF-ON" or "OFF-HOLD-ON")		
5	Verify that constant pressure of the car door buttons (in both the open and close directions) is required to complete a full door open or full door close sequence. Where no door close button is provided constant pressure of a floor button is permitted.		
6	Verify Phase 2 operation (by use of the in-car fire operation switch) by running the elevator a minimum of one floor. (buildings with several floors should be tested over more floors)		
6.1	Upon arrival at a floor, operate the doors. Confirm operation as required in Item 5. Also verify that during closing obstruct any electronic door opening device to ensure it is rendered ineffective.		
6.1	Register a Call: When in the "ON" position floor selection is established by means of registering a car call and closing of the doors by means of the door close button or where no door close button is provided, constant pressure of the floor selection means.		
6.2	Confirm 'security restricted' floors are overridden when running the elevator on Phase 2.		
6.3	Cancel a Call: • Cancellation of car calls is by momentary use of the "HOLD" position. • Where there is no "HOLD" position, in a two position switch, momentary use of the "OFF" position shall cancel car calls. • When provided, the 'Cancel Call' button shall cancel car calls.		
6.4	When in the "HOLD" position with the car at a landing other than the recall level and the doors in the fully open position, a car call may not be registered and the car door shall not be able to close.		
6.5	When in the "OFF" position and the car is at a landing other than the recall level, the doors shall close automatically and when the doors reach the fully closed position, the car shall return automatically as if on 'Phase I recall' to the designated landing or the recall level.		

Record of Findings	Resolved on:

- Depending on the code edition to which this elevator was installed, this firefighters' operating mode may have been referred to as either; Fire Recall / Fire Service, Firefighters' Recall / Firefighters' Service, Special Emergency Recall / Special Emergency Service, or Firefighters' Emergency Operation (FEO).
- Phase 1 recall refers to the action where elevators are recalled to the recall level via the recall switch.
- Phase 2 refers to the mode of operation when control of the elevator is achieved by enabling the firefighter key switch in the elevator.
- Conformance with these requirements is the responsibility of the owner as part of elevator maintenance.
- While comprehensive testing is possible, above are the minimum suggested requirements only.
- Authorized Personnel: persons instructed in the operation of the equipment and designated by the owner to use the equipment,

[1] Sufficient keys must be available for emergency personal to operating multiple elevators at a time in an emergency or fire scene if required.

A copy of this report shall be available to elevator personnel and the elevating devices safety inspector.

Elevating and Amusement Devices Safety Division	Ref. No.: 240/09	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: December 16, 2009	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices)
made under the ***Technical Standards and Safety Act* 2000**

Subject: Raising the Chair Lift Safety Bar - Continued data collection and monitoring
Sent to: All Chair Lift Owners / Operators

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under the *Technical Standards & Safety Act* 2000 hereby orders the following:

1. ORDER

1.1 In continuation with Director's Order 233/08, ongoing monitoring and feedback is required by all owners of chair lifts during the 2009/10 season. Operations Managers shall:

a) Observe a minimum of **100 unloads** from each chairlift, at two designated times during the upcoming season and record the distance patrons are raising the restraining device prior to the 'unload point'. Explanation of the measurements required can be found in D.S.O. 229/07 or in the data collection form.

b) Complete one form for each chair lift and provide the results during each of the following weeks:

Survey Period	**Date Report due to TSSA**
January 11 - 17, 2010	February 1, 2010
February 15 - 21, 2010	March 8, 2010

c) Email the completed forms to zerofalls@tssa.org by the deadlines given above. The form for results reporting is available for download from the TSSA website: www.tssa.org.

d) The data collection must be completed by, or under the direct supervision of the Operations Manager or equivalent. The same person should complete the data collection at both times.

Note: Section 37 of the Act provides that "every person who fails to comply with an order; is guilty of an offence and on conviction is liable to a fine of not more than $50,000 or to imprisonment for a term of not more than one year, or to both, if the person is a body corporate, to a fine of not more than $1,000,000.

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Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000,*

This Director's Order has been developed in consultation with the Zero Falls Risk Reduction Group.

Elevating and Amusement Devices Safety Division	Ref. No.: 241 / 10	Rev. No.:
Enforcement Procedure Bulletin	Date: April 9, 2010	Date:

Subject: Escalator/Moving Walks: Monthly Application of Friction Reducing Agent on Skirts Panels, Start Up Procedures, and Skirt Step Index Measurements

Applicable to: Escalator Owners / Licensees, Contractors, Consultants and Mechanics

1. INTRODUCTION

This enforcement procedure (EP) bulletin is intended to remind owners about the requirements related to:

a) **the application of friction reducing agents* on escalator skirts and**
b) **escalator and moving walk daily prestart checks**

*The application of friction reducing agents may not be required if the escalator is conformant with the "Step/Skirt Performance Index" requirements. Refer to section 4 below.

2. REQUIREMENTS

The following requirements were adopted via ***Code Adoption Document – Amendment 225/07, Ontario Regulation 209/01 (Elevating Devices).***

2.1. Clause 5.2.1 of the B44.2-07 (Application of Friction Reducing Spray)

The following maintenance procedures shall be performed at intervals not exceeding one month:

(f) Where skirt panels are not made of low friction material or permanently treated with a friction-reducing material, a friction reducing agent shall be applied.

2.2. Requirement 8.6.11.5 of the A17.1-2007/B44-07 (Escalator or Moving Walk Start-Up Procedures)

8.6.11.5 Escalator or Moving Walk Startup.

8.6.11.5.2 The following procedure shall be utilized when starting an escalator or moving walk:

a. Prior to starting the unit, observe the steps or pallets and both landing areas to ensure no persons are on the unit or about to board. Run the unit away from the landing.
b. Verify correct operation of the starting switch.
c. Verify correct operation of the stop buttons.
d. Verify correct operation of each stop button cover alarm, if furnished.
e. Visually examine the steps or treadway for damaged or missing components; combplates for broken or missing teeth; skirt or dynamic skirt panels and balustrades for damage.
f. Verify that both handrails travel at substantially the same speed as the steps or the treadway, are free from damage or pinch points, and that entry guards are in place. Visually verify that all steps, pallets, or the treadway is properly positioned.
g. Verify that ceiling intersection guards, anti-slide devices, deck barricades, and caution signs are securely in place.
h. Verify that demarcation lighting is illuminated, if furnished.
i. Check for uniform lighting on steps/tread not contrasting with surrounding areas.

j. Verify that the safety zone is clear of obstacles and that the landing area and adjacent floor area are free from foreign matter and slipping or tripping hazards.

k. Check for any unusual noise or vibration during operation. If any of these conditions is unsatisfactory, the unit shall be placed out of service. Barricade the landing areas and notify the responsible party of the problem.

3. PROCEDURES

a) Monthly Application of Friction Reducing Agent

In order to ensure compliance with Section 5.2.1 (f) of the B44.2-07, the owner in consultation with their escalator maintenance contractor shall examine all of their escalators to identify those escalators that do not have skirt panels made of, or permanently treated with anti-friction material.

The owner shall ensure that a friction reducing agent is applied to skirts of the identified devices at monthly intervals.

The application of the friction reducing agent can be carried out by anyone authorized and trained by the owner for that purpose. Special care must be taken to avoid spraying the antifriction agent on to the steps.

Records for each escalator, detailing the date anti-friction agent was applied along with the signature and printed name of the person who carried out the task shall be kept on site, in the form of a log, and made available to an inspector upon request. The records shall be kept for five years.

Owners are reminded that it is their responsibility to ensure that the application of the friction reducing agent is carried out regularly, even in cases where the maintaining contractor has agreed to complete this task on the owner's behalf.

Owners shall also ensure that the friction reducing agent is not removed inadvertently by cleaning staff, unless applied again immediately after cleaning the skirts.

Owners or contractors shall ensure that all skirt panels are in good condition and are not worn, do not have gaps between panels, holes, dents or any other deformation. If such conditions exist they shall be repaired or replaced immediately.

Owners or maintenance contractors, who find a device that is not in compliance with the requirements of this bulletin, shall immediately remove the device from service until compliance is achieved.

Maintenance contractors shall ensure that the step to skirt clearance dimension is maintained within the acceptable limits of the applicable code, and that the steps and combplates mesh adequately to reduce the risk of entrapments at the combplates.

b) Escalator and Moving Walk Start Up Procedures

Requirement 8.6.11.5 of A17.1/B44-07 requires a series of checks prior to start-up of escalators and moving walks. Owners must ensure these start-up procedures are followed to ensure compliance to the regulatory requirements. Escalators and moving walks that are subject to 24 hour operation shall be checked daily by authorized personnel.

A record of authorized and trained personnel shall be kept on the premises where the escalator(s) or moving walk(s) are located and shall be available to the authority having jurisdiction.

While it is a requirement to carry out the checks contained in the Escalator or Moving Walk Start-up procedure, it is not a requirement to record 'who' started the escalator.

To monitor and record the essential activities related to daily start-up checks, see the attached Escalator / Moving Walk Daily Start-Up Log. Copies can be obtained from www.tssa.org see ED-241-10 Start-Up Log.

4. STEP/SKIRT PERFORMANCE INDEX

The next edition of CSA-B44 (2010) will adopt the Step/Skirt Performance Index (SSPI) requirements for new **and existing devices**. The SSPI is a calculated value that is based on skirt friction and the gap between the escalator step and skirt panel.

With the release of the **B44-85** edition of the code, friction reducing sprays were no longer permitted as a means to reduce friction. Instead "new design requirements" for skirt panels were introduced. However escalators installed prior to the 1985 code edition may have relied on sprays to ensure skirt friction was kept to a minimum, and this regular application of spray is still required unless conformance to the applicable SSPI is demonstrated.

The code requirements for SSPI are as follows:

- New escalators must record an SSPI value of 0.15 or less
- New or Existing installations built to B44-00 update 1 or later, that are equipped with skirt deflector devices, must record an SSPI value of 0.25 or less, and
- Existing installations built to B44-00 or prior, that are equipped with skirt deflector devices, must report an SSPI value of 0.40 or less.

Despite the requirements specified in 2.1 of this enforcement procedure bulletin (re: treating or spraying escalator skirts with a friction reducing agent), where escalators are tested and can demonstrate and subsequently document compliance with the applicable SSPI, the requirement to apply a friction reducing agent can be ignored. However, **owners and contractors should note that the Step/Skirt Performance Index must be measured annually and a record of acceptable findings shall be kept in the escalator log book.**

IMPORTANT NOTE: The adoption of the 2010 Edition of B44 (effective mid/late 2011) will:

- no longer permit friction reducing sprays
- require conformance to the Skirt Step Performance Index (SSPI)** exclusively.

**Failure to meet the SSPI may force changes or upgrades to escalator skirt panels.

5. BACKGROUND

Due to several incidents in Ontario involving escalator entrapments which resulted in both minor and serious injuries, TSSA created an Escalator Entrapment Risk Reduction Group. This group which was made up of Industry representatives, Owners, Consultants and TSSA engineering and inspection staff, produced recommendations based on the data gathered from inspections and incidents in Ontario and studies carried out in other jurisdictions.

This Enforcement Procedure Bulletin was prepared using some of the recommendations provided by the Risk Reduction Group.

Owners of escalator and moving walks should also take note that with the next edition of the A17.1/B44-2010 safety code for elevators and escalators, the following requirement will be adopted:

8.6.8.3.3 The escalator step/skirt performance index shall be one of the following, whichever is applicable:
(a) ≤0.15
(b) ≤0.25 for escalators installed under ASME A17.1a-2002/CSA B44-00 Update 1 and later editions and when a skirt deflector device complying with the requirements of 6.1.3.3.7 is provided
(c) ≤0.4 for escalators installed under ASME A17.1-2000/CSA B44-00 and earlier editions and a skirt deflector device is provided.

Item (c) above pertains to existing escalators which may not have been manufactured to meet the requirements of the escalator step/skirt performance index. As such the addition of skirt deflector devices on these escalators may be necessary to conform with the code requirements provided the SSPI is ≤0.4, otherwise skirt panels may require replacement.

6. ENFORCEMENT

Should an inspector find a device in non compliance with:

- 5.2.1 (f) of the B44.2-07 (or a failure to demonstrate / document the alternative SSPI as described above) or
- requirement 8.6.11.5 of the A17.1/B44-07 (start-up procedures)

the escalator or moving walk may be removed from service and may remain our of service until compliance is achieved.

This enforcement procedure bulletin is effective immediately.

Rob Kremer, P.Eng.,
Engineering Manager, EDAD Program

Dean McLellan
Incident Management Specialist, EDAD Program

This Bulletin has been developed in consultation with the TSSA Elevating Devices Advisory Council.

ESCALATOR / MOVING WALK DAILY START-UP LOG

Building:		**Address:**	
Installation No.		**Week Start Date:**	
		Problem Reporting Phone #:	

Initials of the person performing the start-up check →									
Ref		**Check List Item**	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**
1	**Start end**	Approach / walk-on area							
2		Comb segments *broken teeth*							
3		Handrail inlet device							
4		Start switch *(note: run unit away from the landing)*							
5		Stop switch							
6		Stop switch cover alarms if furnished							
7		Step / pallet side clearance							
8	**Opposite end**	Approach / walk-on area							
9		Comb segments *broken teeth*							
10		Handrail inlet device							
11		Start switch *(note: run unit away from the landing)*							
12		Stop switch							
13		Stop switch cover alarms *if furnished*							
14		Step / pallet side clearance							
14	**General**	Handrail condition *cracks, pinch points*							
15		Handrail speed *closely matches step speed*							
16		Balustrades							
17		Skirt panels *damage, raised surfaces/objects*							
18		Unusual noises							
19		Unusual vibrations							
20		Demarcation lights *if furnished*							
21		Ceiling intersection guards							
22		Anti-slide devices							
23		Deck barricades							
24		Caution Signs							
25		Steps / pallets / treadways *damage*							
26		Ambient lighting *adequate*							
27		Skirt brushes							

Escalators and moving walks shall be started only by authorized personnel* trained in compliance with the required procedures.
Escalators and moving walks subject to 24-h operation shall be checked daily by authorized personnel.
A record of trained authorized personnel shall be kept on the premises and shall be available to the authority having jurisdiction.
*authorized personnel: persons who have been instructed in the operation of the equipment and designated by the owner to use the equipment.

Elevating and Amusement Devices Safety Division	Ref. No.: 242 / 10	Rev. No.:
Enforcement Procedure Bulletin	Date: November 1, 2010	Date:

Subject: Signing of Logbooks for Completed Maintenance Tasks
Applicable to: Elevating Device Mechanics, Contractors, Consultants, and Owners

1. INTRODUCTION & INTERPRETATION

1.1. "Complete and Compliant"

A mechanic's signature and date, for a log book entry that is used to denote that a specific maintenance; task, test, examination, inspection or check has been completed, shall only be signed off once the action is complete and the status of the device or component associated with that task is in compliance with the applicable code[1] and regulatory requirements.

Where a log book signature applies to a group of tasks, no mechanic shall sign off unless the group of tasks is fully complete and the devices or components associated with that group are in compliance with the applicable code and regulatory requirements.

A signed off task on a log book entry shall only be used to denote a "Complete and Compliant" state.

Note: The use of a log book notes section to record findings, corrective actions or planned corrective actions is not prohibited. See 8.6.1.4 of B44 for information related to documenting tasks, call backs and other maintenance records. Where corrective actions are in progress, refer to B44 8.6.12.2.3 for requirements related to parts affecting safe operation. These devices may require shut-down until remedial activities are complete.

[1]"Applicable code" generally refers to the code under which the component or device was installed or altered.

1.2. Maintenance and Maintenance Tasks

Every elevating device is required to be maintained by a registered contractor.

By definition, maintenance includes the actions associated with inspection, examination, testing, cleaning, lubricating, repairing and adjusting of parts and components at regular intervals to prevent the elevating device from becoming unsafe or in non-compliance with the applicable codes[1] and regulatory requirements.

Per B44 (8.6.12.2.3 see also 8.6.1.2.2) , *"Where a part directly affecting the safety of the operation is found to be defective, it shall be immediately adjusted, repaired, or replaced."* If this is not possible the device must be removed from service.

Compliance with the applicable code and regulatory requirement means that the device or component is functioning properly. Additionally, maintenance mechanics must apply a standard of care as shown below;

O.Reg 209/01 s32.4

A person who carries out an inspection … shall ensure that the elevating device is in a safe operating condition and shall take all steps and reasonable precautions in the circumstances to ensure that the parts and functions will remain in a safe operating condition until the next scheduled inspection and examination. O. Reg. 209/01, s. 32 (4).

1.3. Log Books

Pursuant to Ontario Regulation 209/01 (Elevating Devices)
34. *(1) Every owner of an elevating device and every contractor shall maintain a log book for each elevating device that they own or maintain, and the log book shall contain up-to-date data on,*
(a) all maintenance functions required to be recorded in the log book by the applicable code, standard or requirement referred to in the code adoption document or any applicable director's order; and
(b) such other data as are required to be kept in the log book by this Regulation. O. Reg. 209/01, s. 34 (1); O. Reg. 252/08, s. 20.

For additional log book requirements related to B44 elevating devices refer to; O.Reg 209/01 (Elevating Devices), 8.6.12 of B44, CAD amendment 225/07-r3 and Directors Order 99/92.

For additional log book requirements related to B355 devices refer to; O.Reg 209/01 (Elevating Devices), Appendix B of B355, CAD amendment 238/09, Bulletin 197/06-r1 and Directors Order 183/03.

2. SUPPORTING DOCUMENATION

- Ontario Regulation 209/01 Elevating Devices
- Elevating Devices Code Adoption Document including amendments; 238/09 and 225/07-r3
- Rulings, Orders and Bulletins 99/92, 183/03 and 197/06
- A17.1/B44 Code – 8.6.12.2 General Maintenance Requirements
- B44.2 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks
- B355 Lifts for persons with physical disabilities – Appendix B

3. BACKGROUND

Based on inconsistent practices observed in the field related to the signing off of maintenance tasks in a log book, this bulletin intends to clarify that log book entries shall not be signed off unless the related task is completed in full and the respective part or component is in a regulatory and code compliant state.

Rob Kremer, P.Eng.
Engineering Manager, EDAD Program

Ted Gervais,
Regional Supervisor, EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 243 / 10	Rev. No.:
Information Bulletin	Date: April 9, 2010	Date:

Subject: Hydraulic Elevators with buried hydraulic jacks with single bulkhead cylinders
Applicable to: Owners of single bulkhead buried cylinders
Contractors, Consultants and Elevating Device Mechanics

1 INTRODUCTION & IMPORTANT NOTICE TO OWNERS

Buried cylinders with single bottoms found on older model hydraulic elevators can fail catastrophically and cause injury to riders.

Hydraulic elevators installed prior to the 1977 code requirements could have buried cylinders with single bottoms.

Pending changes to the elevator code will require mitigation for buried cylinders with single bottoms (commonly referred to as single bulkhead cylinders). These code changes are expected to be completed and adopted in Ontario mid to late 2011.

The new code requirements as extracted from B44 Safety Code for Elevators are as follows;

8.6.5.8 Safety Bulkhead.
Hydraulic cylinders installed below ground shall conform to 3.18.3.4, or the elevator shall conform to 8.6.5.8(a) or 8.6.5.8(b):

(a) the elevator shall be provided with car safeties conforming to 3.17.1 and guide rails, guide-rail supports, and fastenings conforming to 3.23.1; or

(b) the elevator shall be provided with a plunger gripper conforming to 3.17.3. The plunger gripper shall grip the plunger when the applicable maximum governor tripping speed in Table 2.18.2.1 is achieved.

1.1 Upcoming Changes

The new requirements mean that hydraulic elevators with buried single bulkhead cylinders will either have to;

a) be equipped with a car safety or
b) be equipped with a plunger gripper or
c) replace the existing single bottom cylinder with a new double bulkhead cylinder complete with a method of corrosion protection.

1.2 Interim & Ongoing Safety Measures

In 1999 TSSA introduced requirements for elevating device contractors to look for effects of corrosion on in-ground hydraulic cylinders with the release of safety alert bulletin 143/99.
A key component of this bulletin was an oil log, intended to flag installations where oil was being added without a viable explanation about where the missing oil went.

Following a hydraulic cylinder failure in Ontario in 2006, TSSA reviewed and heightened the requirements related to oil monitoring and introduced an enhanced oil loss monitoring program with regulatory amendment 212/07.

The heightened requirements forced contractors to account for all oil, lost or added, from an elevators hydraulic system. Contractors must also ensure their oil monitoring programs are documented, and include training records about who received training and when.

With respect to safety, owners and contractors play an important part, and in this regard owners need to be aware of the importance of oil loss monitoring. As part of their due diligence, owners should be asking contractors for documentation that verifies oil loss monitoring is being conducted. On installations known to have single bottom cylinders, oil loss monitoring activities shall occur monthly.

Note: Oil loss monitoring applies to **all** hydraulic elevator installation with **buried** piping or **buried** cylinders.
Only those locations with single bottom cylinders require that the monitoring activity be conducted monthly.

2 PREPARING FOR UPCOMING CHANGES IN THE CODE - NOTICE TO OWNERS

With the adoption of the upcoming code requirements, owners of hydraulic elevators with single bottom cylinders will need to begin planning for necessary changes to their elevator equipment.

It is advisable that owners begin researching options on how best to deal with single bottom cylinders in order to determine the costs associated with the various options and to determine which is the preferred approach for a given building.

While the timelines for equipment compliance are not yet established, it may be beneficial to know that the new code requirements will publish late 2010, early 2011 and their requirements will likely be adopted in Ontario by mid to late 2011. It is expected that compliance to the requirements will span a few years with an eventual full compliance target in 2013.

3 BACKGROUND

Design requirements for buried cylinders have evolved over time.

Hydraulic elevators installed prior to the 1977 code did not require cylinders with double bottoms. Cylinder corrosion tends to be more aggressive where the cylinder has been welded. This corrosion can lead to a catastrophic failure at the bottom of the cylinder that can result in the elevator dropping into the pit at a high rate of speed.

TSSA is not aware of any single bulkhead cylinder that failed catastrophically without prior signs of unexplained loss of oil.

TSSA issued Elevating Devices Code Adoption Document Amendment 212/ 07 requiring oil loss monitoring for all hydraulic elevators as a means to recognize early warning signs of potential failure. For elevators with buried single bottom cylinders, this monitoring must be done on a monthly basis.

During periodic inspections of hydraulic elevators with buried single bottom cylinders, TSSA inspectors are finding cases where the oil loss monitoring required by 212 / 07 is not being done on a monthly basis.

Roland Hadaller, P. Eng.
Director, Ontario Regulation 209/01 (Elevating Devices) made under the Technical Standards and Safety Act, 2000

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 243 / 10	Rev. No.: 1
Information Bulletin	Date: April 9, 2010	Date: March 20, 2012

Subject: Hydraulic Elevators with buried hydraulic jacks with single bulkhead cylinders
Applicable to: Owners of single bulkhead buried cylinders
Contractors, Consultants and Elevating Device Mechanics

1 INTRODUCTION & IMPORTANT NOTICE TO OWNERS

Buried cylinders with single bottoms found on older model hydraulic elevators can fail catastrophically and cause injury to riders.

Hydraulic elevators installed prior to the 1977 code requirements could have buried cylinders with single bottoms.

Pending changes to the elevator code will require mitigation for buried cylinders with single bottoms (commonly referred to as single bulkhead cylinders).

Effective May 1, 2012 TSSA will adopt the requirements of CSA B44-2010 Safety Code for Elevators, which introduces retroactive requirements for installations incorporating buried cylinders with single bottoms. To manage the change and permit owners and contractors time to prepare and complete for the needed upgrade, a three year phase in period was been permitted with a final compliance required by **May 1, 2015.** Devices not retrofitted by this date shall be / must be removed from service until the upgrade is complete.

The new code requirements as extracted from B44 Safety Code for Elevators are as follows;

8.6.5.8 Safety Bulkhead.
Hydraulic cylinders installed below ground shall conform to 3.18.3.4, or the elevator shall conform to 8.6.5.8(a) or 8.6.5.8(b):

(a) the elevator shall be provided with car safeties conforming to 3.17.1 and guide rails, guide-rail supports, and fastenings conforming to 3.23.1; or

(b) the elevator shall be provided with a plunger gripper conforming to 3.17.3. The plunger gripper shall grip the plunger when the applicable maximum governor tripping speed in Table 2.18.2.1 is achieved.

1.1 Upcoming Changes

The new requirements mean that hydraulic elevators with buried single bulkhead cylinders will either have to;

a) be equipped with a car safety or
b) be equipped with a plunger gripper or
c) replace the existing single bottom cylinder with a new double bulkhead cylinder complete with a method of corrosion protection.

1.2 Interim & Ongoing Safety Measures

In 1999 TSSA introduced requirements for elevating device contractors to look for effects of corrosion on in-ground hydraulic cylinders with the release of safety alert bulletin 143/99.
A key component of this bulletin was an oil log, intended to flag installations where oil was being added without a viable explanation about where the missing oil went.

Following a hydraulic cylinder failure in Ontario in 2006, TSSA reviewed and heightened the requirements related to oil monitoring and introduced an enhanced oil loss monitoring program with regulatory amendment 212/07.

The heightened requirements forced contractors to account for all oil, lost or added, from an elevators hydraulic system. Contractors must also ensure their oil monitoring programs are documented, and include training records about who received training and when.

With respect to safety, owners and contractors play an important part, and in this regard owners need to be aware of the importance of oil loss monitoring. As part of their due diligence, owners should be asking contractors for documentation that verifies oil loss monitoring is being conducted. On installations known to have single bottom cylinders, oil loss monitoring activities shall occur monthly.

Note: Oil loss monitoring applies to **all** hydraulic elevator installation with **buried** piping or **buried** cylinders.
Only those locations with single bottom cylinders require that the monitoring activity be conducted monthly.

2 PREPARING FOR CHANGES IN THE 2010 CODE - NOTICE TO OWNERS

With the adoption of the 2010 code requirements, owners of hydraulic elevators with single bottom cylinders will need to begin planning for necessary changes to their elevator equipment.

It is advisable that owners begin researching options on how best to deal with single bottom cylinders in order to determine the costs associated with the various options and to determine which is the preferred approach for a given building.

Remember, all elevators with buried single bottom cylinders will require some form of upgrade (see 1.1) not later than May 1, 2015.

3 BACKGROUND

Design requirements for buried cylinders have evolved over time.

Hydraulic elevators installed prior to the 1977 code did not require cylinders with double bottoms. Cylinder corrosion tends to be more aggressive where the cylinder has been welded. This corrosion can lead to a catastrophic failure at the bottom of the cylinder that can result in the elevator dropping into the pit at a high rate of speed.

TSSA is not aware of any single bulkhead cylinder that failed catastrophically without prior signs of unexplained loss of oil.

TSSA issued Elevating Devices Code Adoption Document Amendment 212/ 07 requiring oil loss monitoring for all hydraulic elevators as a means to recognize early warning signs of potential failure. For elevators with buried single bottom cylinders, this monitoring must be done on a monthly basis.

During periodic inspections of hydraulic elevators with buried single bottom cylinders, TSSA inspectors are finding cases where the oil loss monitoring required by 212 / 07 is not being done on a monthly basis.

Roland Hadaller, P. Eng.
Director, Ontario Regulation 209/01 (Elevating Devices) made under the Technical Standards and Safety Act, 2000

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 244 / 10	Rev. No.:
DIRECTOR'S INFORMATION BULLETIN	Date: April 28, 2010	Date:

IN THE MATTER OF:

THE TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01 (Elevating Devices)

- and -

ONTARIO REGULATION 222/01 (Certification and Training of Elevating Device Mechanics)

made under the Technical Standards and Safety Act, 2000

Subject: **Maintenance and Repair of Elevating Devices by Qualified Mechanics**
Applicable to: Elevator Contractors and Consultants

1. INTRODUCTION

All elevator contractors and consultants are reminded that if personnel, other than those whose regular duties include servicing of elevating devices, are assigned to this work in the event of a labour disruption on elevating devices, they must be qualified in accordance with the TSS Act and Regulation 209/01. Specific requirements are provided as follows for clarification.

Ontario Regulation 209/01 (Elevating Devices)

1. (1) In this Regulation,

"mechanic" means a person who holds a certificate referred to in section 4 of Ontario Regulation 222/01 made under the Act;

"mechanic-in-training" means a person who works under the supervision of a mechanic for the purpose of obtaining the qualifying time and experience required to obtain a certificate referred to in section 4 of Ontario Regulation 222/01;

24. (1) No person shall undertake any work on an elevating device unless the person is employed by a contractor and is either a mechanic or a mechanic-in-training working under the supervision of a mechanic. O. Reg. 252/08, s. 15.

(2) No person shall be involved in a task that is necessarily ancillary or incidental to the installation or maintenance of an elevating device unless he or she is supervised by a mechanic. O. Reg. 209/01, s. 24 (2).

(3) No mechanic shall be assigned or undertake work beyond the scope of his or her certificate or, in the case of passenger ropeway mechanics, beyond the scope of his or her experience or training. O. Reg. 209/01, s. 24 (3).

Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics)

1. (1) In this Regulation,

"mechanic" has the same meaning as in Ontario Regulation 209/01;

4. (1) No person shall work on an elevating device as a mechanic without first having obtained a certificate from the director designating the person as one or more of the following:

1. An elevating device mechanic, class A (an "EDM-A certificate"). …
9. An elevating device mechanic-in-training, Class T (an "EDM-T certificate"). O. Reg. 222/01, s. 4 (1).

Maintenance and repair of elevators, escalators, and other elevating devices must be performed in accordance with the requirements of the Ontario Regulation 209/01, and Ontario Regulation 222/01, under the Technical Standards and Safety Act, 2000.

Individuals who are assigned work on an elevating device must be certified for that class of device or be a TSSA registered trainee (EDM-T) under the appropriate supervision. To meet this requirement the EDM-T must;

- Posses a TSSA Mechanic in Training Passport document or obtain a Skills Passport document from Service Ontario. The purpose of this document is to record the practical training that you acquire. This is a **mandatory** document. There is no cost to order the passport, which includes free delivery. When ordering, use publication #231848.
  The link is provided below to order the Skills Passport document from the Service Ontario website:
  https://www.publications.serviceontario.ca/ecom/

Skills Passport. Please note that not all sections of the passport are mandatory. The signed off sections should accurately reflect the individual's duties throughout his/her period of training.
Please note that Skills Passport can only be signed off by a certified supervising mechanic.

_____

Roland Hadaller, P.Eng.
Director,
Ontario Regulation 209/01(Elevating Devices) and Ontario Regulation 222/01(Certification and Training of Elevating Device Mechanics) made under the *Technical Standards and Safety Act*, *2000*

Elevating and Amusement Devices Safety Division	Ref. No.: 245 / 10	Rev. No.:
DIRECTOR'S ORDER	Date: December 1, 2010	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT* 2000,
S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01(Elevating Devices)
made under the *Technical Standards and Safety Act* 2000

Subject: **Installation or Upgrade of CAR TOP GUARDRAILS on existing elevators (pre B44-07)**
Applicable to: **Elevator Owners / Licensees, Contractors, and Consultants**

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 31 of the *Technical Standards & Safety Act* hereby orders the following:

1 ORDER TO ELEVATOR OWNERS

1.1 By December 1, 2013 ,
all elevators equipped with a car top that is intended to serve as a platform for a worker,
"where the perpendicular distance between the edges of the car enclosure top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance and on sides where there is no hoistway enclosure", [A17.1/B44 2.14.1.7.1]
shall be equipped with a guardrail in conformance with section 3, except as provided for in section 4.

1.2 Owners are reminded that O.Reg 209/01 (Elevating Devices), as amended, s. 25(3) requires owners to "ensure that any alteration to the elevating device is made by a contractor registered under section 21." Owners are also reminded that the requirements for safe worker access on a platform are established within R.R.O. 1990, Reg. 851 (Regulations for Industrial Establishments made under the Occupational Health and Safety Act), Section 13.

2 ORDER to CONTRACTORS

2.1 Contractors who undertake the work of installing a new car top guardrail or upgrading an existing car top guardrail shall ensure the guardrail conforms to the requirements in section 3 of this order.

2.2 Where overhead clearances prevent the direct installation of a 1070 mm (42 in.) high guardrail (per section 3) the requirements of section 4 of this order shall also apply.

2.3 Guardrail clearances and car top marking shall be in compliance with ASME A17.1b-2009/CSA B44-09 section 2.14.1.7 including the reference dimensions provided in Appendix G.

2.4 The installation or alteration of a car top guardrail is a Minor A alteration (refer to TSSA designated alteration 8.7.2.14★4 in Director's Order 226-07-r1). All information required to adequately convey the scope of the alteration shall be provided. Items such as, but not limited to; runby's, overheads, horizontal and vertical clearances, non standard railing designs, railing setback from the car top perimeter, electrical switches and electrical schematic changes if collapsible, and fall arrest anchor points, shall be addressed if

required. Each submission must include confirmation that the guardrail design complies with the dimensional, loading, fastening and deflection criteria detailed in Reg. 851 (Regulations for Industrial Establishments), O. Reg. 350/06 (Building Code) and A17.1/B44 Safety Code for Elevators.

Note: TSSA has developed a specific Minor A template for the addition of a car top guardrail which is available at www.tssa.org. Submissions limited to the addition of a car top guardrail and submitted on the appropriate Minor A template do not require inclusion of an alteration checklist.

2.5 Guards as defined herein are not expected to meet the "openings through" restrictions as defined in O. Reg. 350/06 (Building Code). There shall be no requirement for providing any opening size protection between the top and mid guardrails, or the mid rail and toe board elements as described herein.

2.6 Where existing elevator car top guardrails, installed prior to the A17.1-2007/B44-07 Code do not meet the requirements or provisions as defined in Section 3 or 4 as set out herein, including deflection, lateral and vertical design force requirements, existing car top guardrails must be altered to meet compliance standards and requirements as defined herein. Guardrails designed and installed in compliance with B44-07 prior to June 1, 2011 need not be upgraded.

3 STANDARD GUARDRAIL REQUIREMENTS

3.1 Car top guardrails shall,
(a) have a top rail not less than 1070 mm (42 in.) above the working surface;
(b) have a mid rail (or equivalent structural member);
(c) have a toe-board to a height of 125 mm (5 in.) above the working surface.

3.2 Guards shall be fixed in position and designed to resist the loads[1,2] specified in O. Reg. 350/06 (Building Code) Article 4.1.5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section14(2). See table in 5.2 for reference.

3.3 When the forces of A17.1/B44 2.10.2.4 are applied the railing shall not deflect beyond the perimeter of the car top [A17.1/B44 2.14.1.7.1], and in no case shall the deflection exceed 75mm (3 in.).

[1] For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(5) of O. Reg. 350/06 (Building Code).
[2] For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

4 ALTERNATIVE to 1070 mm (42 in.) HIGH GUARDRAIL

4.1 910 mm to 1070 mm (36 in. to 42 in.)

Where a standard guardrail per Section 3 cannot be provided due to overhead clearance issues, the requirements of 3.1(a) are permitted to be reduced to height between 910 mm and 1070 mm.
Note: Railings between 910mm and 1070mm should be designed to the maximum extent existing clearances allow. (This order applies to existing elevator installations - railing heights less than 1070mm are not permitted for new elevating device installations.)

4.2 Foldable / Collapsible

Where a standard guardrail per Section 3 or the requirements of 4.1 cannot be provided due to overhead clearance issues, a foldable, collapsible or other stowable design shall be acceptable provided that;
(a) the car will not operate in "top-of-car inspection operation" unless the railing is in the fully extended position,

(b) the car will not operate in; "**normal operation**", "**hoistway access operation**", or any type of "**inspection operation**" other than "**top-of-car inspection operation**", unless the railing is in the fully retracted position,

(c) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly/positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),

(d) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,

(e) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly/positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),

(f) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4 of A17.1-2007/B44-07,

(g) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,

(h) when in the fully extended position the handrail shall meet the requirements of Section 3.

(i) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per Section 85 of Reg. 851, Regulations for Industrial Establishments) while engaging or lowering the alternative height guardrail provided for in section 4.2

5 SUPPORTING MATERIALS

5.1 Referenced Documentation

- ASME A17.1 -2007/ CSA B44 - 07 Safety Code for Elevators
- ASME A17.1b -2009/ CSA B44 - 09 Safety Code for Elevators
- Occupational Health and Safety Act - R.R.O. 1990 Reg. 851 (Regulations for Industrial Establishments)
- Building Code Act, 1992, O.Reg. 350/06 (Building Code)

5.2 Summary of Guardrail Requirements

DIMENSIONAL REQUIREMENTS			
Guard Component	**Occupational Health and Safety Act - R.R.O. 1990, Reg. 851**	**A17.1 / B44**	**Standard Guardrail per Section 3**
Top Rail - height	910 to 1070 mm (36 to 42 in.) [Section14(1)(a)]	1070 mm (42 in.) [2.10.2.1]	**1070mm (42 in.)**
Mid Rail	~ mid way [Section14(1)(b)]	approximately centered [2.10.2.2]	**~ mid way**
Toe Board - height	125 mm (5 in.) [3] [Section14(1)(c)]	100 mm (4 in.) [2.10.2.3]	**125 mm (5 in.)**

[3] if tools or other objects may fall on a worker

STRENGTH REQUIREMENTS					
Column 1 **Guard Component**	Column 2 **Description of Requirement**	Column 3 **Occupational Health and Safety Act - R.R.O. 1990, Reg. 851**	Column 4 **Building Code Act, 1992 O.Reg. 350/06 (Building Code)**	Column 5 **A17.1 / B44 [6] Use for deflection criteria only**	Column 6 **Standard Guardrail per Section 3**
Top Rail	**lateral** force	Structural requirements as set out in the Building Code [Section14(2)]	1000 N (225 lbf) or 750N/m (52 lbf/ft) [4] [4.1.5.15(1)(c)]	890 N (200 lbf) [2.10.2.4(a)]	**Strength to Building Code (Column 4, see OBC for details)** **Deflection to A17.1/B44 (when loaded to column 5)**
	vertical force		1500 N/m (103 lbf/ft) [4.1.5.15(4)]	890 N (200 lbf) [2.10.2.4(a)]	
Mid Rail	force in any direction		500 N (112 lbf) [5] [4.1.5.15(2)]	666 N (150 lbf) [2.10.2.4(b)]	
Toe Board				225 N (50 lbf) [2.10.2.4(c)]	

[4] whichever force governs
[5] over a 100mmx100mm area, at any point producing the most critical effect [4.1.5.15(2) of O.Reg. 350/06]
[6] force values as required by Occupational Safety and Health Administration (US) requirements - used for deflection criteria

6 BACKGROUND

6.1 Early editions of CSA B44 Safety Code for Elevators provided little direction regarding requirements for car top railings. The 2000 Code edition of A17.1/B44 introduced criteria for when railings should be provided on car tops and detailed height requirements. The 2005 supplement to A17.1/B44 introduced strength values and these values where adopted in 2007 for all elevating device installations in Ontario. The current strength values stated in A17.1/B44 are borrowed from the Occupational Health and Safety Administration (US) requirements.

6.2 As a result of a recent incident, new awareness has brought attention to the area of elevator personnel safety on elevator car tops.

6.3 A task group consisting of **the Provincial Labour-Management Health and Safety Community**, the **Elevator/Escalator Labour-Management Health and Safety Committee**, the **Ministry of Labour,** owner representatives from **TSSA's Elevating Devices Advisory Council** and **TSSA** convened to review fall protection issues and recommended the retrofitting of elevator car tops with guardrails.

Roland Hadaller, P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices) appointed under the *Technical Standards and Safety Act,* 2000

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

Elevating and Amusement Devices Safety Division	Ref. No.: 246 / 11	Rev. No.:
Elevating Devices Code Adoption Document - Amendment	Date: April 25, 2011	Date:

IN THE IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000, S.O. 2000*, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01
(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Elevating Device Code Adoption Document Amendment:
Consolidation of Amendments and Adoption of Z98
Applicable to: All Elevating Device Contractors, Consultants and Elevating Device Mechanics

The Director of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards & Safety Authority is further amended as follows;

A. Changes to Part I General, Part II General Technical Requirements , Part III Elevators, Dumbwaiters, Escalators, Moving Walks, Material Lifts and Freight Platform Lifts, Part IV Manlifts, Part VI Construction Hoists, and Part VII Elevating Devices for Persons with Physical Disabilities.

1. Effective immediately, Part I, II, III, IV, VI and VII is revoked and replaced by Parts 1, 2, 3, 4, 6, and 7 of this document.

B. Changes to Part V Passenger Ropeways

1. Effective October 1, 2011, Part V Passenger Ropeways is revoked and replaced by Part 5 of this document.

Part 1

1 GENERAL

1.1 Definitions

1.1.1 The terms in this Code Adoption Document (Document) have the same meaning as in the *Act* or the Regulation unless otherwise specified herein.

1.1.2 Where a provision of a code or standard adopted in this Code Adoption Document (Document) is inconsistent with the requirements of this Document, the provision of this Document shall prevail.

1.1.3 In this Document,

(a) “Regulation” means Ontario Regulation 209/01 (Elevating Devices) - made under the *Technical Standards and Safety Act*.

(b) “CSA” means the Canadian Standards Association.

(c) “CAN” means a standard recognised as a National Standard of Canada and approved by the Standards Council of Canada.

(d) “ANSI” means the American National Standards Institute.

(e) “freight elevator-P” means a freight elevator upon which passengers are permitted to ride;

(f) “common-mode failure” means the result of an event(s) which because of dependencies, causes a coincidence of failure states of components in two or more separate channels of a redundancy system, leading to the defined system failing to perform its intended function. [CAD Amendment 216-07]

(g) “software system failure” means a behaviour of the software, including its support (host) hardware, that is not in accordance with the intended function. [CAD Amendment 216-07]

(h) “solid-state device” means an element that can control current flow without moving parts. [CAD Amendment 216-07]

1.2 Exceptions

1.2.1 Except where otherwise indicated, this Document applies to all elevating devices and parts thereof.

1.2.2 Despite subsection **1.2.1** and unless otherwise specified in the Regulation, in this Document or by the director, the codes and standards referred to in this Document do not apply to existing elevating devices except for those sections respecting alterations, the inspection, testing, maintenance, operation and use of the elevating device, including signage and instructions relating to the use of the elevating device.

Part 2

2 GENERAL TECHNICAL REQUIREMENTS

2.1 Welding

2.1.1 The welding of a steel structure on an elevating device shall conform to the requirements of CSA Standard W59-03, Welded Steel Construction (Metal Arc Welding). [CAD Amendment 246-11]

2.1.2 The welding of a steel structure on an elevating device shall be undertaken by a fabricator or contractor qualified to the requirements of CSA Standard W47.1-03, Certification of Companies for Fusion Welding of Steel Structures. [CAD Amendment 246-11]

2.1.3 The field welding of piping and fittings on an elevating device shall conform to the requirements of CSA Standard B51-03, Code for the Construction and Inspection of Boilers. [CAD Amendment 246-11]

2.1.4 Despite subsections **2.1.1**, **2.1.2** and **2.1.3**, an equivalent welding standard may be used if it is acceptable to the director.

2.2 Electrical

2.2.1 Electrical equipment shall conform to the requirements of,

(a) Ontario Electrical Safety Code as amended from time to time; and [CAD Amendment 246-11]

(b) CAN/CSA B44.1/ASME A17.5-04, Elevator and Escalator Electrical Equipment, or [CAD Amendment 246-11]

(c) CAN/CSA C22.2 No. 14, Industrial Control Equipment (applicable to elevating devices other than elevators, escalators, moving walks, dumbwaiters, material lifts, and lifts for persons with physical disabilities). [CAD Amendment 246-11]

2.3 Rope Clips

2.3.1 Where clips are permitted to fasten metal rope in an elevating device,

(a) the minimum number of clips to be used on each rope ends shall be,

(1) two clips for rope under nine millimetres in diameter,

(2) three clips for rope nine millimetres in diameter and over but under sixteen millimetres in diameter,

(3) four clips for rope sixteen millimetres in diameter and over but under nineteen millimetres in diameter;

(b) the rope end shall be bent over a heart-shaped thimble that has a groove of a radius equal to that of the rope or shall be provided with protection that a director considers equivalent;

(c) the clips shall be spaced at a distance apart equal to six times the rope diameter from the short end of the rope;

(d) U-type clips shall be placed so that the U bolts bear on the short or dead end of the rope and the bases bear on the load part of the rope; and

(e) the nuts on the clips shall not be fully tightened until after the rope has been under load and all nuts shall be fully tightened while the rope is still loaded.

2.4 Rope Replacement *(17/84) & (122/95)*

2.4.1 When changing or shortening ropes on counterweighted elevators, the installation shall be provided with a data plate permanently and securely attached in the pit, in the vicinity of the counterweight buffer, indicating the maximum designed counterweight runby. [CAD Amendment 246-11]

2.4.2 The minimum stranding for cables used to relate any car or landing door shall be not less than 7 x 19 construction. [CAD Amendment 246-11]

2.5 Relocation of an Elevating Device

2.5.1 Where an elevating device is relocated it shall meet the requirements of the applicable code or standard adopted in this Document, unless otherwise specified in this Document or by the director.

2.6 Alteration

2.6.1 Where an alteration is made to an elevating device the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of codes or standards adopted in this Document.

2.6.2 Unless otherwise specified in this Document or by the director, and without limiting generality of the Regulation, the following alteration to an elevating device shall constitute a major alteration:

(a) An increase by more than 10 per cent in,

(1) the rated speed of the load-carrying unit,

(2) the maximum capacity, or

(3) the dead-weight of the machine, load-carrying unit or counter-weight;

(b) except for construction hoists, an increase or decrease in the distance of the travel of the load-carrying unit;

(c) a change in,

(1) the method or type of operation,

(2) the method or type of motion control,

(3) the type or size of guide rails or other guiding means for the load-carrying unit or counter-weight,

(4) the type of safety device or other safety stopping device for the load-carrying unit or counter-weight,

(5) the power supply to the machine,

(6) the type of driving machine or brake,

(7) the location of ;

a) the elevating device,

b) elevating device controller, [CAD Amendment 246-11]

c) the machine,

d) the load-carrying unit,

e) the counter-weight, or

(8) the working pressure of a hydraulic system by more than 10 per cent;

(d) a replacement of the controller; [CAD Amendment 246-11]

(e) changes that would result in a reclassification of the elevating device; and

(f) the addition of an entrance to the elevating device.

2.6.3 Unless otherwise specified in this Document or by the director, and without limiting the generality of the Regulation, any action or work performed on an elevating device that is not specified in subsection **2.6.2**

and that results in a change to the original design or the operational characteristics of the elevating device or affects the inherent safety level of the elevating device, shall constitute a minor alteration.

2.7 Rack and Pinion Safeties [CAD Amendment 213-07]

2.7.1 Any repair or rebuild of a type 'D' rack and pinion safety where the manufacturer has stated that such work shall only be performed by the manufacturer, may either be;

(a) repaired, rebuilt or replaced by the manufacturer; or

(b) repaired or rebuilt in accordance with a procedure certified by a professional engineer.

2.7.2 The procedure referred to in clause **2.7.1(b)** shall be filed with the director and shall be available to the inspector upon request. [CAD Amendment 213-07]

2.8 Format of Submission Documents

2.8.1 Where a design submission is in paper format it shall;

(a) be submitted as one copy unless the submission includes oversized drawings;

(b) drawings that are not legible when printed on 11" x 17" paper are considered oversized and shall be submitted as four paper copies as well as in an electronic media form that contains the oversized drawings in unprotected PDF, JPEG or TIFF format;

(c) pages larger than 11"x17" provided in hardcopy shall be folded and submitted without any binding. [CAD Amendment 246-11]

2.8.2 Electronically submitted design submissions shall be as follows;

(a) filled specification sheets shall be provided in excel format;

(b) other supporting documentation shall be provided in unprotected PDF, excel or word format;

(c) where electronic pages exceed 11"x17" paper size, the information shall be legible to the smallest detail when printed to 11"x17", otherwise they shall also be provided as four hardcopies;

(d) pages larger than 11"x17" provided in hardcopy shall be folded and submitted without any binding;

(e) documents received electronically, will be returned electronically at the conclusion of the design review. [CAD Amendment 246-11]

2.9 Hydraulic Elevating Device Oil Loss Monitoring Program [CAD Amendment 212-07-r1]

2.9.1 Every contractor who maintains a hydraulic elevating device with buried cylinders or buried piping shall ensure there is a written oil loss monitoring program.

2.9.2 A "hydraulic elevating device" means a non-portable device for hoisting and lowering or moving persons or freight and includes an elevator, dumbwaiter, manlift, incline lift, construction hoist, stage lift, platform lift and special elevating device that incorporates one or more hydraulic cylinders.

2.9.3 The purpose of the oil loss monitoring program is to identify any loss of oil which cannot be accounted for in the hydraulic system.

2.9.4 If a contractor performs maintenance on a hydraulic elevating device with buried cylinders or buried piping, the contractor shall ensure that a written oil loss monitoring program is developed and maintained before the contractor performs work on the hydraulic elevating device.

2.9.5 The oil loss monitoring program shall include: [CAD Amendment 246-11]

(a) the requirement to provide an oil loss monitoring log ("OLM log") for each hydraulic elevating device with buried cylinders or buried piping;

(b) the requirement for the OLM log to reference the elevating device installation number;

(c) the requirement to establish a fixed reference level for the oil and the requirement to mark the reference level on the tank, dip stick or other suitable location via permanent means;

Note: "permanent" implies affixed in such a manner so as to not be easily removed or repositioned.

(d) the requirement to document in the OLM log the location of the mark for the fixed reference level;

(e) the requirement to check that the oil level is at the established reference point when the device is level with the lowest landing during each scheduled maintenance visit;

(f) if the fixed reference level needs to be intentionally adjusted, the requirement to document and record the changes to the established reference level and reason for establishing the new reference level;

(g) the requirement to record in the OLM log any quantity of oil added or removed from the hydraulic system;

(h) that during each maintenance visit, even if no oil is added, the requirement to record in the OLM log the oil level and the date of the scheduled maintenance visit;

(i) if oil is added or removed, the requirement to record in the OLM log the dates oil was added or removed from the hydraulic system;

(j) the requirement to record in the OLM log the reason oil was added to or removed from the hydraulic system;

(k) the requirement to record in the OLM log the mechanic's printed and legible name, signature and certification number for every entry made;

(l) the requirement to keep the OLM log in the elevator machine room, in a readily identifiable location;

(m) the requirement that the OLM log be kept in the elevator machine room for a period of at least five years from the date of the last entry in the OLM log;

(n) the requirement to never allow oil levels to exceed the fixed reference level for the oil level;

(o) the requirement to record in the OLM log the frequency of oil monitoring activities;

(p) the requirement that, despite **(o)**, hydraulic elevating devices with buried single bottom cylinders be monitored on a monthly basis;

(q) the requirement that installations registered by MCCR prior to September 4, 1978 with an installation number below 031909 shall be monitored monthly, unless a notification* (in the form provided by the TSSA) is sent to the Director, advising why the monthly requirements should not apply, and the registered notification is posted along with the OLM log;

* A notification form is available from www.tssa.org. The "Subject" entry should state, Non Single Bottom Cylinder and the "TSSA Reference No." should state, 212/07-r1.

(r) if there is any oil loss which cannot be accounted for, the requirement to immediately remove a hydraulic elevating device from service until the cause for the oil loss is determined and the cause and associated remedy noted in the OLM log;

(s) the requirement to report in writing any oil loss attributed to leaks in buried cylinders or buried piping to the TSSA Elevating Devices Director within 7 days;

(t) the requirement to provide maintenance personnel adequate training related to the contractor's oil loss monitoring program;

(u) the requirement to maintain up-to-date written records showing who provided and who received the training referred to in **(t)**, the nature of the training and the date when it was provided. A record of training shall be available to the TSSA upon request.

(v) the requirement that the contractor's oil loss monitoring program be posted or otherwise available in the machine room, and

(w) the requirement that the collection containers shall not exceed 19 L (5 gal) per cylinder.

2.9.6 Oil that is returned to the hydraulic system from recovery containers, either by manual means or automatically via scavenger pumps, need not be recorded.

Note: if oil from recovery containers is not suitable for return to the tank, it must be measured and an equivalent amount must be added to the system when recovery containers are emptied. If additional oil is needed to reach the fixed reference level it must be recorded as new oil. [CAD Amendment 212-07-r1]

2.10 Proper Use of Jumpers *(Handbook and 01/82)*

2.10.1 Each contractor shall have written procedures for the use of jumpers when working on elevating device circuits. Each contractor is responsible for ensuring that their mechanics understand the procedure and are equipped to follow it. Each mechanic is responsible for ensuring that they adhere to the procedure. [CAD Amendment 246-11]

Part 3

3 ELEVATORS, DUMBWAITERS, ESCALATORS, MOVING WALKS, MATERIAL LIFTS AND FREIGHT PLATFORM LIFTS

3.1 Applied Code [CAD Amendment 225-07-r3]

Every elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of:

(a) ASME A17.1-2007/CSA B44-07 Safety Code for Elevators and Escalators, and

(b) CSA Standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, except

(c) The requirements of **(a)** are adopted with the following modifications and clarifications:

(1) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(2) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(3) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 350/06 made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;

(4) Where there is inconsistency between the Regulations and this Code (e.g. Requirement 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(5) Requirement 2.2.2.7 (restriction on sump pumps in pits) is not adopted;

(6) Requirement 2.14.1.8.3 (3C film-reinforced mirror) is not adopted;

Note: Glass and mirror shall conform to the requirements of 2.14.1.8.1, 2.14.1.8.2, 2.14.1.8.4. Type 3C film reinforced silver mirror is not permitted for use in elevators.
The standard CAN/CGSB-12.5 was revoked by Canadian General Standards Board in May 2004.

(7) Requirement 2.14.2.1 is revoked and the following substituted;

CAD 2.14.2.1 Material for Car Enclosures, Enclosure Linings, and Floor Coverings. *All materials exposed to the car interior and the hoistway shall be metal, glass, or shall conform to 2.14.2.1.1 through 2.14.2.1.4*

2.14.2.1.1 in not adopted.

CAD 2.14.2.1.2 *In jurisdictions enforcing the NBCC:*
(a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3 and 2.14.2.1.4 shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723 or CAN/ULC-S102:

(1) flame spread rating of 0 to 75
(2) smoke development of 0 to 450

(b) floor surfaces shall have a flame spread rating of 0 to 300, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2

(c) where the building is designated by the building code as a high building:
(1) materials in their end-use configuration shall have a flame spread rating for walls and ceiling of 0 to 25 with smoke development of 0 to 100 based on the test conducted in accordance with the requirements of CAN/ULC-S102.
(2) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development of 0 to 300 based on the test conducted in accordance with the requirements of CAN/ULC-S102.2

CAD 2.14.2.1.3
Padded protective linings, for temporary use in passenger cars during the handling of freight, shall be of materials conforming to either 2.14.2.1.1(a). The protective lining shall clear the floor by not less than 100 mm (4 in.).

CAD 2.14.2.1.4 *Handrails, operating devices, ventilating devices, signal fixtures, audio and visual communication devices, and their housings are not required to conform to 2.14.2.1.*

(8) Introduction to requirement 2.27.3 is revoked and the following substituted:

CAD 2.27.3 Firefighters' Emergency Operation: Automatic Elevators

Firefighters' Emergency Operation shall apply to all automatic elevators except where the hoistway or a portion thereof is not required to be fire-resistive construction (see 2.1.1.1), the rise does not exceed 2000 mm (80 in.), and the hoistway does not penetrate a floor.
NOTE (2.27.3): When the structure (building, etc.) is located in a flood hazard area, the alternate and designated levels (see 8.12.1) should be above the base flood elevation.
Note: Independent of the requirements in NBCC, Phase I recall shall include the requirements of both 2.27.3.1 and 2.27.3.2.
Note: Requirements 2.27.3.1 through 2.27.3.5 are adopted or adopted as amended below.

(9) Requirement 2.27.3.2.2 is revoked and the following substituted;

CAD 2.27.3.2.2
(a) Smoke detectors or fire detectors (fire alarm initiating devices)[1] shall be installed to provide a signal, either directly or through the fire alarm system, to the elevator controller(s) to automatically initiate Phase I Emergency Recall Operation, and shall be located
(1) at each floor served by the elevator
(2) in the associated elevator machine room, control space, or control room.

(b) The installation of these detectors shall be in conformance with the requirements of the NBCC. Despite (a), fire detectors located outside the machine room, control space, or control room need not be provided within a floor area if the floor area is sprinklered and the sprinkler system is electrically supervised in conformance with NBCC.

(c) Where the building fire alarm system is identified to activate Phase 1, pull stations shall not be used to initiate either the designated or alternate level recall[2].
NOTE:
[1] Fire alarm initiating devices are referred to as fire detectors (smoke or heat) in the NBCC
[2] To ensure initiation of recall by automatic means only.

(10) Requirement 2.27.3.2.4(a) is revoked and the following substituted:

CAD 2.27.3.2.4(a) *the activation of a fire alarm initiating device specified in 2.27.3.2.1(a) or 2.27.3.2.2(a) that is located at the designated level, shall cause all elevators serving that level to be recalled to an alternate level, unless Phase I Emergency Recall is in effect.*
Note 2.27.3.2.2(a) was 2.27.3.2.2(b) in the code;

(11) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(12) Sections 5.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(13) Sections 5.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(14) Sections 5.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(15) Sections 5.8 and 8.7.5.8 – Shipboard Elevators, are not adopted;

(16) Sections 5.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(17) "Elevators used for construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

(18) Requirement 5.10.1.9.5(a) is revoked and the following substituted:

CAD 5.10.1.9.5(a) *For elevators with car speeds of up to 1.75 m/s (350 ft/min), hoistway doors or gates shall be provided with devices that comply with the requirements of 5.10.1.9.5(b);*

(19) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(20) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item 2(3)(j) of the Elevating Device Regulation 209/01, are not adopted;

(21) The requirements of 8.6.1 through 8.6.11 are not adopted, except:

a) 8.6.1.6.3(d) *"use of jumpers"*
b) 8.6.3.2 Replacement of a Single Suspension Rope
c) 8.6.8.2 Step-to-Skirt Clearance
d) 8.6.8.4.1 & 8.6.9.2.1 Comb replacement requirements
e) 8.6.8.4.2 & 8.6.9.2.2 Comb teeth meshing requirements
f) 8.6.11.5 Escalator or Moving Walk Startup are adopted
g) 8.6.11.6 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1
h) 8.6.11.7 Egress and Reentry Procedure From Working Areas on 2.7.5.1.3 or 2.7.5.2.3
i) 8.6.11.8 Operating Instructions for Retractable Platforms;

(22) Requirements of elevator maintenance are adopted in accordance with 8.6.12 of the B44-07 Code, and are supplemented with:

a) the additional maintenance requirements identified in CSA Standard B44.2-07, which are adopted and,
b) The 'Replacement of specific elevator components' from CAN/CSA B44-04 Safety Code for Elevators, sections c8.6.12.5.4 to c8.6.12.5.7 are adopted;

(23) Maintenance records shall be kept in the log book, in accordance with 8.6.12.2.5 of the Code and Section 34 of Ontario Elevating Device Regulation 209/01;

(24) Section 8.7 – Alterations, is adopted, with modifications and enforcement procedures as specified below and in Director's Order #226/07 including it's latest revision;

(25) Requirement 8.7.2.27.4(a) is revoked and the following substituted:

CAD 8.7.2.27.4 Controllers
(a) Where a controller is installed as part of an alteration, it shall conform to 2.25, 2.26.1.4, 2.26.1.5, 2.26.4 through 2.26.9, and where
(1) required by NBCC at the time of the original installation to 2.27.2 through 2.27.8, ***CAD*** *2.27.3 and the provisions of Director's Order 226/07 as specified in subsection* ***(24)*** *above;*
(2) provided voluntarily shall conform to 2.27, ***CAD*** *2.27.3 and the provisions of Director's Order 226/07 as specified in subsection* ***(24)*** *above.*

(26) Requirement 8.7.2.27.5 is revoked and the following substituted:

CAD 8.7.2.27.5 Change in Type of Motion Control
Where there is a change in the type of motion control, the installation shall conform to the following:
(a) The protection of the hoistway landing openings shall conform to
(1) 2.11.1 except;
(a) Existing entrance openings less than 2030mm in height or 800mm in width are permitted to be retained
(b) requirement 2.11.1.4
(2) 2.11.2 through 2.11.6, except 2.11.6.3
(3) 2.11.8, 2.11.9
(4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
(5) 2.11.12.8,
(6) 2.12, except;

(a) requirement 2.12.2.4.3 to allow a minimum engagement of 6mm
(b) 2.12.4, 2.12.5 and
(7) 2.13.

(b) Car enclosures and car doors or gates shall conform to 2.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements are not required:
(1) requirements 2.14.1.3, 2.14.1.5.1,
(2) car top enclosures are not required to meet the design requirements of 2.14.1.6, but shall meet the loading requirements specified
(3) requirement 2.14.1.7.1 applies only to the extent the existing vertical clearances allow
(4) requirement 2.14.1.8, 2.14.1.9 and 2.14.1.10
(5) requirements 2.14.2.1, 2.14.2.3, through 2.14.2.6
(6) requirement 2.14.3
(7) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
(8) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
(9) requirement 2.14.6.2.2 except 2.14.5 shall be as amended above
(10) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that
(1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
(2) the pitch diameter of speed governor sheaves and tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 2.16.8(e), (f), (g) and (h).

(e) The terminal stopping devices shall conform to 2.25

(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.

(g) *Emergency operation and signaling devices where*
*(1) required by NBCC at the time of the original installation shall be provided and shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection **(24)** above;*
*(2) provided voluntarily shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection **(24)** above.*

(h) Car overspeed protection and unintended movement protection shall conform to 2.19.

(27) Requirement 8.7.2.27.6(g) is revoked and the following substituted:

CAD 8.7.2.27.6 Change in Type of Operation Control

(g) *Emergency operation and signaling devices where*
*(1) required by NBCC at the time of the original installation shall be provided and shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection **(24)** above;*
*(2) provided voluntarily shall conform to 2.27, **CAD** 2.27.3 and the provisions of Director's Order 226/07 as specified in subsection **(24)** above.*

(28) Requirement 8.7.2.28 is adopted with the following modifications and clarifications:

CAD 8.7.2.28 Emergency Operation and Signaling Devices

Where an alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to 2.27.1, 2.27.2 and the FEO operation (or equivalent) of any car shall not be diminished and shall match or exceed the highest level of FEO features (or equivalent) that existed on any car in the group prior to the alteration.

(29) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(30) Section 8.8 – Welding, is not adopted. The requirements in **Part 2** of the Elevating Devices Code Adoption Document apply;

(31) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;

(32) Section 8.11 - Periodic Inspection and Test Requirements are not adopted, and; [CAD Amendment 239-10]

(33) Firefighters' Emergency Operation [CAD Amendment 239-10]

(a) Elevators that incorporate any form of Firefighters' Emergency Operation are required to have this operating mode tested on an annual basis to verify that the firefighters' feature is operational and ready for use by firefighters or emergency personnel if required during a fire or other emergency.

(b) The required inspection checks of this operating mode shall either be recorded on the "Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks" form provided by the designated administrative authority or on a form containing not less than the tests prescribed on this form.

(c) The owner or the owner's authorized agent may perform the necessary annual testing provided they are trained and instructed in the use of Firefighters' Emergency Operation.

(d) *A record of findings shall be made and recorded and shall be available to elevator personnel and to the authority having jurisdiction. Any deficiencies identified during the testing shall be rectified. Note: It is the responsibility of the elevating devices owner to ensure firefighters' emergency operation testing is performed annually.* [CAD Amendment 239-10]

3.2 Performance Based Safety Code [CAD Amendment 225-07-r3]

3.2.1 Where conformance with the prescriptive requirements in **3.1** are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

3.3 Maintenance Frequency *(99/92-r4)* [CAD Amendment 225-07-r3]

3.3.1 The requirements of **3.1(b)** are adopted with the following modifications and clarifications:

(a) The requirements of B44.2-07 are applicable to all elevating devices covered in B44-07 as amended in **3.1(c)** above, and includes limited use/limited application elevators, material lifts and freight platform lifts.

(b) B44.2-07 requirement 4.7 Plunger Return Test applies, except that testing with full-load shall not be required.

(c) Where frequencies of maintenance, examinations or inspections identified in B44.2-07 are extended,

(1) the altered maintenance, examination and/or inspection frequencies must take into account the age and inherent quality of the equipment, the frequency and method of usage, and the recommendation(s) by either the original manufacturer, or manufacturer's agent, or the maintaining contractor;

(2) the owner and maintenance contractor shall agree in writing to the altered maintenance, examination and/or inspection frequencies;

(3) the log book shall either capture this agreement or make reference to another document where such an agreement is made;

(4) a copy of the altered maintenance, examination and/or inspection frequency agreement shall be made available to TSSA upon request;

(5) the interval between maintenance visits shall not exceed three (3) months;

(6) the frequency of tests** identified in B44.2 shall not be altered; and

(7) despite the allowance to adjust maintenance, examination or inspection frequencies as stated above, the frequency of activities listed in B44.2-07 section 5.2.1 shall not be altered.

** where the terms:
'operate'- (or equivalent thereof), such as "*governors shall be operated by hand*" or
'check'- (or equivalent thereof), such as "*skirt switches shall be checked*" are used, the frequency of these tests shall not be altered. [CAD Amendment 225-07-r3]

3.4 Maintenance Log Book *(99/92) & (8.6.12)*

3.4.1 The log book shall, as a minimum, contain the following information:

(a) Building name and/or address,

(b) TSSA or MCCR installation number,

(c) Contractor's and Owner's name,

(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,

(f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 246-11]

3.4.2 Where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted repaired or replaced. [CAD Amendment 246-11]

3.5 Location of the Log Book *(99/92-r4)*

3.5.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 246-11]

3.6 Rated Load

3.6.1 For the purpose of this Document and subsection 31.(3) of the Regulation, "rated load" in the code adopted in subsection **3.1**, means "maximum capacity".

3.7 Alterations *(226/07)*

3.7.1 Notwithstanding section **2.6**, alterations of an elevator, dumbwaiter, escalator, moving walk, and material lifts shall conform to the requirements of the code adopted in subsection **3.1** and as specified by the director. [CAD Amendment 246-11]

3.7.2 Alterations to freight platform lifts type –B shall conform to the requirements for Material Lifts Type –B as required by the code adopted in subsection **3.1** and as specified by the director. [CAD Amendment 246-11]

3.7.3 Alterations to freight platform lifts type –A shall conform to the requirements for Material Lifts Type –B as required by the code adopted in subsection **3.1** and as specified by the director, except that 'in-car' controls are prohibited and no persons shall be permitted to ride. [CAD Amendment 246-11]

3.8 Rope Clips

3.8.1 Rope clip fastenings shall not be used when suspension ropes are changed on an existing elevator.

3.9 Access to Machine Rooms and Spaces

3.9.1 Every elevator shall have a safe and convenient access to its machine room and machinery space. [CAD Amendment 246-11]

3.10 Requirements for Existing Passenger and Freight Elevators

3.10.1 Notwithstanding section 4 of the Regulation, every existing passenger and freight elevator that was installed before the 1st day of May, 1981 and that does not have car safeties, a speed governor, a braking system and hoistway-door interlocks or hoistway-door locks and contacts conforming to the requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition, shall conform to the applicable requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition. [CAD Amendment 246-11]

3.11 Requirements for Existing Dumbwaiters or Freight Platform Lifts

3.11.1 Every existing power dumbwaiter or freight platform lift that was installed before the 1st day of May, 1981 and that does not have hoistway-door interlocks or hoistway-door locks and contacts shall be provided with a locking device that shall prevent the device from moving until the door or gate is closed and that shall prevent the door or gate from being opened unless the device is at the corresponding landing. [CAD Amendment 246-11]

3.12 Platform Apron Requirements *(166/01)*

3.12.1 Every passenger elevator installed before the 1st day of May, 1981 and currently operated in an apartment building, condominium apartment building or educational institution and every passenger elevator installed after that date in any building, shall be provided at the entrance side with a smooth apron made of metal not less than 1.5 millimetres thick, or made of material of equivalent strength and stiffness, reinforced and braced to the car platform such that,

(a) it does not extend less than the full width of the widest hoistway door opening;

(b) it has a straight vertical face, extending below the floor surface of the car-platform, of not less than 1,200 millimetres, except that for an existing elevator this may be reduced where the hoistway pit is not deep enough to accommodate a larger vertical face;

(c) its lower portion is bent back at an angle not less than 60 degrees and not more than 75 degrees from the horizontal; and

(d) it is securely braced and fastened in place to withstand a constant force of 500 newtons applied at right angles to and,

(1) at 450 millimetres from the top without deflecting more than six millimetres, or

(2) at 1,150 millimetres from the top without deflecting more than 50 millimetres,

and without permanent deformation.

3.12.2 Every passenger elevator referred to in subsection **3.12.1** shall have a pit deep enough to accommodate the apron required in subsection **3.12.1**, and to provide a minimum twenty-five millimetres clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers.

3.12.3 Traction drive Limited-Use/Limited-Application (LULA) elevators serving 3 or more floors shall conform to **3.12.1** and **3.12.2**, otherwise 2 stop traction, hydraulic or roped hydraulic drive Lulas' are exempt from these requirements provided that;

(a) a supplementary owners report for Lula elevators has been filed with the Director and;

(b) a permanent and readily visible sign viewable from the hall landing has been provided on the apron in lettering not less than 16mm in height, that advises;

(1) of a potential fall hazard below the car,

(2) to lower the car prior to rescue and,

(3) that lower and rescue shall be undertaken by trained personnel only. [CAD Amendment 246-11]

3.13 Door Safety Retainers for Single Slide Doors *(61/88 & 109/93)*

3.13.1 Every existing passenger elevator with single slide landing doors shall be equipped with safety retainers and shall ensure that;

(a) the retainer shall withstand without detachment or permanent deformation, a force of 1000 Newtons applied upward at any point along the width of the door panel and, while this force is maintained, an additional force of 1000 Newtons applied perpendicular to the door at its centre over an area of 300 x 300mm

(b) the installation of retainers was done in accordance with instructions supplied by the manufacturer of the door safety retainers. [CAD Amendment 246-11]

3.14 Low Pressure Switch *(160/01)*

3.14.1 Every hydraulic elevator where the top of the cylinder when at its highest elevation is above the storage tank, shall be equipped with a low pressure switch to prevent operation of the lowering valve(s) and other requirements specified by the code at time of installation or alteration. [CAD Amendment 246-11]

3.15 Hoarding Between Hoistways Required

3.15.1 No elevator shall be operated where it is located adjacent to a hoistway of another elevating device in which installation or alteration work is being performed and where the operation of the elevator may be hazardous to the persons performing the work, unless the hoistways are separated from the bottom to a level a minimum of 2,000 millimetres above the point where the work is being performed by a separating structure so supported and braced that when subjected to a force of 450 newtons applied horizontally at any point the deflection does not exceed twenty-five millimetres.

3.15.2 Where the separating structure referred to in subsection **3.15.1** is made of perforated material, it shall reject a ball 50 millimetres in diameter.

3.16 Installation Number

3.16.1 Every elevator shall have its installation number engraved or painted on the car crosshead or other conspicuous location on the top of the car, visible from the point of access.

3.17 Attendant Operation

3.17.1 Where an elevator is controlled from one location only, an attendant shall be stationed at the controls while the elevator is available for operation.

3.18 Persons Permitted to Ride

3.18.1 Except for a freight elevator-P, no person other than an attendant(s) or freight handler(s) shall ride or be permitted to ride in a freight elevator.

3.18.2 No person other than an attendant(s) or a designated freight handler(s) shall ride or be permitted to ride in a freight platform lift-Type B or a material lift Type-B. [CAD Amendment 246-11]

3.18.3 No person shall ride or be permitted to ride on a freight platform lift-Type A or a material lift Type-A. [CAD Amendment 246-11]

3.18.4 Despite **3.18.1** and **3.18.2**, a person(s) may remain inside a motor vehicle that is on an elevating device if the device is designated as a Class B- motor vehicle loading, and the device is operated by a trained attendant or operator. [CAD Amendment 246-11]

3.19 Escalator Caution Signs

3.19.1 Every escalator installed prior to March 23, 2002 shall be fitted with a caution sign that meets the requirements of clause 8.10 of CSA B44-94; Safety Code for Elevators, as amended by Supplements B44S1-97 and B44S2-98. [CAD Amendment 246-11]

3.20 Repositioning of an Escalator

3.20.1 Despite subsection **2.5** of this Document repositioning of an escalator within the same building or premises shall not constitute a new installation.

3.21 Escalator Brake Setting Data *(85/91)*

3.21.1 Escalators installed under B44-M90 or later editions of the code shall have a data tag as required by the code at the time of the installation. Escalators installed under a prior code edition shall have a data tag in conformance with **3.21.2**.

3.21.2 Every escalator shall have a permanent and readily visible data plate affixed to the brake or machine, indicating:

(a) the method of checking the brake setting and as a minimum shall include,

(1) the minimum torque, or

(2) the maximum spring length, or

(3) other checking method; and

(b) the maximum no-load stopping distance as related to the torque, spring length, or other method, and;

(c) the testing procedure and interval. [CAD Amendment 246-11]

Part 4

4 MANLIFTS

4.1 Applied Code *(174/02)*

4.1.1 Every newly installed or altered manlift shall conform to the requirements of CSA Standard B311-02, Safety Code for Manlifts and any applicable changes set out in this document.

4.1.2 Conformance to Appendix A, B, & C is mandatory.

4.1.3 Section 7.32.9 of B311 applies to all Power-Type Manlifts. Top-of-car operating stations are not limited to lifts with wireless control and shall be provided on each power-type manlift.

4.1.4 Section 7.32 of B311: Note that requirements of section 7.36, Control and Operating Circuits, apply to "Wireless Control"as well. [CAD Amendment 246-11]

4.2 Top of Car Requirements for Power Type Manlift

4.2.1 Every power type manlift shall be provided with,

(a) a top-of-car operating device; and

(b) a protective guard railing on the top of the car.

4.3 Inspection and Testing of Safety Brake

4.3.1 The inspection and testing of a safety brake on an endless belt type manlift required in subsection 33.(2) of the Regulation shall ensure compliance with clause 5.2.2.3 of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

4.3.2 The inspection and testing of a safety device and overspeed governor on a counter-balanced or power type manlift required in subsection 33.(3) of the Regulation shall ensure compliance with clause 6.11.8 or 7.6.8.2, as the case may be, of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

4.4 Authorized Persons

4.4.1 No person shall use a manlift except those persons designated by the owner of the manlift as being properly trained in its operation and use.

4.5 Maintenance Log Book

4.5.1 The log book shall, as a minimum, contain the following information :

(a) Building name and/or address,

(b) TSSA or MCCR installation number,

(c) Contractor's and Owner's name,

(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,

(f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 246-11]

4.5.2 Where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted repaired or replaced. [CAD Amendment 246-11]

4.6 Location of the Log Book

4.6.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 246-11]

Part 5

5 PASSENGER ROPEWAYS AND PASSENGER CONVEYOR [CAD Amendment 246-11]

5.1 Applied Code

5.1.1 Every passenger ropeway and passenger conveyor shall conform to the requirements of CSA-Z98-07, Passenger ropeways and passenger conveyors, including Update No. 1 Z98-07 February 2010, and any additional applicable changes set out in this document.

5.1.2 Annexes "A, B, C, D, E, F, G, H, I, J and K" referenced in the Z98 standard are also adopted and apply to "post-2011" installations (as defined in **5.3**).

5.2 General Technical Requirements for Passenger Ropeways and Passenger Conveyors

5.2.1 The general technical requirements in Part II of the Code Adoption Document do not apply to passenger ropeways and passenger conveyors.

5.2.2 Passenger Ropeways and Passenger Conveyors shall conform to the following general technical requirements,

(a) Electrical equipment shall conform to the Ontario Electrical Safety Code as amended from time to time;

(b) In addition to CSA-Z98-07 requirements, welding on a passenger ropeway or passenger conveyor shall conform to the requirements of CSA W59-03 (R2008) Welded Steel Construction (Metal Arc Welding);

(c) Where a passenger ropeway or passenger conveyor is relocated it shall meet the requirements of **5.5** for post-2011 installations;

(d) Where an alteration is made to a passenger ropeway or passenger conveyor the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of **5.5**.

5.3 Definitions

5.3.1 In Part **5** of this document,

(a) "safety circuits" means E/E/PES of a passenger ropeway or passenger conveyor having an ability to carry out the functions necessary for mitigation of unacceptable failures by preventing movement or limiting speed of passenger ropeway or conveyor.

(b) NOTE:
1) Preventing movement may require a passenger ropeway or conveyor to stop or to prevent unwanted start-up
2) Limiting speed may require appropriate acceleration, deceleration or speed.

(c) "electrical/electronic/programmable electronic system" or "(E/E/PES)" means a system for control, protection, or monitoring based on one or more electrical/electronic/programmable electronic (E/E/PE) devices, including all elements of the system such as power supplies, sensors and other input devices, data highways and other communication paths, and actuators and other output devices.

(d) "electrical/electronic/programmable electronic" or "(E/E/PE)" means that based on electrical (E), and/or electronic (E), and/or programmable electronic (PE) technology.

(e) "programmable electronic" or "(PE)" means that based on computer technology which may be comprised of hardware, software, and of input and/or output units

(f) "pre-2011" means a passenger ropeway or passenger conveyor for which a design submission (initial or alteration) was registered before October 1, 2011.

(g) "post-2011" means a passenger ropeway or passenger conveyor for which a design submission (initial or alteration) was registered on or after October 1, 2011.

5.4 Requirements for PRE-2011 Passenger Ropeways and Passenger Conveyors

5.4.1 In the case of pre-2011 passenger ropeways or passenger conveyors the application of the code adopted in **5.1** is restricted to:

(a) Clause 11 "Ropes and chains" as further detailed in **5.4.2**;
(b) Clause 12 "Inspection, testing, and maintenance" as further detailed in **5.4.3**;
(c) Clause 13 "Operation of passenger ropeways and passenger conveyors" as further detailed in **5.4.4**;
(d) Annex's "B, C, D, E, F, G ,H, I ,J and K", and any changes set out in **part 5** of this document, and
(e) any applicable requirements in **5.16** though **5.31**.

5.4.2 The following requirements within Clause 11 "Ropes and chains" apply to "pre-2011" installations:

(a) Clause 11.8.2 "Wire rope tows",
(b) Clause 11.9.5 "Wire rope clips and thimbles"
(c) Clause 11.10 "Non-destructive testing of ropes, sleeves, and sockets",
(d) Clause 11.11 "Wire rope maintenance",
(e) Clause 11.12 "Protruding broken wires",
(f) Clause 11.13 "Replacement of repair of wire rope",
(g) Clause 11.14 "Locked coil track rope broken wires",
(h) Clause 11.15 "Wire rope log",
(i) Clause 11.16 "Splice Certificate",
(j) Clause 11.18 "Maintenance" for chains used in tensioning systems.

5.4.3 The requirements of Clause 12 "Inspection, testing, and maintenance" shall be complemented and supplemented with a maintenance manual produced in accordance with clause 4.38.4 "Maintenance manual".

5.4.4 The requirements of Clause 13 "Operation of passenger ropeways and passenger conveyors" shall be complemented and supplemented with the following:
(a) an operations manual produced in accordance with clause 4.38.3 "Operations manual"
(b) loading and unloading areas shall be maintained during the operation of passenger ropeways and passenger conveyors in accordance with clause 4.26 "Loading and unloading areas"

5.5 Requirements for POST-2011 and Altered Passenger Ropeways and Passenger Conveyors

5.5.1 Post-2011 and altered passenger ropeways or passenger conveyors, shall conform to the code adopted in **5.1**, except as modified by **5.6** to **5.31** excluding **5.17.**

5.6 Protection Against Overspeed for Surface Ropeways & Conveyors

5.6.1 Surface ropeways and conveyors shall incorporate protection against the possibility of the device speed exceeding more than 10% of the maximum design speed.

5.7 Z98 clause 4.23.2.4 "Evacuation drive"

5.7.1 Clause 4.23.2.4 of Z98 is revoked and replaced with the following;

CAD 4.23.2.4
The emergency brake, antirollback device, deropement switches required in clauses 4.30.6.1 through 4.30.6.4 inclusive, and emergency stops required in clause 4.30.5 shall be capable of operation while the evacuation drive is in operation.

5.8 Z98 clause 4.24.3.2(c) "Emergency Brake"

5.8.1 Clause 4.24.3.2(c) of Z98 is revoked and replaced with the following;

CAD 4.24.3.2(c)
(c) 15% overspeed, as detected from the speed of the drive sheave or haul rope; and

5.9 Z98 clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" (General Applicability)

5.9.1 The general applicability of clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" shall not apply if all applicable prescriptive requirements of the code are met.

5.9.2 Any variance to or deviation from the prescriptive requirements related to the design of safety circuits *(see definitions)* shall comply with clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.9.3 New configurations or novel designs which cannot be precisely classified in CSA Z98-07, shall ensure that their safety circuit designs comply with 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.9.4 Where feature(s) of safety circuits for a passenger ropeway or conveyor is not specified in CSA Z98-07, safety circuits shall comply with 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.10 Z98 clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" (Compliance to)

5.10.1 Where conformance to clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" is required as specified in **5.9**, compliance shall be demonstrated as required in **5.10.2** or **5.10.3**.

5.10.2 Safety circuits function shall conform to highest requirement class (RC/AK) specific to hazard situation/safety function tabulated in Annex C of EN 13243:2004 or,

5.10.3 Safety circuits function shall conform to EN 12929:2004, EN 13243:2004 and EN 13223:2004 or equivalent.

5.11 Z98 clause 4.30.1.11 "Safety circuits"

5.11.1 Clause 4.30.1.11of Z98 is revoked and replaced with the following;

CAD 4.30.1.11 "Safety circuits"
Safety circuits shall incorporate redundancy and monitoring mechanisms. Monitoring of redundancy incorporated in safety circuits shall be done as a minimum, once per day. Relays and contactors used in safety circuits shall have force guided, mirrored, or mechanically linked contacts for monitoring purposes. Redundancy in safety circuits using software systems shall use diversification to avoid common mode failure.

5.12 Z98 clause 4.30.1.13 "Contactors, relays or magnetically operated switches"

5.12.1 An acceptable deviation from clause 4.30.1.12 "Redundancy" as allowed by Z98 shall comply with **5.10.3**.

5.13 Z98 clause 4.30.8.3 "Photoelectric safety switches"

5.13.1 An acceptable use of photoelectric safety switches as allowed by Z98 shall comply with **5.10.2** or **5.10.3.**

5.14 Z98 clause 4.32.3 "Two-Way Communication"

5.14.1 Clause 4.32.3 "Two-Way Communication" of Z98 is revoked and replaced with the following;

CAD 4.32.3
An audible two-way voice communication system shall be provided for machine rooms when the ropeway can be operated from those areas.

5.15 Z98 clause 5.10.2(c) "Service Brake"

5.15.1 Clause 5.10.2(c) of Z98 is revoked and replaced with the following;

CAD 5.10.2(c)
(c) when a service stop in a cabin is actuated;

5.16 Z98 clauses 13.15.1 and 13.15.2 "Evacuation with evacuation drive"

5.16.1 Clause 13.15.1 and 13.15.2 of Z98 is revoked and replaced with the following;

CAD 13.15.1
The deropement switches and emergency stops required in clause 4.30.5 shall be operable while operating with the evacuation drive.

CAD 13.15.1
If deropement switches and/or emergency stops are not operational due to a malfunction, the ropeway may be evacuated with the evacuation drive if the;
(a) full length of the ropeway is kept under surveillance; and
(b) observers are in communication with the operator throughout the evacuation.

5.17 Single Failure Protection

5.17.1 Every passenger ropeway installed before June 1, 2001 shall be so constructed and installed that the failure of any single, magnetically operated switch, contactor containing metal-to-metal contacts or relay to release does not prevent the passenger ropeway from stopping in response to an emergency stopping device nor permit the passenger ropeway to start or run if any emergency stopping device is activated.

5.17.2 Every passenger ropeway installed on or after June 1, 2001 that is considered a "pre-2011" device shall be so constructed and installed that none of the following events prevents the passenger ropeway from stopping in response to an emergency stopping device nor permits the passenger ropeway to start or run if any emergency stopping device is activated;

(a) the occurrence of a single ground;

(b) the failure of a single magnetically operated switch, contactor or relay;

(c) the failure of a single solid-state device; or

(d) a software system failure.

5.17.3 The devices used to satisfy the requirements of **5.17.2** shall be checked prior to starting of the passenger ropeway, as a minimum, once per day.

5.17.4 Where a single ground is detected as set out in clause **5.17.2(a)** or an event referred to in **5.17.2(b**) to **5.17.2 (d)** is detected, the passenger ropeway shall not restart.

5.17.5 Implementation of redundancy in a passenger ropeway by a software system is permitted provided that there is diversification to avoid common mode failure.

5.18 Log Books

5.18.1 In addition to data specified in section 34 of the Regulation, the log book of a passenger ropeway or passenger conveyor shall contain,

(a) all data required in the code adopted in section **5.1** of this document;
(b) all data on any increases or decreases to the mass of the carriers;

(c) a record of all pre-season inspections carried out in accordance with section **5.19** of this document;

(d) a record of all major and minor alterations; and

(e) a record of all five-year periodic tests referred to in section **5.30** of this document.

5.18.2 In addition to the requirements of subsection 34.(2) of the Regulation,

(a) non-destructive testing (NDT) records shall be kept from a historical reference date of October 1, 2001 or from the date any passenger ropeway or passenger conveyor was commissioned if after October 1, 2001, until the passenger ropeway or passenger conveyor is dismantled.

(b) major and minor alteration records shall be kept until the passenger ropeway or passenger conveyor is dismantled.

(c) a record of all engineering and assessment reports referred to in **5.20** of this document shall be kept until the above-surface passenger ropeway is dismantled.

5.19 Preseason Inspection *(168/02)*

5.19.1 The holder of a licence for a passenger ropeway shall perform a preseason inspection prior to the start of each ski season to ensure that the lift is in compliance with requirements as set out in **part 5** of this document.

5.19.2 The results of the inspection shall be recorded in a form acceptable to the director.

5.20 Aging Ski Lift Assessment

5.20.1 Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director. Note: see Director's guideline 224/07.

5.21 Requirements to Limit Tube Tow Detachment *(178/03 & 182/03)*

5.21.1 The word "tube(s)" has the same meaning as "secondary carrier(s)" used in Z98.

5.21.2 In addition to Parts **5.4** and **5.5**, tube tows shall comply with the requirements of **5.21.3** through **5.21.7**

5.21.3 The designer shall specify the method to verify the haul rope tension.

5.21.4 Connection of Tubes to Towing Attachments

(a) Manufacturers/designers of tube tows shall verify that the type of tube attachment connection is compatible for their towing attachment design.

(b) Manufacturers/designers of tube tows must allow for a safety margin that will ensure that the tubes will not detach as a result of changes in the tension force on the tether connecting the towing attachment to the tube. Changes of tension force on tether due to uneven tow path, foreseeable movement of passengers in tubes, passengers feet dragging on snow while seated in an acceptable position in tubes and acceleration/deceleration feature of tube tows shall be considered.

(c) For tube tows with automatic detachment at a predetermined unloading point, manufacturers/designers of tube tows shall specify minimum and maximum weight restrictions of tube users.

5.21.5 Tubes

(a) Tube sizes shall match tow path design so that a detached tube will slide clear of the uphill path of any of the following tubes.

(b) Tubes shall be designed to accommodate the passenger size.

5.21.6 Towing attachments

(a) The length of tube towing attachment shall be designed to maintain a minimum operational clearance from the snow along the tube tow-path and hauling rope while the tube is being hauled along the tow path.

(b) Factor of safety of all attachments to the haul rope and components for pulling tubes shall be based upon their impact strength at low temperatures.

(c) The designer/manufacturer shall specify the maximum tension force on all attachments to the haul rope and components for pulling tubes along their tow path.

(d) The designer/manufacturer shall specify procedures for inspection of all attachments to the haul rope and components for pulling tubes to verify their safety. Inspection procedures shall include criteria to evaluate the necessity of their replacement.

5.21.7 Tow Path, Crossfall and Containment Barriers

(a) Means to protect passenger in a tube against contacting any part of tube tow including grips shall be provided along the entire length of the tow path.

(b) Means shall be provided to keep tubes on the pre-defined tow path.

5.22 Alterations

5.22.1 Where an alteration is made to a passenger ropeway or passenger conveyor the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of **5.5**.

5.22.2 One or more of the following actions on a passenger ropeway or passenger conveyor shall constitute a major alteration:

(a) an increase or decrease in,

(1) the rated speed of the carriers,

(2) the maximum capacity of the ropeway;

(b) an increase or decrease by more than ten per cent, or an accumulated increase or decrease by more than ten per cent, of the dead weight of the carriers or counter-weight system;

(c) an increase or decrease in the length or rise of the travel of the passenger ropeway;

(d) a change,

(1) in the carrier design or manufacturer,

(2) in the line sheaves and sheave assemblies design,

(3) in the type of power supply to the machine,

(4) in the type of driving machine,

(5) in the location of a machine or tensioning system,

(6) in the type of tensioning system,

(7) that would result in a reclassification of the passenger ropeway,

(8) in tower length or an addition of a new tower.

(e) a change in,

(1) the method or type of operation,

(2) the method or type of motion control

(3) location of the controller

(f) a replacement of the controller,

(g) an alteration to the controller, other than an alteration to the motor starters.

5.22.3 Any action or work performed on a passenger ropeway that results in a change to the original design or the operational characteristics of the passenger ropeway or affects the inherent safety of the passenger ropeway and not listed in subsection **5.22.2** shall constitute a minor alteration.

5.22.4 Minor alterations shall be reported and inspected as required by section 19 of the Regulation.

5.23 Bar Lift Requirements

5.23.1 Every bar lift shall,

(a) be equipped with an anti-rollback device in accordance with 7.8 of Z98;

(b) have a tow path designed and maintained in accordance with 7.2.4 of Z98;

(c) be so constructed that maximum stopping shall be maintained in accordance with 7.7.1.2 of Z98 ; and

(d) be so constructed that, where a brake is used in order to obtain conformance with the requirement of subsection **5.23.1(c)** the brake shall conform to code adopted in **part 5.**

5.24 Rope Tow Requirements

5.24.1 Every rope tow shall,

(a) be equipped with an anti-rollback device in accordance with 8.13 of Z98;

(b) have a tow path designed and maintained in accordance with 8.2.5 of Z98;

(c) be so constructed that maximum stopping shall be maintained in accordance with 8.12.1.2 of Z98 ; and

(d) be so constructed that, where a brake is used in order to obtain conformance with the requirement of subsection **5.24.1(c)** the brake shall conform to code adopted in **part 5.**

5.25 Fibre Rope Tow Requirements

5.25.1 The return rope on a fibre rope tow shall have vertical clearances in accordance with 8.4.1 of Z98.

5.26 Chair Lift or Gondola Lift Requirements

5.26.1 Every chair lift or gondola lift shall,

(a) have a service brake that is located in accordance with 4.24.2.1 of Z98;

(b) be so equipped that the evacuation drive that drives the circulating rope is rendered inoperative in accordance with section **5.7 (CAD 4.23.2.4)**

(c) be equipped with a readily available work carrier in accordance with 4.27.10 and Annex B of Z98.

5.27 Carrier Grip Requirements

5.27.1 Where a work carrier is affixed to a lift line by means of rope grips that use friction as a gripping method, rope grips shall be installed in accordance with the code adopted in **part 5.**

5.27.2 A grip referred to in subsection **5.27.1** shall be so designed so as not to cause any damage to the hauling rope sheave, bullwheel or the liners of the sheave or bullwheel in accordance with the code adopted in **part 5**.

5.28 Restraining Bar Requirements

5.28.1 Each chair of a chair lift shall be equipped with a restraining device in accordance with 6.13.2 of Z98.

5.29 Haul Rope Retention on Chairlifts

5.29.1 Support, hold-down, and combination sheave assemblies on all chair lifts shall meet the requirements of the code adopted in **part 5**.

5.30 Load Test Requirements *(111/93)*

5.30.1 All above-surface passenger ropeways shall be load-tested periodically at intervals not exceeding five (5) years. The periodic load testing of the ropeway shall be carried out under the direction and supervision of the designer/manufacturer of the ropeway or a qualified professional engineer.

5.30.2 The results of five-year periodic tests shall be performed in accordance with the code adopted in **part 5** and recorded on the form provided in Annex H of Z98.

5.30.3 Original copies of the test shall be signed by either the designer/manufacturer of the ropeway or a qualified professional engineer and shall be kept on site in the log book.

5.31 Manufacturers/Designers Bulletins

5.31.1 Manufacturer(s) of passenger ropeway(s) or conveyor(s) shall inform owners about the requirements associated with their safety bulletins or alerts in addition to the requirement of Section 35 of the Regulation.

5.31.2 In addition to the requirement of Section 35 of the Regulation, owner(s) of passenger ropeway(s) or conveyor(s) shall inform manufacturer(s) about findings which may require the issuing of a safety bulletin or alerts.

5.31.3 Owners are responsible to carry out the requirements of manufacturer's safety bulletin or alerts.

Part 6

6 CONSTRUCTION HOISTS

6.1 Applied Code [CAD Amendment 216-07]

6.1.1 Every construction hoist shall conform to the following:

(a) workers' rail guided construction hoists shall conform to CAN/CSA Standard Z185-M87(R2001), Safety Code for Personnel Hoists; [CAD Amendment 216-07]

(b) workers' rope-guided construction hoist shall conform to, American National Standard ANSI/ASSE A10.22 – 2007 Safety Requirements for Rope-guided and Non-guided Workers' Hoist; and [CAD Amendment 216-07]

(c) material construction hoist, CSA Standard Z 256-M87(R2006), Safety Code for Material Hoists, [CAD Amendment 216-07]

and any applicable changes set out in this document. [CAD Amendment 246-11]

6.2 Rated Load

6.2.1 For the purpose of this Document and subsection 31.(3) of the Regulation, "rated load" or "rated loading" in the codes referred to in section **6.1** means "maximum capacity".

6.3 Continuously Controlled by Power

6.3.1 Every construction hoist shall be so designed that the car movement in both the up and down direction is continuously controlled by power.

6.4 Broken Rope Safety

6.4.1 A material construction hoist that is equipped with a broken rope type safety shall not be registered unless a type test indicates that the safety is capable of stopping the car when it is free falling with its rated load.

6.5 Limitation on Speed

6.5.1 Where the load-carrying unit of a workers' rope-guided construction hoist passes through a restricted area at a platform or floor, a control device that positively and automatically lowers the speed of the load-carrying unit to that specified in the related design submission while the load-carrying unit passes through the restricted area shall be installed on the hoist, except where the design submission indicates that no speed limitation is required.

6.5.2 In lieu of the control device referred to in subsection **6.5.1**, an operator utilising a system of signals may be used to manually control the speed of the hoist.

6.6 Attendant Operation

6.6.1 Every workers' rail-guided construction hoist, shall while in operation, be attended by an attendant who shall be stationed in the load-carrying unit, and who shall operate the construction hoist and also supervise the loading, passage and unloading of persons and freight.

6.6.2 Every material construction hoist shall while in operation be,

(a) attended by one or more attendants stationed at each location where freight is being loaded or unloaded; and

(b) operated by,

(1) an attendant stationed at the location of the operating devices, provided that the operating devices can be automatically rendered inoperative should an unsafe condition for operation of the construction hoist exist, or

(2) an operator stationed at the driving unit where the driving unit and its operating devices cannot automatically be rendered inoperative should an unsafe condition for operation of the construction hoist exist.

6.6.3 Subsections **6.6.1** and **6.6.2** apply with necessary modifications to the providing of attendants and operators for workers' rope-guided construction hoists.

6.7 Up Overspeed Protection

6.7.1 Every workman's construction hoist that is equipped with a counterweight having a mass greater than the mass of the empty car shall be provided with a means for protecting against uncontrolled car speed in the up direction and such means shall conform to the following:

(a) It shall detect any uncontrolled movement of the car prior to or at least when the car reaches a predetermined overspeed and shall cause the car to stop prior to the time when the counterweight strikes its buffers, or at least reduce car speed to the speed for which the buffers are designed.

(b) It shall be capable of performing as required in paragraph (a) without assistance from any hoist component which solely without built in redundancy, controls the speed, or deceleration, or stops the car during normal operation.

(c) It shall not develop an average retardation of the car in excess of 9.81 m/sec^2 during the stopping phase.

(d) It shall prevent uncontrolled movement of the car through control of the speed of, and acting upon the,

(1) car;

(2) counterweight;

(3) suspension or compensating rope system; and

(4) drive sheave, provided that the traction between the suspension ropes and the drive sheave are continuously monitored and the construction hoist is automatically removed from service when the rope slippage exceeds a predetermined amount.

(e) When it is activated or during the stopping phase, it or another hoist component shall cause the power supply of the driving machine to be interrupted.

(f) It shall be capable of performing at least ten operations without any adjustments.

(g) All components that require periodic examination and maintenance for the purpose of maintaining their operational reliability, shall be readily accessible.

(h) Its performance shall be checked during the initial and periodic inspections unless its performance reliability is substantiated otherwise.

(i) It shall be provided with a making plate indicating maximum capacity for which it may be used and the speed at which it is set to operate.

6.8 Additional Requirements for Workers' Rail Guided Construction Hoists [CAD Amendment 216-07]

6.8.1 In addition to the requirements of **6.1.1(a)**, workers' rail-guided construction hoists shall conform to the following:

(a) Clause 14.4.2 of CAN/CSA-Z185-M87 (R2001) shall be replaced with the following;

(1) The occurrence of a single ground or a software system failure or the failure of

a) a switch which does not have contacts that are positively separated;

b) a contactor;

c) a relay; or

d) a solid state device;

shall not render any electrical protective device ineffective.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Clause 18.1.1(c) of CAN/CSA-Z185-M87 (R2001) shall be replaced with:

Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

(e) Workers' construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase. [CAD Amendment 216-07]

6.9 Additional Requirements for Workers' Rope-Guided Construction Hoists [CAD Amendment 216-07]

6.9.1 In addition to the requirements of **6.1.1(b)**, workers' rope-guided construction hoists shall conform to the following:

(a) The occurrence of a single ground or a software system failure or the failure of

(1) a switch which does not have contacts that are positively separated;

(2) a contactor;

(3) a relay; or

(4) a solid state device;

shall not render the, deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake ineffective.

Note: Requirements only apply to the circuits in which the deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake are used and not to the devices themselves.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render the Deadman Control Switch, Limit Switches, or the Automatic Friction Brake ineffective and shall not cause the cage to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) All references to NFPA 70 (Clause 2.1, Clause 3.24, and Clause 4.13 of ANSI A10.22-2007) shall be replaced with Ontario Electrical Safety Code as referenced in **2.2.1(b)** of this document. [CAD Amendment 216-07], [CAD Amendment 246-11]

6.10 Additional Requirements for Material Construction Hoist [CAD Amendment 216-07]

6.10.1 In addition to the requirements of **6.1.1(c)**, material construction hoists shall conform to the following:

(a) Clause 15.3.2 of CAN/CSA-Z256-M87 (R2006) shall be replaced with the following;

(1) The occurrence of a single ground or a software system failure or the failure of

a) a switch which does not have contacts that are positively separated;

b) a contactor;

c) a relay; or

d) a solid state device;

shall not render any electrical protective device ineffective.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Clause 19.1.3 of CAN/CSA-Z256-M87 (R2006) shall be replaced with:

Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

(e) Material construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase. [CAD Amendment 216-07]

Part 7

7 ELEVATING DEVICES FOR PERSONS WITH PHYSICAL DISABILITIES

7.1 Applied Code [CAD Amendment 238-09]

7.1.1 Each newly installed elevating device for persons with physical disabilities shall conform to the requirements of CSA Standard B355-09, Lifts for persons with physical disabilities including and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.2 Maintenance [CAD Amendment 238-09]

7.2.1 All lifts for persons with physical disabilities shall conform to the maintenance requirements of CSA-B355-09 Lifts for persons with physical disabilities including Annex B and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.3 Maintenance Log Book [CAD Amendment 238-09]

7.3.1 The log book shall, as a minimum, contain the following information:

(a) Building name and/or address,

(b) TSSA or MCCR installation number,

(c) Contractor's and Owner's name,

(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,

(f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 238-09]

7.3.2 Where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted repaired or replaced. [CAD Amendment 238-09]

7.4 Location of the Log Book [CAD Amendment 238-09]

7.4.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 238-09]

7.5 Access to Lift

7.5.1 Every owner of an unenclosed vertical platform lift and every owner of an unenclosed stair platform lift or stairchair lift shall ensure that the public does not have access to the area where the lift is installed while the lift is in operation.

7.5.2 Subsection **7.5.1** does not apply in the case of an unenclosed stair platform lift or stairchair lift where,

(a) the owner of the lift is able to control and identify persons who will be using the lift or the area where the lift is installed and the owner familiarizes those persons in advance of using the area or lift with the safety rules and procedures concerning the use of the area and the lift; and

(b) and the lift meets the requirements of subsection **7.6**.

7.6 Lift Operation with Persons Nearby

7.6.1 Where an unenclosed stair platform lift or stairchair lift is being operated at the same time that other persons are using the area in which the lift is installed,

(a) audio-visual signals shall be emitted that warn persons using the lift and persons in the area where the lift is installed at all times when the platform is unfolded and until the lift is parked in a safe position at a terminal; and

(b) every leading edge or surface of that portion of the lift and its carriage that carries the passengers in both directions of travel shall be equipped with sensitive devices that meet the requirements of clause 7.2.4. and 8.5.4. of the standard adopted in section **7.1** of this Document and that are operational whenever the carriage is in motion.

7.7 Usage of Device

7.7.1 The owner of a lift for persons with physical disabilities shall ensure that,

(a) the device is used primarily for the transportation of persons with physical disabilities;

(b) detailed operating instructions are posted at every operating station;

(c) the operation of the device is restricted to attendants designated by the owner or those persons who in the opinion of the owner are able to use the device without an attendant; and

(d) the persons using the device receive instruction and training that emphasizes the hazards associated with improper use of the device.

7.8 Requirements for Restricted Operation

7.8.1 The operation of a lift for persons with physical disabilities shall be restricted by means of a key-control for the operating device as set out in subsection **7.8.2** and **7.8.3** or by a method acceptable to the director that provides the same degree of safety.

7.8.2 A key-control for an operating device may be by means of an on/off lockable switch located near and controlling one or more operating devices or each operating device may be directly key-controlled.

7.8.3 The key for a key-control for an operating device shall be removable only when the switch is in an "off" position.

7.8.4 Folding down of a platform on a stair platform lift shall be restricted to persons authorised to use the lift, by the following means:

(a) in the case of a platform that is folded down by power – by means of a key-controlled switch or by a method acceptable to the director; and

(b) in the case of a platform that is folded down manually – by means of a keyed lock or by a method acceptable to the director.

7.8.5 Lowering of a barrier arm, if provided, shall be restricted to persons authorised to use the lift by means of a keyed switch or lock or by a method acceptable to the director.

7.9 Instructions for Use and Owner Requirements

7.9.1 Every owner of an elevating device for persons with physical disabilities shall,

(a) ensure that the instructions for the device are posted at the location of each operating device that will inform a person with physical disabilities of the established procedure to gain access to and to use the device and, in the case of unenclosed devices, that such instructions include, but are not limited to, cautioning the user to observe the lift runway for possible obstructions;

(b) ensure that an attendant is available to operate the device when a person with physical disabilities requires assistance;

(c) where an attendant is required and is not permanently stationed at the location of the operating device ensure that a notice is posted at the entrance to the elevating device that indicates the procedure to be followed to obtain assistance; and

(d) provide instruction that an unoccupied platform of an unenclosed stair platform lift should not be called or sent from a landing station unless it is in the raised and folded position. [CAD Amendment 238-09]

7.9.2 A person shall only operate an unenclosed vertical platform lift, an unenclosed stair platform lift or a stairchair lift, if the person is satisfied that only persons using the lift have access to the area where the lift is installed.

7.9.3 Subsection **7.9.2** does not apply to a person operating an unenclosed stair platform lift or a stairchair lift while other persons are using the area in which the lift is installed where,

(a) the conditions set out in subsection **7.5.2** exist;

(b) the person operating the lift is an attendant and has, while operating the lift in the folded down position, a clear view of the lift runway in the direction of its movement by walking along with the carriage while it is in motion or has by being stationed at a point, a clear view of the runway;

(c) the person using the lift has, while using the lift, a clear view of the lift runway in the direction of travel; and

(d) the audio-visual signals required under subsection **7.6.1(a)** are operational.

7.10 Notice Required Regarding Restricted Use

7.10.1 A notice that the use of a lift for persons with physical disabilities is restricted to persons with physical disabilities shall be posted at each location of a device, at landing or runway entrances of the device and at the load-carrying unit of the device.

7.11 Supplementary Owners Report

7.11.1 In addition to those requirements set out in sections 15 and 16 of the Regulation, the design submission for a lift for persons with physical disabilities shall include a detailed report, completed on a form provided by the director, from the owner of the elevating device, in which the proposed methods of compliance with sections **7.5** to **7.8** and **7.9.1** of this Document shall be described.

7.12 Change of Ownership & Supplementary Owners Report

7.12.1 In addition to the requirements of section 29 of the Regulation, where there is change in the ownership of a lift for persons with physical disabilities or a substantive change in the type of occupancy of a building in which a lift for persons with physical disabilities is installed, the new owner of the lift shall submit to the director, a detailed report on a form provided by the director in which the proposed methods of compliance with sections **7.5** to **7.8** and **7.9.1** of this Document shall be described.

C. Explanatory Notes:

1 General

1.1 This Code adoption amendment provides the following regulatory function;

a) Consolidates requirements from existing Code Adoption Document Amendments,
b) corrects date references of externally referenced documents to latest edition where appropriate
c) Implements a new numbering format for ease of use and future amendments,
d) adopts the latest edition of Z98, modifies sections of Z98 to provide clarity or revises technical requirements where issues present, and supplements Z98 requirements with specific CAD requirements, and
e) incorporates the requirements of specific Directors Orders or similarly issued documents whose content is suitable for inclusion in a CAD document.

2 Safety Levels and Safety Considerations Referenced in 5.9 and 5.10 of this document

2.1 To bring some specific requirements as to how conformance to 4.30.1.8 & 4.30.1.9 should be demonstrated, the CAD amendment references specific EN standards which are suitable for this purpose.

2.2 The following EN standards have been referenced;

Standard No.	Title of Standard

EN 12929: 2004	Safety requirements for cableways installations designed to carry persons. General requirements. Additional requirements for reversible bi-cable aerial ropeways without carrier truck brakes
EN 13243: 2004	Safety requirements for cableways installation designed to carry persons. Electrical equipment other than for drive systems
EN 13223: 2004	Safety requirements for cableways installations designed to carry persons. Drive systems and other mechanical equipment

2.2.1 EN standards can be purchased from

IHS Energy (Canada) Ltd
Stampede Station, Suite 200
1331 Macleod Trail SE
Calgary, AB T2G 0K3 Canada
Tel: (613) 237-4250 Toll Free: 1-800-267-8220
Fax: (613) 237-4251
Email: global@ihs.com

2.3 A reference to (RC/AK) in section 5.10.2 of this document means requirement class as described in EN 13243.

3 Reference Symbols Used in this CAD

7.5 is a reference to a section in the CAD
7.2.4. is a reference to a section in an external document or code
(197/06) is a reference to a predecessor document related to this CAD requirement

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Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*.

This Code Adoption Document amendment has been developed in consultation with; the Elevating Devices Advisory Council, the Ski Lift Advisory Council, the Field Advisory Committee, and the Task Group for the adoption of Z98.

Elevating and Amusement Devices Safety Division	Ref. No.: 247 / 11	Rev. No.:
DIRECTOR'S ORDER	Date: July 7, 2011	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT,* 2000, S.O. 2000, c. 16 (the "Act)

- and -

ONTARIO REGULATION 209/01(Elevating Devices)
made under the Act

Subject: **New Requirements For Maintenance and Testing of Escalator Brakes**
Applicable to: **Escalator Owners / Licensees, Contractors, and Consultants**

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 31 of the *Technical Standards & Safety Act* hereby orders the following:

1 ORDER TO ESCALATOR OWNERS

By August 1, 2012,

1.1 All escalator owners shall ensure that their maintenance contractor has completed the requirements of section 2 of this order.

1.2 All escalators shall have a "Daily Stopping Distance Check" sign posted as per section 3 of this order providing instructions for checking the stopping distance.

1.3 The person(s) authorized by the owner to carry out the daily prestart checks shall also perform the daily stopping distance check.

2 ORDER TO ESCALATOR MAINTAINING CONTRACTORS

By August 1, 2012,

2.1 Contractors maintaining an escalator shall post a device-specific "Brake Adjustment Procedure / Instruction Sheet" that provides instruction for the maintenance mechanics on how to correctly adjust and check the escalator brake(s).

2.2 The Brake Adjustment Procedure / Instruction Sheet shall conform to the requirements of section 4 of this order.

2.3 The escalator stopping distance shall be tested during each scheduled maintenance visit and the results of the test shall be recorded in a maintenance log book.

3 DAILY STOPPING DISTANCE CHECK SIGN – Requirement For Owners

3.1 A Daily Stopping Distance Check sign shall be posted at each end of the escalator near the stop button or start switch and shall state the following:

⚠ **DAILY STOPPING DISTANCE CHECK**
Stop the empty running escalator. **If the escalator travels more than** **<u>1 STEP</u> before stopping,** **DO NOT restart.** **Barricade and call for service.**

Figure 1*

*Notes:

1. The reference to '**1 STEP**' in Figure 1 should be applicable to most escalator installations. With a properly adjusted brake, observe the actual stopping distance and round the observed stopping distance, measured in steps, UP to the nearest whole number. (e.g.: If the escalator takes less than 1 step to stop, mark the Daily Stopping Distance Check sign with **1 STEP**.

2. If the maintenance contractor can substantiate the reason for a longer stopping distance (e.g.: no-load stopping distance indicated by manufacturer on brake tag is more than one step length or very close to being one step length), the Daily Stopping Distance Check sign can read "If the escalator travels more than 2 STEPS before stopping, DO NOT restart. Barricade and call for service."

3. Sample Procedure for Daily Stopping Distance Check: Authorized persons can press the escalator stop button and simultaneously observe the distance (in steps) that the escalator steps travel toward or away from the escalator comb plates before coming to a complete stop. If stopping distance exceeds 1 step (or 2 steps as per note 2 above), do not restart the escalator. Barricade and call for service.

3.2 The Daily Stopping Distance Check sign shall be of durable material and construction such that letters etched, stamped, cast or otherwise applied to the face will remain permanently legible. The lettering shall be at least 3 mm (.125 inches) in height.

3.3 The stopping distance displayed on the Daily Stopping Distance Check sign shall be determined by the manufacturer or the maintaining contractor and is determined by rounding the required no-load stopping distance up to the nearest full step increment. The stopping distance shall serve as a guide to authorized persons whom are performing the Daily Stopping Distance Check.

3.4 The results of the stopping distance test can be recorded in the "Escalator / Moving Walk Daily Start-Up Log". Copies can be obtained from www.tssa.org.

4 BRAKE ADJUSTMENT PROCEDURE / INSTRUCTION SHEET - Requirement For Contractors

4.1 The "Brake Adjustment Procedure / Instruction Sheet" shall;

(a) be posted or made otherwise available in the upper escalator pit;

(b) include detailed instructions for setting the escalator brake;

(c) include all information provided on the existing brake data tag;

(d) be of durable material such that the information contained therein will remain legible;

(e) as a minimum include the maximum no-load stopping distance as related to the manufacturer's specified brake torque, spring length etc. Where this information is missing and cannot be obtained from the original manufacturer, it is acceptable for a professional engineer in the province of Ontario to determine the no-load stopping distance.

(f) include the method of checking the brake setting such as the 'minimum torque', or the 'maximum spring length', or other method.

Roland Hadaller, P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices)
Appointed under the *Technical Standards and Safety Act,* 2000

This order has been developed in consultation with the Elevating Devices Advisory Council, the Field Advisory Council and the Escalator Brake Task Group.

Elevating and Amusement Devices Safety Division	Ref. No.: 248 / 11	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: April 27, 2011	Date:

IN THE MATTER OF:
THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*
S.O. 2000, c. 16, as amended (the "Act")

- and -

ONTARIO REGULATION 209/01 (Elevating Devices)
made under the Act

Subject: Pressure Sensor requirements for (B355)Vertical Platform Lifts
Applicable to: Owners & Licensees of B355 Vertical Platform Lifts, Maintenance Contractors, Consultants, Mechanics

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act 2000* hereby orders the following:

1 SAFETY ORDER

1.1 All B355 vertical platforms, where any part of the hydraulic cylinder is above the top of the hydraulic oil storage tank, shall be equipped with a pressure sensor that when activated shall prevent the operation of the lowering valve or valves in conformance with clause 6.6.8 of CSA B355-09 Lifts for Persons with Physical Disabilities.

1.2 **By January 31, 2012,**
Owners and licensees shall ensure their B355 vertical platform lifts are compliant with clause 6.6.8 of B355-09.

1.3 Owners and licensees shall engage the services of a registered elevating devices contractor (whose scope of work includes Lifts for Persons with Physical Disabilities) or their registered maintenance contractor to determine if their vertical platform lift is compliant with clause 6.6.8 of B355-09 or if their device requires upgrading.

1.4 Contractors who undertake upgrades to facilitate compliance with clause 6.6.8 of B355-09 shall forward to TSSA a Minor 'A' alteration design submission on the owner's behalf. If electrical means are incorporated then a revised electrical schematic shall be included in the submission. A copy of the revised electrical schematic shall be left on site.

1.5 When the installation is determined to be in compliance with this safety order a letter from the contractor (on company letterhead) shall be included in the log book indicating that the installation has been reviewed or upgraded and is in compliance with the requirements of this safety order (ED-248-11).

2 BACKGROUND

The 1994 edition of CSA-B355 Lifts for Persons with Physical Disabilities introduced the requirement for a pressure switch (to detect low system pressure and prevent operation of the lowering valve) if the top of the hydraulic cylinder was above the top of the hydraulic oil storage tank. This requirement was applicable to B355 devices whose designs were submitted to TSSA on or after September 1, 1994. The 2000 edition of CSA-B355 Lifts for Persons with Physical Disabilities revised the term "pressure switch" to "pressure sensor".

For reference, a similar requirement for a lower pressure switch was added to the Safety Code for Elevators in the 1985 code.

The pressure sensor is intended to ensure elevators or vertical platform lifts are continuously supported on a column of oil. When low pressure is detected the sensor shall prevent operation of the lowering valve which in turn will prevent the drain back of oil to the tank (i.e. the loss of the oil support column) if for some reason the lift gets hung-up during descent.

Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*

This Order has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 249/11	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: October 14, 2011	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16 (the "Act")

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the Act

Subject: Hydraulic Cylinder Collar Welding on Lifts for Persons with Physical Disabilities
Sent to: All Elevator Contractors
All Owners of hydraulic vertical platform lifts, designed per CAN/CSA B355

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. ORDER to Contractors

1.1. **No later than the next maintenance visit,** in addition to your normal maintenance functions, all maintaining contractors of hydraulic vertical platform lifts, designed per CAN/CSA B355, shall identify if the hydraulic vertical platform lift has the following design features:

1) an inverted cylinder
2) uses a collar around the hydraulic cylinder to transmit loads from the carriage to the hydraulic cylinder, and
3) has set screws securing the collar to the hydraulic cylinder. (see Figure 1)

1.2. If the hydraulic vertical platform lift has the design features identified in subsection 1.1 of this order, the maintaining contractor shall immediately notify the owner of the owner's obligations under this order.

1.3. Elevator Contractors who carry out the examinations required by subsection 2.1 of this order shall notify the director or the owner of their findings as described below.

1) If the welds are present and are of the appropriate size and number, the contractor shall notify the director using a Notification form obtained from the TSSA web site at www.tssa.org.
http://www.tssa.org/regulated/elevating/elevatingForms.asp

The "Subject" entry (box 5.0) should state: *Cylinder Collar Weld*
The "TSSA Reference No." entry (box 7.0) should state: *249/11*
The "Scope of Notification" entry (box 189.00 should state:

Cylinder collar welds are present. The number of welds and the size of the welds correspond to the manufacturer's recommendations or the recommendations of a Professional Engineer.

The completed form can be faxed to (416) 231-5435 or emailed to edminorb@tssa.org.
Note: There are NO FEES associated with this Notification process.

2) If the welds are missing or are of the incorrect number or size, the mechanic shall immediately remove the device from service and notify the owner as required by section 36.(4) of Ontario Regulation 209/01 (Elevating Devices)

> ***36.*** *(4) Where a mechanic finds that an elevating device is in a condition that constitutes an immediate hazard to the safety of a person or property, he or she shall immediately remove the device from service and notify the owner or contractor maintaining the device.*

1.4. Elevator Contractors who perform any necessary repairs as a result of this order shall obtain permission to return the device to service from an inspector as required by Section 36.(8) of Ontario Regulation 209/01 (Elevating Devices) and shall notify the director as described in subsection 1.3 1 of this order).

> ***36.*** *(8) No person shall return an elevating device referred to in subsection (1), (3), (4) or (5) to service until the cause of the incident or condition is identified, the safety of the device restored and an inspector gives permission to return the device to service.*

2. ORDER to Owners

2.1. If your elevating device has the design features identified in subsection 1.1 of this order you shall, within 30 days of becoming aware, arrange to have a registered elevator contractor perform the following examinations:

1) observe the collar to verify that the required welds between the collar and the hydraulic cylinder are present, and
2) observe the welds between the collar and the hydraulic cylinder to ensure the size and numbers of welds correspond to the manufacturer's installation requirements or the recommendations of a Professional Engineer.

2.2. If the elevator contractor observes missing welds or welds of the incorrect size or number, the owner, or the elevator contractor on behalf of the owner, shall notify the directory within 24 hours and submit an incident report within 7 days as required by section 36. (5) of Ontario Regulation 209/01 (Elevating Devices)

> ***36.*** *(5) Where a licence holder for an elevating device finds or becomes aware that the device is in a condition that constitutes an immediate hazard to the safety of a person or property, the licence holder shall,*
>
> *(a) immediately remove the device from service;*
>
> *(b) notify the director by telephone or other means within 24 hours of making the finding; and*
>
> *(c) within seven days of making the finding, submit to the director in the form provided by the designated administrative authority a written report giving full particulars.*

Notification by telephone can be made by calling 877-682-8772. Forms for incident reporting can be found on TSSA's website at www.tssa.org by clicking "Report an Incident" near the upper right hand side of the home page.

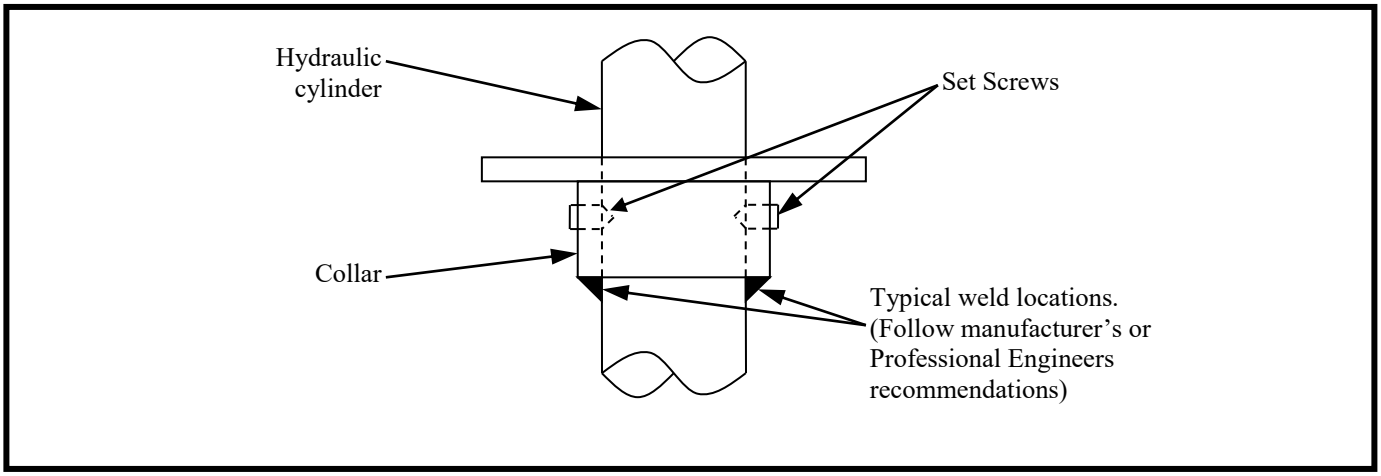

Figure 1 - Typical Collar and Hydraulic cylinder Connection

3. Background

3.1. TSSA has become aware of several incidents involving hydraulic lifts for persons with physical disabilities.

3.2. The lifts involved in these incidents used an inverted hydraulic cylinder design. The investigation into these incidents has revealed that a contributing factor was the incorrect installation or repair of the lifting collar.

3.3. The design of the lifting collar requires that the collar be welded to the hydraulic cylinder in accordance with the manufacturer's requirements. (See Figure 1)

3.4. The collar set screws are provided for positioning purposes only during installation. These screws are not meant as a means of transmitting the load in the carriage to the hydraulic cylinder.

3.5. In the subject incidents, the required welds have been found to be either missing or removed from the initial installation or to have failed during operation of the device.

3.6. FOR REFERNCE PURPOSES: The following are selected extracts of information regarding welding of the cylinder collars from two different manufacturers:

- It is imperative that the collar be welded to the cylinder once it is in its final position. At least a ¼-inch fillet weld, 2 inches in length is required. Do not over weld. Too much heat can distort the cylinder. The weld should be two 1-inch beads on opposite sides of the collar.
- When finally in position, the collar must have two ½-inch beads of weld on the collar. Do not weld all around.

4.0 This order is effective immediately.

Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

Elevating and Amusement Devices Safety Division	Ref. No.: 250 / 11	Rev. No.:
Elevating Devices Code Adoption Document - Amendment	Date: November 1, 2011	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT 2000*,S.O. 2000, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: Adoption of ASME A17.1-2010 / CSA B44-10 Safety Code for Elevators
Applicable to: Elevating Device Contractors, Owners, Consultants and Elevating Device Mechanics

The Director of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standard Adopted by Reference), hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards and Safety Authority is further amended as follows:

Effective May 1, 2012 the Elevating Device Code Adoption Document, dated June 1, 2001 as amended is further amended as follows:

A. Changes to Part 1

a.1 Part 1, Section 1.1.3 is supplemented with the following:

(i) "dedicated function fire alarm system" means a protected premises fire alarm system installed specifically to perform fire safety function(s) [CAD Amendment 250-11]

(j) "minor alteration – type A" means a minor alteration per O.Reg 209/01 which requires the signature and seal of a professional engineer per O.Reg 209/01 15.(6) [CAD Amendment 250-11]

(k) "minor alteration – type B" means a minor alteration per O.Reg 209/01 19.(1) which may be signed as per O.Reg 209/01 15.(9) [CAD Amendment 250-11]

B. Changes to Part 2

b.1 Part 2, section 2.6.1 is revoked, and the following substituted:

2.6.1 Where an alteration is made to an elevating device the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of codes or standards adopted in this document, including any changes set out in this document.

b.2 Part 2, is supplemented with the following:

2.11 Component Fastenings *(10/84) (36/86) (125/96)(193/05)*

2.11.1 Where components are fastened or retained via machine threads, roll pins, c-clips, or similar, precautions must be taken to ensure that the fastenings can satisfactorily remain secure while resisting movement or vibration of the equipment.

2.11.2 Where the effectiveness of a fastener is rapidly degraded as a result of removal and reinstallation during maintenance activities, such fasteners shall be replaced and not reused. [CAD Amendment 250-11]

2.12 Passage Across Roofs *(231/08)*

2.12.1 In addition to O.Reg 209/01, s.37, if passage across a roof is required for access to elevating device equipment where there is no parapet or guardrail at least 1070mm (42 in.) high around the roof or passageway, the following shall apply to facilitate safe passage from the roof top access point to the elevating device equipment:

(a) buildings with elevating device installations commissioned on or after December 27, 1985 (effective date of B44-M85) shall be provided with:

(1) a permanent, unobstructed and substantial walkway not less than 600 mm (24 in.) wide,

(2) a guardrail, on all sides of the walkway design to meet the requirements of the Occupational Health and Safety Regulations, where there is an exposure to a fall hazard, except

(b) buildings with elevating device installations commissioned before December 27, 1985 shall be provided with:

(1) the requirements of 2.12.1(a)(1) and 2.12.1(a)(2), or

(2) the requirements of 2.12.1(a)(1) and an engineered lifeline in lieu of a guardrail, provided the lifeline is designed to accommodate a travel restraint (safety belt) or fall arrest system in accordance to current requirements of the Occupational Health and Safety Regulations. [CAD Amendment 250-11]

C. Changes to Part 3

c.1 Part 3 is revoked in its entirety, and the following substituted:

Part 3

3 ELEVATORS, DUMBWAITERS, ESCALATORS, MOVING WALKS, MATERIAL LIFTS AND FREIGHT PLATFORM LIFTS

3.1 Applied Codes and Standards [CAD Amendment 250-11]

Every elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of:

(a) ASME A17.1-2010/CSA B44-10 Safety Code for Elevators and Escalators,

Note: Parts 1, 5.10, 8.1, 8.6, 8.7, 8.8, 8.9, 8.10 and 8.11 apply to both new and existing installations. For the purpose of these parts, existing installations means devices installed under the 2010 code and prior editions.

(b) ASME A17.6-2010 Standard for Elevator Suspension, Compensation, and Governor Systems.

(c) The requirements of **3.1(a)** are adopted with the following modifications and clarifications:

(1) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(2) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(3) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 350/06 made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;

(4) Where there is inconsistency between the Regulations and this Code (e.g. Requirement 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(5) Any reference containing a star ★ notation (example **8.7.3.31★**) is a TSSA defined alteration or additional requirement;

(6) Requirement 2.5.1.6 is revoked and the following substituted:

2.5.1.6 Clearance Between Car Platform Apron and Pit Enclosure.
Where the lowest landing sill, on each side of the hoistway, projects into the hoistway, the clearance between the car platform apron and the pit enclosure or fascia plate shall be not more than 32mm (1.25 in.). This clearance shall be maintained, between the bottom face of the apron and the pit fascia, until the car is resting on its fully compressed buffer.

(7) Requirement 2.7.3.2.2 is revoked and the following substituted:

2.7.3.2.2 Where the passage is over a roof having a slope exceeding 15 deg from the horizontal, or over a roof where there is no parapet or guardrail at least 1 070 mm (42 in.) high around the roof or passageway, a permanent, unobstructed and substantial walkway not less than 600 mm (24 in.) wide, equipped with a railing conforming to 2.10.2.1, 2.10.2.2, 2.10.2.3 and 2.10.2.4 or **2.12.1(a)(2)** of the CAD on all sides, shall be provided from the building exit door at the roof level to the means of access.

(8) Requirement 2.7.8.4 is revoked and the following substituted:

2.7.8.4 A permanent means of communication between the elevator car and a remote machine room, control space or control room shall be provided.

(9) Requirement 2.10.2 is revoked and the following substituted: *(245/10)*

2.10.2 Standard Railing / Guard Rail
A standard railing / guard rail shall be substantially constructed of metal and shall consist of a top rail, intermediate rail or equivalent structural member or solid panel, and toe-board.

2.10.2.1 Top Rail
The top rail shall have a smooth surface, and the upper surface shall be located at a vertical height of 1 070 mm (42 in.) from the working surface. **For alterations only:** On elevator car tops of existing devices where a guard rail is being added, this dimension is permitted to be reduced to a height between 910 mm (36 in.) and 1070 mm (42 in.).

2.10.2.2 Intermediate Rail, Member, or Panel
The intermediate rail or equivalent structural member or solid panel shall be located approximately centered between the top rail and the working surface.

2.10.2.3 Toe-Board
The toe-board shall be securely fastened and have a height not less than 125 mm (5 in.) above the working surface.

2.10.2.4 Strength of Standard Railing / Guard Rail
2.10.2.4.1 Strength
In jurisdictions enforcing NBCC, guards shall be fixed in position and designed to resist the following:
(a) a horizontal load applied inward or outward, of 750N/m (52 lbf/ft) or a concentrated load of 1000 N (225 lbf) applied at any point, whichever governs, at the top of every guard rail
(b) elements within the guard, including solid panels and pickets, shall be designed for a load of 500 N (112 lbf) applied over an area of 100 mm by 100 mm (4 in. x 4 in.) located at any point in the element or elements so as to produce the most critical effect. These loads need not be considered to act simultaneously with the loads provided for in (a) and (c).
(c) The minimum specified load applied vertically at the top of every required guard shall be 1500 N/m (103 lbf/ft) and need not be considered to act simultaneously with the horizontal load provided for in (a)

Note: The loads specified in 2.10.2.4.1 are extracted from O. Reg. 350/06 (Building Code) Article 4.1.5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section14(2).
For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(5) of O. Reg. 350/06 (Building Code). For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

2.10.2.4.2 Deflection
A standard railing shall be capable of resisting anywhere along its length the following forces when applied separately, without deflecting more than 75 mm (3 in.) and without permanent deformation:
(a) a force of at least 890 N (200 lbf) applied in any lateral or downward vertical direction, at any point along the top rail.
(b) a force of at least 666 N (150 lbf) applied in any lateral or downward vertical direction at any point along the center of the intermediate rail, member, or panel. If the standard railing is a solid panel extending from the top rail to the toe-board, the application of the force specified in 2.10.2.4(a) shall be considered to meet the requirements of 2.10.2.4(b).
(c) a force of 225 N (50 lbf) applied in a lateral direction to the toe-board.

(10) Requirement 2.14.1.7 is supplemented with the following: *(245/10)*

2.14.1.7.5 Where a standard guardrail per 2.10.2 cannot be provided due to overhead clearance issues, a foldable, collapsible or other stowable design shall be acceptable provided that:
(1) the car will not operate in "top-of-car inspection operation" unless the railing is in the fully extended position,

(2) the car will not operate in; "normal operation", "hoistway access operation", or any type of "inspection operation" other than "top-of-car inspection operation", unless the railing is in the fully retracted position,

(3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly/positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),

(4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,

(5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly/positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),

(6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4 of A17.1-2007/B44-07,

(7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,

(8) when in the fully extended position the handrail shall meet the requirements of 2.10.2.

(9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per Section 85 of Reg. 851, Regulations for Industrial Establishments) while engaging or lowering the alternative height guardrail provided for in 2.14.1.7.5

(11) Requirement 2.14.2.1.2 is revoked and the following substituted:

2.14.2.1.2 In jurisdictions enforcing the NBCC
(a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3, and 2.14.2.1.4, shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723, or CAN/ULC-S102:
(1) flame spread rating of 0 to 75
(2) smoke development classification of 0 to 450
(b) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development classification of 0 to 450, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2
(c) not adopted

(12) Requirement 2.27.3.2.2 is revoked and the following substituted:

2.27.3.2.2 In jurisdictions enforcing the NBCC, the requirements of (a) through (c) are applicable to new installations and the requirements of (a) through (h) are applicable for alterations as amended below:

(a) smoke detectors, or heat detectors in environments not suitable for smoke detectors (fire alarm initiating devices), used to initiate Phase I Emergency Recall Operation, shall be installed in conformance with the requirements of the NBCC, and shall be located

(1) at each floor served by the elevator
(2) in the associated elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room
(3) in elevator and dumbwaiter shafts per O.Reg 350/06 Article 3.2.4.10.(e) if a fire alarm system is required by O.Reg 350/06 Article 3.2.4.1, except as provided in O.Reg 350/06 Article 3.2.4.15.,

(b) alternate floor recall required by 2.27.3.2.4 is not required if the floor area containing the recall level is sprinklered. (ref OBC 3.2.4.14(3)) Note: If fire detectors are provided in the hoistway at or

below the lowest landing of recall, an alternate (upper) recall shall be provided in accordance with 2.27.3.2.3(d).

(c) where a building fire alarm system is not required by OBC or where an alteration is being performed and the existing building fire alarm system does not provide suitable signaling, the devices referred to in 2.27.3.2.2(a) shall be installed and shall be connected to a Dedicated Function Fire Alarm System.

NOTE (2.27.3.2.2(a) (b) and (c)): Smoke and heat detectors (fire alarm initiating devices) are referred to as fire detectors in the NBCC. Pull stations are not deemed to be fire detectors.

(ALTERATIONS)

(d) for alterations **8.7.2.16, 8.7.3.17(change in type of service)** and **8.7.2.27.6, 8.7.3.31.7 (operation control)**, that require conformance to 2.27,
(1) requirements 2.27.3.2.2(a)(1), 2.27.3.2.2(a)(2) and 2.27.3.2.2(c) do not apply within a floor area if the floor area is sprinklered and the sprinkler system is electrically supervised in conformance with O.Reg 350/06 Sentence 3.2.4.9.(2). The activation of the electrically supervised system shall cause automatic recall.
(2) requirements 2.27.3.2.2(a)(3) does not apply.

(e) for alterations **8.7.2.27.4 and 8.7.3.31.5 (controllers)**, <u>if firefighters' emergency operation was required or provided at the time of the original installation, or required or provided by a subsequent alteration,</u>
the requirements of (1) apply, otherwise the requirements of (2) apply:
(1) requirements, 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)
(2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.

(f) for alterations **8.7.2.27.5 and 8.7.3.31.6 (motion control)**, <u>emergency operation and signaling devices where required by NBCC at the time of the original installation, or required or provided by a subsequent alteration,</u>
the requirements of (1) apply, otherwise the requirements of (2) apply:
(1) requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)
(2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.

(g) for alterations under **8.7.2.28** or **8.7.3.31.8 (emergency operation and signaling devices)** or **8.7.2.28★2** or **8.7.3.31★9 (fire code retrofit)** that require conformance to all or part of 2.27 the requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c) apply.

(h) In all cases the level of activation shall not be diminished per 8.7.1.2 .

(13) The opening requirement of 3.7 – Machinery Spaces, Machine Rooms, Control Spaces and Control Rooms, is revoked and the following substituted:

A machinery space outside the hoistway containing a hydraulic machine and a motor controller shall be a machine room, or a machinery space with headroom of not less than 2130 mm(84").

(14) Requirement 5.2.1.4.4 – Alternative to Top Car Clearance Requirement, is adopted for new and existing buildings

(15) Requirement 5.2.1.14 is supplemented with the following:

(n) where conformance to 2.14.1.7 is required, the provisions of 2.10.2.1 or 2.14.1.7.5 are permitted for new installations.

(16) Requirement 5.2.1.15.2 is revoked and the following substituted: *(166/01)*

5.2.1.15.2 Platform Guards.

(a) Requirement 2.15.9.2 applies to LU/LA elevators that utilize traction drives and that serve 3 or more floors.

(b) Requirement 2.15.9.2 does not apply to LU/LA elevators utilizing hydraulic or roped hydraulic drive and serving 2 or more floors, provided that the following requirements are met:

(1) The platform guard shall have a straight vertical face, extending below the floor surface of the platform of not less than the depth of the unlocking zone plus 75 mm (3 in.) but in no case less than the maximum distance from the landing that it takes to stop and hold the car upon detection and actuation of the device as prescribed in 2.19.2.

(2) Owners of LULA elevators shall complete and sign a SUPPLEMENTARY OWNERS REPORT FOR LULA ELEVATORS indicating their understanding that:
(i) *only elevator personnel are permitted to unlock hoistway doors*
(ii) *only emergency personnel are permitted to perform emergency evacuations*.
(iii) access to the unlocking device is controlled or has a controlled procedure
(iv) owners shall ensure the appropriate building personnel are made aware of these requirements

(3) Signage shall be provided on the apron plate that meets the following criteria:
(i) lettering shall be a minimum of 16mm in height
(ii) the sign shall remain permanent and readily legible, viewable from the hall
(iii) the Context of the message shall convey the following information:
(a) a 'warning' advising of the potential fall hazard that exists below when the car is above the floor level
(b) lower the car prior to attempting rescue of trapped passengers
(c) lowering and Rescue by trained personnel only.

(17) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(18) Sections 5.3, 8.6.7.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(19) Sections 5.4, 8.6.7.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(20) Sections 5.7, 8.6.7.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(21) Sections 5.8, 8.6.7.8 and 8.7.5.8 – Marine Elevators, are not adopted;

(22) Sections 5.9, 8.6.7.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(23) Section 5.10 "Elevators Used for Construction" is adopted with the following modifications:

a) "Elevators Used for Construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

b) 5.10.1.9.5(a) is not adopted,

c) 5.10.1.9.5(b) is revoked and the following substituted:

5.10.1.9.5(b)
(b) regardless of car speed, hoistway doors shall be provided with either of the following:
(1) interlocks conforming to 2.12.2
(2) combination mechanical locks and electric contacts conforming to 2.12.3

(24) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(25) Requirement 7.4.2.2 is revoked and the following substituted: *(48/87) (189/05)*

7.4.2.2
Type B Material Lifts shall be permitted to carry one operator and be provided with in-car mounted operating devices, subject to the following limitations:

(a) Access to and usage of Type B Material Lifts is restricted to authorized personnel.
(b) The rated speed is not to exceed 0.15 m/s (30 ft/min).
(c) not adopted
(d) Travel does not exceed 7 600 mm (300 in.).
(e) They are operated only by continuous-pressure control devices.
(f) They shall not be accessible to the general public.
(g) The upper limit of travel shall be
(1) level with the top penetrated floor; or
(2) level with the top landing where no floor is penetrated.
(h) They are permitted to serve one or more intermediate landings, provided that these landings have doors as required in 7.4.14.

(26) Requirement 7.4.14.8 is added:

7.4.14.8
Requirement 2.12.3 applies only to Type A Material Lifts.

(27) Requirement 7.5.12.2.6 is revoked and the following substituted:

7.5.12.2.6
Requirement 2.26.2.5 does not apply. Each control station shall be provided with an emergency stop switch (switches) conforming to 2.26.2.5(a), (b), and (c), except that the emergency stop switch located at each landing may be of a constant-pressure type. And it shall cause the power to be removed from the driving machine when operated.

(28) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item **2(3)(j)** of the Elevating Device Regulation 209/01, are not adopted;

(29) The requirements of Section 8.6. Maintenance, Repair, Replacement and Testing is adopted as modified and clarified in **3.3** of the Code Adoption Document;

(30) The requirements of Section 8.7 – Alterations, is adopted, as modified and clarified in **3.4** of the Code Adoption Document;

(31) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(32) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;

(33) Section 8.11 - Periodic Inspection and Test Requirements are not adopted.

3.2 Performance Based Safety Code

3.2.1 Where conformance with the prescriptive requirements in **3.1** are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

3.3 Maintenance, Repair, Replacement, and Testing

3.3.1 A Maintenance Control Program (MCP) referred to in the code adopted in **3.1**shall have the same meaning as "general instructions for maintenance' referred to in O.Reg 209/01 s.25.(2)

3.3.2 A copy of the Maintenance Control Program shall be provided for every new elevating device installation as required in O.Reg 209/01 s.15.(4)(c) ,where a Maintenance Control Program has been implemented. The Maintenance Control Program shall be available to the inspector at the time of the acceptance inspection, and a copy shall be forwarded to the elevating devices program prior to the inspection. Where appropriate, versions of MCP's may be filed with the director.

3.3.3 Where a Maintenance Control Program has been implemented on an existing device, a copy of the Maintenance Control Program (MCP) shall be supplied to the owner of the elevating device.

3.3.4 Section **8.6 Maintenance, Repair, Replacement, and Testing** is revoked and the following substituted;

8.6 MAINTENANCE, REPAIR, REPLACEMENT, AND TESTING

Requirement 8.6 applies to maintenance, repairs, replacements, and testing.

NOTES:

(1) See 8.7 for alteration requirements.

(2) See "General" in Preface for assignment of responsibilities.

8.6.1 General Requirements

8.6.1.1 Maintenance, Repair, and Replacement

8.6.1.1.1 Equipment covered within the scope of this Code shall be maintained in accordance with

(a) 8.6. and an established Maintenance Control Program including any requirements specified in the Code Adoption Document or

(b) 8.6.1, 8.6.2, 8.6.3, 8.6.11 and the supplemental maintenance requirements and intervals specified in CSA standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, including any requirements specified in the Code Adoption Document.

8.6.1.1.2 Maintenance, repairs, replacements, and tests shall conform to 8.6 and the applicable

(a) Code at the time of the installation; and

(b) Code requirements at the time of any alteration; and

(c) ASME A17.3 if adopted by the authority having jurisdiction

8.6.1.1.3 It is not the intent of 8.6 to require changes to the equipment to meet the design, nameplate or performance standard other than those specified in 8.6.1.1.2, unless specifically stated in 8.6.

8.6.1.2 General Maintenance Requirements

8.6.1.2.1

Not later than 12 months, after the adoption of the code in part **3.1** of the CAD, a written Maintenance Control Program shall be in place to maintain the equipment in compliance with the requirements of 8.6, except until that date, devices may continue to be maintained according to 8.6.1.1.1(b).

(a) The Maintenance Control Program or maintenance tasks implemented to align with 8.6.1.1.1(b) shall consist of but not be limited to

(1) examinations and maintenance of equipment at scheduled intervals in order to ensure that the installation conforms to the requirements of 8.6. The maintenance procedures and intervals shall be based on
- (a) equipment age, condition, and accumulated wear
- (b) design and inherent quality of the equipment
- (c) usage
- (d) environmental conditions
- (e) improved technology
- (f) the manufacturer's recommendations for any SIL rated devices or circuits

(2) cleaning, lubricating, and adjusting applicable components at regular intervals and repairing or replacing all worn or defective components where necessary to maintain the installation in compliance with the requirements of 8.6.

(3) tests of equipment at scheduled intervals (8.6.1.7 or B44.2-07 where this maintenance method is followed) in order to ensure that the installation conforms to the requirements of 8.6

(4) all Code required written procedures (e.g., check out, inspection, testing, and maintenance).

(b) The instructions for locating the Maintenance Control Program where implemented shall be provided in or on the controller along with instructions on how to report any corrective action that might be necessary to the responsible party.

(c) The log book of maintenance records required by 8.6.1.4 shall be kept in the machine room, control room, control space or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location.

(d) The Maintenance Control Program where implemented shall be accessible to the elevator personnel and shall document compliance with 8.6.

(e) Procedures for tests, periodic inspections, maintenance, replacements, adjustments, and repairs for all SIL rated E/E/PES electrical protective devices and circuits shall be incorporated into and made part of the Maintenance Control Program where implemented, otherwise shall form part of any new or alteration design submission, submitted for registration (if applicable to the installation). See 2.26.4.3.2, 2.26.9.3.2(b), 2.26.9.5.1(b), and 2.26.9.6.1(b).

(f) Where unique or product-specific procedures or methods are required to inspect or test equipment, such procedures or methods shall be included in the Maintenance Control Program where implemented, otherwise shall form part of any new or alteration design submission, submitted for registration (if applicable to the installation).

(g) Procedures for tests; periodic inspections; maintenance; replacements; adjustments; and repairs for traction-loss detection means, broken-suspension-member detection means, residual-strength detection means, and related circuits shall be incorporated into and made part of the Maintenance Control Program where implemented, otherwise shall form part of any new or alteration design submission, submitted for registration (if applicable to the installation). [See 2.20.8.1, 2.20.8.2, 2.20.8.3, 8.6.11.10, 8.10.2.2.2(cc)(3)(c)(2), 8.10.2.2.2(ss), and 8.6.4.19.12.]

8.6.1.2.2 Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.

8.6.1.3 Maintenance Personnel.

Maintenance, repairs, replacements, and tests shall be performed only by elevator personnel (see 1.3).

8.6.1.4 Log Book of Maintenance Records

8.6.1.4.1

Maintenance records in the form of a log book shall document compliance with 8.6 of the Code and shall include records on the following activities:

(a) description of maintenance task performed and dates

(b1) description and dates of examinations, tests,

(b2) description and dates of adjustments, repairs, and replacements when the activity is safety related and is covered under:

(1) Repairs per 8.6.2.1 through 8.6.2.5, including repairs of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

(2) Replacements per 8.6.3.1 through 8.6.3.11 except 8.6.3.7 and 8.6.3.10, but including the replacement of components listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

(c) description and dates of call backs (trouble calls) or reports that are reported to elevator personnel by any means, including corrective action taken where a maintenance control program is implemented, shall be recorded as required in 8.6.1.4.3

(d) written record of the findings on the firefighters' emergency operation required by 8.6.11.1

(e) written record to document compliance with replacement criteria specified in ASME A17.6 where a maintenance control program is implemented,

(f) log records to document compliance with the maintenance, examinations and test activities listed in (a) and (b) shall also include;

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(1) Building name and/or address,
(2) TSSA or MCCR installation number,
(3) Contractor's name
(4) Contractor's Registration Number and
(5) the code section, reference or requirement / clause number associated with a task,
(6) a description of the task performed,
(7) the prescribed maintenance frequency of the task, where specified by the maintenance control program (where implemented), or by B44.2-07,
(8) year and month when the task was performed
(9) the printed name and signature of the persons who completed the task, except that where tasks are not yet completed, or where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the task is complete or the defect is adjusted repaired or replaced. *(242/10)*

8.6.1.4.2 Log Book and Maintenance Record Availability.

The log book and maintenance records shall be available to the elevator personnel.

8.6.1.4.3 Call Backs and Trouble Call Record Availability.

The service provider shall maintain a record of call backs or reports including the date and nature of the call or report. This information shall be made available to elevator personal performing corrective action and shall be maintained for a minimum of one year to be available to the AHJ upon request. Corrective actions related to adjustments, repairs and replacements shall be recorded as required in 8.6.1.4.1(b2).

8.6.1.6 General Maintenance Methods and Procedures

8.6.1.6.1 Making Safety Devices Inoperative or Ineffective.
No person shall at any time make inoperative or ineffective any device on which safety of users is dependent, including any electrical protective device, except where necessary during tests, inspections (see 8.10 and 8.11), maintenance, repair, and replacement, provided that the installation is first removed from normal operation. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7 and 8.6.1.6).

8.6.1.6.2 Lubrication.
All parts of the machinery and equipment requiring lubrication shall be lubricated with lubricants equivalent to the type and grade recommended by the manufacturer. Alternative lubricants shall be permitted when intended lubrication effects are achieved. All excess lubricant shall be cleaned from the equipment. Containers used to catch leakage shall not be allowed to overflow.

8.6.1.6.3 Controllers, Wiring, and Wiring Diagrams
(a) Up-to-date wiring diagrams detailing circuits of all electrical protective devices (see 2.26.2) and critical operating circuits (see 2.26.3) shall be available in the machinery space, machine room, control space, or control room as appropriate to the installation.
(b) The interiors of controllers and their components shall be cleaned when necessary to minimize the accumulation of foreign matter that can interfere with the operation of the equipment.
(c) Temporary wiring and insulators or blocks in the armatures or poles of magnetically operated switches, contactors, or relays on equipment in service are prohibited.
(d) When jumpers are used during maintenance, repairs, or testing, all jumpers shall be removed and the equipment tested prior to returning it to service. Jumpers shall not be stored in machine rooms, control rooms, hoistways, machinery spaces, control spaces, escalator/moving walk wellways, or pits (see also 8.6.1.6.1).
NOTE [8.6.1.6.3(d)]: See "Elevator Industry Field Employees' Safety Handbook" for jumper control procedures.
(e) Control and operating circuits and devices shall be maintained in compliance with applicable Code requirements (see 8.6.1.1.2).
(f) Substitution of any wire or current-carrying device for the correct fuse or circuit breaker in an elevator circuit shall not be permitted.

8.6.1.6.4 Painting.
Care shall be used in the painting of the equipment to make certain that it does not interfere with the proper functioning of any component. Painted components shall be tested for proper operation upon completion of painting.

8.6.1.6.6 Workmanship.
Care should be taken during operations such as torquing, drilling, cutting, and welding to ensure that no component of the assembly is damaged or weakened. Rotating parts shall be properly aligned.

8.6.1.6.7 Signs and Data Plates.
Required signs and data plates that are damaged or missing shall be repaired or replaced.

8.6.1.7 Periodic Tests.
The frequency of maintenance and tests shall conform to the following;

(a) Where a Maintenance Control Program is in effect,
(1) the maintenance frequency shall be established as prescribed in 8.6, but in no case shall maintenance visits extend beyond three months, and in no case beyond the limit specified by a manufacturers limit or other imposed which is less than three months (see CAD 2.9 for example of a one month limit)

(2) testing shall be performed at intervals specified in Appendix N, such that;
(a) category 1 tests are performed annually,
(b) category 3 tests are performed every 3 years and
(c) category 5 tests are performed every 5 years,

(b) Where the maintenance method follows B44.2-07

(1) the maintenance frequency shall be established as prescribed in B44.2-07, but in no case shall maintenance visits extend beyond three months.

(2) Where frequencies of maintenance, examinations or inspections identified in B44.2-07 are extended:

(a) the altered maintenance, examination and/or inspection frequencies must take into account the age and inherent quality of the equipment, the frequency and method of usage, and the recommendation(s) by either the original manufacturer, or manufacturer's agent, or the maintaining contractor;

(b) the owner and maintenance contractor shall agree in writing to the altered maintenance, examination and/or inspection frequencies;

(c) the log book shall either capture this agreement or make reference to another document where such an agreement is made;

(d) a copy of the altered maintenance, examination and/or inspection frequency agreement shall be made available to TSSA upon request;

(e) the interval between maintenance visits shall not exceed three (3) months;

(f) the frequency of tests** identified in B44.2 shall not be altered; and

(g) despite the allowance to adjust maintenance, examination or inspection frequencies as stated above, the frequency of activities listed in B44.2-07 section 5.2.1 shall not be altered.

**where the terms:
'operate'- (or equivalent thereof), such as "governors shall be operated by hand" or
'check'- (or equivalent thereof), such as "skirt switches shall be checked" are used, the frequency of these tests shall not be altered.

The frequency of periodic tests shall be established by the authority having jurisdiction as required by 8.11.1.3.
NOTE: Recommended intervals for periodic tests can be found in Nonmandatory Appendix N.

8.6.1.7.1 Not adopted

8.6.1.7.2 Periodic Test Records
A periodic test record in the form of a log book, shall be provided and contain the applicable code requirement(s) and date(s) performed, and the name of the person performing the test, shall be kept in accordance with requirement 8.6.1.4.

8.6.1.7.3 No person shall at any time make any required safety device or electrical protective device ineffective, except where necessary during tests. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7).

8.6.1.7.4 All references to "Items" and "Parts" are to Items in A17.2.

8.6.2 Repairs
See 8.6.2.1 through 8.6.2.5 for general requirements for repairs.

8.6.2.1 Repair Parts. Repairs shall be made with parts of at least equivalent material, strength, and design (see 8.6.3.1).

8.6.2.2 Welding and Design.
Welding and design of welding shall conform to 8.7.1.4 and 8.7.1.5.

8.6.2.3 Repair of Speed Governors.
Where a repair is made to a speed governor that affects the tripping linkage or speed adjustment mechanism, the governor shall be checked in conformance with 8.6.4.19.2. Where a repair is made to the governor jaws or associated parts that affect the pull-through force, the governor pull-through force shall be checked in conformance with 8.6.4.19.2(b). A test tag shall be attached, indicating the date the pull-through test was performed.

8.6.2.4 Repair of Releasing Carrier.
When a repair is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with 8.6.4.20.2(b).

8.6.2.5 Repair of Suspension and Compensating Means and Governor Ropes.
Suspension and compensating members and governor ropes shall not be lengthened or repaired by splicing (see 8.7.2.21).

8.6.3 Replacements
8.6.3.1 Replacement Parts.
Replacements shall be made with parts of at least equivalent material, strength, and design.

8.6.3.2 Replacement Suspension Means.
Suspension means, compensation means, and governor ropes shall be replaced when they no longer conform to the requirements of ASME A17.6. Replacement of suspension means, compensation means, and governor ropes shall conform to the requirements of ASME A17.6 as stated in 8.6.3.2.1 through 8.6.3.2.3.

8.6.3.2.1 For steel wire rope, ASME A17.6, Section 1.10 shall apply.
NOTE (8.6.3.2.1): See Nonmandatory Appendix T for inspection and replacement of steel wire ropes.

8.6.3.2.2 For aramid fiber ropes, ASME A17.6, Section 2.9 shall apply.

8.6.3.2.3 For noncircular elastomeric-coated steel suspension members, ASME A17.6, Section 3.7 shall apply.

8.6.3.3 Replacement of Suspension-Means Fastenings and Hitch Plates.
Replacement of suspension-means fastenings and hitch plates shall conform to the requirements in 8.6.3.3.1 through 8.6.3.3.5.

8.6.3.3.1 When the suspension-means fastenings are replaced with an alternate means that conforms to 2.20.9, load-carrying ropes shall be in line with the shackle rod.

8.6.3.3.2 Existing hitch plates that do not permit the load-carrying ropes to remain in line with the shackle rods shall have the replacement fastening staggered in the direction of travel of the elevator and counterweight, or the hitch plates shall be replaced.

8.6.3.3.3 Replacement hitch plates shall conform to 2.15.13 and shall provide proper alignment of load carrying ropes and shackle rods.

8.6.3.3.4 Replacement fastenings shall be permitted to be installed on the car only, the counterweight only, at either of the dead-end hitches, or at both attachment points.

8.6.3.3.5 Rope fastenings at the drum connection of winding-drum machines shall comply with 8.6.4.10.2.

8.6.3.4 Replacement of Governor or Safety Rope
8.6.3.4.1 Governor ropes shall be of the same size, material, and construction as the rope specified by the governor manufacturer, except that a rope of the same size but of different material or construction shall be permitted to be installed in conformance with 8.7.2.19.

8.6.3.4.2 The replaced governor ropes shall comply with 2.18.5.

8.6.3.4.3 After a governor rope is replaced, the governor pull-through force shall be checked as specified in 8.6.4.20.2(b)..

8.6.3.4.4 The date when the pull-through test was performed shall be recorded in the log book.

8.6.3.4.5 The safety rope shall comply with 2.17.12.4 and 2.17.12.5.

8.6.3.4.6 A new rope data tag conforming to 2.18.5.3 shall be installed at each rope replacement, and the date of the rope replacement shall be recorded in the maintenance records (8.6.1.4).

8.6.3.5 Belts and Chains.
If one belt or chain of a set is worn or stretched beyond that specified in the manufacturer's recommendation, or is damaged so as to require replacement, the entire set shall be replaced.
Sprockets and toothed sheaves shall also be replaced if worn beyond that specified in the manufacturer's recommendations.

8.6.3.6 Replacement of Speed Governor.
When a speed governor is replaced with a governor of the same make and model (see also 8.7.2.19) , it shall conform to 2.18. When a releasing carrier is provided, it shall conform to 2.17.15. The governor rope shall be of the type and size specified by the governor manufacturer. The governor shall be checked in conformance with 8.6.4.20.2. Drum-operated safeties that require continuous tension in the governor rope to achieve full safety application shall be checked as specified in 8.6.4.20.1 and 8.7.2.19.

8.6.3.7 Listed/Certified Devices
8.6.3.7.1 Where a listed/certified device is replaced, the replacement shall be subject to the applicable engineering or type test as specified in 8.3, or the requirements of CSA B44.1/ASME A17.5. Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The device shall be labeled by the certifying organization (see 8.6.1.1). In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.

8.6.3.7.2 Where a component in a listed/certified device is replaced, the replacement component shall be subject to the requirements of the applicable edition of CSA B44.1/ASME A17.5 and/or the engineering or type test in 8.3.Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The component shall be included in the original manufacturer's listed/certified device documentation or as a listed/certified replacement component (see 8.6.1.1). Each replacement component shall be plainly marked for identification in accordance with the certifying organization's procedures. In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.
NOTE (8.6.3.7): Devices that may fall under this requirement are included but not limited to hoistway door locking devices and electric contacts, car door contacts and interlocks, hydraulic control valves, escalator steps, fire doors, and electrical equipment.

8.6.3.8 Replacement of Door Reopening Device.
Where a reopening device for power-operated car doors or gates is replaced (see also 8.7.2.13), the following requirements shall apply:
(a) The door closing force shall comply with the Code in effect at the time of the installation or alteration.
(b) The kinetic energy shall comply with the Code in effect at the time of the installation or alteration.
(c) When firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation.

8.6.3.9 Replacement of Releasing Carrier.
Where a replacement is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with 8.6.4.20.2(b).

8.6.3.10 Replacement of Hydraulic Jack, Plunger, Cylinder, Tanks, and Anticreep Leveling Device

8.6.3.10.1 A hydraulic jack replacement shall be classified as an alteration and shall comply with 8.7.3.23.1.

8.6.3.10.2 A plunger replacement shall be classified as an alteration and shall comply with 8.7.3.23.2.

8.6.3.10.3 A cylinder replacement shall be classified as an alteration and shall comply with 8.7.3.23.3.

8.6.3.10.4 A tank replacement shall be classified as an alteration and shall comply with 8.7.3.29.

8.6.3.10.5 An anticreep leveling device replacement shall be classified as an alteration and shall comply with 8.7.3.31.3.

8.6.3.11 Replacement of Valves and Piping.

(a) Where any piping, or fittings are replaced, replacements shall conform to 3.19.
(b) Where any valve is replaced with a valve of the same make and model, the replacement shall conform to 3.19.
(c) Where any control or overspeed valve is replaced with a valve of different make or model, the replacement shall be classified as an alteration and shall comply with 8.7.3.24.

8.6.3.12 Runby and Clearances After Reroping or Shortening.

The minimum car and counterweight clearances specified in 2.4.6 and 2.4.9 shall be maintained when new suspension means are installed or when existing suspension means are shortened. The minimum clearances shall be maintained by any of the methods described in 8.6.3.12.1 through 8.6.3.12.3 (see 8.6.4.11). (see also CAD **2.4**)

8.6.3.12.1 Limit the length that the suspension means are shortened.

8.6.3.12.2 Provide blocking at the car or counterweight strike plate. The blocking shall be of sufficient strength and secured in place to withstand the reactions of buffer engagement as specified in 8.2.3. If wood blocks are used to directly engage the buffer, a steel plate shall be fastened to the engaging surface or shall be located between that block and the next block to distribute the load upon buffer engagements.

8.6.3.12.3 Provide blocking under the car or counterweight buffer or both of sufficient strength and secured in place to withstand the reactions of buffer engagement as described in 8.2.3.

8.6.3.12.4 Provide the month and year the suspension means were first shortened. Appropriate data shall be recorded on the data tag (see 2.20.2.2.2).

8.6.3.13 Replacement of Driving Machine *(226/07)*

Where a driving machine is replaced it shall be considered an alteration and shall conform to the requirements of 8.7.2.25.1(a) except that:

(a) if the elevator controllers are pre-B44-00 and the installation had ascending car overspeed and unintended car movement protection existing
  (1) ascending car overspeed and unintended car movement protection shall be retained
  (2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
  (3) the means shall require manual reset

(b) if the elevator controllers are pre-B44-00 and the installation had only ascending car overspeed protection existing
  (1) ascending car overspeed protection shall be retained
  (2) the addition of unintended car movement protection is permitted
  (3) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
  (3) the means shall require manual reset

(c) if the elevator controllers are pre-B44-00 and ascending car overspeed and unintended car movement protection was not previously existing
(1) ascending car overspeed and unintended car movement protection shall be provided
(2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
(3) the means shall require manual reset

8.6.3.14 Replacement of Controller *(226/07)*
Where an elevator controller is replaced is shall conform to the requirements specified in 8.7.2.27.4(a) or 8.7.3.31.5(a) whichever is applicable.

8.6.3.15 Replacement of Anticreep Leveling Device *(226/07)*
Where an anticreep leveling device is replaced it shall conform to 8.7.3.31.3.

8.6.4 Maintenance and Testing of Electric Elevators
The maintenance and testing of electric elevators shall conform to 8.6.1 through 8.6.4.

8.6.4.1 Suspension and Compensating Means
8.6.4.1.1 Suspension and compensating means shall be kept sufficiently clean so that they can be visually inspected. Suspension Means shall be inspected at intervals not exceeding 12 months and replaced per the replacement criterion specified in A17.6 or B44.2.

8.6.4.1.2 Steel wire ropes shall be lightly lubricated. Precautions shall be taken in lubricating suspension steel wire ropes to prevent the loss of traction. Lubrication shall be in accordance with instructions on the rope data tag [see 2.20.2.2.2(n)], if provided.

8.6.4.1.3 Equal tension shall be maintained between individual suspension members in each set. When suspension-member tension is checked or adjusted, an antirotation device conforming to the requirements of 2.20.9.8 shall be permitted.

8.6.4.2 Governor Wire Ropes
8.6.4.2.1 The ropes shall be kept clean.

8.6.4.2.2 Governor wire ropes shall not be lubricated after installation. If lubricants have been applied to governor ropes, they shall be replaced, or the lubricant removed, and the governor and safety shall be tested as specified in 8.6.4.19.2(b) and 8.6.4.18.2.

8.6.4.3 Lubrication of Guide Rails
8.6.4.3.1 The lubrication of guide rails shall be in accordance with the requirements on the crosshead data plate (see 2.17.16), where provided.

8.6.4.3.2 Where a data plate is not provided, the lubrication of guide rails shall conform to the following:
(a) Guide rails, except those of elevators equipped with roller or other types of guiding members not requiring lubrication, shall be kept lubricated.
(b) Where sliding-type safeties are used, the guiderail lubricants, or prelubricated or impregnated guideshoe gibs, where used, shall be of a type recommended by the manufacturer of the safety (see 8.6.1.2.3).

8.6.4.3.3 If lubricants other than those recommended by the manufacturer are used, a safety test conforming to 8.6.4.19.1 shall be made to demonstrate that the safety will function as required by 2.17.3.

8.6.4.3.4 Rails shall be kept clean and free of lint and dirt accumulation and excessive lubricant. Means shall be provided at the base of the rails to collect excess lubricant.

8.6.4.3.5 Rust-preventive compounds such as paint, mixtures of graphite and oil, and similar coatings shall not be applied to the guiding surfaces, unless recommended by the manufacturer of the safety. Once applied, the safety shall be checked as specified in 8.6.4.19.1.

8.6.4.4 Oil Buffers

8.6.4.4.1 The oil level shall be maintained at the level indicated by the manufacturer. The grade of oil to be used shall be as indicated on the buffer marking plate, where required (see 2.22.4.10 and 2.22.4.11).

8.6.4.4.2 Buffer plungers shall be kept clean and shall not be coated or painted with a substance that will interfere with their operation.

8.6.4.4.3 Buffer oil shall not be stored in the pit or hoistway or on top of the car.

8.6.4.5 Safety Mechanisms

8.6.4.5.1 Safety mechanisms shall be kept lubricated and free of rust, corrosion, and dirt that can interfere with the operation of the safety.

8.6.4.5.2 The required clearance between the safety jaws and the rail shall be maintained.

8.6.4.6 Brakes

8.6.4.6.1 The driving-machine brake shall be maintained to ensure proper operations, including, but not limited to the following:

(a) residual pads (antimagnetic pads)
(b) lining and running clearances
(c) pins and levers
(d) springs
(e) sleeves and guide bushings
(f) discs and drums
(g) brake coil and plunger

8.6.4.6.2 If any part of the driving machine brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the brake when required (see 2.24.8.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

8.6.4.6.3 If any part of the emergency brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the emergency brake when required (see 2.19.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

8.6.4.7 Cleaning of Hoistways and Pits

8.6.4.7.1 Hoistways and pits shall be kept free of dirt and rubbish and shall not be used for storage purposes.

8.6.4.7.2 Landing blocks and pipe stands shall be permitted to be stored in the pit, provided that they do not interfere with the operation of the elevator and do not present a hazard for persons working in the pit.

8.6.4.7.3 Pit access doors shall be kept closed and locked.

8.6.4.7.4 Water and oil shall not be allowed to accumulate on pit floors.

8.6.4.8 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

8.6.4.8.1 Floors and machinery and control spaces shall be kept free of water, dirt, rubbish, oil, and grease.

8.6.4.8.2 Articles or materials not necessary for the maintenance or operation of the elevator shall not be stored in machinery spaces, machine rooms, control spaces, and control rooms.

8.6.4.8.3 Flammable liquids having a flashpoint of less than 44°C (110°F) shall not be kept in such rooms or spaces.

8.6.4.8.4 Access doors shall be kept closed and locked.
8.6.4.8.5 Machinery spaces and control spaces located in the hoistway shall not be used for storage purposes (see also 8.6.4.7.1).

8.6.4.9 Cleaning of Top of Cars.
The tops of cars shall be kept free of oil, water, dirt, and rubbish, and shall not be used for storing lubricants, spare parts, tools, or other items.

8.6.4.10 Refastening or Resocketing of Car-Hoisting Ropes on Winding-Drum Machines

8.6.4.10.1 General.
The hoisting ropes of elevators having winding-drum driving-machines with 1:1 roping, if of the babbitted rope socket type, shall be resocketed, or for other type of fastenings, replaced or moved on the rope to a point above the existing fastening at the car ends at intervals no longer than
(a) 1 year, for machines located over the hoistway.
(b) 2 years, for machines located below or at the side of the hoistway.
(c) where auxiliary rope-fastening devices conforming to 2.20.10 are installed, refastening at the periods specified is not required, provided that, where such devices are installed, all hoisting ropes shall be refastened on the failure or indication of failure of any rope fastening.
(d) where the elevator is equipped with a drum counterweight, the fastenings shall be examined for fatigue or damage at the socket. Where fatigue or damage is detected, the ropes shall be refastened in conformance with 8.6.4.10.2.

8.6.4.10.2 Procedure.
In resocketing babbitted rope sockets or replacing other types of fastenings, a sufficient length shall be cut from the end of the rope to remove damaged or fatigued portions. The fastenings shall conform to 2.20.9. Where the drum ends of the ropes extend beyond their clamps or sockets, means shall be provided to prevent the rope ends from coming out of the inside of the drum and to prevent interference with other parts of the machine.

8.6.4.10.3 Tags. A legible metal tag shall be securely attached to one of the wire rope fastenings after each resocketing or changing to other types of fastenings and shall bear the following information:
(a) the name of the person or firm who performed the resocketing or changing of other types of fastenings and
(b) the date on which the rope was resocketed or other types of fastening changed
The material and marking of the tags shall conform to 2.16.3.3, except that the height of the letters and figures shall be not less than 1.5 mm (0.0625 in.).

8.6.4.11 Runby
8.6.4.11.1 The car and counterweight runby shall be permitted to be reduced (see 2.4.2), provided the car or counterweight does not strike the buffer, the top car clearances are not reduced below that required at the time of installation or alteration, and the final terminal stopping device is still operational (see also 8.6.3.3.3).

8.6.4.11.2 Where spring-return oil buffers are provided and compression was permitted with the car at the terminals (see 2.4.2 and 2.22.4.8), the buffer compression shall not exceed 25% of the buffer stroke.

8.6.4.12 Governors
8.6.4.12.1 Governors shall be examined to ensure that all seals are intact and manually operated to determine that all moving parts, including the rope-grip jaws and switches, operate freely.

8.6.4.12.2 Governors, governor ropes, and all sheaves shall be free from contaminants or obstructions, or both, that interfere with operation or function, including the accumulation of rope lubricant or materials, or both, in the grooves of governors or sheaves.

8.6.4.13 Door Systems

8.6.4.13.1 General. All landing and car-door or gate mechanical and electrical components shall be maintained to ensure safe and proper operation at an interval not exceeding 6 months, including but not limited to, the following:

(a) hoistway door interlocks or mechanical locks and electric contacts
(b) car door electric contacts or car door interlocks, where required
(c) door reopening devices
(d) vision panels and grilles, where required
(e) hoistway door unlocking devices and escutcheons
(f) hangers, tracks, door rollers, up-thrusts, and door safety retainers, where required
(g) astragals and resilient members, door space guards, and sight guards, where required
(h) sills and bottom guides, fastenings, condition, and engagement
(i) clutches, engaging vanes, retiring cams, and engaging rollers
(j) interconnecting means
(k) door closers, where required
(l) door restrictors, where required

8.6.4.13.2 Kinetic Energy and Force Limitation for Automatic Closing, Horizontal Sliding Car and Hoistway Doors or Gates.

Where a power-operated horizontally sliding door is closed by momentary pressure or by automatic means, the closing kinetic energy and closing force shall be maintained to conform to 2.13.4 and 2.13.5.

8.6.4.14 Hoistway Access Switches.

Hoistway access switches, where provided, shall be maintained.

8.6.4.15 Car Emergency System.

Emergency operation of signaling devices (see 2.27), lighting (see 2.14.7), communication (see 2.27.1.1.2, 2.27.1.1.3, and 2.27.1.2) and ventilation (see 2.14.2.3), shall be maintained.

8.6.4.16 Stopping Accuracy.

The elevator shall be maintained to provide a stopping accuracy at the landings during normal operation as appropriate for the type of control, in accordance with applicable Code requirements.

8.6.4.17 Ascending Car Overspeed and Unintended Car Movement Protection.

Devices for ascending car overspeed and unintended car movement protection shall be maintained (see 2.19).

8.6.4.18 Compensation Sheaves and Switches

8.6.4.18.1 Suspension and compensation means shall be maintained to prevent the compensation sheave from reaching the upper or lower limit of travel and to prevent unintended actuation of compensation sheave switch(es) during normal operation.

8.6.4.19 Periodic Test Requirements — Category 1

NOTE: For test frequency, see 8.11.1.3.

8.6.4.19.1 Oil Buffers. Car and counterweight buffers shall be tested to determine conformance with the applicable plunger return requirements (Item 5.9.2.1).

8.6.4.19.2 Safeties

(a) Examinations.
All working parts of car and counterweight safeties shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 8.7.2.14 through 8.7.2.28 (see 2.17.10 and 2.17.11). Check the level of the oil in the oil buffer and the operation of the buffer compression-switch on Type C safeties.

(b) Tests.

Safeties shall be subjected to the following tests with no load in the car:

(1) Type A, B, or C governor-operated safeties shall be operated by manually tripping the governor with the car operating at the slowest operating speed in the down direction. In this test, the safety shall bring the car to rest promptly. In the case of Type B safeties, the stopping distance is not required to conform to 2.17.3. In the case of Type C safeties, full oil buffer compression is not required. In the case of Type A, B, or C safeties employing rollers or dogs for application of the safety, the rollers or dogs are not required to operate their full travel (Item 2.29.2.1).

(2) Governor-operated wood guide-rail safeties shall be tested by manually tripping the governor with the car at rest and moving the car in the down direction until it is brought to rest by the safety and the hoisting ropes slip on traction sheaves or become slack on winding drum sheaves (Item 2.29.2.1).

(3) Type A and wood guide-rail safeties without governors which are operated as a result of the breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2.1).

8.6.4.19.3 Governors.

Governors shall be operated manually to determine that all parts, including those which impart the governor pull-through tension to the governor rope, operate freely [Item 2.13.2.1(a)].

8.6.4.19.4 Slack-Rope Devices on Winding Drum Machines.

Slack-rope devices on winding drum machines shall be operated manually and tested to determine conformance with the applicable requirements (Item 2.20.2.1).

8.6.4.19.5 Normal and Final Terminal Stopping Devices.

Normal and final terminal stopping devices shall be examined and tested to determine conformance with the applicable requirements (2.25) (Items 3.5.2.1 and 3.6.2.1).

8.6.4.19.6 Firefighters' Emergency Operation.

Firefighters' emergency operation shall be tested annually to the requirements of 8.6.11.1.
Additional testing may be performed to determine conformance with the applicable requirements (see Part 6 of A17.2).

8.6.4.19.7 Standby or Emergency Power or Emergency Lowering Operation.

Operation of elevators equipped with standby or emergency power shall be tested to determine conformance with the applicable requirements (Item 1.17.2.1). Tests shall be performed with no load in the car.
Elevators equipped with auxiliary power lowering shall be tested to ensure that they comply with 3.26.10 of ASME A17.1/CSA B44. The main disconnect switch auxiliary contact shall be tested to ensure compliance with Section 38 of the Canadian Electrical Code, Part I.

8.6.4.19.8 Power Operation of Door System.

The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.1). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.4.19.9 Broken Rope, Tape, or Chain Switch.

Where a rope, tape, or chain is used to connect the motion of the car to the machine room normal limit, the switch that senses failure of this connection shall be tested for compliance with 2.26.2.6 (Item 3.26.1.1).

8.6.4.19.10 The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that all E/E/PES electrical protective devices operate as intended.

8.6.4.19.11 Ascending Car Overspeed Protection and Unintended Car Movement

(a) Examinations.
All working parts of ascending car overspeed protection and unintended car motion devices shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 2.19.1.2(a) and 2.19.2.2(a).

(b) Tests.
These devices shall be subjected to tests with no load in the car at the slowest operating speed in the up direction.

8.6.4.19.12 Traction-Loss Detection Means.
Where provided, conformance with the traction-loss detection means specified in 2.20.8.1 shall be demonstrated by

(a) causing relative motion between the drive sheave and the suspension means either by bottoming the car or counterweight [see 8.6.4.20.10(b)], or

(b) an alternative test provided in the Maintenance Control Program [see 8.6.1.2.1(g)]

8.6.4.19.13 Broken-Suspension-Member and Residual-Strength Detection Means
Where provided, testing of broken-suspension and residual-strength detection means shall comply with the following:

(a) The broken-suspension-member detection means shall be tested by simulating a slack suspension member or a loss of a suspension member as appropriate (see 2.20.8.2).

(b) Suspension-member residual-strength detection means shall be tested to simulate a reduction of residual strength to 2.20.8.3.

8.6.4.19.14 Driving Machine Brakes
Testing shall be performed to ensure that the car decelerates from the rated speed when power is removed from the driving machine and brakes while empty and travelling upward at the rated speed. Any rate of deceleration shall be considered acceptable. A means other than the disconnect switch should be used to remove the power.

Where the annual testing per 8.6.4.19.14 occurs after the first five year load test conducted under 8.6.4.20.4 or 8.6.4.20.10, the following additional actions are required. [Note: Successful demonstration of 8.6.4.20.4 and 8.6.4.20.10 testing confirms proper adjustment of the driving machine brake.]
(a) Marking plates for brakes (see 2.24.8.5) shall be checked and modified where necessary to reflect a brake setting method which specifies either;
(1) the required no load torque for both the clockwise and counter clockwise directions,
(2) the no load braking slide distance associated with the car travelling in the up direction or
(3) the requirements to test the driving machine brake annually with rated load.
(b) Marking plates utilizing spring length or spring force shall be replaced.
(c) Following the first five year load test, driving machine brakes shall be tested annually to ensure they are adjusted properly per the marking plate for brakes requirements.

8.6.4.20 Periodic Test Requirements — Category 5
NOTE: For test frequency, see 8.11.1.3.

Where category 5 tests require the use of load for testing purposes, alternative no load methods shall be permitted where the alternative method is acceptable to the Director.

8.6.4.20.1 Car and Counterweight Safeties.
Types A, B, and C car safeties, except those operating on wood guide rails, and their governors, shall be tested with either rated load (100% load) in the car or no load in the car. Counterweight safety tests shall be made with no load in the car. Tests for governor operated safeties shall be made by manually tripping the governor at the rated speed. The overspeed switch on the governor shall be made ineffective during the test. Type A safeties without governors that are operated as a result of the

breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2). The following operational conditions shall be checked (Item 2.29.2):

(a) Type B safeties (if tested with rated load) shall stop the car with the rated load within the required range of stopping distances for which the governor is tripped (Item 2.29.2).

(b) Safeties tested with no load in the car shall bring the car to rest promptly. In the case of Type B safeties, the stopping distance is not required to conform to 2.17.3. (Note: Aligns with 4.2.2.1 of B44.2-10)

(b) For Type A safeties and Type A safety parts of Type C safeties, there shall be sufficient travel of the safety rollers or dogs remaining after the test to bring the car and its rated load to rest on safety application at governor tripping speed.

Governor-operated wood guide-rail safeties shall be tested by tripping the governor by hand with the car at rest and moving the car in the down direction until it is brought to rest by the safety and the hoisting ropes slip on traction sheaves or become slack on winding drum sheaves (Item 2.29.2.). (Note: Aligns with 4.2.2.1 of B44.2-10)

NOTE: To ensure that the safety will retard the car with the minimum assistance from the elevator driving machine and minimize the development of slack rope and fallback of the counterweight, the switch on the car operated by the car safety mechanism should, for the duration of the test, be temporarily adjusted to open as close as possible to the position at which the car safety mechanism is in the fully applied position.

8.6.4.20.2 Governors

(a) The tripping speed of the governor and the speed at which the governor overspeed switch, where provided, operates shall be tested to determine conformance with the applicable requirements and the adjustable means shall be sealed (Item 2.13.2.1).

(b) The governor rope pull-through and pull-out forces shall be tested to determine conformance with the applicable requirements, and the adjustment means shall be sealed (Item 2.13.2.1).

(c) not adopted.

8.6.4.20.3 Oil Buffers

(a) Car oil buffers shall be tested to determine conformance with the applicable requirements by running the car with any load from no load up to its rated load (100% load) onto the buffer at rated speed, except as specified in 8.6.4.20.3(b) and (c) (Item 5.9.2.1). Counterweight oil buffers shall be tested by running the counterweight onto its buffer at rated speed with no load in the car, except as specified in 8.6.4.20.3(b) and (c) (Item 5.9.2.1).

(b) For reduced stroke buffers, this test shall be made at the reduced striking speed permitted (Item 5.9.2.1).

(c) This test is not required where a Type C safety is used (see 8.6.4.20.1).

(d) In making these tests, the normal and emergency terminal stopping devices shall be made temporarily inoperative. The final terminal stopping devices shall remain operative and be temporarily relocated, if necessary, to permit full compression of the buffer during the test.

8.6.4.20.4 Braking System.

For all passenger elevators and all freight elevators, the brake shall be tested for compliance with applicable requirements. Place the load as shown in Table 8.6.4.20.4 (125% load for passenger elevator) in the car and run it to the lowest landing by normal operating means. The driving machine shall safely lower, stop, and hold the car with this load. Also, see 8.6.4.20.10(a).

Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.1). (Note: Aligns with 4.6.4 of B44.2-10) For elevators installed under A17.1-2000/B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate.

8.6.4.20.5 Emergency and Standby Power Operation.
Not adopted. (see 8.6.4.19.5)

8.6.4.20.6 Emergency Terminal Stopping and Speed-Limiting Devices.
Emergency terminal speed-limiting devices, where provided, shall be tested for conformance with applicable requirements (2.25.4; and Item 5.3.2.1). For static control elevators, emergency terminal stopping devices, when provided, shall be tested for conformance with applicable requirements (2.25.4) (Item 2.28.2.1).

8.6.4.20.7 Power Opening of Doors.
Determine that power opening of car and hoistway doors only occurs when the car is at rest at the landing, or in the landing zone, except, in the case of static control, check that power shall not be applied until the car is within 300 mm (12 in.) of the landing (Item 1.10.2).

Table 8.6.4.20.4 Brake Test Loads

Class of Service	Not Permitted to Carry Passengers	Permitted to Carry Passengers
Passenger	Not applicable	125% rated load
Freight	Rated load	125% rated load
One Piece Load by 2.16.7	Rated load or one piece load, whichever is greater	125% rated load or one piece load, whichever is greater

8.6.4.20.8 Leveling Zone and Leveling Speed.
Check that the leveling zone does not exceed the maximum allowable distance. Check that the leveling speed does not exceed 0.75 m/s (150 ft/min). For static control elevators, the person or firm installing or maintaining the equipment shall provide a written checkout procedure and demonstrate that the leveling speed with the doors open is limited to a maximum of 0.75 m/s (150 ft/min) and that the speed-limiting (or speed monitor) means is independent of the normal means of controlling this speed [Item 1.10.2(b)].

8.6.4.20.9 Inner Landing Zone.
For static control elevators, check that the zone in which the car can move with the doors open is not more than 75 mm (3 in.) above or below the landing (Item 1.10.2.1).

8.6.4.20.10 Emergency Stopping Distance. (Note: Aligns with 4.6.3 of B44.2-10)
Counterweight traction elevators shall be tested for traction drive limits to ensure that

(a) during an emergency stop initiated by any of the electrical protective device(s) listed in 2.26.2 (except 2.26.2.13) (except buffer switches for oil buffers used with Type C car safeties), at the rated speed in the down direction, with passenger elevators and freight elevators permitted to carry passengers carrying 125% of their rated load, or with freight elevators carrying their rated load, cars shall stop and safely hold the load.

(b) if either the car or the counterweight bottoms on its buffers or becomes otherwise immovable
(1) the ropes shall slip in the drive sheave and not allow the car or counterweight to be raised; or
(2) the driving system shall stall and not allow the car or counterweight to be raised.

8.6.4.20.11 Emergency Brake. (Note: Aligns with 4.29 of B44.2-10)
For passenger elevators and all freight elevators, the emergency brake shall be tested at rated speed in the up direction with no load in the car for compliance with 2.19.3.2.

8.6.4.21 Drive Sheaves With Nonmetallic Groove Surfaces and Steel Wire Ropes.

Where steel wire ropes have worn through a nonmetallic drive-sheave groove surface and have not damaged the supporting sheave surface beneath the nonmetallic sheave groove surface, the groove surfaces shall be replaced and the steel wire ropes shall be inspected for conformance to the criteria of ASME A17.6, Section 1.10, and replaced, if necessary. Where the sheave-supporting surfaces have been damaged, the drive sheave shall also be replaced or repaired and the groove surfaces shall be replaced.

8.6.5 Maintenance and Testing of Hydraulic Elevators
The maintenance and testing of hydraulic elevators shall conform to 8.6.1 through 8.6.3, and the applicable requirements of 8.6.4 and 8.6.5.

8.6.5.1 Pressure Tanks
8.6.5.1.1 Cleaning.
Pressure tanks shall be thoroughly cleaned internally at least every 3 years and prior to the inspection and test required by 8.6.5.15.

8.6.5.1.2 Level.
The liquid level in pressure tanks should be maintained at about two-thirds of the capacity of the tank.

8.6.5.2 Piston Rods.
Piston rods of roped-hydraulic elevators shall be thoroughly cleaned prior to the test required by 8.6.5.15.

8.6.5.3 Water-Hydraulic Plungers.
Plungers of water-hydraulic elevators shall be thoroughly cleaned to remove any buildup of rust and scale prior to the test required by 8.6.5.15.

8.6.5.4 Tank Levels.
The level of oil in the oil tanks shall be checked and, where necessary, adjusted to comply with the prescribed minimum and maximum level.

8.6.5.5 Gland Packings and Seals
8.6.5.5.1 Examination and Maintenance.
Where pressure piping, valves, and cylinders use packing glands or seals, they shall be examined and maintained to prevent excessive loss of fluid. When a cylinder packing or seal or a pressure-piping seal is replaced, the integrity of the entire hydraulic system shall be verified by operating it at relief-valve pressure for not less than 15 sec.

8.6.5.5.2 Collection of Oil Leakage.
Oil leakage collected from each cylinder head seals or packing gland shall not exceed 19 L (5 gal) before removal. The container shall be covered and shall not be permitted to overflow.

8.6.5.6 Flexible Hoses and Fittings.
Flexible hose and fittings assemblies installed between the check valve or control valve and the cylinder, and that are not equipped with an overspeed valve conforming to 3.19.4.7, shall be replaced not more than 6 years beyond the installation date. Existing hose assemblies that do not indicate an installation or replacement date shall be replaced. Replacements shall conform to 3.19.3.3.1(a) through (e) and 3.19.3.3.2.

8.6.5.7 Record of Oil Usage.
(a) Oil monitoring shall conform to 2.9 of the Code Adoption Document.
(b) When the quantity of hydraulic fluid loss cannot be accounted for, the test specified in 8.6.5.14.1 and 8.6.5.14.2 shall be made.

8.6.5.8 Safety Bulkhead.
Not later than 3 years, after the adoption of the code in part **3.1** of the CAD, Hydraulic cylinders installed below ground shall conform to 3.18.3.4, or the elevator shall conform to 8.6.5.8(a) or 8.6.5.8(b):

(a) the elevator shall be provided with car safeties conforming to 3.17.1 and guide rails, guide-rail supports, and fastenings conforming to 3.23.1; or
(b) the elevator shall be provided with a plunger gripper conforming to 3.17.3. The plunger gripper shall grip the plunger when the applicable maximum governor tripping speed in Table 2.18.2.1 is achieved.

8.6.5.9 Relief-Valve Setting.
The relief-valve adjustment shall be examined to ensure that the seal is intact. If the relief-valve seal is not intact, checks shall be conducted in accordance with 8.11.3.2.1.

8.6.5.10 Runby and Clearances After Reroping or Shortening.
The minimum car and counterweight clearances and runby shall be maintained in compliance with the applicable code when replacement suspension ropes are installed or when existing suspension ropes are shortened.

8.6.5.11 Cylinder Corrosion Protection and Monitoring
8.6.5.11.1 Corrosion Protection Monitoring.
Where monitored cylinder corrosion protection is required, the monitoring means shall be examined and maintained.

8.6.5.11.2 Corrosion Protection Loss.
If the monitoring means detects that loss of corrosion protection has occurred, the means of corrosion protection shall be repaired or replaced.

8.6.5.12 Anticreep and Low Oil Protection.
The anticreep function and low oil protection shall be maintained to operate in compliance with the applicable code.

8.6.5.13 Overspeed Valve Setting.
All elevators provided with field adjustable overspeed valves shall have the adjustment means examined to ensure the seal is intact. If the overspeed adjustment seal is not intact, compliance with 8.6.5.16.5 shall be verified and a new seal shall be installed.

8.6.5.14 Periodic Test Requirements — Category 1
NOTE: For test frequency, see 8.11.1.3.

8.6.5.14.1 Relief Valve Setting and System Pressure Test.
The relief valve setting shall be tested to determine that it will bypass the full output of the pump before the pressure exceeds 150% of the working pressure and that the system will withstand this pressure. It shall be sealed if the relief valve setting is altered or if the seal is broken (Item 2.31).

8.6.5.14.2 Hydraulic Cylinders and Pressure Piping.
This test shall be performed after the relief valve setting and system pressure test in 8.6.5.14.1:
(a) Cylinders and pressure piping that are exposed shall be visually examined.
(b) Cylinders and pressure piping that are not exposed shall be tested for leakage, which cannot be accounted for by the visual examination in 8.6.5.14.2(a) (Item 2.36.2). The duration of the test shall be for a minimum of 15 min (Item 2.36.2).

8.6.5.14.3 Additional Tests.
The following tests shall also be performed:
(a) Normal Terminal Stopping Devices (8.6.4.19.5) (Item 3.5.2)
(b) Governors (8.6.4.19.3) (Item 2.13.2.2)
(c) Safeties (8.6.4.19.2) (Item 5.8.2)
(d) Oil Buffers (8.6.4.19.1)
(e) Firefighters' Emergency Operation (8.6.4.19.6) (Items 6.3 and 6.4)
(f) Standby or Emergency Power Operation (8.6.4.19.7) (Item 1.17.2.2)

NOTE: Absorption of regenerated power (2.26.10) does not apply to hydraulic elevators.

(g) Power Operations of Door System (8.6.4.19.8) (Items 4.6 and 4.7)
(h) Emergency Terminal Speed-Limiting Device and Emergency Terminal Stopping Device (3.25.2) (Item 3.6.2.2)
(i) Low Oil Protection Operation (3.26.9) (Item 2.39.2)

8.6.5.14.4 Flexible Hose and Fitting Assemblies.
Flexible hose and fitting assemblies shall be tested at the relief valve setting pressure for a minimum of 30 s. Any signs of leakage, slippage of hose fittings, damage to outer hose covering sufficient to expose reinforcement, or bulging, or distortions of the hose body is cause for replacement.

CAUTION: If the motor protection or motor overloads trip during this test, DO NOT change the adjustment or jumper the overloads. Damage to the motor can result from running the motor without adequate overload protection.

8.6.5.14.5 Pressure Switch.
The pressure switch and its related circuits shall be tested for conformance with applicable requirements (3.26.8) (Item 2.37).

8.6.5.14.6 Power Operation of Door System.
The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.2). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.5.14.7 Slack-Rope Device.
The slack-rope device shall be tested on a roped hydraulic elevator by causing a slack-rope condition to occur and verify that it will remove power in compliance with 3.18.1.2.7 (Item 3.31.2).

8.6.5.14.8 Plunger Gripper
A plunger gripper, where provided, shall be examined and tested per 8.10.3.2.5(n), except testing is permitted to be performed without rated load.

8.6.5.15 Periodic Test Requirements — Category 3
NOTE: For test frequency, see 8.11.1.3.
8.6.5.15.1 Unexposed Portions of Pistons.
Piston rods of roped water-hydraulic elevators shall be exposed, thoroughly cleaned, and examined for wear or corrosion. The piston rods shall be replaced if at any place the diameter is less than the root diameter of the threads (Item 5.11).

8.6.5.15.2 Pressure Vessels.
Pressure vessels shall be checked to determine conformance with the applicable requirements, thoroughly cleaned, internally examined, and then subjected to a hydrostatic test at 150% of the working pressure for 1 min (3.24.4) (Item 2.33).

8.6.5.16 Periodic Test Requirements — Category 5
NOTE: For test frequency, see 8.11.1.3.

8.6.5.16.1 Governors, safeties, and oil buffers, where provided, shall be inspected and tested as specified in 8.6.4.20.1, 8.6.4.20.2, and 8.6.4.20.3 at intervals specified by the authority having jurisdiction. Where activation is allowed or required both by overspeed and slack rope, the safety shall have both means of activation tested.

8.6.5.16.2 Coated ropes shall be required to have a magnetic flux test capable of detecting broken wires, in addition to a visual examination.

8.6.5.16.3 Wire rope fastenings shall be examined in accordance with Item 3.23 of A17.2. Fastenings on roped-hydraulic elevators utilizing pistons that are hidden by cylinder head seals shall also be examined, even if it is temporarily necessary to support the car by other means and disassemble the cylinder head.

8.6.5.16.4 Not adopted (see 8.6.5.14.8).

8.6.5.16.5 Overspeed valves, where provided, shall be inspected and tested to verify that they will stop the car, traveling down with rated load, within the specified limits of 3.19.4.7.5(a) using a written procedure supplied by the valve manufacturer or the person or firm maintaining the equipment. If the seal has been altered or broken, the overspeed valve shall be resealed after successful test (Item 5.15.2).

8.6.5.16.6 Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.2).

8.6.6 Maintenance and Testing of Elevators With Other Types of Driving Machines

8.6.6.1 Rack-and-Pinion Elevators.

The maintenance of rack-and-pinion elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6. Where the car and/or counterweight safeties are sealed to prevent field adjustment and examination, they shall be returned to the manufacturer for replacement of components and calibration at the interval recommended by the manufacturer. A data plate shall be installed to show the date that the next maintenance/calibration is due.

8.6.6.1.1 Rack-and-Pinion Elevator Periodic Test.

Rack-and-pinion elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 4.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.2 Screw-Column Elevators.

The maintenance of screw-column elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.2.1 Screw-Column Elevator Periodic Test.

Screw-column elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 4.2. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.3 Hand Elevators.

The maintenance of hand elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.3.1 Hand Elevator Periodic Test.

Hand elevators shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.4.20. The test requirements shall apply to the corresponding requirements in 4.3. Any additional requirements for this equipment shall also be checked during these tests. The driving-machine brake required by 4.3.19.2 shall be tested with both empty car and rated load in the car.

8.6.7 Maintenance and Testing of Special Application Elevators

8.6.7.1 Inclined Elevators.

The maintenance of inclined elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.1.1 Periodic Test.

Inclined elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.2 Limited-Use/Limited-Application Elevators.

The maintenance of limited-use/limited-application elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.2.1 Periodic Test.

Limited-use/limited applications elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.2. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.5 Power Sidewalk Elevators.
The maintenance of power sidewalk elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.5.1 Periodic Test.
Sidewalk elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.5. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.6 Rooftop Elevators.
The maintenance of rooftop elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.6.1 Periodic Test.
Rooftop elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.6. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.10 Elevators Used for Construction.
The maintenance of elevators used for construction shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.10.1 Periodic Test Requirements — Category 1.
For electric elevators, test as specified in 8.6.4.19.1 through 8.6.4.19.5. For hydraulic elevators, test as specified in 8.6.5.14.1, 8.6.5.14.2, 8.6.5.14.3(a) through (d), and 8.6.5.14.4. Where permanent doors have been installed, test as specified in 8.6.4.19.8.

8.6.7.10.2 Periodic Test Requirements — Category 3.
For hydraulic elevators, test as specified in 8.6.5.15.

8.6.7.10.3 Periodic Test Requirements — Category 5.
For electric elevators, test as specified in 8.6.4.20.1 through 8.6.4.20.4, and 8.6.4.20.6. For hydraulic elevators, test as specified in 8.6.5.16.

8.6.8 Maintenance and Testing of Escalators and Moving Walks
(a) The maintenance of escalators shall conform to 8.6.1 through 8.6.3 and 8.6.8.

(b) Not later than 3 years after the adoption of the code in part **3.1** of the CAD, escalators shall be brought into conformance with the requirements of 8.6.8.2 and 8.6.8.3.3.
   (1) Until that time, escalators installed to CSA B44-75s3 (1982) or earlier, and for escalators where the skirt panels are not made of low-friction material or have not been permanently treated with a friction-reducing material, a friction-reducing agent shall be applied monthly by authorized personnel. [241/10]
   (2) Skirt panels brought into conformance with 8.6.8.2 and 8.6.8.3.3, shall be maintained to these requirements and the application of friction-reducing agents will no longer be permitted.

8.6.8.1 Handrails.
Handrails shall operate at the speed specified in the applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the step speed by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.8.2 Step-to-Skirt Clearance.
Clearances shall be maintained in compliance with the applicable codes. Alternatively, the clearance on either side of the steps and between the steps and the adjacent skirt guard shall not exceed 4 mm (0.16 in.) and the sum of the clearances on both sides shall not exceed 7 mm (0.28 in.).

NOTE (on CSA B44 Requirements): The allowable clearances are applicable as follows:
(a) B44-1960 through B44S3-1982 — not more than 4.8 mm (0.1875 in.) on each side. Sum of both sides not more than 6.4 mm (0.25 in.).
(b) B44-1985 through B44S2-1998 — Not more than 5 mm (0.197 in.) on each side. Sum of both sides not more than 6 mm (0.236 in.).
(c) For equipment installed under CSA B44-00—not more than 4 mm (0.157 in.) on each side. Sum of both sides not more than 7 mm (0.28 in.)
(d) For equipment installed under CSA B44-00 Update 1 and later editions — clearance (loaded gap) shall be not more than 5 mm (0.2 in.) when 110 N (25 lbf) force is laterally applied from the step to the adjacent skirt panel. See 6.1.3.3.5.

8.6.8.3 Step/Skirt Performance Index
8.6.8.3.1 The step/skirt performance index, when the escalator is subjected to the test specified in 8.6.8.15.19, shall be the maximum value of the recorded instantaneous step/skirt index $e^y/(e^y + 1)$, where
(SI Units)
e = 2.7183
y = −3.77 + 2.37 (u) + 0.37 (Lg)
u= the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 110 N normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.
Lg = the clearance between the step and the adjacent skirt panel when 110 N is applied from the step to skirt panel, mm
The applied load shall not deviate from 110 N by more than ±11 N. The load shall be distributed over a round or square area not less than 1 940 mm2 and not more than 3 870 mm2.

(Imperial Units)
e = 2.7183
y = −3.77 + 2.37 (u) + 9.3 (Lg)
u = the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 25 lbf normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.
Lg = the clearance between the step and the adjacent skirt panel when 25 lbf is applied from the step to skirt panel, in.
The applied load shall not deviate from 25 lbf by more than ±2.5 lbf. The load shall be distributed over a round or square area not less than 3 in.2 and not more than 6 in.2

8.6.8.3.2 The step/skirt performance index polycarbonate test specimen shall conform to the following specifications:
(a) Material: Polycarbonate without fillers
(b) Color: Natural, no pigments
(c) Finish: Glossy (roughness less than 0.8 µm (32 µin.)
(d) Area in contact with skirt panel: 2 900 ± 325 mm2 (4.5 ± 0.5 in.2) and at least 0.8 mm (0.03 in.) thick
(e) Specification: GE Lexan 100 series or equivalent polycarbonate

8.6.8.3.3 The escalator step/skirt performance index shall be one of the following, whichever is applicable:
(a) ≤ 0.15

(b) ≤ 0.25 for escalators installed under ASME A17.1a-2002/CSA B44-00 Update 1 and later editions and when a skirt deflector device complying with the requirements of 6.1.3.3.7 is provided
(c) ≤ 0.4 for escalators installed under ASME A17.1-2000/CSA B44-00 and earlier editions and a skirt deflector device is provided

8.6.8.4 Combplates
8.6.8.4.1 Combs with any broken teeth shall be repaired or replaced. Where two adjacent teeth are missing, the escalator shall be removed from operation.

8.6.8.4.2 Combs shall be adjusted and maintained in mesh with the slots in the step surface so that the points of the teeth are always below the upper surface of the treads.

8.6.8.4.3 For units installed under A17.1b-1992 and later editions of the Code, comb-step impact devices shall be adjusted to operate in compliance with the forces specified in 6.1.6.3.13.

8.6.8.5 Escalator Skirt Panels and Skirt Obstruction Devices
(a) The exposed surface of the skirt panels adjacent to the steps, if not made from, shall be treated with, a friction-reducing material. Damaged skirt or dynamic skirt panels shall be replaced or repaired.
(b) The skirt obstruction devices shall be checked for proper adjustment and operation.

8.6.8.6 Steps
8.6.8.6.1 Steps with broken treads shall be repaired or replaced.
8.6.8.6.2 Steps with dented or damaged risers shall be repaired or replaced.
8.6.8.6.3 Steps that are worn or damaged and that do not provide proper engagement with the combplates shall be repaired or replaced.

8.6.8.6.4 The width or depth of the slots in the tread surface of steps that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.8.7 Rollers, Tracks, and Chains. Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.8.8 Signs. Caution signs shall be provided in compliance with 6.1.6.9. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.1.6.9.

8.6.8.9 Guards at Ceiling Intersections.
Damaged or missing guards shall be repaired or replaced in compliance with 6.1.3.3.11.

8.6.8.10 Antislide Devices.
Damaged or missing antislide devices shall be repaired or replaced.

8.6.8.11 Handrail Guards.
Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.8.12 Brakes.
Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.8.13 Cleaning.
The interiors of escalators and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.8.14 Entrance and Egress Ends.
Escalator landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.8.15 Periodic Test Requirements — Category 1
NOTE: For test frequency, see 8.11.1.3.

8.6.8.15.1 Machine Space.
The machine space access, lighting, receptacles, operation, and conditions shall be examined (Items 8.1 and 10.1). All escalator components shall be cleaned and examined. These components shall include, but not be limited to
(a) oil drip pans
(b) upper and lower stations
(c) steps and rollers
(d) step frames, risers, and treads
(e) tracks
(f) truss components

8.6.8.15.2 Stop Switch.
The machine space stop switches shall be tested (Items 8.2 and 10.2).

8.6.8.15.3 Controller and Wiring.
Controller and wiring shall be examined (Items 8.3 and 10.3).

8.6.8.15.4 Drive Machine and Brake.
The drive machine and brakes shall be examined and tested, including test of the brake torque (Items 8.4 and 10.4).

8.6.8.15.5 Speed Governor.
The mechanical speed governor, if required, shall be tested by manually operating the trip mechanism (Items 8.5 and 10.5).

8.6.8.15.6 Broken Drive-Chain Device.
Operation of the broken drive-chain device, on the drive chain, shall be tested by manually operating the actuating mechanism (Items 8.6 and 10.6).

8.6.8.15.7 Reversal Stop Switch.
The reversal stop switch (to prevent reversal when operating in the ascending direction) shall be tested by manually operating it to determine that it functions properly (Items 8.7 and 10.7). If the device cannot be manually operated, the person or firm maintaining the equipment shall provide a written
checkout procedure and demonstrate the device complies with the requirements of the Code.

8.6.8.15.8 Broken Step-Chain or Treadway Device.
The broken or slack step-chain or treadway device shall be tested by manual operation (Items 8.8 and 10.8).

8.6.8.15.9 Step Upthrust Device.
The operation of the step upthrust device shall be tested by manually displacing the step, causing the device to operate (Items 7.9 and 8.9).

8.6.8.15.10 Missing Step or Pallet Device.
The missing step or pallet device shall be tested by removing a step or pallet and verifying that the device will properly function (Items 8.10 and 10.10).

8.6.8.15.11 Step or Pallet Level Device.

The step, or pallet level device shall be tested by simulating an out of level step or pallet and verifying that the device functions properly (Items 8.11 and 10.11).

8.6.8.15.12 Steps, Pallet, Step or Pallet Chain, and Trusses.
The steps, pallet, step or pallet chain, and trusses shall be visually examined for structural defects, mechanical condition, and buildup of combustible materials (Items 8.12 and 10.12).

8.6.8.15.13 Handrail Safety Systems.
The handrail operating system shall be visually examined for condition. The handrail entry device, and the stopped handrail or handrail speed monitoring device, shall be tested by disconnecting of handrail motion sensor (Items 8.13 and 10.13). The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that the handrail speed does not change when a retarding force, up to the maximum required by code, is applied opposite to the direction of travel (Items 7.3 and 9.3).

8.6.8.15.14 For outdoor escalators and moving walks that require heaters, test the heaters for condition and operation (Items 8.3 and 10.3).

8.6.8.15.15 Permissible Stretch in Escalator Chains.
Escalators shall have periodic examination of the clearance between successive steps to detect wear or stretch of the step chains. The clearance shall not exceed 6 mm (0.25 in.) (Item 7.9).

8.6.8.15.16 Disconnected Motor Safety Device.
Operation of the device shall be tested and verified (see 6.1.6.3.10 or 6.2.6.3.8) (Item 8.6 or 10.6).

8.6.8.15.17 Response to Smoke Detectors (6.1.6.8 or 6.2.6.7) (Items 8.15 and 10.15)

8.6.8.15.18 Comb-Step or Comb-Pallet Impact Device.
For escalator or moving walks required to comply with Rules 805.1u, 805.3n, 905.1r, or 905.3k in A17.1d-2000 or earlier editions, or requirements 6.1.6.3.13 or 6.2.6.3.11, the comb-step/pallet-impact devices shall be tested in both the vertical and horizontal directions by placing a vertical and horizontal force on the combplate to cause operation of the device. The vertical and horizontal tests shall be independent of each other. The horizontal force shall be applied at the front edge center and both sides; the force shall be applied in the direction of travel into the combplate. The vertical force shall be applied at the front edge center. Both the vertical and horizontal forces required to operate the device shall be recorded (6.1.6.3.13 and 6.2.6.3.11; Items 7.7.2 and 9.7.2). See 8.6.9.2.3 for horizontal forces required.

8.6.8.15.19 Step/Skirt Performance Index

(a) The escalator skirt shall not be cleaned, lubricated, or otherwise modified in preparation for testing. The escalator instantaneous step/skirt index measurements [6.1.3.3.9(a)] shall be recorded at intervals no larger than 150 mm (6 in.) from each side of two distinct steps along the inclined portion of the escalator, where the steps are fully extended. Test steps shall be separated by a minimum of 8 steps.

(b) A load of 110 N (25 lbf) shall be laterally applied from the step to the adjacent skirt panel. The applied load shall not deviate from 110 N (25 lbf) by more than ±11 N (2.5 lbf). The load shall be distributed over a round or square area not less than 1 940 mm2 (3 in.2) and not more than 3 870 mm2 (6 in.2).

(c) No vertical load exceeding 220 N (50 lbf) shall be applied to the test step and adjacent steps.

(d) The coefficient of friction shall be measured with the test specimen conforming to the requirements of 8.6.8.3.2 sliding in the direction of the step motion under a 110 N (25 lbf) normal force at the operating speed of the escalator and shall be measured with devices having sensitivity better than ±2.2 N (0.5 lbf). The direction of step motion shall be the direction of normal operation. If the escalator is operated in both directions, the down direction shall be used for the test.

(e) For both the coefficient of friction measurement and the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250 mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).

(f) The step/skirt performance index shall conform to the requirements in 8.6.8.3 or A17.3, Requirement 5.1.11 (Item 7.17).

8.6.8.15.20 Clearance Between Step and Skirt (Loaded Gap).
Escalators installed under ASME A17.1d–2000 shall be tested as follows (Item 7.17):

(a) Loaded gap measurements shall be taken at intervals not exceeding 300 mm (12 in.) in transition region (6.1.3.6.5) and before the steps are fully extended. These measurements shall be made independently on each side of the escalator.

(b) The applied load shall not deviate from 110 N (25 lbf) by more than ±11 N (2.5 lbf) (6.1.3.3.5). The load shall be distributed over a round or square area no less than 1 940 mm2 (3 in.2) and no more than 3 870 mm2 (6 in.2).

(c) For the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).

8.6.8.15.21 Inspection control devices shall be tested and inspected to determine conformance with the requirements of 6.1.6.2.2 for escalators and 6.2.6.2.2 for moving walks.

8.6.8.15.22 Step Lateral Displacement Device (6.1.6.3.14).
For curved escalators, manually test the device.

8.6.8.15.23 Seismic Risk Zones 2 or Greater.
Verify that operation of the seismic switch complies with requirements of 8.5.4 (Items 7.20.2 and 9.20.2).

8.6.9 Maintenance of Moving Walks
The maintenance of moving walks shall conform to 8.6.1 through 8.6.3 and 8.6.9.

8.6.9.1 Handrails.
Handrails shall operate at the speed specified in applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the treadway by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.9.2 Combplates
8.6.9.2.1 Combs with any broken teeth shall be repaired or replaced.

8.6.9.2.2 Combs shall be adjusted and maintained in mesh with the slots in the treadway surface so that the points of the teeth are always below the upper surface of the treads.

8.6.9.2.3 For units installed under A17.1b–1992 and later editions of the Code, comb-pallet impact devices shall be adjusted to operate in compliance with the forces specified in 6.2.6.3.11.

8.6.9.3 Pallets

8.6.9.3.1 Pallets with broken treads shall be repaired or replaced.

8.6.9.3.2 Intermeshing moving walk pallets that are damaged at the mesh shall be repaired or replaced.

8.6.9.3.3 Pallets that are worn or damaged and that do not provide proper engagement with the

combplates shall be repaired or replaced.
8.6.9.3.4 The width or depth of the slots in the tread surface of pallets that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.9.4 Rollers, Tracks, and Chains.
Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.9.5 Belt-Type Treadway.
Belt-type treadways that are damaged or worn in such a manner that the treadway does not provide a continuous unbroken treadway surface or proper engagement with the combplates shall be repaired or replaced.

8.6.9.6 Signs.
Caution signs shall be provided in compliance with 6.2.6.8. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.2.6.8.

8.6.9.7 Guards at Ceiling Intersections.
Damaged or missing guards shall be repaired or replaced in compliance with 6.2.3.3.7.

8.6.9.8 Antislide Devices.
Damaged or missing antislide devices shall be repaired or replaced.

8.6.9.9 Handrail Guards.
Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.9.10 Brakes.
Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.9.11 Cleaning.
The interiors of moving walks, and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.9.12 Entrance and Egress Ends.
Moving walk landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.9.13 Clearances.
The clearance between each side of the treadway and the adjacent skirt panels, when provided, shall be maintained in compliance with 6.2.3.3.6. The clearance between the top surface of the treadway and the underside of the balustrade shall be maintained in compliance with 6.2.3.3.5 for skirtless balustrades.

8.6.10 Maintenance and Testing of Dumbwaiters and Material Lifts
8.6.10.1 Material Lifts and Dumbwaiters Without Automatic Transfer Devices.
The maintenance of material lifts and dumbwaiters without automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.10.1.1 Periodic Test.
Dumbwaiters shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests. On winding drum machines, the slack-rope devices required by 2.26.2.1 shall be permitted to be tested as specified in Item 2.18. The driving-machine brake shall be tested to determine conformance with 7.2.10 (Item 2.18).

8.6.10.2 Material Lifts and Dumbwaiters With Automatic Transfer Devices.
The maintenance of material lifts and dumbwaiters with automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.10.2.1 Periodic Test.
Material lifts and dumbwaiters with automatic transfer devices shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests.

8.6.11 Special Provisions
8.6.11.1 Firefighters' Emergency Operation. *(239/10)*
(a) Elevators that incorporate any form of Firefighters' Emergency Operation are required to have this operating mode tested on an annual basis to verify that the firefighters' feature is operational and ready for use by firefighters or emergency personnel if required during a fire or other emergency.

(b) The minimum required inspection checks shall be those listed on the form **"Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks"**

(c) The owner or the owner's authorized agent may perform the necessary annual testing provided they are trained and instructed in the use of Firefighters' Emergency Operation and the testing requirements.

(d) The owner or the owner's authorized agent shall record the results of the test on the form provided by the designated administrative authority or on a form containing not less than the tests prescribed on this form, and shall leave a copy at the location of the log book.

(e) A record of findings shall be recorded and shall be available to elevator personnel and to the authority having jurisdiction.

(f) Any deficiencies found during the testing shall be recorded and rectified.

(g) Despite, (d) and (e) where the owner's authorized agent is a registered elevating devices contractor employing an appropriately qualified EDM mechanic capable of rectifying deficiencies', a single log book entry shall be permitted to indicate a successful test of Firefighters' Emergency Operation.

Note:
1) It is the responsibility of the elevating devices owner to ensure firefighters' emergency operation testing is performed annually.
2) Section 7.2 of the Ontario Fire Code requires testing at three month intervals in high buildings.

8.6.11.2 Two-Way Communications Means. The two-way communications means shall be checked annually by authorized personnel in accordance with the following:
(a) Two-way communications means shall be checked to verify that two-way communications is established; or

(b) All elevators installed under ASME A17.1a-2002/ CSA B44-00 Update 1 and later editions shall have the two-way communications means checked by pressing the "HELP" button in the car to verify that the visual indicator [2.27.1.1.3(c)] is functional and that the answering authorized personnel can receive the building location and elevator number [2.27.1.1.3(d)]; and

(c) Where communications from the building into the elevator is provided, check the two-way communications means to each car.

8.6.11.3 Access Keys.
Keys required for access, operation, inspection, maintenance, repair, and emergency access shall be made available only to personnel in the assigned security level, in accordance with 8.1.

8.6.11.4 Cleaning of a Car and Hoistway Transparent Enclosure
8.6.11.4.1 The cleaning of the exterior of transparent car enclosures or transparent hoistway enclosures from inside the hoistway shall be performed only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.4.2 and 8.6.11.4.3.

8.6.11.4.2 A written cleaning procedure shall be made and kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.4.3 The procedure shall identify the hazards and detail the safety precautions to be utilized.

8.6.11.4.4 All personnel assigned to cleaning shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.4.5 A record of authorized personnel trained as specified in 8.6.11.4.4 shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.5 Emergency Evacuation Procedures for Elevators
8.6.11.5.1 The evacuation of passengers from stalled elevators shall be performed only by authorized, elevator and emergency personnel (see 1.3) in compliance with the procedures specified in 8.6.11.5.2 through 8.6.11.5.6.

8.6.11.5.2 A written emergency evacuation procedure shall be made and kept on the premises where an elevator is located.

8.6.11.5.3 The procedure shall identify the hazards. The procedure shall also detail the safety precautions utilized in evacuating passengers from a stalled elevator.

8.6.11.5.4 All authorized personnel who are assigned to assist in evacuating passengers from a stalled elevator, and all persons who use special purpose personnel elevators, shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.5.5 These procedures shall be available to authorized elevator and emergency personnel.

8.6.11.5.6 A record of authorized personnel trained, and all persons who use special purpose personnel elevators, as specified in 8.6.11.5.4, shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.
NOTE (8.6.11.5): See ASME A17.4, Guide for Emergency Personnel.

8.6.11.6 Escalator or Moving Walk Startup
8.6.11.6.1 Escalators and moving walks shall be started only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.6.2 through 8.6.11.6.5.

8.6.11.6.2 The following procedure shall be utilized when starting an escalator or moving walk:
(a) Prior to starting the unit, observe the steps or pallets and both landing areas to ensure no persons are on the unit or about to board. Run the unit away from the landing.
(b) Verify correct operation of the starting switch.
(c1) Verify correct operation of the stop buttons.
(c2) Observe steps stop within the distance on the daily stopping distance check sign (usually one step length or less).
(d) Verify correct operation of each stop button cover alarm, if furnished.
(e) Visually examine the steps or treadway for damaged or missing components; combplates for broken or missing teeth; skirt or dynamic skirt panels and balustrades for damage.

(f) Verify that both handrails travel at substantially the same speed as the steps or the treadway, are free from damage or pinch points, and that entry guards are in place.
(g) Visually verify that all steps, pallets, or the treadway is properly positioned.
(h) Verify that ceiling intersection guards, anti-slide devices, deck barricades, and caution signs are securely in place.
(i) Verify that demarcation lighting is illuminated, if furnished.
(j) Check for uniform lighting on steps/tread not contrasting with surrounding areas.
(k) Verify that the safety zone is clear of obstacles and that the landing area and adjacent floor area are free from foreign matter and slipping or tripping hazards.
(l) Check for any unusual noise or vibration during operation.

If any of these conditions is unsatisfactory in 8.6.11.6.2(a) through (l), the unit shall be placed out of service. Barricade the landing areas and notify the responsible party of the problem.

8.6.11.6.3 Escalators and moving walks subject to 24-h operation shall be checked daily by authorized personnel.

8.6.11.6.4 A record of authorized personnel trained as specified in 8.6.11.6.2 shall be kept on the premises where the escalator(s) or moving walk(s) or both is located and shall be available to the authority having jurisdiction.

8.6.11.7 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1.
A written procedure for operating the means shall be posted in a permanent manner in plain view at an appropriate location on or adjacent to the means (see 2.7.5.1.1 or 2.7.5.2.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.8 Egress and Reentry Procedure From Working Areas in 2.7.5.1.3 or 2.7.5.2.3.
A written procedure to outline the method for egress and reentry shall be posted in a permanent manner in plain view at an appropriate location at the egress/reentry point (see 2.7.5.1.3 or 2.7.5.2.3). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.9 Operating Instructions for Retractable Platforms.
A written procedure to outline the method for the use of retractable platforms shall be posted in a permanent manner in plain view at an appropriate location on or adjacent to the retractable platform (see 2.7.5.3.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.10 Examination After Shutdown Due to Traction Loss.
Where the traction-loss detection means has been actuated [see 2.20.8.1 and 8.6.1.2.1(g)], the elevator shall not be returned to service until a physical examination of the drive sheave and suspension means has been conducted. The elevator shall not be moved until all passengers are out of the elevator and the elevator is posted out-of-service. In addition to the suspension-means evaluation criteria in 8.11.2.1.3(cc), any suspension-means or drive-sheave condition that would adversely affect the traction capability of the system (see 2.24.2.3) shall be corrected before returning the elevator to service.
NOTE: See lockout/tagout procedures in Elevator Industry Field Employees' Safety Handbook for procedure for removing the elevator from service.

8.6.11.11 Examination After Safety Application.
After any safety application on a traction elevator has occurred, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary.

8.6.11.12 Examination After Shutdown Due to Broken-Suspension-Member Detection Means.
After any application of the broken-suspension-member detection means, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and

that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary. Where a single suspension member has been damaged or broken, the entire suspension means shall be replaced in accordance with 8.6.3.2.

3.4 Alterations

3.4.1 Notwithstanding section **2.6**, alterations of an elevator, dumbwaiter, escalator, moving walk, and material lifts shall conform to the requirements of the code adopted in subsection **3.1** and as specified by the director.

3.4.2 Alterations to freight platform lifts type - B shall conform to the requirements for Material Lifts Type - B as required by the code adopted in subsection **3.1** and as specified by the director.

3.4.3 Alterations to freight platform lifts type - A shall conform to the requirements for Material Lifts Type- B as required by the code adopted in subsection **3.1** and as specified by the director, except that 'in-car' controls are prohibited and no persons shall be permitted to ride.

3.4.4 Alterations submission documents shall adhere to the Director's Guideline on alterations and shall be accompanied by a completed alterations checklist.

3.4.5 Section **8.7 Alterations** is revoked and the following substituted;

SECTION 8.7
ALTERATIONS
Requirement 8.7 applies to alterations.
NOTES:
(1) See Nonmandatory Appendix L for an index of the requirements for alterations.
(2) See 8.6 for maintenance, repair, and replacement requirements.

8.7.1 General Requirements
8.7.1.1 Applicability of Alteration Requirements.
When any alteration is performed, regardless of any other requirements of 8.7, the installation, as a minimum, shall conform to the following applicable Code requirements:
(a) the Code at the time of installation
(b) the Code requirements for the alteration at the time of any alteration
(c) ASME A17.3 if adopted by the authority having jurisdiction

8.7.1.2 Items Not Covered in 8.7.
Where an alteration not specifically covered in 8.7 is made, it shall not diminish the level of safety below that which existed prior to the alteration. See also 1.2.

8.7.1.3 Testing.
Where alterations are made, acceptance inspections and tests shall be conducted as required by 8.10.2.3 for electric elevators, 8.10.3.3 for hydraulic elevators, or 8.10.4.2 for escalators and moving walks.

8.7.1.4 Welding.
Welding of parts on which the support of the car, counterweight, escalator, or moving walk depends, including driving machines, escalator, or moving walks, trusses, girders, and tracks, shall conform to 8.8 and 8.7.1.5.

8.7.1.5 Design.
Design shall be verified by a licensed professional engineer for welding, repair, cutting, or splicing of members upon which the support of the car, counterweight, escalator, or moving walks, trusses, girders, and tracks depends.

8.7.1.6 Temporary Wiring.

During alterations, temporary wiring shall be permitted. The electrical protective devices of cars in normal operation shall not be rendered inoperative or ineffective.

8.7.1.7 Repairs and Replacements.
Repairs and replacements shall conform to 8.6.2 and 8.6.3.

8.7.1.8 Code Data Plate.
In jurisdictions enforcing NBCC, the data plate required by 8.9.1 shall include the code and edition in effect at the time of alteration and the requirements in 8.7 that were applicable to the alteration.

8.7.2 Alterations to Electric Elevators
8.7.2.1 Hoistway Enclosures
8.7.2.1.1 Hoistway Enclosure Walls.
Where alterations are made to any portion of a hoistway enclosure wall, that portion which is altered shall conform to the following:

(a) Requirement 2.1.1.
(b) Requirement 2.1.5.
(c) Requirement 2.1.6.
(d) Requirement 2.5.
(e) Requirement 2.7.3.4.6. and 2.7.3.4.7,
(f) Requirement 2.8.
(g) Requirement 8.7.2.10, where the portion of the wall that is altered includes an entrance assembly.
(h) Where a hoistway is altered so as to create a single blind hoistway, entrances and emergency doors shall be provided as required by 2.11.1.

8.7.2.1.2 Addition of Elevator to Existing Hoistway.
Where an elevator is added to an existing hoistway, the number of elevators in that multiple hoistway shall be in accordance with the requirements of the building code. The horizontal clearances for the added elevator and the clearances between the added car and adjacent cars shall conform to 2.5.

8.7.2.1.3 Construction at Top of Hoistway.
Any alteration to the construction at the top of the hoistway shall conform to 2.1.2.1 and 2.1.3. See also 8.7.2.4.

8.7.2.1.4 Construction at Bottom of Hoistway.
Any alteration to the construction at the bottom of the hoistway shall conform to 2.1.2.2, 2.1.2.3, and 2.2. See also 8.7.2.4.

8.7.2.1.5 Control of Smoke and Hot Gases.
Alterations to a hoistway that affect the means used to prevent the accumulation of smoke and hot gases in case of fire shall conform to 2.1.4.

8.7.2.2 Pits.
Alterations made to the pit shall conform to 2.2 and 2.1.2.3. See also 8.7.2.4.

8.7.2.3 Location and Guarding of Counterweights.
Where new counterweights are installed or where counterweights are relocated, their location, guarding, and clearances shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 2.6.

8.7.2.4 Vertical Car and Counterweight Clearances and Runbys.
No alteration shall reduce any clearance or runby below that required by 2.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.1, 8.7.2.17.2, and 8.7.2.25.2.

8.7.2.5 Horizontal Car and Counterweight Clearances.

No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.2.

8.7.2.6 Protection of Spaces Below Hoistways.
Where alterations are made to an elevator or the building such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 2.6.

8.7.2.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms
8.7.2.7.1 Enclosures.
Where an alteration consists of the construction of new machinery spaces, machine rooms, control spaces, or control rooms, it shall conform to 2.7. Electrical equipment clearances shall conform to NFPA 70 or CSA-C22.1, whichever is applicable. Where alterations are made to any portion of machinery spaces, machine rooms, control spaces, or control rooms, that portion which is altered shall conform to 2.7.

8.7.2.7.2 Means of Access.
Any alteration that affects the safe and convenient means of access to a machine room or machinery space shall conform to 2.7.3.1, 2.7.3.2, and 2.7.3.3 to the extent existing conditions permit.

8.7.2.7.3 Access Doors and Openings.
Where an alteration is made to any access door or opening, it shall conform to 2.7.3.4. Where an alteration is made to an access door in an overhead machinery space, a stop switch shall be provided conforming to 2.7.3.5.

8.7.2.7.4 Headroom.
No alteration shall reduce the headroom below that required by 2.7.4, or the existing headroom, whichever is less.

8.7.2.7.5 Windows and Skylights.
Alterations made to windows and skylights shall conform to 2.1.5.

8.7.2.7.6 Lighting.
No alteration shall be made that diminishes the lighting of a machine room or machinery space below that required by 2.7.9.1.

8.7.2.7.7 Ventilation.
No alteration shall be made that diminishes the ventilation of a machine room or machinery space below that required by 2.7.9.2.

8.7.2.7★1 Elevator Equipment Guarding
The installation of elevator equipment guarding shall conform to the following;

(a) 2.7.2 maintenance path and clearance
(b) 2.7.3.4.2 access doors or openings in cage style guarding where full bodily entry is expected shall provide a minimum width of 750mm (29.5 in.) and a minimum clear height of 2030mm (80 in.)
(c) 2.10.1 as a minimum
(d) guarding shall be openable or removable only by use of tools
(e) operating procedures or work instructions shall be provided and available in the location of the guarding, to inform users on how to safely access the equipment for inspection, testing or maintenance
(f) working clearances in front of electrical control equipment shall not be less than 1000mm (39 in.) as per CAD requirements 2.2.1 (per Ontario Electrical Safety Code).
(g) access for the operation of the disconnecting means shall not be reduced below 750mm (29.5 in.)
(h) installation by a registered contractor (O.Reg 209/01 s.15)

8.7.2.8 Electrical Equipment, Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.

The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.2.9 Machinery and Sheave Beams, Supports, and Foundations.

Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, relocated, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building
structure to support the loads shall be verified by a licensed professional engineer.

8.7.2.10 Entrances and Hoistway Openings

8.7.2.10.1 General Requirements

(a) Where all new hoistway entrances are installed, they shall conform to 2.11, 2.12, 2.13, and 2.29.2.
(b) Where one or more, but not all, new hoistway entrances are installed, they shall conform to 2.11.2 through 2.11.8 and 8.7.2.10.5. The entire installation shall also conform to 2.11.6, 2.12, 2.13, and 2.29.2.
(c) Where an alteration is made to any hoistway entrance, it shall conform to 2.11.3, 2.11.5, 2.11.7, 2.11.8, and 8.7.2.10.5. The entire installation shall also conform to 2.12, 2.13, and 2.29.2.
(d) Where an emergency door is added or altered, it shall conform to 2.11.1 and 8.7.2.10.5.
(e) Where access openings for cleaning are installed, they shall conform to 2.11.1.4 and 8.7.2.10.5.

8.7.2.10.2 Horizontal Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new horizontal slide-type entrance is installed, it shall conform to 2.11.11.

New components that are installed as part of an alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.1, 2.11.11.1, and 2.11.11.6.
(b) Hanger tracks and track supports shall conform to 2.11.11.2.
(c) Entrance frames shall conform to 2.11.11.3. An applied frame shall be permitted to be fastened to an existing frame, provided that the combination of the new and existing frames conforms to 2.11.11.3, 2.11.11.5.1, 2.11.11.5.2, and 2.11.11.5.3.
(d) Hangers shall conform to 2.11.11.4.
(e) Panels shall comply with 2.11.11.5, 2.11.11.6, and 2.11.11.7, except that the overlap required by 2.11.11.5.1 shall be not less than 13 mm (0.5 in.).
(f) Door safety retainers shall conform to 2.11.11.8.

8.7.2.10.3 Vertical Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new vertical slide-type entrance is installed, it shall conform to 2.11.12.

New components that are installed as part of an alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.3 and 2.11.12.1.
(b) Entrance frames shall conform to 2.11.12.2.
(c) Rails shall conform to 2.11.12.3.
(d) Panels shall conform to 2.11.12.3 through 2.11.12.6, and 2.11.12.8.
(e) Guides shall conform to 2.11.12.5.
(f) Sill guards shall conform to 2.11.12.7.
(g) Pull straps shall conform to 2.11.12.8.

8.7.2.10.4 Swing-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new swing type entrance is installed, it shall conform to 2.11.13.

New components that are installed as part of alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.1, 2.11.10.3, and 2.11.13.1.
(b) Entrance frames shall conform to 2.11.13.2 and 2.11.13.4.
(c) Panels shall conform to 2.11.13.3, 2.11.13.4, and 2.11.13.5.
(d) Hinges shall conform to 2.11.13.4.

8.7.2.10.5 Marking of Entrance Assemblies

(a) In jurisdictions enforcing the NBCC the following shall apply:

(1) When an entrance or door panel is altered, it shall have the fire protection rating not less than that of the existing entrance assembly

(2) it shall be labeled in accordance with NBCC

8.7.2.10★1 Removing Service to a Floor

Where service to a floors area is being discontinued, the following requirements shall apply;

(a) entrances shall be bolted shut

(b) the related interlock shall be removed from the safety string

(c) the rated floor buttons shall be removed from the car operating station

(d) 2.11.6.2

(e) 2.12.7 if the locked out floor contained the hoistway access switch

8.7.2.10★2 Addition of Hoistway Door Safety Retainers

The addition of hoistway door safety retainers shall comply with the requirements of 2.11.11.8.

8.7.2.11 Hoistway Door Locking Devices, Access Switches, and Parking Devices

8.7.2.11.1 Interlocks.

(a) Where the alteration consists of the installation of hoistway door interlocks, the installation shall conform to 2.12.1, 2.12.2, and 2.12.4 through 2.12.7.

(b) Despite the requirements in (a), conformance to 2.12.5, 2.12.6 and 2.12.7 is optional provided conformance to 2.12.5, 2.12.6 and 2.12.7 is not required by another alteration scope.

8.7.2.11.2 Mechanical Locks and Electric Contacts.

Where the alteration consists of the installation of hoistway-door combination mechanical locks and electric contacts, the installation shall conform to 2.12.1, 2.12.3, 2.12.4, and 2.12.6.

8.7.2.11.3 Parking Devices.

Where an alternation is performed to an elevator operated from within the car only, an elevator parking device shall be provided conforming to the following requirements:

(a) At every elevator landing that is equipped with an unlocking device, if

(1) the doors are not automatically unlocked when the car is within the unlocking zone

(2) the doors are not operable from the landing by a door open button or floor button

(b) Parking devices shall be permitted to be provided at other landings.

(c) Parking devices shall be located at a height not greater than 2 108 mm (83 in.) above the floor.

(d) Parking devices shall conform to the following requirements:

(1) they shall be mechanically or electrically operated

(2) they shall be designed and installed so that friction or sticking or the breaking of any spring used in the device will not permit opening or unlocking a door when the car is outside the landing zone of that floor

(3) springs, where used, shall be of the restrained compression type, which will prevent separation of the parts in case the spring breaks

8.7.2.11.4 Access Switches and Unlocking Devices.

Where the alteration consists of the installation of hoistway access switches and/or hoistway-door unlocking devices, the installation shall conform to

(a) requirements 2.12.6 for unlocking devices

(b) requirements 2.12.7 and 2.26.1.4 for access switches.

8.7.2.11.5 Restricted Opening of Hoistway Doors or Car Doors of Passenger Elevators.

Where a device that restricts the opening of hoistway doors or car doors is altered or installed, the device shall conform to 2.12.5.

8.7.2.12 Power Operation of Hoistway Doors.
Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, and 8.7.2.10.5.

8.7.2.12★1 Replacement of Door Operator
Where a door operator is replaced the replacement shall conform to the applicable requirements of 2.13.

8.7.2.13 Door Reopening Device.
Where a reopening device for power-operated car doors or gates is altered or added or replaced, the following requirements shall apply:
(a) requirement 2.13.4
(b) requirement 2.13.5
(c) when firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation

8.7.2.14 Car Enclosures, Car Doors and Gates, and Car Illumination
8.7.2.14.1 Where an alteration consists of the installation of a new car, the installation shall conform to 2.14, 2.15, and 2.17 (see also 8.7.2.15.1).

8.7.2.14★1 Installation / Replacement of Car Operating Panel (COP)
The disconnect and reconnect of COP wiring shall be confirmed to verify functionality of COP features and operating devices.

8.7.2.14★2 Installation of Video/Security Cameras and Monitors
Wiring methods shall conform to 2.8.2.1. Equipment shall be securely fastened and shall not create headroom issues per 2.14.1.2.3 and 2.14.2.4.

8.7.2.14★3 Installation of Other Equipment
The installation of other equipment is not permitted per 2.14.1.9 unless otherwise permitted under by a variance request.

8.7.2.14.2 The following requirements shall be conformed to where alterations are made to existing cars:
(a) Car enclosures shall conform to 2.14.1.2.
(b) Where an alteration is made to a top emergency exit, or where a new one is installed, it shall conform to 2.14.1.5.
(c) Where an alteration consists of the installation of glass in an elevator car, it shall conform to 2.14.1.8.
(d) Any equipment added to an elevator car shall conform to 2.14.1.9.
(e) All side emergency exits shall be permanently fixed in the closed position. The corresponding side emergency exit on an adjacent car shall also be fixed in the closed position.
(f) Any alteration to passenger car ventilation shall conform to 2.14.2.3.
(g) Any alteration to car illumination or lighting fixtures shall conform to 2.14.7.
(h) Where partitions are installed in elevator cars for the purpose of reducing the inside net platform areas for passenger use, they shall conform to 2.16.1.2. Where conditions do not permit symmetrical loading, guide rails, car frames, and platforms shall be capable of sustaining the resulting stresses and deflections.
(i) Where an alteration consists of the installation of a car door or gate on an existing elevator car, the installation shall conform to 2.14.4, 2.14.5, and 2.14.6.

8.7.2.14.3 N/A - In jurisdictions not enforcing the NBCC

8.7.2.14.4 In jurisdictions enforcing the NBCC, where any alteration is made to the car enclosure, car doors, or car gates, other than as specified in 8.7.2.14.2, the installation shall conform to 2.14, except that existing car enclosure materials exposed to the hoistway are not required to conform to the flame spread ratings. The existing flame spread rating shall not be diminished.

8.7.2.14★4 Installation of Car Top Guardrail *(245/10)*

(a) A standard car top guardrails shall;
   (1) have a top rail not less than 1070 mm (42 in.) above the working surface, or as amended by 2.10.2.1;
   (2) have a mid rail (or equivalent structural member);
   (3) have a toe-board to a height of 125 mm (5 in.) above the working surface.
   (4) be fixed in position and designed to resist the loads[1,2] specified in O. Reg. 350/06 (Building Code) Article 4.1.5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section14(2). See table in 5.2 for reference.
   (5) not deflect beyond the perimeter of the car top [A17.1/B44 2.14.1.7.1], and in no case shall the deflection exceed 75mm (3 in.) when the forces of A17.1/B44 2.10.2.4 are applied

   [1] For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(5) of O. Reg. 350/06 (Building Code).
   [2] For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

(b) Where a car top railing is installed, the installation shall conform to 2.14.1.7. Where conformance with 8.7.2.14★4(a)(1) is not possible due to existing overhead conditions, a foldable, collapsible or other stow able design shall be acceptable provided that;
   (1) the car will not operate in "top-of-car inspection operation" unless the railing is in the fully extended position,
   (2) the car will not operate in; "normal operation", "hoistway access operation", or any type of "inspection operation" other than "top-of-car inspection operation", unless the railing is in the fully retracted position,
   (3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly and positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),
   (4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,
   (5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly and positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),
   (6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4,
   (7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,
   (8) when in the fully extended position the handrail shall meet the height requirements of 2.14.1.7.
   (9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per Section 85 of Reg. 851, Regulations for Industrial Establishments) while engaging or lowering the alternative height guardrail where provided.

8.7.2.15 Car Frames and Platforms

8.7.2.15.1 Alterations to Car Frames and Platforms.

Where alterations are made to a car frame or platform, the frame and platform shall conform to 2.15. Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.15★1 *(171/02)*

Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increase to the deadweight of the car by 115kg (255 Lbs.) or less including all weight changes since the car was originally installed the following requirements shall apply;

(a) cars and counterweights shall be weighed prior to the alteration to establish starting weights
(b) materials added or removed during the alteration shall be weighed in or out, or the car shall be weighed after the alteration to establish final weight changes
(c) add on weight (or decreased weight) shall be recorded on an auxiliary data tag and posted on the crosshead
(d) an auxiliary data tag shall as a minimum contain;

(1) the date of the alteration,
(2) the weight added or removed from the car
(3) the weight added or removed from the counterweight
(4) the name of the alteration contractor
(5) the measured car weight prior to the alteration

(e) where glass, mirror, or overhead finishes are added to the car interior, a no load governor tripping speed safety tests or a no load rated speed buffer test shall be performed to ensure the security of finishes prior to the devices return to service (Minor A and Minor B alterations ONLY). For hydraulic elevators and emergency stop from rated speed in the up direction shall be performed.

8.7.2.15★2 *(171/02)*
Where an alteration results in an increase in the deadweight of the car by more than 115 kg (255 Lbs.) but less then 5% of car and capacity as originally installed including all weight changes since the car was originally installed the following requirements shall apply;

(a) requirements 8.7.2.15★1(a) through 8.7.2.15★1(e)
(b) an engineering assessment shall confirm compliance of any components affected by the weight change, including but not limited to;
(1) machines
(2) car and counterweight frames
(3) buffers
(4) traction and overbalance
(5) ropes
(6) plungers & working pressures
(7) safeties

8.7.2.15.2 Increase or Decrease in Deadweight of Car.
Where an alteration results in an increase or decrease in the deadweight of the car that is sufficient to increase or decrease the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to the following requirements:
(a) requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone plus 75 mm (3 in.)
(b) requirement 2.16
(c) requirement 2.17
(d) requirement 2.18
(e) requirement 2.20
(f) requirement 2.21, except as covered by 8.7.2.22.2
(g) requirement 2.22, except for 2.22.4.7, provided that conformance with
(1) requirement 2.22.4.10 is established otherwise
(2) requirement 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22
(h) requirement 2.23
(i) requirement 2.24, except 2.24.1
(j) requirement 8.7.2.9
(k) requirement 8.7.2.15★1(a) through 8.7.2.15★1(e)

8.7.2.16 Capacity, Loading, and Classification 8.7.2.16.1 Change in Type of Service.
Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to:

(a) requirements 2.11.1 through 2.11.3, and 2.11.5 through 2.11.8
(b) requirements 2.12 and 2.13
(c) requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11
(d) requirements 2.14 and as amended by 8.7.2.14★4 and 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.)
(e) requirement 2.17, except that where gradual wedge-clamp and drum-operated flexible guide-clamp safeties are reused, the stopping distances shall conform to the requirements of the Code at the time of installation [see ASME A17.2, Table 2.29.2(c)]
(f) requirement 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7
(g) requirements 2.16, 2.20, 2.24 through 2.27, except 2.24.1
(h) requirement 2.19

8.7.2.16.2 Change in Class of Loading. Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 (see also 8.7.2.16.4).

8.7.2.16.3 Carrying of Passengers on Freight Elevators.
Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to:

(a) 2.16.4
(b) CAD 3.12 or extent pit permits
(c) signage requirements in 2.16.5.

8.7.2.16.4 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to the following:

(a) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.4, 2.14.5, and 2.14.6.
(b) Requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.).
(c) Requirement 2.16.
(d) Requirement 2.17.
(e) Requirement 2.18, except that the pitch diameters of existing governor sheaves are not required to conform to 2.18.7.
(f) Requirement 2.19.
(g) Requirement 2.20.
(h) Requirement 2.21, except as covered by 8.7.2.22.2.
(i) Requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
(j) Requirement 2.23.
(k) Requirement 2.24.
(l) Requirements 2.26.1.4 and 2.26.1.5.
(m) Requirement 2.26.5.
(n) Requirement 8.7.2.9.

8.7.2.17 Change in Rise or Rated Speed
8.7.2.17.1 Increase or Decrease in Rise.
Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, the following requirements shall be conformed to:

(a) The terminal stopping devices shall be relocated to conform to 2.25.

(b) Where the increase in rise is less than 4 570 mm (180 in.), an existing winding-drum machine shall be permitted to be retained, provided the drum is of sufficient dimensions to serve the increased rise with not less than one full turn of wire rope remaining on the winding drum when the car or counterweight has reached its extreme limits of travel.
(c) The bottom and top clearances and runbys for cars and counterweights shall conform to 2.4, except as follows:
  (1) Where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
  (2) Where the increase in rise is at the lower end of the hoistway, the existing overhead car and counterweight clearances are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
  (3) Where the decrease in rise is at the lowest end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.2.17.2 Increase in Rated Speed

(a) Increase in the rated speed of a winding-drum machine is prohibited, except as permitted in 8.7.2.17.2(c).
(b) Where the alteration involves an increase in the rated speed, except as specified in 8.7.2.17.2(c), the following requirements shall be conformed to:
  (1) The bottom runbys and the top clearances for cars and counterweights shall conform to 2.4.2 through 2.4.11.
  (2) Horizontal clearances shall conform to 2.5.
  (3) The car and counterweight buffers shall conform to 2.22, except that existing buffers, where retained, are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
  (4) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.
  (5) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7. Where the new rated speed is greater than 3.5 m/s (700 ft/min), compensating rope tie-down shall be provided in compliance with 2.21.4.2.
  (6) The capacity and loading shall conform to 2.16.
  (7) The driving machine and sheaves shall conform to 2.24.
  (8) The terminal stopping devices shall conform to 2.25.
  (9) The operating devices and control equipment shall conform to 2.26, except that 2.26.4.1 through 2.26.4.3 shall apply only to the electrical wiring and equipment altered. Requirement 2.26.4.4 does not apply.
  (10) Suspension ropes and rope connection shall conform to 2.20.
  (11) Car overspeed protection and unintended car movement protection shall conform to 2.19.
(c) Where the increase in rated speed does not exceed 10% and does not exceed 0.20 m/s (40 ft/min), and is a result of a power supply change, and the new motor speed cannot match the existing motor speed, the installation is not required to conform to 8.7.2.17.2(b), except that the new rated speed shall not
  (1) exceed 0.75 m/s (150 ft/min) for Type A safeties
  (2) exceed 1 m/s (200 ft/min) when spring buffers are provided Governors shall be adjusted to conform to 2.18.2.1 and 2.18.2.2 (see also 8.7.2.27.3).

8.7.2.17.3 Decrease in Rated Speed.

Conformance with the following requirements shall be required when the alteration involves a decrease in the rated speed.

(a) Where the bottom runbys and the top clearances for cars and counterweights are less than as required by 2.4, they shall not be decreased by the speed reduction.
(b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
(c) The capacity and loading shall conform to 2.16.
(d) Capacity and data plates shall conform to 2.16.3, except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.
(e) New electrical equipment and wiring shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3.

8.7.2.18 Car and Counterweight Safeties

8.7.2.18.1 Where the alteration consists of the installation of new car safeties, the car safeties, car speed governor, and car guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.2 Where the alteration consists of the installation of new counterweight safeties, the counterweight safeties, counterweight speed governor, and counterweight guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties, governors, and guide rails shall conform to 2.17.1 through 2.17.9, 2.17.15, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.4 Where existing rail reactions are not increased by the installation of new safeties, the existing hoistway construction for bracket support need not be modified.

8.7.2.19 Speed Governors and Governor Ropes.
Where any alteration is made to a speed governor, or where a new governor is installed, it shall conform to 2.18. Where there is a releasing carrier, it shall conform to 2.17.15. Governor ropes of a different material, or construction than originally specified by the governor manufacturer shall be permitted, provided that

(a) there is conformance with 2.18.6 and 2.18.7, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7
(b) a test is made of the car or counterweight safety and speed governor with the new rope to demonstrate that the safety will function as required by 2.17.3

8.7.2.20 Ascending Car Overspeed and Unintended Car Movement Protection.
The requirements of 2.19 shall be conformed to where a device for protection against ascending car overspeed and unintended car movement is altered or installed.

8.7.2.20★1
If elevator controllers are pre-B44-00 and the installation is already equipped with Ascending Car Overspeed (ACO) and Unintended Car Movement (UCM) protection, the installation shall conform to 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.20★2
If elevator controllers are pre-B44-00 and the installation is equipped with only ACO protection, the installation shall conform to 2.19.1, 2.19.3, and 2.19.4, except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO detection was provided.

8.7.2.20★3
Where the alteration includes the voluntary addition of ACO and UCM protection, the installation shall conform to; 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration and 2.7 as applicable to the installation of the equipment. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.21 Suspension Means and Their Connections
8.7.2.21.1 Change in Suspension Members.
Where the material, grade, number, or size of suspension members is changed, the new suspension members and their fastenings shall conform to 2.20. When existing sheaves are retained using suspension members different from those originally specified, the original elevator manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.2.21.2 Addition of Suspension-Member Equalizers.
Where suspension-member equalizers are installed, they shall conform to 2.20.5.

8.7.2.21.3 Addition of Auxiliary Suspension-Member-Fastening Devices.
Where auxiliary suspension-member-fastening devices are installed, they shall conform to 2.20.

8.7.2.21.4 Exception for Suspension-Means Monitoring and Protection.

(a) Where there is a change to the type of suspension means the installation shall conform to 2.20.8 and 2.20.11.
(b) If a traction-loss detection means is provided, it shall comply with 2.20.8.1.
(c) If a broken suspension-means detection means is provided, it shall comply with 2.20.8.2.

Note: Elevators installed to editions prior to A17.1-2007, including A17.1a-2008, are exempt from all of the requirements of 2.20.8 and 2.20.11 provided that there is no change to the type of suspension means and that there is no alteration to the means themselves.

8.7.2.22 Counterweights

8.7.2.22.1 Where alterations are made to any part of a counterweight assembly, except guiding members, the installation shall conform to 2.21, except as specified by 8.7.2.22.2. See also 8.7.2.3.

8.7.2.22.2 Rod-type counterweights shall be permitted to be retained, provided they are equipped with a minimum of two suspension rods and two tie rods. The two suspension rods shall conform to 2.21.2.1 and 2.21.2.3 and shall be provided with locknuts and cotter
pins at each end. The tie rods shall conform to 2.21.1.2. Means shall be provided on each side of the counterweight to maintain the distance between the top and bottom guide weights in the event the counterweight lands on the buffer.

8.7.2.22.3 Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the counterweight with respect to the guide rails, the clearance between the safety jaws and rails of the counterweight shall be such that the safety jaws
cannot touch the rails when the counterweight frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.23 Car and Counterweight Buffers and Bumpers.
Where alterations are made to car and counterweight buffers or bumpers, they shall conform to 2.22. The buffers are not required to conform to 2.22.4.7 if

(a) the buffer's load rating and properties defining method of absorbing and dissipating energy has not been altered
(b) the load rating of the buffer can be established by other means such as using original design data, original type testing data, marking plate, etc.
(c) the conformance with 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22

8.7.2.24 Guide Rails, Supports, and Fastenings.
Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 2.23. Guide rails, supports, fastenings, and joints of different design and construction than those provided for in 2.23 shall be permitted to be retained provided they are in accordance with sound engineering practice and will adequately maintain the accuracy of the rail alignment.

8.7.2.25 Driving Machines and Sheaves

8.7.2.25.1 Alterations to Driving Machines and Sheaves

(a) Where a driving machine is replaced, or installed as part of an alteration, the installation shall conform to 2.7.2, 2.9, 2.10.1, 2.19 as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3, 2.20, 2.24, and 2.26.8. Requirement 2.7.2 applies to the extent existing installations permit.
(b) Where alterations are made to driving machine components, the affected components shall conform to 2.24.2 through 2.24.9 and 2.26.8.
(c) Where an alteration consists of a change in the driving-machine sheave, the suspension ropes and their connections shall conform to 2.20. The sheave shall conform to 2.24.2, 2.24.3, and 2.24.4.

8.7.2.25★1
Where the driving machine worm or gear is replaced, the replaced components shall conform to the applicable requirements of 2.24.

Note: Refer to 8.7.2.7★1 for the addition of machine guarding.

8.7.2.25.2 Change in Location of Driving Machine

(a) Where the location of the driving machine is changed with no increase or decrease in rise, the installation shall conform to 2.7.2, 2.9, 2.10.1, and 2.24.2.3.

(b) Where the location of the driving machine is changed with an increase or decrease in rise, the entire installation shall conform to Part 2, except for the following:

(1) requirement 2.5 (see also 8.7.2.5).

(2) requirement 2.11 (see also 8.7.2.10).

(3) where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.

8.7.2.26 Terminal Stopping Devices.
Where an alteration is made to any terminal stopping device, the installation shall conform to 2.25.

8.7.2.27 Operating Devices and Control Equipment / Inspection Operation and Inspection Operation with Open Door Circuits

8.7.2.27.1 Top-of-Car Operating Devices.
Where there is an alteration to or addition of top-of-car inspection operation, it shall conform to 2.26.1.4.

8.7.2.27★1
Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.2.27★2
Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD **3.8.3**

8.7.2.27.2 Car Leveling or Truck Zoning Devices.
Where there is an alteration to or addition of a car leveling device, or a truck zoning device, it shall conform to 2.26.1.6.

8.7.2.27★3
Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.2.27★4
Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.2.27.3 Change in Power Supply.
Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller, involving one of the following, whichever is applicable:

(a) change in voltage, frequency, or number of phases

(b) change from direct to alternating current or vice versa

(c) change to a combination of direct and alternating current Electrical equipment shall conform to 2.26.1.1, 2.26.1.2, 2.26.1.3, 2.26.1.4, 2.26.1.6, 2.26.2, 2.26.6, 2.26.7, 2.26.9, and 2.26.10. All new and modified equipment and wiring

shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3. Brakes shall conform to 2.24.8 and 2.26.8. Winding-drum machines shall be provided with final terminal stopping devices conforming to 2.25.3.5 [see also 8.7.2.17.2(b)].

8.7.2.27.4 Controllers

(a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:
  (1) Terminal stopping devices shall conform to 2.25.
  (2) The operating devices and control equipment shall conform to 2.26.1.4, 2.26.1.5, 2.26.1.6, 2.26.2 through 2.26.9, and 2.26.11.
  (3) Requirement 2.27.2 applies when emergency power is provided.
  (4) not adopted.
  (5) In jurisdictions enforcing NBCC, 2.27.3 through 2.27.9 apply.
  (6) requirement 2.7.9.2

(b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

(c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

(d) Equipment and floors shall be identified as required by 2.29.

8.7.2.27★5

Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.2.27.5 Change in Type of Motion Control.

Where there is a change in the type of motion control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to
  (1) 2.11.1 except;
    (a) existing entrance openings less than 2030mm in height or 800mm in width are permitted to be retained
    (b) requirement 2.11.1.4
  (2) 2.11.2 through 2.11.6, except 2.11.6.3
  (3) 2.11.8, 2.11.9
  (4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
  (5) 2.11.12.8
  (6) 2.12, except
    (a) requirement 2.12.2.4.3 to allow a minimum engagement of 6mm
    (b) 2.12.4, and
  (7) 2.13.

(b) Car enclosures and car doors or gates shall conform to 2.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
  (1) requirements 2.14.1.3, 2.14.1.5.1, 2.14.1.8, 2.14.1.9 and 2.14.1.10
  (2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6
  (3) requirement 2.14.3
  (4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
  (5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
  (6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that;
  (1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and

(2) the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 2.16.8 (e), (f), (g) and (h).

(e) The terminal stopping devices shall conform to 2.25.

(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.

(g) not adopted
In jurisdictions enforcing NBCC, emergency operation and signaling devices shall conform to 2.27

(h) Car overspeed protection and unintended movement protection shall conform to 2.19 as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3.

(i) Equipment and floors shall be identified as required by 2.29.

(j) requirement 2.7.9.2

8.7.2.27.6 Change in Type of Operation Control.

Where there is a change in the type of operation control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13, 2.12, and 2.13.

(b) Car enclosures and car doors or gates shall conform to 2.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
(2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
(3) requirement 2.14.3
(4) requirement 2.14.4.3 and 2.14.4.6

(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 2.16.

(e) The terminal stopping devices shall conform to 2.25.

(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.

(g) Emergency operation and signaling devices shall be provided and shall conform to 2.27.

(h) Equipment and floors shall be identified as required by 2.29.

(i) requirement 2.7.9.2

8.7.2.27.★6

Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(I).

8.7.2.27.★7

Where security / floor lockout systems are added the following shall apply:

(a) egress floor shall not be restricted when on FEO,

(b) door open buttons shall remain operative,

(c) requirement 2.11.6.2

(d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.2.27.7 On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21 is provided.
The stop switch shall conform to 2.26.4.3, and a single failure shall not render the In-Car stop switch ineffective per 2.26.9.3.

8.7.2.27.8 Electrical Protective Devices.

Where there is an alteration to or addition of an electrical protective device, it shall conform to 2.26.2 for that device.

8.7.2.28 Emergency Operations and Signaling Devices

(a) Where an alteration is made to car emergency signaling devices, the alteration shall conform to 2.27.1.

(b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.
(c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 2.27.3 through 2.27.8.
(d) Where the alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to 2.27.

8.7.2.28★1 *(175/02)*
Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.

8.7.2.28★2 *(60/88) (105/93) (219/07)*
Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD **3.20**.

8.7.3 Alterations to Hydraulic Elevators
8.7.3.1 Hoistway Enclosures.
Alterations to hoistway enclosures shall conform to 8.7.2.1.

8.7.3.2 Pits. Alterations made to the pit shall conform to 2.1.2.3 and 2.2. See also 8.7.3.4.

8.7.3.3 Location and Guarding of Counterweights.
Where new counterweights are installed, they shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 3.5.

8.7.3.4 Vertical Car and Counterweight Clearances and Runbys.
No alteration shall reduce any clearance or runby below that required by 3.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.5 Horizontal Car and Counterweight Clearances.
No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.6 Protection of Spaces Below Hoistways.
Where alterations are made to an elevator or the building, such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 3.6.

8.7.3.7 Machine Rooms and Machinery Spaces.
Alterations to machine rooms and machinery spaces shall conform to 8.7.2.7.2 through 8.7.2.7.7. Where an alteration consists of the construction of a new machine room or machinery space enclosure, it shall conform to 2.7 and 3.7. Electrical equipment clearances shall conform to the requirements of NFPA 70 or CSA-C22.1, whichever is applicable (see Part 9). Where alterations are made to any portion of a machinery room or machinery space, the portion that is altered shall conform to 2.7 and 3.7.

8.7.3.8 Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.
The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.3.9 Machinery and Sheave Beams, Supports and Foundations.
Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building structure to support the loads shall be verified by a licensed professional engineer.

8.7.3.10 Hoistway Entrances and Openings.
Alterations to hoistway entrances shall conform to 8.7.2.10, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway where required by 8.7.2.10 and

(a) for all elevators where car or counterweight safeties are used
(b) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency

8.7.3.11 Hoistway Door Locking Devices.
Alterations to hoistway door locking devices, access switches, parking devices, and unlocking devices shall conform to 8.7.2.11, except that conformance with 2.24.8 is not required.

8.7.3.12 Power Operation of Hoistway Doors.
Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, 8.7.2.10.5, and 8.7.3.10.

8.7.3.13 Car Enclosures. Where alterations are made to car enclosures, they shall conform to 8.7.2.14.

8.7.3.14 Car Frames and Platforms.
Where alterations are made to a car frame or platform, the frame and platform shall conform to 3.15. If safeties are used and if roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.3.15 Safeties
8.7.3.15.1 Where the alteration consists of the installation of car safeties, the car safeties and car guide rails shall conform to 3.17.1, 3.23, and 3.28.

8.7.3.15.2 Where the alteration consists of the installation of counterweight safeties, the counterweight safeties and counterweight guide rails shall conform to 3.17.2, 3.23, and 3.28.

8.7.3.15.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties and guide rails shall conform to 3.17, 3.23, and 3.28, except for cross-referenced 2.17.10 through 2.17.14, 2.17.16, and 2.21.4.2.

8.7.3.16 Governors and Governor Ropes.
Where alterations are made to governors or where they are added, they shall conform to 8.7.2.19.

8.7.3.17 Change in Type of Service.
Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to

(a) requirements 2.11.1, 2.11.2, 2.11.3, and 2.11.5 through 2.11.8, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway
  (1) for all elevators where car or counterweight safeties are used
  (2) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency
(b) requirements 2.12 and 2.13
(c) requirements 2.22 and 3.22.2, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11
(d) requirements 3.14, 3.15, 3.17, 3.21, and 3.23
(e) requirement 2.18, where governors are provided, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7
(f) requirements 3.16, 3.18, 3.19, 3.20, 3.24, 3.25, 3.26, and 3.27.

8.7.3.18 Change in Class of Loading.
Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 as modified by 3.16.

8.7.3.19 Carrying of Passengers on Freight Elevators.
Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to 3.16.4.

8.7.3.20 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to 2.26.1.4, 2.26.1.5, 2.26.5, 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21 Increase in Deadweight of Car.
Where an alteration results in an increase in the deadweight of the car that is sufficient to increase the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21★1 *(171/02)*
Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increases to the deadweight of the car by 115kg (255 Lbs.) or less including all weight changes since the car was originally installed the requirements of shall 8.7.2.15★1 apply.

8.7.3.21★2 *(171/02)*
Where an alteration results in a cumulative increase in the deadweight of the car by more than 115 kg (255 Lbs.) but less then 5% of car and capacity as originally installed including all weight changes since the car was originally installed the requirements of 8.7.2.15★2 shall apply.

8.7.3.22 Change in Rise or Rated Speed
8.7.3.22.1 Increase or Decrease in Rise.
Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, it shall conform to the following:

(a) The terminal stopping devices shall be relocated to conform to 3.25.
(b) Where the increase in rise is at the lower end of the hoistway, bottom car and counterweight clearances and runbys shall conform to 3.4.1, 3.4.2, and 3.4.3, and existing top car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(c) Where the increase in rise is at the upper end of the hoistway, top car and counterweight clearances, runbys, and refuge spaces shall conform to 3.4, and existing bottom car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(d) The plunger shall conform to 3.18.2.
(e) Where the decrease is at the lower end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.3.22.2 Increase in Rated Speed.
Where an alteration increases the rated speed, the installation shall conform to the following:

(a) Requirement 2.5.
(b) Requirement 3.4.
(c) Requirements 3.21 and 3.22.2, except that existing buffers, where retained, are not required to conform to referenced 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
(d) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to the applicable requirements of 3.14.
(e) Car and counterweight safeties and governors, where provided, shall conform to 3.17, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7.
(f) Requirement 3.16.
(g) Requirement 3.25.
(h) Requirements 3.26.1 through 3.26.6.

(i) Requirement 3.20.

8.7.3.22.3 Decrease in Rated Speed.
When the alteration involves a decrease in the rated speed, it shall conform to the following:

(a) If the bottom runbys and the top clearances for cars and counterweights are less than as required by 3.4, they shall not be decreased by the speed reduction.
(b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
(c) The capacity and loading shall conform to 3.16.
(d) Capacity and data plates shall conform to 3.16.3(b), except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.
(e) New electrical equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

8.7.3.23 Hydraulic Equipment

8.7.3.23.1 Hydraulic Jack.
Where a hydraulic jack is installed, altered, or replaced, it shall conform to 3.18.

8.7.3.23.2 Plungers.
Where a new plunger is installed or an existing plunger is altered, it shall conform to 3.18.1.2 and 3.18.2.

8.7.3.23.3 Cylinders.
Where a cylinder is installed, replaced, altered, or sleeved, it shall conform to 3.18.3. If the plunger is not equipped with a stop ring conforming to 3.18.4.1, the installation shall also conform to 3.18.1.2 and 3.18.2.

8.7.3.23.4 Increase in Working Pressure.
Where an alteration increases the working pressure by more than 5%, the installation shall conform to 3.18, 3.19, and 3.24.1 through 3.24.4. Requirements 3.18.3.8 and 3.19.4.6 do not apply to existing equipment.

8.7.3.23.5 Change in Location of Hydraulic Jack.
Where location of the hydraulic jack is changed, the installation shall conform to Part 3.

8.7.3.23.6 Relocation of Hydraulic Machine (Power Unit).
Where the hydraulic machine is relocated so that the top of the cylinder is above the top of the storage tank, the installation shall conform to 3.26.8.

8.7.3.23.7 Plunger Gripper.
Where the alteration consists of the addition of a plunger gripper, the following conditions must be met:

(a) the plunger gripper must comply with 3.17.3
(b) requirement 3.1.1(b) shall apply
(c) when buffers are compressed solid or to a fixed stop in accordance with 3.22.1, the plunger gripper shall not strike the car structure.

8.7.3.23.7★1 Plunger Gripper.
Where the alteration consists of the removal of a plunger gripper, the following conditions must be met:

(a) the cylinder must conform to 3.18.3
(b) an overspeed valve shall be installed in conformance with the requirements of 3.19.4.7.
(c) bottom car runby shall conform to 3.4.2.1

8.7.3.24 Valves, Pressure Piping, and Fittings.

(a) Where an existing control valve is replaced with a valve of a different type, make or model, it shall conform to 3.19.
(b) Where relief or check valves or the supply piping or fittings are replaced, the components replaced shall conform to the applicable requirements of 3.19.

(c) Where electrically operated control valves are installed in place of existing mechanically operated control valves, for rated speeds of more than 0.5 m/s (100 ft/min), existing terminal stopping devices consisting of an automatic stop valve independent of the normal control valve and operated by the movement of the car as it approaches the terminals, where provided, shall be permitted to be retained.

8.7.3.25 Suspension Ropes and Their Connections

8.7.3.25.1 Change in Ropes.

Where the material, grade, number, or diameter of ropes is changed, the new ropes and their fastenings shall conform to 3.20. When existing sheaves are retained using ropes different from those originally specified, the original elevator manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.3.25.2 Addition of Rope Equalizers.

Where rope equalizers are installed, they shall conform to 2.20.5.

8.7.3.26 Counterweights.

Where alterations are made to counterweights, they shall conform to 8.7.2.22 and 3.21. Where counterweights are added to a previously uncounterweighted elevator, it shall conform to 3.4, 3.6, 3.14, 3.15, 3.17.2, 3.18, 3.20, and 3.21. See also 8.7.3.3.

8.7.3.27 Car Buffers and Bumpers.

Where alterations are made to car buffers or bumpers, the installation shall conform to 3.21 and 3.22.2. Existing buffers are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.

8.7.3.28 Guide Rails, Supports, and Fastenings.

Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 3.23 and 3.28.

8.7.3.29 Tanks.

Where a new tank is installed or altered, the tank shall conform to 3.24.

8.7.3.29★1 Addition of Oil Cooler

Where an oil cooler is installed or altered, the following requirements apply,

(a) 8.7.3.8
(b) 2.7.2 for the installed equipment
(c) 3.10 for the installed equipment

8.7.3.30 Terminal Stopping Devices.

Where an alteration is made to any terminal stopping device, the installation shall conform to 3.25.

8.7.3.31 Operating Devices and Control Equipment

8.7.3.31.1 Top-of-Car Operating Devices.

Where there is an alteration to, or addition of, a top-of-car operating device, it shall conform to 3.26.2.

8.7.3.31★1

Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.3.31★2

Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD **3.8.3**

8.7.3.31.2 Car Leveling or Truck Zoning Devices.

Where there is an alteration to, or addition of, a car leveling device or a truck zoning device, it shall conform to 3.26.3.2.

8.7.3.31★3
Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.3.31★4
Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.3.31.3 Anticreep Leveling Device.
Where there is an alteration or replacement of an anticreep leveling device, it shall conform to 3.26.3.1.

8.7.3.31.4 Change in Power Supply.
Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller involving

(a) change in voltage, frequency, or number of phases;
(b) change from direct current to alternating current, or vice versa; or
(c) change to a combination of direct or alternating current.

Electrical equipment shall conform to 3.26.1, 3.26.4, 3.26.5, and 3.26.6 (not including 2.26.4.4).

8.7.3.31★5 Addition of Soft Start
Where there is an addition of a soft start feature the follow shall apply;

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) 3.26.5

8.7.3.31★6 Addition of Power Efficiency Devices
Where there is an addition of power efficiency increasing devices the follow shall apply;

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.3.31.5 Controllers

(a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:
  (1) Terminal stopping devices shall conform to 3.25.
  (2) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.1.1, 2.26.1.3, and 2.26.12 do not apply.
  (3) Requirement 2.27.2 applies when emergency power is provided.
  (4) not adopted
  (5) In jurisdictions enforcing NBCC, 3.27.1 through 3.27.4 and 2.27.3 through 2.27.9.
(b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
(c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
(d) Equipment and floors shall be identified as required by 2.29.

8.7.3.31★7
Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.3.31.6 Change in Type of Motion Control.
Where there is a change in the type of motion control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 except 2.11.11.9,
  (1) 2.11.1 except:

(a) existing entrance openings less than 2030mm in height or 800mm in width are permitted to be retained
(b) requirement 2.11.1.4

(2) 2.11.2 through 2.11.6, except 2.11.6.3
(3) 2.11.8, 2.11.9
(4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
(5) 2.11.12.8 as modified by 3.11.1,
(6) and conform to 3.12.1 except
(a) requirement 2.12.2.4.3 to allow a minimum engagement of 6mm
(b) 2.12.4,and
(7) 3.13.

(b) Car enclosures and car doors or gates shall conform to 3.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, 2.14.1.8, 2.14.1.9 and 2.14.1.10
(2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6
(3) requirement 2.14.3
(4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
(5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
(6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety (where provided) and the counterweight safety (where provided) shall conform to 3.17, and the governor (where provided) shall conform to 2.18, except that:
(1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
(2) the pitch diameter of speed-governor sheaves and governor tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 8.7.2.27.5(d).
(e) The terminal stopping devices shall conform to 3.25.
(f) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.4.2 and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
(g) not adopted
In jurisdictions enforcing NBCC, emergency operation and signaling devices shall conform to 2.27.
(h) Equipment and floors shall be identified as required by 2.29.

8.7.3.31.7 Change in Type of Operation Control.

Where there is a change in the type of operation control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 as modified by 3.11.1, and conform to 3.12.1 and 3.13.
(b) Car enclosures and car doors or gates shall conform to 3.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
(2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
(3) requirement 2.14.3
(4) requirements 2.14.4.3 and 2.14.4.6
(c) The capacity and loading shall conform to 3.16.
(d) The terminal stopping devices shall conform to 3.25.
(e) The operating devices and control equipment shall conform to 3.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
(f) Emergency operation and signaling devices shall be provided and shall conform to 3.27.
(g) Equipment and floors shall be identified as required by 2.29.
(h) requirement 2.7.9.2

8.7.3.31★8

Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(I).

8.7.3.31.★9

Where security / floor lockout systems are added the follow shall apply:

(a) egress floor shall not be restricted when on FEO,
(b) door open buttons shall remain operative,
(c) requirement 2.11.6.2
(d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.3.31.8 Emergency Operation and Signaling Devices

(a) Where an alteration is made to car emergency signaling devices, the installation shall conform to 2.27.1.
(b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.
(c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 3.27.

8.7.3.31★10 *(175/02)*

Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.

8.7.3.31★11 *(60/88) (105/93) (219/07)*

Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD **3.20**.

8.7.3.31.9 Auxiliary Power Lowering Operation.

Where auxiliary power lowering operation is installed or altered, it shall conform to 3.26.10.

8.7.3.31.10 In-Car Stop Switch.

On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21, 2.26.4.3, 2.26.9.3.1(a), and 3.26.4.2 is provided.

8.7.3.31.11 Electrical Protective Devices.

Where there is an alteration to or addition of an electrical protection device, it shall conform to 3.26.4 for that device.

8.7.4 Alterations to Elevators With Other Types of Driving Machines

8.7.4.1 Rack and Pinion Elevators.

Where any alteration is made to a rack-and-pinion elevator, the entire installation shall comply with 4.1.

8.7.4.2 Screw-Column Elevators.

Where any alteration is made to a screw-column elevator, the entire installation shall comply with 4.2.

8.7.4.3 Hand Elevators

8.7.4.3.1 Hoistway Enclosures and Machinery Space.

Where an alteration is made to any portion of a hoistway enclosure or machinery space, the altered portion shall conform to 4.3.1 and 4.3.4.

8.7.4.3.2 Top Car and Counterweight Clearances.

No alteration shall reduce any clearances or runby below that required by 4.3.3 or below the minimum clearances as originally installed.

8.7.4.3.3 Hoistway Entrances.
Where new entrances are installed, the new entrances shall conform to 4.3.6, 4.3.7, and 4.3.8.

8.7.4.3.4 Car Enclosures.
Where an alteration is made to a car enclosure, it shall conform to 4.3.9 and 4.3.11.

8.7.4.3.5 Car Frame and Platform.
Where an alteration is made to a car frame or platform, the frame or platform shall conform to 4.3.11, 4.3.12, 4.3.13, and 4.3.16.

8.7.4.3.6 Capacity and Loading.
No alteration shall reduce the rated load below that required by 4.3.14.1 and 4.3.14.2. Where the alteration involves an increase in rated load, the driving machine sheave shall comply with 4.3.19.1, 4.3.19.2, and 4.3.16.

8.7.4.3.7 Increase in Rise.
Where the alteration involves an increase in the total rise to exceed 4 600 mm (15 ft), it shall conform to 4.3.3.1, 4.3.3.2, 4.3.15, and
4.3.16.

8.7.4.3.8 Guide Rails and Fastenings.
Where an alteration involves the installation of guide rails, the guide rails and fastenings shall comply with 4.3.18.1, 4.3.18.2, and 4.3.18.3.

8.7.4.3.9 Overhead Beams and Supports.
Where the alteration involves a change in the arrangement of or load on the overhead beams and sheaves, the new arrangement shall conform to 4.3.5.1 and 4.3.5.2, except that wood shall be permitted to be retained if it is structurally sound.

8.7.4.3.10 Power Attachments.
No alteration shall implement the use of a power other than hand power.

8.7.5 Alterations to Special Application Elevators
8.7.5.1 Inclined Elevators.
Where any alteration is made to an inclined elevator, the entire installation shall comply with 5.1.

8.7.5.2 Limited-Use/Limited-Application Elevators.
Reserved.

8.7.5.2.★1 Alterations to Electric Limited-Use/Limited-Application Elevators
Alterations to Limited-Use/Limited-Application Elevators, shall conform to 8.7.2 and the requirements of Part 2 except as modified in section 5.2.

8.7.5.2.★2 Alterations to Hydraulic Limited-Use/Limited-Application Elevators
Alterations to Limited-Use/Limited-Application Elevators, shall conform to the 8.7.3 and the requirements of Part 3 except as modified in section 5.2.

8.7.5.3 Private Residence Elevators
8.7.5.3.1 When a building code occupancy classification of a private residence is changed in which a private residence elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.2.

8.7.5.4 Private Residence Inclined Elevators
8.7.5.4.1 When a building code occupancy classification of a private residence is changed in which a private residence inclined elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.1.

8.7.5.5 Power Sidewalk Elevators

8.7.5.5.1 Changes in Electrical Wiring or Electrical Equipment.

Where electrical wiring or equipment is installed as part of an alteration, it shall conform to 5.5.1.8.

8.7.5.5.2 Sidewalk Door.

Where a sidewalk door is installed as part of an alteration, it shall conform to 5.5.1.11.2, 5.5.1.11.3, and 5.5.1.11.4.

8.7.5.5.3 Change in Car Enclosure, Car Doors, and Gates.

Where the car enclosure, car door, or car gate is installed as part of an alteration, it shall conform to 5.5.1.14.

8.7.5.5.4 Bow Irons and Stanchions. Where the bow iron and stanchion is installed as part of an alteration, it shall conform to 5.5.1.15.2.

8.7.5.5.5 Increase in Rated Load.

Where the alteration consists of an increase in rated load, the bottom and top clearances and runbys shall conform to 5.5.1.16, 5.5.1.18, 5.5.1.21, and 5.5.1.25.4.

8.7.5.5.6 Increase in Rated Speed.

Where the alteration consists of an increase in rated speed, the capacity and loading shall conform to 5.5.1.15, 5.5.1.16, 5.5.1.19, and 5.5.1.22.

8.7.5.5.7 Existing Driving Machine.

Where the driving machine is installed as part of an alteration, it shall conform to 5.5.1.8, 5.5.1.9, 5.5.1.23, and 5.5.1.25.

8.7.5.5.8 Change in Type of Operating Devices and/ or Control Equipment.

Where the alteration consists of a change in the existing type of operation or control equipment, or both, the new operating devices and control equipment shall conform to 5.5.1.8 and 5.5.1.25.

8.7.5.6 Rooftop Elevators.

Where any alteration is made to a rooftop elevator, the entire installation shall comply with 5.6.

8.7.5.7 Special Purpose Personnel Elevators.

Where any alteration is made to a special purpose personnel elevator, the entire installation shall comply with 5.7.

8.7.5.8 Shipboard Elevators.

Where any alteration is made to a shipboard elevator, the entire installation shall comply with 5.8.

8.7.5.9 Mine Elevators

8.7.5.9.1 General Requirements.

Where any alteration is made to a mine elevator, the alteration shall conform to the requirements of 8.7.1 and 8.7.2, except as modified by 5.9.

8.7.5.9.2 Ascending Car Overspeed and Unintended Car Movement Protection.

Ascending car overspeed and unintended car movement protection shall be provided and shall conform to 2.19.

8.7.5.9.3 Car Top Protection. The car top access panel size requirements in 5.9.14.1(b) do not apply where the existing car top is retained. The dimensions of the existing car top access panel shall not be reduced by the alteration.

8.7.6 Alterations to Escalators and Moving Walks

8.7.6.1 Escalators

8.7.6.1.1 General Requirements.

A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1. The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.1 for that device or component.
When multiple driving machines per escalator are utilized, operating and safety devices required by 8.7.6.1 shall simultaneously control all driving machines. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.

8.7.6.1.2 Relocation of Escalator.

(a) Where an escalator is relocated, it shall comply with 6.1. The requirements of 6.1.7.4.2 do not apply to electrical equipment unchanged by the relocation. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.
(b) Where an escalator is repositioned within the same building, CAD requirement 3.18 applies and the installation shall conform to the following;
(1) requirement 6.1.3.3.11, 6.1.3.3.12, 6.1.3.3.13
(2) requirement 6.1.3.4.3
(3) requirement 6.1.3.6.3, 6.1.3.6.4
(4) requirement 6.1.3.12
(5) requirement 6.1.3.13
(6) requirement 6.1.6.9
(7) requirement 6.1.7.4.1 and
(8) requirement 8.7.6.1.3

8.7.6.1.3 Protection of Floor Openings.
Any alteration to the floor openings in escalators shall comply with 6.1.1.1.

8.7.6.1.4 Protection of Trusses and Machinery Spaces Against Fire
Any alteration to the sides and/ or undersides of escalator trusses and machinery spaces shall conform to 6.1.2.1.

8.7.6.1.5 Construction Requirements

(a) Angle of Inclination. No alteration of an escalator shall change the angle of inclination, as originally designed, by more than 1 deg.
(b) Geometry. Any alteration to the geometry of the escalator components shall conform to 6.1.3.2.
(c) Balustrades. Any alteration to the balustrades shall conform to 6.1.3.3 for the altered components.
(d) Skirt Deflector Devices. Any alteration or addition of skirt deflector devices shall conform to 6.1.3.3.10

NOTE [8.7.6.1.5(c)]: The balustrade does not include the handrail.
NOTE [8.7.6.1.5(d)]: The vertical dimensions on existing skirt panels may not allow full compliance. See 1.2.

8.7.6.1.6 Handrails. Any alteration to the handrails or handrail system shall require conformance with 6.1.3.2.2, 6.1.3.4.1 through 6.1.3.4.4, 6.1.3.4.6, 6.1.6.3.12, and 6.1.6.4.

8.7.6.1.★1 Addition of Handrail Advertizing
The addition of handrail advertizing is not permitted per 6.1.6.9.2, unless otherwise permitted by a variance request.

8.7.6.1.7 Step System

(a) Any alteration to the step system shall require conformance with 6.1.3.3.5, 6.1.3.5 [except as specified in 8.7.6.1.7(b)], 6.1.3.6, 6.1.3.8, 6.1.3.9.4, 6.1.3.10.4, 6.1.3.11, 6.1.6.3.3, 6.1.6.3.9, 6.1.6.3.11, 6.1.6.3.14, and 6.1.6.5.
(b) Steps having a width less than 560 mm (22 in.) shall not be reduced in width by the alteration.

8.7.6.1.8 Combplates.
Any alteration of the combplates shall require conformance with 6.1.6.3.13.

8.7.6.1.9 Trusses and Girders.

Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the escalator's conforming to 6.1.3.7, 6.1.3.9.1, and 6.1.3.10.1. The installation of a new escalator into an existing truss shall conform to all of the requirements of 6.1.

8.7.6.1.10 Step Wheel Tracks.
Any alteration to the tracks shall result in the escalator's conforming with 6.1.3.8, 6.1.3.9.4, 6.1.3.10.1, and 8.7.1.4.

8.7.6.1.11 Rated Load and Speed.
Any alteration that increases the rated load or rated speed or both shall result in the escalator's conforming with 6.1.

8.7.6.1.12 Driving Machine, Motor, and Brake

(a) Driving Machine. An alteration to the driving machine shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.4, and 6.1.6.3.8.
(b) Driving Motor. An alteration to the drive motor shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.2, 6.1.6.3.8, and 6.1.6.3.10.
(c) Machine Brake. An alteration to the machine brake shall result in the escalator's conforming to 6.1.3.9.3, 6.1.3.10.2, and 6.1.5.3.1.

8.7.6.1.13 Operating and Safety Devices.
Any alteration to or addition of operating and or safety devices shall conform to 6.1.6 for that device.

8.7.6.1.★2 Removal of Step Demarcation Lights *(226/07)*
The removal of step demarcation lights, shall be permitted if the device complies with the following:

(a) requirement 6.1.3.3.5,
(b) requirements 6.1.3.5.4, 6.1.3.5.5, 6.1.3.5.6, and
(c) requirement 6.1.3.6.2.

8.7.6.1.14 Lighting, Access, and Electrical Work.
An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.1.7 for that change.

8.7.6.1.15 Entrance and Egress.
Any alteration to the entrance or egress end shall comply with 6.1.3.6.1 through 6.1.3.6.4.

8.7.6.1.16 Controller.
Where a controller is installed, it shall conform to 6.1.6.10 through 6.1.6.15, and 6.1.7.4.

8.7.6.1.★3 Controller Replaced *(226/07)*
Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.1.★4 Relocation of Controller *(226/07)*
Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.1.★5 Addition of Soft Start *(226/07)*
Where there is an addition of a soft start feature the follow shall apply;

(a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3
(b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.1.★6 Power Efficiency Devices
Where there is an addition of power efficiency increasing devices the follow shall apply;

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.6.2 Moving Walks

8.7.6.2.1 General Requirements.

A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1.

The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.2 for that device or component. When multiple driving machines per moving walk are utilized, operating and safety devices required by 8.7.6.2 shall simultaneously control all driving machines.

8.7.6.2.2 Relocation of Moving Walk.

Where a moving walk is relocated, it shall comply with 6.2.

8.7.6.2.3 Protection of Floor Openings. Any alteration to the floor openings for moving walks shall comply with 6.2.1.1.

8.7.6.2.4 Protection of Trusses and Machinery Spaces Against Fire.

Any alteration to the sides or undersides, or both, of movingwalk trusses and machinery spaces shall conform to 6.2.2.1.

8.7.6.2.5 Construction Requirements

(a) Angle of Inclination. Alteration of a moving walk that increases the angle of inclination shall require conformance with 6.2.

(b) Geometry. Any alteration to the geometry of the moving walk components shall require conformance with 6.2.3.2.

(c) Balustrades. Any alteration to the balustrades shall require conformance with 6.2.3.3.

NOTE [8.7.6.2.5(c)]: The balustrade does not include the handrail.

8.7.6.2.6 Handrails.

An alteration to the handrails or handrail system shall require conformance with 6.2.3.2.3, 6.2.3.4, 6.2.6.3.10, and 6.2.6.4.

8.7.6.2.7 Treadway System

(a) An alteration to the treadway system shall require conformance with 6.2.3.2.3, 6.2.3.3.5, 6.2.3.3.6, 6.2.3.5, 6.2.3.6 [except as specified in 8.7.6.2.7(b)], 6.2.3.8, 6.2.3.9, 6.2.3.10.4, 6.2.3.11.4, 6.2.3.11.5, 6.2.3.12, 6.2.6.3.3, 6.2.6.5, and 6.2.6.3.9.

(b) The minimum width of the moving walk shall be permitted to be less than that required by 6.2.3.7. The existing width, if less than required by 6.2.3.7, shall not be decreased by the alteration.

8.7.6.2.8 Combplates.

An alteration of the combplates shall require conformance with 6.2.3.8 and 6.2.6.3.11.

8.7.6.2.9 Trusses and Girders.

Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10.1, and 6.2.3.11.1. The installation of a new moving walk into an existing truss shall conform to all of the requirements of 6.2.

8.7.6.2.10 Track System.

Any alteration to the tracks shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10, 6.2.3.11.1, and 8.7.1.4.

8.7.6.2.11 Rated Load and Speed.

Any alteration that increases the rated load or rated speed or both shall result in the moving walk's conforming to 6.2.

8.7.6.2.12 Driving Machine, Motor, and Brake

(a) Driving Machine. An alteration to the driving machine shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.3.14, 6.2.3.15, 6.2.4, 6.2.5.1, 6.2.5.3.1, 6.2.5.3.2, 6.2.6.3.4, and 6.2.6.3.8.

(b) Drive Motor. An alteration to the drive motor shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.4, 6.2.5.2, 6.2.5.3.1, 6.2.6.3.2, 6.2.6.3.7, and 6.2.6.3.8.

(c) Machine Brake. An alteration to the machine brake shall result in the moving walk's conforming to 6.2.3.10.3, 6.2.3.11.2, 6.2.3.11.3, 6.2.5.3.1, and 6.2.5.3.2.

8.7.6.2.13 Operating and Safety Devices.
An alteration to or addition of operating and/or safety devices shall conform with the specific requirements within 6.2.6 for that device.

8.7.6.2.14 Lighting, Access, and Electrical Work.
An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.2.7 for that change.

8.7.6.2.15 Controller.
Where a controller is installed as part of an alteration, it shall conform to 6.2.6.9 through 6.2.6.14, and 6.2.7.4.

8.7.6.2.★1 Controller Replaced *(226/07)*
Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.2.★2 Relocation of Controller *(226/07)*
Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.2.★3 Addition of Soft Start *(226/07)*
Where there is an addition of a soft start feature the following shall apply:
(a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3
(b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.2.★4 Power Efficiency Devices
Where there is an addition of power efficiency increasing devices the following shall apply:
(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.7 Alterations to Dumbwaiters and Material Lifts
8.7.7.1 Dumbwaiters and Material Lifts Without Automatic Transfer Devices
8.7.7.1.1 General. When any alteration is made to a dumbwaiter or material lift, all work performed as part of the alteration shall comply with 7.1 through 7.6.

8.7.7.1.2 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to either of the following:
(a) requirement 7.2, except 7.2.1 for hand and electric dumbwaiters
(b) requirement 7.3, except 7.3.4.1 for hydraulic dumbwaiters
(c) requirement 7.4
(d) requirement 7.5
(e) requirement 7.6.

8.7.7.★1 Alteration to Freight Platform Lifts Type A
Where an alteration is made to a Type A freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts, except any reference to in-car operating devices and riders shall not apply.

8.7.7.★2 Alteration to Freight Platform Lift Type B
Where an alteration is made to a Type B freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts.

8.7.7.2 Addition of Automatic Transfer Device.
Where an automatic transfer device is installed on an existing elevator or dumbwaiter, the resultant combination of material lift or dumbwaiter with automatic transfer device shall conform to Part 7.

8.7.7.3 Material Lifts and Dumbwaiters With Automatic Transfer Devices
8.7.7.3.1 Where any alteration is made to a material lift or dumbwaiter with an automatic transfer device, the entire installation shall comply with 7.7 through 7.10.

8.7.7.3.2 Where an automatic transfer device is removed from a dumbwaiter or material lift and is not replaced, the installation shall conform to 7.1 to 7,3 for dumbwaiters and 7.4 to 7.6 for Materials Lift Without Transfer Device.

8.7.7.3.3 Where a material lift is altered to be an elevator, it shall comply with Part 2 or Part 3.

8.7.7.3.4 Where a material lift or dumbwaiter with an automatic transfer device is altered to a dumbwaiter, it shall comply with 7.1 through 7.3.

3.5 Rated Load

3.5.1 For the purpose of this Document and subsection 31.(3) of the Regulation, "rated load" in the code adopted in subsection **3.1**, means "maximum capacity".

3.6 Rope Clips

3.6.1 Rope clip fastenings shall not be used when suspension ropes are changed on an existing elevator.

3.7 Access to Machine Rooms and Spaces

3.7.1 Every elevator shall have a safe and convenient access to its machine room and machinery space. [CAD Amendment 246-11]

3.8 Requirements for Existing Passenger and Freight Elevators *(245/10) (173/02)*

3.8.1 Notwithstanding section 4 of the Regulation, every existing passenger and freight elevator that was installed before the 1st day of May, 1981 and that does not have car safeties, a speed governor, a braking system and hoistway-door interlocks or hoistway-door locks and contacts conforming to the requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition, shall conform to the applicable requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition. [CAD Amendment 246-11]

3.8.2 Not later than December 1, 2013, all elevators equipped with a car top that is intended to serve as a platform for a worker, "where the perpendicular distance between the edges of the car enclosure top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance and on sides where there is no hoistway enclosure", shall be equipped with a guardrail in conformance with 2.10.2 as modified by 2.14.1.7 of the code adopted in **3.1** [CAD Amendment 250-11]

3.8.3 All existing passenger and freight elevators with full or partial car tops shall be equipped with a car top maintenance station and a structurally sound working surface. [CAD Amendment 250-11]

3.9 Requirements for Existing Dumbwaiters or Freight Platform Lifts

3.9.1 Every existing power dumbwaiter or freight platform lift that was installed before the 1st day of May, 1981 and that does not have hoistway-door interlocks or hoistway-door locks and contacts shall be provided with a locking device that shall prevent the device from moving until the door or gate is closed and that shall prevent the door or gate from being opened unless the device is at the corresponding landing. [CAD Amendment 246-11]

3.10 Platform Apron Requirements *(166/01)*

3.10.1 Every passenger elevator installed before the 1st day of May, 1981 and currently operated in an apartment building, condominium apartment building or educational institution and every passenger elevator installed after that date in any building, shall be provided at the entrance side with a smooth apron made of metal not less than 1.5 millimetres thick, or made of material of equivalent strength and stiffness, reinforced and braced to the car platform such that:

(a) it does not extend less than the full width of the widest hoistway door opening;

(b) it has a straight vertical face, extending below the floor surface of the car-platform, of not less than 1,200 millimetres, except that for an existing elevator this may be reduced where the hoistway pit is not deep enough to accommodate a larger vertical face;

(c) its lower portion is bent back at an angle not less than 60 degrees and not more than 75 degrees from the horizontal; and

(d) it is securely braced and fastened in place to withstand a constant force of 500 newtons applied at right angles to and:

(1) at 450 millimetres from the top without deflecting more than six millimetres, or

(2) at 1,150 millimetres from the top without deflecting more than 50 millimetres,

and without permanent deformation.

3.10.2 Every passenger elevator referred to in subsection **3.10.1** shall have a pit deep enough to accommodate the apron required in subsection **3.10.1**, and to provide a minimum twenty-five millimetres clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers.

3.10.3 Traction drive Limited-Use/Limited-Application (LULA) elevators serving 3 or more floors shall conform to **3.10.1** and **3.10.2**, otherwise 2 stop traction, hydraulic or roped hydraulic drive Lulas' are exempt from these requirements provided that;

(a) a supplementary owners report for Lula elevators has been filed with the Director and;

(b) a permanent and readily visible sign viewable from the hall landing has been provided on the apron in lettering not less than 16mm in height, that advises;

(1) of a potential fall hazard below the car,

(2) to lower the car prior to rescue and,

(3) that lower and rescue shall be undertaken by trained personnel only. [CAD Amendment 246-11]

3.11 Door Safety Retainers for Single Slide Doors *(61/88, 97/92,109/93)*

3.11.1 Every existing passenger elevator with single slide landing doors shall be equipped with safety retainers and shall ensure that;

(a) the retainer shall withstand without detachment or permanent deformation, a force of 1000 Newtons applied upward at any point along the width of the door panel and, while this force is maintained, an additional force of 1000 Newtons applied perpendicular to the door at its centre over an area of 300 x 300mm

(b) the installation of retainers was done in accordance with instructions supplied by the manufacturer of the door safety retainers. [CAD Amendment 246-11]

3.12 Low Pressure Switch *(160/01)*

3.12.1 Every hydraulic elevator where the top of the cylinder when at its highest elevation is above the storage tank, shall be equipped with a low pressure switch to prevent operation of the lowering valve(s) and other requirements specified by the code at time of installation or alteration. [CAD Amendment 246-11]

3.13 Hoarding Between Hoistways Required

3.13.1 No elevator shall be operated where it is located adjacent to a hoistway of another elevating device in which installation or alteration work is being performed and where the operation of the elevator may be hazardous to the persons performing the work, unless the hoistways are separated from the bottom to a level a minimum of 2,000 millimetres above the point where the work is being performed by a separating structure so supported and braced that when subjected to a force of 450 newtons applied horizontally at any point the deflection does not exceed twenty-five millimetres.

3.13.2 Where the separating structure referred to in subsection **3.13.1** is made of perforated material, it shall reject a ball 50 millimetres in diameter.

3.14 Installation Number

3.14.1 Every elevator shall have its installation number engraved or painted on the car crosshead or other conspicuous location on the top of the car, visible from the point of access.

3.15 Attendant Operation

3.15.1 Where an elevator is controlled from one location only, an attendant shall be stationed at the controls while the elevator is available for operation.

3.16 Persons Permitted to Ride

3.16.1 Except for a freight elevator-P, no person other than an attendant(s) or freight handler(s) shall ride or be permitted to ride in a freight elevator.

3.16.2 No person other than an attendant(s) or a designated freight handler(s) shall ride or be permitted to ride in a freight platform lift-Type B or a material lift Type-B. [CAD Amendment 246-11]

3.16.3 No person shall ride or be permitted to ride on a freight platform lift-Type A or a material lift Type-A. [CAD Amendment 246-11]

3.16.4 Despite **3.16.1** and **3.16.2**, a person(s) may remain inside a motor vehicle that is on an elevating device if the device is designated as a Class B- motor vehicle loading, and the device is operated by a trained attendant or operator. [CAD Amendment 246-11]

3.17 Escalator Caution Signs

3.17.1 Every escalator installed prior to March 23, 2002 shall be fitted with a caution sign that meets the requirements of clause 8.10 of CSA B44-94; Safety Code for Elevators, as amended by Supplements B44S1-97 and B44S2-98. [CAD Amendment 246-11]

3.18 Repositioning of an Escalator

3.18.1 Despite subsection **2.5** of this Document repositioning of an escalator within the same building or premises shall not constitute a new installation.

3.19 Escalator Brake Setting Data *(85/91)*

3.19.1 Escalators installed under B44-M90 or later editions of the code shall have a data tag as required by the code at the time of the installation. Escalators installed under a prior code edition shall have a data tag in conformance with **3.191.2**.

3.19.2 Every escalator shall have a permanent and readily visible data plate affixed to the brake or machine, indicating:

(a) the method of checking the brake setting and as a minimum shall include:

(1) the minimum torque, or

(2) the maximum spring length, or

(3) other checking method; and

(b) the maximum no-load stopping distance as related to the torque, spring length, or other method, and;

(c) the testing procedure and interval. [CAD Amendment 246-11]

3.20 Fire Code Retrofits *(60/88, 105/93, 127/96, 149/99, 219/07)*

3.20.1 Where an alteration is in response to a Fire Code Retrofit order, **all** elevators in the group, affected by the retrofit order shall be provided with:

(a) manual phase one recall operation

(b) automatic phase one recall operation if required by the Ontario Building Code at time of installation.

(c) phase two in-car operation

(d) Firefighter's Emergency Operation conforming to any code edition after and including CAN/CSA – B44-00 Update No. 2 Safety Code for Elevators, but in no case shall the code edition be less than the code under which the device was originally installed.

(e) FEO-K1 keys for all FEO switches.

(f) An FEO-K1 key for each switch location. [CAD Amendment 250-11]

D. Explanatory Notes:

d.1 This code adoption document (CAD) amendment is primarily used to adopt the ASME A17.1-2010/CSA B44-10 Safety Code for Elevators and Escalators.

d.2 Reference Symbols Used in this CAD, have the following meaning,

7.5	is a reference to a section in the CAD
7.2.4.	is a reference to a section in an external document or code
(197/06)	is a reference to a predecessor document related to this CAD requirement

d.3 **Implementation timelines:**

d.3.1 Design submissions received on or after May 1, 2012 shall conform to the requirements of CAD Amendment 250/11.
d.3.2 A maintenance control program shall be implemented not later than May 1, 2013.
d.3.3 Mitigation of failures related to single bottom cylinders shall occur not later than May 1, 2015.
d.3.4 Escalator skirt panels shall conform to the skirt step performance index not later than May 1, 2015.

d.4 **Notable Code & CAD changes:**

d.4.1 The CAD introduces a definition and requirements for “dedicated function fire alarms”
d.4.2 The maintenance of elevating devices will require the establishment and implementation of a Maintenance Control Program (MCP) which differs in requirements from current maintenance requirements.
d.4.3 The CAD introduces an annual requirement to verify elevator brakes.
d.4.4 Single bottom cylinders and escalator skirt panels will require upgrading.
d.4.5 Machine guarding submissions will require additional documentation and will be deemed a Minor A
d.4.6 Interior glazing and mirrors shall conform to the code requirements of 2.14
d.4.7 Requirements for roof top walkways and railings on all sides exposed to a fall hazard are clarified
d.4.8 Log books will require alignment with MCP’s, once MCP’s are implemented
d.4.9 Category 5 testing introduces requirements for testing with rated load
d.4.10 All cars shall be weighed prior to any cab alteration or other alteration impacting car weight.
d.4.11 All newly undertaken fire code retrofits must meet the latest specified CAD requirements
d.4.12 Where hazards exist, car top railings are required on existing elevators not later than December 1, 2013
d.4.13 Car top areas have new requirements for clearance, refuge space, guarding, strength of guards, markings
d.4.14 New requirements to monitor communication / telephone lines on a daily basis
d.4.15 Annual testing of the FEO system (effective now) are restated in code requirement 8.6.11
d.4.16 Recognition of alterative testing methods
d.4.17 An MCP must include a record of trouble calls and availability of the record by elevator personnel
d.4.18 Enforcement of code required ACO/UCM protection in all operating modes
d.4.19 MCP’s shall include an onsite emergency evacuation procedure

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Roland Hadaller, P.Eng.,
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*.

This Code Adoption Document amendment has been developed in consultation with the Elevating Devices Advisory Council, the Field Advisory Committee, and various industry stakeholders.

Elevating and Amusement Devices Safety Division	Ref. No.: 251 / 11	Rev. No.:
GUIDELINE	Date: February 13, 2012	Date:

Subject: Alterations Guideline and Alteration Checklist for A17.1-2010 / CSA B44-10 Safety Code for Elevators and Escalators as amended by 250/11

Sent to: All Elevator Contractors

1. Effective Date

1.1 This Directors Guideline becomes effective May 1, 2012 and is to be used in conjunction with alterations performed under the 2010 edition of A17.1/B44, as adopted in Code Adoption Document (CAD) Amendment 250/11.

2. Introduction

2.1 The purpose of this Director's Guideline, in conjunction with Code Adoption Document (CAD) Amendment 250/11, is to;

(a) advise which types of upgrades are classified as alterations
(b) indicate the format of the design submission required (see O.Reg 209/01 s.15), by categorizing the scope of work as "major" , "minor A" or "minor B"
(c) provide instruction on the use and submittal of the alteration checklist,
(d) provide a summarized list of requirements associated with a given alteration scope via a checklist
(e) supplement the adoption of section **8.7 Alterations** in A17.1/B44 as detailed in Section 3.4 of the CAD.

3. Alterations

3.1 Work performed on an elevating device other than worked performed as maintenance, repair, or replacement is an alteration. Part 8, Section 8.6 of B44-10 as amended in CAD 250/11 deals with "Maintenance, Repairs, Replacements and Testing", while Section 8.7 as amended in CAD 205/11 deals with "Alterations".

3.2 This guideline captures the Alteration requirements of Section 8.7 (as amended in CAD 205/11) and displays these requirements in a checklist format (see figure 2).

3.3 Type of Alteration Work

Columns 3 to 6 of the Alteration Checklist (see figure 2 for sample) classify the type of work as one of the following types:

(a) **Alteration: Modification / Change** (column 3)
means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment.
Note that a change of the component make or model, without any other change, may constitute an alteration under requirements of CAD 250/11 (see item (d) below).

(b) **Alteration: Addition** (column 4)
means addition of a new component or a design feature, not previously provided e.g. addition of top-of-car operating devices.

(c) **Replacement with same** (column 5)

means the substituted device, assembly or component is the same as the original, and either;

(i) requirements within B44 Section 8.6.3 as amended by CAD 250/11 classify the specific replacement as an alteration and require that the substituted component and/or the elevating device as a whole meet the specific requirements of the latest Code edition, or

(ii) sections 8.6 of B44 as amended by CAD 250/11 recognizes the replacement of the noted item as an alteration, and requires an appropriate submission

(d) **Replacement with different make and model** (column 6)
means that the substituted device, assembly or component is the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model and the B44 code as amended by CAD 250/11 recognizes the replacement of the noted item as an alteration, and requires an appropriate submission.

Note: In addition to the work described in 3.3 and listed in the Alteration Checklist, any other work performed on an elevating device that results in a change to the inherent safety or operational characteristics ***constitutes an alteration*** *per 2.6.2 of the CAD, even though there may be no change in the original design. The list of alterations in the attached Alteration Checklist is not all-inclusive.*

4. Type of Design Submission

4.1 Columns 3, 4, 5, and 6 of the alteration checklist contain information needed to determine the type of submission required.

4.2 By selecting the alteration scope (see column 1 of the Alteration checklist, see also B44 Section 8.7 as amended by CAD 250/11), the submission type is identified in columns 3, 4, 5, & 6. These entries are may be listed as one of the following:

Major	-	means Major alteration
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
Blanks (columns5&6)	-	work that would not constitute an alteration
mrr	-	this work may proceed as a maintenance repair and replacement activity, and no submission is required
n/a	-	means TSSA has permitted an exception to a compliance requirement (for the noted alteration scope) however, if another alteration activity requires compliance, the n/a exemption no longer applies
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
variance	-	this activity can only be considered after approval of a variance

Note: The checklist also utilizes a star symbol (★). This symbol is used to identify TSSA designated alterations or to identify a supplemental TSSA requirement.

5. Requirements for Design Submissions and Inspections

5.1 A design submission or notification (in the case of a Minor B) must clearly specify, for each alteration covered, whether the type of the alteration work is a "modification", or "addition", or “replacement".

5.2 Where multiple alterations scopes are undertaken, the “highest ranking” submission shall define the submission type.
Example: An alteration combination of Minor B and Major will be designated as a Major alteration.

5.2.1 Major Alteration:

5.2.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

5.2.1.2 The alteration shall be inspected by TSSA prior to returning the device to service for public use.

5.2.2 Minor Alteration type A and B:

5.2.1.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 30 days after returning the elevating device to service. Contractors are advised to submit alteration documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

Minor A and B alterations are permitted to be returned to service after work completion, however, the contractor who completed the alteration shall ensure that a "special inspection" has been requested within 60 days after returning the elevator to service. The contractor shall arrange and conduct any tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.

5.3 Signatures

5.3.1 According to subsection 15.(6) of O.Reg 209/01, all individual documents composing the design submission for any Major or Minor A alteration shall bear the **signature and seal, or electronic equivalent, of the professional engineer** who prepared or approved the design submission.

5.3.2 In the case of Minor B alterations, per O.Reg 15.(9), the design submission documents (or Notification) may be signed by an officer or director of the company applying for registration if the officer or director is a mechanic or if the document is signed by a mechanic with an appropriate certificate who either performed or supervised the work to which the design submission relates.

5.3.3 Minor B's that are electronically transmitted shall be deemed acceptable provided that the signature box of the Minor B Notification form contains the name, designation and mechanic license number of a registered and licensed mechanic who supervised and is competent to oversee the scope of the minor B alteration.
Example: Signature: John Smith, EDM-A, 00999999

5.4 Specification Forms

5.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries that are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as: rope factor of safety (for electric & roped hydraulic elevators) or cylinder column strength (for hydraulic elevators)
- Sufficient details are to be provided to show compliance verification.

A list of altered components must also be summarized on the submission (typically box 4000).

5.4.2 Items which are not affected by the alterations should be noted with either:

- **N/C** or **No Change** or
- The **Original Entry** followed by **Existing.** Example Car Wt.: **1812 kg - Existing**

5.4.3 Where a "major alteration" or "minor alteration" affects only a very few items, the abridged form may be used instead of the full specification form provided clarity of the submission is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry values.
(Example: 1670. Maximum System Pressure: 3445 kPa)

5.4.4 Some predefined templates exist for Minor B type alterations and are available from the TSSA web site. These templates shall be utilized where appropriate to ensure all relevant entries are completed and included in the submission. Multiple Minor B notification templates may be utilized to fully cover the scope of work and only one Minor B fee shall apply.

5.5 Submitting an Alteration Checklist

5.5.1 The design submission for a Major or Minor A alteration must include an Alteration Checklist to assist in demonstrating compliance with Section 8.7 of the code as amended by CAD 250/11 or any other items listed in Column 1 of the Checklist and must clearly specify the following:

(a) The scope of the alteration shall be identified with an 'X' in column 0 adjacent to each column 1 item that is part of the primary scope of the alteration

(b) All relevant sub requirements identified in column 2b shall be identified with an 'x' placed in column 0 to signify the sub requirement was has been given engineering consideration and/or modified. Optional: If desired items which where given engineering consideration but not changed, or deemed not applicable to a given installation may be marked with 'r' to indicate reviewed.

5.5.2 An Alteration Checklist is not required for Minor B Notifications.

5.5.3 Sections of the Alteration Checklist, which are not included in the scope of the alteration work, may be hidden (using the row-hide feature in excel) prior to printing the Checklist, in order to reduce the number of printed pages accompanying a submission.

5.5.4 To assist our clients in completing the Alteration Checklist, TSSA will post on its Website (www.tssa.org) a fillable version of the Alteration Checklist in excel format (ED-251-11.xls).

5.5.5 The **B44-10 reference numbers,** shown in column 1 and which are marked with 'X' in the Alterations Checklist, (also shown in **BOLD** font), are **those items that are required to be shown on the Code Data Plate** as per section 8.9 of B44.

5.5.6 The attached Alteration Checklist forms part of this guideline.

6 Alteration Checklist

6.1 The Alteration Checklist provides useful information to: contractors, submitting engineers, reviewing engineers and inspectors to assist in determining:

- the scope of the alteration,
- requirements associated with specified scope
- exemptions to a requirement (where n/a is shown)
- additional TSSA requirements (where ★ is shown)
- type of submission required (Major, Minor A or B)

(See Fig 1)

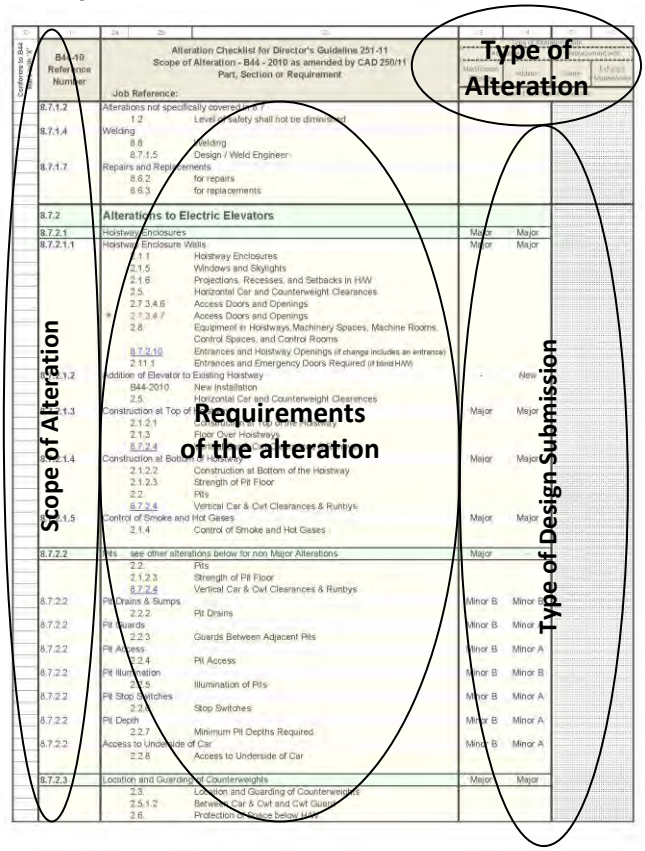

Fig. 1

6.2 Parts of the Checklist (See Fig 2)

6.2.1 Column 0:
Submitter's shall mark Column 0 with 'X' to identify the scope and applicable sub-requirements that received engineering consideration.

- Sub-requirements related to the alteration are mandatory and shall be identified with an 'x', except where the sub requirement is unrelated to the device being altered. (see Fig.2 Note E)

6.2.2 Column 1:
Column 1 contains the Alteration section numbers from B44 as amended by CAD 250/11, as well as specifically noted TSSA alterations.

TSSA alterations are denoted as follows;

- o 8.7.2.12★1 ★1 denotes the first TSSA designated alteration under section 8.7.2.12
- o 8.7.2.12★2 ★2 denotes the second TSSA designated alteration under section 8.7.2.12

6.2.3 Column 2a, 2b and 2c:
Column 2 describes the scope and applicable alteration sub requirements.

- Column 2a is the primary title of the alteration activity (e.g. interlocks)
- Column 2b is the list of sub requirements by reference number (e.g. 2.12.1, 2.12.2…)

- Column 2c is a text description of the referenced sub requirement. (e.g. General, Interlocks,…)

6.2.4 Column 3, 4, 5 and 6:

The headings of Columns 3 to 6 define the "Type of Alteration Work" as Modification Change, Addition, Replacement with Same, and Replacement with Different. See 3.3 of this guideline.

The contents of Columns 3 to 6 define the "Type of Design Submission" as, Major Alteration, Minor A Alteration, or Minor B – Notification. See 4 of this guideline.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2	**Alterations to Electric Elevators**						D
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
X	8.7.2.11.1	Interlocks		A	-	Major	mrr	Minor B
x			2.12.1	General				
x			2.12.2	Interlocks				C
x			2.12.4	Listing/Certification Locking Devices				
			2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
x	B		2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)		D	n/a	
x			2.12.7	Hoistway Access Switches (n/a for column 5,6)			n/a	
x								
X	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
x			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
x			8.7.2.10.2	Horizontal Slide-Type Entrances				
	E		8.7.2.10.3	Vertical Slide-Type Entrances				
x			8.7.2.10.5	Marking of Entrance Assemblies				
x		★	2.13.	Power Operation of Hoistway Doors and Car Doors (F)				
X	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
x	G		2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-	Major	
			2.15.	Car Frames & Platforms				
X	8.7.2.15★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
x			8.7.2.15★1(a)	cars weighed prior to alteration				
x	G		8.7.2.15★1(b)	In/Out weights recorded or cars weighed after alteration				
x			8.7.2.15★1(c)	weight change recorded on auxilliary data tag				
x			8.7.2.15★1(e)	testing prior to operation to ensure security of interior finishes				

Fig 2 – Sample Alteration Checklist

Figure 2 Notes:
A – indicates 8.7.2.11.1 Interlocks is part of the alteration scope
B – indicates which sub-requirements have been included (note: 2.12.5 was excluded as permitted by exemption note C)
C – n/a denotes that TSSA has made this requirement optional (note: contractor opted to include requirement 2.12.6 & 7)
D – specifies the submission type
– In the Interlock example a Minor B alteration is required to be submitted
– In the Power Operation of H/W Doors example a Minor A is required (entire submission is a therefore a Minor A)
E – this sub-requirement, related to vertical slide entrances, was not selected as it is not applicable to the installation
F – compliance to 2.13 is a TSSA-designated supplemental requirement as denoted by the ★symbol
G – shows two TSSA-designated alterations, one denoted as 8.7.2.12★1, the other 8.7.2.15★1.

Roland Hadaller, P.Eng.

Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards & Safety Act, 2000*

This Director's Guideline has been developed in consultation with the TSSA Elevating Devices Advisory Council.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.1.2	Alterations not specifically covered in 8.7						
			1.2	Level of safety shall not be diminished				
	8.7.1.4	Welding						
			8.8	Welding				
			8.7.1.5	Design / Weld Engineer				
	8.7.1.7	Repairs and Replacements						
			8.6.2	for repairs				
			8.6.3	for replacements				
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.6	Access Doors and Openings				
		★	2.7.3.4.7	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			B44-2010	New Installation				
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.2.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			2.6.	Protection of Space below H/W				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
		2.4.		Vertical Clearances & Runbys for Cars & Cwts				
		8.7.2.17.1		Increase or Decrease in Rise				
		8.7.2.17.2		Increase in Rated Speed				
		8.7.2.25.2		Change in Location of Driving Machine				
	8.7.2.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.		Horizontal Car and Counterweight Clearances				
		8.7.2.17.2		Increase in Rated Speed				
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major		
		2.6.		Protection of Space below H/W				
	8.7.2.7	Machinery Spaces, Machine Rooms Control Spaces and Control Rooms			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	Minor A	-		
		OESC		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1		General Requirements				
		2.7.3.2		Access Across Roofs				
		2.7.3.3		Means of Access				
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4		Access Doors and Openings				
		2.7.3.5		Stop Switch for Machinery Space or Control Spaces				
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4		Headroom in Machine Rooms/Spaces, Control Room/Spaces				
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2		Temperature & Humidity				
	CAD 8.7.2.7★1	Addition of Elevator Equipment Guarding			Minor A		mrr	mrr
		2.7.2		Maintenance Path and Clearance				
		2.7.3.4.2		Size of doors and openings in cage style enclosures (750x2030)				
		2.10.1		Guarding of Equipment openable/removable only with tools operating/work instruction for accessing equipment clearances in front of electrical control equipment (1000mm) access in front of / space to operate main disconnect (750mm) Installation by registered contractor				
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.		Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) OESC, CSA C22.1 as required				
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				
		Building reactions increased by more than 5%						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-	Major	Major
		2.11.	Protection of H/W Openings					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.11.6	Opening of Hoistway Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
		2.11.1	Entrances and Emergency Doors Required					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
		2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.11	Entrances, Horizontal Slide Type					
		Installed New components to meet:						
sills (a)		2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.11.1	Landing Sills					
		2.11.11.6	Bottom Guides					
hanger /track (b)		2.11.11.2	Hanger Tracks, and Track Supports		Minor B		Minor B	
frame (c)		2.11.11.3	Entrance Frames		Minor A		Minor A	
		2.11.11.5.1	Panel Overlap					
		2.11.11.5.2	Panel Gaps Clearances					
		2.11.11.5.3	Pockets in Strike Jamb					
		8.7.2.10.5	Marking of Entrance Assemblies					
hangers (d)		2.11.11.4	Hangers		Minor B		Minor B	
panels (e)		2.11.11.5(*)	Panels		Minor A		Minor A	
		2.11.11.6	Bottom Guides					
		2.11.11.7	Multipanel Entrances					
		8.7.2.10.5	Marking of Entrance Assemblies					
retainers (f)		2.11.11.8	Hoistway Door Safety Retainers		Minor B		Minor B	

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.12	Entrances, Vertical Slide Type					
		Installed New components to meet:						
	sills (a)	2.11.10.3	Hinged Hoistway Landing Sills		Minor B		Minor B	
		2.11.12.1	Landing Sills					
	frames (b)	2.11.12.2	Entrances Frames		Minor B		Minor B	
		8.7.2.10.5	Marking of Entrance Assemblies					
	rails (c)	2.11.12.3	Rails		mrr		mrr	
	panels (d)	2.11.12.3	Rails		Minor A		Minor A	
		2.11.12.4	Panels					
		2.11.12.5	Guides					
		2.11.12.6	Counterweighting or Counterbalancing					
		2.11.12.8	Pull Straps					
		8.7.2.10.5	Marking of Entrance Assemblies					
	guides (e)	2.11.12.5	Guides					
	sill guard (f)	2.11.12.7	Sill Guards		mrr		mrr	
	straps (g)	2.11.12.8	Pull Straps					
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.13	Entrances, Swing Type					
		Installed New components to meet:						
	sills (a)	2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.10.3	Hinged Hoistway Landing Sills					
		2.11.13.1	Landing Sills					
	frames (b)	2.11.13.2	Entrance Frames		Minor B		Minor B	
		2.11.13.4	Hinges					
		8.7.2.10.5	Marking of Entrance Assemblies					
	panels (c)	2.11.13.3	Panels		Minor B		Minor B	
		2.11.13.4	Hinges					
		2.11.13.5	Marking					
		8.7.2.10.5	Marking of Entrance Assemblies					
	hinges (d)	2.11.13.4	Hinges		mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
			Fire Protection Rating not less then existing entrance					
		8.7.2.10.5(a)	NBCC requirements					
	CAD 8.7.2.10★1	★ Removing Service To a Floor			Minor B			
			Bolt entrances shut					
			Remove Interlock From Safety String					
			Remove COP Floor Button					
		2.11.6.2	Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II					
		2.12.7	H/W Access Switches - if floor was previously the access location					
	CAD 8.7.2.10★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8	Hoistway Door Safety Retainers					
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1	General					
		2.12.2	Interlocks					
		2.12.4	Listing/Certification Locking Devices					
		2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)				n/a	
		2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)				n/a	
		2.12.7	Hoistway Access Switches (n/a for column 5,6)				n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1	General					
		2.12.3	H/W Door Combination Mechanical Locks & Contacts					
		2.12.4	Listing/Certification Locking Devices					
		2.12.6	Hoistway Door Unlocking Devices					
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3	requirements specified					

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					Type of Submission Required			
	8.7.2.11.4	Access Switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.26.1.4	Inspection Operation				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates			see	
			2.13.5	Reopening Device for Power Operated Car Doors or Gates			8.6.3.8	
				if FEO provided, door opening & closing to PHI &II at time of install				
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination				⇩ See Below ⇩		
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass			mrr	
			2.14.1.8.3	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
	CAD 8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				

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					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
			2.14.4	Passenger and Freight Car Doors/Gates, General Requirements				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials						
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing - see CAD 8.7.2.14★4		Minor A		
				2.14.7.1.3 auxiliary lighting		Minor B		
				2.14.7.1.4 car top light & outlet		Minor B		
		★		CAD 8.7.2.15★1		Minor B		Minor B
				or				
		★		CAD 8.7.2.15★2		Minor A		Minor A
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD	8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)				
			or					
		CAD	8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)				
				car top run buttons not enabled until extended				
				normal operation not enabled until stowed				
				electrical limits to ensure car top clearance in overhead				
				minor A submission template				
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-		Major
			2.15.	Car Frames & Platforms				
	CAD 8.7.2.15★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD	8.7.2.15★1(a)	cars weighed prior to alteration				
		CAD	8.7.2.15★1(b)	In/Out weights recorded or cars weighed after alteration				
		CAD	8.7.2.15★1(c)	weight change recorded on auxilliary data tag				
		CAD	8.7.2.15★1(e)	testing prior to operation to ensure security of interior finishes				
	CAD 8.7.2.15★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD	8.7.2.15★1					
				engineering assessment of related items affected by weight change				
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-		
			2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			2.15.9	Platform Guards (Aprons)				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.(*)	Driving Machines & Sheaves				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
		CAD	8.7.2.15★1(a) to (e)					

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					Type of Submission Required			
	8.7.2.16	Capacity, Loading, and Classification			Major	-		
	8.7.2.16.1	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.22 (*)	Buffers & Bumpers				
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	car top guard rail to CAD 8.7.2.14★4				
			2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			2.16.	Capacity & Loading				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.24.(*)	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.	Operating Devices and Control Equipment				
			2.27.	Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	8.7.2.16.2	Change in Class of Loading: [from any class to any other class ie A, B, C1, C2, C3]			Major	-		
			2.16.2	Minimum Rated Load for Freight Elevators				
			8.7.2.16.4	Increase in Rated Load				
	8.7.2.16.3	Carrying of Passengers on Freight Elevators			Major	-		
			2.16.4	Carrying of Passengers on Freight Elevators				
			2.16.4.1	not accessible to general public				
			2.16.4.2	rated load not less than required by 2.16.1				
			2.16.4.3	conforms to 2.16.8 Passenger Overload in Down Direction				
			2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)				
			2.16.4.5	car doors to 2.14.5 Passenger Car Doors				
			2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings				
			2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door				
			2.16.4.8	Fs for suspension ropes to Table 2.20.3				
			2.16.4.9	Power Operated vertical doors to 2.13.3.4				
			★	apron guard to ED CAD or extent pit permits				
			★	2.16.5 Signs Required in Freight Elevator Cars				

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					Type of Submission Required			
	8.7.2.16.4	Increase in Rated Load			Major	-		
				Car doors or gates shall be provided at all car entrances				
				New Car doors and gates to: 2.14.4, 2.14.5, 2.14.6				
			2.14.4	Passenger & Frt Car Doors & Gates, General Req'mts				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
			2.15.(*)	Car Frames & Platforms- ★apron guard to ED CAD/as pit permits				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.	Driving Machines & Sheaves				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
	8.7.2.17	Change in Rise or Rated Speed			Major	-		
	8.7.2.17.1	Increase or Decrease in Rise			Major	-		
			2.25.	Terminal Stopping Devices				
				retain drum m/c, travel increase < 4570mm				
			2.4.(*)	Vertical Clearances & Runbys for Cars & Cwts				
				If decrease in rise is at lowest end then;				
				2.2.4 Access to Pits				
				2.2.5 Illumination of Pits				
				2.2.6 Stop Switches				
	8.7.2.17.2	Increase in Rated Speed			Major	-		
	8.7.2.17.2(a)	Increase in Rated Speed on a Winding Drum machine			Major	-		
				Increase in Rated Speed of a winding drum m/c prohibited				
			8.7.2.17.2(c)	except as permitted 8.7.2.17.2(c)				
	8.7.2.17.2(b)	Increase in Rated Speed except as per 8.7.2.17.2(c)			Major	-		
			2.4.2	Minimum Bottom Runby for Counterweighted Elevators				
			2.4.3	Minimum Bottom Runby for Uncounterweighted Elevators				
			2.4.4	Maximum Bottom Runby				
			2.4.5	Counterweight Runby Data Plate				
			2.4.6	Maximum Upward Movement of the Car				
			2.4.7	Top of Car Clearances				
			2.4.8	Top of Counterweight Clearances				
			2.4.9	Equipment on Top of Car Not Permitted to Strike O/H				
			2.5.	Horizontal Car and Counterweight Clearances				
				Car doors or gates shall be provided at all car entrances				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.4.2	Comp Rope Tie Down (if speed > 3.5 m/s)				
			2.22.(*)	Buffers & Bumpers				
			2.24.	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
	8.7.2.17.2(c)	Increase in Rated Speed less than 10% & less than 0.20m/s			Major	-		
				new spd <.75 for type A safeties				
				new spd <1 w/spring buffer, 2.18.2.1&.2				
			2.18.2.1	Car speed governors				
			2.18.2.2	counterweight speed governors				
			8.7.2.27.3	Change in Power Supply				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.17.3	Decrease in Rated Speed			Major	-		
			2.4.	Vertical Clearances & Runbys for Cars & Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			2.16.	Capacity & Loading				
			2.16.3(*)	Capacity and Data Plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
	8.7.2.18	Car and Counterweight Safeties			Major	Major	⇩See Below ⇩	
	8.7.2.18.1	New Car Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.2	New Cwt Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Car Safeties				-	mrr	Minor A
			2.17.(*)	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Cwt Safeties			Major	-	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19		2.18.	Speed Governors			mrr see 8.6.3.6	Minor A
	8.7.2.19		2.17.15	Governor Rope Releasing Carriers			mrr see 8.6.3.9	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					-	Minor B
				2.18.6 Design Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
			& testing to	2.17.3 Function and Stopping Distances of Safeties				
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection (ACO & UCM)			Minor A	Major	mrr	Minor A
			2.19.	Ascending Car Overspd & Unintended Car Movement Protection				
	CAD 8.7.2.20★1	★	If Elevators Controllers are pre-B44-00 & have ACO & UCM		Minor A	-	mrr	Minor A
			2.19.	ACO & UCM Protection, Except that; detection means to B44-M90 or the code at time of install				
			8.9.	Code Data tag to reflect code at time of install				
	CAD 8.7.2.20★2	★	If Elevators Controllers are pre-B44-00 & have ACO ONLY		Minor A	-	mrr	Minor A
			2.19.1	ACO Protection Only, Except that;				
			2.19.3	Emergency Brake and detection means to B44-M90 or the code at time of install				
			2.19.4	Emergency Brake Supports				
			8.9.	Code Data tag to reflect code at time of install				
	CAD 8.7.2.20★3	★	Voluntary Addition of Both ACO and UCM where previously not provided			Minor A		
			2.19.	ACO & UCM Protection Except that; detection means to B44-M90 code or later				
			2.7.	Machinery Spaces, Machine Rooms Control Spaces & Control Rooms as applicable to the equipment installation				
			8.9.	Code Data tag to reflect code edition used for the alteration				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.21	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.2.21.1	Change in Number of, or Diameter of Ropes			Major	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify existing sheaves w/different ropes are satisfactory					
	8.7.2.21.1	Change in Material / Grade of Ropes			Minor A	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify existing sheaves w/different ropes are satisfactory					
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B	See 8.6.3.2	
		2.20.5	Suspension Rope Equalizers					
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices			Major	Major		
		2.20.	Suspension Ropes & Connections					
	8.7.2.21.4 (a)	Change in Type of Suspension Means			Major	Major		
		2.20.8.1	Protection Against Traction Loss					
		2.20.8.2	Broken Suspension Member					
		2.20.8.3	Suspension-Member Residual Strength					
		2.20.11	Suspension-Member Test					
	8.7.2.21.4 (b)	Traction Loss Detection			Minor A	Minor A		
		2.20.8.1	Protection Against Traction Loss					
	8.7.2.21.4 (c)	Broken Suspension Means Detection			Minor A	Minor A		
		2.20.8.2	Broken Suspension Member					
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.2.23	Car and Counterweight Buffers and Bumpers			Major	-	mrr	Minor B
		2.22.(*)	Buffers & Bumpers					
	8.7.2.24	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
	8.7.2.25	Driving Machines and Sheaves			⇩ See Below ⇩			
	8.7.2.25.1	Alter / Replace	Driving Machines & Sheaves		Major	Major	Major	
	8.7.2.25.1(a)		Driving Machine Installed as part of an alteration		Major	-		
		2.7.2	Maintenance Path and Clearance to extent existing installation permits					
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		2.10.1	Guarding of Equipment					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		8.7.2.20	ACO & UCM Protection					
	CAD	8.7.2.20★1	Pre B44-00 ACO & UCM Protection					
	CAD	8.7.2.20★2	Pre B44-00 ACO Only Protection					
	CAD	8.7.2.20★3	Addition ACO/UCM if not required by other alteration scope					
		2.20.	Suspension Ropes & Connections					
		2.24.	Driving Machines & Sheaves					
		2.26.8	Release and Application of Driving-Machine Brakes					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.25.1(b)	Alter / Replace		Driving Machine Components - affected component complies w/	Major			
			2.24.2	Sheaves and Drums			mrr	Major
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.24.5	Shafts Fillets and Keys				
			2.24.6	Cast-Iron Worms and Worm Gears				
			2.24.7	Friction Gearing and Clutches				
			2.24.8	Braking Systems & Driving Machine Brakes			mrr	Major
			2.24.9	Indirect-Driving Machines				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.1(c)	Change of		Driving Machine Sheave	Major	-	mrr	Major
			2.24.2	Sheaves and Drums				
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.20.	Suspension Ropes & Connections				
	8.7.2.25.2	Change in Location of Driving Machine			Major	-		
	8.7.2.25.2(a)	Change in Location of Driving Machine w/ no change in Rise			Major	-		
			2.7.2	Maintenance Path and Clearance				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.24.2.3	Traction				
	8.7.2.25.2(b)	Change in Location of Driving Machine w/ change in Rise			Major	-		
			Part 2 (*)	Electric Elevators (entire installation to meet Part 2), except 2.5 Horizontal Car and Counterweight Clearances 2.11 Protection of Hoistway Openings 2.4 Vertical Clearances and Runbys for Cars & Cwts				
			8.7.2.5	see also				
			8.7.2.10	see also				
	CAD 8.7.2.25★1	★ Replacement of worm and/or gear (specify make)			-	-	mrr	Minor A
			2.24	specify compliance to the applicable requirements				
		Addition of Machine Guarding - see CAD 8.7.2.7★1						
	8.7.2.26	Terminal-Stopping Devices			Minor B	Minor B		
			2.25.	Terminal Stopping Devices				
	8.7.2.27	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.2.27.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
			2.26.1.4	Inspection Operation				
	CAD 8.7.2.27★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
			2.26.1.4	Inspection Operation				
	CAD 8.7.2.27★2	★ Addition of Top-of-Car Operating Device (see CAD 3.8.3)			-	Minor A		
			2.26.1.4	Inspection Operation				
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			2.26.1.6	Operation in Leveling or Truck Zone				
	CAD 8.7.2.27★3	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	System to Prevent Auto Operation w/faulty Door Contacts				
	CAD 8.7.2.27★4	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.3	Change in Power Supply (a) voltage, frequency or # of phases or (b) AC to DC , DC to AC or (c) combination of DC & AC, then			Major	-		
		electrical to:						
			2.26.1.1	Types of Operation				
			2.26.1.2	For Car-Switch Operation Elevators				
			2.26.1.3	Add'l Operating Devices for Elevators carrying 1pc. load > than Rated				
			2.26.1.4	Inspection Operation				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.9	Control & Operating Circuits				
			2.26.10	Absorption of Regenerated Power				
		new / modified equipment and wiring to:						
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
		brakes to:						
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.8	Release and Application of Driving-Machine Brakes				
		winding drum to:						
			2.25.3.5	Additional Req'mts for Winding Drum Machines				
				see 8.7.2.17.2(b) Increase in Rated Speed				
	8.7.2.27.4	Controllers						
	8.7.2.27.4(a)	Install / Replace		Motion or Operation Controller (no change in method)	Major	-		Major
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.3	Contactor and Relays for Use in Critical Operating Circuits				
			2.26.4	Electrical Equipment and Wiring				
			2.26.5	System to Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.26.11	Car Platform to Hoistway Door Sills Vertical Distance				
				levelling accuracy to 13mm (0.5 in.)				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
			2.27.2	Emergency or Standby Power systems				
		If FEO previously present or required by OBC;						
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
			2.27.4	FEO: Non Automatic Elevators				
			2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph				
		If FEO NOT previously present or required by OBC;						
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.27★5	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing to verify functionality of rewired equipment				
	8.7.2.27.4(b)	Installation of		Door Controller	Minor A	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.4(c)	Installation of		Controller for Emergency or Standby Power	Minor A	Minor A	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.4(c)	Installation of		Controller for FEO Operation	Minor A	Minor A	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR			Major	-		
			2.11.1(*)	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6(*)	Opening of Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.11.8(*)	Hoistway Door Safety Retainers				
			2.11.12.8	Pull Straps				
			2.12.(*)	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
				2.12.5 Restricted Opening of Hoistway or Car Doors				
				2.12.6 Hoistway Door Unlocking Devices				
				2.12.7 Hoistway Access Switches				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
			2.16.8(*)	Capacity & Loading				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			8.7.2.20	ACO & UCM Protection				
		CAD	8.7.2.20★1	Pre B44-00 ACO & UCM Protection				
		CAD	8.7.2.20★2	Pre B44-00 ACO Only Protection				
		CAD	8.7.2.20★3	Addition ACO/UCM if not required by other alteration scope				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
				If FEO previously present or required by OBC;				
			2.27.	Emergency Operation and Signalling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 Firefighters' Emergency Operation: Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
				2.27.4 FEO: Non Automatic Elevators				
				2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
			2.27.	Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.2.27★6	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.13.5.3	- door time out				
			2.27.3.1.6(I)	- shall not prevent PHI				
	CAD 8.7.2.27★7	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access when on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
	8.7.2.27.7	Removal of emergency stop switch on passenger elevators			Minor B	-		
		remove all related markings / engravings & provide an in-car stop switch to:						
			2.26.2.21	In-car stop switch				
		★	2.26.4.3	Positively Opened Contacts				
		★	2.26.9.3	Single failure does not render In-Car Stop Sw ineffective				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.8	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A		
			2.27.3	FEO: Automatic Elevators				
			2.27.4	FEO: Non-Automatic Elevators				
			2.27.5	FEO: Automatic Elevators w/Attendant				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
	8.7.2.28	Addition of Elevator to a Group - all elevators to meet:			-	Minor A		
			2.27.	Emergency Operation & Signaling Devices 2.27.1 Car Emergency Signalling Devices 2.27.2 Emergency or Standby Power Systems 2.27.3 FEO: Automatic Elevators CAD 2.27.3.2.2 2.27.4 FEO: Non-Automatic Elevators 2.27.5 FEO: Automatic Elevators w/Attendant 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys 2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.2.28★1	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install conformance to auto recall based on F.S. at time of install			Minor B			
	CAD 8.7.2.28★2	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order			Minor B	Minor A		
				2.27.3 FEO: Automatic Elevators				

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					Type of Submission Required			
	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.6	Access Doors and Openings				
		★	2.7.3.4.7	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			B44-2010	New Installation				
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.3.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			3.5.	Horizontal car and Counterweight Clearances				
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				

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					Type of Submission Required			
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.	Horizontal Car and Counterweight Clearances					
		8.7.3.22.1	Increase or Decrease in Rise					
		8.7.3.22.2	Increase in Rated Speed					
		8.7.3.23.5	Change in Location of Hydraulic Jack					
	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major		
		3.6.	Protection of Spaces below Hoistway					
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)	New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		-	Major		
		2.7. (& 3.7.)	Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Rooms		Minor A	-		
		OESC (C22.1)	Electrical Equipment Clearances		Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1	General Requirements					
		2.7.3.2	Access Across Roofs					
		2.7.3.3	Means of Access					
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4	Access Doors and Openings					
		2.7.3.5	Stop Switch in O/H M/C Space in the H/W					
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4	Headroom in M/C Rooms					
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1	Lighting					
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2	Temperature & Humidity					
	CAD 8.7.2.7★1	Addition of Elevator Equipment Guarding			Minor A		mrr	mrr
		2.7.2	Maintenance Path and Clearance					
		2.7.3.4.2	Size of doors and openings in cage style enclosures (750x2030)					
		2.10.1	Guarding of Equipment					
			openable/removable only with tools					
			operating/work instruction for accessing equipment					
			clearances in front of electrical control equipment (1000mm)					
			access in front of / space to operate main disconnect (750mm)					
			Installation by registered contractor					
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts)			-	Minor B		
		also installation of Monitoring Equipment, HVAC						
		2.8.	Equipment in Hoistways and Machine Rooms					
			CSA Labeling (or equivalent)					
			OESC, CSA C22.1 as required					
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.	Equipment in Hoistways and Machine Rooms					
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		Building reactions increased by more than 5%						
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
			adequacy of building structure verified by P.Eng.					

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					Type of Submission Required			
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-		
		2.11.	Protection of H/W Openings					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.4	Location of Horizontally Sliding or Swinging H/W Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.11.6	Opening of Hoistway Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		8.7.2.10.5	Marking of Entrance Assemblies					
		Entire installation to meet:						
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.29.2	Identification of Floors					
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
		2.11.1	Entrances and Emergency Doors Required					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
		2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure					
		8.7.2.10.5	Marking of Entrance Assemblies					
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1	Entrances & H/W Openings - General Req'mts				Major	
		2.11.11	Entrances, Horizontal Slide Type					
sills (a)		2.11.10.1	Landing-Sill Guards		Minor B		Minor B	
		2.11.11.1	Landing Sills					
		2.11.11.6	Bottom Guides					
track (b)		2.11.11.2	Hanger Tracks, and Track Supports		Minor B		Minor B	
frame (c)		2.11.11.3	Entrance Frames		Minor A		Minor A	
		2.11.11.5.1	Panel Overlap					
		2.11.11.5.2	Panel Gaps Clearances					
		2.11.11.5.3	Pockets in Strike Jamb					
		8.7.2.10.5	Marking of Entrance Assemblies					
hangers (d)		2.11.11.4	Hangers		Minor B		Minor B	
panels (e)		2.11.11.5(*)	Panels		Minor A		Minor A	
		2.11.11.6	Bottom Guides					
		2.11.11.7	Multipanel Entrances					
		8.7.2.10.5	Marking of Entrance Assemblies					
retainers (f)		2.11.11.8	Hoistway Door Safety Retainers		Minor B		Minor B	

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	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.12		Entrances, Vertical Slide Type				
	sills (a)	2.11.10.3		Hinged Hoistway Landing Sills	Minor B		Minor B	
		2.11.12.1		Landing Sills				
	frames (b)	2.11.12.2		Entrances Frames	Minor B		Minor B	
		8.7.2.10.5		Marking of Entrance Assemblies				
	rails (c)	2.11.12.3		Rails	mrr		mrr	
	panels (d)	2.11.12.4		Panels	Minor A		Minor A	
		2.11.12.3		Rails				
		2.11.12.5		Guides				
		2.11.12.6		Counterweighting or Counterbalancing				
		2.11.12.8		Pull Straps				
		8.7.2.10.5		Marking of Entrance Assemblies				
	guides (e)	2.11.12.5		Guides				
	sill guard (f)	2.11.12.7		Sill Guards	mrr		mrr	
	straps (g)	2.11.12.8		Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.13		Entrances, Swing Type				
	sills (a)	2.11.10.1		Landing-Sill Guards	Minor B		Minor B	
		2.11.10.3		Hinged Hoistway Landing Sills				
		2.11.13.1		Landing Sills				
	frames (b)	2.11.13.2		Entrance Frames	Minor B		Minor B	
		2.11.13.4		Hinges				
		8.7.2.10.5		Marking of Entrance Assemblies				
	panels (c)	2.11.13.3		Panels	Minor B		Minor B	
		2.11.13.4		Hinges				
		2.11.13.5		Marking				
		8.7.2.10.5		Marking of Entrance Assemblies				
	hinges (d)	2.11.13.4		Hinges	mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
		8.7.2.10.5(a)		NBCC requirements				
	CAD 8.7.2.10★1	★ Removing Service To a Floor			Minor B			
				Bolt entrances shut				
				Remove Interlock From Safety String				
				Remove COP Floor Button				
		2.11.6.2		Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
		2.12.7		H/W Access Switches - if floor was previously the access location				
	CAD 8.7.2.10★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8		Hoistway Door Safety Retainers				
	8.7.3.11	Hoistway Door-Locking Devices			See 8.7.2.11			
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.2		Interlocks				
		2.12.4		Listing/Certification Locking Devices				
		2.12.5		Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
		2.12.6		Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
		2.12.7		Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.3		H/W Door Combination Mechanical Locks & Contacts				
		2.12.4		Listing/Certification Locking Devices				
		2.12.6		Hoistway Door Unlocking Devices				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3		requirements specified				

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	8.7.2.11.4	Access switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.1.4	Inspection Operation				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
			8.7.3.10	Hoistway Entrances and Openings				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
	CAD 8.7.2.12★2	★ Replacement of Door Reopening Device			See 8.7.2.13			
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates			see	
			2.13.5	Reopening Device for Power Operated Car Doors or Gates			8.6.3.8	
				if FEO provided, door opening & closing to PHI &II at time of install				
	8.7.3.13	Car Enclosures			See 8.7.2.14			
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass			mrr	
			2.14.1.8.3	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
	CAD 8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
			2.14.4	Passenger and Freight Car Doors/Gates, General Requirements				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials						
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing - see CAD 8.7.2.14★4		Minor A		
				2.14.7.1.3 auxiliary lighting		Minor B		
				2.14.7.1.4 car top light & outlet		Minor B		
			★	CAD 8.7.2.15★1		Minor B		Minor B
				or				
			★	CAD 8.7.2.15★2		Minor A		Minor A
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD	8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)				
			or					
		CAD	8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)				
				car top run buttons not enabled until extended				
				normal operation not enabled until stowed				
				electrical limits to ensure car top clearance in overhead				
				minor A submission template				
	8.7.3.14	Car Frames and Platforms			Major	-		Major
			3.15.	Car Frames & Platforms				
	8.7.3.15	Safeties		Car or Cwt (plunger gripper see 8.7.3.23.7)	⇩ See Below ⇩			
	8.7.3.15.1	Car Safeties			-	Major	mrr	Minor A
			3.17.1	Car Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.2	Counterweight Safeties			-	Major	mrr	Minor A
			3.17.2	Counterweight Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.3	Alteration to existing Car or Counterweight Safeties			Major	-	mrr	Minor A
			3.17(*)	Car and counterweight safeties and plunger gripper				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.16	Governors and Governor Ropes					See 8.7.2.19	
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.	Speed Governors				mrr see 8.6.3.6	Minor A
	8.7.2.19	2.17.15	Governor Rope Releasing Carriers				mrr see 8.6.3.9	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
			2.18.6 Design of Gov'r Rope Retarding Means for Type B Safeties					
			2.18.7 Traction between Speed Governor Rope & Sheave					
		& testing to	2.17.3 Function and Stopping Distances of Safeties					
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1(*)	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.22.(*)	Buffers & Bumpers					
		3.22.2	Counterweight Buffers					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to 8.7.2.14★4					
		3.15.	Car Frames & Platforms					
		3.17.	Car and Counterweight Safeties					
		3.21.	Counterweights					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		2.18.(*)	Speed Governors					
		3.16.	Capacity & Loading					
		3.18.	Hydraulic Jacks					
		3.19.	Valves, Pressure Piping, and Fittings					
		3.20.	Ropes and Rope Connections					
		3.24.	Hydraulic Machines and Tanks					
		3.25.	Terminal-Stopping Devices					
		3.26.	Operating Devices and Control Equipment					
		3.27.	Emergency Operation and Signaling Devices					
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
		2.16.2	Minimum Rated Load for Freight Elevators					
		3.16.	Capacity & Loading					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
		3.16.4	2.16.4 except 2.16.4.3					
		2.16.4	Carrying of Passengers on Freight Elevators					
		2.16.4.1	not accessible to general public					
		2.16.4.2	rated load not less than required by 2.16.1					
		2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)					
		2.16.4.5	car doors to 2.14.5 Passenger Car Doors					
		2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings					
		2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door					
		2.16.4.8	Fs for suspension ropes to Table 2.20.3					
		2.16.4.9	Power Operated vertical doors to 2.16.4.9(a) to (e)					
		★	apron guard to ED CAD or extent pit permits					
		★	2.16.5 Signs Required in Freight Elevator Cars					
	8.7.3.20	Increase in Rated Load			Major	-		
		2.26.1.4	Inspection Operation					
		2.26.1.5	Inspection Operation with Open Door Circuits					
		2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts					
		3.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to CAD 8.7.2.14★4					
		3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		3.16.	Capacity & Loading					
		3.17.	Car and Counterweight Safeties					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		3.22.	Buffers and Bumpers					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		8.7.3.23.4	Increase in Working Pressure					
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
		3.14.	Car: Enclosure, Doors, Gates, Illumination		n/a			
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to 8.7.2.14★4					
		3.15.	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		3.16.	Capacity & Loading					
		3.17.	Car and Counterweight Safeties					
		3.20.	Ropes and Rope Connections					
		3.21.	Counterweights					
		3.22.	Buffers and Bumpers					
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.24.5	Counterweight Sheaves					
		8.7.3.23.4	Increase in Working Pressure					
		CAD 8.7.2.15★1						
	CAD 8.7.3.21★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD 8.7.2.15★1						
	CAD 8.7.3.21★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD 8.7.2.15★2						

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.22.1	Increase or Decrease in Rise			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.4.1	Bottom Car Clearance				
			3.4.2	Minimum Bottom and Top Car Runby				
			3.4.3	Car Top and Bottom Maximum Runby				
			3.18.2	Plungers				
				If decrease in rise is at lowest end then;				
			2.2.4	Access to Pits				
			2.2.5	Illumination of Pits				
			2.2.6	Stop Switches				
	8.7.3.22.2	Increase in Rated Speed			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			3.17.(*)	Car and Counterweight Safeties				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.20.	Ropes and Rope Connections				
	8.7.3.22.3	Decrease in Rated Speed			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			3.16.	Capacity & Loading				
			3.16.3(b)	Capacity & data plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.3.23	Hydraulic Equipment			⇩ See Below ⇩			
	8.7.3.23.1	Alter / Install / Replace Hydraulic Jacks			Major	-	Major	
			3.18.	Hydraulic Jacks			see 8.6.3.10.1	
	8.7.3.23.2	Alter / Install / Replace Plungers			Major	-	Minor A	
			3.18.1.2	Roped-Hydraulic Elevator				
			3.18.2	Plungers				
	8.7.3.23.3	Alter / Install / Replace Cylinders			Major	-	Minor A	
			3.18.3	Cylinders - Installed as part of Alteration			see 8.6.3.10.2	
			3.18.3	Cylinder is Altered				
			3.18.3	Cylinder is Sleeved	Minor A			
			3.18.4.1	Metal Stops and/or Other Means				
			3.18.1.2	Roped-Hydraulic Elevator				
			3.18.2	Plungers				
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
			3.18.(*)	Hydraulic Jacks				
			3.19.(*)	Valves, Pressure Piping, and Fittings				
			3.24.1	Marking Plates				
			3.24.2	Tanks				
			3.24.3	Atmosphere Storage and Discharge Tanks				
			3.24.4	Welding				
	8.7.3.23.5	Change in Location of Hydraulic Jack			Major	-		
			Part 3	Hydraulic Elevators				
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
			3.26.8	Pressure Switch				

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					Type of Submission Required			
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
			3.17.3	Plunger Gripper				
			3.1.1(b)	strength of pit floor				
			3.22.1	no strike when buffers compressed				
	CAD 8.7.3.23.7 ★1	Removal of Plunger Gripper			Minor A	-		
			3.18.3	Cylinders				
			3.19.4.7	Overspeed Valves				
			3.4.2.1	Bottom Car Runby				
	8.7.3.24 (a)	Alter / Replace		Control Valves	Minor A	-	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Relief Valves	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Check Valves	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Pressure Piping or Fittings	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
			3.20.	Ropes and Rope Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
			3.20.	Ropes and Rope Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
			2.20.5	Suspension Rope Equalizers				
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
			2.21.	Counterweights				
			3.21.	Counterweights				
			8.7.2.22.2	Rod Type Counterweights				
			8.7.2.3	Location and Guarding of Counterweights				
	8.7.2.22.2	Rod Type Cwt - can retain if:						
				Minimum of 2 suspension and 2 tie rods				
				Suspension rods:				
			2.21.2.1	Material - Cwt Frames & Rods				
			2.21.2.3	Factor of Safety				
				Tie Rods:				
			2.21.1.2	Retention of Weight Sections				
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.3.26	Counterweights - Addition of			-	Major		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.6.	Protection of Spaces below Hoistway				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	car top guard rail to CAD 8.7.2.14★4				
			3.15.	Car Frames & Platforms				
			3.17.2	Counterweight Safeties				
			3.18.	Hydraulic Jacks				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			8.7.3.3	Location and Guarding of Counterweights				
	8.7.3.27	Car Buffers and Bumpers			Major	-	mrr	Minor B
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				

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					Type of Submission Required			
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.29	Alteration to	Tanks		Minor B	-	Minor B	
		3.24.	Hydraulic Machines and Tanks				see 8.6.3.10.4	
	CAD 8.7.3.29★1	★ Addition of Oil Cooler			Minor B		Minor B	
		8.7.3.8	Electrical Wiring, Pipes, and Ducts in H/W and M/C rooms					
		2.7.2	Maintenance Path and Clearance					
		3.10.	Guarding of Exposed Auxiliary Equipment					
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
		3.25.	Terminal-Stopping Devices					
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
		3.26.2	Inspection Operation					
	CAD 8.7.3.31★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
		2.26.1.4	Inspection Operation					
	CAD 8.7.3.31★2	Addition of Top-of-Car Operating Device (see CAD 3.8.3)			-	Minor A		
		2.26.1.4	Inspection Operation					
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
		3.26.3.2	Operation in Leveling or Truck Zone					
	8.7.3.31.3	Alter / Replace	Anti-Creep Leveling Device		Minor B	-	Minor B	
		3.26.3.1	Anti-Creep Operation				see 8.6.3.10.5	
	CAD 8.7.3.31★3	★ Door By-Pass Switches			Minor A	Minor A		
		2.26.1.5	Inspection Operation with Open Door Circuits					
	CAD 8.7.3.31★4	★ Door Monitoring System			Minor A	Minor A		
		2.26.5	System to Prevent Auto Operation w/faulty Door Contacts					
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
		3.26.1	Operating Devices and Control Equipment					
		3.26.4	Electrical Protective Devices					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.6(*)	Control and Operating Circuits					
	CAD 8.7.3.31★5	★ Addition of Soft Start				Minor A		
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					
		3.26.5	Phase-Reversal and Failure Protection					
	CAD 8.7.3.31★6	★ Addition of Power Efficiency Increasing Device				Minor B		
		B44.1 certified						
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.5	Controllers						
	8.7.3.31.5(a)	Install / Replace		Elevator Controller (as part of an alteration)	Major	-		Major
			3.25.	Terminal-Stopping Devices				
			3.26.	Operating Devices and Control Equipment				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.8	Pressure Switch				
			3.26.9	Low Oil Protection				
			3.26.10	Auxiliary Power Lowering Operation				
		★	2.7.9.2	Temperature and Humidity				
			3.27.1	Phase 1 Emergency Recall Operation after Device Actuation				
			3.27.2	Phase 1 Emergency Recall Operation prior to Device Actuation				
			3.27.3	Device Acutation at Recall Level				
			3.27.4	Device Acutation with Phase II Emergency In-Car in Effect				
				If FEO previously present or required by OBC;				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
			2.27.4	FEO: Non Automatic Elevators				
			2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				
	CAD 8.7.3.31★7	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.3.31.5(b)	Install / Replace		Door Controller (as part of an alteration)	Minor A	-		Minor B
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
			2.11.1(*)	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6(*)	Opening of Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.11.8(*)	Hoistway Door Safety Retainers				
			2.11.12.8	Pull Straps				
			2.12.(*)	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
				2.12.5 Restricted Opening of Hoistway or Car Doors				
				2.12.6 Hoistway Door Unlocking Devices				
				2.12.7 Hoistway Access Switches				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
			8.7.2.27.5(d)	Capacity & Loading				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			3.25.	Terminal Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
				If FEO previously present or required by OBC;				
			2.27.	Emergency Operation and Signalling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 Firefighters' Emergency Operation: Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
				2.27.4 FEO: Non Automatic Elevators				
				2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.7	Change in Type of Operation Control - CPPB, Automatic			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			3.11.1	Protection of Hoistway Landing Openings				
			3.12.1	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			3.13.	Power Operation of H/W Doors and Car Doors				
			3.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
		★	2.7.9.2	Temperature and Humidity				
			3.27.	Emergency Operation and Signaling Devices				
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.3.31★8	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.27.3.1.6(l)	- shall not prevent PHI				
	CAD 8.7.3.31★9	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access When on FEO				
				D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use				
			2.27.3.1.6(l)	- shall not prevent PHI				
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
			DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys				
	8.7.3.31.8	Emergency Operation and Signaling Devices						
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B		mrr
			2.27.1	Car Emergency Signaling Devices				
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
			3.27.	Emergency Operation and Signaling Devices 3.27.1 PHI Emergency Recall Operation After Device Actuation (a) low oil protection (b) plunger follower guide protection (c) auxiliary power lowering (d) oil tank temperature shutdown 2.27 Emergency Operation & Signaling Devices 2.27.1 Car Emergency Signalling Devices 2.27.2 Emergency or Standby Power Systems 2.27.3 FEO: Automatic Elevators CAD 2.27.3.2.2 2.27.4 FEO: Non-Automatic Elevators 2.27.5 FEO: Automatic Elevators w/Attendant 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys 2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC			
	CAD 8.7.3.31.8★10	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of install conformance to auto recall based on F.S. at time of install			Minor B			
	CAD 8.7.3.31.8★11	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order		2.27.3 FEO: Automatic Elevators	Minor B	Minor A		
	8.7.3.31.9	Auxiliary Power Lowering Operation	3.26.10	Auxiliary Power Lowering Operation include testing procedure	Minor B	Minor B		
	8.7.3.31.10	Removal of emergency stop switch on passenger elevators remove all related markings / engravings & provide an in-car stop switch to:			Minor B	Minor B		
			2.26.2.21	In-car stop switch				
			2.26.4.3	Positively Opened Contacts				
			2.26.9.3.1(a)	single failure does not render In-Car Stop Switch ineffective				
			3.26.4.2	deceleration rate <1g, anticreep must still function				
	8.7.3.31.11	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
			3.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
			3.26.2	Electrical Protective Devices - for specified device				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
			4.1.	Rack and Pinion Elevators				
	8.7.4.2	Screw-Column Elevators			Major	-		
			4.2.	Screw-Column Elevators				
	8.7.4.3	Hand Elevators			Major	-		
	8.7.4.3.1	Hoistway Enclosures and Machinery Space			Major	-		
			4.3.1	Hoistways, H/W Enclosures, and Related Construction				
			4.3.4	Enclosures for Machines and Control Equipment				
	8.7.4.3.2	Top Car and Counterweight Clearances			Major	-		
			4.3.3	Top Clearances				
	8.7.4.3.3	Hoistway Entrances			Major	-		
			4.3.6	Hoistway Entrances				
			4.3.7	Hoistway Gates for Landing Openings				
			4.3.8	Hoistway-Door & Hoistway Gate Locking Devices				
	8.7.4.3.4	Car Enclosures			Major	-		
			4.3.9	Car Enclosures				
			4.3.11	Car Frames and Platforms				
	8.7.4.3.5	Car Frame and Platform			Major	-		
			4.3.11	Car Frames and Platforms				
			4.3.12	Car Compartments				
			4.3.13	Cars Counterbalancing One Another				
			4.3.16	Suspension Means				
	8.7.4.3.6	Capacity and Loading			Major	-		
			4.3.14.1	Minimum Rated Load				
			4.3.14.2	Capacity Plate				
			4.3.19.1	Drive Machine & Sheaves - Factors or Safety				
			4.3.19.2	Driving-Machines				
			4.3.16	Suspension Means				
	8.7.4.3.7	Increase in Rise			Major	-		
			4.3.3.1	Top Car Clearances				
			4.3.3.2	Top Counterweight Clearance				
			4.3.15	Car Safeties				
			4.3.16	Suspension Means				
	8.7.4.3.8	Guide Rails and Fastenings			Major	-		
			4.3.18.1	Guide Rails - Material and Finish				
			4.3.18.2	Strength of Rails and Fastenings				
			4.3.18.3	Extension of Guide Rails at Top & Bottom of H/W				
	8.7.4.3.9	Overhead Beams and Supports			Major	-		
			4.3.5.1	Overhead Beams and Supports				
			4.3.5.2	Access to Machines and Sheaves				
	8.7.4.3.10	Power Attachments			Major	-		

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-		
		5.1.		Inclined Elevators				
				compliance to specific 5.1 sections based on alteration scope	variance			
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	CAD 8.7.5.2★1	★	8.7.2	Alterations to Electric Elevator & as modified in Section 5.2				
	CAD 8.7.5.2★2	★	8.7.3	Alterations to Hydraulic Elevator & as modified in Section 5.2				
	8.7.5.5	Power Sidewalk Elevators			Major	-		
	8.7.5.5.1	Changes in Electrical Wiring or Electrical Equipment			Major	-		
		5.5.1.8		Equipment in Hoistways & Machine Rooms				
	8.7.5.5.2	Sidewalk Door			Major	-		
		5.5.1.11.2		Horizontal Openings in Sidewalks and Exterior Areas				
		5.5.1.11.3		Hinged Type Swing Sidewalk Doors				
		5.5.1.11.4		Vertical Lifting Sidewalk Covers				
	8.7.5.5.3	Change in Car Enclosure, Car Doors, and Gates			Major	-		
		5.5.1.14		Car Enclosure, Car Doors and Gates, Illumination				
	8.7.5.5.4	Bow-Irons and Stanchions			Major	-		
		5.5.1.15.2		Bow-Irons and Stanchions				
	8.7.5.5.5	Increase in Rated Load			Major	-		
		5.5.1.16		Capacity and Loading				
		5.5.1.18		Speed Governors				
		5.5.1.21		Buffers and Bumpers				
		5.5.1.25.4		Maximum Rated Speed				
	8.7.5.5.6	Increase in Rated Speed			Major	-		
		5.5.1.15		Car Frames and Platforms				
		5.5.1.16		Capacity and Loading				
		5.5.1.19		Suspension Ropes				
		5.5.1.22		Guide Rails				
	8.7.5.5.7	Existing Driving Machine			Major	-		
		5.5.1.8		Equipment in Hoistways & Machine Rooms				
		5.5.1.9		Machinery and Sheave Beams, Supports, and Foundations				
		5.5.1.23		Driving Machines and Sheaves				
		5.5.1.25		Operating Devices and Control Equipment				
	8.7.5.5.8	Change in Type of Operating Devices and/or Control Equipment			Major	-		
		5.5.1.8		Equipment in Hoistways & Machine Rooms				
		5.5.1.25		Operating Devices and Control Equipment				
	8.7.5.6	Rooftop Elevators			Major	-		
		5.6.		Rooftop Elevators				
	8.7.5.7	Special Purpose Personnel Elevators			see CAN/CSA B311			

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.1	Alterations to Escalators						
	8.7.6.1.1	Change to component parts			mrr	-		mrr
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.1.1	Addition of Components or Devices			see 8.7.6.1			-
				see applicable 8.7.6.1 requirements for that device				
	8.7.6.1.2 (a)	Relocation of Escalator			New	-		
			6.1.	Escalators				
	8.7.6.1.2 (b)	Repositioning of Escalator			Major			
	CAD 3.18	★ Repositioning of Escalator (within the same building)						
			6.1.3.3.11	Guard at ceiling intersection				
			6.1.3.3.12	AntiSlide Devices				
			6.1.3.3.13	Deck Barricades				
			6.1.3.4.3	Guards				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
			6.1.3.12	Headroom				
			6.1.3.13	Welding				
			6.1.6.9	Signs				
			6.1.7.4.1	Electrical equipment				
			8.7.6.1.3	Protection of Floor Openings				
	8.7.6.1.3	Protection of Floor Openings			Minor A	-		
			6.1.1.1	Protection Required				
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.1.2.1	Protection Required				
	8.7.6.1.5	Construction Requirements						
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-		
			6.1.3.2	Geometry				
	8.7.6.1.5(c)	Any Alteration to the Balustrades			Minor A	Minor A		
			6.1.3.3	Balustrades				
			6.1.3.3.1	Construction				
			6.1.3.3.2	Strength				
			6.1.3.3.3	Use of Glass or Plastic				
			6.1.3.3.4	Interior Low Deck				
			6.1.3.3.5	Loaded Gap between Skirt & Step				
			6.1.3.3.6	Skirt Panels				
			6.1.3.3.7	Dynamic Skirt Panels				
			6.1.3.3.8	Dynamic Skirt Panel Loaded Gap				
			6.1.3.3.9	Step/Skirt Performance Index				
			6.1.3.3.10	Skirt Deflector Devices				
			6.1.3.3.11	Guard at ceiling intersection				
			6.1.3.3.12	AntiSlide Devices				
			6.1.3.3.13	Deck Barricades				
	8.7.6.1.5(d)	Deflector Devices			Minor B			mrr
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.6	Handrails or Handrail System			Minor A	-		
			6.1.3.2.2	Geometry - Handrail				
			6.1.3.4.1	Handrails - Type Required				
			6.1.3.4.2	Extension Beyond Combplate				
			6.1.3.4.3	Guards (hand or finger)				
			6.1.3.4.4	Handrails - Splicing				
			6.1.3.4.6	Handrail Clearance				
			6.1.6.3.12	Handrail Entry Device				
			6.1.6.4	Handrail Speed Monitoring Device				
	CAD 8.7.6.1★1	★ Addition of Handrail Advertising			mrr	variance		
				Variance to 6.1.6.9.2				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.1.7	Step System - any alteration to the step system			Major	-	mrr	Minor B
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5 (*)	Steps				
			6.1.3.6	Entrance and Egress Ends				
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.4	Factor of Safety - Steps				
			6.1.3.11	Chains				
			6.1.6.3.3	Broken Step-Chain Device				
			6.1.6.3.9	Step Upthrust Device				
			6.1.6.3.11	Step Level Device				
			6.1.6.3.14	Step Lateral Displacement Device				
			6.1.6.5	Missing Step Device				
	8.7.6.1.8	Combplates			Minor A	-		
			6.1.6.3.13	Comb-Step Impact Devices				
	8.7.6.1.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding				
			6.1.3.7	Trusses of Girders				
			6.1.3.9.1	Structural Load				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
	8.7.6.1.9	New Escalator into Existing Trusses			New	-		
			6.1.	Escalators				
	8.7.6.1.10	Step Wheel Tracks			Major	-		
			6.1.3.8	Step Wheel Tracks				
			6.1.3.9.4	Step				
			6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures				
			8.7.1.4	Welding				
	8.7.6.1.11	Rated Load and Speed			Major	-		
			6.1.	Escalators				
	8.7.6.1.12	Driving Machine, Motor, and Brake						
	8.7.6.1.12(a)	Driving Machine			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.4	Broken Drive-Chain Device				
			6.1.6.3.8	reversal Stop Device				
	8.7.6.1.12(b)	Driving Motor			Major	-		
			6.1.3.9.2	Machinery				
			6.1.3.10.3	Factor of Safety - Power Transmission Parts				
			6.1.4.1	Limits of Speed				
			6.1.5.2	Driving Motor				
			6.1.5.3.1	Escalator Driving-Machine Brake				
			6.1.5.3.2	Main Drive Shaft Brake				
			6.1.6.3.2	Speed Governor				
			6.1.6.3.8	reversal Stop Device				
			6.1.6.3.10	Disconnected Motor Safety Device				
	8.7.6.1.12(c)	Machine Brake			Major	-		
			6.1.3.9.3	Brake				
			6.1.3.10.2	Factor of Safety - Driving Machine Parts				
			6.1.5.3.1	Escalator Driving-Machine Brake				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A		
			6.1.6	Operating and Safety Devices (for that device)				
	CAD 8.7.6.1★2	★	Removal of step demarcation lights		Minor A	-	-	
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5.4	Clearance between Steps				
			6.1.3.5.5	Slotting of Steps and Treads				
			6.1.3.5.6	Step Demarcation				
			6.1.3.6.2	Distinction Between Comb and Step				
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.1.7	Lighting, Access, and Electrical Work				
	8.7.6.1.15	Entrance and Egress			Major	-		
			6.1.3.6.1	Combplates				
			6.1.3.6.2	Distinction Between Comb and Step				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
	8.7.6.1.16	Controller - Installed as part of an alteration			Major	-	-	
			6.1.6.10	Control and Operating Circuits				
			6.1.6.11	Electrically Power Safety Devices				
			6.1.6.12	Installation of Capacitors.. To Make EPD's Ineffective				
			6.1.6.13	Completion of Maintenance Circuits				
			6.1.6.14	Escalator Manual Reset				
			6.1.6.15	Contractors and Relays for Use in Critical Operating Circuits				
	CAD 8.7.6.1★3	★	Controller - Replacement of		-	-	Major	
			8.7.6.1.16	Controller				
	CAD 8.7.6.1★4	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	CAD 8.7.6.1★5	★	Addition of Soft start		-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				
	CAD 8.7.6.1★6	★	Addition of Power Efficiency Increasing Device		-	Minor B		
			B44.1 certified					
			2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.2	Alterations to Moving Walks						
	8.7.6.2.1	Change to component parts			mrr	-		mrr
			8.6.12.4.1.1	Replacement parts or components				
			8.6.12.4.1.2	Quality of Work				
	8.7.6.2.1	Addition of Components or Devices			see 8.7.6.2			-
			see applicable 8.7.6.2 requirements for that device					
	8.7.6.2.2	Relocation of Moving Walk			New	-		
		6.2.	Moving Walks					
	8.7.6.2.3	Protection of Floor Openings			Minor A	-		
		6.2.1.1	Protection Required					
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
		6.2.2.1	Protection of Supports - Protection Required					
	8.7.6.2.5	Construction Requirements - Angle of Inclination			Major	-		
		6.2.	Moving Walks					
	8.7.6.2.5	Construction Requirements - Geometry			Major	-		
		6.2.3.2	Geometry					
	8.7.6.2.5	Construction Requirements - Balustrades			Minor A	Minor A		
		6.2.3.3	Balustrades					
	8.7.6.2.6	Handrails			Minor A	-		
		6.2.3.2.3	Geometry - Handrail					
		6.2.3.4	Handrails					
		6.2.6.3.10	Handrail Entry Device					
		6.2.6.4	Handrail Speed Monitoring Device					
	8.7.6.2.7	Treadway System			Major	-		
		6.2.3.2.3	Geometry - Handrail					
		6.2.3.3.5	Skirtless Balustrade					
		6.2.3.3.6	Skirt Panels					
		6.2.3.5	Pallet-Type Treadway					
		6.2.3.6(*)	Belt-Type Treadway					
		6.2.3.8	Entrance and Egress Ends					
		6.2.3.9	Supporting Structure					
		6.2.3.10.4	Pallet					
		6.2.3.11.4	Pallet Factor of Safety					
		6.2.3.11.5	Belt Factor of Safety					
		6.2.3.12	Chains					
		6.2.6.3.3	Broken Treadway Device					
		6.2.6.5	Missing Pallet Device					
		6.2.6.3.9	Pallet Level Device					
	8.7.6.2.8	Combplates			Minor A	-		
		6.2.3.8	Entrance and Egress Ends					
		6.2.6.3.11	Comb-Pallet Impact Devices					
	8.7.6.2.9	Trusses and Girders			Major	-		
		8.7.1.4	Welding					
		6.2.3.9	Supporting Structure					
		6.2.3.10.1	Structural Load					
		6.2.3.12.1	Trusses & Supports based on max static load					
	8.7.6.2.9	New Moving Walk into Existing Truss			New	-		
		6.2.	Moving Walks					
	8.7.6.2.10	Track System			Major	-		
		6.2.3.9	Supporting Structure					
		6.2.3.10	Rated Load					
		6.2.3.11.1	Trusses & Supports based on max static load					
		8.7.1.4	Welding					
	8.7.6.2.11	Rated Load and Speed			Major	-		
		6.2.	Moving Walks					

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.2.12	Driving Machine			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.3.14	V-Belt Drives				
			6.2.3.15	Headroom				
			6.2.4	Rated Speed				
			6.2.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
			6.2.6.3.4	Broken Drive-Chain Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Drive Motor			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.4	Rated Speed				
			6.2.5.2	Driving Motor				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.6.3.2	Speed Governor				
			6.2.6.3.7	Reversal Stop Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Machine Brake			Major	-		
			6.2.3.10.3	Brake				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
	8.7.6.2.13	Operating and Safety Devices			Minor A	Minor A		
			6.2.6	Operating and Safety Devices (for that device)				
	8.7.6.2.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.2.7	Lighting, Access, and Electrical Work				
	8.7.6.2.15	Controller - Installed as part of an alteration			Major	-	-	
			6.2.6.9	Control and Operating Circuits				
			6.2.6.10	Electrically Power Safety Devices				
			6.2.6.11	Installation of Capacitors.. To Make EPD's Ineffective				
			6.2.6.12	Completion of Maintenance Circuits				
			6.2.6.13	Moving Walk Manual Reset				
			6.2.6.14	Contractors and Relays for Use in Critical Operating Circuits				
	CAD 8.7.6.2★1	★ Controller - Replacement of			-	-	Major	
			8.7.6.1.16	Controller				
	CAD 8.7.6.2★2	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	CAD 8.7.6.2★3	★ Addition of Soft start			-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				
	CAD 8.7.6.2★4	★ Addition of Power Efficiency Increasing Device						
			B44.1 certified					
			2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11** **Scope of Alteration - B44 - 2010 as amended by CAD 250/11** **Part, Section or Requirement** **Job Reference:**			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.7	Alterations to Dumbwaiters and Material Lifts						
	8.7.7.1	Dumbwaiters and Material Lifts Without Automatic Transfer Devices			Major	-		
		Alteration to a Power and Hand Dumbwaiters			Major	-		
			7.1.	Power and Hand Dumbwaiters				
			7.2.	Electric and Hand Dumbwaiters				
			7.3.	Hydraulic Dumbwaiters				
		Alteration to a Material Lifts			Major	-		
			7.4.	Material Lifts				
			7.5.	Electric Material Lifts				
			7.6.	Hydraulic Material Lifts				
	8.7.7.1.1	General Alterations other than 8.7.7.1.2			Major	-		
			Part 7	Dumbwaiters and Material Lifts				
	8.7.7.1.2	Increase in Rated Load			Major	-		
			7.2.(*)	Electric and Hand Dumbwaiters w/o Transfer Devices				
			7.3.(*)	Hydraulic Dumbwaiters w/o Transfer Devices				
			7.4.	Material Lifts				
			7.5.	Electric Material Lifts				
			7.6.	Hydraulic Material Lifts				
	8.7.7.2	Addition of Automatic Transfer Device			Major	-		
			Part 2	Electric Elevators				
			Part 3	Hydraulic Elevators				
	8.7.7.3.1	Material Lifts and Dumbwaiters With Automatic Transfer Devices			N/A	N/A		
				exempt if requirements of CAD 2.3(j) are met				
	8.7.7.3.2	Material Lifts and Dumbwaiters - remove Transfer Device			New	-		
			7.1. to 7.3.	for Dumbwaiters				
			7.4. to 7.6	Material Lifts w/o Transfer Devices				
	8.7.7.3.3	Material Lifts altered to an Elevator			New	-		
			Part 2	Electric Elevators				
			Part 3	Hydraulic Elevators				
	8.7.7.3.4	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W			New	-		
			7.1.	Power and Hand Dumbwaiters w/Auto Transfer Devices				
			7.2.	Electric and Hand Dumbwaiters w/o Transfer Devices				
			7.3.	Hydraulic Dumbwaiters w/o Transfer Devices				
		Alterations to Freight Platform Lifts						
	CAD 8.7.7★1	★ Alteration to a Type 'A' Freight Platform Lift			Major	-		
			7.4.	as applicable to Material Lifts Type 'B' ✦				
			7.5.	as applicable to Material Lifts Type 'B' ✦				
			7.6.	as applicable to Material Lifts Type 'B' ✦				
				✦ excluding requirements related to in-car operating devices & Riders				
	CAD 8.7.7★2	★ Alteration to a Type 'B' Freight Platform Lift			Major	-		
			7.4.	as applicable to Material Lifts Type 'B'				
			7.5.	as applicable to Material Lifts Type 'B'				
			7.6.	as applicable to Material Lifts Type 'B'				

Elevating and Amusement Devices Safety Division	Ref. No.: 251 / 11	Rev. No.: 1
GUIDELINE	Date: February 13, 2012	Date: May 1, 2013

Subject: Alterations Guideline and Alteration Checklist for A17.1-2010 / CSA B44-10 Safety Code for Elevators and Escalators as amended by 261/13

Sent to: All Elevator Contractors

1. Effective Date

1.1 This Directors Guideline – revision 1 becomes effective May 1, 2013 and is to be used in conjunction with alterations performed under the 2010 edition of A17.1/B44, as adopted in Code Adoption Document (CAD) Amendment 261/13.

2. Introduction

2.1 The purpose of this Director's Guideline, in conjunction with Code Adoption Document (CAD) Amendment 261/13, is to;

(a) advise which types of upgrades are classified as alterations
(b) indicate the format of the design submission required (see O.Reg 209/01 s.15), by categorizing the scope of work as "major" , "minor A" or "minor B"
(c) provide instruction on the use and submittal of the alteration checklist,
(d) provide a summarized list of requirements associated with a given alteration scope via a checklist
(e) supplement the adoption of section **8.7 Alterations** in A17.1/B44 as detailed in Section 3.4 of the CAD.

3. Alterations

3.1 Work performed on an elevating device other than worked performed as maintenance, repair, or replacement is an alteration. Part 8, Section 8.6 of B44-10 as amended in CAD 261/13 deals with "Maintenance, Repairs, Replacements and Testing", while Section 8.7 as amended in CAD 261/13 deals with "Alterations".

3.2 This guideline captures the Alteration requirements of Section 8.7 (as amended in CAD 261/13) and displays these requirements in a checklist format (see figure 2).

3.3 Type of Alteration Work

Columns 3 to 6 of the Alteration Checklist (see figure 2 for sample) classify the type of work as one of the following types:

(a) **Alteration: Modification / Change** (column 3)
means a change to the original design or characteristics of a component, assembly or the device as a whole, such as material, strength, size, dimension, rating, setting, function, operational mode, design parameters etc., whereby the change may be made on existing equipment or by substituting new modified equipment.
Note that a change of the component make or model, without any other change, may constitute an alteration under requirements of CAD 261/13 (see item (d) below).

(b) **Alteration: Addition** (column 4)
means addition of a new component or a design feature, not previously provided e.g. addition of top-of-car operating devices.

(c) **Replacement with same** (column 5)

means the substituted device, assembly or component is the same as the original, and either;

(i) requirements within B44 Section 8.6.3 as amended by CAD 261/13 classify the specific replacement as an alteration and require that the substituted component and/or the elevating device as a whole meet the specific requirements of the latest Code edition, or

(ii) sections 8.6 of B44 as amended by CAD 261/13 recognizes the replacement of the noted item as an alteration, and requires an appropriate submission

(d) **Replacement with different make and model** (column 6)
means that the substituted device, assembly or component is the same as the original in its design, performance and safety characteristics, except that it is of a different make and/or model and the B44 code as amended by CAD 261/13 recognizes the replacement of the noted item as an alteration, and requires an appropriate submission.

Note: In addition to the work described in 3.3 and listed in the Alteration Checklist, any other work performed on an elevating device that results in a change to the inherent safety or operational characteristics ***constitutes an alteration*** *per 2.6.2 of the CAD, even though there may be no change in the original design. The list of alterations in the attached Alteration Checklist is not all-inclusive.*

4. Type of Design Submission

4.1 Columns 3, 4, 5, and 6 of the alteration checklist contain information needed to determine the type of submission required.

4.2 By selecting the alteration scope (see column 1 of the Alteration checklist, see also B44 Section 8.7 as amended by CAD 261/13), the submission type is identified in columns 3, 4, 5, & 6. These entries are may be listed as one of the following:

Major	-	means Major alteration
Minor A	-	means Minor alteration type A
Minor B	-	means Minor alteration type B
Blanks (columns5&6)	-	work that would not constitute an alteration
mrr	-	this work may proceed as a maintenance repair and replacement activity, and no submission is required
n/a	-	means TSSA has permitted an exception to a compliance requirement (for the noted alteration scope) however, if another alteration activity requires compliance, the n/a exemption no longer applies
New	-	means, not an alteration but a new installation
†	-	means that no inspection is required following the alteration
variance	-	this activity can only be considered after approval of a variance

Note: The checklist also utilizes a star symbol (★). This symbol is used to identify TSSA designated alterations or to identify a supplemental TSSA requirement.

5. Requirements for Design Submissions and Inspections

5.1 A design submission or notification (in the case of a Minor B) must clearly specify, for each alteration covered, whether the type of the alteration work is a "modification", or "addition", or “replacement".

5.2 Where multiple alterations scopes are undertaken, the “highest ranking” submission shall define the submission type.
Example: An alteration combination of Minor B and Major will be designated as a Major alteration.

5.2.1 Major Alteration:

5.2.1.1 The design submission shall be registered before the major alteration commences, except as permitted in subsection 7(2) of O.Reg 209/01.

5.2.1.2 The alteration shall be inspected by TSSA prior to returning the device to service for public use.

5.2.2 Minor Alteration type A and B:

5.2.1.1 According to Section 19 of O.Reg 209/01, the design submission shall be submitted for registration not later than 30 days after returning the elevating device to service. Contractors are advised to submit alteration documents in advance of the work start to ensure that no expense will be incurred should the registration of the proposed design or a requested variance be rejected.

Minor A and B alterations are permitted to be returned to service after work completion, however, the contractor who completed the alteration shall ensure that a "special inspection" has been requested within 60 days after returning the elevator to service. The contractor shall arrange and conduct any tests required by the inspector. A registered design submission or notification shall be available at the time of inspection.

5.3 Signatures

5.3.1 According to subsection 15.(6) of O.Reg 209/01, all individual documents composing the design submission for any Major or Minor A alteration shall bear the **signature and seal, or electronic equivalent, of the professional engineer** who prepared or approved the design submission.

5.3.2 In the case of Minor B alterations, per O.Reg 15.(9), the design submission documents (or Notification) may be signed by an officer or director of the company applying for registration if the officer or director is a mechanic or if the document is signed by a mechanic with an appropriate certificate who either performed or supervised the work to which the design submission relates.

5.3.3 Minor B's that are electronically transmitted shall be deemed acceptable provided that the signature box of the Minor B Notification form contains the name, designation and mechanic license number of a registered and licensed mechanic who supervised and is competent to oversee the scope of the minor B alteration.
Example: Signature: John Smith, EDM-A, 00999999

5.4 Specification Forms

5.4.1 Alterations should be submitted on the appropriate Specification Sheets (depending on device type) and should itemize all entries that are **Directly** and **Indirectly** affected by the alteration scope.

Example: Cab Interior Modification resulting in an increase in cab weight

- Directly affected are interior finishes and flame ratings
- Indirectly affected are items such as: rope factor of safety (for electric & roped hydraulic elevators) or cylinder column strength (for hydraulic elevators)
- Sufficient details are to be provided to show compliance verification.

A list of altered components must also be summarized on the submission (typically box 4000).

5.4.2 Items which are not affected by the alterations should be noted with either:

- **N/C** or **No Change** or
- The **Original Entry** followed by **Existing.** Example Car Wt.: **1812 kg - Existing**

5.4.3 Where a "major alteration" or "minor alteration" affects only a very few items, the abridged form may be used instead of the full specification form provided clarity of the submission is not compromised. The Abridged form should specify: box numbers, descriptions, and new entry values.
(Example: 1670. Maximum System Pressure: 3445 kPa)

5.4.4 Some predefined templates exist for Minor B type alterations and are available from the TSSA web site. These templates shall be utilized where appropriate to ensure all relevant entries are completed and included in the submission. Multiple Minor B notification templates may be utilized to fully cover the scope of work and only one Minor B fee shall apply.

5.5 Submitting an Alteration Checklist

5.5.1 The design submission for a Major or Minor A alteration must include an Alteration Checklist to assist in demonstrating compliance with Section 8.7 of the code as amended by CAD 261/13 or any other items listed in Column 1 of the Checklist and must clearly specify the following:

(a) The scope of the alteration shall be identified with an 'X' in column 0 adjacent to each column 1 item that is part of the primary scope of the alteration

(b) All relevant sub requirements identified in column 2b shall be identified with an 'x' placed in column 0 to signify the sub requirement was has been given engineering consideration and/or modified. Optional: If desired items which where given engineering consideration but not changed, or deemed not applicable to a given installation may be marked with 'r' to indicate reviewed.

5.5.2 An Alteration Checklist is not required for Minor B Notifications.

5.5.3 Sections of the Alteration Checklist, which are not included in the scope of the alteration work, may be hidden (using the row-hide feature in excel) prior to printing the Checklist, in order to reduce the number of printed pages accompanying a submission.

5.5.4 To assist our clients in completing the Alteration Checklist, TSSA will post on its Website (www.tssa.org) a fillable version of the Alteration Checklist in excel format (ED-251-11r1.xls).

5.5.5 The **B44-10 reference numbers,** shown in column 1 and which are marked with 'X' in the Alterations Checklist, (also shown in **BOLD** font), are **those items that are required to be shown on the Code Data Plate** as per section 8.9 of B44.

5.5.6 The attached Alteration Checklist forms part of this guideline.

6 Alteration Checklist

6.1 The Alteration Checklist provides useful information to: contractors, submitting engineers, reviewing engineers and inspectors to assist in determining:

- the scope of the alteration,
- requirements associated with specified scope
- exemptions to a requirement (where n/a is shown)
- additional TSSA requirements (where ★ is shown)
- type of submission required (Major, Minor A or B)

(See Fig 1)

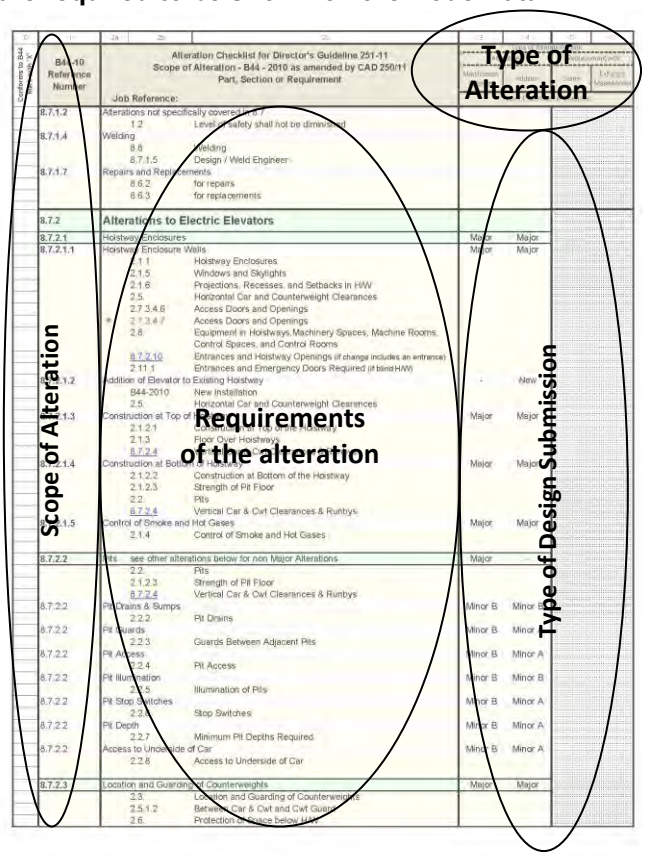

Fig. 1

6.2 Parts of the Checklist (See Fig 2)

6.2.1 Column 0:
Submitter's shall mark Column 0 with 'X' to identify the scope and applicable sub-requirements that received engineering consideration.

- Sub-requirements related to the alteration are mandatory and shall be identified with an 'x', except where the sub requirement is unrelated to the device being altered. (see Fig.2 Note E)

6.2.2 Column 1:
Column 1 contains the Alteration section numbers from B44 as amended by CAD 261/13, as well as specifically noted TSSA alterations.

TSSA alterations are denoted as follows;

- o 8.7.2.12★1 ★1 denotes the first TSSA designated alteration under section 8.7.2.12
- o 8.7.2.12★2 ★2 denotes the second TSSA designated alteration under section 8.7.2.12

6.2.3 Column 2a, 2b and 2c:
Column 2 describes the scope and applicable alteration sub requirements.

- Column 2a is the primary title of the alteration activity (e.g. interlocks)
- Column 2b is the list of sub requirements by reference number (e.g. 2.12.1, 2.12.2…)

- Column 2c is a text description of the referenced sub requirement. (e.g. General, Interlocks,…)

6.2.4 Column 3, 4, 5 and 6:

The headings of Columns 3 to 6 define the "Type of Alteration Work" as Modification Change, Addition, Replacement with Same, and Replacement with Different. See 3.3 of this guideline.

The contents of Columns 3 to 6 define the "Type of Design Submission" as, Major Alteration, Minor A Alteration, or Minor B – Notification. See 4 of this guideline.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11 Scope of Alteration - B44 - 2010 as amended by CAD 250/11 Part, Section or Requirement Job Reference:			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2	**Alterations to Electric Elevators**						D
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.11	Hoistway Door Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
X	8.7.2.11.1	Interlocks		A	-	Major	mrr	Minor B
x		2.12.1	General					
x		2.12.2	Interlocks					C
x		2.12.4	Listing/Certification Locking Devices					
		2.12.5	Restricted Opening of H/W or Car Door (n/a for column 5,6)				n/a	
x	B	2.12.6	Hoistway Door Unlocking Devices (n/a for column 5,6)				n/a	
x		2.12.7	Hoistway Access Switches (n/a for column 5,6)			D	n/a	
x								
X	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
x		8.7.2.10.1	Entrances & H/W Openings - General Req'mts					
x		8.7.2.10.2	Horizontal Slide-Type Entrances					
	E	8.7.2.10.3	Vertical Slide-Type Entrances					
x		8.7.2.10.5	Marking of Entrance Assemblies					
x		★ 2.13.		F Power Operation of Hoistway Doors and Car Doors				
X	8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
x	G	2.13.	Power Operation of Hoistway Doors and Car Doors					
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-	Major	
		2.15.	Car Frames & Platforms					
X	8.7.2.15★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
x		8.7.2.15★1(a)	cars weighed prior to alteration					
x	G	8.7.2.15★1(b)	In/Out weights recorded or cars weighed after alteration					
x		8.7.2.15★1(c)	weight change recorded on auxilliary data tag					
x		8.7.2.15★1(e)	testing prior to operation to ensure security of interior finishes					

Fig 2 – Sample Alteration Checklist

Figure 2 Notes:
A – indicates 8.7.2.11.1 Interlocks is part of the alteration scope
B – indicates which sub-requirements have been included (note: 2.12.5 was excluded as permitted by exemption note C)
C – n/a denotes that TSSA has made this requirement optional (note: contractor opted to include requirement 2.12.6 & 7)
D – specifies the submission type
– In the Interlock example a Minor B alteration is required to be submitted
– In the Power Operation of H/W Doors example a Minor A is required (entire submission is a therefore a Minor A)
E – this sub-requirement, related to vertical slide entrances, was not selected as it is not applicable to the installation
F – compliance to 2.13 is a TSSA-designated supplemental requirement as denoted by the ★symbol
G – shows two TSSA-designated alterations, one denoted as 8.7.2.12★1, the other 8.7.2.15★1.

Roland Hadaller, P.Eng.

Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards & Safety Act, 2000*

This Director's Guideline has been developed in consultation with the TSSA Elevating Devices Advisory Council.

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.1.2	Alterations not specifically covered in 8.7						
			1.2	Level of safety shall not be diminished				
	8.7.1.4	Welding						
			8.8	Welding				
			8.7.1.5	Design / Weld Engineer				
	8.7.1.7	Repairs and Replacements						
			8.6.2	for repairs				
			8.6.3	for replacements				
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.6	Access Doors and Openings				
		★	2.7.3.4.7	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			B44-2010	New Installation				
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.2.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			2.6.	Protection of Space below H/W				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
		2.4.		Vertical Clearances & Runbys for Cars & Cwts				
		8.7.2.17.1		Increase or Decrease in Rise				
		8.7.2.17.2		Increase in Rated Speed				
		8.7.2.25.2		Change in Location of Driving Machine				
	8.7.2.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.		Horizontal Car and Counterweight Clearances				
		8.7.2.17.2		Increase in Rated Speed				
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major		
		2.6.		Protection of Space below H/W				
	8.7.2.7	Machinery Spaces, Machine Rooms Control Spaces and Control Rooms			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Room	Minor A	-		
		OESC		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1		General Requirements				
		2.7.3.2		Access Across Roofs				
		2.7.3.3		Means of Access				
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4		Access Doors and Openings				
		2.7.3.5		Stop Switch for Machinery Space or Control Spaces				
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4		Headroom in Machine Rooms/Spaces, Control Room/Spaces				
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2		Temperature & Humidity				
	CAD 8.7.2.7★1	Addition of Elevator Equipment Guarding			Minor A (per m/c rm)		mrr	mrr
		(a)	2.7.2	Maintenance Path and Clearance				
		(b)	2.7.3.4.2	Size of doors and openings in cage style enclosures (750x2030)				
		(c)	2.10.1	Guarding of Equipment				
		(d)		openable/removable only with tools				
		(e)		operating/work instruction for accessing equipment				
		(f)		clearances in front of electrical control equipment (1000mm) or clearance required at time of original control installation				
		(g)		access in front of / space to operate main disconnect (1000mm), or (750mm) if permitted at time of original installation				
		(h)		Installation by registered contractor				
		(i)		designed to be handled by one person				
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.		Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) OESC, CSA C22.1 as required				
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				
		Building reactions increased by more than 5%						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-	Major	Major
			2.11.	Protection of H/W Openings				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.11.6	Opening of Hoistway Doors				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
			Installed New components to meet:					
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	hanger /track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.12		Entrances, Vertical Slide Type				
		Installed New components to meet:						
	sills (a)	2.11.10.3		Hinged Hoistway Landing Sills	Minor B		Minor B	
		2.11.12.1		Landing Sills				
	frames (b)	2.11.12.2		Entrances Frames	Minor B		Minor B	
		8.7.2.10.5		Marking of Entrance Assemblies				
	rails (c)	2.11.12.3		Rails	mrr		mrr	
	panels (d)	2.11.12.3		Rails	Minor A		Minor A	
		2.11.12.4		Panels				
		2.11.12.5		Guides				
		2.11.12.6		Counterweighting or Counterbalancing				
		2.11.12.8		Pull Straps				
		8.7.2.10.5		Marking of Entrance Assemblies				
	guides (e)	2.11.12.5		Guides				
	sill guard (f)	2.11.12.7		Sill Guards	mrr		mrr	
	straps (g)	2.11.12.8		Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.13		Entrances, Swing Type				
		Installed New components to meet:						
	sills (a)	2.11.10.1		Landing-Sill Guards	Minor B		Minor B	
		2.11.10.3		Hinged Hoistway Landing Sills				
		2.11.13.1		Landing Sills				
	frames (b)	2.11.13.2		Entrance Frames	Minor B		Minor B	
		2.11.13.4		Hinges				
		8.7.2.10.5		Marking of Entrance Assemblies				
	panels (c)	2.11.13.3		Panels	Minor B		Minor B	
		2.11.13.4		Hinges				
		2.11.13.5		Marking				
		8.7.2.10.5		Marking of Entrance Assemblies				
	hinges (d)	2.11.13.4		Hinges	mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
		8.7.2.10.5(a)		NBCC requirements				
	CAD 8.7.2.10★1	★ Removing Service To a Floor			Minor B			
				Bolt entrances shut				
				Remove Interlock From Safety String				
				Remove COP Floor Button				
		2.11.6.2		Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
		2.12.7		H/W Access Switches - if floor was previously the access location				
	CAD 8.7.2.10★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8		Hoistway Door Safety Retainers				
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.2		Interlocks				
		2.12.4		Listing/Certification Locking Devices				
		2.12.5		Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
		2.12.6		Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
		2.12.7		Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.3		H/W Door Combination Mechanical Locks & Contacts				
		2.12.4		Listing/Certification Locking Devices				
		2.12.6		Hoistway Door Unlocking Devices				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3		requirements specified				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.11.4	Access Switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.26.1.4	Inspection Operation				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
			8.7.2.15★1,★2					
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates			see	
			2.13.5	Reopening Device for Power Operated Car Doors or Gates if FEO provided, door opening & closing to PHI &II at time of install			8.6.3.8	
			8.7.2.15★1,★2					
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass			mrr	
			2.14.1.8.3	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion secured to 2.14.1.2 material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided' verify stop sw verify switches operate as before (eg. FS, FEO, Access)				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
			8.7.2.15★1,★2					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
			2.14.4	Passenger and Freight Car Doors/Gates, General Requirements				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials						
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing - see CAD 8.7.2.14★4		Minor A		
				2.14.7.1.3 auxiliary lighting		Minor B		
				2.14.7.1.4 car top light & outlet		Minor B		
		★		CAD 8.7.2.15★1	Minor B		Minor B	
				or				
		★		CAD 8.7.2.15★2	Minor A		Minor A	
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD	8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)				
			or					
		CAD	8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)				
				car top run buttons not enabled until extended				
				normal operation not enabled until stowed				
				electrical limits to ensure car top clearance in overhead				
				minor A submission template				
			8.7.2.15★1,★2	car weighed prior to alteration				
				include testing procedure				
				include revised electrical schematics				
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-	Major	
			2.15.	Car Frames & Platforms				
	CAD 8.7.2.15★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD	8.7.2.15★1(a)	cars weighed prior to alteration				
		CAD	8.7.2.15★1(b)	In/Out weights recorded or cars weighed after alteration				
		CAD	8.7.2.15★1(c)	weight change recorded on auxilliary data tag				
		CAD	8.7.2.15★1(e)	testing prior to operation to ensure security of interior finishes				
	CAD 8.7.2.15★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD	8.7.2.15★1					
				engineering assessment of related items affected by weight change				
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-		
			2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			2.15.9	Platform Guards (Aprons)				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.(*)	Driving Machines & Sheaves				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
		CAD	8.7.2.15★1(a) to (e)					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.16	Capacity, Loading, and Classification			Major	-		
	8.7.2.16.1	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.22 (*)	Buffers & Bumpers					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to CAD 8.7.2.14★4					
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.16.	Capacity & Loading					
		2.17.(*)	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		2.20.	Suspension Ropes & Connections					
		2.24.(*)	Driving Machines & Sheaves					
		2.25.	Terminal Stopping Devices					
		2.26.	Operating Devices and Control Equipment					
		2.27.	Emergency Operation & Signaling Devices					
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	8.7.2.16.2	Change in Class of Loading: [from any class to any other class ie A, B, C1, C2, C3]			Major	-		
		2.16.2	Minimum Rated Load for Freight Elevators					
		8.7.2.16.4	Increase in Rated Load					
	8.7.2.16.3	Carrying of Passengers on Freight Elevators			Major	-		
		2.16.4	Carrying of Passengers on Freight Elevators					
		2.16.4.1	not accessible to general public					
		2.16.4.2	rated load not less than required by 2.16.1					
		2.16.4.3	conforms to 2.16.8 Passenger Overload in Down Direction					
		2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)					
		2.16.4.5	car doors to 2.14.5 Passenger Car Doors					
		2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings					
		2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door					
		2.16.4.8	Fs for suspension ropes to Table 2.20.3					
		2.16.4.9	Power Operated vertical doors to 2.13.3.4					
		★	apron guard to ED CAD or extent pit permits					
		★	2.16.5 Signs Required in Freight Elevator Cars					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.16.4	Increase in Rated Load			Major	-		
				Car doors or gates shall be provided at all car entrances				
				New Car doors and gates to: 2.14.4, 2.14.5, 2.14.6				
			2.14.4	Passenger & Frt Car Doors & Gates, General Req'mts				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
			2.15.(*)	Car Frames & Platforms- ★apron guard to ED CAD/as pit permits				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.	Driving Machines & Sheaves				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
	8.7.2.17	Change in Rise or Rated Speed			Major	-		
	8.7.2.17.1	Increase or Decrease in Rise			Major	-		
			2.25.	Terminal Stopping Devices				
				retain drum m/c, travel increase < 4570mm				
			2.4.(*)	Vertical Clearances & Runbys for Cars & Cwts				
				If decrease in rise is at lowest end then;				
				2.2.4 Access to Pits				
				2.2.5 Illumination of Pits				
				2.2.6 Stop Switches				
	8.7.2.17.2	Increase in Rated Speed			Major	-		
	8.7.2.17.2(a)	Increase in Rated Speed on a Winding Drum machine			Major	-		
				Increase in Rated Speed of a winding drum m/c prohibited				
			8.7.2.17.2(c)	except as permitted 8.7.2.17.2(c)				
	8.7.2.17.2(b)	Increase in Rated Speed except as per 8.7.2.17.2(c)			Major	-		
			2.4.2	Minimum Bottom Runby for Counterweighted Elevators				
			2.4.3	Minimum Bottom Runby for Uncounterweighted Elevators				
			2.4.4	Maximum Bottom Runby				
			2.4.5	Counterweight Runby Data Plate				
			2.4.6	Maximum Upward Movement of the Car				
			2.4.7	Top of Car Clearances				
			2.4.8	Top of Counterweight Clearances				
			2.4.9	Equipment on Top of Car Not Permitted to Strike O/H				
			2.5.	Horizontal Car and Counterweight Clearances				
				Car doors or gates shall be provided at all car entrances				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.4.2	Comp Rope Tie Down (if speed > 3.5 m/s)				
			2.22.(*)	Buffers & Bumpers				
			2.24.	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
	8.7.2.17.2(c)	Increase in Rated Speed less than 10% & less than 0.20m/s			Major	-		
				new spd <.75 for type A safeties				
				new spd <1 w/spring buffer, 2.18.2.1&.2				
			2.18.2.1	Car speed governors				
			2.18.2.2	counterweight speed governors				
			8.7.2.27.3	Change in Power Supply				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.17.3	Decrease in Rated Speed			Major	-		
			2.4.	Vertical Clearances & Runbys for Cars & Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			2.16.	Capacity & Loading				
			2.16.3(*)	Capacity and Data Plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
	8.7.2.18	Car and Counterweight Safeties			Major	Major	⇩See Below ⇩	
	8.7.2.18.1	New Car Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.2	New Cwt Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Car Safeties			Major	-	mrr	Minor A
			2.17.(*)	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Cwt Safeties			Major	-	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19		2.18.	Speed Governors			mrr see 8.6.3.6	Minor A
	8.7.2.19		2.17.15	Governor Rope Releasing Carriers			mrr see 8.6.3.9	mrr
	8.7.2.19			Governor Ropes of different material or Construction to: 2.18.6 Design Gov'r Rope Retarding Means for Type B Safeties 2.18.7 Traction between Speed Governor Rope & Sheave			-	Minor B
			& testing to	2.17.3 Function and Stopping Distances of Safeties				
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection (ACO & UCM)			Minor A	Major	mrr	Minor A
			2.19.	Ascending Car Overspd & Unintended Car Movement Protection				
	CAD 8.7.2.20★1	★		If Elevators Controllers are pre-B44-00 & have ACO & UCM	Minor A	-	mrr	Minor A
			2.19.	ACO & UCM Protection, Except that; detection means to B44-M90 or the code at time of install				
			8.9.	Code Data tag to reflect code at time of install				
	CAD 8.7.2.20★2	★		If Elevators Controllers are pre-B44-00 & have ACO ONLY	Minor A	-	mrr	Minor A
			2.19.1	ACO Protection Only, Except that;				
			2.19.3	Emergency Brake and detection means to B44-M90 or the code at time of install				
			2.19.4	Emergency Brake Supports				
			8.9.	Code Data tag to reflect code at time of install				
	CAD 8.7.2.20★3	★		Voluntary Addition of Both ACO and UCM where previously not provided		Minor A		
			2.19.	ACO & UCM Protection Except that; detection means to B44-M90 code or later				
			2.7.	Machinery Spaces, Machine Rooms Control Spaces & Control Rooms as applicable to the equipment installation				
			8.9.	Code Data tag to reflect code edition used for the alteration				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.21	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.2.21.1	Change in Number of, or Diameter of Ropes			Major	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify existing sheaves w/different ropes are satisfactory					
	8.7.2.21.1	Change in Material / Grade of Ropes			Minor A	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify existing sheaves w/different ropes are satisfactory					
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B	See 8.6.3.2	
		2.20.5	Suspension Rope Equalizers					
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices			Major	Major		
		2.20.	Suspension Ropes & Connections					
	8.7.2.21.4 (a)	Change in Type of Suspension Means			Major	Major		
		2.20.8.1	Protection Against Traction Loss					
		2.20.8.2	Broken Suspension Member					
		2.20.8.3	Suspension-Member Residual Strength					
		2.20.11	Suspension-Member Test					
	8.7.2.21.4 (b)	Traction Loss Detection			Minor A	Minor A		
		2.20.8.1	Protection Against Traction Loss					
	8.7.2.21.4 (c)	Broken Suspension Means Detection			Minor A	Minor A		
		2.20.8.2	Broken Suspension Member					
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.2.23	Car and Counterweight Buffers and Bumpers			Major	-	mrr	Minor B
		2.22.(*)	Buffers & Bumpers					
	8.7.2.24	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
	8.7.2.25	Driving Machines and Sheaves			⇩ See Below ⇩			
	8.7.2.25.1	Alter / Replace	Driving Machines & Sheaves		Major	Major	Major	
	8.7.2.25.1(a)		Driving Machine Installed as part of an alteration		Major	-		
		2.7.2	Maintenance Path and Clearance to extent existing installation permits					
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		2.10.1	Guarding of Equipment					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		8.7.2.20	ACO & UCM Protection					
	CAD	8.7.2.20★1	Pre B44-00 ACO & UCM Protection					
	CAD	8.7.2.20★2	Pre B44-00 ACO Only Protection					
	CAD	8.7.2.20★3	Addition ACO/UCM if not required by other alteration scope					
		2.20.	Suspension Ropes & Connections					
		2.24.	Driving Machines & Sheaves					
		2.26.8	Release and Application of Driving-Machine Brakes					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.25.1(b)	Alter / Replace		Driving Machine Components - affected component complies w/	Major			
			2.24.2	Sheaves and Drums			mrr	Major
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.24.5	Shafts Fillets and Keys				
			2.24.6	Cast-Iron Worms and Worm Gears				
			2.24.7	Friction Gearing and Clutches				
			2.24.8	Braking Systems & Driving Machine Brakes			mrr	Major
			2.24.9	Indirect-Driving Machines				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.1(c)	Change of		Driving Machine Sheave	Major	-	mrr	Major
			2.24.2	Sheaves and Drums				
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.20.	Suspension Ropes & Connections				
	8.7.2.25.2	Change in Location of Driving Machine			Major	-		
	8.7.2.25.2(a)	Change in Location of Driving Machine w/ no change in Rise			Major	-		
			2.7.2	Maintenance Path and Clearance				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.24.2.3	Traction				
	8.7.2.25.2(b)	Change in Location of Driving Machine w/ change in Rise			Major	-		
			Part 2 (*)	Electric Elevators (entire installation to meet Part 2), except 2.5 Horizontal Car and Counterweight Clearances 2.11 Protection of Hoistway Openings 2.4 Vertical Clearances and Runbys for Cars & Cwts				
			8.7.2.5	see also				
			8.7.2.10	see also				
	CAD 8.7.2.25★1	★ Replacement of worm and/or gear (specify make)			-	-	mrr	Minor A
			2.24	specify compliance to the applicable requirements				
		Addition of Machine Guarding - see CAD 8.7.2.7★1						
	8.7.2.26	Terminal-Stopping Devices			Minor B	Minor B		
			2.25.	Terminal Stopping Devices				
	8.7.2.27	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.2.27.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
			2.26.1.4	Inspection Operation				
	CAD 8.7.2.27★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
			2.26.1.4	Inspection Operation				
	CAD 8.7.2.27★2	★		Addition of Top-of-Car Operating Device (see CAD 3.8.3)	-	Minor A		
			2.26.1.4	Inspection Operation				
			8.7.2.15★1,★2					
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			2.26.1.6	Operation in Leveling or Truck Zone				
	CAD 8.7.2.27★3	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	System to Prevent Auto Operation w/faulty Door Contacts				
	CAD 8.7.2.27★4	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.3	Change in Power Supply (a) voltage, frequency or # of phases or (b) AC to DC , DC to AC or (c) combination of DC & AC, then			Major	-		
		electrical to:						
			2.26.1.1	Types of Operation				
			2.26.1.2	For Car-Switch Operation Elevators				
			2.26.1.3	Add'l Operating Devices for Elevators carrying 1pc. load > than Rated				
			2.26.1.4	Inspection Operation				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.9	Control & Operating Circuits				
			2.26.10	Absorption of Regenerated Power				
		new / modified equipment and wiring to:						
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
		brakes to:						
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.8	Release and Application of Driving-Machine Brakes				
		winding drum to:						
			2.25.3.5	Additional Req'mts for Winding Drum Machines				
				see 8.7.2.17.2(b) Increase in Rated Speed				
	8.7.2.27.4	Controllers						
	8.7.2.27.4(a)	Install / Replace		Motion or Operation Controller (no change in method)	Major	-	Major	
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.3	Contactor and Relays for Use in Critical Operating Circuits				
			2.26.4	Electrical Equipment and Wiring				
			2.26.5	System to Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.26.11	Car Platform to Hoistway Door Sills Vertical Distance				
				levelling accuracy to 13mm (0.5 in.)				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
			2.27.2	Emergency or Standby Power systems				
		If FEO previously present or required by OBC;						
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
			2.27.4	FEO: Non Automatic Elevators				
			2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph				
		If FEO NOT previously present or required by OBC;						
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.27★5	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring Electrical testing to verify functionality of rewired equipment				
	8.7.2.27.4(b)	Installation of		Door Controller	Minor A	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.4(c)	Installation of		Controller for Emergency or Standby Power	Minor A	Minor A	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.4(c)	Installation of		Controller for FEO Operation	Minor A	Minor A	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR			Major	-		
			2.11.1(*)	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6(*)	Opening of Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.11.8(*)	Hoistway Door Safety Retainers				
			2.11.12.8	Pull Straps				
			2.12.(*)	H/W-Door Locking Devices, Elec. Contacts, H/W Access 2.12.5 Restricted Opening of Hoistway or Car Doors 2.12.6 Hoistway Door Unlocking Devices 2.12.7 Hoistway Access Switches				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination 2.14.1.7 car top railing				
			2.16.8(*)	Capacity & Loading				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			8.7.2.20	ACO & UCM Protection				
		CAD	8.7.2.20★1	Pre B44-00 ACO & UCM Protection				
		CAD	8.7.2.20★2	Pre B44-00 ACO Only Protection				
		CAD	8.7.2.20★3	Addition ACO/UCM if not required by other alteration scope				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
				If FEO previously present or required by OBC;				
			2.27.	Emergency Operation and Signalling Devices 2.27.1 Car Emergency Signalling Devices 2.27.2 Emergency or Standby Power Systems 2.27.3 Firefighters' Emergency Operation: Automatic Elevators 2.27.3.1 Phase 1 Recall Operation 2.27.3.2 Phase 1 Recall Operation by FAID's CAD 2.27.3.2.2 2.27.3.3 Phase 2 Emergency In-Car Operation 2.27.3.4 Interruption of Power 2.27.3.5 Multicompartment Elevators see 8.7.1.2 safety levels shall not be diminished 2.27.4 FEO: Non Automatic Elevators 2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys				
				If FEO NOT previously present or required by OBC; CAD 2.27.3.2.2 2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
			2.27.	Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.2.27★6	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.13.5.3	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				
	CAD 8.7.2.27★7	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access when on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
	CAD 8.7.2.27★8	★ Addition of Destination Dispatch				Minor B		
			8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms FEO operation to 8.7.2.28 or code at time of installation or alteration				
	8.7.2.27.7	Removal of emergency stop switch on passenger elevators			Minor B	-		
				remove all related markings / engravings & provide an in-car stop switch to:				
			2.26.2.21	In-car stop switch				
		★	2.26.4.3	Positively Opened Contacts				
		★	2.26.9.3	Single failure does not render In-Car Stop Sw ineffective				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.8	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A		
			2.27.3	FEO: Automatic Elevators				
			2.27.4	FEO: Non-Automatic Elevators				
			2.27.5	FEO: Automatic Elevators w/Attendant				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
	8.7.2.28	Addition of Elevator to a Group - all elevators to meet:			-	Minor A		
			2.27.	Emergency Operation & Signaling Devices 2.27.1 Car Emergency Signalling Devices 2.27.2 Emergency or Standby Power Systems 2.27.3 FEO: Automatic Elevators CAD 2.27.3.2.2 2.27.4 FEO: Non-Automatic Elevators 2.27.5 FEO: Automatic Elevators w/Attendant 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys 2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.2.28★1	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of insta conformance to auto recall based on F.S. at time of install			Minor B			
	CAD 8.7.2.28★2	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order			Minor B	Minor A		
		2.27.3 FEO: Automatic Elevators						

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.6	Access Doors and Openings				
		★	2.7.3.4.7	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			B44-2010	New Installation				
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.3.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			3.5.	Horizontal car and Counterweight Clearances				
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				

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					Type of Submission Required			
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.		Horizontal Car and Counterweight Clearances				
		8.7.3.22.1		Increase or Decrease in Rise				
		8.7.3.22.2		Increase in Rated Speed				
		8.7.3.23.5		Change in Location of Hydraulic Jack				
	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major		
		3.6.		Protection of Spaces below Hoistway				
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Room	Minor A	-		
		OESC (C22.1)		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1		General Requirements				
		2.7.3.2		Access Across Roofs				
		2.7.3.3		Means of Access				
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4		Access Doors and Openings				
		2.7.3.5		Stop Switch in O/H M/C Space in the H/W				
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4		Headroom in M/C Rooms				
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2		Temperature & Humidity				
	CAD 8.7.2.7★1	Addition of Elevator Equipment Guarding			Minor A (per m/c rm)		mrr	mrr
		2.7.2		Maintenance Path and Clearance				
		2.7.3.4.2		Size of doors and openings in cage style enclosures (750x2030)				
		2.10.1		Guarding of Equipment				
				openable/removable only with tools				
				operating/work instruction for accessing equipment				
				clearances in front of electrical control equipment (1000mm)				
				access in front of / space to operate main disconnect (750mm)				
				Installation by registered contractor				
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts)			-	Minor B		
		also installation of Monitoring Equipment, HVAC						
		2.8.		Equipment in Hoistways and Machine Rooms				
				CSA Labeling (or equivalent)				
				OESC, CSA C22.1 as required				
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.		Machinery & Sheave Beams, Supports, Foundation				
		Building reactions increased by more than 5%						
		2.9.		Machinery & Sheave Beams, Supports, Foundation				
				adequacy of building structure verified by P.Eng.				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-		
			2.11.	Protection of H/W Openings				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.11.6	Opening of Hoistway Doors				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.12		Entrances, Vertical Slide Type				
	sills (a)	2.11.10.3		Hinged Hoistway Landing Sills	Minor B		Minor B	
		2.11.12.1		Landing Sills				
	frames (b)	2.11.12.2		Entrances Frames	Minor B		Minor B	
		8.7.2.10.5		Marking of Entrance Assemblies				
	rails (c)	2.11.12.3		Rails	mrr		mrr	
	panels (d)	2.11.12.4		Panels	Minor A		Minor A	
		2.11.12.3		Rails				
		2.11.12.5		Guides				
		2.11.12.6		Counterweighting or Counterbalancing				
		2.11.12.8		Pull Straps				
		8.7.2.10.5		Marking of Entrance Assemblies				
	guides (e)	2.11.12.5		Guides				
	sill guard (f)	2.11.12.7		Sill Guards	mrr		mrr	
	straps (g)	2.11.12.8		Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.13		Entrances, Swing Type				
	sills (a)	2.11.10.1		Landing-Sill Guards	Minor B		Minor B	
		2.11.10.3		Hinged Hoistway Landing Sills				
		2.11.13.1		Landing Sills				
	frames (b)	2.11.13.2		Entrance Frames	Minor B		Minor B	
		2.11.13.4		Hinges				
		8.7.2.10.5		Marking of Entrance Assemblies				
	panels (c)	2.11.13.3		Panels	Minor B		Minor B	
		2.11.13.4		Hinges				
		2.11.13.5		Marking				
		8.7.2.10.5		Marking of Entrance Assemblies				
	hinges (d)	2.11.13.4		Hinges	mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
		8.7.2.10.5(a)		NBCC requirements				
	CAD 8.7.2.10★1	★ Removing Service To a Floor			Minor B			
				Bolt entrances shut				
				Remove Interlock From Safety String				
				Remove COP Floor Button				
		2.11.6.2		Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
		2.12.7		H/W Access Switches - if floor was previously the access location				
	CAD 8.7.2.10★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8		Hoistway Door Safety Retainers				
	8.7.3.11	Hoistway Door-Locking Devices			See 8.7.2.11			
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.2		Interlocks				
		2.12.4		Listing/Certification Locking Devices				
		2.12.5		Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
		2.12.6		Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
		2.12.7		Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.3		H/W Door Combination Mechanical Locks & Contacts				
		2.12.4		Listing/Certification Locking Devices				
		2.12.6		Hoistway Door Unlocking Devices				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3		requirements specified				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.11.4	Access switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.1.4	Inspection Operation				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
			8.7.3.10	Hoistway Entrances and Openings				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
			8.7.2.15★1,★2					
	CAD 8.7.2.12★2	★ Replacement of Door Reopening Device			See 8.7.2.13			
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates			see	
			2.13.5	Reopening Device for Power Operated Car Doors or Gates			8.6.3.8	
				if FEO provided, door opening & closing to PHI &II at time of install				
			8.7.2.15★1,★2					
	8.7.3.13	Car Enclosures			See 8.7.2.14			
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass			mrr	
			2.14.1.8.3	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
			8.7.2.15★1,★2					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
			2.14.4	Passenger and Freight Car Doors/Gates, General Requirements				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials						
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing - see CAD 8.7.2.14★4		Minor A		
				2.14.7.1.3 auxiliary lighting		Minor B		
				2.14.7.1.4 car top light & outlet		Minor B		
			★	CAD 8.7.2.15★1	Minor B		Minor B	
				or				
			★	CAD 8.7.2.15★2	Minor A		Minor A	
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD	8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)				
			or					
		CAD	8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)				
				car top run buttons not enabled until extended				
				normal operation not enabled until stowed				
				electrical limits to ensure car top clearance in overhead				
				minor A submission template				
			8.7.2.15★1,★2	car weighed prior to alteration				
	8.7.3.14	Car Frames and Platforms			Major	-	Major	
			3.15.	Car Frames & Platforms				
	8.7.3.15	Safeties		Car or Cwt (plunger gripper see 8.7.3.23.7)	⇩ See Below ⇩			
	8.7.3.15.1	Car Safeties			-	Major	mrr	Minor A
			3.17.1	Car Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.2	Counterweight Safeties			-	Major	mrr	Minor A
			3.17.2	Counterweight Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.3	Alteration to existing Car or Counterweight Safeties			Major	-	mrr	Minor A
			3.17(*)	Car and counterweight safeties and plunger gripper				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				

New=New Installation †=No Inspection Req'd (*)=w/Exemptions ★=TSSA Designated Alteration or Requirement mrr=maint/repair/replace no submission req'd

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.16	Governors and Governor Ropes			See 8.7.2.19			
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.		Speed Governors			mrr see 8.6.3.6	Minor A
	8.7.2.19	2.17.15		Governor Rope Releasing Carriers			mrr see 8.6.3.9	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
				2.18.6 Design of Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
		& testing to		2.17.3 Function and Stopping Distances of Safeties				
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1(*)		Entrances and Emergency Doors Required				
		2.11.2		Types of Entrances				
		2.11.3		Closing of Hoistway Doors				
		2.11.5		Projection of Entrances & Equip. Beyond Land'g Sills				
		2.11.6		Opening of Hoistway Doors				
		2.11.7		Glass in Hoistway Doors				
		2.11.8		Weights for Closing or Balancing Doors				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				
		2.22.(*)		Buffers & Bumpers				
		3.22.2		Counterweight Buffers				
		3.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.1.7.1		car top guard rail to 8.7.2.14★4				
		3.15.		Car Frames & Platforms				
		3.17.		Car and Counterweight Safeties				
		3.21.		Counterweights				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		2.18.(*)		Speed Governors				
		3.16.		Capacity & Loading				
		3.18.		Hydraulic Jacks				
		3.19.		Valves, Pressure Piping, and Fittings				
		3.20.		Ropes and Rope Connections				
		3.24.		Hydraulic Machines and Tanks				
		3.25.		Terminal-Stopping Devices				
		3.26.		Operating Devices and Control Equipment				
		3.27.		Emergency Operation and Signaling Devices				
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
		2.16.2		Minimum Rated Load for Freight Elevators				
		3.16.		Capacity & Loading				

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
		3.16.4		2.16.4 except 2.16.4.3				
		2.16.4		Carrying of Passengers on Freight Elevators				
		2.16.4.1		not accessible to general public				
		2.16.4.2		rated load not less than required by 2.16.1				
		2.16.4.4		H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)				
		2.16.4.5		car doors to 2.14.5 Passenger Car Doors				
		2.16.4.6		car enclosure openings to 2.14.2.2 Prohibited Openings				
		2.16.4.7		conforms to 2.12.5 Restricted Opening of H/W or Car Door				
		2.16.4.8		Fs for suspension ropes to Table 2.20.3				
		2.16.4.9		Power Operated vertical doors to 2.16.4.9(a) to (e)				
		★		apron guard to ED CAD or extent pit permits				
		★		2.16.5 Signs Required in Freight Elevator Cars				
	8.7.3.20	Increase in Rated Load			Major	-		
		2.26.1.4		Inspection Operation				
		2.26.1.5		Inspection Operation with Open Door Circuits				
		2.26.5		Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
		3.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.1.7.1		car top guard rail to CAD 8.7.2.14★4				
		3.15.		Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
		3.16.		Capacity & Loading				
		3.17.		Car and Counterweight Safeties				
		3.20.		Ropes and Rope Connections				
		3.21.		Counterweights				
		3.22.		Buffers and Bumpers				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		8.7.3.23.4		Increase in Working Pressure				
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
		3.14.		Car: Enclosure, Doors, Gates, Illumination	n/a			
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.1.7.1		car top guard rail to 8.7.2.14★4				
		3.15.		Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
		3.16.		Capacity & Loading				
		3.17.		Car and Counterweight Safeties				
		3.20.		Ropes and Rope Connections				
		3.21.		Counterweights				
		3.22.		Buffers and Bumpers				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		3.24.5		Counterweight Sheaves				
		8.7.3.23.4		Increase in Working Pressure				
		CAD 8.7.2.15★1						
	CAD 8.7.3.21★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD 8.7.2.15★1						
	CAD 8.7.3.21★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD 8.7.2.15★2						

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.22.1	Increase or Decrease in Rise			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.4.1	Bottom Car Clearance				
			3.4.2	Minimum Bottom and Top Car Runby				
			3.4.3	Car Top and Bottom Maximum Runby				
			3.18.2	Plungers				
				If decrease in rise is at lowest end then;				
			2.2.4	Access to Pits				
			2.2.5	Illumination of Pits				
			2.2.6	Stop Switches				
	8.7.3.22.2	Increase in Rated Speed			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			3.17.(*)	Car and Counterweight Safeties				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.20.	Ropes and Rope Connections				
	8.7.3.22.3	Decrease in Rated Speed			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			3.16.	Capacity & Loading				
			3.16.3(b)	Capacity & data plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.3.23	Hydraulic Equipment			⇩ See Below ⇩			
	8.7.3.23.1	Alter / Install / Replace		Hydraulic Jacks	Major	-	Major	
			3.18.	Hydraulic Jacks			see 8.6.3.10.1	
	8.7.3.23.2	Alter / Install / Replace		Plungers	Major	-	Minor A	
			3.18.1.2	Roped-Hydraulic Elevator				
			3.18.2	Plungers				
	8.7.3.23.3	Alter / Install / Replace		Cylinders	Major	-	Minor A	
			3.18.3	Cylinders			see 8.6.3.10.2	
			3.18.3	Cylinder is Altered				
			3.18.3	Cylinder is Sleeved	Minor A			
			3.18.4.1	Metal Stops and/or Other Means				
			3.18.1.2	Roped-Hydraulic Elevator				
			3.18.2	Plungers				
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
			3.18.(*)	Hydraulic Jacks				
			3.19.(*)	Valves, Pressure Piping, and Fittings				
			3.24.1	Marking Plates				
			3.24.2	Tanks				
			3.24.3	Atmosphere Storage and Discharge Tanks				
			3.24.4	Welding				
	8.7.3.23.5	Change in Location of		Hydraulic Jack	Major	-		
			Part 3	Hydraulic Elevators				
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
			3.26.8	Pressure Switch				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
			3.17.3	Plunger Gripper				
			3.1.1(b)	strength of pit floor				
			3.22.1	no strike when buffers compressed				
	CAD							
	8.7.3.23.7 ★1	Removal of Plunger Gripper			Minor A	-		
			3.18.3	Cylinders				
			3.19.4.7	Overspeed Valves				
			3.4.2.1	Bottom Car Runby				
	8.7.3.24 (a)	Alter / Replace		Control Valves	Minor A	-	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Relief Valves	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Check Valves	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Pressure Piping or Fittings	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
			3.20.	Ropes and Rope Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
			3.20.	Ropes and Rope Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
			2.20.5	Suspension Rope Equalizers				
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
			2.21.	Counterweights				
			3.21.	Counterweights				
			8.7.2.22.2	Rod Type Counterweights				
			8.7.2.3	Location and Guarding of Counterweights				
	8.7.2.22.2	Rod Type Cwt - can retain if:						
				Minimum of 2 suspension and 2 tie rods				
				Suspension rods:				
			2.21.2.1	Material - Cwt Frames & Rods				
			2.21.2.3	Factor of Safety				
				Tie Rods:				
			2.21.1.2	Retention of Weight Sections				
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.3.26	Counterweights - Addition of			-	Major		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.6.	Protection of Spaces below Hoistway				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	car top guard rail to CAD 8.7.2.14★4				
			3.15.	Car Frames & Platforms				
			3.17.2	Counterweight Safeties				
			3.18.	Hydraulic Jacks				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			8.7.3.3	Location and Guarding of Counterweights				
	8.7.3.27	Car Buffers and Bumpers			Major	-	mrr	Minor B
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.29	Alteration to	Tanks		Minor B	-	Minor B	
		3.24.	Hydraulic Machines and Tanks				see 8.6.3.10.4	
	CAD 8.7.3.29★1	★ Addition of Oil Cooler			Minor B		Minor B	
		8.7.3.8	Electrical Wiring, Pipes, and Ducts in H/W and M/C rooms					
		2.7.2	Maintenance Path and Clearance					
		3.10.	Guarding of Exposed Auxiliary Equipment					
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
		3.25.	Terminal-Stopping Devices					
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
		3.26.2	Inspection Operation					
	CAD 8.7.3.31★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
		2.26.1.4	Inspection Operation					
	CAD 8.7.3.31★2	Addition of Top-of-Car Operating Device (see CAD 3.8.3)			-	Minor A		
		2.26.1.4	Inspection Operation					
		8.7.2.15★1,★2						
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
		3.26.3.2	Operation in Leveling or Truck Zone					
	8.7.3.31.3	Alter / Replace	Anti-Creep Leveling Device		Minor B	-	Minor B	
		3.26.3.1	Anti-Creep Operation				see 8.6.3.10.5	
	CAD 8.7.3.31★3	★ Door By-Pass Switches			Minor A	Minor A		
		2.26.1.5	Inspection Operation with Open Door Circuits					
	CAD 8.7.3.31★4	★ Door Monitoring System			Minor A	Minor A		
		2.26.5	System to Prevent Auto Operation w/faulty Door Contacts					
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
		3.26.1	Operating Devices and Control Equipment					
		3.26.4	Electrical Protective Devices					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.6(*)	Control and Operating Circuits					
	CAD 8.7.3.31★5	★ Addition of Soft Start				Minor A		
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					
		3.26.5	Phase-Reversal and Failure Protection					
	CAD 8.7.3.31★6	★ Addition of Power Efficiency Increasing Device				Minor B		
		B44.1 certified						
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.5	Controllers						
	8.7.3.31.5(a)	Install / Replace		Elevator Controller	Major	-		Major
			3.25.	Terminal-Stopping Devices				
			3.26.	Operating Devices and Control Equipment				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.8	Pressure Switch				
			3.26.9	Low Oil Protection				
			3.26.10	Auxiliary Power Lowering Operation				
		★	2.7.9.2	Temperature and Humidity				
			2.27.2	when E.P. Is provided				
			3.27.1	Phase 1 Emergency Recall Operation after Device Actuation				
			3.27.2	Phase 1 Emergency Recall Operation prior to Device Actuation				
			3.27.3	Device Acutation at Recall Level				
			3.27.4	Device Acutation with Phase II Emergency In-Car in Effect				
				If FEO previously present or required by OBC;				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
			2.27.4	FEO: Non Automatic Elevators				
			2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				
	CAD 8.7.3.31★7	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.3.31.5(b)	Install / Replace		Door Controller	Minor A	-		Minor B
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
			2.11.1(*)	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6(*)	Opening of Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.11.8(*)	Hoistway Door Safety Retainers				
			2.11.12.8	Pull Straps				
			2.12.(*)	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
				2.12.5 Restricted Opening of Hoistway or Car Doors				
				2.12.6 Hoistway Door Unlocking Devices				
				2.12.7 Hoistway Access Switches				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
			8.7.2.27.5(d)	Capacity & Loading				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			3.25.	Terminal Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
				If FEO previously present or required by OBC;				
			2.27.	Emergency Operation and Signalling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 Firefighters' Emergency Operation: Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
				2.27.4 FEO: Non Automatic Elevators				
				2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.7	Change in Type of Operation Control - CPPB, Automatic			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			3.11.1	Protection of Hoistway Landing Openings				
			3.12.1	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			3.13.	Power Operation of H/W Doors and Car Doors				
			3.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
		★	2.7.9.2	Temperature and Humidity				
			3.27.	Emergency Operation and Signaling Devices				
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.3.31★8	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.27.3.1.6(l)	- shall not prevent PHI				
	CAD 8.7.3.31★9	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access When on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.1.6(l)	- shall not prevent PHI				
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
			DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys				
	8.7.3.31.8	Emergency Operation and Signaling Devices						
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
			3.27.	Emergency Operation and Signaling Devices				
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.3.31.8★10	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of insta			Minor B			
				conformance to auto recall based on F.S. at time of install				
	CAD 8.7.3.31.8★11	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order			Minor B	Minor A		
				2.27.3 FEO: Automatic Elevators				
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B		
			3.26.10	Auxiliary Power Lowering Operation				
				include testing procedure				
	8.7.3.31.10	Removal of emergency stop switch on passenger elevators			Minor B	Minor B		
				remove all related markings / engravings & provide an in-car stop switch to:				
			2.26.2.21	In-car stop switch				
			2.26.4.3	Positively Opened Contacts				
			2.26.9.3.1(a)	single failure does not render In-Car Stop Switch ineffective				
			3.26.4.2	deceleration rate <1g, anticreep must still function				
	8.7.3.31.11	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			Major	Major	mrr	Major
				if device meets 2.26.4.3.2 (PES)				
			3.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			-	Minor A	mrr	
				if device meets 2.26.4.3.1				
			3.26.2	Electrical Protective Devices - for specified device				

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
		4.1.		Rack and Pinion Elevators				
	8.7.4.2	Screw-Column Elevators			Major	-		
		4.2.		Screw-Column Elevators				
	8.7.4.3	Hand Elevators			Major	-		
	8.7.4.3.1	Hoistway Enclosures and Machinery Space			Major	-		
		4.3.1		Hoistways, H/W Enclosures, and Related Construction				
		4.3.4		Enclosures for Machines and Control Equipment				
	8.7.4.3.2	Top Car and Counterweight Clearances			Major	-		
		4.3.3		Top Clearances				
	8.7.4.3.3	Hoistway Entrances			Major	-		
		4.3.6		Hoistway Entrances				
		4.3.7		Hoistway Gates for Landing Openings				
		4.3.8		Hoistway-Door & Hoistway Gate Locking Devices				
	8.7.4.3.4	Car Enclosures			Major	-		
		4.3.9		Car Enclosures				
		4.3.11		Car Frames and Platforms				
	8.7.4.3.5	Car Frame and Platform			Major	-		
		4.3.11		Car Frames and Platforms				
		4.3.12		Car Compartments				
		4.3.13		Cars Counterbalancing One Another				
		4.3.16		Suspension Means				
	8.7.4.3.6	Capacity and Loading			Major	-		
		4.3.14.1		Minimum Rated Load				
		4.3.14.2		Capacity Plate				
		4.3.19.1		Drive Machine & Sheaves - Factors or Safety				
		4.3.19.2		Driving-Machines				
		4.3.16		Suspension Means				
	8.7.4.3.7	Increase in Rise			Major	-		
		4.3.3.1		Top Car Clearances				
		4.3.3.2		Top Counterweight Clearance				
		4.3.15		Car Safeties				
		4.3.16		Suspension Means				
	8.7.4.3.8	Guide Rails and Fastenings			Major	-		
		4.3.18.1		Guide Rails - Material and Finish				
		4.3.18.2		Strength of Rails and Fastenings				
		4.3.18.3		Extension of Guide Rails at Top & Bottom of H/W				
	8.7.4.3.9	Overhead Beams and Supports			Major	-		
		4.3.5.1		Overhead Beams and Supports				
		4.3.5.2		Access to Machines and Sheaves				
	8.7.4.3.10	Power Attachments			Major	-		

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-		
			5.1.	Inclined Elevators				
				compliance to specific 5.1 sections based on alteration scope	variance			
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	CAD 8.7.5.2★1	★	8.7.2	Alterations to Electric Elevator & as modified in Section 5.2				
	CAD 8.7.5.2★2	★	8.7.3	Alterations to Hydraulic Elevator & as modified in Section 5.2				
	8.7.5.5	Power Sidewalk Elevators			Major	-		
	8.7.5.5.1	Changes in Electrical Wiring or Electrical Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
	8.7.5.5.2	Sidewalk Door			Major	-		
			5.5.1.11.2	Horizontal Openings in Sidewalks and Exterior Areas				
			5.5.1.11.3	Hinged Type Swing Sidewalk Doors				
			5.5.1.11.4	Vertical Lifting Sidewalk Covers				
	8.7.5.5.3	Change in Car Enclosure, Car Doors, and Gates			Major	-		
			5.5.1.14	Car Enclosure, Car Doors and Gates, Illumination				
	8.7.5.5.4	Bow-Irons and Stanchions			Major	-		
			5.5.1.15.2	Bow-Irons and Stanchions				
	8.7.5.5.5	Increase in Rated Load			Major	-		
			5.5.1.16	Capacity and Loading				
			5.5.1.18	Speed Governors				
			5.5.1.21	Buffers and Bumpers				
			5.5.1.25.4	Maximum Rated Speed				
	8.7.5.5.6	Increase in Rated Speed			Major	-		
			5.5.1.15	Car Frames and Platforms				
			5.5.1.16	Capacity and Loading				
			5.5.1.19	Suspension Ropes				
			5.5.1.22	Guide Rails				
	8.7.5.5.7	Existing Driving Machine			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.9	Machinery and Sheave Beams, Supports, and Foundations				
			5.5.1.23	Driving Machines and Sheaves				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.5.8	Change in Type of Operating Devices and/or Control Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.6	Rooftop Elevators			Major	-		
			5.6.	Rooftop Elevators				
	8.7.5.7	Special Purpose Personnel Elevators			see CAN/CSA B311			

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					Type of Submission Required			
	8.7.6.1	Alterations to Escalators						
	8.7.6.1.1	Change to component parts			mrr	-	mrr	
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.1.1	Addition of Components or Devices			see 8.7.6.1		-	
				see applicable 8.7.6.1 requirements for that device				
	8.7.6.1.2 (a)	Relocation of Escalator			New	-		
			6.1.	Escalators				
	8.7.6.1.2 (b)	Repositioning of Escalator			Major			
	CAD 3.18	★ Repositioning of Escalator (within the same building)						
			6.1.3.3.11	Guard at ceiling intersection				
			6.1.3.3.12	AntiSlide Devices				
			6.1.3.3.13	Deck Barricades				
			6.1.3.4.3	Guards				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
			6.1.3.12	Headroom				
			6.1.3.13	Welding				
			6.1.6.9	Signs				
			6.1.7.4.1	Electrical equipment				
			8.7.6.1.3	Protection of Floor Openings				
	8.7.6.1.3	Protection of Floor Openings			Minor A	-		
			6.1.1.1	Protection Required				
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.1.2.1	Protection Required				
	8.7.6.1.5	Construction Requirements						
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-		
			6.1.3.2	Geometry				
	8.7.6.1.5(c)	Any Alteration to the Balustrades			Minor A	Minor A		
			6.1.3.3	Balustrades				
			6.1.3.3.1	Construction				
			6.1.3.3.2	Strength				
			6.1.3.3.3	Use of Glass or Plastic				
			6.1.3.3.4	Interior Low Deck				
			6.1.3.3.5	Loaded Gap between Skirt & Step				
			6.1.3.3.6	Skirt Panels				
			6.1.3.3.7	Dynamic Skirt Panels				
			6.1.3.3.8	Dynamic Skirt Panel Loaded Gap				
			6.1.3.3.9	Step/Skirt Performance Index				
			6.1.3.3.10	Skirt Deflector Devices				
			6.1.3.3.11	Guard at ceiling intersection				
			6.1.3.3.12	AntiSlide Devices				
			6.1.3.3.13	Deck Barricades				
	8.7.6.1.5(d)	Deflector Devices			Minor B		mrr	
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.6	Handrails or Handrail System			Minor A	-		
			6.1.3.2.2	Geometry - Handrail				
			6.1.3.4.1	Handrails - Type Required				
			6.1.3.4.2	Extension Beyond Combplate				
			6.1.3.4.3	Guards (hand or finger)				
			6.1.3.4.4	Handrails - Splicing				
			6.1.3.4.6	Handrail Clearance				
			6.1.6.3.12	Handrail Entry Device				
			6.1.6.4	Handrail Speed Monitoring Device				
	CAD 8.7.6.1★1	★ Addition of Handrail Advertising			mrr	variance		
				Variance to 6.1.6.9.2				

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					Type of Submission Required			
	8.7.6.1.7	Step System - any alteration to the step system			Major	-	mrr	Minor B
		6.1.3.3.5	Loaded Gap Between Skirt & Step					
		6.1.3.5 (*)	Steps					
		6.1.3.6	Entrance and Egress Ends					
		6.1.3.8	Step Wheel Tracks					
		6.1.3.9.4	Step					
		6.1.3.10.4	Factor of Safety - Steps					
		6.1.3.11	Chains					
		6.1.6.3.3	Broken Step-Chain Device					
		6.1.6.3.9	Step Upthrust Device					
		6.1.6.3.11	Step Level Device					
		6.1.6.3.14	Step Lateral Displacement Device					
		6.1.6.5	Missing Step Device					
	8.7.6.1.8	Combplates			Minor A	-		
		6.1.6.3.13	Comb-Step Impact Devices					
	8.7.6.1.9	Trusses and Girders			Major	-		
		8.7.1.4	Welding					
		6.1.3.7	Trusses of Girders					
		6.1.3.9.1	Structural Load					
		6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures					
	8.7.6.1.9	New Escalator into Existing Trusses			New	-		
		6.1.	Escalators					
	8.7.6.1.10	Step Wheel Tracks			Major	-		
		6.1.3.8	Step Wheel Tracks					
		6.1.3.9.4	Step					
		6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures					
		8.7.1.4	Welding					
	8.7.6.1.11	Rated Load and Speed			Major	-		
		6.1.	Escalators					
	8.7.6.1.12	Driving Machine, Motor, and Brake						
	8.7.6.1.12(a)	Driving Machine			Major	-		
		6.1.3.9.2	Machinery					
		6.1.3.10.3	Factor of Safety - Power Transmission Parts					
		6.1.4.1	Limits of Speed					
		6.1.5.1	Connection Between Driving Machine and Main Drive Shaft					
		6.1.5.2	Driving Motor					
		6.1.5.3.1	Escalator Driving-Machine Brake					
		6.1.5.3.2	Main Drive Shaft Brake					
		6.1.6.3.4	Broken Drive-Chain Device					
		6.1.6.3.8	reversal Stop Device					
	8.7.6.1.12(b)	Driving Motor			Major	-		
		6.1.3.9.2	Machinery					
		6.1.3.10.3	Factor of Safety - Power Transmission Parts					
		6.1.4.1	Limits of Speed					
		6.1.5.2	Driving Motor					
		6.1.5.3.1	Escalator Driving-Machine Brake					
		6.1.5.3.2	Main Drive Shaft Brake					
		6.1.6.3.2	Speed Governor					
		6.1.6.3.8	reversal Stop Device					
		6.1.6.3.10	Disconnected Motor Safety Device					
	8.7.6.1.12(c)	Machine Brake			Major	-		
		6.1.3.9.3	Brake					
		6.1.3.10.2	Factor of Safety - Driving Machine Parts					
		6.1.5.3.1	Escalator Driving-Machine Brake					

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					Type of Submission Required			
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A		
			6.1.6	Operating and Safety Devices (for that device)				
	CAD 8.7.6.1★2	★	Removal of step demarcation lights		Minor A	-	-	
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5.4	Clearance between Steps				
			6.1.3.5.5	Slotting of Steps and Treads				
			6.1.3.5.6	Step Demarcation				
			6.1.3.6.2	Distinction Between Comb and Step				
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.1.7	Lighting, Access, and Electrical Work				
	8.7.6.1.15	Entrance and Egress			Major	-		
			6.1.3.6.1	Combplates				
			6.1.3.6.2	Distinction Between Comb and Step				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
	8.7.6.1.16	Controller			Major	-	-	
			6.1.6.10	Control and Operating Circuits				
			6.1.6.11	Electrically Power Safety Devices				
			6.1.6.12	Installation of Capacitors.. To Make EPD's Ineffective				
			6.1.6.13	Completion of Maintenance Circuits				
			6.1.6.14	Escalator Manual Reset				
			6.1.6.15	Contractors and Relays for Use in Critical Operating Circuits				
	CAD 8.7.6.1★3	★	Controller - Replacement of		-	-	Major	
			8.7.6.1.16	Controller				
	CAD 8.7.6.1★4	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	CAD 8.7.6.1★5	★	Addition of Soft start		-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				
	CAD 8.7.6.1★6	★	Addition of Power Efficiency Increasing Device		-	Minor B		
			B44.1 certified					
			2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified				

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					Type of Submission Required			
	8.7.6.2	Alterations to Moving Walks						
	8.7.6.2.1	Change to component parts			mrr	-	mrr	
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.2.1	Addition of Components or Devices			see 8.7.6.2		-	
				see applicable 8.7.6.2 requirements for that device				
	8.7.6.2.2	Relocation of Moving Walk			New	-		
			6.2.	Moving Walks				
	8.7.6.2.3	Protection of Floor Openings			Minor A	-		
			6.2.1.1	Protection Required				
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.2.2.1	Protection of Supports - Protection Required				
	8.7.6.2.5	Construction Requirements - Angle of Inclination			Major	-		
			6.2.	Moving Walks				
	8.7.6.2.5	Construction Requirements - Geometry			Major	-		
			6.2.3.2	Geometry				
	8.7.6.2.5	Construction Requirements - Balustrades			Minor A	Minor A		
			6.2.3.3	Balustrades				
	8.7.6.2.6	Handrails			Minor A	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.4	Handrails				
			6.2.6.3.10	Handrail Entry Device				
			6.2.6.4	Handrail Speed Monitoring Device				
	8.7.6.2.7	Treadway System			Major	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.3.5	Skirtless Balustrade				
			6.2.3.3.6	Skirt Panels				
			6.2.3.5	Pallet-Type Treadway				
			6.2.3.6(*)	Belt-Type Treadway				
			6.2.3.8	Entrance and Egress Ends				
			6.2.3.9	Supporting Structure				
			6.2.3.10.4	Pallet				
			6.2.3.11.4	Pallet Factor of Safety				
			6.2.3.11.5	Belt Factor of Safety				
			6.2.3.12	Chains				
			6.2.6.3.3	Broken Treadway Device				
			6.2.6.5	Missing Pallet Device				
			6.2.6.3.9	Pallet Level Device				
	8.7.6.2.8	Combplates			Minor A	-		
			6.2.3.8	Entrance and Egress Ends				
			6.2.6.3.11	Comb-Pallet Impact Devices				
	8.7.6.2.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding				
			6.2.3.9	Supporting Structure				
			6.2.3.10.1	Structural Load				
			6.2.3.12.1	Trusses & Supports based on max static load				
	8.7.6.2.9	New Moving Walk into Existing Truss			New	-		
			6.2.	Moving Walks				
	8.7.6.2.10	Track System			Major	-		
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11.1	Trusses & Supports based on max static load				
			8.7.1.4	Welding				
	8.7.6.2.11	Rated Load and Speed			Major	-		
			6.2.	Moving Walks				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.6.2.12	Driving Machine			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.3.14	V-Belt Drives				
			6.2.3.15	Headroom				
			6.2.4	Rated Speed				
			6.2.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
			6.2.6.3.4	Broken Drive-Chain Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Drive Motor			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.4	Rated Speed				
			6.2.5.2	Driving Motor				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.6.3.2	Speed Governor				
			6.2.6.3.7	Reversal Stop Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Machine Brake			Major	-		
			6.2.3.10.3	Brake				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
	8.7.6.2.13	Operating and Safety Devices			Minor A	Minor A		
			6.2.6	Operating and Safety Devices (for that device)				
	8.7.6.2.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.2.7	Lighting, Access, and Electrical Work				
	8.7.6.2.15	Controller - Installed as part of an alteration			Major	-	-	
			6.2.6.9	Control and Operating Circuits				
			6.2.6.10	Electrically Power Safety Devices				
			6.2.6.11	Installation of Capacitors.. To Make EPD's Ineffective				
			6.2.6.12	Completion of Maintenance Circuits				
			6.2.6.13	Moving Walk Manual Reset				
			6.2.6.14	Contractors and Relays for Use in Critical Operating Circuits				
	CAD 8.7.6.2★1	★ Controller - Replacement of			-	-	Major	
			8.7.6.1.16	Controller				
	CAD 8.7.6.2★2	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	CAD 8.7.6.2★3	★ Addition of Soft start			-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				
	CAD 8.7.6.2★4	★ Addition of Power Efficiency Increasing Device			-	Minor B		
			B44.1 certified					
			2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified				

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.7	Alterations to Dumbwaiters and Material Lifts						
	8.7.7.1	Dumbwaiters and Material Lifts Without Automatic Transfer Devices			Major	-		
		Alteration to a Power and Hand Dumbwaiters			Major	-		
		7.1.	Power and Hand Dumbwaiters					
		7.2.	Electric and Hand Dumbwaiters					
		7.3.	Hydraulic Dumbwaiters					
		Alteration to a Material Lifts			Major	-		
		7.4.	Material Lifts					
		7.5.	Electric Material Lifts					
		7.6.	Hydraulic Material Lifts					
	8.7.7.1.1	General Alterations other than 8.7.7.1.2			Major	-		
		Part 7	Dumbwaiters and Material Lifts					
	8.7.7.1.2	Increase in Rated Load			Major	-		
		7.2.(*)	Electric and Hand Dumbwaiters w/o Transfer Devices					
		7.3.(*)	Hydraulic Dumbwaiters w/o Transfer Devices					
		7.4.	Material Lifts					
		7.5.	Electric Material Lifts					
		7.6.	Hydraulic Material Lifts					
	8.7.7.2	Addition of Automatic Transfer Device			Major	-		
		Part 2	Electric Elevators					
		Part 3	Hydraulic Elevators					
	8.7.7.3.1	Material Lifts and Dumbwaiters With Automatic Transfer Devices			N/A	N/A		
			exempt if requirements of CAD 2.3(j) are met					
	8.7.7.3.2	Material Lifts and Dumbwaiters - remove Transfer Device			New	-		
		7.1. to 7.3.	for Dumbwaiters					
		7.4. to 7.6	Material Lifts w/o Transfer Devices					
	8.7.7.3.3	Material Lifts altered to an Elevator			New	-		
		Part 2	Electric Elevators					
		Part 3	Hydraulic Elevators					
	8.7.7.3.4	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W			New	-		
		7.1.	Power and Hand Dumbwaiters w/Auto Transfer Devices					
		7.2.	Electric and Hand Dumbwaiters w/o Transfer Devices					
		7.3.	Hydraulic Dumbwaiters w/o Transfer Devices					
		Alterations to Freight Platform Lifts						
	CAD 8.7.7★1	★ Alteration to a Type 'A' Freight Platform Lift			Major	-		
		7.4.	as applicable to Material Lifts Type 'B' ✦					
		7.5.	as applicable to Material Lifts Type 'B' ✦					
		7.6.	as applicable to Material Lifts Type 'B' ✦					
		✦ excluding requirements related to in-car operating devices & Riders						
	CAD 8.7.7★2	★ Alteration to a Type 'B' Freight Platform Lift			Major	-		
		7.4.	as applicable to Material Lifts Type 'B'					
		7.5.	as applicable to Material Lifts Type 'B'					
		7.6.	as applicable to Material Lifts Type 'B'					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.1.2	Alterations not specifically covered in 8.7						
			1.2	Level of safety shall not be diminished				
	8.7.1.4	Welding						
			8.8	Welding				
			8.7.1.5	Design / Weld Engineer				
	8.7.1.7	Repairs and Replacements						
			8.6.2	for repairs				
			8.6.3	for replacements				
	8.7.2	**Alterations to Electric Elevators**						
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.6	Access Doors and Openings				
		★	2.7.3.4.7	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			B44-2010	New Installation				
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.2.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			2.6.	Protection of Space below H/W				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
		2.4.		Vertical Clearances & Runbys for Cars & Cwts				
		8.7.2.17.1		Increase or Decrease in Rise				
		8.7.2.17.2		Increase in Rated Speed				
		8.7.2.25.2		Change in Location of Driving Machine				
	8.7.2.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.		Horizontal Car and Counterweight Clearances				
		8.7.2.17.2		Increase in Rated Speed				
	8.7.2.6	Protection of Spaces Below Hoistways			Minor B	Major		
		2.6.		Protection of Space below H/W				
	8.7.2.7	Machinery Spaces, Machine Rooms Control Spaces and Control Rooms			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Room	Minor A	-		
		OESC		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1		General Requirements				
		2.7.3.2		Access Across Roofs				
		2.7.3.3		Means of Access				
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4		Access Doors and Openings				
		2.7.3.5		Stop Switch for Machinery Space or Control Spaces				
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4		Headroom in Machine Rooms/Spaces, Control Room/Spaces				
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2		Temperature & Humidity				
	CAD 8.7.2.7★1	Addition of Elevator Equipment Guarding			Minor A (per m/c rm)		mrr	mrr
		(a)	2.7.2	Maintenance Path and Clearance				
		(b)	2.7.3.4.2	Size of doors and openings in cage style enclosures (750x2030)				
		(c)	2.10.1	Guarding of Equipment				
		(d)		openable/removable only with tools				
		(e)		operating/work instruction for accessing equipment				
		(f)		clearances in front of electrical control equipment (1000mm) or clearance required at time of original control installation				
		(g)		access in front of / space to operate main disconnect (1000mm), or (750mm) if permitted at time of original installation				
		(h)		Installation by registered contractor				
		(i)		designed to be handled by one person				
	8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts) also installation of Monitoring Equipment, HVAC			-	Minor B		
		2.8.		Equipment in Hoistways and Machine Rooms CSA Labeling (or equivalent) OESC, CSA C22.1 as required				
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.2.9	Machinery and Sheave Beams, Supports, and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				
		Building reactions increased by more than 5%						
		2.9.		Machinery & Sheave Beams, Supports, Foundation adequacy of building structure verified by P.Eng.				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-	Major	Major
			2.11.	Protection of H/W Openings				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.11.6	Opening of Hoistway Doors				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
			Installed New components to meet:					
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	hanger /track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	

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					Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.12		Entrances, Vertical Slide Type				
		Installed New components to meet:						
	sills (a)	2.11.10.3		Hinged Hoistway Landing Sills	Minor B		Minor B	
		2.11.12.1		Landing Sills				
	frames (b)	2.11.12.2		Entrances Frames	Minor B		Minor B	
		8.7.2.10.5		Marking of Entrance Assemblies				
	rails (c)	2.11.12.3		Rails	mrr		mrr	
	panels (d)	2.11.12.3		Rails	Minor A		Minor A	
		2.11.12.4		Panels				
		2.11.12.5		Guides				
		2.11.12.6		Counterweighting or Counterbalancing				
		2.11.12.8		Pull Straps				
		8.7.2.10.5		Marking of Entrance Assemblies				
	guides (e)	2.11.12.5		Guides				
	sill guard (f)	2.11.12.7		Sill Guards	mrr		mrr	
	straps (g)	2.11.12.8		Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.13		Entrances, Swing Type				
		Installed New components to meet:						
	sills (a)	2.11.10.1		Landing-Sill Guards	Minor B		Minor B	
		2.11.10.3		Hinged Hoistway Landing Sills				
		2.11.13.1		Landing Sills				
	frames (b)	2.11.13.2		Entrance Frames	Minor B		Minor B	
		2.11.13.4		Hinges				
		8.7.2.10.5		Marking of Entrance Assemblies				
	panels (c)	2.11.13.3		Panels	Minor B		Minor B	
		2.11.13.4		Hinges				
		2.11.13.5		Marking				
		8.7.2.10.5		Marking of Entrance Assemblies				
	hinges (d)	2.11.13.4		Hinges	mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
		8.7.2.10.5(a)		NBCC requirements				
	CAD 8.7.2.10★1	★ Removing Service To a Floor			Minor B			
				Bolt entrances shut				
				Remove Interlock From Safety String				
				Remove COP Floor Button				
		2.11.6.2		Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
		2.12.7		H/W Access Switches - if floor was previously the access location				
	CAD 8.7.2.10★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8		Hoistway Door Safety Retainers				
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.2		Interlocks				
		2.12.4		Listing/Certification Locking Devices				
		2.12.5		Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
		2.12.6		Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
		2.12.7		Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.3		H/W Door Combination Mechanical Locks & Contacts				
		2.12.4		Listing/Certification Locking Devices				
		2.12.6		Hoistway Door Unlocking Devices				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3		requirements specified				

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					Type of Submission Required			
	8.7.2.11.4	Access Switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.26.1.4	Inspection Operation				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.2.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
			8.7.2.15★1,★2					
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates			see	
			2.13.5	Reopening Device for Power Operated Car Doors or Gates if FEO provided, door opening & closing to PHI &II at time of install			8.6.3.8	
			8.7.2.15★1,★2					
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass			mrr	
			2.14.1.8.3	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion secured to 2.14.1.2 material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided' verify stop sw verify switches operate as before (eg. FS, FEO, Access)				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
			8.7.2.15★1,★2					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
			2.14.4	Passenger and Freight Car Doors/Gates, General Requirements				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials						
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing - see CAD 8.7.2.14★4		Minor A		
				2.14.7.1.3 auxiliary lighting		Minor B		
				2.14.7.1.4 car top light & outlet		Minor B		
		★		CAD 8.7.2.15★1	Minor B		Minor B	
				or				
		★		CAD 8.7.2.15★2	Minor A		Minor A	
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD	8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)				
			or					
		CAD	8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)				
				car top run buttons not enabled until extended				
				normal operation not enabled until stowed				
				electrical limits to ensure car top clearance in overhead				
				minor A submission template				
			8.7.2.15★1,★2	car weighed prior to alteration				
				include testing procedure				
				include revised electrical schematics				
	8.7.2.15	Car Frames and Platforms			⇩ See Below ⇩			
	8.7.2.15.1	Alterations to Car Frames and Platforms			Major	-	Major	
			2.15.	Car Frames & Platforms				
	CAD 8.7.2.15★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD	8.7.2.15★1(a)	cars weighed prior to alteration				
		CAD	8.7.2.15★1(b)	In/Out weights recorded or cars weighed after alteration				
		CAD	8.7.2.15★1(c)	weight change recorded on auxilliary data tag				
		CAD	8.7.2.15★1(e)	testing prior to operation to ensure security of interior finishes				
	CAD 8.7.2.15★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD	8.7.2.15★1					
				engineering assessment of related items affected by weight change				
	8.7.2.15.2	Increase or Decrease in Deadweight of Car (Car Wt+Rated Load> 5%)			Major	-		
			2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
			2.15.9	Platform Guards (Aprons)				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.(*)	Driving Machines & Sheaves				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
		CAD	8.7.2.15★1(a) to (e)					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.16	Capacity, Loading, and Classification			Major	-		
	8.7.2.16.1	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1	Entrances and Emergency Doors Required					
		2.11.2	Types of Entrances					
		2.11.3	Closing of Hoistway Doors					
		2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills					
		2.11.6	Opening of Hoistway Doors					
		2.11.7	Glass in Hoistway Doors					
		2.11.8	Weights for Closing or Balancing Doors					
		2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access					
		2.13.	Power Operation of H/W Doors and Car Doors					
		2.22 (*)	Buffers & Bumpers					
		2.14.	Car: Enclosure, Doors, Gates, Illumination					
		2.14.1.7.1	car top guard rail to CAD 8.7.2.14★4					
		2.15.(*)	Car Frames & Platforms - ★apron guard to ED CAD/as pit permits					
		2.16.	Capacity & Loading					
		2.17.(*)	Car & Cwt Safeties					
		2.18.(*)	Speed Governors					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		2.20.	Suspension Ropes & Connections					
		2.24.(*)	Driving Machines & Sheaves					
		2.25.	Terminal Stopping Devices					
		2.26.	Operating Devices and Control Equipment					
		2.27.	Emergency Operation & Signaling Devices					
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	8.7.2.16.2	Change in Class of Loading: [from any class to any other class ie A, B, C1, C2, C3]			Major	-		
		2.16.2	Minimum Rated Load for Freight Elevators					
		8.7.2.16.4	Increase in Rated Load					
	8.7.2.16.3	Carrying of Passengers on Freight Elevators			Major	-		
		2.16.4	Carrying of Passengers on Freight Elevators					
		2.16.4.1	not accessible to general public					
		2.16.4.2	rated load not less than required by 2.16.1					
		2.16.4.3	conforms to 2.16.8 Passenger Overload in Down Direction					
		2.16.4.4	H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)					
		2.16.4.5	car doors to 2.14.5 Passenger Car Doors					
		2.16.4.6	car enclosure openings to 2.14.2.2 Prohibited Openings					
		2.16.4.7	conforms to 2.12.5 Restricted Opening of H/W or Car Door					
		2.16.4.8	Fs for suspension ropes to Table 2.20.3					
		2.16.4.9	Power Operated vertical doors to 2.13.3.4					
		★	apron guard to ED CAD or extent pit permits					
		★	2.16.5 Signs Required in Freight Elevator Cars					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.16.4	Increase in Rated Load			Major	-		
				Car doors or gates shall be provided at all car entrances				
				New Car doors and gates to: 2.14.4, 2.14.5, 2.14.6				
			2.14.4	Passenger & Frt Car Doors & Gates, General Req'mts				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
			2.15.(*)	Car Frames & Platforms- ★apron guard to ED CAD/as pit permits				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.(*)	Counterweights				
			2.22.(*)	Buffers & Bumpers				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			2.24.	Driving Machines & Sheaves				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.5	Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			8.7.2.9	Machinery and Sheave Beams, Supports, Foundations				
	8.7.2.17	Change in Rise or Rated Speed			Major	-		
	8.7.2.17.1	Increase or Decrease in Rise			Major	-		
			2.25.	Terminal Stopping Devices				
				retain drum m/c, travel increase < 4570mm				
			2.4.(*)	Vertical Clearances & Runbys for Cars & Cwts				
				If decrease in rise is at lowest end then;				
				2.2.4 Access to Pits				
				2.2.5 Illumination of Pits				
				2.2.6 Stop Switches				
	8.7.2.17.2	Increase in Rated Speed			Major	-		
	8.7.2.17.2(a)	Increase in Rated Speed on a Winding Drum machine			Major	-		
				Increase in Rated Speed of a winding drum m/c prohibited				
			8.7.2.17.2(c)	except as permitted 8.7.2.17.2(c)				
	8.7.2.17.2(b)	Increase in Rated Speed except as per 8.7.2.17.2(c)			Major	-		
			2.4.2	Minimum Bottom Runby for Counterweighted Elevators				
			2.4.3	Minimum Bottom Runby for Uncounterweighted Elevators				
			2.4.4	Maximum Bottom Runby				
			2.4.5	Counterweight Runby Data Plate				
			2.4.6	Maximum Upward Movement of the Car				
			2.4.7	Top of Car Clearances				
			2.4.8	Top of Counterweight Clearances				
			2.4.9	Equipment on Top of Car Not Permitted to Strike O/H				
			2.5.	Horizontal Car and Counterweight Clearances				
				Car doors or gates shall be provided at all car entrances				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			2.20.	Suspension Ropes & Connections				
			2.21.4.2	Comp Rope Tie Down (if speed > 3.5 m/s)				
			2.22.(*)	Buffers & Bumpers				
			2.24.	Driving Machines & Sheaves				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
	8.7.2.17.2(c)	Increase in Rated Speed less than 10% & less than 0.20m/s			Major	-		
				new spd <.75 for type A safeties				
				new spd <1 w/spring buffer, 2.18.2.1&.2				
			2.18.2.1	Car speed governors				
			2.18.2.2	counterweight speed governors				
			8.7.2.27.3	Change in Power Supply				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.17.3	Decrease in Rated Speed			Major	-		
			2.4.	Vertical Clearances & Runbys for Cars & Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			2.16.	Capacity & Loading				
			2.16.3(*)	Capacity and Data Plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
	8.7.2.18	Car and Counterweight Safeties			Major	Major	⇩See Below ⇩	
	8.7.2.18.1	New Car Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.2	New Cwt Safeties			-	Major	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Car Safeties			Major	-	mrr	Minor A
			2.17.(*)	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.18.3	Existing Cwt Safeties			Major	-	mrr	Minor A
			2.17.	Car & Cwt Safeties				
			2.18.	Speed Governors				
			2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings				
			8.7.2.19	Speed Governors and Governor Ropes				
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19		2.18.	Speed Governors			mrr see 8.6.3.6	Minor A
	8.7.2.19		2.17.15	Governor Rope Releasing Carriers			mrr see 8.6.3.9	mrr
	8.7.2.19			Governor Ropes of different material or Construction to: 2.18.6 Design Gov'r Rope Retarding Means for Type B Safeties 2.18.7 Traction between Speed Governor Rope & Sheave			-	Minor B
			& testing to	2.17.3 Function and Stopping Distances of Safeties				
	8.7.2.20	Ascending Car Overspeed and Unintended Car Movement Protection (ACO & UCM)			Minor A	Major	mrr	Minor A
			2.19.	Ascending Car Overspd & Unintended Car Movement Protection				
	CAD 8.7.2.20★1	★		If Elevators Controllers are pre-B44-00 & have ACO & UCM	Minor A	-	mrr	Minor A
			2.19.	ACO & UCM Protection, Except that; detection means to B44-M90 or the code at time of install				
			8.9.	Code Data tag to reflect code at time of install				
	CAD 8.7.2.20★2	★		If Elevators Controllers are pre-B44-00 & have ACO ONLY	Minor A	-	mrr	Minor A
			2.19.1	ACO Protection Only, Except that;				
			2.19.3	Emergency Brake and detection means to B44-M90 or the code at time of install				
			2.19.4	Emergency Brake Supports				
			8.9.	Code Data tag to reflect code at time of install				
	CAD 8.7.2.20★3	★		Voluntary Addition of Both ACO and UCM where previously not provided		Minor A		
			2.19.	ACO & UCM Protection Except that; detection means to B44-M90 code or later				
			2.7.	Machinery Spaces, Machine Rooms Control Spaces & Control Rooms as applicable to the equipment installation				
			8.9.	Code Data tag to reflect code edition used for the alteration				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.21	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.2.21.1	Change in Number of, or Diameter of Ropes			Major	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify existing sheaves w/different ropes are satisfactory					
	8.7.2.21.1	Change in Material / Grade of Ropes			Minor A	-		
		2.20.	Suspension Ropes & Connections					
			PEO to certify existing sheaves w/different ropes are satisfactory					
	8.7.2.21.2	Addition of Rope Equalizers			Minor B	Minor B	See 8.6.3.2	
		2.20.5	Suspension Rope Equalizers					
	8.7.2.21.3	Addition of Auxiliary Rope-Fastening Devices			Major	Major		
		2.20.	Suspension Ropes & Connections					
	8.7.2.21.4 (a)	Change in Type of Suspension Means			Major	Major		
		2.20.8.1	Protection Against Traction Loss					
		2.20.8.2	Broken Suspension Member					
		2.20.8.3	Suspension-Member Residual Strength					
		2.20.11	Suspension-Member Test					
	8.7.2.21.4 (b)	Traction Loss Detection			Minor A	Minor A		
		2.20.8.1	Protection Against Traction Loss					
	8.7.2.21.4 (c)	Broken Suspension Means Detection			Minor A	Minor A		
		2.20.8.2	Broken Suspension Member					
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
		2.21.	Counterweights					
		8.7.2.22.2	Rod Type Counterweights					
		8.7.2.3	Location and Guarding of Counterweights					
	8.7.2.22.2	Rod Type Cwt - can retain if:						
			Minimum of 2 suspension and 2 tie rods					
			Suspension rods:					
		2.21.2.1	Material - Cwt Frames & Rods					
		2.21.2.3	Factor of Safety					
			Tie Rods:					
		2.21.1.2	Retention of Weight Sections					
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.2.23	Car and Counterweight Buffers and Bumpers			Major	-	mrr	Minor B
		2.22.(*)	Buffers & Bumpers					
	8.7.2.24	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		2.23.	Car & Cwt Guides Rails, Guide Rail Support, Fastenings					
	8.7.2.25	Driving Machines and Sheaves			⇩ See Below ⇩			
	8.7.2.25.1	Alter / Replace	Driving Machines & Sheaves		Major	Major	Major	
	8.7.2.25.1(a)		Driving Machine Installed as part of an alteration		Major	-		
		2.7.2	Maintenance Path and Clearance to extent existing installation permits					
		2.9.	Machinery & Sheave Beams, Supports, Foundation					
		2.10.1	Guarding of Equipment					
		2.19.	Ascending Car Overspeed & Unintended Car Movement Protection					
		8.7.2.20	ACO & UCM Protection					
	CAD	8.7.2.20★1	Pre B44-00 ACO & UCM Protection					
	CAD	8.7.2.20★2	Pre B44-00 ACO Only Protection					
	CAD	8.7.2.20★3	Addition ACO/UCM if not required by other alteration scope					
		2.20.	Suspension Ropes & Connections					
		2.24.	Driving Machines & Sheaves					
		2.26.8	Release and Application of Driving-Machine Brakes					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.25.1(b)	Alter / Replace		Driving Machine Components - affected component complies w/	Major			
			2.24.2	Sheaves and Drums			mrr	Major
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.24.5	Shafts Fillets and Keys				
			2.24.6	Cast-Iron Worms and Worm Gears				
			2.24.7	Friction Gearing and Clutches				
			2.24.8	Braking Systems & Driving Machine Brakes			mrr	Major
			2.24.9	Indirect-Driving Machines				
			2.26.8	Release and Application of Driving-Machine Brakes				
	8.7.2.25.1(c)	Change of		Driving Machine Sheave	Major	-	mrr	Major
			2.24.2	Sheaves and Drums				
			2.24.3	Factor of Safety for Driving Machines and Sheaves				
			2.24.4	Fasteners Transmitting Load				
			2.20.	Suspension Ropes & Connections				
	8.7.2.25.2	Change in Location of Driving Machine			Major	-		
	8.7.2.25.2(a)	Change in Location of Driving Machine w/ no change in Rise			Major	-		
			2.7.2	Maintenance Path and Clearance				
			2.9.	Machinery & Sheave Beams, Supports, Foundation				
			2.10.1	Guarding of Equipment				
			2.24.2.3	Traction				
	8.7.2.25.2(b)	Change in Location of Driving Machine w/ change in Rise			Major	-		
			Part 2 (*)	Electric Elevators (entire installation to meet Part 2), except 2.5 Horizontal Car and Counterweight Clearances 2.11 Protection of Hoistway Openings 2.4 Vertical Clearances and Runbys for Cars & Cwts				
			8.7.2.5	see also				
			8.7.2.10	see also				
	CAD 8.7.2.25★1	★ Replacement of worm and/or gear (specify make)			-	-	mrr	Minor A
			2.24	specify compliance to the applicable requirements				
		Addition of Machine Guarding - see CAD 8.7.2.7★1						
	8.7.2.26	Terminal-Stopping Devices			Minor B	Minor B		
			2.25.	Terminal Stopping Devices				
	8.7.2.27	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.2.27.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
			2.26.1.4	Inspection Operation				
	CAD 8.7.2.27★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
			2.26.1.4	Inspection Operation				
	CAD 8.7.2.27★2	★		Addition of Top-of-Car Operating Device (see CAD 3.8.3)	-	Minor A		
			2.26.1.4	Inspection Operation				
			8.7.2.15★1,★2					
	8.7.2.27.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
			2.26.1.6	Operation in Leveling or Truck Zone				
	CAD 8.7.2.27★3	★ Door By-Pass Switches			Minor A	Minor A		
			2.26.1.5	System to Prevent Auto Operation w/faulty Door Contacts				
	CAD 8.7.2.27★4	★ Door Monitoring System			Minor A	Minor A		
			2.26.5	System to Prevent Auto Operation w/faulty Door Contacts				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.3	Change in Power Supply (a) voltage, frequency or # of phases or (b) AC to DC , DC to AC or (c) combination of DC & AC, then			Major	-		
		electrical to:						
			2.26.1.1	Types of Operation				
			2.26.1.2	For Car-Switch Operation Elevators				
			2.26.1.3	Add'l Operating Devices for Elevators carrying 1pc. load > than Rated				
			2.26.1.4	Inspection Operation				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.9	Control & Operating Circuits				
			2.26.10	Absorption of Regenerated Power				
		new / modified equipment and wiring to:						
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
			2.26.4.3	Positively Opened Contacts				
		brakes to:						
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.8	Release and Application of Driving-Machine Brakes				
		winding drum to:						
			2.25.3.5	Additional Req'mts for Winding Drum Machines				
				see 8.7.2.17.2(b) Increase in Rated Speed				
	8.7.2.27.4	Controllers						
	8.7.2.27.4(a)	Install / Replace		Motion or Operation Controller (no change in method)	Major	-	Major	
			2.25.	Terminal Stopping Devices				
			2.26.1.4	Inspection Operation				
			2.26.1.5	Inspection Operation with Open Door Circuits				
			2.26.1.6	Operation in Leveling or Truck Zone				
			2.26.2	Electrical Protective Devices				
			2.26.3	Contactor and Relays for Use in Critical Operating Circuits				
			2.26.4	Electrical Equipment and Wiring				
			2.26.5	System to Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
			2.26.6	Phase Protection of Motors				
			2.26.7	Installation of Capacitors/Devices Making EPD's Ineffective				
			2.26.8	Release and Application of Driving-Machine Brakes				
			2.26.9	Control & Operating Circuits				
			2.26.11	Car Platform to Hoistway Door Sills Vertical Distance				
				levelling accuracy to 13mm (0.5 in.)				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
			2.27.2	Emergency or Standby Power systems				
		If FEO previously present or required by OBC;						
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
			2.27.4	FEO: Non Automatic Elevators				
			2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph				
		If FEO NOT previously present or required by OBC;						
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.27★5	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring Electrical testing to verify functionality of rewired equipment				
	8.7.2.27.4(b)	Installation of		Door Controller	Minor A	-	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.4(c)	Installation of		Controller for Emergency or Standby Power	Minor A	Minor A	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.4(c)	Installation of		Controller for FEO Operation	Minor A	Minor A	Minor B	
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.2.27.5	Change in Type of Motion Control - AC, VVVF, DC, SCR			Major	-		
			2.11.1(*)	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6(*)	Opening of Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.11.8(*)	Hoistway Door Safety Retainers				
			2.11.12.8	Pull Straps				
			2.12.(*)	H/W-Door Locking Devices, Elec. Contacts, H/W Access 2.12.5 Restricted Opening of Hoistway or Car Doors 2.12.6 Hoistway Door Unlocking Devices 2.12.7 Hoistway Access Switches				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination 2.14.1.7 car top railing				
			2.16.8(*)	Capacity & Loading				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.19.	Ascending Car Overspeed & Unintended Car Movement Protection				
			8.7.2.20	ACO & UCM Protection				
		CAD	8.7.2.20★1	Pre B44-00 ACO & UCM Protection				
		CAD	8.7.2.20★2	Pre B44-00 ACO Only Protection				
		CAD	8.7.2.20★3	Addition ACO/UCM if not required by other alteration scope				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
				If FEO previously present or required by OBC;				
			2.27.	Emergency Operation and Signalling Devices 2.27.1 Car Emergency Signalling Devices 2.27.2 Emergency or Standby Power Systems 2.27.3 Firefighters' Emergency Operation: Automatic Elevators 2.27.3.1 Phase 1 Recall Operation 2.27.3.2 Phase 1 Recall Operation by FAID's CAD 2.27.3.2.2 2.27.3.3 Phase 2 Emergency In-Car Operation 2.27.3.4 Interruption of Power 2.27.3.5 Multicompartment Elevators see 8.7.1.2 safety levels shall not be diminished 2.27.4 FEO: Non Automatic Elevators 2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys				
				If FEO NOT previously present or required by OBC; CAD 2.27.3.2.2 2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.6	Change in Type of Operation Control - CPPB, AUTOMATIC			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			2.16.	Capacity & Loading				
			2.17.	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			2.25.	Terminal Stopping Devices				
			2.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
			2.27.	Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.2.27★6	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.13.5.3	- door time out				
			2.27.3.1.6(l)	- shall not prevent PHI				
	CAD 8.7.2.27★7	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access when on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
	CAD 8.7.2.27★8	★ Addition of Destination Dispatch				Minor B		
			8.7.2.8	Electrical Equipment, Wiring, Pipes, and Ducts in H/W's &M/C Rooms FEO operation to 8.7.2.28 or code at time of installation or alteration				
	8.7.2.27.7	Removal of emergency stop switch on passenger elevators			Minor B	-		
				remove all related markings / engravings & provide an in-car stop switch to:				
			2.26.2.21	In-car stop switch				
		★	2.26.4.3	Positively Opened Contacts				
		★	2.26.9.3	Single failure does not render In-Car Stop Sw ineffective				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.27.8	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.2 (PES)			Major	Major	mrr	Major
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device if device meets 2.26.4.3.1			-	Minor A	mrr	
			2.26.2	Electrical Protective Devices - for specified device				
	8.7.2.28	Emergency Operation and Signaling Devices			⇩ See Below ⇩			
	8.7.2.28	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.2.28	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				
	8.7.2.28	Firefighter's Emergency Operation			Minor B	Minor A		
			2.27.3	FEO: Automatic Elevators				
			2.27.4	FEO: Non-Automatic Elevators				
			2.27.5	FEO: Automatic Elevators w/Attendant				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
	8.7.2.28	Addition of Elevator to a Group - all elevators to meet:			-	Minor A		
			2.27.	Emergency Operation & Signaling Devices 2.27.1 Car Emergency Signalling Devices 2.27.2 Emergency or Standby Power Systems 2.27.3 FEO: Automatic Elevators CAD 2.27.3.2.2 2.27.4 FEO: Non-Automatic Elevators 2.27.5 FEO: Automatic Elevators w/Attendant 2.27.6 FEO: Inspection Operation 2.27.7 FEO: Operating Procedures 2.27.8 Switch Keys 2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.2.28★1	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of insta conformance to auto recall based on F.S. at time of install			Minor B			
	CAD 8.7.2.28★2	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order			Minor B	Minor A		
		2.27.3 FEO: Automatic Elevators						

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3	**Alterations to Hydraulic Elevators**						
	8.7.3.1	Hoistway Enclosures			see 8.7.2.1			
	8.7.2.1	Hoistway Enclosures			Major	Major		
	8.7.2.1.1	Hoistway Enclosure Walls			Major	Major		
			2.1.1	Hoistway Enclosures				
			2.1.5	Windows and Skylights				
			2.1.6	Projections, Recesses, and Setbacks in H/W				
			2.5.	Horizontal Car and Counterweight Clearances				
			2.7.3.4.6	Access Doors and Openings				
		★	2.7.3.4.7	Access Doors and Openings				
			2.8.	Equipment in Hoistways,Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms				
			8.7.2.10	Entrances and Hoistway Openings (if change includes an entrance)				
			2.11.1	Entrances and Emergency Doors Required (if blind H/W)				
	8.7.2.1.2	Addition of Elevator to Existing Hoistway			-	New		
			B44-2010	New Installation				
			2.5.	Horizontal Car and Counterweight Clearances				
	8.7.2.1.3	Construction at Top of Hoistway			Major	Major		
			2.1.2.1	Construction at Top of the Hoistway				
			2.1.3	Floor Over Hoistways				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.4	Construction at Bottom of Hoistway			Major	Major		
			2.1.2.2	Construction at Bottom of the Hoistway				
			2.1.2.3	Strength of Pit Floor				
			2.2.	Pits				
			8.7.2.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.1.5	Control of Smoke and Hot Gases			Major	Major		
			2.1.4	Control of Smoke and Hot Gases				
	8.7.3.2	Pits			see Electric Elevators			
	8.7.2.2	Pits see other alterations below for non Major Alterations			Major	-		
			2.2.	Pits				
			2.1.2.3	Strength of Pit Floor				
			8.7.3.4	Vertical Car & Cwt Clearances & Runbys				
	8.7.2.2	Pit Drains & Sumps			Minor B	Minor B		
			2.2.2.	Pit Drains				
	8.7.2.2	Pit Guards			Minor B	Minor A		
			2.2.3	Guards Between Adjacent Pits				
	8.7.2.2	Pit Access			Minor B	Minor A		
			2.2.4	Pit Access				
	8.7.2.2	Pit Illumination			Minor B	Minor B		
			2.2.5	Illumination of Pits				
	8.7.2.2	Pit Stop Switches			Minor B	Minor A		
			2.2.6	Stop Switches				
	8.7.2.2	Pit Depth			Minor B	Minor A		
			2.2.7	Minimum Pit Depths Required				
	8.7.2.2	Access to Underside of Car			Minor B	Minor A		
			2.2.8	Access to Underside of Car				
	8.7.3.3	Location and Guarding of Counterweights			Major	Major		
			2.3.	Location and Guarding of Counterweights				
			2.5.1.2	Between Car & Cwt and Cwt Guard				
			3.5.	Horizontal car and Counterweight Clearances				
	8.7.3.4	Vertical Car and Counterweight Clearances and Runbys (no reduction allowed)			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			8.7.3.22.1	Increase or Decrease in Rise				
			8.7.3.22.2	Increase in Rated Speed				
			8.7.3.23.5	Change in Location of Hydraulic Jack				

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					Type of Submission Required			
	8.7.3.5	Horizontal Car and Counterweight Clearances (no reduction allowed)			Major	-		
		2.5.		Horizontal Car and Counterweight Clearances				
		8.7.3.22.1		Increase or Decrease in Rise				
		8.7.3.22.2		Increase in Rated Speed				
		8.7.3.23.5		Change in Location of Hydraulic Jack				
	8.7.3.6	Protection of Spaces Below Hoistways			Minor B	Major		
		3.6.		Protection of Spaces below Hoistway				
	8.7.3.7	Machine Rooms and Machinery Spaces			see 8.7.2.7			
	8.7.2.7	Machine Rooms and Machinery Spaces			⇩ See Below ⇩			
	8.7.2.7.1	Enclosures - other than specifics of 8.7.2.7.2 to 8.7.2.7.7						
		2.7. (& 3.7.)		New - Machinery Spaces, Machine Rooms Control Spaces & Control Rooms	-	Major		
		2.7. (& 3.7.)		Altered- Machinery Spaces, Machine Rooms Control Spaces & Control Room	Minor A	-		
		OESC (C22.1)		Electrical Equipment Clearances	Minor B	-		
	8.7.2.7.2	Means of Access			Minor B	-		
		2.7.3.1		General Requirements				
		2.7.3.2		Access Across Roofs				
		2.7.3.3		Means of Access				
	8.7.2.7.3	Access Doors and Openings			Minor B	Minor B	mrr	
		2.7.3.4		Access Doors and Openings				
		2.7.3.5		Stop Switch in O/H M/C Space in the H/W				
	8.7.2.7.4	Headroom (no reduction)			Minor B	Minor B		
		2.7.4		Headroom in M/C Rooms				
	8.7.2.7.5	Windows and Skylights			Minor B	Minor B		
		2.1.5						
	8.7.2.7.6	Lighting (no reduction)			Minor B	Minor A		
		2.7.9.1		Lighting				
	8.7.2.7.7	Ventilation			Minor B	Minor B		
		2.7.9.2		Temperature & Humidity				
	CAD 8.7.2.7★1	Addition of Elevator Equipment Guarding			Minor A (per m/c rm)		mrr	mrr
		2.7.2		Maintenance Path and Clearance				
		2.7.3.4.2		Size of doors and openings in cage style enclosures (750x2030)				
		2.10.1		Guarding of Equipment				
				openable/removable only with tools				
				operating/work instruction for accessing equipment				
				clearances in front of electrical control equipment (1000mm)				
				access in front of / space to operate main disconnect (750mm)				
				Installation by registered contractor				
	8.7.3.8	Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms			Minor B	Minor B	mrr	Minor B
		Installation of New (electrical equipment, wiring, raceways, cables, pipes, ducts)			-	Minor B		
		also installation of Monitoring Equipment, HVAC						
		2.8.		Equipment in Hoistways and Machine Rooms				
				CSA Labeling (or equivalent)				
				OESC, CSA C22.1 as required				
		Alteration of Existing (electrical equipment, wiring, raceways, cables, pipes, ducts…)			Minor B	-		
		2.8.		Equipment in Hoistways and Machine Rooms				
	8.7.3.9	Machinery and Sheave Beams, Supports and Foundations			Major	Major		
		New/Relocated Machinery & Sheave Beams, Supports, Foundation						
		2.9.		Machinery & Sheave Beams, Supports, Foundation				
		Building reactions increased by more than 5%						
		2.9.		Machinery & Sheave Beams, Supports, Foundation				
				adequacy of building structure verified by P.Eng.				

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					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.10	Hoistway Entrances and Openings - see 8.7.2.10			see 8.7.2.10			
	8.7.2.10	Entrances and Hoistway Openings			Major	Major	see below	
	8.7.2.10.1	General Requirements			Major	-		
	8.7.2.10.1(a)	General Requirements - All New Entrances			Major	-		
			2.11.	Protection of H/W Openings				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(b)	General Requirements - New Entrances w/Existing Entrances			-	Major		
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.11.6	Opening of Hoistway Doors				
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(c)	General Requirements - Alteration to H/W Entrance			Major	-		
			2.11.3	Closing of Hoistway Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			8.7.2.10.5	Marking of Entrance Assemblies				
			Entire installation to meet:					
			2.12.	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.29.2	Identification of Floors				
	8.7.2.10.1(d)	General Requirements - Emergency Doors (added or altered)			Major	Major		
			2.11.1	Entrances and Emergency Doors Required				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.1(e)	General Requirements - Access Openings (installed for cleaning)			Major	Major		
			2.11.1.4	Access Opening for Cleaning of Car & H/W Enclosure				
			8.7.2.10.5	Marking of Entrance Assemblies				
	8.7.2.10.2	Horizontal Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts			Major	
			2.11.11	Entrances, Horizontal Slide Type				
	sills (a)		2.11.10.1	Landing-Sill Guards	Minor B		Minor B	
			2.11.11.1	Landing Sills				
			2.11.11.6	Bottom Guides				
	track (b)		2.11.11.2	Hanger Tracks, and Track Supports	Minor B		Minor B	
	frame (c)		2.11.11.3	Entrance Frames	Minor A		Minor A	
			2.11.11.5.1	Panel Overlap				
			2.11.11.5.2	Panel Gaps Clearances				
			2.11.11.5.3	Pockets in Strike Jamb				
			8.7.2.10.5	Marking of Entrance Assemblies				
	hangers (d)		2.11.11.4	Hangers	Minor B		Minor B	
	panels (e)		2.11.11.5(*)	Panels	Minor A		Minor A	
			2.11.11.6	Bottom Guides				
			2.11.11.7	Multipanel Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
	retainers (f)		2.11.11.8	Hoistway Door Safety Retainers	Minor B		Minor B	

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.2.10.3	Vertical-Slide-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.12		Entrances, Vertical Slide Type				
	sills (a)	2.11.10.3		Hinged Hoistway Landing Sills	Minor B		Minor B	
		2.11.12.1		Landing Sills				
	frames (b)	2.11.12.2		Entrances Frames	Minor B		Minor B	
		8.7.2.10.5		Marking of Entrance Assemblies				
	rails (c)	2.11.12.3		Rails	mrr		mrr	
	panels (d)	2.11.12.4		Panels	Minor A		Minor A	
		2.11.12.3		Rails				
		2.11.12.5		Guides				
		2.11.12.6		Counterweighting or Counterbalancing				
		2.11.12.8		Pull Straps				
		8.7.2.10.5		Marking of Entrance Assemblies				
	guides (e)	2.11.12.5		Guides				
	sill guard (f)	2.11.12.7		Sill Guards	mrr		mrr	
	straps (g)	2.11.12.8		Pull Straps				
	8.7.2.10.4	Swing-Type Entrances - new entrance and components to meet:			Major	Major	see below	
		8.7.2.10.1		Entrances & H/W Openings - General Req'mts			Major	
		2.11.13		Entrances, Swing Type				
	sills (a)	2.11.10.1		Landing-Sill Guards	Minor B		Minor B	
		2.11.10.3		Hinged Hoistway Landing Sills				
		2.11.13.1		Landing Sills				
	frames (b)	2.11.13.2		Entrance Frames	Minor B		Minor B	
		2.11.13.4		Hinges				
		8.7.2.10.5		Marking of Entrance Assemblies				
	panels (c)	2.11.13.3		Panels	Minor B		Minor B	
		2.11.13.4		Hinges				
		2.11.13.5		Marking				
		8.7.2.10.5		Marking of Entrance Assemblies				
	hinges (d)	2.11.13.4		Hinges	mrr		mrr	
	8.7.2.10.5	Marking of Entrance Assemblies (Alteration to an Entrance Door Panel)			Major	Major		
				Fire Protection Rating not less then existing entrance				
		8.7.2.10.5(a)		NBCC requirements				
	CAD 8.7.2.10★1	★ Removing Service To a Floor			Minor B			
				Bolt entrances shut				
				Remove Interlock From Safety String				
				Remove COP Floor Button				
		2.11.6.2		Cannot Lock Out Top/Btm, Designated/Alternate, All Landing in Phase II				
		2.12.7		H/W Access Switches - if floor was previously the access location				
	CAD 8.7.2.10★2	★ Door Safety Retainers			Minor B	Minor A	mrr	Minor B
		2.11.11.8		Hoistway Door Safety Retainers				
	8.7.3.11	Hoistway Door-Locking Devices			See 8.7.2.11			
	8.7.2.11	Hoistway Door-Locking Devices, Access Switches & Parking Devices			⇩ See Below ⇩			
	8.7.2.11.1	Interlocks			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.2		Interlocks				
		2.12.4		Listing/Certification Locking Devices				
		2.12.5		Restricted Opening of H/W or Car Door (n/a for column 5,6)			n/a	
		2.12.6		Hoistway Door Unlocking Devices (n/a for column 5,6)			n/a	
		2.12.7		Hoistway Access Switches (n/a for column 5,6)			n/a	
	8.7.2.11.2	Mechanical Locks and Electric Contacts			-	Major	mrr	Minor B
		2.12.1		General				
		2.12.3		H/W Door Combination Mechanical Locks & Contacts				
		2.12.4		Listing/Certification Locking Devices				
		2.12.6		Hoistway Door Unlocking Devices				
	8.7.2.11.3	Parking Devices			Minor A	Minor A		
		8.7.2.11.3		requirements specified				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.2.11.4	Access switches and Unlocking Devices						
	8.7.2.11.4 (a)	Addition of Unlocking Devices			-	Minor B	mrr	
			2.12.6	Hoistway Door Unlocking Devices				
	8.7.2.11.4 (b)	Addition of Access Switches			-	Minor A	mrr	
			2.12.7	Hoistway Access Switches				
			2.24.8	Braking Systems & Driving Machine Brakes				
			2.26.1.4	Inspection Operation				
	8.7.2.11.5	Restricted Opening of H/W or Car Doors of Passenger Elevators (Restrictors) (Altered or Installed)			Minor B	Minor B	mrr	Minor B
			2.12.5	Restricted Opening of H/W or Car Door				
	8.7.3.12	Power Operation of Hoistway Doors (Addition / Alteration to Power Open or Close)			Minor A	Minor A		
			8.7.2.10.1	Entrances & H/W Openings - General Req'mts				
			8.7.2.10.2	Horizontal Slide-Type Entrances				
			8.7.2.10.3	Vertical Slide-Type Entrances				
			8.7.2.10.5	Marking of Entrance Assemblies				
			8.7.3.10	Hoistway Entrances and Openings				
		★	2.13.	Power Operation of Hoistway Doors and Car Doors				
	CAD 8.7.2.12★1	★ Replacement of Door Operator			-	-	mrr	Minor B
			2.13.	Power Operation of Hoistway Doors and Car Doors				
			8.7.2.15★1,★2					
	CAD 8.7.2.12★2	★ Replacement of Door Reopening Device			See 8.7.2.13			
	8.7.2.13	Door Reopening Device (Safety Edge) (Altered or Added or Replaced)			Minor B	Minor B	mrr	Minor B
			2.13.4	Closing Limitations for Power Operated HS Doors & Gates			see	
			2.13.5	Reopening Device for Power Operated Car Doors or Gates			8.6.3.8	
				if FEO provided, door opening & closing to PHI &II at time of install				
			8.7.2.15★1,★2					
	8.7.3.13	Car Enclosures			See 8.7.2.14			
	8.7.2.14	Car Enclosures, Car Doors and Gates, and Car Illumination			⇩ See Below ⇩			
	8.7.2.14.1	Installation of New Car Enclosure			Major	-		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.15.	Car Frames & Platforms				
			2.17	Car and counterweight safeties				
			8.7.2.15.1	Alterations to Car Frames and Platforms				
	8.7.2.14.2	Alteration to Existing Cars			Minor A	Minor A		
	8.7.2.14.2(a)	Car Enclosure - Securing of Enclosures			Minor A	Minor A		
			2.14.1.2	Securing of Enclosures				
	8.7.2.14.2(b)	Top Emergency Exit (Altered or Added)			Minor B	Minor B		
			2.14.1.5	Top Emergency Exits				
	8.7.2.14.2(c)	Installation of Glass			Minor B	Minor B		
			2.14.1.8	Glass in Elevator Cars				
			2.14.1.8.1	Enclosures include glass				
			2.14.1.8.2	Lining of Walls or Ceilings include glass			mrr	
			2.14.1.8.3	Marking of each Glazing Panel				
	8.7.2.14.2(d)	Specific Equipment in Elevator Car			Minor B	Minor B		
			2.14.1.9	Equipment Inside Cars				
				(a) Handrails				
				(b) fastening devices for protective linings				
				(c) ceiling mounted hooks/tracks				
				(d) picture frames display boards, plaques <38mm protrusion				
				secured to 2.14.1.2				
				material to 2.14.2.1				
				(e) conveyor tracks in freights				
				(f) heating or cooling equipment				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★1	★ Car operating station			Minor B	Minor B	mrr	Minor B
				verify inspection operation 'if provided'				
				verify stop sw				
				verify switches operate as before (eg. FS, FEO, Access)				
			8.7.2.15★1,★2					
	CAD 8.7.2.14★2	★ video cameras / surveillance equipment / video monitors			Minor B	Minor B		
			2.8.2.1	electrical equipment & wiring				
			2.14.1.2.3	securing of enclosure equipment				
			2.14.2.4	Headroom in Elevator Cars				
			8.7.2.15★1,★2					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	CAD 8.7.2.14★3	★ other equipment			Variance			
	8.7.2.14.2(e)	Side Emergency Exits - Secured Shut			Major	-		
	8.7.2.14.2(f)	Car Ventilation			Minor B	-		
			2.14.2.3	Ventilation				
	8.7.2.14.2(g)	Car Illumination			Minor B	Minor B		
			2.14.7	Illumination of Cars and Lighting Fixtures				
	8.7.2.14.2(h)	Partitions Installed in Elevator Cars			Major	Major		
			2.16.1.2	Use of Partitions for Reducing Inside Net Platform Area				
	8.7.2.14.2(i)	Installation of Car Door or Gate, Installation to meet:			Major	Major		
			2.14.4	Passenger and Freight Car Doors/Gates, General Requirements				
			2.14.5	Passenger Car Doors				
			2.14.6	Freight Elevator Car Doors and Gates				
	8.7.2.14.4	Car Enclosure / Car Door or Car Gates			⇩ See Below ⇩			
	8.7.2.14.4	Alteration to **Car Enclosure** other than 8.7.2.14.2 - Enclosure Materials						
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				enclosure material flame ratings shall not be diminished				
				2.14.1.7 car top railing - see CAD 8.7.2.14★4		Minor A		
				2.14.7.1.3 auxiliary lighting		Minor B		
				2.14.7.1.4 car top light & outlet		Minor B		
			★	CAD 8.7.2.15★1	Minor B		Minor B	
				or				
			★	CAD 8.7.2.15★2	Minor A		Minor A	
	8.7.2.14.4	Alteration to **Car Door** or **Car Gates** other than 8.7.2.14.2			Minor A	Minor A		
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
				2.14.7.1.3 auxiliary lighting				
				2.14.7.1.4 car top light & outlet				
	O.Reg.209/01s30	★ Relocation of Elevator License to remote location			Minor B†	-		
	CAD 8.7.2.14★4	★ Car Top Guard Rail			Minor B	Minor A	-	Minor A
		CAD	8.7.2.14★4(a)	Standard Guardrail (to CAD 8.7.2.14★4(a), 2.14.1.7 & OBC)				
			or					
		CAD	8.7.2.14★4(b)	Foldable Guardrail (to CAD 8.7.2.14★4(b), 2.14.1.7 & OBC)				
				car top run buttons not enabled until extended				
				normal operation not enabled until stowed				
				electrical limits to ensure car top clearance in overhead				
				minor A submission template				
			8.7.2.15★1,★2	car weighed prior to alteration				
	8.7.3.14	Car Frames and Platforms			Major	-	Major	
			3.15.	Car Frames & Platforms				
	8.7.3.15	Safeties		Car or Cwt (plunger gripper see 8.7.3.23.7)	⇩ See Below ⇩			
	8.7.3.15.1	Car Safeties			-	Major	mrr	Minor A
			3.17.1	Car Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.2	Counterweight Safeties			-	Major	mrr	Minor A
			3.17.2	Counterweight Safeties				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				
	8.7.3.15.3	Alteration to existing Car or Counterweight Safeties			Major	-	mrr	Minor A
			3.17(*)	Car and counterweight safeties and plunger gripper				
			3.23.	Guide Rails, Guide-Rail Supports, and Fastenings				
			3.28.	Layout Data				

New=New Installation †=No Inspection Req'd (*)=w/Exemptions ★=TSSA Designated Alteration or Requirement mrr=maint/repair/replace no submission req'd

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.16	Governors and Governor Ropes			See 8.7.2.19			
	8.7.2.19	Speed Governors and Governor Ropes			Major	Major	⇩See Below ⇩	
	8.7.2.19	2.18.		Speed Governors			mrr see 8.6.3.6	Minor A
	8.7.2.19	2.17.15		Governor Rope Releasing Carriers			mrr see 8.6.3.9	mrr
	8.7.2.19	Governor Ropes of different material or Construction to:					Minor B	Minor B
				2.18.6 Design of Gov'r Rope Retarding Means for Type B Safeties				
				2.18.7 Traction between Speed Governor Rope & Sheave				
		& testing to		2.17.3 Function and Stopping Distances of Safeties				
	8.7.3.17	Change in Type of Service: Passenger to Freight OR Freight to Passenger			Major	-		
		2.11.1(*)		Entrances and Emergency Doors Required				
		2.11.2		Types of Entrances				
		2.11.3		Closing of Hoistway Doors				
		2.11.5		Projection of Entrances & Equip. Beyond Land'g Sills				
		2.11.6		Opening of Hoistway Doors				
		2.11.7		Glass in Hoistway Doors				
		2.11.8		Weights for Closing or Balancing Doors				
		2.12.		H/W-Door Locking Devices, Elec. Contacts, H/W Access				
		2.13.		Power Operation of H/W Doors and Car Doors				
		2.22.(*)		Buffers & Bumpers				
		3.22.2		Counterweight Buffers				
		3.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.1.7.1		car top guard rail to 8.7.2.14★4				
		3.15.		Car Frames & Platforms				
		3.17.		Car and Counterweight Safeties				
		3.21.		Counterweights				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		2.18.(*)		Speed Governors				
		3.16.		Capacity & Loading				
		3.18.		Hydraulic Jacks				
		3.19.		Valves, Pressure Piping, and Fittings				
		3.20.		Ropes and Rope Connections				
		3.24.		Hydraulic Machines and Tanks				
		3.25.		Terminal-Stopping Devices				
		3.26.		Operating Devices and Control Equipment				
		3.27.		Emergency Operation and Signaling Devices				
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	8.7.3.18	Change in Class of Loading: [A, B, C1, C2, C3]			Major	-		
		2.16.2		Minimum Rated Load for Freight Elevators				
		3.16.		Capacity & Loading				

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.19	Carrying of Passengers on Freight Elevators			Major	-		
		3.16.4		2.16.4 except 2.16.4.3				
		2.16.4		Carrying of Passengers on Freight Elevators				
		2.16.4.1		not accessible to general public				
		2.16.4.2		rated load not less than required by 2.16.1				
		2.16.4.4		H/W entrances to 2.12.1.1 & 2.11.2.1 or 2.11.2.2(e)				
		2.16.4.5		car doors to 2.14.5 Passenger Car Doors				
		2.16.4.6		car enclosure openings to 2.14.2.2 Prohibited Openings				
		2.16.4.7		conforms to 2.12.5 Restricted Opening of H/W or Car Door				
		2.16.4.8		Fs for suspension ropes to Table 2.20.3				
		2.16.4.9		Power Operated vertical doors to 2.16.4.9(a) to (e)				
		★		apron guard to ED CAD or extent pit permits				
		★		2.16.5 Signs Required in Freight Elevator Cars				
	8.7.3.20	Increase in Rated Load			Major	-		
		2.26.1.4		Inspection Operation				
		2.26.1.5		Inspection Operation with Open Door Circuits				
		2.26.5		Monitor & Prevent Automatic Operation w/ Faulty Door Contacts				
		3.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.1.7.1		car top guard rail to CAD 8.7.2.14★4				
		3.15.		Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
		3.16.		Capacity & Loading				
		3.17.		Car and Counterweight Safeties				
		3.20.		Ropes and Rope Connections				
		3.21.		Counterweights				
		3.22.		Buffers and Bumpers				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		8.7.3.23.4		Increase in Working Pressure				
	8.7.3.21	Increase in Deadweight of Car (Car Wt+Rated Load >5%)			Major	-		
		3.14.		Car: Enclosure, Doors, Gates, Illumination	n/a			
		2.14.		Car: Enclosure, Doors, Gates, Illumination				
		2.14.1.7.1		car top guard rail to 8.7.2.14★4				
		3.15.		Car Frames & Platforms - ★apron guard to ED CAD/as pit permits				
		3.16.		Capacity & Loading				
		3.17.		Car and Counterweight Safeties				
		3.20.		Ropes and Rope Connections				
		3.21.		Counterweights				
		3.22.		Buffers and Bumpers				
		3.23.		Guide Rails, Guide-Rail Supports, and Fastenings				
		3.24.5		Counterweight Sheaves				
		8.7.3.23.4		Increase in Working Pressure				
		CAD 8.7.2.15★1						
	CAD 8.7.3.21★1	★ Decrease Deadweight <5% or Increase Deadweight of Car (115 kg or Less)			Minor B	Minor B		
		CAD 8.7.2.15★1						
	CAD 8.7.3.21★2	★ Increase Deadweight of Car (>115 kg to 5%)			Minor A	Minor A		
		CAD 8.7.2.15★2						

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.3.22	Change in Rise or Rated Speed			Major	-		
	8.7.3.22.1	Increase or Decrease in Rise			Major	-		
			3.25.	Terminal-Stopping Devices				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.4.1	Bottom Car Clearance				
			3.4.2	Minimum Bottom and Top Car Runby				
			3.4.3	Car Top and Bottom Maximum Runby				
			3.18.2	Plungers				
				If decrease in rise is at lowest end then;				
			2.2.4	Access to Pits				
			2.2.5	Illumination of Pits				
			2.2.6	Stop Switches				
	8.7.3.22.2	Increase in Rated Speed			Major	-		
			2.5.	Horizontal Car and Counterweight Clearances				
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.	New doors/gates to: Car: Enclosure, Doors, Gates, Illumination				
			3.17.(*)	Car and Counterweight Safeties				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.20.	Ropes and Rope Connections				
	8.7.3.22.3	Decrease in Rated Speed			Major	-		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			2.18.2	Tripping Speeds for Speed Governors				
			3.16.	Capacity & Loading				
			3.16.3(b)	Capacity & data plates				
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				
	8.7.3.23	Hydraulic Equipment			⇩ See Below ⇩			
	8.7.3.23.1	Alter / Install / Replace		Hydraulic Jacks	Major	-	Major	
			3.18.	Hydraulic Jacks			see 8.6.3.10.1	
	8.7.3.23.2	Alter / Install / Replace		Plungers	Major	-	Minor A	
			3.18.1.2	Roped-Hydraulic Elevator				
			3.18.2	Plungers				
	8.7.3.23.3	Alter / Install / Replace		Cylinders	Major	-	Minor A	
			3.18.3	Cylinders			see 8.6.3.10.2	
			3.18.3	Cylinder is Altered				
			3.18.3	Cylinder is Sleeved	Minor A			
			3.18.4.1	Metal Stops and/or Other Means				
			3.18.1.2	Roped-Hydraulic Elevator				
			3.18.2	Plungers				
	8.7.3.23.4	Increase in Working Pressure >5%			Major	-		
			3.18.(*)	Hydraulic Jacks				
			3.19.(*)	Valves, Pressure Piping, and Fittings				
			3.24.1	Marking Plates				
			3.24.2	Tanks				
			3.24.3	Atmosphere Storage and Discharge Tanks				
			3.24.4	Welding				
	8.7.3.23.5	Change in Location of		Hydraulic Jack	Major	-		
			Part 3	Hydraulic Elevators				
	8.7.3.23.6	Relocation of Hydraulic Machine (Power Unit)			Minor A	-		
			3.26.8	Pressure Switch				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.23.7	Plunger Gripper			Minor A	Minor A		
			3.17.3	Plunger Gripper				
			3.1.1(b)	strength of pit floor				
			3.22.1	no strike when buffers compressed				
	CAD							
	8.7.3.23.7 ★1	Removal of Plunger Gripper			Minor A	-		
			3.18.3	Cylinders				
			3.19.4.7	Overspeed Valves				
			3.4.2.1	Bottom Car Runby				
	8.7.3.24 (a)	Alter / Replace		Control Valves	Minor A	-	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Relief Valves	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Check Valves	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.24 (b)	Alter / Replace		Pressure Piping or Fittings	Minor A	Minor A	Minor B	
			3.19.	Valves, Pressure Piping, and Fittings			see 8.6.3.11	
	8.7.3.25	Suspension Ropes and Their Connections			⇩ See Below ⇩			
	8.7.3.25.1	Change in Number of, or Diameter of Ropes			Major	-		
			3.20.	Ropes and Rope Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.3.25.1	Change in Material / Grade of Ropes			Minor A	-		
			3.20.	Ropes and Rope Connections				
				PEO to certify retained sheaves w/different ropes are satisfactory				
	8.7.3.25.2	Addition of Rope Equalizers			Minor B	Minor B		
			2.20.5	Suspension Rope Equalizers				
	8.7.3.26	Counterweights - Alteration of			See 8.7.2.22			
	8.7.2.22	Counterweights			Minor A	-		
	8.7.2.22.1	Alteration to any part of a cwt except guiding members						
			2.21.	Counterweights				
			3.21.	Counterweights				
			8.7.2.22.2	Rod Type Counterweights				
			8.7.2.3	Location and Guarding of Counterweights				
	8.7.2.22.2	Rod Type Cwt - can retain if:						
				Minimum of 2 suspension and 2 tie rods				
				Suspension rods:				
			2.21.2.1	Material - Cwt Frames & Rods				
			2.21.2.3	Factor of Safety				
				Tie Rods:				
			2.21.1.2	Retention of Weight Sections				
	8.7.2.22.3	Roller or similar guide shoes added			mrr		mrr	
		safety jaws cannot touch rails if not activated						
	8.7.3.26	Counterweights - Addition of			-	Major		
			3.4.	Bottom and Top Clearances and Runbys for Cars and Cwts				
			3.6.	Protection of Spaces below Hoistway				
			3.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.	Car: Enclosure, Doors, Gates, Illumination				
			2.14.1.7.1	car top guard rail to CAD 8.7.2.14★4				
			3.15.	Car Frames & Platforms				
			3.17.2	Counterweight Safeties				
			3.18.	Hydraulic Jacks				
			3.20.	Ropes and Rope Connections				
			3.21.	Counterweights				
			8.7.3.3	Location and Guarding of Counterweights				
	8.7.3.27	Car Buffers and Bumpers			Major	-	mrr	Minor B
			3.21.	Counterweights				
			3.22.2(*)	Counterweight Buffers				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.28	Guide Rails, Supports, and Fastenings (alteration to, or stress increase >5%)			Major	-		
		3.23.	Guide Rails, Guide-Rail Supports, and Fastenings					
		3.28.	Layout Data					
	8.7.3.29	Alteration to	Tanks		Minor B	-	Minor B	
		3.24.	Hydraulic Machines and Tanks				see 8.6.3.10.4	
	CAD 8.7.3.29★1	★ Addition of Oil Cooler			Minor B		Minor B	
		8.7.3.8	Electrical Wiring, Pipes, and Ducts in H/W and M/C rooms					
		2.7.2	Maintenance Path and Clearance					
		3.10.	Guarding of Exposed Auxiliary Equipment					
	8.7.3.30	Terminal-Stopping Devices			Minor B	Minor B		
		3.25.	Terminal-Stopping Devices					
	8.7.3.31	Operating Devices and Control Equipment			⇩ See Below ⇩			
	8.7.3.31.1	Top-of-Car Operating Devices			Minor A	Minor A	mrr	Minor A
		3.26.2	Inspection Operation					
	CAD 8.7.3.31★1	Alteration / Addition of any type of inspection operation			Minor A	Minor A		
		2.26.1.4	Inspection Operation					
	CAD 8.7.3.31★2	Addition of Top-of-Car Operating Device (see CAD 3.8.3)			-	Minor A		
		2.26.1.4	Inspection Operation					
		8.7.2.15★1,★2						
	8.7.3.31.2	Car-Leveling or Truck-Zoning Devices			Minor A	Minor A		
		3.26.3.2	Operation in Leveling or Truck Zone					
	8.7.3.31.3	Alter / Replace	Anti-Creep Leveling Device		Minor B	-	Minor B	
		3.26.3.1	Anti-Creep Operation				see 8.6.3.10.5	
	CAD 8.7.3.31★3	★ Door By-Pass Switches			Minor A	Minor A		
		2.26.1.5	Inspection Operation with Open Door Circuits					
	CAD 8.7.3.31★4	★ Door Monitoring System			Minor A	Minor A		
		2.26.5	System to Prevent Auto Operation w/faulty Door Contacts					
	8.7.3.31.4	Change in Power Supply			Major	-		
		(a) voltage, frequency or # of phases or						
		(b) AC to DC , DC to AC or						
		(c) combination of DC & AC, then						
		electrical to:						
		3.26.1	Operating Devices and Control Equipment					
		3.26.4	Electrical Protective Devices					
		3.26.5	Phase-Reversal and Failure Protection					
		3.26.6(*)	Control and Operating Circuits					
	CAD 8.7.3.31★5	★ Addition of Soft Start				Minor A		
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					
		3.26.5	Phase-Reversal and Failure Protection					
	CAD 8.7.3.31★6	★ Addition of Power Efficiency Increasing Device				Minor B		
		B44.1 certified						
		2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified					

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.5	Controllers						
	8.7.3.31.5(a)	Install / Replace		Elevator Controller	Major	-		Major
			3.25.	Terminal-Stopping Devices				
			3.26.	Operating Devices and Control Equipment				
			3.26.1	Operating Devices and Control Equipment				
			3.26.2	Inspection Operation				
			3.26.3	Anti-Creep and Leveling Operation				
			3.26.4	Electrical Protective Devices				
			3.26.5	Phase-Reversal and Failure Protection				
			3.26.6	Control and Operating Circuits				
			3.26.7	Recycling Operation for Multiple or Telescopic Plungers				
			3.26.8	Pressure Switch				
			3.26.9	Low Oil Protection				
			3.26.10	Auxiliary Power Lowering Operation				
		★	2.7.9.2	Temperature and Humidity				
			2.27.2	when E.P. Is provided				
			3.27.1	Phase 1 Emergency Recall Operation after Device Actuation				
			3.27.2	Phase 1 Emergency Recall Operation prior to Device Actuation				
			3.27.3	Device Acutation at Recall Level				
			3.27.4	Device Acutation with Phase II Emergency In-Car in Effect				
				If FEO previously present or required by OBC;				
			2.27.3	Firefighters' Emergency Operation - Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
			2.27.4	FEO: Non Automatic Elevators				
			2.27.5	FEO: Automatic Elevators with Designated-Attendant Operation				
			2.27.6	FEO: Inspection Operation				
			2.27.7	FEO: Operating Procedures				
			2.27.8	Switch Keys				
			2.27.9	Elevator Corridor Call Station Pictograph				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				
	CAD 8.7.3.31★7	Relocation of		Elevator Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	8.7.3.31.5(b)	Install / Replace		Door Controller	Minor A	-		Minor B
			2.26.4.1	Electrical Equipment and Wiring				
			2.26.4.2	Drive Machine Controllers for Stopping/Starting/Controlling				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change / Addition Replacement with: Same / Different Make/Model Type of Submission Required			
	8.7.3.31.6	Change in Type of Motion Control			Major	-		
			2.11.1(*)	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6(*)	Opening of Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.11.8(*)	Hoistway Door Safety Retainers				
			2.11.12.8	Pull Straps				
			2.12.(*)	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
				2.12.5 Restricted Opening of Hoistway or Car Doors				
				2.12.6 Hoistway Door Unlocking Devices				
				2.12.7 Hoistway Access Switches				
			2.13.	Power Operation of H/W Doors and Car Doors				
			2.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
				2.14.1.7 car top railing				
			8.7.2.27.5(d)	Capacity & Loading				
			2.17.(*)	Car & Cwt Safeties				
			2.18.(*)	Speed Governors				
			3.25.	Terminal Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
			2.29.	Identification of Equipment and Floors				
		★	2.7.9.2	Temperature and Humidity				
				If FEO previously present or required by OBC;				
			2.27.	Emergency Operation and Signalling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 Firefighters' Emergency Operation: Automatic Elevators				
				2.27.3.1 Phase 1 Recall Operation				
				2.27.3.2 Phase 1 Recall Operation by FAID's				
				CAD 2.27.3.2.2				
				2.27.3.3 Phase 2 Emergency In-Car Operation				
				2.27.3.4 Interruption of Power				
				2.27.3.5 Multicompartment Elevators				
				see 8.7.1.2 safety levels shall not be diminished				
				2.27.4 FEO: Non Automatic Elevators				
				2.27.5 FEO: Automatic Elevators with Designated-Attendant Operation				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				If FEO NOT previously present or required by OBC;				
				CAD 2.27.3.2.2				
				2.27.3.1 Provide Phase 1 Manual Recall Operation Only				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.7	Change in Type of Operation Control - CPPB, Automatic			Major	-		
			2.11.1	Entrances and Emergency Doors Required				
			2.11.2	Types of Entrances				
			2.11.3	Closing of Hoistway Doors				
			2.11.4	Location of Horizontally Sliding or Swinging H/W Doors				
			2.11.5	Projection of Entrances & Equip. Beyond Land'g Sills				
			2.11.6	Opening of Hoistway Doors				
			2.11.7	Glass in Hoistway Doors				
			2.11.8	Weights for Closing or Balancing Doors				
			2.11.9	Hoistway Door Locking Devices & Power Operation				
			2.11.10	Landing Sill: Guards, Illumination, hinged sills, Tracks				
			2.11.11	Entrances, Horizontal Slide Type				
			2.11.12	Entrances, Vertical Slide Type				
			2.11.13	Entrances, Swing Type				
			3.11.1	Protection of Hoistway Landing Openings				
			3.12.1	H/W-Door Locking Devices, Elec. Contacts, H/W Access				
			3.13.	Power Operation of H/W Doors and Car Doors				
			3.14.(*)	Car: Enclosure, Doors, Gates, Illumination				
			3.16.	Capacity & Loading				
			3.25.	Terminal-Stopping Devices				
			3.26.(*)	Operating Devices and Control Equipment				
		★	2.7.9.2	Temperature and Humidity				
			3.27.	Emergency Operation and Signaling Devices				
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.3.31★8	★ Addition of Wander Patient Feature - Change in Operation Control			Minor B	Minor B		
			2.11.3.2	- doors closed when not in use				
			2.27.3.1.6(l)	- shall not prevent PHI				
	CAD 8.7.3.31★9	★ Addition of Restricted Access - Security / Floor Lock Out			Minor B	Minor B		
			OBC-3.2.6.5(4)	- shall not prevent floor access When on FEO				
			D.O. Button Remain Operative Under non FEO Conditions, Door Closed When not in Use					
			2.27.3.1.6(l)	- shall not prevent PHI				
			2.27.3.3.1(i)	- permit travel to all landings when on PH II				
			2.11.6.2	Cannot Lock Out Top& Btm, Designated & Alternate or All Landings in Phase II				
			DR 172/02	Elevators With Phase II Operation & Floor Button Controlled by Cards/Keys				
	8.7.3.31.8	Emergency Operation and Signaling Devices						
	8.7.3.31.8(a)	Car Emergency Signaling Devices			Minor B	Minor B	mrr	
			2.27.1	Car Emergency Signaling Devices				
	8.7.3.31.8(b)	Emergency or Standby Power			Minor B	Minor A		
			2.27.2	Emergency Or Standby Power systems				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.3.31.8(c)	Firefighter's Emergency Operation			Minor B	Minor A		
			3.27.	Emergency Operation and Signaling Devices				
				3.27.1 PHI Emergency Recall Operation After Device Actuation				
				(a) low oil protection				
				(b) plunger follower guide protection				
				(c) auxiliary power lowering				
				(d) oil tank temperature shutdown				
				2.27 Emergency Operation & Signaling Devices				
				2.27.1 Car Emergency Signalling Devices				
				2.27.2 Emergency or Standby Power Systems				
				2.27.3 FEO: Automatic Elevators				
				CAD 2.27.3.2.2				
				2.27.4 FEO: Non-Automatic Elevators				
				2.27.5 FEO: Automatic Elevators w/Attendant				
				2.27.6 FEO: Inspection Operation				
				2.27.7 FEO: Operating Procedures				
				2.27.8 Switch Keys				
				2.27.9 Elevator Corridor Call Station Pictograph if reqd by OBC				
	CAD 8.7.3.31.8★10	★ Emerg. Recall Upgrade - from Manual to Automatic & matching code at time of insta			Minor B			
				conformance to auto recall based on F.S. at time of install				
	CAD 8.7.3.31.8★11	★ Emerg. Recall Upgrade to comply with a Fire Code Retrofit Order			Minor B	Minor A		
				2.27.3 FEO: Automatic Elevators				
	8.7.3.31.9	Auxiliary Power Lowering Operation			Minor B	Minor B		
			3.26.10	Auxiliary Power Lowering Operation				
				include testing procedure				
	8.7.3.31.10	Removal of emergency stop switch on passenger elevators			Minor B	Minor B		
				remove all related markings / engravings & provide an in-car stop switch to:				
			2.26.2.21	In-car stop switch				
			2.26.4.3	Positively Opened Contacts				
			2.26.9.3.1(a)	single failure does not render In-Car Stop Switch ineffective				
			3.26.4.2	deceleration rate <1g, anticreep must still function				
	8.7.3.31.11	Electrical Protective Devices			⇩ See Below ⇩			
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			Major	Major	mrr	Major
				if device meets 2.26.4.3.2 (PES)				
			3.26.2	Electrical Protective Devices - for specified device				
	8.7.2.27.8	Alteration or Addition of an Electrical Protective Device			-	Minor A	mrr	
				if device meets 2.26.4.3.1				
			3.26.2	Electrical Protective Devices - for specified device				

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Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.4	Alterations to Elevators w/other Types of Driving Machines						
	8.7.4.1	Rack and Pinion Elevators			Major	-		
		4.1.		Rack and Pinion Elevators				
	8.7.4.2	Screw-Column Elevators			Major	-		
		4.2.		Screw-Column Elevators				
	8.7.4.3	Hand Elevators			Major	-		
	8.7.4.3.1	Hoistway Enclosures and Machinery Space			Major	-		
		4.3.1		Hoistways, H/W Enclosures, and Related Construction				
		4.3.4		Enclosures for Machines and Control Equipment				
	8.7.4.3.2	Top Car and Counterweight Clearances			Major	-		
		4.3.3		Top Clearances				
	8.7.4.3.3	Hoistway Entrances			Major	-		
		4.3.6		Hoistway Entrances				
		4.3.7		Hoistway Gates for Landing Openings				
		4.3.8		Hoistway-Door & Hoistway Gate Locking Devices				
	8.7.4.3.4	Car Enclosures			Major	-		
		4.3.9		Car Enclosures				
		4.3.11		Car Frames and Platforms				
	8.7.4.3.5	Car Frame and Platform			Major	-		
		4.3.11		Car Frames and Platforms				
		4.3.12		Car Compartments				
		4.3.13		Cars Counterbalancing One Another				
		4.3.16		Suspension Means				
	8.7.4.3.6	Capacity and Loading			Major	-		
		4.3.14.1		Minimum Rated Load				
		4.3.14.2		Capacity Plate				
		4.3.19.1		Drive Machine & Sheaves - Factors or Safety				
		4.3.19.2		Driving-Machines				
		4.3.16		Suspension Means				
	8.7.4.3.7	Increase in Rise			Major	-		
		4.3.3.1		Top Car Clearances				
		4.3.3.2		Top Counterweight Clearance				
		4.3.15		Car Safeties				
		4.3.16		Suspension Means				
	8.7.4.3.8	Guide Rails and Fastenings			Major	-		
		4.3.18.1		Guide Rails - Material and Finish				
		4.3.18.2		Strength of Rails and Fastenings				
		4.3.18.3		Extension of Guide Rails at Top & Bottom of H/W				
	8.7.4.3.9	Overhead Beams and Supports			Major	-		
		4.3.5.1		Overhead Beams and Supports				
		4.3.5.2		Access to Machines and Sheaves				
	8.7.4.3.10	Power Attachments			Major	-		

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.5	Alterations to Special Application Elevators						
	8.7.5.1	Inclined Elevators			Major	-		
			5.1.	Inclined Elevators				
				compliance to specific 5.1 sections based on alteration scope	variance			
	8.7.5.2	Limited Use/Limited Application Elevators			See Electric or Hydraulic Elevator			
	CAD 8.7.5.2★1	★	8.7.2	Alterations to Electric Elevator & as modified in Section 5.2				
	CAD 8.7.5.2★2	★	8.7.3	Alterations to Hydraulic Elevator & as modified in Section 5.2				
	8.7.5.5	Power Sidewalk Elevators			Major	-		
	8.7.5.5.1	Changes in Electrical Wiring or Electrical Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
	8.7.5.5.2	Sidewalk Door			Major	-		
			5.5.1.11.2	Horizontal Openings in Sidewalks and Exterior Areas				
			5.5.1.11.3	Hinged Type Swing Sidewalk Doors				
			5.5.1.11.4	Vertical Lifting Sidewalk Covers				
	8.7.5.5.3	Change in Car Enclosure, Car Doors, and Gates			Major	-		
			5.5.1.14	Car Enclosure, Car Doors and Gates, Illumination				
	8.7.5.5.4	Bow-Irons and Stanchions			Major	-		
			5.5.1.15.2	Bow-Irons and Stanchions				
	8.7.5.5.5	Increase in Rated Load			Major	-		
			5.5.1.16	Capacity and Loading				
			5.5.1.18	Speed Governors				
			5.5.1.21	Buffers and Bumpers				
			5.5.1.25.4	Maximum Rated Speed				
	8.7.5.5.6	Increase in Rated Speed			Major	-		
			5.5.1.15	Car Frames and Platforms				
			5.5.1.16	Capacity and Loading				
			5.5.1.19	Suspension Ropes				
			5.5.1.22	Guide Rails				
	8.7.5.5.7	Existing Driving Machine			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.9	Machinery and Sheave Beams, Supports, and Foundations				
			5.5.1.23	Driving Machines and Sheaves				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.5.8	Change in Type of Operating Devices and/or Control Equipment			Major	-		
			5.5.1.8	Equipment in Hoistways & Machine Rooms				
			5.5.1.25	Operating Devices and Control Equipment				
	8.7.5.6	Rooftop Elevators			Major	-		
			5.6.	Rooftop Elevators				
	8.7.5.7	Special Purpose Personnel Elevators			see CAN/CSA B311			

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					Type of Submission Required			
	8.7.6.1	Alterations to Escalators						
	8.7.6.1.1	Change to component parts			mrr	-	mrr	
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.1.1	Addition of Components or Devices			see 8.7.6.1		-	
				see applicable 8.7.6.1 requirements for that device				
	8.7.6.1.2 (a)	Relocation of Escalator			New	-		
			6.1.	Escalators				
	8.7.6.1.2 (b)	Repositioning of Escalator			Major			
	CAD 3.18	★ Repositioning of Escalator (within the same building)						
			6.1.3.3.11	Guard at ceiling intersection				
			6.1.3.3.12	AntiSlide Devices				
			6.1.3.3.13	Deck Barricades				
			6.1.3.4.3	Guards				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
			6.1.3.12	Headroom				
			6.1.3.13	Welding				
			6.1.6.9	Signs				
			6.1.7.4.1	Electrical equipment				
			8.7.6.1.3	Protection of Floor Openings				
	8.7.6.1.3	Protection of Floor Openings			Minor A	-		
			6.1.1.1	Protection Required				
	8.7.6.1.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.1.2.1	Protection Required				
	8.7.6.1.5	Construction Requirements						
	8.7.6.1.5(a)	Construction Requirements - Angle of Inclination			Major	-		
	8.7.6.1.5(b)	Construction Requirements - Geometry			Major	-		
			6.1.3.2	Geometry				
	8.7.6.1.5(c)	Any Alteration to the Balustrades			Minor A	Minor A		
			6.1.3.3	Balustrades				
			6.1.3.3.1	Construction				
			6.1.3.3.2	Strength				
			6.1.3.3.3	Use of Glass or Plastic				
			6.1.3.3.4	Interior Low Deck				
			6.1.3.3.5	Loaded Gap between Skirt & Step				
			6.1.3.3.6	Skirt Panels				
			6.1.3.3.7	Dynamic Skirt Panels				
			6.1.3.3.8	Dynamic Skirt Panel Loaded Gap				
			6.1.3.3.9	Step/Skirt Performance Index				
			6.1.3.3.10	Skirt Deflector Devices				
			6.1.3.3.11	Guard at ceiling intersection				
			6.1.3.3.12	AntiSlide Devices				
			6.1.3.3.13	Deck Barricades				
	8.7.6.1.5(d)	Deflector Devices			Minor B		mrr	
			6.1.3.3.10	Skirt Deflector Devices				
	8.7.6.1.6	Handrails or Handrail System			Minor A	-		
			6.1.3.2.2	Geometry - Handrail				
			6.1.3.4.1	Handrails - Type Required				
			6.1.3.4.2	Extension Beyond Combplate				
			6.1.3.4.3	Guards (hand or finger)				
			6.1.3.4.4	Handrails - Splicing				
			6.1.3.4.6	Handrail Clearance				
			6.1.6.3.12	Handrail Entry Device				
			6.1.6.4	Handrail Speed Monitoring Device				
	CAD 8.7.6.1★1	★ Addition of Handrail Advertising			mrr	variance		
				Variance to 6.1.6.9.2				

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					Type of Submission Required			
	8.7.6.1.7	Step System - any alteration to the step system			Major	-	mrr	Minor B
		6.1.3.3.5	Loaded Gap Between Skirt & Step					
		6.1.3.5 (*)	Steps					
		6.1.3.6	Entrance and Egress Ends					
		6.1.3.8	Step Wheel Tracks					
		6.1.3.9.4	Step					
		6.1.3.10.4	Factor of Safety - Steps					
		6.1.3.11	Chains					
		6.1.6.3.3	Broken Step-Chain Device					
		6.1.6.3.9	Step Upthrust Device					
		6.1.6.3.11	Step Level Device					
		6.1.6.3.14	Step Lateral Displacement Device					
		6.1.6.5	Missing Step Device					
	8.7.6.1.8	Combplates			Minor A	-		
		6.1.6.3.13	Comb-Step Impact Devices					
	8.7.6.1.9	Trusses and Girders			Major	-		
		8.7.1.4	Welding					
		6.1.3.7	Trusses of Girders					
		6.1.3.9.1	Structural Load					
		6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures					
	8.7.6.1.9	New Escalator into Existing Trusses			New	-		
		6.1.	Escalators					
	8.7.6.1.10	Step Wheel Tracks			Major	-		
		6.1.3.8	Step Wheel Tracks					
		6.1.3.9.4	Step					
		6.1.3.10.1	Factor of Safety - Trusses and Supporting Structures					
		8.7.1.4	Welding					
	8.7.6.1.11	Rated Load and Speed			Major	-		
		6.1.	Escalators					
	8.7.6.1.12	Driving Machine, Motor, and Brake						
	8.7.6.1.12(a)	Driving Machine			Major	-		
		6.1.3.9.2	Machinery					
		6.1.3.10.3	Factor of Safety - Power Transmission Parts					
		6.1.4.1	Limits of Speed					
		6.1.5.1	Connection Between Driving Machine and Main Drive Shaft					
		6.1.5.2	Driving Motor					
		6.1.5.3.1	Escalator Driving-Machine Brake					
		6.1.5.3.2	Main Drive Shaft Brake					
		6.1.6.3.4	Broken Drive-Chain Device					
		6.1.6.3.8	reversal Stop Device					
	8.7.6.1.12(b)	Driving Motor			Major	-		
		6.1.3.9.2	Machinery					
		6.1.3.10.3	Factor of Safety - Power Transmission Parts					
		6.1.4.1	Limits of Speed					
		6.1.5.2	Driving Motor					
		6.1.5.3.1	Escalator Driving-Machine Brake					
		6.1.5.3.2	Main Drive Shaft Brake					
		6.1.6.3.2	Speed Governor					
		6.1.6.3.8	reversal Stop Device					
		6.1.6.3.10	Disconnected Motor Safety Device					
	8.7.6.1.12(c)	Machine Brake			Major	-		
		6.1.3.9.3	Brake					
		6.1.3.10.2	Factor of Safety - Driving Machine Parts					
		6.1.5.3.1	Escalator Driving-Machine Brake					

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference:** Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.6.1.13	Operating and Safety Devices			Minor A	Minor A		
			6.1.6	Operating and Safety Devices (for that device)				
	CAD 8.7.6.1★2	★	Removal of step demarcation lights		Minor A	-	-	
			6.1.3.3.5	Loaded Gap Between Skirt & Step				
			6.1.3.5.4	Clearance between Steps				
			6.1.3.5.5	Slotting of Steps and Treads				
			6.1.3.5.6	Step Demarcation				
			6.1.3.6.2	Distinction Between Comb and Step				
	8.7.6.1.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.1.7	Lighting, Access, and Electrical Work				
	8.7.6.1.15	Entrance and Egress			Major	-		
			6.1.3.6.1	Combplates				
			6.1.3.6.2	Distinction Between Comb and Step				
			6.1.3.6.3	Adjacent Floor Surfaces				
			6.1.3.6.4	Safety Zone				
	8.7.6.1.16	Controller			Major	-	-	
			6.1.6.10	Control and Operating Circuits				
			6.1.6.11	Electrically Power Safety Devices				
			6.1.6.12	Installation of Capacitors.. To Make EPD's Ineffective				
			6.1.6.13	Completion of Maintenance Circuits				
			6.1.6.14	Escalator Manual Reset				
			6.1.6.15	Contractors and Relays for Use in Critical Operating Circuits				
	CAD 8.7.6.1★3	★	Controller - Replacement of		-	-	Major	
			8.7.6.1.16	Controller				
	CAD 8.7.6.1★4	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	CAD 8.7.6.1★5	★	Addition of Soft start		-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				
	CAD 8.7.6.1★6	★	Addition of Power Efficiency Increasing Device		-	Minor B		
			B44.1 certified					
			2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified				

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					Type of Submission Required			
	8.7.6.2	Alterations to Moving Walks						
	8.7.6.2.1	Change to component parts			mrr	-	mrr	
				8.6.12.4.1.1 Replacement parts or components				
				8.6.12.4.1.2 Quality of Work				
	8.7.6.2.1	Addition of Components or Devices			see 8.7.6.2		-	
				see applicable 8.7.6.2 requirements for that device				
	8.7.6.2.2	Relocation of Moving Walk			New	-		
			6.2.	Moving Walks				
	8.7.6.2.3	Protection of Floor Openings			Minor A	-		
			6.2.1.1	Protection Required				
	8.7.6.2.4	Protection of Trusses and Machinery Spaces Against Fire			Minor A	-		
			6.2.2.1	Protection of Supports - Protection Required				
	8.7.6.2.5	Construction Requirements - Angle of Inclination			Major	-		
			6.2.	Moving Walks				
	8.7.6.2.5	Construction Requirements - Geometry			Major	-		
			6.2.3.2	Geometry				
	8.7.6.2.5	Construction Requirements - Balustrades			Minor A	Minor A		
			6.2.3.3	Balustrades				
	8.7.6.2.6	Handrails			Minor A	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.4	Handrails				
			6.2.6.3.10	Handrail Entry Device				
			6.2.6.4	Handrail Speed Monitoring Device				
	8.7.6.2.7	Treadway System			Major	-		
			6.2.3.2.3	Geometry - Handrail				
			6.2.3.3.5	Skirtless Balustrade				
			6.2.3.3.6	Skirt Panels				
			6.2.3.5	Pallet-Type Treadway				
			6.2.3.6(*)	Belt-Type Treadway				
			6.2.3.8	Entrance and Egress Ends				
			6.2.3.9	Supporting Structure				
			6.2.3.10.4	Pallet				
			6.2.3.11.4	Pallet Factor of Safety				
			6.2.3.11.5	Belt Factor of Safety				
			6.2.3.12	Chains				
			6.2.6.3.3	Broken Treadway Device				
			6.2.6.5	Missing Pallet Device				
			6.2.6.3.9	Pallet Level Device				
	8.7.6.2.8	Combplates			Minor A	-		
			6.2.3.8	Entrance and Egress Ends				
			6.2.6.3.11	Comb-Pallet Impact Devices				
	8.7.6.2.9	Trusses and Girders			Major	-		
			8.7.1.4	Welding				
			6.2.3.9	Supporting Structure				
			6.2.3.10.1	Structural Load				
			6.2.3.12.1	Trusses & Supports based on max static load				
	8.7.6.2.9	New Moving Walk into Existing Truss			New	-		
			6.2.	Moving Walks				
	8.7.6.2.10	Track System			Major	-		
			6.2.3.9	Supporting Structure				
			6.2.3.10	Rated Load				
			6.2.3.11.1	Trusses & Supports based on max static load				
			8.7.1.4	Welding				
	8.7.6.2.11	Rated Load and Speed			Major	-		
			6.2.	Moving Walks				

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Conforms to B44 Mark with 'X'	**B44-10 Reference Number**	**Alteration Checklist for Director's Guideline 251-11-r1** **Scope of Alteration - B44 - 2010 as amended by CAD 261/13** **Part, Section or Requirement** **Job Reference:** Superseded by Rev			Type of Alteration Work			
					Alteration		Replacement with	
					Modification Change	Addition	Same	Different Make/Model
					Type of Submission Required			
	8.7.6.2.12	Driving Machine			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.3.14	V-Belt Drives				
			6.2.3.15	Headroom				
			6.2.4	Rated Speed				
			6.2.5.1	Connection Between Driving Machine and Main Drive Shaft				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
			6.2.6.3.4	Broken Drive-Chain Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Drive Motor			Major	-		
			6.2.3.10.2	Machinery Load				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.4	Rated Speed				
			6.2.5.2	Driving Motor				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.6.3.2	Speed Governor				
			6.2.6.3.7	Reversal Stop Device				
			6.2.6.3.8	Disconnected Motor Safety Device				
	8.7.6.2.12	Machine Brake			Major	-		
			6.2.3.10.3	Brake				
			6.2.3.11.2	Factor of Safety for Drive Machine Parts				
			6.2.3.11.3	Factor of Safety for Power Transmission members				
			6.2.5.3.1	Moving Walk Driving-Machine Brakes				
			6.2.5.3.2	Main Drive Shaft Brake				
	8.7.6.2.13	Operating and Safety Devices			Minor A	Minor A		
			6.2.6	Operating and Safety Devices (for that device)				
	8.7.6.2.14	Lighting, Access, and Electrical Work			Minor B	Minor B		
			6.2.7	Lighting, Access, and Electrical Work				
	8.7.6.2.15	Controller - Installed as part of an alteration			Major	-	-	
			6.2.6.9	Control and Operating Circuits				
			6.2.6.10	Electrically Power Safety Devices				
			6.2.6.11	Installation of Capacitors.. To Make EPD's Ineffective				
			6.2.6.12	Completion of Maintenance Circuits				
			6.2.6.13	Moving Walk Manual Reset				
			6.2.6.14	Contractors and Relays for Use in Critical Operating Circuits				
	CAD 8.7.6.2★1	★ Controller - Replacement of			-	-	Major	
			8.7.6.1.16	Controller				
	CAD 8.7.6.2★2	Relocation of		Controller (if control wiring disconnected - reconnected)	Major			
			2.8.2	Electrical Equipment and Wiring				
				Electrical testing as per the original design submission tests				
	CAD 8.7.6.2★3	★ Addition of Soft start			-	Minor A		
		for control systems built to B44-00 and later						
			6.1.7.4	Electrical Equipment and Wiring				
			6.1.6.10.1	Occurrence of a single ground				
			6.1.6.10.2	Redundancy to be checked				
			6.1.6.10.3	Motors with Static control				
		for control systems built prior to B44-00						
			6.1.7.4	Electrical Equipment and Wiring				
	CAD 8.7.6.2★4	★ Addition of Power Efficiency Increasing Device			-	Minor B		
			B44.1 certified					
			2.26.4.1 & 2	OESC, CSA C22.1 & B44.1 certified				

0	1	2a	2b	2c	3	4	5	6
Conforms to B44 Mark with 'X'	B44-10 Reference Number	Alteration Checklist for Director's Guideline 251-11-r1 Scope of Alteration - B44 - 2010 as amended by CAD 261/13 Part, Section or Requirement Job Reference: Superseded by Rev			Type of Alteration Work Alteration: Modification Change	Alteration: Addition	Replacement with: Same	Replacement with: Different Make/Model
					Type of Submission Required			
	8.7.7	Alterations to Dumbwaiters and Material Lifts						
	8.7.7.1	Dumbwaiters and Material Lifts Without Automatic Transfer Devices			Major	-		
		Alteration to a Power and Hand Dumbwaiters			Major	-		
		7.1.	Power and Hand Dumbwaiters					
		7.2.	Electric and Hand Dumbwaiters					
		7.3.	Hydraulic Dumbwaiters					
		Alteration to a Material Lifts			Major	-		
		7.4.	Material Lifts					
		7.5.	Electric Material Lifts					
		7.6.	Hydraulic Material Lifts					
	8.7.7.1.1	General Alterations other than 8.7.7.1.2			Major	-		
		Part 7	Dumbwaiters and Material Lifts					
	8.7.7.1.2	Increase in Rated Load			Major	-		
		7.2.(*)	Electric and Hand Dumbwaiters w/o Transfer Devices					
		7.3.(*)	Hydraulic Dumbwaiters w/o Transfer Devices					
		7.4.	Material Lifts					
		7.5.	Electric Material Lifts					
		7.6.	Hydraulic Material Lifts					
	8.7.7.2	Addition of Automatic Transfer Device			Major	-		
		Part 2	Electric Elevators					
		Part 3	Hydraulic Elevators					
	8.7.7.3.1	Material Lifts and Dumbwaiters With Automatic Transfer Devices			N/A	N/A		
			exempt if requirements of CAD 2.3(j) are met					
	8.7.7.3.2	Material Lifts and Dumbwaiters - remove Transfer Device			New	-		
		7.1. to 7.3.	for Dumbwaiters					
		7.4. to 7.6	Material Lifts w/o Transfer Devices					
	8.7.7.3.3	Material Lifts altered to an Elevator			New	-		
		Part 2	Electric Elevators					
		Part 3	Hydraulic Elevators					
	8.7.7.3.4	Material Lift or Dumbwaiter w/ Transfer Device Altered to a D/W			New	-		
		7.1.	Power and Hand Dumbwaiters w/Auto Transfer Devices					
		7.2.	Electric and Hand Dumbwaiters w/o Transfer Devices					
		7.3.	Hydraulic Dumbwaiters w/o Transfer Devices					
		Alterations to Freight Platform Lifts						
	CAD 8.7.7★1	★ Alteration to a Type 'A' Freight Platform Lift			Major	-		
		7.4.	as applicable to Material Lifts Type 'B' ✦					
		7.5.	as applicable to Material Lifts Type 'B' ✦					
		7.6.	as applicable to Material Lifts Type 'B' ✦					
		✦ excluding requirements related to in-car operating devices & Riders						
	CAD 8.7.7★2	★ Alteration to a Type 'B' Freight Platform Lift			Major	-		
		7.4.	as applicable to Material Lifts Type 'B'					
		7.5.	as applicable to Material Lifts Type 'B'					
		7.6.	as applicable to Material Lifts Type 'B'					

Elevating and Amusement Devices Safety Division	Ref. No.: 252 / 12	Rev. No.:
Guideline	Date: March 20, 2012	Date:

Subject: Simplified Procedure to Correct / Revise a Registered Design Submission
Applicable to: Elevating Device Contractors and Consultants

1. INTRODUCTION

1.1. On inspection of a newly installed or altered elevating device, a TSSA inspector may issue orders identifying discrepancies between the registered design submission and the actual installation.

1.2. In response to the inspector's orders, a contractor may change the installation to bring it in compliance with the registered design submission or the contractor may submit a revised design for registration to TSSA in accordance with Section 15 & 16 of the Regulation. Since some discrepancies may result from a typo, or may not have a significant affect on the safety, this optional simplified procedure can be used.

2. REQUIREMENTS

2.1. ***Ontario Regulation 209/01 (Elevating Devices)*** provides;
- specific detailed requirements for a design submission to be accurate and complete O.Reg. 209/01,s.15:
- a requirement for design submissions to be in the form published by the designated administrative authority, O.Reg. 209/01, s.16
- for registration fees per the fee schedule O.Reg 209/01, s.16

2.2. Revisions submitted for registration must follow one of the procedures below in order to comply with the intent of Section 15 and 16 of the Regulation.

3. PROCEDURE

One of the following optional procedures may be followed, depending on the design submission specification items that are to be revised as a result of an inspector's order.

3.1. **Simple Corrections by Submitting Engineer emailed to dcreporting@tssa.org (fee exempt)**

3.1.1. A formal revision to a previously registered design submission with fee payment may not be required if all discrepancies on one installation can be resolved in accordance with 3.1.2.

3.1.2. If any of the design submission specification items listed below need changing, a formal design submission revision may be replaced with an email (to dcreporting@tssa.org) from the **submitting engineer**.

The email must include the following items from the ED Inspection Report:
- Service Request #,
- Reference Number, and
- Inspection Address.

and should detail the corrections (as shown in example), including the applicable box number and the original/incorrect entry followed by the new/correct data for specific items.
Example:

520 Maximum Capacity: was 1100kg should read 1110kg

The email should not be copied to TSSA engineers or eddesignsubmittal@tssa.org. If the email is addressed or copied to a TSSA registration engineer or eddesignsubmittal@tssa.org, then the revision noted in the letter will be processed as a formal design submission revision and the appropriate fee invoiced.

This procedure is applicable to the following specification items	
Item/Box	Description
General	Any data which is an obvious typo (excluding model numbers unless identified below)
190	Building function
200	Common reference to building
510	Elevator model
520	Maximum capacity (kg) if within 1%
530	Maximum capacity (persons)
580	Number of floors served, if only the specification sheet but not the layout differ from the installation
590	Car travel, if only the specification sheet but not the layout differ from the installation
660	Entrance, if either the manufacturer or model differ, but not both
700	Update to retainer identifier, but not if updated drawings are required
720	Landing door interlock, if either the manufacturer or model differ, but not both
740 / 750	Door operator, if manufacturer and/or model differ
860 / 870	Car door type
940	Firefighter's elevator
1350	Pump make and model (hydraulic only)
1420	Emergency Power Provided (Y/N) [per car]
1430	No. of Cars than can run at once on Emergency Power
1460	Recall to Alternate Level Provided? (Y/N)
3100	FIELD WELDS Cert. of Companies for Fusion Welding of Steel
3110	FIELD WELDS Name of Certified Company

3.1.3. If any discrepancy between a registered design submission and the actual installation, other than those listed in 3.1.2, is identified in the Inspector's Report and the contractor decides to revise the design submission rather than to change the installation, this simplified procedure is not applicable. All items shall be included in a design submission for a revision.

3.2. **Revision to registered submission by Submitting Engineer emailed to eddesignsubmittal@tssa.org (fee applies)**

3.2.1. If a revision is required to make the design submission documents align with the installation, and the revision can adequately be reflected without necessitating the submission of revised drawings / layouts / schematics, an email from the registration engineer (sent to **eddesignsubmittal@tssa.org**) will be accepted in lieu of a submission package containing a sealed transmittal. This email transmission shall;

a) be addressed to eddesignsubmittal@tssa.org,
b) have "Subject" reading "Revision to design submission for [*new installation / major alteration / minor A / minor B*] for installation no(s) [*list installation number(s)*],
c) list all technical specification items being changed, or any textual changes to drawings. (**indicating both the original/incorrect and the new/correct data)** and,
d) include a copy of the inspection report if the revision is made in response to an inspection order.

4. BACKGROUND

Enforcement bulletin 146/99 originally introduced the simplified procedure for design submission revisions. With the introduction of new submission forms and the change in specification items, a new procedure has been created.

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Engineering Manager
Elevating & Amusement Devices Safety Program

Rene Karavas
Regional Supervisor,
Elevating & Amusement Devices Safety Program

This guideline has been developed in consultation with the Elevating Devices Advisory Council

Elevating and Amusement Devices Safety Division	Ref. No.: 252 / 12	Rev. No.: 1
Advisory	Date: March 20, 2012	Date: September 3, 2019

Subject: Simplified Revision Procedure to Correct / Revise a Registered Design Submission
Applicable to: Elevating Device Contractors and Consultants

1. INTRODUCTION

1.1. A registered design submission per Section 15 and 16 of the regulation, forms the on-file record of compliance with the regulation and consequently the information within must be complete and accurate.

1.2. Where errors, omissions or changes to the "**as registered**" documents" require submission updating to reflect the "**as built**" conditions, these "**discrepancies**" shall be made as revisions. Depending on the nature of the discrepancies a simplified revision procedure outlined in section 3 may be used.

1.3. Submitters may become aware of required revisions prior to or after an inspection. If the inspection can proceed without the **discrepancies** impacting the evaluation and testing of the installation, the revision can wait until after the initial inspection. Any revision type issues found during the inspection can be added to the revision submission. Note: Discrepancies can be corrected by either making the "as built" conditions meet the "as register" documentation or vice versa.

2. REQUIREMENTS

2.1. ***Ontario Regulation 209/01 (Elevating Devices)*** provides requirements for;
- a design submission to be accurate and complete O.Reg. 209/01,s.15:
- the design submissions to be in the form published by the designated administrative authority, and
- payment of registration fees per the fee schedule O.Reg 209/01, s.16

2.2. Revisions submitted for registration must follow one of the procedures below in order to comply with the intent of Section 15 and 16 of the Regulation.

3. SIMPLIFIED PROCEDURE

One of the following procedures shall be followed, depending on the design submission specification items that are to be revised. All procedures require an email or an email plus an attachment to be sent to eddesignsubmittal@tssa.org

3.1. **Simplified Revision Procedure to Correct:**
Specific Specification Items (see "Simplified Revision Procedure - List of Specification Items) **or**
Items commonly associated with Minor B Submissions

3.1.1. If a revision to a design submission is required and relates to
a) any of the design submission specification items listed in the table below, or
b) is an item that is currently accepted via a Minor B notification
a formal design submission revision is not required.

The submitting engineer may update these discrepancies by forwarding an email as outlined in 3.1.2. Additionally, items currently address via Minor B notifications may be updated via email by a mechanic as outlined in 3.1.2.

Simplified Revision Procedure - List of Specification Items	
Item/Box	Description
General	Any data which is an obvious typo (excluding model numbers unless identified below)
190	Building function
200	Common reference to building
510	Elevator model
520	Maximum capacity (kg) if within 1%
530	Maximum capacity (persons)
580	Number of floors served, if only the specification sheet but not the layout differ from the installation
590	Car travel, if only the specification sheet but not the layout differ from the installation
660	Entrance, if either the manufacturer or model differ, but not both
700	Update to retainer identifier, but not if updated drawings are required
720	Landing door interlock, if either the manufacturer or model differ, but not both
740 / 750	Door operator, if manufacturer and/or model differ
860 / 870	Car door type
940	Firefighter's elevator
1350	Pump make and model (hydraulic only)
1420	Emergency Power Provided (Y/N) [per car]
1430	No. of Cars than can run at once on Emergency Power
1460	Recall to Alternate Level Provided? (Y/N)
3100	FIELD WELDS Cert. of Companies for Fusion Welding of Steel
3110	FIELD WELDS Name of Certified Company

3.1.2. If a revision is required to make the design submission documents align with the installation, and the revision can adequately be reflected without necessitating the submission of revised drawings / layouts / schematics, an email from the registration engineer will be accepted in lieu of a submission package containing a sealed transmittal. Mechanics may also use this process to update entries typically conveyed via Minor B notifications. This email transmission shall;

a) be addressed to eddesignsubmittal@tssa.org,
b) have "Subject" reading "SIMPLIFIED Revision to design submission for [*new installation / major alteration / minor A / minor B*] for installation no(s) [*list installation number(s)*]",
c) list all technical specification items being changed and indicating both the original/incorrect entries and the new/correct entries and,
d) include a copy of the inspection report if the revision is made in response to an inspection order.

3.1.3. The revision will be processed, the registered submission updated, and a fee corresponding to ½ hr @ the hourly engineering rate will be applied.

3.1.4. If any discrepancy between a registered design submission and the actual installation, other than those listed in 3.1.1, is identified in the Inspector's Report and the contractor decides to revise the design submission rather than to change the installation, a standard revision is required.

Elevating and Amusement Devices Safety Division	Ref. No.: 253 / 12	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: March 12, 2012	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16 (the "Act")

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the Act

Subject: Retroactive Interlock Requirements for Freight Platform Lifts and Material Lifts
Applicable to: All Owners of Freight Platform Lifts and Material Lifts
All Elevator Contractors

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. ORDER to Owners

1.1. All type 'A' and type 'B' Freight Platform Lifts and type 'B' Material lifts utilizing hoistway door mechanical lock and contacts shall have their **mechanical lock and contacts** upgraded to **interlocks** by **May 1, 2014**.

1.2. The upgraded interlocks shall conform to CSA B44-2010 section 7.4.14 except as modified by (a) and (b) below.
a) Compliance with 2.12.3 is not permitted.
b) Compliance with CSA B44-1985 section 11.4 is permitted in place of CSA B44-2010 section 8.3.3.

1.3. New equipment installed in compliance with this safety order shall comply with CSA B44-2010 clauses 2.26.9.3.1(a) and (b). When a single ground or a failure as specified in 2.26.9.3.1(a) or (b) occurs, the car shall not be permitted to restart.

1.4. For the purposes of this safety order the terms "freight platform lift – type B" and "freight platform lift – type A" shall mean the same as "Material Lift – type B" used in CSA B44-2010.

2. INSTRUCTIONS

2.1. All work must be performed by a TSSA registered contractor.

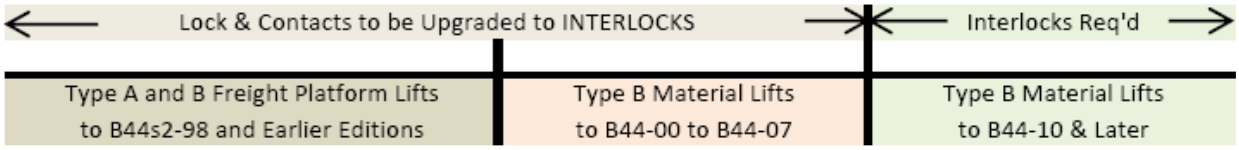
2.2. Work carried out in order to bring a device into compliance with this order is considered an alteration and, as such, a Design Submission with related electrical schematics must be submitted by a registered contractor.

2.3. The installation of interlocks, door zone switch(es) and/or any relays to provide redundancy as required by 1.2 and 1.3 of this order is deemed to be a Minor A type alteration. Any other alteration work performed at the same time shall comply with Director's Order 226/07 and/or the Code Adoption Document applicable at the time of design submission. Note: Changing the controller as a means to comply with this order would be deemed a Major alteration.

2.4. The contractor who completed the alteration shall arrange for an inspection to be carried out as required by O.Reg. 209/01.

3. Background

3.1. Hoistway door mechanical lock and contacts were permitted on all door types for both type 'A' and type 'B' Freight Platform Lifts installed to the B44S2-98 and earlier codes. Lock and contacts were also permitted on some type 'B' Material Lifts with vertical sliding doors installed to the B44-2000 and later codes. These are the devices affected by this order:



3.2. There have been several recent incidents where out of adjustment mechanical locks have allowed hoistway doors to be opened without the car present at the landing. In one of these cases a person stepped into and fell down the unprotected hoistway.

3.3. The requirements for interlocks in the B44-2010 code ensure that the car cannot move more than 75mm (3 in.) beyond the landing without first ensuring the hall door is mechanically (physically) locked - as confirmed by a made up electrical contact. These new requirements also permit designs that do not require retiring cams and hence permit solutions that are similar to those employed on B355 devices.

3.4. This safety order includes permission for the interlock to be tested in accordance with the CSA B44-1985 in order to allow existing interlocks without the lock contact connected to be rewired to comply with this order.

3.5. Contractors who maintain these devices that utilize mechanical locks and electric contacts are reminded to pay close attention to the adjustment of the lock and contact to ensure that the electrical contact does not make up if the mechanical lock has not engaged.

Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

Elevating and Amusement Devices Safety Division	Ref. No.: 254 / 12	Rev. No.:
Information Bulletin	Date: April 19, 2012	Date:

Subject: Operation and Maintenance Manuals for Existing Passenger Ropeways
Applicable to: Owners Passenger Ropeways and Passenger Conveyors

1.0 Introduction

The Z98 Passenger Ropeway standard under the 1996 and 2001 editions, contained requirements for operation and maintenance manuals for existing installations and detailed these requirements in sections 3.36.3 (Operations) and 3.36.4 (Maintenance) of Z98.

These requirements have been retained in the 2007 edition of Z98 but have been relocated to section 4.38.3 and 4.38.4. To ensure that all owners of Passenger Ropeways are fully aware of these existing requirements, TSSA has issued an Information Bulletin to highlight the essential components of Operation and Maintenance documents and has provided a timeline for compliance if such documentation is not fully in place.

2.0 Compliance Timeline for Operation and Maintenance Manual

Operations and Maintenance manuals shall have the following components in place not later than;

Z98 REQUIREMENT	In Place By
4.38.3 Operations manual **4.38.3.2** The operations manual shall include, but not be limited to, the following:	
(a) main-drive start-up and operating procedures;	2012
(b) auxiliary drive start-up and operating procedures;	2012
(c) evacuation drive start-up and operating procedures;	2012
(d) loading and unloading procedures;	2012
(e) emergency procedures for all anticipated situations;	2012
(f) evacuation procedures, including those for night operation, if applicable; and	2012
(g) downhill loading procedures, where applicable.	2012
4.38.4 Maintenance manual **4.38.4.2** The maintenance manual shall describe the manufacturer's and designer's recommended maintenance procedures, including, but not limited to, the following:	
(a) the types of lubricants required and frequency of application;	2013
(b) the definitions and measurements required to determine excessive wear and replacement criteria;	2013
(c) the recommended frequency of service to specific components, including relocation of fixed grips and testing of service and emergency brakes;	2012
(d) detailed load test procedures;	2013
(e) procedures to test and confirm the drive and control systems and the required testing schedule;	2013
(f) a procedure and schedule for the periodic testing of the stopping and holding ability of the service brake, emergency brake, and anti-rollback device on the basis of the design load; and	2012
(g) instructions for checking the operation of any PLC system.	2013
4.38.4.3 The maintenance manual shall cover, but not be limited to, the following:	
(a) all wire ropes;	2012
(b) line sheave assemblies, sheave bearings, and liners;	2012
(c) drive and return sheaves, bearings, and liners;	2012
(d) counterweight or tensioning systems;	2012
(e) chains used in counterweight or tensioning systems;	2012
(f) drive system, including bearings and couplings;	2013
(g) braking system, including holding torque and test procedures;	2012
(h) electrical control systems;	2013
(i) communications systems;	2012
(j) carriers;	2012
(k) proper rigging procedures for splicing ropes;	2014
(l) corrosion protection; and	2012
(m) control of water condensation and drainage.	2012

Rob Kremer
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Jim Palmer
Regional Supervisor, EDAD Program

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council.

Elevating and Amusement Devices Safety Division	Ref. No.: 255 / 12	Rev. No.:
Elevating Devices Code Adoption Document - Amendment	Date: September 14, 2012	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT 2000*,S.O. 2000, c. 16 (the "Act")

- and -

ONTARIO REGULATION 223/01(Codes and Standards Adopted by Reference) made under the Act

- and -

ONTARIO REGULATION 209/01(Elevating Devices) made under the Act

Subject: **CAD Amendment to Part 6 Construction Hoists**

Applicable to: **Construction Hoist Owners / Licensees, Contractors, and Consultants**

The Director of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standard Adopted by Reference), hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001 (CAD), as amended, published by the Technical Standards and Safety Authority is further amended as follows:

Effective March 1, 2013 the elevating devices Code Adoption Document, dated June 1, 2001 as amended is further amended as follows;

A. Part 6 is supplemented with the following:

6.11 Maintenance Log Book [CAD Amendment 255-12]

6.11.1 Each elevating device of a type listed in **6.1.1** shall be provided with a maintenance log book as required by O.Reg 209/01 s.34 Log books.

6.11.2 Maintenance records in the form of a log book shall document compliance with related construction hoist codes, Code Adoption Document (CAD) requirements and any manufacturer recommended tasks extracted from the manufacturers maintenance and operation manuals, and shall include records on the following activities:

(a) description and dates of maintenance task performed;

(b) description and dates of examinations, tests;

(c) description and dates of adjustments, repairs, and replacements;

(d) description and dates of any tasked noted in the Guideline for Maintenance Logs – Construction Hoists (Guideline 256/12); and

(e) description and dates of all call backs (trouble calls) or reports that are reported to elevator personnel by any means, including corrective action taken.

(f) log records to document compliance with the maintenance, examinations and test activities listed in (a) through (d) shall also include:

(1) Building name and/or address;

(2) TSSA installation number;
(3) Contractor's (owners) name;
(4) Contractor's Registration Number;
(5) the code section, reference, requirement or clause number associated with a task;
(6) a description of the task performed;
(7) the prescribed maintenance frequency of the task;
(8) the date the task was performed; and
(9) upon completion of the task, the printed name, signature, and TSSA certificate number of the person who completed the maintenance, examination or tests.

6.11.3 Where a part of an elevating device which directly affects the safe operation of the device is found to be defective, the record of the relevant maintenance task shall not be signed off by the party performing the task until the defective part is adjusted, repaired or replaced, and the safety of the device restored.

6.12 Location of the Maintenance Log Book [CAD Amendment 255-12]

6.12.1 The maintenance log book shall be kept in the machine room or on the device or near the device location or, in the alternative if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.12.2 Log book data shall be readily available as required by O.Reg 209/01 s.34.(3)

6.13 Manufacturers Maintenance and Operation Manual [CAD Amendment 255-12]

6.13.1 For each construction hoist the manufacturers maintenance and operations manual shall be retained.

6.13.2 The manufacturers maintenance and operation manual shall be kept in the machine room or on the device or near the device location or in the alternative, if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.13.3 The manufacturers maintenance and operation manual shall be readily available and immediately provided to an inspector upon request.

6.14 Operator Training [CAD Amendment 255-12]

6.14.1 Every operator must have the required knowledge and experience to operate an elevating device and owners, licensees and/or lessees, are must ensure operators are trained to safely operate such devices and must be satisfied that the operator is aware of potential hazardous situation connected therewith as required by O.Reg 209/01 s.40.

6.14.2 Owners, licensees, lessees providing training or other trainers providers shall develop and maintain written operator training programs and written policies and procedures to ensure compliance with the regulation and **6.14.1**.

6.14.3 Written training programs shall include applicable portions of the manufacturers maintenance and operation manual to address the requirements of the regulation and **6.14.1** and shall include the minimum requirements for operator training as outlined in the Guide for Operator's Logs and Operator Training Requirements – Construction Hoists (Guideline 257/12).

6.14.4 Copies of the documentation required under **6.14.2** shall be kept on site, shall contain current and complete information and shall be readily available and immediately provided to an inspector upon request.

6.14.5 Training records shall be maintained by the training provider ("trainer") and shall include the following information:

(a) the name of the person(s) who received the operator training;
(b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
(c) the date of training;
(d) the signature of the trained operator; and,
(e) the signature of the trainer.

6.14.6 A copy of the training records identified in **6.14.5** shall be maintained on site and readily available and immediately provided to an inspector upon request.

6.14.7 Individuals who are trained as operators, and have achieved sufficient competence to operate the device safety shall be issued by the trainer an "Operator's Proof of Training" document which must certify that the operator is competent to operate the device safely and must specify the following information:
(a) the operators name;
(b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
(c) the date the training was received; and
(d) the signature of the trainer.

6.14.8 The trainer shall issue an "Operator's Proof of Training" document in the form of a letter or wallet card or equivalent as per **6.14.7**.

6.15 Operator's Proof of Training [CAD Amendment 255-12]

6.15.1 Operators are required to carry their "Operator's Proof of Training" document whenever they operate an elevating device.

6.15.2 "Operator's Proof of Training" shall be readily available and immediately provided to an inspector upon request.

6.15.3 An "Operator's Proof of Training" may be immediately revoked by an Inspector, owner, licensee, lessee or trainer where there is reason to believe that the operator lacks the competence to safely operate the elevating device and the operator may no longer operate the device.

6.16 Daily Operator's Log [CAD Amendment 255-12]

6.16.1 Each elevating device type listed in **6.1.1** shall have a corresponding "Daily Operator's Log" in which a current and accurate record of all required start up checks as required by the device manufacturer, owner, licensee, lessee or device operator shall be kept and shall include the minimum requirements for operator's logs as outlined in the Guideline for Operator's Logs – Construction Hoists (Guideline 257/12).

6.16.2 Operator's of a device must satisfy themselves, at the start of each shift, that the device is safe to operate as required by O.Reg 209/01 s.42 by conducting a series of start up checks as outlined in the Guideline for Operator's Log – Construction Hoists and shall record and sign off these checks in the "Daily Operator's Log".

6.16.3 The "Daily Operator's Log" must contain the following information:

(a) the Building name and/or address;

(b) the TSSA device installation number;

(c) a list of the daily checks as required by **6.16.1;**

(d) the Operator's printed name and signature acknowledging completion of all daily checks after the device is found to be in safe working order and the date of such checks.

6.16.4 Where a part of the elevating device which directly affects the safe operation of the device is found to be defective, the log shall not be signed off and the device shall not be put into operation until the defect is adjusted, repaired or replaced, by a registered mechanic.

6.17 Location of the Daily Operator's Log [CAD Amendment 255-12]

6.17.1 The "Daily Operator's Log" shall be kept in the machine room, on the device, or near the device location, or in the alternative, if it is kept at another location on the site, a notice will be posted in the machine room or device location indicating the alternate location.

6.18 Signage [CAD Amendment 255-12]

6.18.1 Every car, cage or platform shall be equipped with a sign as follows:

(a) The sign shall display the message, "Only Operators who have their valid "Operator's Proof of Training" card on their person shall operate this device";

(b) The sign shall be of such material and construction that the letters are stamped, etched, cast or otherwise applied to remain permanently visible; and

(c) The height of the letters shall not be less than 12mm (1/2 in.).

6.19 Incident and Issue Reporting [CAD Amendment 255-12]

6.19.1 Incidents shall be reported as required by O.Reg 209/01 s.36. See also Director's Guideline 230/09.

6.19.2 Device operators shall report device incidents and any safety related issues to supervisory personnel who are responsible for taking the appropriate action or following the incident report requirements required by the regulation.

Roland Hadaller, P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices) appointed under the *Technical Standards and Safety Act,* 2000

This Code Adoption Document amendment has been developed in consultation with the Construction Hoist Industry.

Elevating and Amusement Devices Safety Division	Ref. No.: 258 / 12	Rev. No.:
Interpretation Bulletin	Date: December 14, 2012	Date:

Subject: Independence of Normal Terminal Stopping Devices and Normal Stopping Means
Applicable to: A17.1-2010 and B44-10 requirement 2.25.2 and Inquiry 11-2229

1. Background

1.1 Inquiry 11-2229 to the A17.1 electrical committee has recently received approval of the Standards Committee. The inquiry is shown below. *Italic text in section 1.1 below denotes interpretive text or other text to support this interpretation bulletin.* This interpretation is intended to clarify to what extent normal terminal stopping devices (NTSD) and normal stopping means (NSM) must function independently.

Inquiry 11-2229 - 2007/CSA B44-07 1996 Requirement 209.2 through ASME A17.1 – 2010/CSA B44-10 requirement 2.25.2

Question 1.
Requirement 2.25.2.1.2 states "Such devices shall function independently of the operation of the normal stopping means..." Would it be correct to replace the words "normal stopping means" in this requirement with the A17.1/B44 definition of normal stopping means, which is "that portion of the operation control that initiates stopping of the car in normal operation at landings?"
Answer: Yes. *See Items (5) in attached Figure 1, see questions 2a thru 2d for NSM*

Question 2.
Would it be a correct interpretation of the aforementioned definition that the words "portion of the operation control that initiates stopping of the car in normal operation at landings" to be only

a. car position sensing device(s)
Answer: No. *See Items (1)+(2) in attached Figure 1*

b. car position sensing devices and any electrical/electronic devices that transmit the signals from the position sensing device(s)?
Answer:
(b.1) Yes, *See Items (1) + (2) + (3) in attached Figure 1*
(b.2) unless there are other devices or functions that are a portion of the operation control that initiate stopping.
See Items (1) + (2) + (3) + (4) in attached Figure 1

c. car position sensing devices, and any electrical/electronic devices that transmit the signals from the car position sensing device(s), and other electrical/electronic devices used to cause the operation control to initiate stopping?
Answer: Yes *See Items (1) + (2) + (3) + (4) in attached Figure 1, same as response to (b.2)*

d. car position sensing devices, and any electrical/electronic devices that transmit the signals from the car position sensing device(s), other electrical/electronic devices used to cause the operation control to initiate stopping, and any other electrical/electronic devices that perform operation or motion control functions?
Answer: No *See Items (1) + (2) + (3) + (4) + (9) in attached Figure 1*

Question 3:
Are the electronic / electrical devices used to determine car position for the normal terminal stopping means *Item (6)* permitted to be common to the electronic / electrical devices required for the normal stopping means *Item (5)* if a failure in those devices *Item (6) or Item (5)* could result in both the normal stopping means and normal terminal stopping device not functioning?
Answer: No *Item (6) cannot be common with Item (5). Path (b) or Path (c) not permissible. See attached Figure 1*

2.25.2.1.1 *Normal terminal stopping devices shall be provided and arranged to slow down and stop the car automatically, at or near the top and bottom terminal landings,…*

2.25.2.1.2 *Such devices shall function independently of the operation of the normal stopping means…*

Item (6) to function independently of Item (5). Item (6) arranged to slow down and stop the car, so that a failure of Item (5) does not result in both Item (5) and Item (6) not functioning. Path (b) or Path (c) not permissible. See attached Figure 1

Question 4:

Does the Code prohibit position signals transmitted from devices used to determine car position for the normal terminal stopping device *signal (7)* and position signals transmitted from the normal stopping means *signal (8) from item(5)* from being processed by common means *Item (9)*?

Answer: No.

Signal 7 from NTSD and signal 8 from NSM can be processed by common Item (9). Path (a) IS permissible. See attached Figure 1
Signal 7 from NTSD and signal 3 within NSM cannot be processed by common Item (4) as a failure in Item (4) renders NTSD ineffective, and therefore violates the purpose of NTSD (2.25.2.1.1) and its requirement to be independent (2.25.2.1.2)

8.10.2.2.2(ff)(1) *Test normal terminal stopping device for conformance with 2.25.2 by making inoperative the normal stopping means.*

With NSM inoperative (Item 5 and/or signal 8 ineffective), NTSD(Item 6) must be arranged to slow down and stop the car for conformance to 2.25.2

2. Interpretation

2.1 TSSA interprets inquiry 11-2229 as followings:

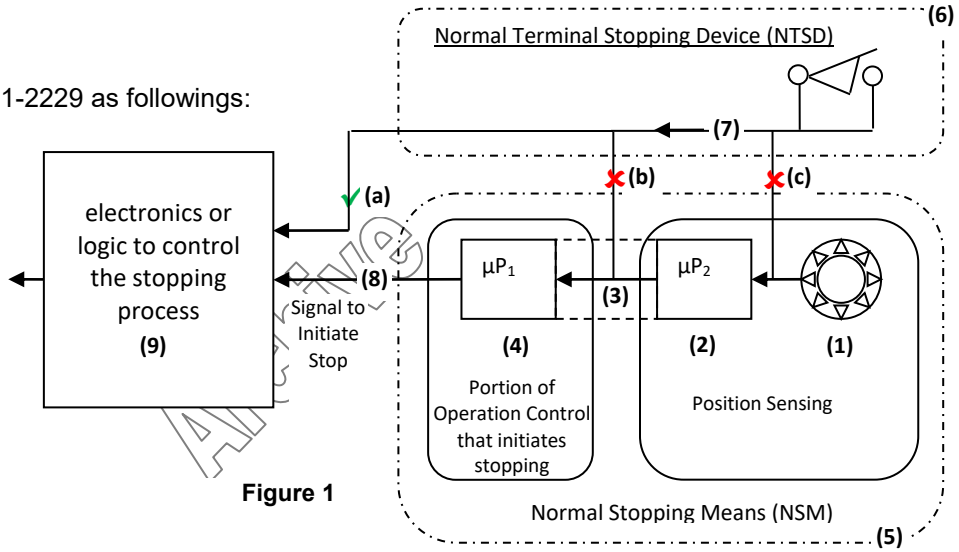


Figure 1

Figure Notes:

1. 'Position sensing' includes sufficient electrical/electronic devices used to determine the location of the car.
2. Normal stopping means (NSM) includes the portion of the control that initiate stopping of the car at all landings. To function effectively, NSM includes the electronic / electrical devices that transmit the signals from the car position sensing devices and other electrical / electronic devices that are used to cause the operation control to initiate a stop.
3. Normal terminal stopping devices (NTSD) shall function independently of the operation of the normal stopping means (NSM). A failure in the normal stopping means (NSM) will not affect operation of NTSD.
4. This illustration is only one example to show independence of NTSD and NSM.

3. Enforcement

3.1 TSSA is enforcing this requirement for all controls submitted to A17.1-2010 / B44-10 code.

3.2 Control designs reviewed to A17.1-2010 / B44-10 code must comply with this interpretation in order to receive a registration.

Rob Kremer, P.Eng.
Manager of Engineering, Elevating and Amusement Devices safety Program

Elevating and Amusement Devices Safety Division	Ref. No.: 259 / 12	Rev. No.:
INFORMATION BULLETIN	Date: December 18, 2012	Date:

Subject: List of Data – Contractor Registration / Renewals (March 2013)
Applicable to: Elevator Contractors

1. Background

TSSA and industry participated in an RRG to assess the safety risks of existing elevators with two speed and single speed drive types. The RRG concluded that all elevators with a single speed drive type need to be upgraded to a design that produces more accurate leveling. In order to initiate this upgrade, it is necessary to identify all existing elevators that use a single speed drive type. Most of these elevators are very old and in many cases the TSSA data base does not contain the drive type. The RRG agreed that as part of Contractor registration renewal Contractors would provide as part of their updated maintenance lists, information on the drive type for all elevators that they maintain. This bulletin provides advance notice to industry of the additional information that will be required. For this initiative to be successful, it is critical that contractors provide accurate and complete information on all elevators that they maintain. For elevating devices other than elevators an entry of NA is adequate.

2. List of Data

2.1 Pursuant to O.Reg 209/01, all elevator contractors who maintain an elevating device must submit annually to TSSA a list of all elevating devices maintained by the contractor.

> **23.** (1) Every contractor who maintains an elevating device shall submit annually to the designated administrative authority a list, in the time and manner required by the director, that contains data on the installation numbers, class and location of each elevating device maintained by the contractor, together with information that indicates the scope of each maintenance contract. O. Reg. 209/01, s. 23 (1).

2.2 During the 2013 renewal cycle, contractors shall submit their complete maintenance lists via an excel spreadsheet (to LicencingandRegistration@tssa.org), that shall contain not less than the following column headings:

- Contractor registration number
- ED Installation Number
- Service contract expiry date (mm/dd/yyyy) and
- **Drive type associated with the given ED installation**

2.3 The **Drive type** entry shall reflect one of the values in the Acronym column from the table found on the next page, however Contractors are permitted to use other acronyms for the drive type if TSSA is given an appropriate cross reference table.

Elevator (Passenger or Freight) Drive Type	Acronym
Single Speed AC	AC-1S
Two Speed AC	AC-2S
DC Motor Generator	DC-MG
Dual Bridge Thyristor Control	DC-SCR
Variable Voltage Variable Frequency	VVVF
Variable Voltage AC	VVAC
Hydraulic	HYD
Other Drive Type Not Listed Above	OTHER

Other Elevating Device Type	Acronym
Device that is not an elevator (ie. Dumbwaiters, Material Lifts, Stair Chairs, etc)	NA

3. Notes

3.1 A blank excel template file (Contractor Maintenance List Form) is available on the TSSA website on the Forms & Fees page (http://www.tssa.org/regulated/elevating/elevatingForms.asp).

3.2 The complete data list must be submitted with the contractor's renewal package that is due by March 31st, 2013.

3.3 A Contractor renewal mailing will be sent to each contractor in early 2013.

3.4 It is important that accurate data be provide as it can be used to identify future control system upgrade requirements.

Roland Hadaller, P.Eng.
Director, Ontario Regulation 209/01(Elevating Devices) made under the *Technical Standards and Safety Act*, *2000*

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council, and the recommendations of the Brake / Leveling Risk Reduction Group

Elevating and Amusement Devices Safety Division	Ref. No.: 259 / 12	Rev. No.: 1
INFORMATION BULLETIN	Date: December 18, 2012	Date: January 31, 2013

Subject: List of Data – Contractor Registration / Renewals (March 2013)
Applicable to: Elevator Contractors

1. Background

TSSA and industry participated in an RRG to assess the safety risks of existing elevators with two speed and single speed drive types. The RRG concluded that all elevators with a single speed drive type need to be upgraded to a design that produces more accurate leveling. In order to initiate this upgrade, it is necessary to identify all existing elevators that use a single speed drive type. Most of these elevators are very old and in many cases the TSSA data base does not contain the drive type. The RRG agreed that as part of Contractor registration renewal Contractors would provide as part of their updated maintenance lists, information on the drive type for all elevators that they maintain. This bulletin provides advance notice to industry of the additional information that will be required. For this initiative to be successful, it is critical that contractors provide accurate and complete information on all elevators that they maintain. For elevating devices other than elevators an entry of NA is adequate.

2. List of Data

2.1 Pursuant to O.Reg 209/01, all elevator contractors who maintain an elevating device must submit annually to TSSA a list of all elevating devices maintained by the contractor.

> **23.** (1) Every contractor who maintains an elevating device shall submit annually to the designated administrative authority a list, in the time and manner required by the director, that contains data on the installation numbers, class and location of each elevating device maintained by the contractor, together with information that indicates the scope of each maintenance contract. O. Reg. 209/01, s. 23 (1).

2.2 During the 2013 renewal cycle, contractors shall submit their complete maintenance lists via an excel spreadsheet (to LicencingandRegistration@tssa.org), that shall contain not less than the following column headings:

- Contractor registration number
- ED Installation Number
- ~~Service contract expiry date (mm/dd/yyyy) and~~
- **Drive type associated with the given ED installation**

2.3 The **Drive type** entry shall reflect one of the values in the Acronym column from the table found on the next page, however Contractors are permitted to use other acronyms for the drive type if TSSA is given an appropriate cross reference table.

Elevator (Passenger or Freight) Drive Type	Acronym
Single Speed AC	AC-1S
Two Speed AC	AC-2S
DC Motor Generator	DC-MG
Dual Bridge Thyristor Control	DC-SCR
Variable Voltage Variable Frequency	VVVF
Variable Voltage AC	VVAC
Hydraulic	HYD
Other Drive Type Not Listed Above	OTHER

Other Elevating Device Type	Acronym
Device that is not an elevator (ie. Dumbwaiters, Material Lifts, Stair Chairs, etc)	NA

3. Notes

3.1 A blank excel template file (Contractor Maintenance List Form) is available on the TSSA website on the Forms & Fees page (http://www.tssa.org/regulated/elevating/elevatingForms.asp). The excel form requires data to be presented in 3 columns as shown below:

CONTRACTOR REGISTRATION NUMBER	ED INSTALLATION NUMBER	DRIVE TYPE Valid entries are: **AC-1S** = Single Speed AC, **AC-2S** = Two Speed AC **DC-MG** = DC Motor Generator **DC-SCR** = Dual Bridge Thyristor Control **VVVF** = Variable Voltage Variable Frequency **VVAC** = Variable Voltage AC **HYD** = Hydraulic **OTHER** = other drive types **NA** = for Device Type other than Passenger or Freight Elevator

3.2 The complete data list must be submitted with the contractor's renewal package that is due by March 31st, 2013.

3.3 A Contractor renewal mailing will be sent to each contractor in early 2013.

3.4 It is important that accurate data be provide as it can be used to identify future control system upgrade requirements.

Roland Hadaller, P.Eng.
Director, Ontario Regulation 209/01(Elevating Devices) made under the *Technical Standards and Safety Act*, *2000*

This Bulletin has been developed in consultation with the Elevating Devices Advisory Council, and the recommendations of the Brake / Leveling Risk Reduction Group

Elevating and Amusement Devices Safety Division	Ref. No.: 260 / 14	Rev. No.:
DIRECTOR'S SAFETY ORDER	Date: March 17, 2014	Date:

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16 (the "Act")

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the Act

Subject: Car Platform Apron Requirements for Existing Passenger Elevators
Applicable to: All Owners of Existing Passenger Elevators and All Elevator Contractors

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. PLATFORM APRON REQUIREMENTS

1.1. Per the provisions of the Elevating Devices Code Adoption Document (CAD), section 3.10 establishes requirements for car platform aprons on existing passenger elevators for a given occupancy class.

3.10 Platform Apron Requirements *(166/01)*

3.10.1 Every passenger elevator installed before the 1st day of May, 1981 and currently operated in an apartment building, condominium apartment building or educational institution and every passenger elevator installed after that date in any building, shall be provided at the entrance side with a smooth apron made of metal not less than 1.5 millimetres thick, or made of material of equivalent strength and stiffness, reinforced and braced to the car platform such that:

(a) it does not extend less than the full width of the widest hoistway door opening;
(b) it has a straight vertical face, extending below the floor surface of the car platform, of not less than 1,200 millimetres, except that for an existing elevator this may be reduced where the hoistway pit is not deep enough to accommodate a larger vertical face;
(c) its lower portion is bent back at an angle not less than 60 degrees and not more than 75 degrees from the horizontal; and
(d) it is securely braced and fastened in place to withstand a constant force of 500 newtons applied at right angles to and:
  (1) at 450 millimetres from the top without deflecting more than six millimetres, or
  (2) at 1,150 millimetres from the top without deflecting more than 50 millimetres, and without permanent deformation.

3.10.2 Every passenger elevator referred to in subsection **3.10.1** shall have a pit deep enough to accommodate the apron required in subsection **3.10.1**, and to provide a minimum twenty-five millimetres clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers.

2. AFFECTED DEVICES

2.1. This Director's Safety Order applies to all passenger elevators that:

a) Have an Elevating Devices Installation number of **33700 or earlier; and**
b) Operates in an
  i. apartment building
  ii. condominium apartment building; or
  iii. educational institution.

Note: This order does not apply to passenger elevators in buildings with occupancies such as a place of assembly, hospital, hotel, office, mercantile or industrial.

3. RETROFIT ORDER

3.1. All affected devices (per 2.1 above), shall have a 1200* mm long apron (48") or be retrofitted as follows:

a) Where the pit depth and site parameters allow, aprons shall be extended to have a straight vertical face not less than 1200* mm (48"), or

b) Where pit depths cannot accommodate a 1200* mm (48") straight vertical face, the apron length may be reduced to the maximum length allowable. With the car resting on the fully compressed buffers, aprons shall be a minimum 25mm above the pit floor. These installations shall also be equipped with a car door restrictor meeting the requirements of 2.12.5 of ASME A17.1-2010/CSA B44 –10 or 2.14.5.7 of ASME A17.1-2013/CSA B44 – 13 if the door restrictor requires electrical power for its functioning.

3.2. Where pit depths can accommodate an apron extension by at least 75mm (3") to achieve compliance with 3.1(a) or 3.1(b), apron extensions shall be performed.

3.3. The aprons on all affected devices (per 2.1 above) shall meet the beveling and strength requirements of CAD 3.10.

3.4. Where apron plates are extended, the pit fascia shall be extended flush to the bottom of the car apron when the car is resting on the fully compressed buffer.

3.5. For installations with swing hall doors where the corresponding car door is of a collapsible or foldable design car door restrictors per 3.1b) are not required.

* To allow for variations in the length of existing platform aprons, the 1200 mm (48") straight vertical face dimension may have a minus 75mm (3") tolerance on length. Allowing for this tolerance, the straight vertical face of the apron on an applicable installation (measured from the car sill to the apron bevel) must not be less than 1125mm (45").

4. ORDER to OWNERS

4.1. By the dates specified in section 6, owners shall:

a) engage the services of a registered elevator contactor to determine if a retrofit is required; and

b) if required, bring their installation(s) into conformance with 3.1(a) or 3.1(b) and 3.2 utilizing a registered elevator contractor to perform the work.

Notes:

1) Contractor who engage in a retrofit, are required to submit a minor alteration to TSSA and arrange for an inspection. The retrofit is not complete until it has been successfully inspected. Ask for a copy of the registered minor alteration submission and the final inspection report showing the inspection was successful.

2) Owners should be aware that building occupancy changes may result in these retrofit requirements becoming applicable to their elevating device at a future date.

5. ORDER to CONTRACTORS

5.1. Contractors who assess the apron plate length and can confirm the existing apron is 1200* mm (48") or greater shall apply a sticker to the cross head of the elevator car sling in the vicinity of the cross head data tag that is permanently attached and marked with the text "**Meets 3.10 of CAD 261/13 Apron Plate Requirement**", in letters not less than 6 mm (0.25").

5.2. Contractors who engage in the retrofit of affected devices shall:

a) Be responsible for establishing the maximum allowable apron length and providing compliant solutions as in part 3 of this order.

b) Submit a minor B alteration for the apron plate extensions, fascia extensions and/or door restrictor retrofits

c) Submit a minor A alteration if the door restrictor utilizes electrical power for its functioning complete with restrictor make and model, schematics if applicable and any relevant testing procedures.

d) Provide a code data plate as per section 8.9 of the code which identifies alteration "8.7.2.11.5 Restricted Opening of Hoistway or Car Doors"

e) Arrange for the appropriate inspection with TSSA following completion of the alteration after receipt of a registered design submission.

Notes:
1) Contractors may obtain stickers from TSSA at no charge via a request sent to eddesignsubmittal@tssa.org.
2) At the time of a Minor A or Minor B inspection, a TSSA inspector will arrange for a sticker to be placed on the car top cross head to acknowledge compliance has been assessed to either CAD 3.10 or Directors Safety Order 260/14.

6. COMPLIANCE TIMELINES

6.1. This order is effective as of March 17, 2014.

6.2. On or before November 31, 2014, owners shall determine if their elevator installations are an affected device.

6.3. Not later than March 31, 2016, all affected devices shall be retrofitted as required in part 3 of this order.

Note: See attached process flow guideline for a visual summary.

BACKGROUND

A recent fatality in Ontario occurred as a result of a self rescue attempt by several trapped passengers. With the elevator stopped above floor level with the car and hall doors open, a space exists between the elevator car floor and the hall floor. This space below the car floor was partially protected by a short apron plate. A fall hazard existed due to the gap between the lower edge of the apron plate and the hall floor, and during egress one of the occupants fell into this gap. The original elevator installation (~1966 code) had no requirement for a long apron. In 1981 when the longer apron requirement came into force this building was of an occupancy that did not require the apron to be lengthened. The occupancy type of this building changed in 1987 but the apron was not lengthened as required.

This safety order is being issued to address the exposure to a fall hazard as well as prevent the possibility of self rescue by restricting egress from a car not at or near the floor for the building occupancies described.

<original signed>

_____

Roland Hadaller P.Eng.
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*

This Order has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

Directors Safety Order 260/14 – Process Flow Guideline

Determine compliance to Either CAD 3.10 or DSO 260/14
For Elevating Devices with Installation Number 33700 or earlier that operate in buildings with occupancy apartment building, condominium apartment building or educational institution

Inst # 33700 or earlier & building occupancy as defined above

N → END

Y

Does the existing apron have a straight vertical face greater than 1200*mm

Y → This installation meets intent of CAD 3.10 → **CONTRACTOR** to mark car cross head

Meets 3.10 of CAD 261/13 Platform Apron Plate

N

Completion by November 31, 2014

Completion not later than March 31, 2016

Measure Existing Apron vs. Possible Apron length for site conditions: pit depth, runby and buffer stroke

*Note: A tolerance of -75mm is permissible

Could 75mm or more inches be added to the apron?

N → Apron length deemed acceptable given site conditions

Y

Add apron extension and pit fascia extension

Add a Door Restrictor

N

Is the Apron now 1200*mm

Y

Submit Minor B

INSPECTOR to Mark car cross head ("Meets 3.10 of CAD)

Does the door restrictor utilize electrical power?

Y → Submit a Minor A Alteration

N

Submit Minor B

INSPECTOR to Mark car cross head ("Meets DSO 260/14")

Meets DSO 260/14 Platform Apron Plate and Door Restrictor

Elevating and Amusement Devices Safety Division	Ref. No.: 260 / 14	Rev. No.: 1
DIRECTOR'S SAFETY ORDER	Date: March 17, 2014	Date: April 15, 2015

IN THE MATTER OF:

THE *TECHNICAL STANDARDS AND SAFETY ACT, 2000*, S.O. 2000, c. 16 (the "Act")

- and -

ONTARIO REGULATION 209/01 (Elevating Devices) made under the Act

Subject: Car Platform Apron Requirements for Existing Passenger Elevators
Applicable to: All Owners of Existing Passenger Elevators and All Elevator Contractors

The Director, Elevating Devices Regulation (O.Reg. 209/01) pursuant to his authority under section 14 of the *Technical Standards & Safety Act, 2000* hereby orders the following:

1. PLATFORM APRON REQUIREMENTS

1.1. Per the provisions of the Elevating Devices Code Adoption Document (CAD), section 3.10 establishes requirements for car platform aprons on existing passenger elevators for a given occupancy class.

3.10 Platform Apron Requirements *(166/01)*

3.10.1 Every passenger elevator installed before the 1st day of May, 1981 and currently operated in an apartment building, condominium apartment building or educational institution and every passenger elevator installed after that date in any building, shall be provided at the entrance side with a smooth apron made of metal not less than 1.5 millimetres thick, or made of material of equivalent strength and stiffness, reinforced and braced to the car platform such that:

- (a) it does not extend less than the full width of the widest hoistway door opening;
- (b) it has a straight vertical face, extending below the floor surface of the car-platform, of not less than 1,200 millimetres, except that for an existing elevator this may be reduced where the hoistway pit is not deep enough to accommodate a larger vertical face;
- (c) its lower portion is bent back at an angle not less than 60 degrees and not more than 75 degrees from the horizontal; and
- (d) it is securely braced and fastened in place to withstand a constant force of 500 newtons applied at right angles to and:
  - (1) at 450 millimetres from the top without deflecting more than six millimetres, or
  - (2) at 1,150 millimetres from the top without deflecting more than 50 millimetres, and without permanent deformation.

3.10.2 Every passenger elevator referred to in subsection **3.10.1** shall have a pit deep enough to accommodate the apron required in subsection **3.10.1**, and to provide a minimum twenty-five millimetres clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers.

△ 1.2. For the purpose of this order and to allow reasonable accommodation of some existing apron styles, an apron with an overall length dimension of 1125mm (44.25 in.), measured from the car sill to the bottom edge of the apron shall be deemed to comply with the dimensional requirements of 1.1 and shall not be subject to the retrofit requirements of this order.

2. AFFECTED DEVICES

2.1. This Director's Safety Order applies to all passenger elevators that:

a) Have an Elevating Devices Installation number of **33700 or earlier; and**
b) Operates in an
   i. apartment building
   ii. condominium apartment building; or

iii. educational institution.

△ c) Do not have an apron in compliance with the requirements of 1.1 or 1.2 of this order.

Note: This order does not apply to passenger elevators in buildings with occupancies such as a place of assembly, hospital, hotel, office, mercantile or industrial.

3. RETROFIT ORDER

△ 3.1 On affected devices, where the pit depth and site parameters allow an apron extension of 150mm (6 in.) or more, these devices shall have their apron extended to the extent site conditions allow. No further rework is required if an apron extension meets the requirements of 1.1 or 1.2.

Note: Where conditions allow, it is permissible to extend an apron less than 150mm (6 in.) in order to achieve compliance to 1.1 or 1.2.

△ 3.2 Where apron plates do not meet the requirements of 1.1 or 1.2, these devices shall also be equipped with a car door restrictor meeting the requirements of :

a) 2.12.5 of ASME A17.1-2010/CSA B44 –10 or
b) 2.14.5.7 of ASME A17.1-2013/CSA B44 –13 if the door restrictor requires electrical power for its functioning.

3.3 The aprons on all affected devices shall meet the beveling and strength requirements of CAD 3.10.

3.4 Where apron plates are extended, the pit fascia shall be extended flush to the bottom of the car apron when the car is resting on the fully compressed buffer.

3.5 For installations with swing hall doors where the corresponding car door is of a collapsible or foldable design car door restrictors per 3.2 are not required.

4 ORDER to OWNERS

4.1 By the dates specified in section 6, owners shall:

a) Engage the services of a registered elevator contactor to determine if a retrofit is required; and

b) if required, bring their installation(s) into conformance with requirements in part 3 utilizing a registered elevator contractor to perform the work.

Notes:
1) Contractor who engage in a retrofit, are required to submit a minor alteration to TSSA and arrange for an inspection. The retrofit is not complete until it has been successfully inspected. Ask for a copy of the registered minor alteration submission and the final inspection report showing the inspection was successful.

2) Owners should be aware that building occupancy changes may result in these retrofit requirements becoming applicable to their elevating device at a future date.

5 ORDER to CONTRACTORS

5.1 Contractors who assess the apron plate length and can confirm the existing apron meets the requirements in part 1 shall apply a sticker to the cross head of the elevator car sling in the vicinity of the cross head data tag that is permanently attached and marked with the text "**Meets 3.10 of CAD 261/13 Apron Plate Requirement**", in letters not less than 6 mm (0.25").

5.2 Contractors who engage in the retrofit of affected devices shall:

a) Be responsible for establishing the maximum allowable apron length and providing compliant solutions as in part 3 of this order.

b) Submit a minor B alteration for the apron plate extensions, fascia extensions and/or door restrictor retrofits.

c) Submit a minor A alteration if the door restrictor utilizes electrical power for its functioning complete with restrictor make and model, schematics if applicable and any relevant testing procedures.

d) Provide a code data plate as per section 8.9 of the code which identifies alteration "8.7.2.11.5 Restricted Opening of Hoistway or Car Doors".

e) Arrange for the appropriate inspection with TSSA following completion of the alteration after receipt of a registered design submission.

Notes:
1) Contractors may obtain stickers from TSSA at no charge via a request sent to eddesignsubmittal@tssa.org.
2) At the time of a Minor A or Minor B inspection, a TSSA inspector will arrange for a sticker to be placed on the car top cross head to acknowledge compliance has been assessed to either CAD 3.10 or Directors Safety Order 260/14.

△ 6 COMPLIANCE TIMELINES

6.1 Revision 1 of this order is effective April 15, 2015.

6.2 On or before June 30, 2015, owners shall determine if their elevator installations are an affected device.

6.3 Not later than June 30, 2016, all affected devices shall be retrofitted as required in part 3 of this order.

Note: See attached process flow guideline for a visual summary.

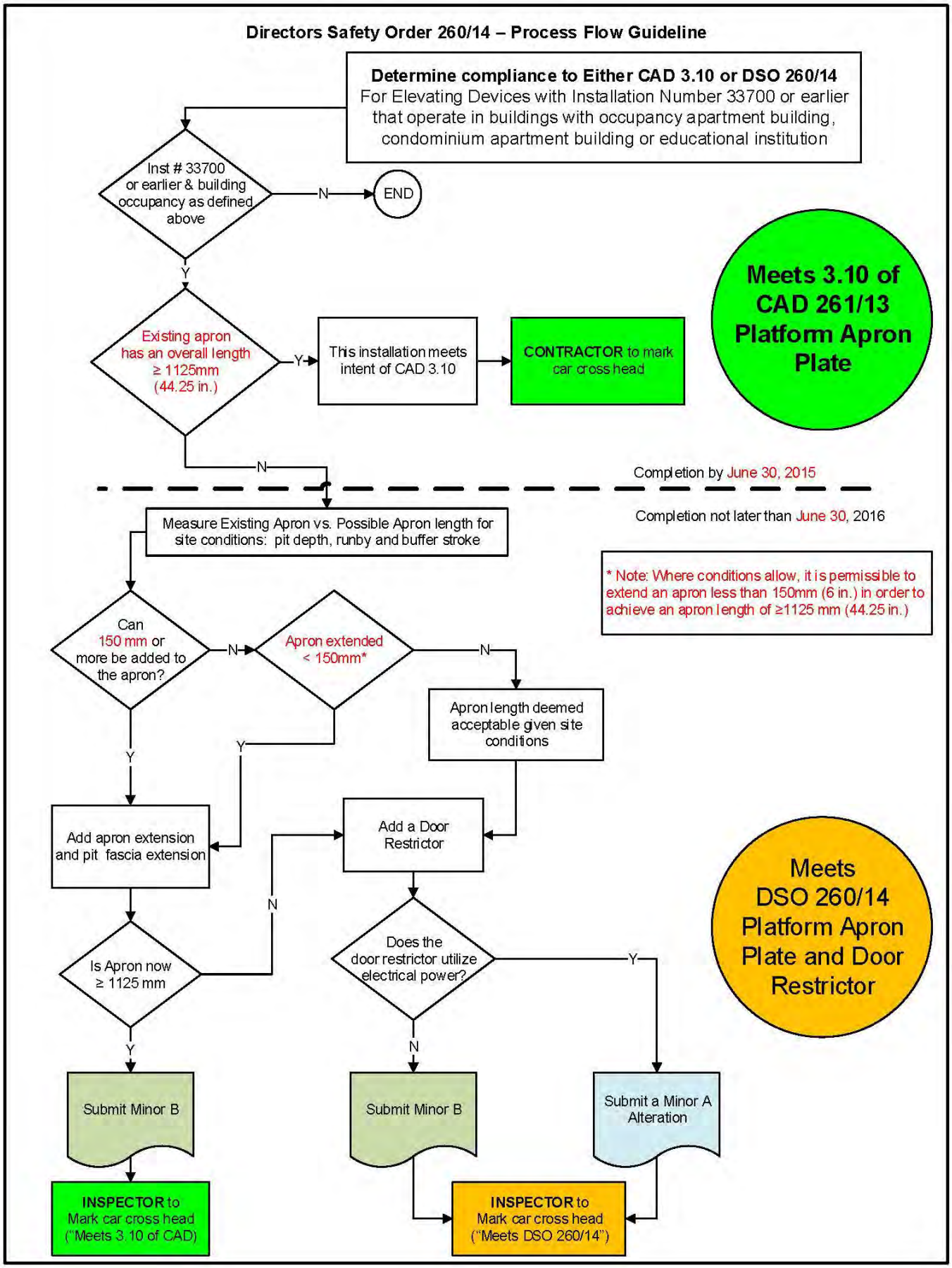
BACKGROUND

A recent fatality in Ontario occurred as a result of a self rescue attempt by several trapped passengers. With the elevator stopped above floor level with the car and hall doors open, a space exists between the elevator car floor and the hall floor. This space below the car floor was partially protected by a short apron plate. A fall hazard existed due to the gap between the lower edge of the apron plate and the hall floor, and during egress one of the occupants fell into this gap. The original elevator installation (~1966 code) had no requirement for a long apron. In 1981 when the longer apron requirement came into force this building was of an occupancy that did not require the apron to be lengthened. The occupancy type of this building changed in 1987 but the apron was not lengthened as required.

This safety order is being issued to address the exposure to a fall hazard as well as prevent the possibility of self rescue by restricting egress from a car not at or near the floor for the building occupancies described.

Roger Neate
Director, Ontario Regulation 209/01 (Elevating Devices), appointed under the *Technical Standards and Safety Act, 2000*

This Order has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.


Directors Safety Order 260/14 – Process Flow Guideline
Determine compliance to Either CAD 3.10 or DSO 260/14
For Elevating Devices with Installation Number 33700 or earlier that operate in buildings with occupancy apartment building, condominium apartment building or educational institution
Inst # 33700 or earlier & building occupancy as defined above
N
END
Y
Existing apron has an overall length ≥ 1125mm (44.25 in.)
Y
This installation meets intent of CAD 3.10
CONTRACTOR to mark car cross head
Meets 3.10 of CAD 261/13 Platform Apron Plate
N
Completion by June 30, 2015
Completion not later than June 30, 2016
Measure Existing Apron vs. Possible Apron length for site conditions: pit depth, runby and buffer stroke
* Note: Where conditions allow, it is permissible to extend an apron less than 150mm (6 in.) in order to achieve an apron length of ≥1125 mm (44.25 in.)
Can 150 mm or more be added to the apron?
N
Apron extended < 150mm*
N
Apron length deemed acceptable given site conditions
Y
Y
Add apron extension and pit fascia extension
Add a Door Restrictor
N
Is Apron now ≥ 1125 mm
Does the door restrictor utilize electrical power?
Y
Y
N
Submit Minor B
Submit Minor B
Submit a Minor A Alteration
INSPECTOR to Mark car cross head ("Meets 3.10 of CAD)
INSPECTOR to Mark car cross head ("Meets DSO 260/14")
Meets DSO 260/14 Platform Apron Plate and Door Restrictor

Elevating and Amusement Devices Safety Division	Ref. No.: 261-13	Rev. No.:
Elevating Devices Code Adoption Document - Amendment	Date: May 1, 2013	Date:

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16

- and -

Ontario Regulation 223/01
(Codes and Standards Adopted by Reference)

- and -

Ontario Regulation 209/01
(Elevating Devices)

Subject: **Elevating Devices Code Adoption Document - Amendment 261-13**

The Director for the purposes of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standard Adopted by Reference), hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001, published by the Technical Standards and Safety Authority is amended as follows:

1. **All sections of the Elevating Device Code Adoption Document dated June 1, 2001 are hereby revoked and replaced with the following:**

    1. The Elevating Devices Code Adoption Document - Amendment 261-13, dated May 1, 2013 and published by the Technical Standards and Safety Authority, is hereby adopted.

2. **This amendment is effective May 1, 2013.**

_____
Roland Hadaller, P.Eng.
Director, O. Reg. 209/01 (Elevating Devices), made under the *Technical Standards and Safety Act, 2000*

This Code Adoption Document amendment has been developed in consultation with the Elevating Devices Advisory Council, the Field Advisory Committee, and various industry stakeholders.

ELEVATING DEVICES
CODE ADOPTION DOCUMENT
AMENDMENT 261-13

May 1, 2013

Elevating and Amusement Devices Safety Program
Technical Standards and Safety Authority

3300 Bloor Street West, 14th Floor, Centre Tower, Toronto, Ontario M8X 2X4
Telephone: 416-734-3300 Fax: 416-231-5435 Toll Free: 1-877-682-8772
Putting Public Safety First

Background

This document and the codes it adopts establish requirements and minimum standards for the design, construction, installation, erection, maintenance and alteration of elevating devices.

Pursuant to s. 4(1) of O. Reg. 223/01 (Codes and Standards Adopted by Reference) made under the *Technical Standards and Safety Act, 2000*, the "Elevating Devices Code Adoption Document" published by TSSA and dated June 1, 2001 (the "CAD") forms a part of O. Reg. 209/01 (Elevating Devices).

The CAD, in turn, adopts various codes. Since its adoption as part of O. Reg. 209/01, the CAD has been amended several times to adopt different versions of codes and to make modifications to those codes.

CAD amendment 261-13 replaces all previous CAD amendments and is a consolidation of previous CAD amendments, applicable Directors Orders.

For the user's convenience, this CAD amendment indicates previous amendments using the colour coding and reference symbols in the following table:

Colour Coding and Reference Symbols Used in CAD Amendment 261-13

7.5	is a reference to another section in this CAD amendment
(197/06)	is a reference to a predecessor document (Director's Order, Enforcement Procedure, etc.)
7.2.4.	is a reference to a section in an external document or code
~~as part of~~	is a reference to text from a published code that is not part of this code but is shown for reference only
Red Text	is used to identify changes from the previous CAD Amendment or TSSA-specific additions to a published code
★	is used to denote a TSSA-specific alteration
Blue greyed	denotes a maintenance permission that will expire on January 1, 2014
Peach highlight	-identifies new text contained in CAD Amendment-261-13 -identifies TSSA specific additions to the A17.1/B44 code -identifies text from the A17.1/B44-2013 code

Note that definitions contained in O. Reg. 209/01 apply to the code.

For more information contact:

Technical Standards and Safety Authority
Elevating and Amusement Devices Safety Program
3300 Bloor Street West, 14th Floor, Centre Tower
Toronto ON M8X 2X4

Tel: 416.734.3300
Fax: 416.231.5435
e-mail: rkremer@tssa.org

Table of Contents

Elevating Devices
Code Adoption Document
Amendment 261-13

Part 1

1 GENERAL

1.1 Definitions

1.1.1 The terms in this Code Adoption Document amendment (Document) have the same meaning as in the *Act* or the Regulation unless otherwise specified herein.

1.1.2 Where a provision of a code or standard adopted in this Document is inconsistent with the requirements of this Document, the provision of this Document shall prevail.

1.1.3 In this Document,

(a) "Regulation" means Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*.

(b) "CSA" means the Canadian Standards Association.

(c) "CAN" means a standard recognised as a National Standard of Canada and approved by the Standards Council of Canada.

(d) "ANSI" means the American National Standards Institute.

(e) "freight elevator-P" means a freight elevator upon which passengers are permitted to ride;

(f) "common-mode failure" means the result of an event(s) which because of dependencies, causes a coincidence of failure states of components in two or more separate channels of a redundancy system, leading to the defined system failing to perform its intended function. [CAD Amendment 216-07]

(g) "software system failure" means a behaviour of the software, including its support (host) hardware, that is not in accordance with the intended function. [CAD Amendment 216-07]

(h) "solid-state device" means an element that can control current flow without moving parts. [CAD Amendment 216-07]

(i) "dedicated function fire alarm system" means a protected premises fire alarm system installed specifically to perform fire safety function(s) [CAD Amendment 250-11] See also definition in NFPA 72. [CAD Amendment 261-13]

(j) "minor alteration – type A" means a minor alteration per O. Reg. 209/01 which requires the signature and seal of a professional engineer per O.Reg 209/01 15.(6) [CAD Amendment 250-11]

(k) "minor alteration – type B" means a minor alteration per O.Reg 209/01 19.(1) which may be signed as per O.Reg 209/01 15.(9) [CAD Amendment 250-11]

1.2 Exceptions

1.2.1 Except where otherwise indicated, this Document applies to all elevating devices and parts thereof.

1.2.2 Despite subsection **1.2.1** and unless otherwise specified in the Regulation, in this Document or by the director, the codes and standards referred to in this Document do not apply to existing elevating devices except for those sections respecting alterations, the inspection, testing, maintenance, operation and use of the elevating device, including signage and instructions relating to the use of the elevating device.

Part 2

2 GENERAL TECHNICAL REQUIREMENTS

2.1 Welding

2.1.1 The welding of a steel structure on an elevating device shall conform to the requirements of CSA Standard W59-03, Welded Steel Construction (Metal Arc Welding). [CAD Amendment 246-11]

2.1.2 The welding of a steel structure on an elevating device shall be undertaken by a fabricator or contractor qualified to the requirements of CSA Standard W47.1-03, Certification of Companies for Fusion Welding of Steel Structures. [CAD Amendment 246-11]

2.1.3 The field welding of piping and fittings on an elevating device shall conform to the requirements of CSA Standard B51-03, Code for the Construction and Inspection of Boilers. [CAD Amendment 246-11]

2.1.4 Despite subsections **2.1.1**, **2.1.2** and **2.1.3**, an equivalent welding standard may be used if it is acceptable to the director.

2.2 Electrical

2.2.1 Electrical equipment shall conform to the requirements of,

(a) Ontario Electrical Safety Code as amended from time to time; and [CAD Amendment 246-11]

(b) CAN/CSA B44.1/ASME A17.5-04, Elevator and Escalator Electrical Equipment, or [CAD Amendment 246-11]

(c) CAN/CSA C22.2 No. 14, Industrial Control Equipment (applicable to elevating devices other than elevators, escalators, moving walks, dumbwaiters, material lifts, and lifts for persons with physical disabilities). [CAD Amendment 246-11]

2.3 Rope Clips

2.3.1 Where clips are permitted to fasten metal rope in an elevating device,

(a) the minimum number of clips to be used on each rope ends shall be,

(1) two clips for rope under nine millimetres in diameter,

(2) three clips for rope nine millimetres in diameter and over but under sixteen millimetres in diameter,

(3) four clips for rope sixteen millimetres in diameter and over but under nineteen millimetres in diameter;

(b) the rope end shall be bent over a heart-shaped thimble that has a groove of a radius equal to that of the rope or shall be provided with protection that a director considers equivalent;

(c) the clips shall be spaced at a distance apart equal to six times the rope diameter from the short end of the rope;

(d) U-type clips shall be placed so that the U bolts bear on the short or dead end of the rope and the bases bear on the load part of the rope; and

(e) the nuts on the clips shall not be fully tightened until after the rope has been under load and all nuts shall be fully tightened while the rope is still loaded.

2.4 Rope Replacement *(17/84)(122/95)*

2.4.1 When changing or shortening ropes on counterweighted elevators, the installation shall be provided with a data plate permanently and securely attached in the pit, in the vicinity of the counterweight buffer, indicating the maximum designed counterweight runby. [CAD Amendment 246-11]

2.4.2 The minimum stranding for cables used to relate any car or landing door shall be not less than 7 x 19 construction. [CAD Amendment 246-11]

2.5 Relocation of an Elevating Device

2.5.1 Where an elevating device is relocated it shall meet the requirements of the applicable code or standard adopted in this Document, unless otherwise specified in this Document or by the director.

2.6 Alteration

2.6.1 Where an alteration is made to an elevating device the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of codes or standards adopted in this document, including any changes set out in this document. [CAD Amendment 250-11]

2.6.1 Unless otherwise specified in this Document or by the director, and without limiting generality of the Regulation, the following alteration to an elevating device shall constitute a major alteration:

(a) An increase by more than 10 per cent in,

(1) the rated speed of the load-carrying unit,

(2) the maximum capacity, or

(3) the dead-weight of the machine, load-carrying unit or counter-weight;

(b) except for construction hoists, an increase or decrease in the distance of the travel of the load-carrying unit;

(c) a change in,

(1) the method or type of operation,

(2) the method or type of motion control,

(3) the type or size of guide rails or other guiding means for the load-carrying unit or counter-weight,

(4) the type of safety device or other safety stopping device for the load-carrying unit or counter-weight,

(5) the power supply to the machine,

(6) the type of driving machine or brake,

(7) the location of ;

a) the elevating device,

b) elevating device controller, [CAD Amendment 246-11]

c) the machine,

d) the load-carrying unit,

e) the counter-weight, or

(8) the working pressure of a hydraulic system by more than 10 per cent;

(d) a replacement of the controller; [CAD Amendment 246-11]

(e) changes that would result in a reclassification of the elevating device; and

(f) the addition of an entrance to the elevating device.

2.6.2 Unless otherwise specified in this Document or by the director, and without limiting the generality of the Regulation, any action or work performed on an elevating device that is not specified in subsection **2.6.2** and that results in a change to the original design or the operational characteristics of the elevating device or affects the inherent safety level of the elevating device, shall constitute a minor alteration.

2.7 Rack and Pinion Safeties [CAD Amendment 213-07]

2.7.1 Any repair or rebuild of a type 'D' rack and pinion safety where the manufacturer has stated that such work shall only be performed by the manufacturer, may either be;

(a) repaired, rebuilt or replaced by the manufacturer; or

(b) repaired or rebuilt in accordance with a procedure certified by a professional engineer.

2.7.2 The procedure referred to in clause **2.7.1(b)** shall be filed with the director and shall be available to the inspector upon request. [CAD Amendment 213-07]

2.8 Format of Submission Documents

2.8.1 Where a design submission is in paper format it shall;

(a) be submitted as one copy unless the submission includes oversized drawings;

(b) drawings that are not legible when printed on 11" x 17" paper are considered oversized and shall be submitted as four paper copies as well as in an electronic media form that contains the oversized drawings in unprotected PDF, JPEG or TIFF format;

(c) pages larger than 11”x17” provided in hardcopy shall be folded and submitted without any binding. [CAD Amendment 246-11]

2.8.2 Electronically submitted design submissions shall be as follows;

(a) filled specification sheets shall be provided in excel format;

(b) other supporting documentation shall be provided in unprotected PDF, excel or word format;

(c) where electronic pages exceed 11”x17” paper size, the information shall be legible to the smallest detail when printed to 11”x17”, otherwise they shall also be provided as four hardcopies;

(d) pages larger than 11”x17” provided in hardcopy shall be folded and submitted without any binding;

(e) documents received electronically, will be returned electronically at the conclusion of the design review. [CAD Amendment 246-11]

2.9 Hydraulic Elevating Device Oil Loss Monitoring Program [CAD Amendment 212-07-r1]

2.9.1 Every contractor who maintains a hydraulic elevating device with buried cylinders or buried piping shall ensure there is a written oil loss monitoring program.

2.9.2 A “hydraulic elevating device” means a non-portable device for hoisting and lowering or moving persons or freight and includes an elevator, dumbwaiter, manlift, incline lift, construction hoist, stage lift, platform lift and special elevating device that incorporates one or more hydraulic cylinders.

2.9.3 The purpose of the oil loss monitoring program is to identify any loss of oil which cannot be accounted for in the hydraulic system.

2.9.4 If a contractor performs maintenance on a hydraulic elevating device with buried cylinders or buried piping, the contractor shall ensure that a written oil loss monitoring program is developed and maintained before the contractor performs work on the hydraulic elevating device.

2.9.5 The oil loss monitoring program shall include: [CAD Amendment 246-11]

(a) the requirement to provide an oil loss monitoring log (“OLM log”) for each hydraulic elevating device with buried cylinders or buried piping;

(b) the requirement for the OLM log to reference the elevating device installation number;

(c) the requirement to establish a fixed reference level for the oil and the requirement to mark the reference level on the tank, dip stick or other suitable location via permanent means;

Note: “permanent” implies affixed in such a manner so as to not be easily removed or repositioned.

(d) the requirement to document in the OLM log the location of the mark for the fixed reference level;

(e) the requirement to check that the oil level is at the established reference point when the device is level with the lowest landing during each scheduled maintenance visit;

(f) if the fixed reference level needs to be intentionally adjusted, the requirement to document and record the changes to the established reference level and reason for establishing the new reference level;

(g) the requirement to record in the OLM log any quantity of oil added or removed from the hydraulic system;

(h) that during each maintenance visit, even if no oil is added, the requirement to record in the OLM log the oil level and the date of the scheduled maintenance visit;

(i) if oil is added or removed, the requirement to record in the OLM log the dates oil was added or removed from the hydraulic system;

(j) the requirement to record in the OLM log the reason oil was added to or removed from the hydraulic system;

(k) the requirement to record in the OLM log the mechanic's printed and legible name, signature and certification number for every entry made;

(l) the requirement to keep the OLM log in the elevator machine room, in a readily identifiable location;

(m) the requirement that the OLM log be kept in the elevator machine room for a period of at least five years from the date of the last entry in the OLM log;

(n) the requirement to never allow oil levels to exceed the fixed reference level for the oil level;

(o) the requirement to record in the OLM log the frequency of oil monitoring activities;

(p) the requirement that, despite **(o)**, hydraulic elevating devices with buried single bottom cylinders be monitored on a monthly basis;

(q) the requirement that installations registered by MCCR prior to September 4, 1978 with an installation number below 031909 shall be monitored monthly, unless a notification* (in the form provided by the TSSA) is sent to the Director, advising why the monthly requirements should not apply, and the registered notification is posted along with the OLM log;

* A notification form is available from www.tssa.org. The "Subject" entry should state, Non Single Bottom Cylinder and the "TSSA Reference No." should state, 212/07-r1.

(r) if there is any oil loss which cannot be accounted for, the requirement to immediately remove a hydraulic elevating device from service until the cause for the oil loss is determined and the cause and associated remedy noted in the OLM log;

(s) the requirement to report in writing any oil loss attributed to leaks in buried cylinders or buried piping to the TSSA Elevating Devices Director within 7 days;

(t) the requirement to provide maintenance personnel adequate training related to the contractor's oil loss monitoring program;

(u) the requirement to maintain up-to-date written records showing who provided and who received the training referred to in **(t)**, the nature of the training and the date when it was provided. A record of training shall be available to the TSSA upon request.

(v) the requirement that the contractor's oil loss monitoring program be posted or otherwise available in the machine room, and

(w) the requirement that the collection containers shall not exceed 19 L (5 gal) per cylinder.

2.9.6 Oil that is returned to the hydraulic system from recovery containers, either by manual means or automatically via scavenger pumps, need not be recorded.

Note: if oil from recovery containers is not suitable for return to the tank, it must be measured and an equivalent amount must be added to the system when recovery containers are emptied. If additional oil is needed to reach the fixed reference level it must be recorded as new oil. [CAD Amendment 212-07-r1]

2.10 Proper Use of Jumpers *(Elevator Industry Field Employees' Safety Handbook) (01/82)*

2.10.1 Each contractor shall have written procedures for the use of jumpers when working on elevating device circuits. Each contractor is responsible for ensuring that their mechanics understand the procedure and are equipped to follow it. Each mechanic is responsible for ensuring that they adhere to the procedure. [CAD Amendment 246-11]

2.10.2 The written procedures shall contain not less than the minimum requirements prescribed in Section 6 of the 2010 edition of the Elevator Industry Field Employees' Safety Handbook. [CAD Amendment-261-13]

2.11 Component Fastenings *(10/84) (36/86) (125/96)(193/05)*

2.11.1 Where components are fastened or retained via machine threads, roll pins, c-clips, or similar, precautions must be taken to ensure that the fastenings can satisfactorily remain secure while resisting movement or vibration of the equipment.

2.11.2 Where the effectiveness of a fastener is rapidly degraded as a result of removal and reinstallation during maintenance activities, such fasteners shall be replaced and not reused. [CAD Amendment 250-11]

2.12 Passage Across Roofs *(231/08)*

2.12.1 In addition to O.Reg 209/01, s.37, if passage across a roof is required for access to elevating device equipment where there is no parapet or guardrail at least 1070 mm (42 in.) high around the roof or passageway, the following shall apply to facilitate safe passage from the roof top access point to the elevating device equipment:

(a) buildings with elevating device installations commissioned on or after December 27, 1985 (effective date of B44-M85) shall be provided with:

(1) a permanent, unobstructed and substantial walkway not less than 600 mm (24 in.) wide,

(2) a guardrail, on all sides of the walkway designed to meet the requirements of the Occupational Health and Safety Regulations, where there is an exposure to a fall hazard, except

(b) buildings with elevating device installations commissioned before December 27, 1985 shall be provided with:

(1) the requirements of 2.12.1(a)(1) and 2.12.1(a)(2), or

(2) the requirements of 2.12.1(a)(1) and an engineered lifeline in lieu of a guardrail, provided the lifeline is designed to accommodate a travel restraint (safety belt) or fall arrest system in accordance to current requirements of the Occupational Health and Safety Regulations. [CAD Amendment 250-11]

2.12.2 The requirement for safe passage across roof tops shall also ensure

(a) adequate lighting is available to safely access the elevator machinery space such that where natural lighting is inadequate to ensure the safety of any worker, artificial lighting is provided and shadows and glare are reduced to a minimum

(b) the means for safe access are maintained, including but not limited to ensuring: snow removal as needed, secure footing, no standing water, and the upkeep of safety equipment such as walkways, lifelines, and fixed ladders. [CAD Amendment-261-13]

2.13 Parts affecting Safe Operation [CAD Amendment-261-13]

2.13.1 Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.

2.13.2 Where a defective part that can impact the safety of the operation is identified, the part shall be adjusted, repaired or replaced, or a risk assessment carried out to determine if the device can remain in service where the work cannot be carried out immediately. The nature of the defect and the anticipated date of repair or replacement shall be noted in the log book.

Part 3

3 ELEVATORS, DUMBWAITERS, ESCALATORS, MOVING WALKS, MATERIAL LIFTS AND FREIGHT PLATFORM LIFTS

3.1 Applied Codes and Standards [CAD Amendment 250-11] [CAD Amendment 261-13]

3.1.1 Every elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of:

(a) ASME A17.1-2010/CSA B44-10 Safety Code for Elevators and Escalators,

Note: Parts 1, 5.10, 8.1, 8.6, 8.7, 8.8, 8.9, 8.10 and 8.11 apply to both new and existing installations. For the purpose of these parts, existing installations means devices installed under the 2010 code and prior editions.

(b) ASME A17.6-2010 Standard for Elevator Suspension, Compensation, and Governor Systems.

(c) The requirements of **3.1(a)** are adopted with the following modifications and clarifications:

(1) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(2) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(3) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 350/06 made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;

(4) Where there is inconsistency between the Regulations and this Code (e.g. Requirement 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(5) Any reference containing a star ★ notation (example **8.7.3.31★**) is a TSSA defined alteration or additional requirement;

(6) Requirement 2.5.1.6 is revoked and the following substituted:

2.5.1.6 Clearance Between Car Platform Apron and Pit Enclosure.
Where the lowest landing sill, on each side of the hoistway, projects into the hoistway, the clearance between the car platform apron and the pit enclosure or fascia plate shall be not more than 32 mm (1.25 in.). This clearance shall be maintained, between the bottom face of the apron and the pit fascia, until the car is resting on its fully compressed buffer.

(7) Requirement 2.7.3.2.2 is revoked and the following substituted:

2.7.3.2.2 Where the passage is over a roof having a slope exceeding 15 deg from the horizontal, or over a roof where there is no parapet or guardrail at least 1 070 mm (42 in.) high around the roof or passageway, a permanent, unobstructed and substantial walkway not less than 600 mm (24 in.) wide, equipped ~~on the side sloping away from the walk~~ with a railing conforming to 2.10.2.1, 2.10.2.2, and 2.10.2.3 and 2.10.2.4 or **2.12.1(a)(2)** of the CAD on all sides, shall be provided from the building exit door at the roof level to the means of access.

(8) Requirement 2.7.8.4 is revoked and the following substituted:

2.7.8.4 A permanent means of communication between the elevator car and a remote machine room, control space ~~and~~ or control room shall be provided.

(9) Requirement 2.10.2 is revoked and the following substituted (see also **3.8.2**): *(245/10)*

2.10.2 Standard Railing / Guard Rail
A standard railing / guard rail shall be substantially constructed of metal and shall consist of a top rail, intermediate rail or equivalent structural member or solid panel, and toe-board.

2.10.2.1 Top Rail
The top rail shall have a smooth surface, and the upper surface shall be located at a vertical height of 1 070 mm (42 in.) from the working surface. **For alterations only:** On elevator car tops of existing devices where a guard rail is being added, this dimension is permitted to be reduced to a height between 910 mm (36 in.) and 1070 mm (42 in.).

2.10.2.2 Intermediate Rail, Member, or Panel
The intermediate rail or equivalent structural member or solid panel shall be located approximately centered between the top rail and the working surface.

2.10.2.3 Toe-Board
The toe-board shall be securely fastened and have a height not less than 125 mm (5 in.) above the working surface.

2.10.2.4 Strength of Standard Railing / Guard Rail
2.10.2.4.1 Strength
In jurisdictions enforcing NBCC, guards shall be fixed in position and designed to resist the following:
(a) a horizontal load applied inward or outward, of 750N/m (52 lbf/ft) or a concentrated load of 1000N (225 lbf) applied at any point, whichever governs, at the top of every guard rail
(b) elements within the guard, including solid panels and pickets, shall be designed for a load of 500 N (112 lbf) applied over an area of 100 mm by 100 mm (4 in. x 4 in.) located at any point in the element or elements so as to produce the most critical effect. These loads need not be considered to act simultaneously with the loads provided for in (a) and (c).
(c) The minimum specified load applied vertically at the top of every required guard shall be 1500 N/m (103 lbf/ft) and need not be considered to act simultaneously with the horizontal load provided for in (a)

Note: The loads specified in 2.10.2.4.1 are extracted from O. Reg. 350/06 (Building Code) Article 4.1.5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section14(2).
For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(5) of O. Reg. 350/06 (Building Code). For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

2.10.2.4.2 Deflection
A standard railing shall be capable of resisting anywhere along its length the following forces when applied separately, without deflecting more than 75 mm (3 in.) and without permanent deformation:
(a) a force of at least 890 N (200 lbf) applied in any lateral or downward vertical direction, at any point along the top rail.
(b) a force of at least 666 N (150 lbf) applied in any lateral or downward vertical direction at any point along the center of the intermediate rail, member, or panel. If the standard railing is a solid panel

extending from the top rail to the toe-board, the application of the force specified in 2.10.2.4(a) shall be considered to meet the requirements of 2.10.2.4(b).

(c) a force of 225 N (50 lbf) applied in a lateral direction to the toe-board.

(10) Requirement 2.14.1.7 is amended and supplemented with the following (see also **3.8.2**): *(245/10)*

2.14.1.7.2 When the car has reached its maximum upward movement (2.4.6.1) or, effective for submissions received after November 1, 2013 when the car is travelling at any point in the hoistway, the following minimum clearances shall be provided from the top rail of the standard railing to building structure or equipment not attached to the car:

(a) 100 mm (4 in.) vertically

(b) 100 mm (4 in.) horizontally in the direction towards the hoistway enclosure

(c) 300 mm(12 in.) horizontally towards the centerline of the car enclosure top

[CAD Amendment 261-13]

2.14.1.7.5 Where a standard guardrail per 2.10.2 cannot be provided due to overhead clearance issues, a foldable, collapsible or other stowable design shall be acceptable provided that:

(1) the car will not operate in "top-of-car inspection operation" unless the railing is in the fully extended position,

(2) the car will not operate in "normal operation", "hoistway access operation", or any type of "inspection operation" other than "top-of-car inspection operation", unless the railing is in the fully retracted position,

(3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly/positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),

(4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,

(5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly/positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),

(6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4 of A17.1-2007/B44-07,

(7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,

(8) when in the fully extended position the handrail shall meet the requirements of 2.10.2, and

(9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per R.R.O. 1990, Reg. 851 (Industrial Establishments) made under the *Occupational Health and Safety Act*, s. 85) while engaging or lowering the alternative height guardrail provided for in 2.14.1.7.5

(11) Requirement 2.14.2.1.2 is revoked and the following substituted:

2.14.2.1.2 In jurisdictions enforcing the NBCC

(a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3, and 2.14.2.1.4, shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723, or CAN/ULC-S102:
(1) flame spread rating of 0 to 75
(2) smoke development classification of 0 to 450
(b) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development classification of 0 to 450, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2
(c) not adopted

(12) Requirement 2.27.3.2.2 is revoked and the following substituted:

2.27.3.2.2 In jurisdictions enforcing the NBCC, the requirements of (a) through (c) are applicable to new installations and the requirements of (a) through (h) are applicable for alterations as amended below:

(a) smoke detectors, or heat detectors in environments not suitable for smoke detectors (fire alarm initiating devices), used to initiate Phase I Emergency Recall Operation, shall be installed in conformance with the requirements of the NBCC, and shall be located

(1) at each floor served by the elevator
(2) in the associated elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room, and
(3) in elevator and dumbwaiter shafts per O. Reg. 350/06 Article 3.2.4.10.(e) if a fire alarm system is required by O. Reg. 350/06 Article 3.2.4.1, except as provided in O. Reg. 350/06 Article 3.2.4.15.,

(b) alternate floor recall required by 2.27.3.2.4 is not required if the floor area containing the recall level is sprinklered. (ref OBC 3.2.4.14(3)) Note: If fire detectors are provided in the hoistway at or below the lowest landing of recall, an alternate (upper) recall shall be provided in accordance with 2.27.3.2.3(d).

(c) where a building fire alarm system is not required by OBC or where an alteration is being performed and the existing building fire alarm system does not provide suitable signaling, the devices referred to in 2.27.3.2.2(a) shall be installed and shall be connected to a Dedicated Function Fire Alarm System. [CAD Amendment-250-11] Where a dedicated function fire alarm system is installed in a building with an existing fire alarm system, the systems shall be interconnected. [CAD Amendment-261-13]

NOTE (2.27.3.2.2(a) (b) and (c)): Smoke and heat detectors (fire alarm initiating devices) are referred to as fire detectors in the NBCC. Pull stations are not deemed to be fire detectors.

(ALTERATIONS ONLY)

(d) for alterations **8.7.2.16, 8.7.3.17 (change in type of service)** and **8.7.2.27.6, 8.7.3.31.7 (operation control)**, that require conformance to 2.27,
(1) requirements 2.27.3.2.2(a)(1), 2.27.3.2.2(a)(2) and 2.27.3.2.2(c) do not apply within a floor area if the floor area is sprinklered and the sprinkler system is electrically supervised in conformance with O. Reg. 350/06 Sentence 3.2.4.9.(2). The activation of the electrically supervised system shall cause automatic recall.
(2) requirements 2.27.3.2.2(a)(3) does not apply.

(e) for alterations **8.7.2.27.4 and 8.7.3.31.5 (controllers),** if firefighters' emergency operation was required or provided at the time of the original installation, or required or provided by a subsequent alteration,
the requirements of (1) below apply, otherwise the requirements of (2) below apply:
(1) requirements, 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)
(2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.

(f) for alterations **8.7.2.27.5 and 8.7.3.31.6 (motion control)**, emergency operation and signaling devices where required by NBCC at the time of the original installation, or required or provided by a subsequent alteration,
the requirements of (1) below apply, otherwise the requirements of (2) below apply:
(1) requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)
(2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.

(g) for alterations under **8.7.2.28** or **8.7.3.31.8 (emergency operation and signaling devices)** or **8.7.2.28★2** or **8.7.3.31★9 (fire code retrofit)** that require conformance to all or part of 2.27 the requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c) apply.

(h) In all cases the level of activation shall not be diminished per 8.7.1.2.

(13) The opening requirement of 3.7 – Machinery Spaces, Machine Rooms, Control Spaces and Control Rooms, is revoked and the following substituted:

A machinery space outside the hoistway containing a hydraulic machine and a motor controller shall be a machine room, or a machinery space with headroom of not less than 2130 mm(84").

(14) Requirement 5.2.1.4.4 – Alternative to Top Car Clearance Requirement, is adopted for new and existing buildings

(15) Requirement 5.2.1.14 is supplemented with the following:

(n) where conformance to 2.14.1.7 is required, the provisions of 2.10.2.1 or 2.14.1.7.5 are permitted for new installations.

(16) Requirement 5.2.1.15.2 is revoked and the following substituted: *(166/01)*

5.2.1.15.2 Platform Guards.
(a) Requirement 2.15.9.2 applies to LU/LA elevators that utilize traction drives and that serve 3 or more floors.

(b) Requirement 2.15.9.2 does not apply to LU/LA elevators utilizing hydraulic or roped hydraulic drive and serving 2 or more floors, provided that the following requirements are met:

(1) The platform guard shall have a straight vertical face, extending below the floor surface of the platform of not less than the depth of the unlocking zone plus 75 mm (3 in.) but in no case less than the maximum distance from the landing that it takes to stop 165 and hold the car upon detection and actuation of the device as prescribed in 2.19.2.

(2) Owners of LULA elevators shall complete and sign a SUPPLEMENTARY OWNERS REPORT FOR LULA ELEVATORS indicating their understanding that:
(i) *only elevator personnel are permitted to unlock hoistway doors*

(ii) *only emergency personnel are permitted to perform emergency evacuations*.
(iii) access to the unlocking device is controlled or has a controlled procedure
(iv) owners shall ensure the appropriate building personnel are made aware of these requirements

(3) Signage shall be provided on the apron plate that meets the following criteria:
(i) lettering shall be a minimum of 16 mm in height
(ii) the sign shall remain permanent and readily legible, viewable from the hall
(iii) the Context of the message shall convey the following information:
(a) a 'warning' advising of the potential fall hazard that exists below when the car is above the floor level
(b) lower the car prior to attempting rescue of trapped passengers
(c) lowering and Rescue by trained personnel only.

(17) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(18) Sections 5.3, 8.6.7.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(19) Sections 5.4, 8.6.7.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(20) Sections 5.7, 8.6.7.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(21) Sections 5.8, 8.6.7.8 and 8.7.5.8 – Marine Elevators, are not adopted;

(22) Sections 5.9, 8.6.7.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(23) Section 5.10 "Elevators Used for Construction" is adopted with the following modifications:

a) "Elevators Used for Construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

b) 5.10.1.9.5(a) is not adopted,

c) 5.10.1.9.5(b) is revoked and the following substituted:

5.10.1.9.5(b)
(b) regardless of car speed, hoistway doors shall be provided with either of the following:
(1) interlocks conforming to 2.12.2
(2) combination mechanical locks and electric contacts conforming to 2.12.3

(24) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(25) Requirement 7.4.2.2 is revoked and the following substituted: *(48/87) (189/05)*

7.4.2.2
Type B Material Lifts shall be permitted to carry one operator and be provided with in-car mounted operating devices, subject to the following limitations:

(a) Access to and usage of Type B Material Lifts is restricted to authorized personnel.
(b) The rated speed is not to exceed 0.15 m/s (30 ft/min).
(c) not adopted
(d) Travel does not exceed 7 600 mm (300 in.).

(e) They are operated only by continuous-pressure control devices.
(f) They shall not be accessible to the general public.
(g) The upper limit of travel shall be
(1) level with the top penetrated floor; or
(2) level with the top landing where no floor is penetrated.
(h) They are permitted to serve one or more intermediate landings, provided that these landings have doors as required in 7.4.14.

(26) Requirement 7.4.14.8 is added:

7.4.14.8
Requirement 2.12.3 applies only to Type A Material Lifts.

(27) Requirement 7.5.12.2.6 is revoked and the following substituted:

7.5.12.2.6
Requirement 2.26.2.5 does not apply. Each control station shall be provided with an emergency stop switch (switches) conforming to 2.26.2.5(a), (b), and (c), except that the emergency stop switch located at each landing may be of a constant-pressure type. And it shall cause the power to be removed from the driving machine when operated.

(28) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item **2(3)(j)** of the Elevating Device Regulation 209/01, are not adopted;

(29) The requirements of Section 8.6. Maintenance, Repair, Replacement and Testing is adopted as modified and clarified in **3.3** of the Code Adoption Document;

(30) The requirements of Section 8.7 – Alterations, is adopted, as modified and clarified in **3.4** of the Code Adoption Document;

(31) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(32) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;

(33) Section 8.11 - Periodic Inspection and Test Requirements are not adopted.

3.2 Performance Based Safety Code

3.2.1 Where conformance with the prescriptive requirements in **3.1** are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

3.3 Maintenance, Repair, Replacement, and Testing

3.3.1 A Maintenance Control Program (MCP) referred to in the code adopted in **3.1**shall have the same meaning as “general instructions for maintenance’ referred to in O.Reg 209/01 s.25.(2)

3.3.2 A copy of the Maintenance Control Program shall be provided for every new elevating device installation as required in O.Reg 209/01 s.15.(4)(c) ,where a Maintenance Control Program has been implemented.

(a) For new installations for which a design submission is received on or after May 1, 2013 the Maintenance Control Program shall be available to the inspector at the time of the acceptance inspection, and a copy shall be forwarded to the elevating devices program prior to the inspection. Where appropriate, versions of MCP's may be filed with the director.

(b) For existing or altered installations the Maintenance Control Program shall be fully implemented not later than January 1, 2014. [CAD Amendment-261-13]

3.3.3 Where a Maintenance Control Program has been implemented on an existing device, a copy of the Maintenance Control Program (MCP) shall be supplied to the owner of the elevating device.

3.3.4 Section **8.6 Maintenance, Repair, Replacement, and Testing** is revoked and the following substituted;

8.6 MAINTENANCE, REPAIR, REPLACEMENT, AND TESTING

Requirement 8.6 applies to maintenance, repairs, replacements, and testing.

Maintenance, repair and replacement shall be performed to provide compliance with the code applicable at the time of installation or alteration.

NOTES:

(1) See 8.7 for alteration requirements.

(2) See "General" in Preface for assignment of responsibilities.

8.6.1 General Requirements

8.6.1.1 Maintenance, Repair, and Replacement

8.6.1.1.1 Equipment covered within the scope of this Code shall be maintained in accordance with

(a) 8.6. and an established Maintenance Control Program including any requirements specified in the Code Adoption Document, or

(b) 8.6.1, 8.6.2, 8.6.3, 8.6.11 and the supplemental maintenance requirements and intervals specified in CSA standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, including any requirements specified in the Code Adoption Document.

Requirement (a) is applicable for

(1) new installations submitted on or after May 1, 2013,

(2) any existing devices where an Maintenance Control Program has been implemented, and

(3) all devices maintained after January 1, 2014. [CAD Amendment-261-13]

Requirement (b) is applicable until January 1, 2014 for

(1) existing installations, or

(2) new installations submitted prior to May 1, 2013. [CAD Amendment-261-13]

8.6.1.1.2 Maintenance, repairs, replacements, and tests shall conform to 8.6 and the applicable

(a) Code at the time of the installation; and

(b) Code requirements at the time of any alteration; and

(c) ASME A17.3 if adopted by the authority having jurisdiction

8.6.1.1.3 It is not the intent of 8.6 to require changes to the equipment to meet the design, equipment nameplate(s) or performance standard other than those specified in 8.6.1.1.2, unless specifically stated in 8.6. (see 8.6.3.2, 8.6.5.8, 8.6.8.3 and 8.6.8.4.3).

8.6.1.2 General Maintenance Requirements

8.6.1.2.1 A written Maintenance Control Program where implemented shall be in place to maintain the equipment in compliance with the requirements of 8.6 and the following, otherwise the requirements of 8.6.1.1.1(b) apply.

The MCP shall specify examinations, tests, cleaning, lubrication, and adjustments to applicable components at regular intervals (see definition for maintenance) and shall comply with the following:

(a) a Maintenance Control Program for each unit (see 8.6.1.1.1) shall be provided by the person(s) and/or firm maintaining the equipment and shall be viewable on site by elevator personnel at all times from time of acceptance inspection and test or from the time of equipment installation or alteration (see 8.10.1.5).

(b) the MCP shall include, but not be limited to, the code required maintenance tasks, maintenance procedures and examinations and tests listed with the associated requirement (see 8.6.4 to 8.6.11). Where maintenance tasks, maintenance procedures, or examinations or tests have been revised in 8.6 the MCP shall be updated.

(c) the MCP shall reference On-Site Equipment Documentation (see 8.6.1.2.2) needed to fulfill 8.6.1.2.1(b) and On-Site Maintenance Records (see 8.6.1.4.1) that record the completion of all associated maintenance tasks specified in 8.6.1.4.1(a).

(d) where the MCP is maintained remotely from the machine room, machinery space, control room, or control space (see 8.11.1.8) instructions for on-site locating or viewing the MCP either in hard copy or in electronic format shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The instructions shall be permanently legible with characters a minimum of 3mm (0.125in) in height.

(e) in addition to s. 32(1) of the Regulation, the specified scheduled maintenance intervals (see 1.3) shall, as applicable, be based on

(1) equipment age, condition, and accumulated wear ,
(2) design and inherent quality of the equipment ,
(3) usage,
(4) environmental conditions,
(5) improved technology,
(6) the manufacturer's recommendations and original equipment certification for any SIL rated devices or circuits (see 8.6.3.12 and 8.7.1.9), and
(7) the manufacturer's recommendations based on any A17.7/B44.7 approved components or functions.

(f) procedures for tests, periodic inspections, maintenance, replacements, adjustments, and repairs for traction-loss detection means, broken-suspension-member detection means, residual-strength detection means, and related circuits shall be incorporated into and made part of the Maintenance Control Program.
[See 2.20.8.1, 2.20.8.2, 2.20.8.3, 8.6.11.10, 8.10.2.2.2(cc)(3)(c)(2), 8.10.2.2.2(ss), and 8.6.4.19.12.]

(g) The manufacturer's or installer's procedures for tests, periodic inspections, maintenance, replacements, adjustments, and alterations repairs, of SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) shall be incorporated into the Maintenance Control Program. (ref TN 08-802)

8.6.1.2.2 On-Site Documentation

The following documents specified in 8.6.1.2.2 (a), (b), and (c) shall be written and permanently kept on-site in the machine room, machinery space, control room, control space, or in the means necessary for test (2.7.6.4) in hard copy for each unit for elevator personnel.

The documentation specified in 8.6.1.2.2(d) shall be on-site and available to the specified personnel.

(a) Up-to-date wiring diagrams detailing circuits of all electrical protective devices (see 2.26.2) and critical operating circuits (see 2.26.3).

(b) Procedures for inspections and tests not described in A17.2 and procedures or methods required for elevator personnel to perform maintenance, repairs, replacements and adjustments, as follows:

(1) all procedures specifically identified in the code as required to be written (e.g. 8.6.4.20.8 check out procedure for leveling, 8.6.5.16.5 check out procedure for over speed valve, and 8.6.8.15.7 check out procedure for reversal stop switch, etc),
(2) unique maintenance procedures or methods required for inspection, tests, and replacement of SIL rated E/E/PES electrical protective devices and circuits (see 2.26.4.3.2, 2.26.9.3.2(b), 2.26.9.5.1(b), and 2.26.9.6.1(b)),
(3) unique maintenance procedures or methods required for inspection, tests, and replacement of equipment applied under alternative arrangements (see 1.2.2.1) shall be provided by the manufacturer or installer, and
(4) unique maintenance procedures or unique methods required for inspection and test of equipment specified in an A17.7/B44.7 Code Compliance Document (CCD).

(c) Written checkout procedures:

(1) to demonstrate E/E/PES function as intended (see 8.6.4.19.10),
(2) for elevator leveling speed with open doors (see 8.6.4.20.8),
(3) for hydraulic elevator over speed valve (see 8.6.5.16.5),
(4) for escalator reversal stopping device (see 8.6.8.15.7), and
(5) for escalator handrail retarding force (see 8.6.8.15.13).

(d) Written procedures for the following:

(1) evacuation procedures for elevators by authorized persons and emergency personnel shall be available on site. (see 8.6.11.5.2 and A17.4)
(2) the procedure for cleaning of a car and hoistway transparent enclosures by authorized persons. (see 8.6.11.4.2)

8.6.1.2.3 Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.

8.6.1.3 Maintenance Personnel.
Maintenance, repairs, replacements, and tests shall be performed only by elevator personnel (see 1.3).

8.6.1.4 Log Book of Maintenance Records
8.6.1.4.1 On-Site Maintenance Records
8.6.1.4.1(a) Maintenance Control Program Records

(1) A record that shall include the maintenance tasks listed with the associated requirements of 8.6 identified in the Maintenance Control Program (8.6.1.2.1), other tests (see 8.6.1.2.2), examinations and adjustments, and the specified scheduled intervals shall be maintained.

(2) The specified scheduled maintenance intervals (see 1.3) shall, as applicable, be based on the criteria given in 8.6.1.2.1(e).

(3) MCP records shall be viewable on-site by elevator personnel in either hard copy or electronic format acceptable to the authority having jurisdiction and shall include but not limited to the following:
    (a) site name and address,
    (b) service provider (Contractor) name,
    (c) conveyance identification (ID) (TSSA or MCCR installation number) and type,
    (d) date of record,
    (e) a description of the maintenance task, interval, and associated requirements of 8.6,
    (f) indication of completion of maintenance task,

(g) year and month when the task was performed,
(h) Contractor's Registration Number, and
(i) the printed name and signature of the persons who completed the task, except that where tasks are not yet completed, or where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the task is complete or the defect is adjusted repaired or replaced. *(242/10)*

Note [8.6.1.4.1(a)]: ~~Recommended format for documenting maintenance control program records can be found in non-mandatory Appendix XXX. This is only an example format.~~ A specific maintenance control program that includes all maintenance needs is required for each unit.

8.6.1.4.1 (b) Repair and Replacement Records

The repairs and replacements listed in paragraphs (1) and (2) below shall be recorded and shall be kept on-site for viewing by elevator personnel in either hard copy or electronic format. Instructions for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. The record shall include an explanation of the repair or replacement, date, and name of person(s) and/or firm performing the task. The record of repairs and replacements shall be retained by the owner of the equipment for the most recent 5 years or from the date of installation or adoption of this code edition, whichever is less, or as specified by the authority having jurisdiction and shall be a permanent record for the installation. These records may be kept remotely from the site.

(1) Repairs (8.6.2.1- 8.6.2.5) including repairs of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

(2) Replacements (8.6.3.1 - 8.6.3.11 except 8.6.3.7 and 8.6.3.10) including replacements of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

8.6.1.4.1 (c) Other Records

The written records listed in paragraphs (1) to(4) below shall be kept on-site for each unit. Instructions for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. These records shall be retained for the most recent 5 years from of the date of installation or adoption of this code edition, whichever is less, or as specified by the authority having jurisdiction. The record shall include the date and name of person(s) and/or firm performing the task.

(1) A record of oil usage (8.6.5.7).
(2) A record of findings for firefighter's service operation required by 8.6.11.1 with identification of the person(s) that performed the operation.
(3) Periodic tests (see 8.6.1.7) shall be documented or recorded in accordance with 8.6.1.7.2.
(4) Written record to document compliance with replacement criteria specified in ASME A17.6 requirement 1.10.1.1(c).

8.6.1.4.2 Call Backs (Trouble Calls)

A record of call backs shall be maintained and shall include the description of reported trouble, dates, time and corrective action(s) taken that are reported by any means to elevator personnel. These records shall be made available to elevator personnel when performing corrective action. For elevator personnel other than personnel performing the corrective action, records will be available upon request and shall be maintained for a minimum of one year. Instructions on how to report any need for corrective action (trouble calls) to the responsible party shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The instructions shall be permanently legible with characters a minimum of 3mm (0.125 in.) in height.

~~**8.6.1.5 Code Data Plate**~~

~~**8.6.1.5.1** The Code data plate shall comply with 8.9.~~

8.6.1.6 General Maintenance Methods and Procedures

8.6.1.6.1 Making Safety Devices Inoperative or Ineffective.

No person shall at any time make inoperative or ineffective any device on which safety of users is dependent, including any electrical protective device, except where necessary during tests, inspections (see 8.10 and 8.11), maintenance, repair, and replacement, provided that the installation is first removed from normal operation. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7 and 8.6.1.6).

8.6.1.6.2 Lubrication.

All parts of the machinery and equipment requiring lubrication shall be lubricated with lubricants equivalent to the type and grade recommended by the manufacturer. Alternative lubricants shall be permitted when intended lubrication effects are achieved. All excess lubricant shall be cleaned from the equipment. Containers used to catch leakage shall not be allowed to overflow.

8.6.1.6.3 Controllers and Wiring

(a) The interiors of controllers and their components shall be cleaned when necessary to minimize the accumulation of foreign matter that can interfere with the operation of the equipment.

(b) Temporary wiring and insulators or blocks in the armatures or poles of magnetically operated switches, contactors, or relays on equipment in service are prohibited.

(c) When jumpers are used during maintenance, repairs, or testing, all jumpers shall be removed and the equipment tested prior to returning it to service. Jumpers shall not be stored in machine rooms, control rooms, hoistways, machinery spaces, control spaces, escalator/moving walk wellways, or pits (see also 8.6.1.6.1).
NOTE [8.6.1.6.3(d)]: See "Elevator Industry Field Employees' Safety Handbook" for recommended minimum jumper control procedures.

(d) Control and operating circuits and devices shall be maintained in compliance with applicable Code requirements (see 8.6.1.1.2).

(e) Substitution of any wire or current-carrying device for the correct fuse or circuit breaker in an elevator circuit shall not be permitted.

8.6.1.6.4 Painting.

Care shall be used in the painting of the equipment to make certain that it does not interfere with the proper functioning of any component. Painted components shall be tested for proper operation upon completion of painting.

~~**8.6.1.6.5 Fire Extinguishers.**~~

~~In jurisdictions not enforcing NBCC, Class "ABC" fire extinguishers shall be provided in elevator electrical machine rooms, control rooms, and control spaces outside the hoistway intended for full bodily entry, and walk-in machinery and control rooms for escalators and moving walks; and they shall be located convenient to the access door.~~

8.6.1.6.6 Workmanship.

Care should be taken during operations such as torquing, drilling, cutting, and welding to ensure that no component of the assembly is damaged or weakened. Rotating parts shall be properly aligned.

8.6.1.6.7 Signs and Data Plates.

Required signs and data plates that are damaged or missing shall be repaired or replaced.

8.6.1.7 Periodic Tests.

The frequency of maintenance and tests shall conform to the following;

(a) Where a Maintenance Control Program is in effect,

(1) the maintenance frequency shall be established as prescribed in 8.6, but in no case shall the interval between maintenance visits to an elevating device excluding wind tower elevators exceed three months, nor shall it exceed the manufacturer's specified limit or other imposed limit which is less than three months (see CAD 2.9 for example of a one month limit), and

(2) testing shall be performed at intervals specified in Appendix N, such that;

(a) category 1 tests are performed annually,

(b) category 3 tests are performed every 3 years and

(c) category 5 tests are performed every 5 years.

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(b) Where the maintenance method follows B44.2-07

(1) the maintenance frequency shall be established as prescribed in B44.2-07, but in no case shall the interval between maintenance visits extend beyond three months.

(2) Where frequencies of maintenance, examinations or inspections identified in B44.2-07 are extended:

(a) the altered maintenance, examination and/or inspection frequencies must take into account the age and inherent quality of the equipment, the frequency and method of usage, and the recommendation(s) by either the original manufacturer, or manufacturer's agent, or the maintaining contractor;

(b) the owner and maintenance contractor shall agree in writing to the altered maintenance, examination and/or inspection frequencies;

(c) the log book shall either capture this agreement or make reference to another document where such an agreement is made;

(d) a copy of the altered maintenance, examination and/or inspection frequency agreement shall be made available to TSSA upon request;

(e) the interval between maintenance visits shall not exceed three (3) months;

(f) the frequency of tests** identified in B44.2 shall not be altered; and

(g) despite the allowance to adjust maintenance, examination or inspection frequencies as stated above, the frequency of activities listed in B44.2-07 section 5.2.1 shall not be altered.

**where the terms:
'operate'- (or equivalent thereof), such as "governors shall be operated by hand" or
'check'- (or equivalent thereof), such as "skirt switches shall be checked" are used, the frequency of these tests shall not be altered.

The frequency of periodic tests shall be established by the authority having jurisdiction as required by 8.11.1.3.
NOTE: Recommended intervals for periodic tests can be found in Non-mandatory Appendix N.

8.6.1.7.1 Not adopted

~~Periodic tests shall be witnessed by an inspector employed by the authority having jurisdiction or by a person authorized by the authority having jurisdiction. The inspector shall conform to the requirements in 8.11.1.1.~~

8.6.1.7.2 Periodic Test Records

A periodic test record for all periodic tests containing the applicable code requirement(s) and date(s) performed, and the name of the person or firm performing the test, shall be kept readily visible adjacent to or securely attached to the controller of each unit in the form of a log book record ~~metal tag~~ or other format designated by and acceptable to the authority having

jurisdiction. If any of the alternative test methods contained in **8.6.4.20** were performed then the test record ~~tag~~ must indicate alternative testing was utilized for the applicable requirement.

8.6.1.7.3 No person shall at any time make any required safety device or electrical protective device ineffective, except where necessary during tests. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7).

8.6.1.7.4 All references to "Items" and "Parts" are to Items in A17.2.

8.6.2 Repairs
See 8.6.2.1 through 8.6.2.5 for general requirements for repairs.

8.6.2.1 Repair Parts. Repairs shall be made with parts of at least equivalent material, strength, and design (see 8.6.3.1).

8.6.2.2 Welding and Design.
Welding and design of welding shall conform to 8.7.1.4 and 8.7.1.5.

8.6.2.3 Repair of Speed Governors.
Where a repair is made to a speed governor that affects the tripping linkage or speed adjustment mechanism, the governor shall be checked in conformance with 8.6.4.19.2. Where a repair is made to the governor jaws or associated parts that affect the pull-through force, the governor pull-through force shall be checked in conformance with 8.6.4.19.2(b). A test tag shall be attached, indicating the date the pull-through test was performed.

8.6.2.4 Repair of Releasing Carrier.
When a repair is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with 8.6.4.20.2(b) ~~8.11.2.3.2(b)~~.

8.6.2.5 Repair of Suspension and Compensating Means and Governor Ropes.
Suspension and compensating members and governor ropes shall not be lengthened or repaired by splicing (see 8.7.2.21).

8.6.2.6 Repairs involving SIL Rated Device(s)
SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) shall:
(a) not be repaired in the field
(b) be permitted to be repaired in accordance with the provisions for repair where included in the listing/certification, and
(c) shall not be affected by other repair(s) such that the listing/certification is invalidated.

8.6.3 Replacements
8.6.3.1 Replacement Parts.
Replacements shall be made with parts of at least equivalent material, strength, and design.

8.6.3.2 Replacement Suspension Means.
Suspension means, compensation means, and governor ropes shall be replaced when they no longer conform to the requirements of ASME A17.6. Replacement of suspension means, compensation means, and governor ropes shall conform to the requirements of ASME A17.6 as stated in 8.6.3.2.1 through 8.6.3.2.3.

8.6.3.2.1 For steel wire rope, ASME A17.6, Section 1.10 shall apply.
NOTE (8.6.3.2.1): See Non-mandatory Appendix T for inspection and replacement of steel wire ropes.

8.6.3.2.2 For aramid fiber ropes, ASME A17.6, Section 2.9 shall apply.

8.6.3.2.3 For noncircular elastomeric-coated steel suspension members, ASME A17.6, Section 3.7 shall apply.

8.6.3.3 Replacement of Suspension-Means Fastenings and Hitch Plates.
Replacement of suspension-means fastenings and hitch plates shall conform to the requirements in 8.6.3.3.1 through 8.6.3.3.5.

8.6.3.3.1 When the suspension-means fastenings are replaced with an alternate means that conforms to 2.20.9, load-carrying ropes shall be in line with the shackle rod.

8.6.3.3.2 Existing hitch plates that do not permit the load-carrying ropes to remain in line with the shackle rods shall have the replacement fastening staggered in the direction of travel of the elevator and counterweight, or the hitch plates shall be replaced.

8.6.3.3.3 Replacement hitch plates shall conform to 2.15.13 and shall provide proper alignment of load carrying ropes and shackle rods.

8.6.3.3.4 Replacement fastenings shall be permitted to be installed on the car only, the counterweight only, at either of the dead-end hitches, or at both attachment points.

8.6.3.3.5 Rope fastenings at the drum connection of winding-drum machines shall comply with 8.6.4.10.2.

8.6.3.4 Replacement of Governor or Safety Rope
8.6.3.4.1 Governor ropes shall be of the same size, material, and construction as the rope specified by the governor manufacturer, except that a rope of the same size but of different material or construction shall be permitted to be installed in conformance with 8.7.2.19.

8.6.3.4.2 The replaced governor ropes shall comply with 2.18.5.

8.6.3.4.3 After a governor rope is replaced, the governor pull-through force shall be checked as specified in 8.6.4.20.2(b). ~~8.11.2.3.2(b)~~.

8.6.3.4.4 ~~A test tag indicating the~~ ~~The~~ date when the pull-through test was performed shall be ~~attached~~ recorded in the log book.

8.6.3.4.5 The safety rope shall comply with 2.17.12.4 and 2.17.12.5.

8.6.3.4.6 A new rope data tag conforming to 2.18.5.3 shall be installed at each rope replacement, and the date of the rope replacement shall be recorded in the maintenance records (8.6.1.4.1(b)(2)).

8.6.3.5 Belts and Chains.
If one belt or chain of a set is worn or stretched beyond that specified in the manufacturer's recommendation, or is damaged so as to require replacement, the entire set shall be replaced.
Sprockets and toothed sheaves shall also be replaced if worn beyond that specified in the manufacturer's recommendations.

8.6.3.6 Replacement of Speed Governor.
When a speed governor is replaced with a governor of the same make and model (see also 8.7.2.19) , it shall conform to 2.18. When a releasing carrier is provided, it shall conform to 2.17.15. The governor rope shall be of the type and size specified by the governor manufacturer. The governor shall be checked in conformance with 8.6.4.20.2. ~~8.11.2.3.2~~. Drum-operated safeties that require continuous tension in the governor rope to achieve full safety application shall be checked as specified in 8.6.4.20.1 ~~8.11.2.3.1~~ and 8.7.2.19.

8.6.3.7 Listed/Certified Devices

8.6.3.7.1 Where a listed/certified device is replaced, the replacement shall be subject to the applicable engineering or type test as specified in 8.3, or the requirements of CSA B44.1/ASME A17.5. Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The device shall be labeled by the certifying organization (see 8.6.1.1). In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.

8.6.3.7.2 Where a component in a listed/certified device is replaced, the replacement component shall be subject to the requirements of the applicable edition of CSA B44.1/ASME A17.5 and/or the engineering or type test in 8.3.Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The component shall be included in the original manufacturer's listed/certified device documentation or as a listed/certified replacement component (see 8.6.1.1). Each replacement component shall be plainly marked for identification in accordance with the certifying organization's procedures. In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.
NOTE (8.6.3.7): Devices that may fall under this requirement are included but not limited to hoistway door locking devices and electric contacts, car door contacts and interlocks, hydraulic control valves, escalator steps, fire doors, and electrical equipment.

8.6.3.8 Replacement of Door Reopening Device.

Where a reopening device for power-operated car doors or gates is replaced (see also 8.7.2.13), the following requirements shall apply:
(a) The door closing force shall comply with the Code in effect at the time of the installation or alteration.
(b) The kinetic energy shall comply with the Code in effect at the time of the installation or alteration.
(c) When firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation.

8.6.3.9 Replacement of Releasing Carrier.

Where a replacement is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with 8.6.4.20.2(b) ~~8.11.2.3.2(b)~~.

8.6.3.10 Replacement of Hydraulic Jack, Plunger, Cylinder, Tanks, and Anticreep Leveling Device

8.6.3.10.1 A hydraulic jack replacement shall be classified as an alteration and shall comply with 8.7.3.23.1.
8.6.3.10.2 A plunger replacement shall be classified as an alteration and shall comply with 8.7.3.23.2.

8.6.3.10.3 A cylinder replacement shall be classified as an alteration and shall comply with 8.7.3.23.3.

8.6.3.10.4 A tank replacement shall be classified as an alteration and shall comply with 8.7.3.29.

8.6.3.10.5 An anticreep leveling device replacement shall be classified as an alteration and shall comply with 8.7.3.31.3.

8.6.3.11 Replacement of Valves and Piping.

(a) Where any ~~valves,~~ piping, or fittings are replaced, replacements shall conform to 3.19. ~~with the exception of 3.19.4.6. Replacement control valves must conform to the Code under which it was installed.~~
(b) Where any valve is replaced with a valve of the same make and model, the replacement shall conform to 3.19.
(c) Where any control or overspeed valve is replaced with a valve of different make or model, the replacement shall be classified as an alteration and shall comply with 8.7.3.24.

8.6.3.12 Runby and Clearances After Reroping or Shortening.

The minimum car and counterweight clearances specified in 2.4.6 and 2.4.9 shall be maintained when new suspension means are installed or when existing suspension means are shortened. The minimum clearances shall be maintained by any of the methods described in 8.6.3.12.1 through 8.6.3.12.3 (see 8.6.4.11). (see also CAD **2.4**)

8.6.3.12.1 Limit the length that the suspension means are shortened.

8.6.3.12.2 Provide blocking at the car or counterweight strike plate. The blocking shall be of sufficient strength and secured in place to withstand the reactions of buffer engagement as specified in 8.2.3. If wood blocks are used to directly engage the buffer, a steel plate shall be fastened to the engaging surface or shall be located between that block and the next block to distribute the load upon buffer engagements.

8.6.3.12.3 Provide blocking under the car or counterweight buffer or both of sufficient strength and secured in place to withstand the reactions of buffer engagement as described in 8.2.3.

8.6.3.12.4 Provide the month and year the suspension means were first shortened. Appropriate data shall be recorded on the data tag (see 2.20.2.2.2).

8.6.3.12 Replacement of Demarcation Lights
Fluorescent lighting fixtures shall be permitted to be replaced by any type light source, except incandescent sources, and shall comply with all other applicable step demarcation lighting requirements under which the escalator was installed or altered.

8.6.3.13 Replacements involving SIL Rated Device(s) (See 1.3)
(a) SIL Rated Device (see 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) shall not be affected by other replacement(s) such that the listing/certification is invalidated.

(b) Where a SIL Rated Device (see 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) is replaced, it shall be considered a replacement only when the replacement device is the original manufacturer's listed/certified SIL rated device or the original manufacturer's listed/certified SIL rated replacement device; otherwise it shall be considered an alteration (see 8.7.1.9(d)).

(c) Where a non-SIL Rated Device used to satisfy 2.26.4.3.1, 2.26.8.2, 2.26.9.4(a), 2.26.9.5.1(a), or 2.26.9.6.1(a) is replaced with SIL Rated Device, it shall be considered an alteration. (see 8.7.1.9(c)).

8.6.3.14 to 8.6.3.24 Reserved

8.6.3.25 Replacement of Driving Machine *(226/07)*
Where a driving machine is replaced it shall be considered an alteration and shall conform to the requirements of 8.7.2.25.1(a) except that:

(a) if the elevator controllers are pre-B44-00 and the installation had ascending car overspeed and unintended car movement protection existing
  (1) ascending car overspeed and unintended car movement protection shall be retained
  (2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
  (3) the means shall require manual reset

(b) if the elevator controllers are pre-B44-00 and the installation had only ascending car overspeed protection existing
  (1) ascending car overspeed protection shall be retained
  (2) the addition of unintended car movement protection is permitted
  (3) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
  (3) the means shall require manual reset

(c) if the elevator controllers are pre-B44-00 and ascending car overspeed and unintended car movement protection was not previously existing

(1) ascending car overspeed and unintended car movement protection shall be provided
(2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
(3) the means shall require manual reset

8.6.3.26 Replacement of Controller *(226/07)*
Where an elevator controller is replaced is shall conform to the requirements specified in 8.7.2.27.4(a) or 8.7.3.31.5(a) whichever is applicable.

8.6.3.27 Replacement of Anticreep Leveling Device *(226/07)*
Where an anticreep leveling device is replaced it shall conform to 8.7.3.31.3.

8.6.4 Maintenance and Testing of Electric Elevators
The maintenance and testing of electric elevators shall conform to 8.6.1 through 8.6.4.

8.6.4.1 Suspension and Compensating Means
8.6.4.1.1 Suspension and compensating means shall be kept sufficiently clean so that they can be visually inspected.
Suspension Means shall be inspected at intervals not exceeding 12 months and replaced per the replacement criterion specified in A17.6 or B44.2.

8.6.4.1.2 Steel wire ropes shall be lightly lubricated. Precautions shall be taken in lubricating suspension steel wire ropes to prevent the loss of traction. Lubrication shall be in accordance with instructions on the rope data tag [see 2.20.2.2.2(n)], if provided.

8.6.4.1.3 Equal tension shall be maintained between individual suspension members in each set. ~~Suspension members are considered to be equally tensioned when the smallest tension measured is within 10% of the highest tension measured.~~
When suspension-member tension is checked or adjusted, an antirotation device conforming to the requirements of 2.20.9.8 shall be permitted.
Note: Suspension members are considered to be equally tensioned when the smallest tension measured is within 10% of the highest tension measured.

8.6.4.2 Governor Wire Ropes
8.6.4.2.1 The ropes shall be kept clean.

8.6.4.2.2 Governor wire ropes shall not be lubricated after installation. If lubricants have been applied to governor ropes, they shall be replaced, or the lubricant removed, and the governor and safety shall be tested as specified in 8.6.4.19.2(b) and 8.6.4.18.2.

8.6.4.3 Lubrication of Guide Rails
8.6.4.3.1 The lubrication of guide rails shall be in accordance with the requirements on the crosshead data plate (see 2.17.16), where provided.

8.6.4.3.2 Where a data plate is not provided, the lubrication of guide rails shall conform to the following:
(a) Guide rails, except those of elevators equipped with roller or other types of guiding members not requiring lubrication, shall be kept lubricated.
(b) Where sliding-type safeties are used, the guiderail lubricants, or prelubricated or impregnated guideshoe gibs, where used, shall be of a type recommended by the manufacturer of the safety (see 8.6.1.6.2. and 2.17.16).

8.6.4.3.3 If lubricants other than those recommended by the manufacturer are used, a safety test conforming to 8.6.4.20.1 shall be made to demonstrate that the safety will function as required by 2.17.3.

8.6.4.3.4 Rails shall be kept clean and free of lint and dirt accumulation and excessive lubricant. Means shall be provided at the base of the rails to collect excess lubricant.

8.6.4.3.5 Rust-preventive compounds such as paint, mixtures of graphite and oil, and similar coatings shall not be applied to the guiding surfaces, unless recommended by the manufacturer of the safety. Once applied, the safety shall be checked as specified in 8.6.4.19.1.

8.6.4.4 Oil Buffers

8.6.4.4.1 The oil level shall be maintained at the level indicated by the manufacturer. The grade of oil to be used shall be as indicated on the buffer marking plate, where required (see 2.22.4.10 and 2.22.4.11).

8.6.4.4.2 Buffer plungers shall be kept clean and shall not be coated or painted with a substance that will interfere with their operation.

8.6.4.4.3 Buffer oil shall not be stored in the pit or hoistway or on top of the car.

8.6.4.5 Safety Mechanisms

8.6.4.5.1 Safety mechanisms shall be kept lubricated and free of rust, corrosion, and dirt that can interfere with the operation of the safety.

8.6.4.5.2 The required clearance between the safety jaws and the rail shall be maintained.

8.6.4.6 Brakes

8.6.4.6.1 The driving-machine brake shall be maintained to ensure proper operations, including, but not limited to the following:

(a) residual pads (antimagnetic pads)
(b) lining and running clearances
(c) pins and levers
(d) springs
(e) sleeves and guide bushings
(f) discs and drums
(g) brake coil and plunger

8.6.4.6.2 If any part of the driving machine brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the brake when required (see 2.24.8.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity. A test complying with 8.6.4.20.4 shall be performed.

8.6.4.6.3 If any part of the emergency brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the emergency brake when required (see 2.19.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

8.6.4.7 Cleaning of Hoistways and Pits

8.6.4.7.1 Hoistways and pits shall be kept free of dirt and rubbish and shall not be used for storage purposes.

8.6.4.7.2 Landing blocks and pipe stands shall be permitted to be stored in the pit, provided that they do not interfere with the operation of the elevator and do not present a hazard for persons working in the pit.

8.6.4.7.3 Pit access doors shall be kept closed and locked.

8.6.4.7.4 Water and oil shall not be allowed to accumulate on pit floors.

8.6.4.8 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

8.6.4.8.1 Floors and machinery and control spaces shall be kept free of water, dirt, rubbish, oil, and grease.

8.6.4.8.2 Articles or materials not necessary for the maintenance or operation of the elevator shall not be stored in machinery spaces, machine rooms, control spaces, and control rooms.

8.6.4.8.3 Flammable liquids having a flashpoint of less than 44°C (110°F) shall not be kept in such rooms or spaces.

8.6.4.8.4 Access doors shall be kept closed and locked.

8.6.4.8.5 Machinery spaces and control spaces located in the hoistway shall not be used for storage purposes (see also 8.6.4.7.1).

8.6.4.9 Cleaning of Top of Cars.

The tops of cars shall be kept free of oil, water, dirt, and rubbish, and shall not be used for storing lubricants, spare parts, tools, or other items.

8.6.4.10 Refastening or Resocketing of Car-Hoisting Ropes on Winding-Drum Machines

8.6.4.10.1 General.

The hoisting ropes of elevators having winding-drum driving-machines with 1:1 roping, if of the babbitted rope socket type, shall be resocketed, or for other type of fastenings, replaced or moved on the rope to a point above the existing fastening at the car ends at intervals no longer than

(a) 1 year, for machines located over the hoistway.
(b) 2 years, for machines located below or at the side of the hoistway.
(c) where auxiliary rope-fastening devices conforming to 2.20.10 are installed, refastening at the periods specified is not required, provided that, where such devices are installed, all hoisting ropes shall be refastened on the failure or indication of failure of any rope fastening.
(d) where the elevator is equipped with a drum counterweight, the fastenings shall be examined for fatigue or damage at the socket. Where fatigue or damage is detected, the ropes shall be refastened in conformance with 8.6.4.10.2.

8.6.4.10.2 Procedure.

(a) In resocketing babbitted rope sockets or replacing other types of fastenings, a sufficient length shall be cut from the end of the rope to remove damaged or fatigued portions. The fastenings shall conform to 2.20.9. Where the drum ends of the ropes extend beyond their clamps or sockets, means shall be provided to prevent the rope ends from coming out of the inside of the drum and to prevent interference with other parts of the machine.
(b) the suspension wire ropes shall conform to 2.20.7.

8.6.4.10.3 Tags. A legible metal tag shall be securely attached to one of the wire rope fastenings after each resocketing or changing to other types of fastenings and shall bear the following information:

(a) the name of the person or firm who performed the resocketing or changing of other types of fastenings and
(b) the date on which the rope was resocketed or other types of fastening changed

The material and marking of the tags shall conform to 2.16.3.3, except that the height of the letters and figures shall be not less than 1.5 mm (0.0625 in.).

8.6.4.11 Runby

8.6.4.11.1 The car and counterweight runby shall be permitted to be reduced (see 2.4.2), provided the car or counterweight does not strike the buffer, the top car clearances are not reduced below that required at the time of installation or alteration, and the final terminal stopping device is still operational (see also 8.6.3.3.3).

8.6.4.11.2 Where spring-return oil buffers are provided and compression was permitted with the car at the terminals (see 2.4.2 and 2.22.4.8), the buffer compression shall not exceed 25% of the buffer stroke.

8.6.4.12 Governors

8.6.4.12.1 Governors shall be examined to ensure that all seals are intact and manually operated to determine that all moving parts, including the rope-grip jaws and switches, operate freely.

8.6.4.12.2 Governors, governor ropes, and all sheaves shall be free from contaminants or obstructions, or both, that interfere with operation or function, including the accumulation of rope lubricant or materials, or both, in the grooves of governors or sheaves.

8.6.4.13 Door Systems

8.6.4.13.1 General. All landing and car-door or gate mechanical and electrical components shall be maintained to ensure safe and proper operation at an interval not exceeding 6 months, including but not limited to, the following:

(a) hoistway door interlocks or mechanical locks and electric contacts
(b) car door electric contacts or car door interlocks, where required
(c) door reopening devices
(d) vision panels and grilles, where required
(e) hoistway door unlocking devices and escutcheons
(f) hangers, tracks, door rollers, up-thrusts, and door safety retainers, where required
(g) astragals and resilient members, door space guards, and sight guards, where required
(h) sills and bottom guides, fastenings, condition, and engagement
(i) clutches, engaging vanes, retiring cams, and engaging rollers
(j) interconnecting means
(k) door closers, where required
(l) means to restrict hoistway or car door opening ~~and expiration date for the alternate power source~~ , where required.

8.6.4.13.2 Kinetic Energy and Force Limitation for Automatic Closing, Horizontal Sliding Car and Hoistway Doors or Gates.

Where a power-operated horizontally sliding door is closed by momentary pressure or by automatic means, the closing kinetic energy and closing force shall be maintained to conform to 2.13.4 and 2.13.5.

8.6.4.14 Hoistway Access Switches.

Hoistway access switches, where provided, shall be maintained.

8.6.4.15 Car Emergency System.

Emergency operation of signaling devices (see 2.27), lighting (see 2.14.7), communication (see 2.27.1.1.2, 2.27.1.1.3, and 2.27.1.2) and ventilation (see 2.14.2.3), shall be maintained.

8.6.4.16 Stopping Accuracy.

The elevator shall be maintained to provide a stopping accuracy at the landings during normal operation as appropriate for the type of control, in accordance with applicable Code requirements.

8.6.4.17 Ascending Car Overspeed and Unintended Car Movement Protection.

Devices for ascending car overspeed and unintended car movement protection shall be maintained (see 2.19).

8.6.4.18 Compensation Sheaves and Switches

8.6.4.18.1 Suspension and compensation means shall be maintained to prevent the compensation sheave from reaching the upper or lower limit of travel and to prevent unintended actuation of compensation sheave switch(es) during normal operation.

8.6.4.19 Periodic Test Requirements — Category 1

NOTE: For test frequency, see 8.11.1.3.

8.6.4.19.1 Oil Buffers. Car and counterweight buffers shall be tested to determine conformance with the applicable plunger return requirements (Item 5.9.2.1).

8.6.4.19.2 Safeties

(a) Examinations.
All working parts of car and counterweight safeties shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 8.7.2.14 through 8.7.2.28 (see 2.17.10 and 2.17.11). Check the level of the oil in the oil buffer and the operation of the buffer compression-switch on Type C safeties.

(b) Tests.
Safeties shall be subjected to the following tests with no load in the car:

(1) Type A, B, or C governor-operated safeties shall be operated by manually tripping the governor with the car operating at the slowest operating speed in the down direction. In this test, the safety shall bring the car to rest promptly. In the case of Type B safeties, the stopping distance is not required to conform to 2.17.3. In the case of Type C safeties, full oil buffer compression is not required. In the case of Type A, B, or C safeties employing rollers or dogs for application of the safety, the rollers or dogs are not required to operate their full travel (Item 2.29.2.1).

(2) Governor-operated wood guide-rail safeties shall be tested by manually tripping the governor with the car at rest and moving the car in the down direction until it is brought to rest by the safety and the hoisting ropes slip on traction sheaves or become slack on winding drum sheaves (Item 2.29.2.(d)1).

(3) Type A and wood guide-rail safeties without governors which are operated as a result of the breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2.1).

8.6.4.19.3 Governors.
Governors shall be operated manually to determine that all parts, including those which impart the governor pull-through tension to the governor rope, operate freely [Item 2.13.2.1(a)].

8.6.4.19.Slack-Rope Devices and Stop Motion Switch on Winding Drum Machines.
Slack-rope devices on winding drum machines shall be operated manually and tested to determine conformance with the applicable requirements. The final terminal stopping device and the machine final (stop motion switch) shall be examined and tested by disabling the normal stopping device, normal terminal stopping device and final terminal stopping device located in the hoistway and operating the unit to verify proper operation. (Item 2.20)

8.6.4.19.5 Normal and Final Terminal Stopping Devices.
Normal and final terminal stopping devices shall be examined and tested to determine conformance with the applicable requirements (2.25) (Items 2.20, 2.28.2.1, 3.5.2.1 and 3.6.2.1).

8.6.4.19.6 Firefighters' Emergency Operation.
Firefighters' emergency operation shall be tested annually to the requirements of 8.6.11.1.
Additional testing may be performed to determine conformance with the applicable requirements (see Part 6 of A17.2).

8.6.4.19.7 Standby or Emergency Power or Emergency Lowering Operation.
Operation of elevators equipped with standby or emergency power shall be tested to determine conformance with the applicable requirements (Item 1.17.2.1). Tests shall be performed with no load in the car.
Elevators equipped with auxiliary power lowering shall be tested to ensure that they comply with 3.26.10 of ASME A17.1/CSA B44. The main disconnect switch auxiliary contact shall be tested to ensure compliance with Section 38 of the Canadian Electrical Code, Part I.

8.6.4.19.8 Power Operation of Door System.
The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.1). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.4.19.9 Broken Rope, Tape, or Chain Switch.
Where a rope, tape, or chain is used to connect the motion of the car to the machine room normal limit, the switch that senses failure of this connection shall be tested for compliance with 2.26.2.6 (Item 3.26.1.1).

8.6.4.19.10 The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that all E/E/PES electrical protective devices operate as intended.

8.6.4.19.11 Ascending Car Overspeed Protection and Unintended Car Movement Devices

(a) **Examinations.** All working parts of ascending car overspeed protection and unintended car movement devices shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 2.19.1.2(a) and 2.19.2.2(a).

(b) **Tests.** Ascending car overspeed protection shall be subjected to tests to demonstrate compliance with 2.19.1 with no load in the car at the slowest operating speed (inspection speed) in the up direction.

(c) **Tests.** Unintended car movement shall be subjected to tests with no load in the car. Testing shall confirm compliance with 2.19.2 due to an elevator rollaway caused by a brake and releveling failure. ~~at the slowest operating speed in the up direction.~~

8.6.4.19.12 Traction-Loss Detection Means.
Where provided, conformance with the traction-loss detection means specified in 2.20.8.1 shall be demonstrated by

(a) causing relative motion between the drive sheave and the suspension means either by bottoming the car or counterweight [see 8.6.4.20.10(b)], or

(b) an alternative test provided in the Maintenance Control Program [see 8.6.1.2.1(g)]

8.6.4.19.13 Broken-Suspension-Member and Residual-Strength Detection Means
Where provided, testing of broken-suspension and residual-strength detection means shall comply with the following:

(a) The broken-suspension-member detection means shall be tested by simulating a slack suspension member or a loss of a suspension member as appropriate (see 2.20.8.2).

(b) Suspension-member residual-strength detection means shall be tested to simulate a reduction of residual strength to 2.20.8.3.

8.6.4.19.X Emergency Communications
Emergency Communications shall be tested to determine conformance with the applicable requirements (Item 1.6)

8.6.4.19.Y Means to Restrict Hoistway or Car Door Opening
Means to restrict hoistway or car door opening shall be tested to determine conformance with the applicable requirements (Item 1.18)

8.6.4.19.14 to 8.6.4.19.24 Reserved

8.6.4.19.25 Driving Machine Brakes

Testing shall be performed to ensure that the car decelerates from the rated speed when power is removed from the driving machine and brakes while empty and travelling upward at the rated speed. Any rate of deceleration shall be considered acceptable. A means other than the disconnect switch should be used to remove the power.

Where the annual testing per 8.6.4.19.14 occurs after the first five year load test conducted under 8.6.4.20.4 or 8.6.4.20.10, the following additional actions are required. [Note: Successful demonstration of 8.6.4.20.4 and 8.6.4.20.10 testing confirms proper adjustment of the driving machine brake.]

(a) Marking plates for brakes (see 2.24.8.5) shall be checked and modified where necessary to reflect a brake setting method which specifies either;
  (1) the required no load torque for both the clockwise and counter clockwise directions,
  (2) the no load braking slide distance associated with the car travelling in the up direction or
  (3) the requirements to test the driving machine brake annually with rated load.

(b) Marking plates utilizing spring length or spring force shall be replaced.

(c) Following the first five year load test, driving machine brakes shall be tested annually to ensure they are adjusted properly per the marking plate for brakes requirements.

8.6.4.20 Periodic Test Requirements — Category 5

NOTE: For test frequency, see 8.11.1.3.

Where category 5 tests require the use of load for testing purposes, alternative no load methods shall be permitted where the alternative method is acceptable to the Director.

8.6.4.20.1 Car and Counterweight Safeties.

Types A, B, and C car and counterweight safeties shall be tested in accordance with **8.6.4.20.1(a)** or subject to approval by the authority having jurisdiction with **8.6.4.20.1(b)**.

(a) Rated Load and Rated Speed Test.

Car safeties, except those operating on wood guide rails, and their governors, shall be tested with rated load in the car. Counterweight safety tests shall be made with no load in the car. Tests shall be made by tripping the governor by hand at the rated speed. The following operational conditions shall be checked (Item 2.29.2.):

(1) Type B safeties shall stop the car with the rated load within the required range of stopping distances for which the governor is tripped (Item 2.29.2.) and the level of the platform checked for conformance to 2.17.9.2.

(2) For Type A safeties and Type A safety parts of Type C safeties, there shall be sufficient travel of the safety rollers or dogs remaining after the test to bring the car and its rated load to rest on safety application at governor tripping speed. The level of the platform shall be checked for conformance to 2.17.9.2.

(b) Alternative Test Method for Car Safeties.

The alternative test methods shall comply with requirement 8.6.11.10, and the following:

(1) The testing of safeties with any load in the car, centered on each quarter of the platform symmetrically with relation to the centerlines of the platform from no load up to rated load, and at not less than rated speed shall be permitted provided that,
  a) when the alternative test is performed, the test shall stop the car and verify that the safeties will be capable of stopping an overspeeding car in accordance with the requirements of Section 2.17 applicable to the specific classification of safeties, and
  b) when applied the method shall verify that the safeties perform or are capable of performing in compliance with 8.6.4.20.1(a) and the platform shall not be out of level more than 30 mm/m (0.36 in/ft) in any direction.

(2) A test record ~~tag~~ as required in 8.6.1.7.2 shall be provided.

Governor-operated wood guide-rail safeties shall be tested by tripping the governor by hand with the car at rest and moving the car in the down direction until it is brought to rest by the safety and the hoisting ropes slip on traction sheaves or become slack on winding drum sheaves (Item 2.29.2.). (Note: Aligns with 4.2.2.1 of B44.2-10)

NOTE: To ensure that the safety will retard the car with the minimum assistance from the elevator driving machine and minimize the development of slack rope and fallback of the counterweight, the switch on the car operated by the car safety mechanism should, for the duration of the test, be temporarily adjusted to open as close as possible to the position at which the car safety mechanism is in the fully applied position.

8.6.4.20.2 Governors

(a) The tripping speed of the governor and the speed at which the governor overspeed switch, where provided, operates shall be tested to determine conformance with the applicable requirements and the adjustable means shall be sealed (Item 2.13.2.1).

(b) The governor rope pull-through and pull-out forces shall be tested to determine conformance with the applicable requirements, and the adjustment means shall be sealed (Item 2.13.2.1).

(c) not adopted ~~After these tests in jurisdictions enforcing NBCC, a metal tag indicating the date of the governor tests, together with the name of the person or firm that performed the tests, shall be attached to the governor in a permanent manner~~.

8.6.4.20.3 Oil Buffers

(a) Car oil buffers shall be tested to determine conformance with the applicable requirements by running the car
(1) onto the buffer with rated load at rated speed, or
(2) subject to approval by the authority having jurisdiction, with
(a) any load, from no load up to rated load onto the buffer at rated speed when the requirements of 8.6.11.10 are complied with, provided that when applied the method verifies that the buffer performs or is capable of performing in compliance with 8.6.4.20.3(a), except as specified in **8.6.4.20.3(b)** and (c) (Item 5.9.2.1). or,

(b) onto the buffer with any load, from no load up to rated load, and at less than rated speed, when the requirements of 8.6.11.10 are complied with, provided that when applied the method verifies that the buffer performs or is capable of performing in compliance with 8.6.4.20.3(a),

(b) For reduced stroke buffers, this test shall be made at the reduced striking speed permitted (Item 5.9.2.1).

(c) This test is not required where a Type C safety is used (see 8.6.4.20.1).

(d) In making these tests, the normal and emergency terminal stopping devices shall be made temporarily inoperative. The final terminal stopping devices shall remain operative and be temporarily relocated, if necessary, to permit compression of the buffer during the test.

(e) After completion of the test, a metal tag, indicating the date of the test, together with the name of the person or firm who performed the test, shall be attached to the buffer [Item 5.3.2(b)].

(f) Counterweight oil buffers shall be tested by running the counterweight onto its buffer at rated speed with no load in the car, except as specified in **8.6.4.20.3(b)** and (c) (Item 5.9.2.1), or at reduced speed if requirements of 8.6.11.10 are met.

(g) A test record ~~tag~~ as required in 8.6.1.7.2 shall be provided.

8.6.4.20.4 Driving Machine Brake(s).

For passenger elevators and all freight elevators, the driving machine brake shall be tested for compliance with applicable requirements, in accordance with **8.6.4.20.4(a)** or subject to approval by the authority having jurisdiction with **8.6.4.20.4(b)**.

For elevators installed under A17.1-2000/B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate.

Upon completion of the test, the means of adjusting the holding capacity shall be sealed to prevent changing the adjustment without breaking the seal. The seal shall bear or otherwise attach the identification of the person or firm that installed it. (See also 8.6.1.7.2 Periodic Test Records ~~Tags~~)

(a) Test with load per Table **8.6.4.20.4**.

Place the load as shown in Table **8.6.4.20.4** in the car. The driving machine brake, on its own, shall hold the car with this load. With no load in the car the driving machine brake shall hold the empty car at rest, and shall decelerate an empty car traveling in the up direction from governor tripping speed. The driving machine brake on freight elevators of class C-2 loading, when loaded to their maximum design load shall hold the elevator car at rest (Item 2.17.2.1).

(b) Alternative Test Method for Driving Machine Brakes.

The alternative test methods shall comply with requirement 8.6.11.10, and the following:

1) Any method of verifying conformity of the driving-machine brake with the applicable Code requirements (see 2.24.8.3 and Table **8.6.4.20.4**) shall be permitted, including the testing method of the brakes with or without any load in the car, provided that when applied the method verifies that the brake performs or is capable of performing in compliance with 8.6.4.20.4(a) and shall include,
2) A test record ~~tag~~ as required in **8.6.1.7.2** shall be provided.

Upon completion of the test, the means of adjusting the holding capacity shall be sealed to prevent changing the adjustment without breaking the seal. The seal shall bear or otherwise attach the identification of the person or firm that installed it. (See also 8.6.1.7.2 Periodic Test Record ~~Tags~~)

Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.1). (Note: Aligns with 4.6.4 of B44.2-10) For elevators installed under A17.1-2000/B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate.

8.6.4.20.5 Reserved

8.6.4.20.5 Emergency and Standby Power Operation.

Not adopted. (see 8.6.4.19.5)

~~Operation of elevators equipped with emergency or standby power shall be examined and tested for conformance with the applicable requirements (Item 2.17.2.1 1.17.2.1).~~

8.6.4.20.6 Emergency Terminal Stopping and Speed-Limiting Devices.

Emergency terminal speed-limiting devices, where provided, shall be tested for conformance with applicable requirements (2.25.4; and Item 5.3.2.1). For static control elevators, emergency terminal stopping devices, when provided, shall be tested for conformance with applicable requirements (2.25.4) (Item 2.28.2.1).

8.6.4.20.7 Power Opening of Doors.

Determine that power opening of car and hoistway doors only occurs as permitted by the applicable requirements ~~when the car is at rest at the landing, or in the landing zone, except, in the case of static control, check that power shall not be applied until the car is within 300 mm (12 in.) of the landing~~ (Item 1.10.2).

Table 8.6.4.20.4 Brake Test Loads

Class of Service	Not Permitted to Carry Passengers	Permitted to Carry Passengers
Passenger	Not applicable	125% rated load
Freight	Rated load	125% rated load
One Piece Load by 2.16.7	Rated load or one piece load, whichever is greater	125% rated load or one piece load, whichever is greater

8.6.4.20.8 Leveling Zone and Leveling Speed.
Check that the leveling zone does not exceed the maximum allowable distance. Check that the leveling speed does not exceed 0.75 m/s (150 ft/min). For static control elevators, the person or firm installing or maintaining the equipment shall provide a written checkout procedure and demonstrate that the leveling speed with the doors open is limited to a maximum of 0.75 m/s (150 ft/min) and that the speed-limiting (or speed monitor) means is independent of the normal means of controlling this speed [Item 1.10.2(b)].

8.6.4.20.9 Inner Landing Zone.
For static control elevators, check that the zone in which the car can move with the doors open is not more than 75 mm (3 in.) above or below the landing (Item 1.10.2.1).

8.6.4.20.10 Braking System, Traction and Traction Limits.
Traction and traction limits on traction elevators shall be verified for compliance with 2.24.2.3 in accordance with **8.6.4.20.10(a)** or subject to approval by the authority having jurisdiction, with **8.6.4.20.10(b)**.

(a) Dynamic Stopping Test.
Traction elevators shall be tested to ensure that:

(1) during an emergency stop initiated by any of the electrical protective device(s) listed in 2.26.2 (except 2.26.2.13), (except buffer switches for oil buffers used with Type C car safeties) at the rated speed in the down direction, with passenger elevators and freight elevators permitted to carry passengers carrying 125% of their rated load, or with freight elevators carrying their rated load, cars shall safely stop and hold the load (see 2.24.2.3.1, 2.24.2.3.2 and 2.24.2.3.3); and

(2) if either the car or the counterweight bottoms on its buffers or becomes otherwise immovable, one of the following shall occur (see 2.24.2.3.4):
(a) the suspension means shall lose traction with respect to the drive sheave and not allow the car or counterweight to be raised; or
(b) the driving system shall stall and not allow the car or counterweight to be raised.

(3) with a load in the car in accordance with Table **8.6.4.20.4**, the braking system and traction relation shall be tested to show the system can safely stop and hold the car, and where required by 2.16.2.2.4(c) shall relevel the car.

(b) Alternative Test Method for Braking System, Traction and Traction Limits.
Alternative test methods shall comply with requirement 8.6.11.10 and the following;

(1) Other methods for verifying traction for compliance with 2.24.2.3, and traction limits in compliance with 2.24.2.3.4 shall be permitted provided the test method complies with the following:
(a) When applied, the method shall verify that the elevator traction system performs, or is capable of performing, in compliance with the performance requirements of **8.6.4.20.10(a)**; and
(b) The braking system and traction relation shall be tested to show the system can safely stop and hold the car, and where required by 2.16.2.2.4(c) shall relevel the car without load in the car.

(2) A test record ~~tag~~ as required in 8.6.1.7.2 shall be provided.

8.6.4.20.11 Emergency Brake. (Note: Aligns with 4.29 of B44.2-10)
For passenger elevators and all freight elevators, the emergency brake shall be tested at rated speed in the up direction with no load in the car for compliance with 2.19.3.2.

8.6.4.21 Drive Sheaves With Nonmetallic Groove Surfaces and Steel Wire Ropes.
Where steel wire ropes have worn through a nonmetallic drive-sheave groove surface and have not damaged the supporting sheave surface beneath the nonmetallic sheave groove surface, the groove surfaces shall be replaced and the steel wire

ropes shall be inspected for conformance to the criteria of ASME A17.6, Section 1.10, and replaced, if necessary. Where the sheave-supporting surfaces have been damaged, the drive sheave shall also be replaced or repaired and the groove surfaces shall be replaced.

8.6.4.22 Maintenance of Seismic Devices

8.6.4.21.1 A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.4.21.2 The counterweight displacement switch components, where provided, shall be:

a) maintained in accordance with the manufacturer's recommendations, and
b) properly aligned and tensioned and kept free of dirt, debris and other contaminants that may interfere with proper operation.

8.6.5 Maintenance and Testing of Hydraulic Elevators

The maintenance and testing of hydraulic elevators shall conform to 8.6.1 through 8.6.3, and the applicable requirements of 8.6.4 and 8.6.5.

8.6.5.1 Pressure Tanks

8.6.5.1.1 Cleaning.

Pressure tanks shall be thoroughly cleaned internally at least every 3 years and prior to the inspection and test required by 8.6.5.15.

8.6.5.1.2 Level.

The liquid level in pressure tanks should be maintained at about two-thirds of the capacity of the tank.

8.6.5.2 Piston Rods.

Piston rods of roped-hydraulic elevators shall be thoroughly cleaned prior to the test required by 8.6.5.15.

8.6.5.3 Water-Hydraulic Plungers.

Plungers of water-hydraulic elevators shall be thoroughly cleaned to remove any buildup of rust and scale prior to the test required by 8.6.5.15.

8.6.5.4 Tank Levels.

The level of oil in the oil tanks shall be checked and, where necessary, adjusted to comply with the prescribed minimum and maximum level.

8.6.5.5 Gland Packings and Seals

8.6.5.5.1 Examination and Maintenance.

Where pressure piping, valves, and cylinders use packing glands or seals, they shall be examined and maintained to prevent excessive loss of fluid. When a cylinder packing or seal or a pressure-piping seal is replaced, the integrity of the entire hydraulic system shall be verified by operating it at relief-valve pressure for not less than 15 sec.

8.6.5.5.2 Collection of Oil Leakage.

Oil leakage collected from each cylinder head seals or packing gland shall not exceed 19 L (5 gal) before removal. The container shall be covered and shall not be permitted to overflow.

8.6.5.6 Flexible Hoses and Fittings.

Flexible hose and fittings assemblies installed between the check valve or control valve and the cylinder, and that are not equipped with an overspeed valve conforming to 3.19.4.7, shall be replaced not more than 6 years beyond the installation date. Existing hose assemblies that do not indicate an installation or replacement date shall be replaced. Replacements shall conform to 3.19.3.3.1(a) through (e) and 3.19.3.3.2.

8.6.5.7 Record of Oil Usage.

(a) Oil monitoring shall conform to 2.9 of the Code Adoption Document.
~~For systems where the part of cylinder and/or piping is not exposed for visible examination, a written record shall be kept of the quantity of hydraulic fluid added to the system and emptied from leakage collection containers and pans. The written record shall be kept in the machine room.~~

(b) When the quantity of hydraulic fluid loss cannot be accounted for, the test specified in 8.6.5.14.1 and 8.6.5.14.2 shall be made.

8.6.5.8 Safety Bulkhead.

Not later than May 1, 2015, hydraulic cylinders installed below ground shall conform to 3.18.3.4, or the elevator shall conform to 8.6.5.8(a) or 8.6.5.8(b):

(a) the elevator shall be provided with car safeties conforming to 3.17.1 and guide rails, guide-rail supports, and fastenings conforming to 3.23.1; or

(b) the elevator shall be provided with a plunger gripper conforming to 3.17.3. The plunger gripper shall grip the plunger when the applicable maximum governor tripping speed in Table 2.18.2.1 is achieved.

8.6.5.9 Relief-Valve Setting.

The relief-valve adjustment shall be examined to ensure that the seal is intact. If the relief-valve seal is not intact, tests shall be conducted in accordance with 8.6.5.14.1.

8.6.5.10 Runby and Clearances After Reroping or Shortening.

The minimum car and counterweight clearances and runby shall be maintained in compliance with the applicable code when replacement suspension ropes are installed or when existing suspension ropes are shortened.

8.6.5.11 Cylinder Corrosion Protection and Monitoring

8.6.5.11.1 Corrosion Protection Monitoring.

Where monitored cylinder corrosion protection is required, the monitoring means shall be examined and maintained.

8.6.5.11.2 Corrosion Protection Loss.

If the monitoring means detects that loss of corrosion protection has occurred, the means of corrosion protection shall be repaired or replaced.

8.6.5.12 Anticreep and Low Oil Protection.

The anticreep function and low oil protection shall be maintained to operate in compliance with the applicable code.

8.6.5.13 Overspeed Valve Setting.

Overspeed valves shall be calibrated and maintained in accordance with the manufacturer's recommendations including replacement of the valve seals or entire valves at intervals specified.

All elevators provided with field adjustable overspeed valves shall have the adjustment means examined to ensure the seal is intact. If the overspeed adjustment seal is not intact, compliance with 8.6.5.16.5 shall be verified and a new seal shall be installed.

8.6.5.14 Periodic Test Requirements — Category 1

NOTE: For test frequency, see 8.11.1.3.

8.6.5.14.1 Relief Valve Verification of Setting and System Pressure Test.

The relief valve setting shall be tested to determine that it will bypass the full output of the pump before the pressure exceeds 150% of the working pressure. Once this is established, test the entire system to ensure that it will withstand this pressure. It shall be sealed if the relief valve setting is altered or if the seal is broken (Item 2.31).

8.6.5.14.2 Hydraulic Cylinders and Pressure Piping.
This test shall be performed after the relief valve setting and system pressure test in 8.6.5.14.1:
(a) Cylinders and pressure piping that are exposed shall be visually examined.
(b) Cylinders and pressure piping that are not exposed shall be tested for leakage, which cannot be accounted for by the visual examination in 8.6.5.14.2(a) (Item 2.36.2). The duration of the test shall be for a minimum of 15 min (Item 2.36.2).

8.6.5.14.3 Additional Tests.
The following tests shall also be performed:
(a) Normal Terminal Stopping Devices (8.6.4.19.5) (Item 2.28)
(b) Governors (8.6.4.19.3) (Item 2.13)
(c) Safeties (8.6.4.19.2) (Item 2.9)
(d) Oil Buffers (8.6.4.19.1) (Items 3.29 and 5.8)
(e) Firefighters' Emergency Operation (8.6.4.19.6) (Items 6.3 and 6.4)
(f) Standby or Emergency Power Operation (8.6.4.19.7) (Item 1.17)

NOTE: Absorption of regenerated power (2.26.10) does not apply to hydraulic elevators.
(g) Power Operations of Door System (8.6.4.19.8) (Items 4.6 and 4.7)
(h) Emergency Terminal Speed-Limiting Device and Emergency Terminal Stopping Device (3.25.2) (Item 3.6.2.2)
(i) Low Oil Protection Operation (3.26.9) (Item 2.39.2)

8.6.5.14.4 Flexible Hose and Fitting Assemblies.
Flexible hose and fitting assemblies shall be tested at the relief valve setting pressure for a minimum of 30 s. Any signs of leakage, slippage of hose fittings, damage to outer hose covering sufficient to expose reinforcement, or bulging, or distortions of the hose body is cause for replacement.

CAUTION: If the motor protection or motor overloads trip during this test, DO NOT change the adjustment or jumper the overloads. Damage to the motor can result from running the motor without adequate overload protection.

8.6.5.14.5 Pressure Switch.
The pressure switch and its related circuits shall be tested for conformance with applicable requirements (3.26.8) (Item 2.37).

8.6.5.14.6 Power Operation of Door System.
The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.2). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.5.14.7 Slack-Rope Device.
The slack-rope device shall be tested on a roped hydraulic elevator by causing a slack-rope condition to occur and verify that it will remove power in compliance with 3.18.1.2.7 (Item 3.31.2).

8.6.5.14.8 Plunger Gripper
A plunger gripper, where provided, shall be examined and tested per 8.10.3.2.5(n), except testing is permitted to be performed without rated load.

8.6.5.15 Periodic Test Requirements — Category 3
NOTE: For test frequency, see 8.11.1.3.
8.6.5.15.1 Unexposed Portions of Pistons.
Piston rods of roped water-hydraulic elevators shall be exposed, thoroughly cleaned, and examined for wear or corrosion. The piston rods shall be replaced if at any place the diameter is less than the root diameter of the threads (Item 5.11).

8.6.5.15.2 Pressure Vessels.
Pressure vessels shall be checked to determine conformance with the applicable requirements, thoroughly cleaned, internally examined, and then subjected to a hydrostatic test at 150% of the working pressure for 1 min (3.24.4) (Item 2.33).

8.6.5.16 Periodic Test Requirements — Category 5
NOTE: For test frequency, see 8.11.1.3.

8.6.5.16.1 Governors, safeties, and oil buffers, where provided, shall be inspected and tested as specified in 8.6.4.20.1, 8.6.4.20.2, and 8.6.4.20.3 at intervals specified by the authority having jurisdiction. Where activation is allowed or required both by overspeed and slack rope, the safety shall have both means of activation tested.

8.6.5.16.2 Coated ropes shall be required to have a magnetic flux test capable of detecting broken wires, in addition to a visual examination.

8.6.5.16.3 Wire rope fastenings shall be examined in accordance with Item 3.23 of A17.2. Fastenings on roped-hydraulic elevators utilizing pistons that are hidden by cylinder head seals shall also be examined, even if it is temporarily necessary to support the car by other means and disassemble the cylinder head.

8.6.5.16.4 Not adopted (see 8.6.5.14.8). ~~A plunger gripper, where provided, shall be examined and tested per 8.10.3.2.5(n).~~

8.6.5.16.5 Overspeed valves, where provided, shall be inspected and tested to verify that they will stop the car, traveling down with rated load, within the specified limits of 3.19.4.7.5(a) using a written procedure supplied by the valve manufacturer or the person or firm maintaining the equipment. If the seal has been altered or broken, the overspeed valve shall be resealed after successful test (Item 5.15.2).

8.6.5.16.6 Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.2).

8.6.5.17 Plunger Gripper. Plunger grippers, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.6 Maintenance and Testing of Elevators With Other Types of Driving Machines
8.6.6.1 Rack-and-Pinion Elevators.
The maintenance of rack-and-pinion elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6. Where the car and/or counterweight safeties are sealed to prevent field adjustment and examination, they shall be returned to the manufacturer for replacement of components and calibration at the interval recommended by the manufacturer. A data plate shall be installed to show the date that the next maintenance/calibration is due.

8.6.6.1.1 Rack-and-Pinion Elevator Periodic Test.
Rack-and-pinion elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20. The test requirements shall apply to the corresponding requirements of 4.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.2 Screw-Column Elevators.
The maintenance of screw-column elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.2.1 Screw-Column Elevator Periodic Test.
Screw-column elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 4.2. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.3 Hand Elevators.
The maintenance of hand elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.3.1 Hand Elevator Periodic Test.
Hand elevators shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.4.20. The test requirements shall apply to the corresponding requirements in 4.3. Any additional requirements for this equipment shall also be checked during these tests. The driving-machine brake required by 4.3.19.2 shall be tested with both empty car and rated load in the car.

8.6.7 Maintenance and Testing of Special Application Elevators
8.6.7.1 Inclined Elevators.
The maintenance of inclined elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.1.1 Periodic Test.
Inclined elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.2 Limited-Use/Limited-Application Elevators.
The maintenance of limited-use/limited-application elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.2.1 Periodic Test.
Limited-use/limited applications elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.2. Any additional requirements for this equipment shall also be checked during these tests.

~~**8.6.7.3 Private Residence Elevators.**~~
~~The maintenance of private residence elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.~~

~~**8.6.7.3.1 Periodic Test.**~~
~~Private residence elevators and lifts should be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.3. Any additional requirements for this equipment should also be checked during these tests.~~

~~**8.6.7.4 Private Residence Inclined Elevators.**~~
~~The maintenance of private residence inclined elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.~~

~~**8.6.7.4.1 Periodic Test.**~~
~~Private residence inclined elevators and lifts should be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.4. Any additional requirements for this equipment should also be checked during these tests.~~

8.6.7.5 Power Sidewalk Elevators.
The maintenance of power sidewalk elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.5.1 Periodic Test.
Sidewalk elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.5. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.6 Rooftop Elevators.
The maintenance of rooftop elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.6.1 Periodic Test.
Rooftop elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.6. Any additional requirements for this equipment shall also be checked during these tests.

~~**8.6.7.7 Special Purpose Personnel Elevators.**~~
~~Except in jurisdictions enforcing NBCC, maintenance of special purpose personnel elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6 (see Section 5.7).~~

~~**8.6.7.7.1 Periodic Test.**~~
~~Special purpose personnel elevators shall be subject to the applicable tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.7. Any additional requirements for this equipment shall also be checked during these tests.~~

~~**8.6.7.8 Shipboard Elevators.**~~
~~The maintenance of shipboard elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.~~

~~**8.6.7.8.1 Periodic Test.**~~
~~Shipboard elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.8. Any additional requirements for this equipment shall also be checked during these tests.~~

~~**8.6.7.9 Mine Elevators.**~~
~~Except in jurisdictions enforcing NBCC, maintenance of mine elevators shall conform to 8.6.7.9.1 through 8.6.7.9.3. **8.6.7.9.1** Rails on mine elevators shall be kept free of rust and scale, that will prevent proper operation of the car (or counterweight) safety device.~~

~~**8.6.7.9.2** Oil buffers that are installed on elevators where water can accumulate in the pit shall be checked every 60 days for accumulation of water.~~

~~**8.6.7.9.3** The mine elevator hoistway shall be maintained to minimize the entry of water and formation of ice, that would interfere with the operation of the elevator.~~

~~**8.6.7.9.4 Suspension, Compensating, and Governor Ropes.**~~
~~When elevator suspension, compensating, or governor ropes show deterioration caused by corrosion, the replacement wire ropes shall be constructed of electrogalvanized or other types of corrosion resistant material suitable for the environment and application. The installation shall conform to 8.7.2.21 for suspension ropes and 8.7.2.19 for governor ropes. Where emergency replacement of wire ropes is required, noncorrosion resistant wire ropes shall be permitted to be installed for temporary use. These emergency replacement noncorrosion resistant wire ropes shall be replaced by corrosion resistant wire ropes within one year of installation.~~

~~**8.6.7.9.5 Periodic Test.**~~
~~Mine elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.9. Any additional requirements for this equipment shall also be checked during these tests.~~

8.6.7.10 Elevators Used for Construction.
The maintenance of elevators used for construction shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.10.1 Periodic Test Requirements — Category 1.
For electric elevators, test as specified in 8.6.4.19.1 through 8.6.4.19.5. For hydraulic elevators, test as specified in 8.6.5.14.1, 8.6.5.14.2, 8.6.5.14.3(a) through (d), and 8.6.5.14.4. Where permanent doors have been installed, test as specified in 8.6.4.19.8.

8.6.7.10.2 Periodic Test Requirements — Category 3.
For hydraulic elevators, test as specified in 8.6.5.15.

8.6.7.10.3 Periodic Test Requirements — Category 5.
For electric elevators, test as specified in 8.6.4.20.1 through 8.6.4.20.4, and 8.6.4.20.6. For hydraulic elevators, test as specified in 8.6.5.16.

8.6.7.11 Wind Turbine Tower Elevator
The maintenance of wind turbine tower elevators shall conform to the applicable requirements of 8.6.7.11.1 thorough 8.6.7.11.3.

8.6.7.11.1 Periodic Test Requirements – Category 1
Wire rope gripping safeties with slack rope actuation, or wire rope gripping safeties with an internal centrifugal governor shall be tested with rated load in the car. Governor operated safeties shall be tested by manually tripping the governor at the rated speed. The overspeed switch on the governor shall be made ineffective during the test.

8.6.7.11.2 Wind Turbine Tower Elevators.
The maintenance of wind turbine tower elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.11.3 Car and Counterweight Safeties.
Types A, B, and C car safeties except those operating on wood guide rails, and their governors, wire rope gripping safeties with slack rope actuation, or wire rope gripping safeties with an internal centrifugal governor, shall be tested with rated load in the car. Counterweight safety tests shall be made with no load in the car. Tests for governor operated safeties shall be made by manually tripping the governor at the rated speed. The overspeed switch on the governor shall be made ineffective during the test. Type A safeties and wire rope gripping safeties without governors that are operated as a result of the breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2.1) and hold the car with rated load. The following operational conditions shall be checked (Item 2.29.2.1):

8.6.7.12 Outside Emergency Elevators.
The maintenance, repair, and replacement of outside emergency elevators shall conform to 8.6.1 through 8.6.3 and A17.7/B44.7 requirement 2.12.2.

8.6.7.12.1 Periodic Test Requirements -- Category 1.
Outside emergency elevators shall be subject to applicable periodic tests specified in 8.6.4.19.1 through 8.6.4.19.5, 8.6.4.19.7, 8.6.4.19.8, 8.6.4.19.10, and A17.7/B44.7 requirement 2.12.3. Outside emergency elevators are not required to be powered by electric driving machine motors.

8.6.7.12.2 Periodic Test Requirements -- Category 5.
Outside emergency elevators shall be subject to applicable periodic tests specified in 8.6.4.20.1 through 8.6.4.20.11 and A17.7/B44.7 requirement 2.12.3. Outside emergency elevators are not required to be powered by electric driving machine motors.

8.6.8 Maintenance and Testing of Escalators and Moving Walks

(a) The maintenance of escalators submitted and registered to A17.1-2004/B44-04 and later (effective January 1, 2006) shall conform to 8.6.1 through 8.6.3 and 8.6.8.

(b) Not later than May 1, 2015 all escalators shall be brought into conformance with the requirements of 8.6.8.2 (Step-to-Skirt Clearance) and 8.6.8.3 (Step/Skirt Performance Index).

(c) Escalators installed to CSA B44-75s3 (1982) or earlier, and for escalators where the skirt panels are not made of low-friction material or have not been permanently treated with a friction-reducing material, a friction-reducing agent shall be applied monthly by authorized personnel until those escalators are brought into conformance with 8.6.8.2 and 8.6.8.3.3 after which the application of friction-reducing agents will no longer be permitted, and the requirements of 8.6.8(a) apply. [241/10]

8.6.8.1 Handrails.
Handrails shall operate at the speed specified in the applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the step speed by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.8.2 Step-to-Skirt Clearance.
Clearances shall be maintained in compliance with the applicable codes. Alternatively, the clearance on either side of the steps and between the steps and the adjacent skirt guard shall not exceed 4 mm (0.16 in.) and the sum of the clearances on both sides shall not exceed 7 mm (0.28 in.).

NOTE: The allowable clearances are applicable as follows:

~~(a) ASME A17.1-1955 through A17.1d-1970; not more than 4.8 mm (0.1875 in.) with a total of both sides not more than 6.4 mm (0.25 in.), except where skirt obstruction devices are installed at the lower entrance for escalators installed under the ASME A17.1-1965 through A17.1d-1970.~~

~~(b) ASME A17.1-1971 through A17.1-1979 editions: not more than 9.5 mm (0.375 in.) on each side.~~

~~(c) ASME A17.1-1980 through A17.1c-1999 and ASME A17.3: not more than 4.8 mm (0.1875 in.) on each side.~~

~~(d) For equipment installed under ASME A17.1d-2000 and later editions, the clearance (loaded gap) not more than 5 mm (0.2 in.) when 110 N (25 lbf) force is laterally applied from the step to the adjacent skirt panel. See 6.1.3.3.5.~~

NOTE (on CSA B44 Requirements): The allowable clearances are applicable as follows:

(a) B44-1960 through B44S3-1982 — not more than 4.8 mm (0.1875 in.) on each side. Sum of both sides not more than 6.4 mm (0.25 in.).

(b) B44-1985 through B44S2-1998 — Not more than 5 mm (0.197 in.) on each side. Sum of both sides not more than 6 mm (0.236 in.).

(c) For equipment installed under CSA B44-00—not more than 4 mm (0.157 in.) on each side. Sum of both sides not more than 7 mm (0.28 in.)

(d) For equipment installed under CSA B44-00 Update 1 and later editions — clearance (loaded gap) shall be not more than 5 mm (0.2 in.) when 110 N (25 lbf) force is laterally applied from the step to the adjacent skirt panel. See 6.1.3.3.5.

8.6.8.3 Step/Skirt Performance Index

8.6.8.3.1 The step/skirt performance index, when the escalator is subjected to the test specified in 8.6.8.15.19, shall be the maximum value of the recorded instantaneous step/skirt index $e^y/(e^y + 1)$, where

(SI Units)

e = 2.7183

y = −3.77 + 2.37 (u) + 0.37 (Lg)

u= the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 110 N normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.

Lg = the clearance between the step and the adjacent skirt panel when 110 N is applied from the step to skirt panel, mm

The applied load shall not deviate from 110 N by more than ±11 N. The load shall be distributed over a round or square area not less than 1 940 mm^2 and not more than 3 870 mm^2.

(Imperial Units)

e = 2.7183

y = −3.77 + 2.37 (u) + 9.3 (Lg)

u = the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 25 lbf normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.

Lg = the clearance between the step and the adjacent skirt panel when 25 lbf is applied from the step to skirt panel, in.

The applied load shall not deviate from 25 lbf by more than ±2.5 lbf. The load shall be distributed over a round or square area not less than 3 in.2 and not more than 6 in.2

8.6.8.3.2 The step/skirt performance index polycarbonate test specimen shall conform to the following specifications:

(a) Material: Polycarbonate without fillers
(b) Color: Natural, no pigments
(c) Finish: Glossy (roughness less than 0.8 µm (32 µin.)
(d) Area in contact with skirt panel: 2 900 ± 325 mm^2 (4.5 ± 0.5 in.2) and at least 0.8 mm (0.03 in.) thick
(e) Specification: GE Lexan 100 series or equivalent polycarbonate

8.6.8.3.3 The escalator step/skirt performance index shall be one of the following, whichever is applicable:

(a) ≤ 0.15
(b) ≤ 0.25 for escalators installed under ASME A17.1a-2002/CSA B44-00 Update 1 and later editions and when a skirt deflector device complying with the requirements of 6.1.3.3.7 is provided
(c) ≤ 0.4 for escalators installed under ASME A17.1-2000/CSA B44-00 and earlier editions and a skirt deflector device is provided

8.6.8.4 Combplates

8.6.8.4.1 Combs with any broken teeth shall be repaired or replaced. Where two adjacent teeth are missing, the escalator shall be removed from operation.

8.6.8.4.2 Combs shall be adjusted and maintained in mesh with the slots in the step surface so that the points of the teeth are always below the upper surface of the treads.

8.6.8.4.3 For units installed under A17.1b-1992 and later editions of the Code, comb-step impact devices shall be adjusted to operate in compliance with the forces specified in 6.1.6.3.13.

8.6.8.5 Escalator Skirt Panels and Skirt Obstruction Devices

(a) Damaged skirt or dynamic skirt panels shall be replaced or repaired and the installation shall conform to 8.6.8.2 and 8.6.8.3.3.

(b) The skirt obstruction devices shall be checked for proper adjustment and operation.

8.6.8.6 Steps

8.6.8.6.1 Steps with broken treads shall be repaired or replaced.

8.6.8.6.2 Steps with dented or damaged risers shall be repaired or replaced.

8.6.8.6.3 Steps that are worn or damaged and that do not provide proper engagement with the combplates shall be repaired or replaced.

8.6.8.6.4 The width or depth of the slots in the tread surface of steps that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.8.7 Rollers, Tracks, and Chains. Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.8.8 Signs. Caution signs shall be provided in compliance with 6.1.6.9. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.1.6.9.

8.6.8.9 Guards at Ceiling Intersections.

Damaged or missing guards shall be repaired or replaced in compliance with 6.1.3.3.11.

8.6.8.10 Antislide Devices.

Damaged or missing antislide devices shall be repaired or replaced.

8.6.8.11 Handrail Guards.

Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.8.12 Brakes.

Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.8.13 Cleaning.

The interiors of escalators and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.8.14 Entrance and Egress Ends.

Escalator landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.8.15 Periodic Test Requirements — Category 1

NOTE: For test frequency, see 8.11.1.3.

8.6.8.15.1 Machine Space.

The machine space access, lighting, receptacles, operation, and conditions shall be examined (Items 8.1 and 10.1). All escalator components shall be cleaned and examined. These components shall include, but not be limited to

(a) oil drip pans

(b) upper and lower stations

(c) steps and rollers
(d) step frames, risers, and treads
(e) tracks
(f) truss components

8.6.8.15.2 Stop Switch.
The machine space stop switches shall be tested (Items 8.2 and 10.2).

8.6.8.15.3 Controller and Wiring.
Controller and wiring shall be examined (Items 8.3 and 10.3).

8.6.8.15.4 Drive Machine and Brake.
The drive machine and brakes shall be examined and tested, including test of the brake torque (Items 8.4 and 10.4).

8.6.8.15.5 Speed Governor.
The mechanical speed governor, if required, shall be tested by manually operating the trip mechanism (Items 8.5 and 10.5).

8.6.8.15.6 Broken Drive-Chain Device.
Operation of the broken drive-chain device, on the drive chain, shall be tested by manually operating the actuating mechanism (Items 8.6 and 10.6).

8.6.8.15.7 Reversal Stop Switch.
The reversal stop switch (to prevent reversal when operating in the ascending direction) shall be tested by manually operating it to determine that it functions properly (Items 8.7 and 10.7). If the device cannot be manually operated, the person or firm maintaining the equipment shall provide a written
checkout procedure and demonstrate the device complies with the requirements of the Code.

8.6.8.15.8 Broken Step-Chain or Treadway Device.
The broken or slack step-chain or treadway device shall be tested by manual operation (Items 8.8 and 10.8).

8.6.8.15.9 Step Upthrust Device.
The operation of the step upthrust device shall be tested by manually displacing the step, causing the device to operate (Items 7.9 and 8.9).

8.6.8.15.10 Missing Step or Pallet Device.
The missing step or pallet device shall be tested by removing a step or pallet and verifying that the device will properly function (Items 8.10 and 10.10).

8.6.8.15.11 Step or Pallet Level Device.
The step, or pallet level device shall be tested by simulating an out of level step or pallet and verifying that the device functions properly (Items 8.11 and 10.11).

8.6.8.15.12 Steps, Pallet, Step or Pallet Chain, and Trusses.
The steps, pallet, step or pallet chain, and trusses shall be visually examined for structural defects, mechanical condition, and buildup of combustible materials (Items 8.12 and 10.12).

8.6.8.15.13 Handrail Safety Systems.
The handrail operating system shall be visually examined for condition. The handrail entry device, and the stopped handrail or handrail speed monitoring device, shall be tested by disconnecting of handrail motion sensor (Items 8.13 and 10.13). The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that the handrail

speed does not change when a retarding force, up to the maximum required by code, is applied opposite to the direction of travel (Items 7.3 and 9.3).

8.6.8.15.14 For outdoor escalators and moving walks that require heaters, test the heaters for condition and operation (Items 8.3 and 10.3).

8.6.8.15.15 Permissible Stretch in Escalator Chains.
Escalators shall have periodic examination of the clearance between successive steps to detect wear or stretch of the step chains. The clearance shall not exceed 6 mm (0.25 in.) (Item 7.9).

8.6.8.15.16 Disconnected Motor Safety Device.
Operation of the device shall be tested and verified (see 6.1.6.3.10 or 6.2.6.3.8) (Item 8.6 or 10.6).

8.6.8.15.17 Response to Smoke Detectors (6.1.6.8 or 6.2.6.7) (Items 8.15 and 10.15)

8.6.8.15.18 Comb-Step or Comb-Pallet Impact Device.
For escalator or moving walks required to comply with Rules 805.1u, 805.3n, 905.1r, or 905.3k in A17.1d-2000 or earlier editions, or requirements 6.1.6.3.13 or 6.2.6.3.11, the comb-step/pallet-impact devices shall be tested in both the vertical and horizontal directions by placing a vertical and horizontal force on the combplate to cause operation of the device. The vertical and horizontal tests shall be independent of each other. The horizontal force shall be applied at the front edge center and both sides; the force shall be applied in the direction of travel into the combplate. The vertical force shall be applied at the front edge center. Both the vertical and horizontal forces required to operate the device shall be recorded (6.1.6.3.13 and 6.2.6.3.11; Items 7.7.2 and 9.7.2). See 8.6.9.2.3 for horizontal forces required.

8.6.8.15.19 Step/Skirt Performance Index

(a) The escalator skirt shall not be cleaned, lubricated, or otherwise modified in preparation for testing. The escalator instantaneous step/skirt index measurements [6.1.3.3.9(a)] shall be recorded at intervals no larger than 150 mm (6 in.) from each side of two distinct steps along the inclined portion of the escalator, where the steps are fully extended. Test steps shall be separated by a minimum of 8 steps.

(b) A load of 110 N (25 lbf) shall be laterally applied from the step to the adjacent skirt panel. The applied load shall not deviate from 110 N (25 lbf) by more than ±11 N (2.5 lbf). The load shall be distributed over a round or square area not less than 1 940 mm^2 (3 in.2) and not more than 3 870 mm^2 (6 in.2).

(c) No vertical load exceeding 220 N (50 lbf) shall be applied to the test step and adjacent steps.

(d) The coefficient of friction shall be measured with the test specimen conforming to the requirements of 8.6.8.3.2 sliding in the direction of the step motion under a 110 N (25 lbf) normal force at the operating speed of the escalator and shall be measured with devices having sensitivity better than ±2.2 N (0.5 lbf). The direction of step motion shall be the direction of normal operation. If the escalator is operated in both directions, the down direction shall be used for the test.

(e) For both the coefficient of friction measurement and the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250 mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).

(f) The step/skirt performance index shall conform to the requirements in 8.6.8.3 or A17.3, Requirement 5.1.11 (Item 7.17).

8.6.8.15.20 Clearance Between Step and Skirt (Loaded Gap).
Escalators installed under ASME A17.1d–2000 shall be tested as follows (Item 7.17):

(a) Loaded gap measurements shall be taken at intervals not exceeding 300 mm (12 in.) in transition region (6.1.3.6.5) and before the steps are fully extended. These measurements shall be made independently on each side of the escalator.

(b) The applied load shall not deviate from 110 N (25 lbf) by more than ±11 N (2.5 lbf) (6.1.3.3.5). The load shall be distributed over a round or square area no less than 1 940 mm^2 (3 in.2) and no more than 3 870 mm2 (6 in.2).

(c) For the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).

8.6.8.15.21 Inspection control devices shall be tested and inspected to determine conformance with the requirements of 6.1.6.2.2 for escalators and 6.2.6.2.2 for moving walks.

8.6.8.15.22 Step Lateral Displacement Device (6.1.6.3.14).
For curved escalators, manually test the device.

8.6.8.15.23 Seismic Risk Zones 2 or Greater.
Verify that operation of the seismic switch complies with requirements of 8.5.4 (Items 7.20.2 and 9.20.2).

8.6.8.15.24 Maintenance of Seismic Devices.
A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.9 Maintenance of Moving Walks
The maintenance of moving walks shall conform to 8.6.1 through 8.6.3 and 8.6.9.

8.6.9.1 Handrails.
Handrails shall operate at the speed specified in applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the treadway by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.9.2 Combplates
8.6.9.2.1 Combs with any broken teeth shall be repaired or replaced.

8.6.9.2.2 Combs shall be adjusted and maintained in mesh with the slots in the treadway surface so that the points of the teeth are always below the upper surface of the treads.

8.6.9.2.3 For units installed under A17.1b–1992 and later editions of the Code, comb-pallet impact devices shall be adjusted to operate in compliance with the forces specified in 6.2.6.3.11.

8.6.9.3 Pallets

8.6.9.3.1 Pallets with broken treads shall be repaired or replaced.

8.6.9.3.2 Intermeshing moving walk pallets that are damaged at the mesh shall be repaired or replaced.

8.6.9.3.3 Pallets that are worn or damaged and that do not provide proper engagement with the combplates shall be repaired or replaced.
8.6.9.3.4 The width or depth of the slots in the tread surface of pallets that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.9.4 Rollers, Tracks, and Chains.
Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.9.5 Belt-Type Treadway.
Belt-type treadways that are damaged or worn in such a manner that the treadway does not provide a continuous unbroken treadway surface or proper engagement with the combplates shall be repaired or replaced.

8.6.9.6 Signs.
Caution signs shall be provided in compliance with 6.2.6.8. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.2.6.8.

8.6.9.7 Guards at Ceiling Intersections.
Damaged or missing guards shall be repaired or replaced in compliance with 6.2.3.3.7.

8.6.9.8 Antislide Devices.
Damaged or missing antislide devices shall be repaired or replaced.

8.6.9.9 Handrail Guards.
Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.9.10 Brakes.
Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.9.11 Cleaning.
The interiors of moving walks, and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.9.12 Entrance and Egress Ends.
Moving walk landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.9.13 Clearances.
The clearance between each side of the treadway and the adjacent skirt panels, when provided, shall be maintained in compliance with 6.2.3.3.6. The clearance between the top surface of the treadway and the underside of the balustrade shall be maintained in compliance with 6.2.3.3.5 for skirtless balustrades.

8.6.10 Maintenance and Testing of Dumbwaiters and Material Lifts
8.6.10.1 Material Lifts and Dumbwaiters Without Automatic Transfer Devices.
The maintenance of material lifts and dumbwaiters without automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.10.1.1 Periodic Test.
Dumbwaiters shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests. On winding drum machines, the slack-rope devices required by 2.26.2.1 shall be permitted to be tested as specified in Item 2.18. The driving-machine brake shall be tested to determine conformance with 7.2.10 (Item 2.18).

8.6.10.2 Material Lifts and Dumbwaiters With Automatic Transfer Devices.
The maintenance of material lifts and dumbwaiters with automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.10.2.1 Periodic Test.
Material lifts and dumbwaiters with automatic transfer devices shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests.

8.6.11 Special Provisions

8.6.11.1 Firefighters' Emergency Operation. *(239/10)*

(a) Elevators that incorporate any form of Firefighters' Emergency Operation are required to have this operating mode tested on an annual basis to verify that the firefighters' feature is operational and ready for use by firefighters or emergency personnel if required during a fire or other emergency.

(b) The minimum required inspection checks shall be those listed on the form **"Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks"**

(c) The owner or the owner's authorized agent may perform the necessary annual testing provided they are trained and instructed in the use of Firefighters' Emergency Operation and the testing requirements.

(d) The owner or the owner's authorized agent shall record the results of the test on the form provided by the designated administrative authority or on a form containing not less than the tests prescribed on this form, and shall leave a copy at the location of the log book.

(e) A record of findings shall be recorded and shall be available to elevator personnel and to the authority having jurisdiction.

(f) Any deficiencies found during the testing shall be recorded and rectified.

(g) Despite, (d) and (e) where the owner's authorized agent is a registered elevating devices contractor employing an appropriately qualified EDM mechanic capable of rectifying deficiencies', a single log book entry shall be permitted to indicate a successful test of Firefighters' Emergency Operation.

Note:
1) It is the responsibility of the elevating devices owner to ensure firefighters' emergency operation testing is performed annually.
2) Section 7.2 of the Ontario Fire Code requires testing at three month intervals in high buildings.

~~All elevators provided with firefighters' emergency operation shall be subjected monthly, by authorized personnel, to Phase I recall by use of the key switch, and a minimum of one floor operation on Phase II, except in jurisdictions enforcing the NBCC. Deficiencies shall be corrected. A record of findings shall be available to elevator personnel and the authority having jurisdiction.~~

8.6.11.2 Two-Way Communications Means. The two-way communications means shall be checked annually by authorized personnel in accordance with the following:

(a) Two-way communications means shall be checked to verify that two-way communications is established; or

(b) All elevators installed under ASME A17.1a-2002/ CSA B44-00 Update 1 and later editions shall have the two-way communications means checked by pressing the "HELP" button in the car to verify that the visual indicator [2.27.1.1.3(c)] is functional and that the answering authorized personnel can receive the building location and elevator number [2.27.1.1.3(d)]; and

(c) Where communications from the building into the elevator is provided, check the two-way communications means to each car.

8.6.11.3 Access Keys.
Keys required for access, operation, inspection, maintenance, repair, and emergency access shall be made available only to personnel in the assigned security level, in accordance with 8.1.

8.6.11.4 Cleaning of a Car and Hoistway Transparent Enclosure
8.6.11.4.1 The cleaning of the exterior of transparent car enclosures or transparent hoistway enclosures from inside the hoistway shall be performed only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.4.2 and 8.6.11.4.3.

8.6.11.4.2 A written cleaning procedure shall be made and kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.4.3 The procedure shall identify the hazards and detail the safety precautions to be utilized.

8.6.11.4.4 All personnel assigned to cleaning shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.4.5 A record of authorized personnel trained as specified in 8.6.11.4.4 shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.5 Emergency Evacuation Procedures for Elevators
8.6.11.5.1 The evacuation of passengers from stalled elevators shall be performed only by authorized, elevator and emergency personnel (see 1.3) in compliance with the procedures specified in 8.6.11.5.2 through 8.6.11.5.6.

8.6.11.5.2 A written emergency evacuation procedure shall be made and kept on the premises where an elevator is located.

8.6.11.5.3 The procedure shall identify the hazards. The procedure shall also detail the safety precautions utilized in evacuating passengers from a stalled elevator.

8.6.11.5.4 All authorized personnel who are assigned to assist in evacuating passengers from a stalled elevator, and all persons who use special purpose personnel elevators, shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.5.5 These procedures shall be available to authorized elevator and emergency personnel.

8.6.11.5.6 A record of authorized personnel trained, and all persons who use special purpose personnel elevators, as specified in 8.6.11.5.4, shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.
NOTE (8.6.11.5): See ASME A17.4, Guide for Emergency Personnel.

8.6.11.6 Escalators and Moving Walks Startup and Procedures
8.6.11.6.1
(a) Escalators and moving walks shall be started only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.6.2 through 8.6.11.6.5.

(b) Out of service or stopped escalators ~~shall~~ should not be used as a means of access or egress by non-authorized personnel and ~~shall~~ should be properly barricaded if accessible to the general public to prevent such use.
NOTE(S):

(1) Proper barricades are described in the Elevator Industry Field Employee Safety Handbook-Escalator/Moving Walk Barricades.
(2) Per provisions in OBC and NFPA 130, escalators in rapid transit facilities may form part of the pedestrian egress route.
(3) Stationary escalators do not have uniform tread rise and may pose unique risks not associated with typical stairways.
(4) The treadway of a stationary escalator relies on the escalators brake to ensure the treadway will not move under loading conditions (eg pedestrian traffic). Escalators should never be used as a stairway if the brakes holding capacity is suspect. See 8.6.11.6.2(c2) for confirmation of adequate breaking capacity. See CAD 3.21 for stopping distance check sign.
(5) See CAD 2.13 for parts affecting safe operation and risk assessment for device use.

8.6.11.6.2 The following procedure shall be utilized when starting an escalator or moving walk:
(a) Prior to starting the unit, observe the steps or pallets and both landing areas to ensure no persons are on the unit or about to board. Run the unit away from the landing.
(b) Verify correct operation of the starting switch.
(c1) Verify correct operation of the stop buttons.
(c2) Observe steps stop within the distance on the daily stopping distance check sign (usually one step length or less).
(d) Verify correct operation of each stop button cover alarm, if furnished.
(e) Visually examine the steps or treadway for damaged or missing components; combplates for broken or missing teeth; skirt or dynamic skirt panels and balustrades for damage.
(f) Verify that both handrails travel at substantially
the same speed as the steps or the treadway, are free from damage or pinch points, and that entry guards are in place.
(g) Visually verify that all steps, pallets, or the treadway is properly positioned.
(h) Verify that ceiling intersection guards, anti-slide devices, deck barricades, and caution signs are securely in place.
(i) Verify that demarcation lighting is illuminated, if furnished.
(j) Check for uniform lighting on steps/tread not contrasting with surrounding areas.
(k) Verify that the safety zone is clear of obstacles and that the landing area and adjacent floor area are free from foreign matter and slipping or tripping hazards.
(l) Check for any unusual noise or vibration during operation.

If any of these conditions is unsatisfactory in 8.6.11.6.2(a) through (l), the unit shall be placed out of service. Barricade the landing areas and notify the responsible party of the problem.

8.6.11.6.3 Escalators and moving walks subject to 24-h operation shall be checked daily by authorized personnel.

8.6.11.6.4 A record of authorized personnel trained as specified in 8.6.11.6.2 shall be kept on the premises where the escalator(s) or moving walk(s) or both is located and shall be available to the authority having jurisdiction.

8.6.11.7 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1.
A written procedure for operating the means shall be posted in a permanent manner in plain view at an appropriate location on or adjacent to the means (see 2.7.5.1.1 or 2.7.5.2.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.8 Egress and Reentry Procedure From Working Areas in 2.7.5.1.3 or 2.7.5.2.3.
A written procedure to outline the method for egress and reentry shall be posted in a permanent manner in plain view at an appropriate location at the egress/reentry point (see 2.7.5.1.3 or 2.7.5.2.3). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.9 Operating Instructions for Retractable Platforms.
A written procedure to outline the method for the use of retractable platforms shall be posted in
a permanent manner in plain view at an appropriate location on or adjacent to the retractable platform (see 2.7.5.3.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.10 Examination After Shutdown Due to Traction Loss.
Where the traction-loss detection means has been actuated [see 2.20.8.1 and 8.6.1.2.1(g)], the elevator shall not be returned to service until a physical examination of the drive sheave and suspension means has been conducted. The elevator shall not be moved until all passengers are out of the elevator and the elevator is posted out-of-service. In addition to the suspension-means evaluation criteria in 8.11.2.1.3(cc), any suspension-means or drive-sheave condition that would adversely affect the traction capability of the system (see 2.24.2.3) shall be corrected before returning the elevator to service.
NOTE: See lockout/tagout procedures in Elevator Industry Field Employees' Safety Handbook for procedure for removing the elevator from service.

8.6.11.11 Examination After Safety Application.
After any safety application on a traction elevator has occurred, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary.

8.6.11.12 Examination After Shutdown Due to Broken-Suspension-Member Detection Means.
After any application of the broken-suspension-member detection means, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary. Where a single suspension member has been damaged or broken, the entire suspension means shall be replaced in accordance with 8.6.3.2.

8.6.11.13 Category 5 tests without Load via Alternative Test Methodologies
8.6.11.13.1 Where Permitted
Alternative test methods without load are permitted for category 5 testing subject to approval by the Authority Having Jurisdiction of;
(a) car and counterweight safeties per **8.6.4.20.1,**
(b) oil buffers per **8.6.4.20.3,**
(c) driving machine brakes per **8.6.4.20.4**, and
(d) braking system, traction and traction limits per **8.6.4.20.10**
Note: See 8.10 note 2.

8.6.11.13.2 Alternative Test Method and Tools
(a) An alternative test method shall be:
i) based on sound engineering principles,
ii) validated and documented via engineering tests,

(b) The method, measuring devices and tools shall be capable of producing reliable and consistent measurements, suitable for the intended measurement. The monitoring and calibration of the measuring devices or tools shall be in accordance with the providers guidelines.

8.6.11.13.3 Alternative Test Method Procedure
The alternative test method shall;
(a) include requirements to obtain and verify car and counterweight masses if necessary for the test,
(b) have a procedure document that;
i) defines the permissible equipment range and limitations regarding use,
ii) establishes monitoring and calibration criteria for tools or measuring devices as appropriate,
iii) defines the test set-up procedure,

iv) provides instructions on how to interpret results and correlate the results to pass fail criteria,
(c) describe how to correlate no load test results with previously acquired full load and no load results,
(d) be included in the maintenance control program (see 8.6.1.2.1(a)),
(e) include the information required by 8.6.1.2.1(f) where applicable, and
(f) require a report conforming to 8.6.11.13.4

8.6.11.13.4 Alternative Test Method Report
The alternative test method report shall;
(a) identify the alternative test tool (make / model) used to perform the test,
(b) identify of the company performing the tests, names of personnel conducting and witnessing the tests, and testing dates,
(c) contain all required print outs or record of tests required to demonstrate compliance to the testing requirement that were gathered during an acceptance test,
(d) identify which results from the baseline test are to be used for future compliance evaluation,
(e) record the car and counterweight masses that were obtained per 8.6.11.13.3(a) during the acceptance test and during any subsequent category 5 test if required by test method,
(f) contain all subsequent category 5 results with pass-fail conclusions regarding code compliance, and
(g) remain on site or shall be available to elevator personnel and the authority having jurisdiction.

8.6.11.14 Occupant Evacuation Operation.
All elevators provided with Occupant Evacuation Operation shall be subjected, by authorized personnel, to a check of the operation in conjunction with the fire alarm system testing in accordance with the requirements of NFPA 72. Deficiencies shall be corrected. A record of findings shall be available to elevator personnel and the authority having jurisdiction.

3.4 Alterations

3.4.1 Notwithstanding section **2.6**, alterations of an elevator, dumbwaiter, escalator, moving walk, and material lifts shall conform to the requirements of the code adopted in subsection **3.1** and as specified by the director.

3.4.2 Alterations to freight platform lifts type - B shall conform to the requirements for Material Lifts Type - B as required by the code adopted in subsection **3.1** and as specified by the director.

3.4.3 Alterations to freight platform lifts type - A shall conform to the requirements for Material Lifts Type- B as required by the code adopted in subsection **3.1** and as specified by the director, except that 'in-car' controls are prohibited and no persons shall be permitted to ride.

3.4.4 Alteration submission documents shall adhere to the Director's Guideline on alterations and shall be accompanied by a completed alterations checklist.

3.4.5 Section **8.7 Alterations** is revoked and the following substituted;

SECTION 8.7
ALTERATIONS
Requirement 8.7 applies to alterations.
NOTES:
(1) See Nonmandatory Appendix L for an index of the requirements for alterations.
(2) See 8.6 for maintenance, repair, and replacement requirements.

8.7.1 General Requirements
8.7.1.1 Applicability of Alteration Requirements.
When any alteration is performed, regardless of any other requirements of 8.7, the installation, as a minimum, shall conform to the following applicable Code requirements:

(a) the Code at the time of installation
(b) the Code requirements for the alteration at the time of any alteration
(c) ASME A17.3 if adopted by the authority having jurisdiction

8.7.1.2 Items Not Covered in 8.7.
Where an alteration not specifically covered in 8.7 is made, it shall not diminish the level of safety below that which existed prior to the alteration. See also 1.2.

8.7.1.3 Testing.
Where alterations are made, acceptance inspections and tests shall be conducted as required by 8.10.2.3 for electric elevators, 8.10.3.3 for hydraulic elevators, or 8.10.4.2 for escalators and moving walks.

8.7.1.4 Welding.
Welding of parts on which the support of the car, counterweight, escalator, or moving walk depends, including driving machines, escalator, or moving walks, trusses, girders, and tracks, shall conform to 8.8 and 8.7.1.5.

8.7.1.5 Design.
Design shall be verified by a licensed professional engineer for welding, repair, cutting, or splicing of members upon which the support of the car, counterweight, escalator, or moving walks, trusses, girders, and tracks depends.

8.7.1.6 Temporary Wiring.
During alterations, temporary wiring shall be permitted. The electrical protective devices of cars in normal operation shall not be rendered inoperative or ineffective.

8.7.1.7 Repairs and Replacements.
Repairs and replacements shall conform to 8.6.2 and 8.6.3.
~~In jurisdictions enforcing NBCC, repairs and replacements carried out as a part of an alteration shall conform to the requirements of 8.6.12.4, except that replacements in 8.6.12.5 shall be deemed to be alterations.~~

8.7.1.8 Code Data Plate.
In jurisdictions enforcing NBCC, the data plate required by 8.9.1 shall include the code and edition in effect at the time of alteration and the requirements in 8.7 that were applicable to the alteration.

8.7.2 Alterations to Electric Elevators
8.7.2.1 Hoistway Enclosures
8.7.2.1.1 Hoistway Enclosure Walls.
Where alterations are made to any portion of a hoistway enclosure wall, that portion which is altered shall conform to the following:
(a) Requirement 2.1.1.
(b) Requirement 2.1.5.
(c) Requirement 2.1.6.
(d) Requirement 2.5.
(e) Requirement 2.7.3.4.6. and 2.7.3.4.7,
(f) Requirement 2.8.
(g) Requirement 8.7.2.10, where the portion of the wall that is altered includes an entrance assembly.
(h) Where a hoistway is altered so as to create a single blind hoistway, entrances and emergency doors shall be provided as required by 2.11.1.

8.7.2.1.2 Addition of Elevator to Existing Hoistway.

Where an elevator is added to an existing hoistway, the number of elevators in that multiple hoistway shall be in accordance with the requirements of the building code. The horizontal clearances for the added elevator and the clearances between the added car and adjacent cars shall conform to 2.5.

8.7.2.1.3 Construction at Top of Hoistway.
Any alteration to the construction at the top of the hoistway shall conform to 2.1.2.1 and 2.1.3. See also 8.7.2.4.

8.7.2.1.4 Construction at Bottom of Hoistway.
Any alteration to the construction at the bottom of the hoistway shall conform to 2.1.2.2, 2.1.2.3, and 2.2. See also 8.7.2.4.

8.7.2.1.5 Control of Smoke and Hot Gases.
Alterations to a hoistway that affect the means used to prevent the accumulation of smoke and hot gases in case of fire shall conform to 2.1.4.

8.7.2.2 Pits.
Alterations made to the pit shall conform to 2.2 and 2.1.2.3. See also 8.7.2.4.

8.7.2.3 Location and Guarding of Counterweights.
Where new counterweights are installed or where counterweights are relocated, their location, guarding, and clearances shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 2.6.

8.7.2.4 Vertical Car and Counterweight Clearances and Runbys.
No alteration shall reduce any clearance or runby below that required by 2.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.1, 8.7.2.17.2, and 8.7.2.25.2.

8.7.2.5 Horizontal Car and Counterweight Clearances.
No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.2.

8.7.2.6 Protection of Spaces Below Hoistways.
Where alterations are made to an elevator or the building such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 2.6.

8.7.2.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms
8.7.2.7.1 Enclosures.
Where an alteration consists of the construction of new machinery spaces, machine rooms, control spaces, or control rooms, it shall conform to 2.7. Electrical equipment clearances shall conform to NFPA 70 or CSA-C22.1, whichever is applicable. Where alterations are made to any portion of machinery spaces, machine rooms, control spaces, or control rooms, that portion which is altered shall conform to 2.7.

8.7.2.7.2 Means of Access.
Any alteration that affects the safe and convenient means of access to a machine room or machinery space shall conform to 2.7.3.1, 2.7.3.2, and 2.7.3.3 to the extent existing conditions permit.

8.7.2.7.3 Access Doors and Openings.
Where an alteration is made to any access door or opening, it shall conform to 2.7.3.4. Where an alteration is made to an access door in an overhead machinery space, a stop switch shall be provided conforming to 2.7.3.5.

8.7.2.7.4 Headroom.
No alteration shall reduce the headroom below that required by 2.7.4, or the existing headroom, whichever is less.

8.7.2.7.5 Windows and Skylights.
Alterations made to windows and skylights shall conform to 2.1.5.

8.7.2.7.6 Lighting.
No alteration shall be made that diminishes the lighting of a machine room or machinery space below that required by 2.7.9.1.

8.7.2.7.7 Ventilation.
No alteration shall be made that diminishes the ventilation of a machine room or machinery space below that required by 2.7.9.2.

8.7.2.7★1 Elevator Equipment Guarding
The installation of elevator equipment guarding shall conform to the following;

(a) 2.7.2 maintenance path and clearance
(b) 2.7.3.4.2 access doors or openings in cage style guarding where full bodily entry is expected shall provide a minimum width of 750 mm (29.5 in.) and a minimum clear height of 2030 mm (80 in.)
(c) 2.10.1 as a minimum
(d) guarding shall be openable or removable only by use of common tools
(e) operating procedures or work instructions shall be provided and available in the location of the guarding, to inform users on how to safely access the equipment for inspection, testing or maintenance
(f) working clearances in front of electrical control equipment shall not be less than 1000 mm (39 in.) as per CAD requirements 2.2.1 (per Ontario Electrical Safety Code38-005 2(c)) or the permissible clearance required at the time of the original installation.
(g) access for the operation of the disconnecting means shall be
(1) 1000 mm for installations installed under the Ontario Electrical Safety Code 2000 edition or later, or
(2) 750mm (29.5 in.) for installations installed under Ontario Electrical Safety Code 1998 edition or prior, or
(3) if less than 750 mm, the existing clearances shall not be further reduced
(h) installation by a registered contractor (O.Reg 209/01 s.15)
(i) large or heavy sections of guards that may need to be removed or opened for maintenance access shall be designed to be removed or easily handled by one person.

8.7.2.8 Electrical Equipment, Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.
The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.2.9 Machinery and Sheave Beams, Supports, and Foundations.
Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, relocated, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building
structure to support the loads shall be verified by a licensed professional engineer.

8.7.2.10 Entrances and Hoistway Openings
8.7.2.10.1 General Requirements

(a) Where all new hoistway entrances are installed, they shall conform to 2.11, 2.12, 2.13, and 2.29.2.
(b) Where one or more, but not all, new hoistway entrances are installed, they shall conform to 2.11.2 through 2.11.8 and 8.7.2.10.5. The entire installation shall also conform to 2.11.6, 2.12, 2.13, and 2.29.2.
(c) Where an alteration is made to any hoistway entrance, it shall conform to 2.11.3, 2.11.5, 2.11.7, 2.11.8, and 8.7.2.10.5. The entire installation shall also conform to 2.12, 2.13, and 2.29.2.
(d) Where an emergency door is added or altered, it shall conform to 2.11.1 and 8.7.2.10.5.
(e) Where access openings for cleaning are installed, they shall conform to 2.11.1.4 and 8.7.2.10.5.

8.7.2.10.2 Horizontal Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new horizontal slide-type entrance is installed, it shall conform to 2.11.11.

New components that are installed as part of an alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.1, 2.11.11.1, and 2.11.11.6.
(b) Hanger tracks and track supports shall conform to 2.11.11.2.
(c) Entrance frames shall conform to 2.11.11.3. An applied frame shall be permitted to be fastened to an existing frame, provided that the combination of the new and existing frames conforms to 2.11.11.3, 2.11.11.5.1, 2.11.11.5.2, and 2.11.11.5.3.
(d) Hangers shall conform to 2.11.11.4.
(e) Panels shall comply with 2.11.11.5, 2.11.11.6, and 2.11.11.7, except that the overlap required by 2.11.11.5.1 shall be not less than 13 mm (0.5 in.).
(f) Door safety retainers shall conform to 2.11.11.8.

8.7.2.10.3 Vertical Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new vertical slide-type entrance is installed, it shall conform to 2.11.12.

New components that are installed as part of an alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.3 and 2.11.12.1.
(b) Entrance frames shall conform to 2.11.12.2.
(c) Rails shall conform to 2.11.12.3.
(d) Panels shall conform to 2.11.12.3 through 2.11.12.6, and 2.11.12.8.
(e) Guides shall conform to 2.11.12.5.
(f) Sill guards shall conform to 2.11.12.7.
(g) Pull straps shall conform to 2.11.12.8.

8.7.2.10.4 Swing-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new swing type entrance is installed, it shall conform to 2.11.13.

New components that are installed as part of alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.1, 2.11.10.3, and 2.11.13.1.
(b) Entrance frames shall conform to 2.11.13.2 and 2.11.13.4.
(c) Panels shall conform to 2.11.13.3, 2.11.13.4, and 2.11.13.5.
(d) Hinges shall conform to 2.11.13.4.

8.7.2.10.5 Marking of Entrance Assemblies

(a) In jurisdictions enforcing the NBCC the following shall apply:
    (1) When an entrance or door panel is altered, it shall have the fire protection rating not less than that of the existing entrance assembly
    (2) it shall be labeled in accordance with NBCC

8.7.2.10★1 Removing Service to a Floor

Where service to a floors area is being discontinued, the following requirements shall apply:

(a) entrances shall be bolted shut
(b) the related interlock shall be removed from the safety string
(c) the rated floor buttons shall be removed from the car operating station
(d) 2.11.6.2
(e) 2.12.7 if the locked out floor contained the hoistway access switch

8.7.2.10★2 Addition of Hoistway Door Safety Retainers

The addition of hoistway door safety retainers shall comply with the requirements of 2.11.11.8.

8.7.2.11 Hoistway Door Locking Devices, Access Switches, and Parking Devices

8.7.2.11.1 Interlocks.

(a) Where the alteration consists of the installation of hoistway door interlocks, the installation shall conform to 2.12.1, 2.12.2, and 2.12.4 through 2.12.7~~, and 2.24.8.3~~.

(b) Despite the requirements in (a), conformance to 2.12.5, 2.12.6 and 2.12.7 is optional provided conformance to 2.12.5, 2.12.6 and 2.12.7 is not required by another alteration scope.

8.7.2.11.2 Mechanical Locks and Electric Contacts.

Where the alteration consists of the installation of hoistway-door combination mechanical locks and electric contacts, the installation shall conform to 2.12.1, 2.12.3, 2.12.4, and 2.12.6~~, and 2.24.8~~.

8.7.2.11.3 Parking Devices.

Where an alternation is performed to an elevator operated from within the car only, an elevator parking device shall be provided conforming to the following requirements:

(a) At every elevator landing that is equipped with an unlocking device, if
  (1) the doors are not automatically unlocked when the car is within the unlocking zone
  (2) the doors are not operable from the landing by a door open button or floor button

(b) Parking devices shall be permitted to be provided at other landings.

(c) Parking devices shall be located at a height not greater than 2 108 mm (83 in.) above the floor.

(d) Parking devices shall conform to the following requirements:
  (1) they shall be mechanically or electrically operated
  (2) they shall be designed and installed so that friction or sticking or the breaking of any spring used in the device will not permit opening or unlocking a door when the car is outside the landing zone of that floor
  (3) springs, where used, shall be of the restrained compression type, which will prevent separation of the parts in case the spring breaks

8.7.2.11.4 Access Switches and Unlocking Devices.

Where the alteration consists of the installation of hoistway access switches and/or hoistway-door unlocking devices, the installation shall conform to

(a) requirements 2.12.6 ~~and 2.24.8.3~~ for unlocking devices

(b) requirements 2.12.7~~, 2.24.8,~~ and 2.26.1.4 for access switches.

8.7.2.11.5 Restricted Opening of Hoistway Doors or Car Doors of Passenger Elevators.

Where a device that restricts the opening of hoistway doors or car doors is altered or installed, the device shall conform to 2.12.5.

8.7.2.12 Power Operation of Hoistway Doors.

Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, and 8.7.2.10.5.

8.7.2.12★1 Replacement of Door Operator

Where a door operator is replaced the replacement shall conform to the applicable requirements of 2.13 and 8.7.2.15★1, or 8.7.2.15★2.

8.7.2.13 Door Reopening Device.

Where a reopening device for power-operated car doors or gates is altered or added or replaced, the following requirements shall apply:

(a) requirement 2.13.4

(b) requirement 2.13.5

(c) when firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation

(d) requirements 8.7.2.15★1 or 8.7.2.15★2.

8.7.2.14 Car Enclosures, Car Doors and Gates, and Car Illumination

8.7.2.14.1 Where an alteration consists of the installation of a new car, the installation shall conform to 2.14, 2.15, and 2.17 (see also 8.7.2.15.1).

8.7.2.14★1 Installation / Replacement of Car Operating Panel (COP)

The disconnect and reconnect of COP wiring shall be confirmed to verify functionality of COP features and operating devices. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.14★2 Installation of Video/Security Cameras and Monitors

Wiring methods shall conform to 2.8.2.1. Equipment shall be securely fastened and shall not create headroom issues per 2.14.1.2.3 and 2.14.2.4. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.14★3 Installation of Other Equipment

The installation of other equipment is not permitted per 2.14.1.9 unless otherwise permitted under by a variance request.

8.7.2.14.2 The following requirements shall be conformed to where alterations are made to existing cars:

(a) Car enclosures shall conform to 2.14.1.2.
(b) Where an alteration is made to a top emergency exit, or where a new one is installed, it shall conform to 2.14.1.5.
(c) Where an alteration consists of the installation of glass in an elevator car, it shall conform to 2.14.1.8.
(d) Any equipment added to an elevator car shall conform to 2.14.1.9. and 8.7.2.15★1 or 8.7.2.15★2 as applicable.
(e) All side emergency exits shall be permanently fixed in the closed position. The corresponding side emergency exit on an adjacent car shall also be fixed in the closed position.
(f) Any alteration to passenger car ventilation shall conform to 2.14.2.3.
(g) Any alteration to car illumination or lighting fixtures shall conform to 2.14.7.
(h) Where partitions are installed in elevator *cars for the purpose of reducing the inside net platform areas for passenger use, they shall conform to 2.16.1.2. Where* conditions do not permit symmetrical loading, guide rails, car frames, and platforms shall be capable of sustaining the resulting stresses and deflections.
(i) Where an alteration consists of the installation of a car door or gate on an existing elevator car, the installation shall conform to 2.14.4, 2.14.5, and 2.14.6.

8.7.2.14.3 N/A - In jurisdictions not enforcing the NBCC

8.7.2.14.4 In jurisdictions enforcing the NBCC, where any alteration is made to the car enclosure, car doors, or car gates, other than as specified in 8.7.2.14.2, the installation shall conform to 2.14, except that existing car enclosure materials exposed to the hoistway are not required to conform to the flame spread ratings. The existing flame spread rating shall not be diminished.

8.7.2.14★4 Installation of Car Top Guardrail *(245/10)*

(a) A standard car top guardrails shall:
  (1) have a top rail not less than 1070 mm (42 in.) above the working surface, or as amended by 2.10.2.1;
  (2) have a mid rail (or equivalent structural member);
  (3) have a toe-board to a height of 125 mm (5 in.) above the working surface;
  (4) be fixed in position and designed to resist the loads[1,2] specified in O. Reg. 350/06 (Building Code) Article 4.1.5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section14(2). See table in 5.2 for reference; and
  (5) not deflect beyond the perimeter of the car top [A17.1/B44 2.14.1.7.1], and in no case shall the deflection exceed 75 mm (3 in.) when the forces of A17.1/B44 2.10.2.4 are applied.

[1] For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(5) of O. Reg. 350/06 (Building Code).
[2] For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

(b) Where a car top railing is installed, the installation shall conform to 2.14.1.7. Where conformance with 8.7.2.14★4(a)(1) is not possible due to existing overhead conditions, a foldable, collapsible or other stow able design shall be acceptable provided that:
(1) the car will not operate in "top-of-car inspection operation" unless the railing is in the fully extended position,
(2) the car will not operate in "normal operation", "hoistway access operation", or any type of "inspection operation" other than "top-of-car inspection operation", unless the railing is in the fully retracted position,
(3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly and positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),
(4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,
(5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly and positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),
(6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4,
(7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,
(8) when in the fully extended position the handrail shall meet the height requirements of 2.14.1.7.
(9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per Section 85 of Reg. 851, Regulations for Industrial Establishments) while engaging or lowering the alternative height guardrail where provided.

(c) Where a car top railing is installed the requirements of 8.7.2.15★1 or 8.7.2.15★2 apply.

8.7.2.15 Car Frames and Platforms
8.7.2.15.1 Alterations to Car Frames and Platforms.
Where alterations are made to a car frame or platform, the frame and platform shall conform to 2.15. Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.15★1 *(171/02)*
Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increase to the deadweight of the car by 115kg (255 Lbs.) including all weight changes since the car was originally installed the following requirements shall apply, except (a) does not apply if the cumulative increase is 11kg (25 Lbs.) or less;
(a) cars and counterweights shall be weighed prior to the alteration to establish starting weights
(b) materials added or removed during the alteration shall be weighed in or out, or the car shall be weighed after the alteration to establish final weight changes
(c) add on weight (or decreased weight) shall be recorded on an auxiliary data tag and posted on the crosshead or for cars without crossheads in a conspicuous location on the car top or adjacent to the original data
(d) an auxiliary data tag shall as a minimum contain;

(1) the date of the alteration,
(2) the weight added or removed from the car
(3) the weight added or removed from the counterweight
(4) the name of the alteration contractor
(5) the measured car weight prior to the alteration

(e) where glass, mirror, or overhead finishes are added to the car interior, a no load governor tripping speed safety tests or a no load rated speed buffer test shall be performed to ensure the security of finishes prior to the devices return to service (Minor A and Minor B alterations ONLY). For hydraulic elevators and emergency stop from rated speed in the up direction shall be performed.

8.7.2.15★2 *(171/02)*
Where an alteration results in an increase in the deadweight of the car by more than 115 kg (255 Lbs.) but less then 5% of car and capacity as originally installed including all weight changes since the car was originally installed the following requirements shall apply;

(a) requirements 8.7.2.15★1(a) through 8.7.2.15★1(e)
(b) an engineering assessment shall confirm compliance of any components affected by the weight change, including but not limited to;
(1) machines
(2) car and counterweight frames
(3) buffers
(4) traction and overbalance
(5) ropes
(6) plungers & working pressures
(7) safeties

8.7.2.15.2 Increase or Decrease in Deadweight of Car.
Where an alteration results in an increase or decrease in the deadweight of the car that is sufficient to increase or decrease the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to the following requirements:
(a) requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone plus 75 mm (3 in.)
(b) requirement 2.16
(c) requirement 2.17
(d) requirement 2.18
(e) requirement 2.20
(f) requirement 2.21, except as covered by 8.7.2.22.2
(g) requirement 2.22, except for 2.22.4.7, provided that conformance with
(1) requirement 2.22.4.10 is established otherwise
(2) requirement 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22
(h) requirement 2.23
(i) requirement 2.24, except 2.24.1
(j) requirement 8.7.2.9
(k) requirement 8.7.2.15★1(a) through 8.7.2.15★1(e)

8.7.2.16 Capacity, Loading, and Classification 8.7.2.16.1 Change in Type of Service.
Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to:
(a) requirements 2.11.1 through 2.11.3, and 2.11.5 through 2.11.8
(b) requirements 2.12 and 2.13
(c) requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11

(d) requirements 2.14 and as amended by 8.7.2.14★4 and 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.)
(e) requirement 2.17, except that where gradual wedge-clamp and drum-operated flexible guide-clamp safeties are reused, the stopping distances shall conform to the requirements of the Code at the time of installation [see ASME A17.2, Table 2.29.2(c)]
(f) requirement 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7
(g) requirements 2.16, 2.20, 2.24 through 2.27, except 2.24.1
(h) requirement 2.19

8.7.2.16.2 Change in Class of Loading. Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 (see also 8.7.2.16.4).

8.7.2.16.3 Carrying of Passengers on Freight Elevators.
Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to:

(a) 2.16.4
(b) CAD 3.12 or extent pit permits
(c) signage requirements in 2.16.5.

8.7.2.16.4 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to the following:

(a) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.4, 2.14.5, and 2.14.6.
(b) Requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.).
(c) Requirement 2.16.
(d) Requirement 2.17.
(e) Requirement 2.18, except that the pitch diameters of existing governor sheaves are not required to conform to 2.18.7.
(f) Requirement 2.19.
(g) Requirement 2.20.
(h) Requirement 2.21, except as covered by 8.7.2.22.2.
(i) Requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
(j) Requirement 2.23.
(k) Requirement 2.24.
(l) Requirements 2.26.1.4 and 2.26.1.5.
(m) Requirement 2.26.5.
(n) Requirement 8.7.2.9.

8.7.2.17 Change in Rise or Rated Speed
8.7.2.17.1 Increase or Decrease in Rise.
Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, the following requirements shall be conformed to:

(a) The terminal stopping devices shall be relocated to conform to 2.25.
(b) Where the increase in rise is less than 4 570 mm (180 in.), an existing winding-drum machine shall be permitted to be retained, provided the drum is of sufficient dimensions to serve the increased rise with not less than one full turn of wire rope remaining on the winding drum when the car or counterweight has reached its extreme limits of travel.
(c) The bottom and top clearances and runbys for cars and counterweights shall conform to 2.4, except as follows:

(1) Where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
(2) Where the increase in rise is at the lower end of the hoistway, the existing overhead car and counterweight clearances are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
(3) Where the decrease in rise is at the lowest end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.2.17.2 Increase in Rated Speed

(a) Increase in the rated speed of a winding-drum machine is prohibited, except as permitted in 8.7.2.17.2(c).
(b) Where the alteration involves an increase in the rated speed, except as specified in 8.7.2.17.2(c), the following requirements shall be conformed to:
(1) The bottom runbys and the top clearances for cars and counterweights shall conform to 2.4.2 through 2.4.11.
(2) Horizontal clearances shall conform to 2.5.
(3) The car and counterweight buffers shall conform to 2.22, except that existing buffers, where retained, are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
(4) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.
(5) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7. Where the new rated speed is greater than 3.5 m/s (700 ft/min), compensating rope tie-down shall be provided in compliance with 2.21.4.2.
(6) The capacity and loading shall conform to 2.16.
(7) The driving machine and sheaves shall conform to 2.24.
(8) The terminal stopping devices shall conform to 2.25.
(9) The operating devices and control equipment shall conform to 2.26, except that 2.26.4.1 through 2.26.4.3 shall apply only to the electrical wiring and equipment altered. Requirement 2.26.4.4 does not apply.
(10) Suspension ropes and rope connection shall conform to 2.20.
(11) Car overspeed protection and unintended car movement protection shall conform to 2.19.
(c) Where the increase in rated speed does not exceed 10% and does not exceed 0.20 m/s (40 ft/min), and is a result of a power supply change, and the new motor speed cannot match the existing motor speed, the installation is not required to conform to 8.7.2.17.2(b), except that the new rated speed shall not
(1) exceed 0.75 m/s (150 ft/min) for Type A safeties
(2) exceed 1 m/s (200 ft/min) when spring buffers are provided Governors shall be adjusted to conform to 2.18.2.1 and 2.18.2.2 (see also 8.7.2.27.3).

8.7.2.17.3 Decrease in Rated Speed.

Conformance with the following requirements shall be required when the alteration involves a decrease in the rated speed.

(a) Where the bottom runbys and the top clearances for cars and counterweights are less than as required by 2.4, they shall not be decreased by the speed reduction.
(b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
(c) The capacity and loading shall conform to 2.16.
(d) Capacity and data plates shall conform to 2.16.3, except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.
(e) New electrical equipment and wiring shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3.

8.7.2.18 Car and Counterweight Safeties

8.7.2.18.1 Where the alteration consists of the installation of new car safeties, the car safeties, car speed governor, and car guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.2 Where the alteration consists of the installation of new counterweight safeties, the counterweight safeties, counterweight speed governor, and counterweight guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties, governors, and guide rails shall conform to 2.17.1 through 2.17.9, 2.17.15, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.4 Where existing rail reactions are not increased by the installation of new safeties, the existing hoistway construction for bracket support need not be modified.

8.7.2.19 Speed Governors and Governor Ropes.
Where any alteration is made to a speed governor, or where a new governor is installed, it shall conform to 2.18. Where there is a releasing carrier, it shall conform to 2.17.15. Governor ropes of a different material, or construction than originally specified by the governor manufacturer shall be permitted, provided that

(a) there is conformance with 2.18.6 and 2.18.7, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7
(b) a test is made of the car or counterweight safety and speed governor with the new rope to demonstrate that the safety will function as required by 2.17.3

8.7.2.20 Ascending Car Overspeed and Unintended Car Movement Protection.
The requirements of 2.19 shall be conformed to where a device for protection against ascending car overspeed and unintended car movement is altered or installed.

8.7.2.20★1
If elevator controllers are pre-B44-00 and the installation is already equipped with Ascending Car Overspeed (ACO) and Unintended Car Movement (UCM) protection, the installation shall conform to 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.20★2
If elevator controllers are pre-B44-00 and the installation is equipped with only ACO protection, the installation shall conform to 2.19.1, 2.19.3, and 2.19.4, except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO detection was provided.

8.7.2.20★3
Where the alteration includes the voluntary addition of ACO and UCM protection, the installation shall conform to; 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration and 2.7 as applicable to the installation of the equipment. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.21 Suspension Means and Their Connections
8.7.2.21.1 Change in Suspension Members.
Where the material, grade, number, or size of suspension members is changed, the new suspension members and their fastenings shall conform to 2.20. When existing sheaves are retained using suspension members different from those originally specified, the original elevator manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.2.21.2 Addition of Suspension-Member Equalizers.
Where suspension-member equalizers are installed, they shall conform to 2.20.5.

8.7.2.21.3 Addition of Auxiliary Suspension-Member-Fastening Devices.
Where auxiliary suspension-member-fastening devices are installed, they shall conform to 2.20.

8.7.2.21.4 Exception for Suspension-Means Monitoring and Protection.

(a) Where there is a change to the type of suspension means the installation shall conform to 2.20.8 and 2.20.11.
(b) If a traction-loss detection means is provided, it shall comply with 2.20.8.1.
(c) If a broken suspension-means detection means is provided, it shall comply with 2.20.8.2.

Note: Elevators installed to editions prior to A17.1-2007, including A17.1a-2008, are exempt from all of the requirements of 2.20.8 and 2.20.11 provided that there is no change to the type of suspension means and that there is no alteration to the means themselves.

8.7.2.22 Counterweights

8.7.2.22.1 Where alterations are made to any part of a counterweight assembly, except guiding members, the installation shall conform to 2.21, except as specified by 8.7.2.22.2. See also 8.7.2.3.

8.7.2.22.2 Rod-type counterweights shall be permitted to be retained, provided they are equipped with a minimum of two suspension rods and two tie rods. The two suspension rods shall conform to 2.21.2.1 and 2.21.2.3 and shall be provided with locknuts and cotter
pins at each end. The tie rods shall conform to 2.21.1.2. Means shall be provided on each side of the counterweight to maintain the distance between the top and bottom guide weights in the event the counterweight lands on the buffer.

8.7.2.22.3 Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the counterweight with respect to the guide rails, the clearance between the safety jaws and rails of the counterweight shall be such that the safety jaws
cannot touch the rails when the counterweight frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.23 Car and Counterweight Buffers and Bumpers.
Where alterations are made to car and counterweight buffers or bumpers, they shall conform to 2.22. The buffers are not required to conform to 2.22.4.7 if

(a) the buffer's load rating and properties defining method of absorbing and dissipating energy has not been altered
(b) the load rating of the buffer can be established by other means such as using original design data, original type testing data, marking plate, etc.
(c) the conformance with 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22

8.7.2.24 Guide Rails, Supports, and Fastenings.
Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 2.23. Guide rails, supports, fastenings, and joints of different design and construction than those provided for in 2.23 shall be permitted to be retained provided they are in accordance with sound engineering practice and will adequately maintain the accuracy of the rail alignment.

8.7.2.25 Driving Machines and Sheaves

8.7.2.25.1 Alterations to Driving Machines and Sheaves

(a) Where a driving machine is replaced, or installed as part of an alteration, the installation shall conform to 2.7.2, 2.9, 2.10.1, 2.19 as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3, 2.20, 2.24, and 2.26.8. Requirement 2.7.2 applies to the extent existing installations permit.

(b) Where alterations are made to driving machine components, the affected components shall conform to 2.24.2 through 2.24.9 and 2.26.8.
(c) Where an alteration consists of a change in the driving-machine sheave, the suspension ropes and their connections shall conform to 2.20. The sheave shall conform to 2.24.2, 2.24.3, and 2.24.4.

8.7.2.25★1
Where the driving machine worm or gear is replaced, the replaced components shall conform to the applicable requirements of 2.24.

Note: Refer to 8.7.2.7★1 for the addition of machine guarding.

8.7.2.25.2 Change in Location of Driving Machine
(a) Where the location of the driving machine is changed with no increase or decrease in rise, the installation shall conform to 2.7.2, 2.9, 2.10.1, and 2.24.2.3.
(b) Where the location of the driving machine is changed with an increase or decrease in rise, the entire installation shall conform to Part 2, except for the following:
(1) requirement 2.5 (see also 8.7.2.5).
(2) requirement 2.11 (see also 8.7.2.10).
(3) where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.

8.7.2.26 Terminal Stopping Devices.
Where an alteration is made to any terminal stopping device, the installation shall conform to 2.25.

8.7.2.27 Operating Devices and Control Equipment / Inspection Operation and Inspection Operation with Open Door Circuits
8.7.2.27.1 Top-of-Car Operating Devices.
Where there is an alteration to or addition of top-of-car inspection operation, it shall conform to 2.26.1.4.

8.7.2.27★1
Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.2.27★2
Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD **3.8.3.** Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.27.2 Car Leveling or Truck Zoning Devices.
Where there is an alteration to or addition of a car leveling device, or a truck zoning device, it shall conform to 2.26.1.6.

8.7.2.27★3
Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.2.27★4
Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.2.27.3 Change in Power Supply.

Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller, involving one of the following, whichever is applicable:

(a) change in voltage, frequency, or number of phases

(b) change from direct to alternating current or vice versa

(c) change to a combination of direct and alternating current Electrical equipment shall conform to 2.26.1.1, 2.26.1.2, 2.26.1.3, 2.26.1.4, 2.26.1.6, 2.26.2, 2.26.6, 2.26.7, 2.26.9, and 2.26.10. All new and modified equipment and wiring shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3. Brakes shall conform to 2.24.8 and 2.26.8. Winding-drum machines shall be provided with final terminal stopping devices conforming to 2.25.3.5 [see also 8.7.2.17.2(b)].

8.7.2.27.4 Controllers

(a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:

(1) Terminal stopping devices shall conform to 2.25.

(2) The operating devices and control equipment shall conform to 2.26.1.4, 2.26.1.5, 2.26.1.6, 2.26.2 through 2.26.9, and 2.26.11.

(3) Requirement 2.27.2 applies when emergency power is provided.

~~(4) In jurisdictions not enforcing NBCC, 2.27.3 through 2.27.9 apply~~

~~(a) when travel is 8 m (25 ft) or more above or below the designated landing; or~~

~~(b) on installations when firefighters' emergency operation was required or provided at the time of installation.~~

(5) In jurisdictions enforcing NBCC, 2.27.3 through 2.27.9 apply ~~only if firefighters' emergency operation was required or provided at the time of installation~~.

(6) requirement 2.7.9.2

(b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

(c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

(d) Equipment and floors shall be identified as required by 2.29.

8.7.2.27★5

Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.2.27.5 Change in Type of Motion Control.

Where there is a change in the type of motion control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to

(1) 2.11.1 except;

(a) existing entrance openings less than 2030 mm in height or 800 mm in width are permitted to be retained

(b) requirement 2.11.1.4

(2) 2.11.2 through 2.11.6, except 2.11.6.3

(3) 2.11.8, 2.11.9

(4) 2.11.11.8 for horizontally sliding center opening and single speed entrances

(5) 2.11.12.8

~~through 2.11.13, except 2.11.11.9,~~

(6) 2.12, except

(a) requirement 2.12.2.4.3 to allow a minimum engagement of 6 mm

(b) 2.12.4, and

(7) 2.13.

(b) Car enclosures and car doors or gates shall conform to 2.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD,

except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:

(1) requirements 2.14.1.3, 2.14.1.5.1, ~~and~~ 2.14.1.8, 2.14.1.9 and 2.14.1.10
(2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6~~, and 2.14.2.4~~
(3) requirement 2.14.3
(4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
(5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
(6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that:
(1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
(2) the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.
(d) The capacity and loading shall conform to 2.16.8 (e), (f), (g) and (h).
(e) The terminal stopping devices shall conform to 2.25.
(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
~~(g) In jurisdictions not enforcing NBCC, emergency operation and signaling devices shall be provided and shall conform to 2.27.~~
In jurisdictions enforcing NBCC, emergency operation and signaling devices ~~where required by NBCC shall be provided and~~ where required by NBCC shall be provided and shall conform to 2.27.
(h) Car overspeed protection and unintended movement protection shall conform to 2.19 as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3.
(i) Equipment and floors shall be identified as required by 2.29.
(j) requirement 2.7.9.2

8.7.2.27.6 Change in Type of Operation Control.

Where there is a change in the type of operation control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13, 2.12, and 2.13.
(b) Car enclosures and car doors or gates shall conform to 2.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
(2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
(3) requirement 2.14.3
(4) requirement 2.14.4.3 and 2.14.4.6
(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.
(d) The capacity and loading shall conform to 2.16.
(e) The terminal stopping devices shall conform to 2.25.
(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
(g) Emergency operation and signaling devices shall be provided and shall conform to 2.27.
(h) Equipment and floors shall be identified as required by 2.29.
(i) requirement 2.7.9.2

8.7.2.27.★6

Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(l).

8.7.2.27.★7
Where security / floor lockout systems are added the following shall apply:

(a) egress floor shall not be restricted when on FEO,
(b) door open buttons shall remain operative,
(c) requirement 2.11.6.2, and
(d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.2.27.★8
Where destination dispatch is added to an automatic operation control the following shall apply:

(a) 8.7.2.8
(b) changes to FEO shall apply to either 8.7.2.28 or to the code applicable at the time of the original installation or subsequent FEO related alteration.

8.7.2.27.7 On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21 is provided.
The stop switch shall conform to 2.26.4.3, and a single failure shall not render the In-Car stop switch ineffective per 2.26.9.3.

8.7.2.27.8 Electrical Protective Devices.
Where there is an alteration to or addition of an electrical protective device, it shall conform to 2.26.2 for that device.

8.7.2.28 Emergency Operations and Signaling Devices

(a) Where an alteration is made to car emergency signaling devices, the alteration shall conform to 2.27.1.
(b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.
(c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 2.27.3 through 2.27.8.
(d) Where the alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to 2.27.

8.7.2.28★1 *(175/02)*
Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.

8.7.2.28★2 *(60/88) (105/93) (219/07)*
Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD **3.20**.

8.7.3 Alterations to Hydraulic Elevators
8.7.3.1 Hoistway Enclosures.
Alterations to hoistway enclosures shall conform to 8.7.2.1.

8.7.3.2 Pits. Alterations made to the pit shall conform to 2.1.2.3 and 2.2. See also 8.7.3.4.

8.7.3.3 Location and Guarding of Counterweights.
Where new counterweights are installed, they shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 3.5.

8.7.3.4 Vertical Car and Counterweight Clearances and Runbys.
No alteration shall reduce any clearance or runby below that required by 3.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.5 Horizontal Car and Counterweight Clearances.
No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.6 Protection of Spaces Below Hoistways.
Where alterations are made to an elevator or the building, such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 3.6.

8.7.3.7 Machine Rooms and Machinery Spaces.
Alterations to machine rooms and machinery spaces shall conform to 8.7.2.7.2 through 8.7.2.7.7. Where an alteration consists of the construction of a new machine room or machinery space enclosure, it shall conform to 2.7 and 3.7. Electrical equipment clearances shall conform to the requirements of NFPA 70 or CSA-C22.1, whichever is applicable (see Part 9). Where alterations are made to any portion of a machinery room or machinery space, the portion that is altered shall conform to 2.7 and 3.7.

8.7.3.8 Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.
The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.3.9 Machinery and Sheave Beams, Supports and Foundations.
Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building structure to support the loads shall be verified by a licensed professional engineer.

8.7.3.10 Hoistway Entrances and Openings.
Alterations to hoistway entrances shall conform to 8.7.2.10, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway where required by 8.7.2.10 and

(a) for all elevators where car or counterweight safeties are used
(b) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency

8.7.3.11 Hoistway Door Locking Devices.
Alterations to hoistway door locking devices, access switches, parking devices, and unlocking devices shall conform to 8.7.2.11, except that conformance with 2.24.8 is not required.

8.7.3.12 Power Operation of Hoistway Doors.
Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, 8.7.2.10.5, 8.7.2.12★1 , 8.7.2.12★2 and 8.7.3.10.

8.7.3.13 Car Enclosures. Where alterations are made to car enclosures, they shall conform to 8.7.2.14.

8.7.3.14 Car Frames and Platforms.
Where alterations are made to a car frame or platform, the frame and platform shall conform to 3.15. If safeties are used and if roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.3.15 Safeties
8.7.3.15.1 Where the alteration consists of the installation of car safeties, the car safeties and car guide rails shall conform to 3.17.1, 3.23, and 3.28.

8.7.3.15.2 Where the alteration consists of the installation of counterweight safeties, the counterweight safeties and counterweight guide rails shall conform to 3.17.2, 3.23, and 3.28.

8.7.3.15.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties and guide rails shall conform to 3.17, 3.23, and 3.28, except for cross-referenced 2.17.10 through 2.17.14, 2.17.16, and 2.21.4.2.

8.7.3.16 Governors and Governor Ropes.
Where alterations are made to governors or where they are added, they shall conform to 8.7.2.19.

8.7.3.17 Change in Type of Service.
Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to

(a) requirements 2.11.1, 2.11.2, 2.11.3, and 2.11.5 through 2.11.8, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway
  (1) for all elevators where car or counterweight safeties are used
  (2) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency

(b) requirements 2.12 and 2.13
(c) requirements 2.22 and 3.22.2, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11
(d) requirements 3.14, 3.15, 3.17, 3.21, and 3.23
(e) requirement 2.18, where governors are provided, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7
(f) requirements 3.16, 3.18, 3.19, 3.20, 3.24, 3.25, 3.26, and 3.27.

8.7.3.18 Change in Class of Loading.
Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 as modified by 3.16.

8.7.3.19 Carrying of Passengers on Freight Elevators.
Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to 3.16.4.

8.7.3.20 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to 2.26.1.4, 2.26.1.5, 2.26.5, 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21 Increase in Deadweight of Car.
Where an alteration results in an increase in the deadweight of the car that is sufficient to increase the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21★1 *(171/02)*
Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increases to the deadweight of the car by 115 kg (255 lbs.) or less including all weight changes since the car was originally installed the requirements of shall 8.7.2.15★1 apply.

8.7.3.21★2 *(171/02)*
Where an alteration results in a cumulative increase in the deadweight of the car by more than 115 kg (255 lbs.) but less than 5% of car and capacity as originally installed including all weight changes since the car was originally installed the requirements of 8.7.2.15★2 shall apply.

8.7.3.22 Change in Rise or Rated Speed

8.7.3.22.1 Increase or Decrease in Rise.

Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, it shall conform to the following:

(a) The terminal stopping devices shall be relocated to conform to 3.25.
(b) Where the increase in rise is at the lower end of the hoistway, bottom car and counterweight clearances and runbys shall conform to 3.4.1, 3.4.2, and 3.4.3, and existing top car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(c) Where the increase in rise is at the upper end of the hoistway, top car and counterweight clearances, runbys, and refuge spaces shall conform to 3.4, and existing bottom car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(d) The plunger shall conform to 3.18.2.
(e) Where the decrease is at the lower end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.3.22.2 Increase in Rated Speed.

Where an alteration increases the rated speed, the installation shall conform to the following:

(a) Requirement 2.5.
(b) Requirement 3.4.
(c) Requirements 3.21 and 3.22.2, except that existing buffers, where retained, are not required to conform to referenced 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
(d) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to the applicable requirements of 3.14.
(e) Car and counterweight safeties and governors, where provided, shall conform to 3.17, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7.
(f) Requirement 3.16.
(g) Requirement 3.25.
(h) Requirements 3.26.1 through 3.26.6.
(i) Requirement 3.20.

8.7.3.22.3 Decrease in Rated Speed.

When the alteration involves a decrease in the rated speed, it shall conform to the following:

(a) If the bottom runbys and the top clearances for cars and counterweights are less than as required by 3.4, they shall not be decreased by the speed reduction.
(b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
(c) The capacity and loading shall conform to 3.16.
(d) Capacity and data plates shall conform to 3.16.3(b), except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.
(e) New electrical equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

8.7.3.23 Hydraulic Equipment

8.7.3.23.1 Hydraulic Jack.

Where a hydraulic jack is installed, altered, or replaced, it shall conform to 3.18.

8.7.3.23.2 Plungers.

Where a new plunger is installed or an existing plunger is altered, it shall conform to 3.18.1.2 and 3.18.2.

8.7.3.23.3 Cylinders.

Where a cylinder is installed, replaced, altered, or sleeved, it shall conform to 3.18.3. If the plunger is not equipped with a stop ring conforming to 3.18.4.1, the installation shall also conform to 3.18.1.2 and 3.18.2.

8.7.3.23.4 Increase in Working Pressure.
Where an alteration increases the working pressure by more than 5%, the installation shall conform to 3.18, 3.19, and 3.24.1 through 3.24.4. Requirements 3.18.3.8 and 3.19.4.6 do not apply to existing equipment.

8.7.3.23.5 Change in Location of Hydraulic Jack.
Where location of the hydraulic jack is changed, the installation shall conform to Part 3.

8.7.3.23.6 Relocation of Hydraulic Machine (Power Unit).
Where the hydraulic machine is relocated so that the top of the cylinder is above the top of the storage tank, the installation shall conform to 3.26.8.

8.7.3.23.7 Plunger Gripper.
Where the alteration consists of the addition of a plunger gripper, the following conditions must be met:
(a) the plunger gripper must comply with 3.17.3
(b) requirement 3.1.1(b) shall apply
(c) when buffers are compressed solid or to a fixed stop in accordance with 3.22.1, the plunger gripper shall not strike the car structure.

8.7.3.23.7★1 Plunger Gripper.
Where the alteration consists of the removal of a plunger gripper, the following conditions must be met:
(a) the cylinder must conform to 3.18.3
(b) an overspeed valve shall be installed in conformance with the requirements of 3.19.4.7
(c) bottom car runby shall conform to 3.4.2.1

8.7.3.24 Valves, Pressure Piping, and Fittings.
(a) Where an existing control valve is replaced with a valve of a different type, make or model, it shall conform to 3.19.
(b) Where relief or check valves or the supply piping or fittings are replaced ~~as part of an alteration~~, the components replaced shall conform to the applicable requirements of 3.19.
(c) Where electrically operated control valves are installed in place of existing mechanically operated control valves, for rated speeds of more than 0.5 m/s (100 ft/min), existing terminal stopping devices consisting of an automatic stop valve independent of the normal control valve and operated by the movement of the car as it approaches the terminals, where provided, shall be permitted to be retained.

8.7.3.25 Suspension Ropes and Their Connections
8.7.3.25.1 Change in Ropes.
Where the material, grade, number, or diameter of ropes is changed, the new ropes and their fastenings shall conform to 3.20. When existing sheaves are retained using ropes different from those originally specified, the original elevator manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.3.25.2 Addition of Rope Equalizers.
Where rope equalizers are installed, they shall conform to 2.20.5.

8.7.3.26 Counterweights.
Where alterations are made to counterweights, they shall conform to 8.7.2.22 and 3.21. Where counterweights are added to a previously uncounterweighted elevator, it shall conform to 3.4, 3.6, 3.14, 3.15, 3.17.2, 3.18, 3.20, and 3.21. See also 8.7.3.3.

8.7.3.27 Car Buffers and Bumpers.
Where alterations are made to car buffers or bumpers, the installation shall conform to 3.21 and 3.22.2. Existing buffers are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.

8.7.3.28 Guide Rails, Supports, and Fastenings.
Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 3.23 and 3.28.

8.7.3.29 Tanks.
Where a new tank is installed ~~as part of an alteration~~ or altered, the tank shall conform to 3.24.

8.7.3.29★1 Addition of Oil Cooler
Where an oil cooler is installed or altered, the following requirements apply:
(a) 8.7.3.8
(b) 2.7.2 for the installed equipment
(c) 3.10 for the installed equipment

8.7.3.30 Terminal Stopping Devices.
Where an alteration is made to any terminal stopping device, the installation shall conform to 3.25.

8.7.3.31 Operating Devices and Control Equipment
8.7.3.31.1 Top-of-Car Operating Devices.
Where there is an alteration to, or addition of, a top-of-car operating device, it shall conform to 3.26.2.

8.7.3.31★1
Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.3.31★2
Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD **3.8.3.** Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.3.31.2 Car Leveling or Truck Zoning Devices.
Where there is an alteration to, or addition of, a car leveling device or a truck zoning device, it shall conform to 3.26.3.2.

8.7.3.31★3
Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.3.31★4
Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.3.31.3 Anticreep Leveling Device.
Where there is an alteration or replacement of an anticreep leveling device, it shall conform to 3.26.3.1.

8.7.3.31.4 Change in Power Supply.
Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller involving
(a) change in voltage, frequency, or number of phases;

(b) change from direct current to alternating current, or vice versa; or
(c) change to a combination of direct or alternating current.
Electrical equipment shall conform to 3.26.1, 3.26.4, 3.26.5, and 3.26.6 (not including 2.26.4.4).

8.7.3.31★5 Addition of Soft Start

Where there is an addition of a soft start feature the follow shall apply;
(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) 3.26.5

8.7.3.31★6 Addition of Power Efficiency Devices

Where there is an addition of power efficiency increasing devices the follow shall apply;
(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.3.31.5 Controllers

(a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:
(1) Terminal stopping devices shall conform to 3.25.
(2) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.1.1, 2.26.1.3, and 2.26.12 do not apply.
(3) Requirement 2.27.2 applies when emergency power is provided.
~~(4) In jurisdictions not enforcing NBCC, 3.27.1 through 3.27.4 and 2.27.3 through 2.27.9 apply~~
~~(a) when travel is 8 m (25 ft) or more above or below the designated landing; or~~
~~(b) on installations when firefighters' emergency operation was required or provided at the time of the installation.~~
(5) In jurisdictions enforcing NBCC, 3.27.1 through 3.27.4 and 2.27.3 through 2.27.9 ~~apply only if firefighters' emergency operation was required or provided at the time of installation~~.
(b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
(c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
(d) Equipment and floors shall be identified as required by 2.29.

8.7.3.31★7

Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.3.31.6 Change in Type of Motion Control.

Where there is a change in the type of motion control, the installation shall conform to the following:
(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 except 2.11.11.9,
(1) 2.11.1 except:
(a) existing entrance openings less than 2030 mm in height or 800 mm in width are permitted to be retained
(b) requirement 2.11.1.4
(2) 2.11.2 through 2.11.6, except 2.11.6.3
(3) 2.11.8, 2.11.9
(4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
(5) 2.11.12.8
~~through 2.11.13, except 2.11.11.9,~~ as modified by 3.11.1,
(6) and conform to 3.12.1 except
(a) requirement 2.12.2.4.3 to allow a minimum engagement of 6 mm
(b) 2.12.4,and
(7) 3.13.

(b) Car enclosures and car doors or gates shall conform to 3.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
  (1) requirements 2.14.1.3, 2.14.1.5.1, ~~and~~ 2.14.1.8, 2.14.1.9 and 2.14.1.10
  (2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6~~, and 2.14.2.4~~
  (3) requirement 2.14.3
  (4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
  (5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
  (6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety (where provided) and the counterweight safety (where provided) shall conform to 3.17, and the governor (where provided) shall conform to 2.18, except that:
  (1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
  (2) the pitch diameter of speed-governor sheaves and governor tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 8.7.2.27.5(d) ~~3.16~~.

(e) The terminal stopping devices shall conform to 3.25.

(f) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.4.2 and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.

(g) ~~In jurisdictions not enforcing NBCC, emergency operation and signaling devices shall conform to 3.27.~~
In jurisdictions enforcing NBCC, emergency operation and signaling devices ~~where required by NBCC shall be provided and~~ shall conform to 2.27.

(h) Equipment and floors shall be identified as required by 2.29.

8.7.3.31.7 Change in Type of Operation Control.

Where there is a change in the type of operation control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 as modified by 3.11.1, and conform to 3.12.1 and 3.13.

(b) Car enclosures and car doors or gates shall conform to 3.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
  (1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
  (2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
  (3) requirement 2.14.3
  (4) requirements 2.14.4.3 and 2.14.4.6

(c) The capacity and loading shall conform to 3.16.

(d) The terminal stopping devices shall conform to 3.25.

(e) The operating devices and control equipment shall conform to 3.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.

(f) Emergency operation and signaling devices shall be provided and shall conform to 3.27.

(g) Equipment and floors shall be identified as required by 2.29.

(h) requirement 2.7.9.2

8.7.3.31★8

Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(l).

8.7.3.31.★9

Where security / floor lockout systems are added the follow shall apply:

(a) egress floor shall not be restricted when on FEO,

(b) door open buttons shall remain operative,

(c) requirement 2.11.6.2

(d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.3.31.8 Emergency Operation and Signaling Devices

(a) Where an alteration is made to car emergency signaling devices, the installation shall conform to 2.27.1.

(b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.

(c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 3.27.

8.7.3.31★10 *(175/02)*

Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.

8.7.3.31★11 *(60/88) (105/93) (219/07)*

Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD **3.20**.

8.7.3.31.9 Auxiliary Power Lowering Operation.

Where auxiliary power lowering operation is installed or altered, it shall conform to 3.26.10.

8.7.3.31.10 In-Car Stop Switch.

On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21, 2.26.4.3, 2.26.9.3.1(a), and 3.26.4.2 is provided.

8.7.3.31.11 Electrical Protective Devices.

Where there is an alteration to or addition of an electrical protection device, it shall conform to 3.26.4 for that device.

8.7.4 Alterations to Elevators With Other Types of Driving Machines

8.7.4.1 Rack and Pinion Elevators.

Where any alteration is made to a rack-and-pinion elevator, the entire installation shall comply with 4.1.

8.7.4.2 Screw-Column Elevators.

Where any alteration is made to a screw-column elevator, the entire installation shall comply with 4.2.

8.7.4.3 Hand Elevators

8.7.4.3.1 Hoistway Enclosures and Machinery Space.

Where an alteration is made to any portion of a hoistway enclosure or machinery space, the altered portion shall conform to 4.3.1 and 4.3.4.

8.7.4.3.2 Top Car and Counterweight Clearances.

No alteration shall reduce any clearances or runby below that required by 4.3.3 or below the minimum clearances as originally installed.

8.7.4.3.3 Hoistway Entrances.

Where new entrances are installed, the new entrances shall conform to 4.3.6, 4.3.7, and 4.3.8.

8.7.4.3.4 Car Enclosures.

Where an alteration is made to a car enclosure, it shall conform to 4.3.9 and 4.3.11.

8.7.4.3.5 Car Frame and Platform.
Where an alteration is made to a car frame or platform, the frame or platform shall conform to 4.3.11, 4.3.12, 4.3.13, and 4.3.16.

8.7.4.3.6 Capacity and Loading.
No alteration shall reduce the rated load below that required by 4.3.14.1 and 4.3.14.2. Where the alteration involves an increase in rated load, the driving machine sheave shall comply with 4.3.19.1, 4.3.19.2, and 4.3.16.

8.7.4.3.7 Increase in Rise.
Where the alteration involves an increase in the total rise to exceed 4 600 mm (15 ft), it shall conform to 4.3.3.1, 4.3.3.2, 4.3.15, and
4.3.16.

8.7.4.3.8 Guide Rails and Fastenings.
Where an alteration involves the installation of guide rails, the guide rails and fastenings shall comply with 4.3.18.1, 4.3.18.2, and 4.3.18.3.

8.7.4.3.9 Overhead Beams and Supports.
Where the alteration involves a change in the arrangement of or load on the overhead beams and sheaves, the new arrangement shall conform to 4.3.5.1 and 4.3.5.2, except that wood shall be permitted to be retained if it is structurally sound.

8.7.4.3.10 Power Attachments.
No alteration shall implement the use of a power other than hand power.

8.7.5 Alterations to Special Application Elevators
8.7.5.1 Inclined Elevators.
Where any alteration is made to an inclined elevator, the entire installation shall comply with 5.1.

8.7.5.2 Limited-Use/Limited-Application Elevators.
Reserved.

8.7.5.2.★1 Alterations to Electric Limited-Use/Limited-Application Elevators
Alterations to Limited-Use/Limited-Application Elevators, shall conform to 8.7.2 and the requirements of Part 2 except as modified in section 5.2.

8.7.5.2.★2 Alterations to Hydraulic Limited-Use/Limited-Application Elevators
Alterations to Limited-Use/Limited-Application Elevators, shall conform to the 8.7.3 and the requirements of Part 3 except as modified in section 5.2.

8.7.5.3 Private Residence Elevators
8.7.5.3.1 When a building code occupancy classification of a private residence is changed in which a private residence elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.2.

8.7.5.4 Private Residence Inclined Elevators
8.7.5.4.1 When a building code occupancy classification of a private residence is changed in which a private residence inclined elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.1.

8.7.5.5 Power Sidewalk Elevators
8.7.5.5.1 Changes in Electrical Wiring or Electrical Equipment.
Where electrical wiring or equipment is installed as part of an alteration, it shall conform to 5.5.1.8.

8.7.5.5.2 Sidewalk Door.
Where a sidewalk door is installed as part of an alteration, it shall conform to 5.5.1.11.2, 5.5.1.11.3, and 5.5.1.11.4.

8.7.5.5.3 Change in Car Enclosure, Car Doors, and Gates.
Where the car enclosure, car door, or car gate is installed as part of an alteration, it shall conform to 5.5.1.14.

8.7.5.5.4 Bow Irons and Stanchions. Where the bow iron and stanchion is installed as part of an alteration, it shall conform to 5.5.1.15.2.

8.7.5.5.5 Increase in Rated Load.
Where the alteration consists of an increase in rated load, the bottom and top clearances and runbys shall conform to 5.5.1.16, 5.5.1.18, 5.5.1.21, and 5.5.1.25.4.

8.7.5.5.6 Increase in Rated Speed.
Where the alteration consists of an increase in rated speed, the capacity and loading shall conform to 5.5.1.15, 5.5.1.16, 5.5.1.19, and 5.5.1.22.

8.7.5.5.7 Existing Driving Machine.
Where the driving machine is installed as part of an alteration, it shall conform to 5.5.1.8, 5.5.1.9, 5.5.1.23, and 5.5.1.25.

8.7.5.5.8 Change in Type of Operating Devices and/ or Control Equipment.
Where the alteration consists of a change in the existing type of operation or control equipment, or both, the new operating devices and control equipment shall conform to 5.5.1.8 and 5.5.1.25.

8.7.5.6 Rooftop Elevators.
Where any alteration is made to a rooftop elevator, the entire installation shall comply with 5.6.

8.7.5.7 Special Purpose Personnel Elevators.
Where any alteration is made to a special purpose personnel elevator, the entire installation shall comply with 5.7.

8.7.5.8 Shipboard Elevators.
Where any alteration is made to a shipboard elevator, the entire installation shall comply with 5.8.

8.7.5.9 Mine Elevators
8.7.5.9.1 General Requirements.
Where any alteration is made to a mine elevator, the alteration shall conform to the requirements of 8.7.1 and 8.7.2, except as modified by 5.9.

8.7.5.9.2 Ascending Car Overspeed and Unintended Car Movement Protection.
Ascending car overspeed and unintended car movement protection shall be provided and shall conform to 2.19.

8.7.5.9.3 Car Top Protection. The car top access panel size requirements in 5.9.14.1(b) do not apply where the existing car top is retained. The dimensions of the existing car top access panel shall not be reduced by the alteration.

8.7.6 Alterations to Escalators and Moving Walks
8.7.6.1 Escalators
8.7.6.1.1 General Requirements.
A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1. The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.1 for that device or component.

When multiple driving machines per escalator are utilized, operating and safety devices required by 8.7.6.1 shall simultaneously control all driving machines. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.

8.7.6.1.2 Relocation of Escalator.

(a) Where an escalator is relocated, it shall comply with 6.1. The requirements of 6.1.7.4.2 do not apply to electrical equipment unchanged by the relocation. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.

(b) Where an escalator is repositioned within the same building, CAD requirement 3.18 applies and the installation shall conform to the following;
(1) requirement 6.1.3.3.11, 6.1.3.3.12, 6.1.3.3.13
(2) requirement 6.1.3.4.3
(3) requirement 6.1.3.6.3, 6.1.3.6.4
(4) requirement 6.1.3.12
(5) requirement 6.1.3.13
(6) requirement 6.1.6.9
(7) requirement 6.1.7.4.1 and
(8) requirement 8.7.6.1.3

8.7.6.1.3 Protection of Floor Openings.
Any alteration to the floor openings in escalators shall comply with 6.1.1.1.

8.7.6.1.4 Protection of Trusses and Machinery Spaces Against Fire
Any alteration to the sides and/ or undersides of escalator trusses and machinery spaces shall conform to 6.1.2.1.

8.7.6.1.5 Construction Requirements

(a) Angle of Inclination. No alteration of an escalator shall change the angle of inclination, as originally designed, by more than 1 deg.
(b) Geometry. Any alteration to the geometry of the escalator components shall conform to 6.1.3.2.
(c) Balustrades. Any alteration to the balustrades shall conform to 6.1.3.3 for the altered components.
(d) Skirt Deflector Devices. Any alteration or addition of skirt deflector devices shall conform to 6.1.3.3.10

NOTE [8.7.6.1.5(c)]: The balustrade does not include the handrail.
NOTE [8.7.6.1.5(d)]: The vertical dimensions on existing skirt panels may not allow full compliance. See 1.2.

8.7.6.1.6 Handrails. Any alteration to the handrails or handrail system shall require conformance with 6.1.3.2.2, 6.1.3.4.1 through 6.1.3.4.4, 6.1.3.4.6, 6.1.6.3.12, and 6.1.6.4.

8.7.6.1.★1 Addition of Handrail Advertizing
The addition of handrail advertizing is not permitted per 6.1.6.9.2, unless otherwise permitted by a variance request.

8.7.6.1.7 Step System

(a) Any alteration to the step system shall require conformance with 6.1.3.3.5, 6.1.3.5 [except as specified in 8.7.6.1.7(b)], 6.1.3.6, 6.1.3.8, 6.1.3.9.4, 6.1.3.10.4, 6.1.3.11, 6.1.6.3.3, 6.1.6.3.9, 6.1.6.3.11, 6.1.6.3.14, and 6.1.6.5.
(b) Steps having a width less than 560 mm (22 in.) shall not be reduced in width by the alteration.

8.7.6.1.8 Combplates.
Any alteration of the combplates shall require conformance with 6.1.6.3.13.

8.7.6.1.9 Trusses and Girders.
Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the escalator's conforming to 6.1.3.7, 6.1.3.9.1, and 6.1.3.10.1. The installation of a new escalator into an existing truss shall conform to all of the requirements of 6.1.

8.7.6.1.10 Step Wheel Tracks.
Any alteration to the tracks shall result in the escalator's conforming with 6.1.3.8, 6.1.3.9.4, 6.1.3.10.1, and 8.7.1.4.

8.7.6.1.11 Rated Load and Speed.
Any alteration that increases the rated load or rated speed or both shall result in the escalator's conforming with 6.1.

8.7.6.1.12 Driving Machine, Motor, and Brake
(a) Driving Machine. An alteration to the driving machine shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.4, and 6.1.6.3.8.
(b) Driving Motor. An alteration to the drive motor shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.2, 6.1.6.3.8, and 6.1.6.3.10.
(c) Machine Brake. An alteration to the machine brake shall result in the escalator's conforming to 6.1.3.9.3, 6.1.3.10.2, and 6.1.5.3.1.

8.7.6.1.13 Operating and Safety Devices.
Any alteration to or addition of operating and or safety devices shall conform to 6.1.6 for that device.

8.7.6.1.★2 Removal of Step Demarcation Lights *(226/07)*
The removal of step demarcation lights, shall be permitted if the device complies with the following:
(a) requirement 6.1.3.3.5,
(b) requirements 6.1.3.5.4, 6.1.3.5.5, 6.1.3.5.6, and
(c) requirement 6.1.3.6.2.

8.7.6.1.14 Lighting, Access, and Electrical Work.
An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.1.7 for that change.

8.7.6.1.15 Entrance and Egress.
Any alteration to the entrance or egress end shall comply with 6.1.3.6.1 through 6.1.3.6.4.

8.7.6.1.16 Controller.
Where a controller is installed ~~as part of an alteration~~, it shall conform to 6.1.6.10 through 6.1.6.15, and 6.1.7.4.

8.7.6.1.★3 Controller Replaced *(226/07)*
Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.1.★4 Relocation of Controller *(226/07)*
Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.1.★5 Addition of Soft Start *(226/07)*
Where there is an addition of a soft start feature the follow shall apply;
(a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3
(b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.1.★6 Power Efficiency Devices
Where there is an addition of power efficiency increasing devices the follow shall apply;

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.6.2 Moving Walks

8.7.6.2.1 General Requirements.

A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1.

The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.2 for that device or component. When multiple driving machines per moving walk are utilized, operating and safety devices required by 8.7.6.2 shall simultaneously control all driving machines.

8.7.6.2.2 Relocation of Moving Walk.

Where a moving walk is relocated, it shall comply with 6.2.

8.7.6.2.3 Protection of Floor Openings. Any alteration to the floor openings for moving walks shall comply with 6.2.1.1.

8.7.6.2.4 Protection of Trusses and Machinery Spaces Against Fire.

Any alteration to the sides or undersides, or both, of movingwalk trusses and machinery spaces shall conform to 6.2.2.1.

8.7.6.2.5 Construction Requirements

(a) Angle of Inclination. Alteration of a moving walk that increases the angle of inclination shall require conformance with 6.2.
(b) Geometry. Any alteration to the geometry of the moving walk components shall require conformance with 6.2.3.2.
(c) Balustrades. Any alteration to the balustrades shall require conformance with 6.2.3.3.

NOTE [8.7.6.2.5(c)]: The balustrade does not include the handrail.

8.7.6.2.6 Handrails.

An alteration to the handrails or handrail system shall require conformance with 6.2.3.2.3, 6.2.3.4, 6.2.6.3.10, and 6.2.6.4.

8.7.6.2.7 Treadway System

(a) An alteration to the treadway system shall require conformance with 6.2.3.2.3, 6.2.3.3.5, 6.2.3.3.6, 6.2.3.5, 6.2.3.6 [except as specified in 8.7.6.2.7(b)], 6.2.3.8, 6.2.3.9, 6.2.3.10.4, 6.2.3.11.4, 6.2.3.11.5, 6.2.3.12, 6.2.6.3.3, 6.2.6.5, and 6.2.6.3.9.

(b) The minimum width of the moving walk shall be permitted to be less than that required by 6.2.3.7. The existing width, if less than required by 6.2.3.7, shall not be decreased by the alteration.

8.7.6.2.8 Combplates.

An alteration of the combplates shall require conformance with 6.2.3.8 and 6.2.6.3.11.

8.7.6.2.9 Trusses and Girders.

Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10.1, and 6.2.3.11.1. The installation of a new moving walk into an existing truss shall conform to all of the requirements of 6.2.

8.7.6.2.10 Track System.

Any alteration to the tracks shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10, 6.2.3.11.1, and 8.7.1.4.

8.7.6.2.11 Rated Load and Speed.

Any alteration that increases the rated load or rated speed or both shall result in the moving walk's conforming to 6.2.

8.7.6.2.12 Driving Machine, Motor, and Brake

(a) Driving Machine. An alteration to the driving machine shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.3.14, 6.2.3.15, 6.2.4, 6.2.5.1, 6.2.5.3.1, 6.2.5.3.2, 6.2.6.3.4, and 6.2.6.3.8.
(b) Drive Motor. An alteration to the drive motor shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.4, 6.2.5.2, 6.2.5.3.1, 6.2.6.3.2, 6.2.6.3.7, and 6.2.6.3.8.
(c) Machine Brake. An alteration to the machine brake shall result in the moving walk's conforming to 6.2.3.10.3, 6.2.3.11.2, 6.2.3.11.3 ~~6.2.3.12.3,~~ 6.2.5.3.1, and 6.2.5.3.2.

8.7.6.2.13 Operating and Safety Devices.
An alteration to or addition of operating and/or safety devices shall conform with the specific requirements within 6.2.6 for that device.

8.7.6.2.14 Lighting, Access, and Electrical Work.
An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.2.7 for that change.

8.7.6.2.15 Controller.
Where a controller is installed as part of an alteration, it shall conform to 6.2.6.9 through 6.2.6.14, and 6.2.7.4.

8.7.6.2.★1 Controller Replaced *(226/07)*
Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.2.★2 Relocation of Controller *(226/07)*
Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.2.★3 Addition of Soft Start *(226/07)*
Where there is an addition of a soft start feature the following shall apply:
(a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3
(b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.2.★4 Power Efficiency Devices
Where there is an addition of power efficiency increasing devices the following shall apply:
(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.7 Alterations to Dumbwaiters and Material Lifts
8.7.7.1 Dumbwaiters and Material Lifts Without Automatic Transfer Devices
8.7.7.1.1 General. When any alteration is made to a dumbwaiter or material lift, all work performed as part of the alteration shall comply with 7.1 through 7.6.

8.7.7.1.2 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to either of the following:
(a) requirement 7.2, except 7.2.1 for hand and electric dumbwaiters
(b) requirement 7.3, except 7.3.4.1 for hydraulic dumbwaiters
(c) requirement 7.4
(d) requirement 7.5
(e) requirement 7.6.

8.7.7.★1 Alteration to Freight Platform Lifts Type A
Where an alteration is made to a Type A freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts, except any reference to in-car operating devices and riders shall not apply.

8.7.7.★2 Alteration to Freight Platform Lift Type B
Where an alteration is made to a Type B freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts.

8.7.7.2 Addition of Automatic Transfer Device.
Where an automatic transfer device is installed on an existing elevator or dumbwaiter, the resultant combination of material lift or dumbwaiter with automatic transfer device shall conform to Part 7.

8.7.7.3 Material Lifts and Dumbwaiters With Automatic Transfer Devices
8.7.7.3.1 Where any alteration is made to a material lift or dumbwaiter with an automatic transfer device, the entire installation shall comply with 7.7 through 7.10.

8.7.7.3.2 Where an automatic transfer device is removed from a dumbwaiter or material lift and is not replaced, the installation shall conform to 7.1 to 7,3 for dumbwaiters and 7.4 to 7.6 for Materials Lift Without Transfer Device.

8.7.7.3.3 Where a material lift is altered to be an elevator, it shall comply with Part 2 or Part 3.

8.7.7.3.4 Where a material lift or dumbwaiter with an automatic transfer device is altered to a dumbwaiter, it shall comply with 7.1 through 7.3.

3.5 Rated Load

3.5.1 For the purpose of this Document and subsection 31.(3) of the Regulation, “rated load” in the code adopted in subsection **3.1**, means “maximum capacity”.

3.6 Rope Clips

3.6.1 Rope clip fastenings shall not be used when suspension ropes are changed on an existing elevator.

3.7 Access to Machine Rooms and Spaces

3.7.1 Every elevator shall have a safe and convenient access to its machine room and machinery space. [CAD Amendment 246-11]

3.8 Requirements for Existing Passenger and Freight Elevators *(245/10) (173/02)*

3.8.1 Notwithstanding section 4 of the Regulation, every existing passenger and freight elevator that was installed before the 1st day of May, 1981 and that does not have car safeties, a speed governor, a braking system and hoistway-door interlocks or hoistway-door locks and contacts conforming to the requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition, shall conform to the applicable requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition. [CAD Amendment 246-11]

3.8.2 Not later than December 1, 2013, all elevators equipped with a car top that is intended to serve as a platform for a worker, "where the perpendicular distance between the edges of the car enclosure top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance and on sides where there is no hoistway enclosure", shall be equipped with a guardrail in conformance with 2.10.2 as modified by 2.14.1.7 of the code adopted in **3.1** [CAD Amendment 250-11]

3.8.3 All existing passenger and freight elevators with full or partial car tops shall be equipped with a car top maintenance station and a structurally sound working surface. [CAD Amendment 250-11]

3.9 Requirements for Existing Dumbwaiters or Freight Platform Lifts *(253/12)*

3.9.1 Every existing power dumbwaiter or freight platform lift that was installed before the 1st day of May, 1981 and that does not have hoistway-door interlocks or hoistway-door locks and contacts shall be provided with a locking device that shall prevent the device from moving until the door or gate is closed and that shall prevent the door or gate from being opened unless the device is at the corresponding landing. [CAD Amendment 246-11]

3.9.2 All type 'A' and type 'B' freight platform lifts and type 'B' material lifts utilizing hoistway door mechanical lock and contracts shall have their mechanical lock and contacts upgraded to interlocks by May 1, 2014. [CAD Amendment 261-13]

3.10 Platform Apron Requirements *(166/01)*

3.10.1 Every passenger elevator installed before the 1st day of May, 1981 and currently operated in an apartment building, condominium apartment building or educational institution and every passenger elevator installed after that date in any building, shall be provided at the entrance side with a smooth apron made of metal not less than 1.5 millimetres thick, or made of material of equivalent strength and stiffness, reinforced and braced to the car platform such that:

(a) it does not extend less than the full width of the widest hoistway door opening;

(b) it has a straight vertical face, extending below the floor surface of the car-platform, of not less than 1,200 millimetres, except that for an existing elevator this may be reduced where the hoistway pit is not deep enough to accommodate a larger vertical face;

(c) its lower portion is bent back at an angle not less than 60 degrees and not more than 75 degrees from the horizontal; and

(d) it is securely braced and fastened in place to withstand a constant force of 500 newtons applied at right angles to and;

(1) at 450 millimetres from the top without deflecting more than six millimetres, or

(2) at 1,150 millimetres from the top without deflecting more than 50 millimetres,

and without permanent deformation.

3.10.2 Every passenger elevator referred to in subsection **3.10.1** shall have a pit deep enough to accommodate the apron required in subsection **3.10.1**, and to provide a minimum twenty-five millimetres clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers.

3.10.3 Traction drive Limited-Use/Limited-Application (LULA) elevators serving 3 or more floors shall conform to **3.10.1** and **3.10.2**, otherwise 2 stop traction, hydraulic or roped hydraulic drive Lulas' are exempt from these requirements provided that;

(a) a supplementary owners report for Lula elevators has been filed with the Director and;

(b) a permanent and readily visible sign viewable from the hall landing has been provided on the apron in lettering not less than 16 mm in height, that advises;

(1) of a potential fall hazard below the car,

(2) to lower the car prior to rescue and,

(3) that lower and rescue shall be undertaken by trained personnel only. [CAD Amendment 246-11]

3.11 Door Safety Retainers for Single Slide Doors *(61/88, 97/92,109/93)*

3.11.1 Every existing passenger elevator with single slide landing doors shall be equipped with safety retainers and shall ensure that;

(a) the retainer shall withstand without detachment or permanent deformation, a force of 1000 Newtons applied upward at any point along the width of the door panel and, while this force is maintained, an additional force of 1000 Newtons applied perpendicular to the door at its centre over an area of 300 x 300 mm

(b) the installation of retainers was done in accordance with instructions supplied by the manufacturer of the door safety retainers. [CAD Amendment 246-11]

3.12 Low Pressure Switch *(160/01)*

3.12.1 Every hydraulic elevator where the top of the cylinder when at its highest elevation is above the storage tank, shall be equipped with a low pressure switch to prevent operation of the lowering valve(s) and other requirements specified by the code at time of installation or alteration. [CAD Amendment 246-11]

3.13 Hoarding Between Hoistways Required

3.13.1 No elevator shall be operated where it is located adjacent to a hoistway of another elevating device in which installation or alteration work is being performed and where the operation of the elevator may be hazardous to the persons performing the work or persons inside the elevator, unless the hoistways are separated by a structure supported and braced so as to not deflect into the code required running clearance of the adjacent operating car or its counterweight [CAD Amendment-261-13].

3.13.2 Where the separating structure referred to in subsection **3.13.1** is made of perforated material, it shall reject a ball 25 millimetres in diameter. [CAD Amendment-261-13].

3.14 Installation Number

3.14.1 Every elevator shall have its installation number engraved or painted on the car crosshead or other conspicuous location on the top of the car, visible from the point of access.

3.15 Attendant Operation

3.15.1 Where an elevator is controlled from one location only, an attendant shall be stationed at the controls while the elevator is available for operation.

3.16 Persons Permitted to Ride

3.16.1 Except for a freight elevator-P, no person other than an attendant(s) or freight handler(s) shall ride or be permitted to ride in a freight elevator.

3.16.2 No person other than an attendant(s) or a designated freight handler(s) shall ride or be permitted to ride in a freight platform lift-Type B or a material lift Type-B. [CAD Amendment 246-11]

3.16.3 No person shall ride or be permitted to ride on a freight platform lift-Type A or a material lift Type-A. [CAD Amendment 246-11]

3.16.4 Despite **3.16.1** and **3.16.2**, a person(s) may remain inside a motor vehicle that is on an elevating device if the device is designated as a Class B- motor vehicle loading, and the device is operated by a trained attendant or operator. [CAD Amendment 246-11]

3.17 Escalator Caution Signs

3.17.1 Every escalator installed prior to March 23, 2002 shall be fitted with a caution sign that meets the requirements of clause 8.10 of CSA B44-94; Safety Code for Elevators, as amended by Supplements B44S1-97 and B44S2-98. [CAD Amendment 246-11]

3.18 Repositioning of an Escalator

3.18.1 Despite subsection **2.5** of this Document repositioning of an escalator within the same building or premises shall not constitute a new installation.

3.19 Escalator Brake Requirements *(85/91) (247/11)*

3.19.1 Escalators installed under B44-M90 or later editions of the code shall have a data tag as required by the code at the time of the installation. Escalators installed under a prior code edition shall have a data tag in conformance with **3.19.2**.

3.19.2 Every escalator shall have a permanent and readily visible data plate affixed to the brake or machine, indicating:

(a) the method of checking the brake setting and as a minimum shall include:

(1) the minimum torque, or

(2) the maximum spring length, or

(3) other checking method; and

(b) the maximum no-load stopping distance as related to the torque, spring length, or other method, and

(c) the testing procedure and interval. [CAD Amendment 246-11]

3.19.3 Every escalator shall have device specific brake adjustment procedures or instruction that provides instruction for the maintenance mechanics to correctly adjust and check the escalator brake(s).

3.19.4 The instructions or procedures shall

(a) be posted or made otherwise available in the upper escalator pit;

(b) include detailed instructions for setting the escalator brake;

(c) include all information provided on the existing brake data tag;

(d) be of durable material such that the information contained therein will remain legible;

(e) as a minimum include the maximum no-load stopping distance as related to the manufacturer's specified brake torque, spring length etc. Where this information is missing and cannot be obtained from the original manufacturer, it is acceptable for a professional engineer in the province of Ontario to determine the no-load stopping distance; and

(f) include the method of checking the brake setting such as the 'minimum torque', or the 'maximum spring length', or other method.

3.20 Fire Code Retrofits *(60/88, 105/93, 127/96, 149/99, 219/07)*

3.20.1 Where an alteration is in response to a Fire Code Retrofit order, **all** elevators in the group, affected by the retrofit order shall be provided with:

(a) manual phase one recall operation

(b) automatic phase one recall operation if required by the Ontario Building Code at time of installation.

(c) phase two in-car operation

(d) Firefighter's Emergency Operation conforming to any code edition after and including CAN/CSA – B44-00 Update No. 2 Safety Code for Elevators, but in no case shall the code edition be less than the code under which the device was originally installed.

(e) FEO-K1 keys for all FEO switches.

(f) An FEO-K1 key for each switch location. [CAD Amendment 250-11]

3.21 Escalator Stopping Distance Check *(247/11)*

3.21.1 All escalators shall have a "Daily Stopping Distance Check" sign posted at each end of the escalator near the stop button or start switch.

3.21.2 The check sign shall communicate the following:

(a) Stop the empty running escalator. If the escalator travels more than " X" step(s) before stopping, do not restart. Barricade and call for service.

(1) The value of "X" in 3.21.2(a) shall be replaced with 1 or 2, and shall indicate the permitted number of steps, rounded to the nearest whole number, that was determined by the elevator contractor, that reflects the needed no load stopping distance required by the escalator brake.

3.21.3 The person(s) authorized by the owner to carry out the daily prestart checks of the escalator shall also perform the daily stopping distance check to verify the escalator braking capability aligns with the information contained on the stopping distance check sign. [CAD Amendment-261-13]

Part 4

4 MANLIFTS

4.1 Applied Code *(174/02)*

4.1.1 Every newly installed or altered manlift shall conform to the requirements of CSA Standard B311-02, Safety Code for Manlifts and any applicable changes set out in this document.

4.1.2 Conformance to Appendix A, B, & C is mandatory.

4.1.3 Section 7.32.9 of B311 applies to all Power-Type Manlifts. Top-of-car operating stations are not limited to lifts with wireless control and shall be provided on each power-type manlift.

4.1.4 Section 7.32 of B311: Note that requirements of section 7.36, Control and Operating Circuits, apply to "Wireless Control"as well. [CAD Amendment 246-11]

4.2 Top of Car Requirements for Power Type Manlift

4.2.1 Every power type manlift shall be provided with,

(a) a top-of-car operating device; and

(b) a protective guard railing on the top of the car.

4.3 Inspection and Testing of Safety Brake

4.3.1 The inspection and testing of a safety brake on an endless belt type manlift required in subsection 33.(2) of the Regulation shall ensure compliance with clause 5.2.2.3 of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

4.3.2 The inspection and testing of a safety device and overspeed governor on a counter-balanced or power type manlift required in subsection 33.(3) of the Regulation shall ensure compliance with clause 6.11.8 or 7.6.8.2, as the case may be, of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

4.4 Authorized Persons

4.4.1 No person shall use a manlift except those persons designated by the owner of the manlift as being properly trained in its operation and use.

4.5 Maintenance Log Book

4.5.1 The log book shall, as a minimum, contain the following information :

(a) Building name and/or address,

(b) TSSA or MCCR installation number,

(c) Contractor's and Owner's name,

(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,

(f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 246-11]

4.5.2 Where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted repaired or replaced. [CAD Amendment 246-11]

4.6 Location of the Log Book

4.6.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 246-11]

Part 5

5 PASSENGER ROPEWAYS AND PASSENGER CONVEYOR [CAD Amendment 246-11]

5.1 Applied Code

5.1.1 Every passenger ropeway and passenger conveyor shall conform to the requirements of CSA-Z98-07, Passenger ropeways and passenger conveyors, including Update No. 1 Z98-07 February 2010, and any additional applicable changes set out in this document.

5.1.2 Annexes "A, B, C, D, E, F, G, H, I, J and K" referenced in the Z98 standard are also adopted and apply to "post-2011" installations (as defined in **5.3**).

5.2 General Technical Requirements for Passenger Ropeways and Passenger Conveyors

5.2.1 The general technical requirements in Part 2 of the Code Adoption Document do not apply to passenger ropeways and passenger conveyors.

5.2.2 Passenger Ropeways and Passenger Conveyors shall conform to the following general technical requirements,

(a) Electrical equipment shall conform to the Ontario Electrical Safety Code as amended from time to time;

(b) In addition to CSA-Z98-07 requirements, welding on a passenger ropeway or passenger conveyor shall conform to the requirements of CSA W59-03 (R2008) Welded Steel Construction (Metal Arc Welding);

(c) Where a passenger ropeway or passenger conveyor is relocated it shall meet the requirements of **5.5** for post-2011 installations;

(d) Where an alteration is made to a passenger ropeway or passenger conveyor the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of **5.5**.

5.3 Definitions

5.3.1 In Part **5** of this document,

(a) "safety circuits" means E/E/PES of a passenger ropeway or passenger conveyor having an ability to carry out the functions necessary for mitigation of unacceptable failures by preventing movement or limiting speed of passenger ropeway or conveyor.

(b) NOTE:
1) Preventing movement may require a passenger ropeway or conveyor to stop or to prevent unwanted start-up
2) Limiting speed may require appropriate acceleration, deceleration or speed.

(c) "electrical/electronic/programmable electronic system" or "(E/E/PES)" means a system for control, protection, or monitoring based on one or more electrical/electronic/programmable electronic (E/E/PE) devices, including all elements of the system such as power supplies, sensors and other input devices, data highways and other communication paths, and actuators and other output devices.

(d) “electrical/electronic/programmable electronic” or “(E/E/PE)” means that based on electrical (E), and/or electronic (E), and/or programmable electronic (PE) technology.

(e) “programmable electronic” or “(PE)” means that based on computer technology which may be comprised of hardware, software, and of input and/or output units

(f) “pre-2011” means a passenger ropeway or passenger conveyor for which a design submission (initial or alteration) was registered before October 1, 2011.

(g) “post-2011” means a passenger ropeway or passenger conveyor for which a design submission (initial or alteration) was registered on or after October 1, 2011.

5.4 Requirements for PRE-2011 Passenger Ropeways and Passenger Conveyors

5.4.1 In the case of pre-2011 passenger ropeways or passenger conveyors the application of the code adopted in **5.1** is restricted to:

(a) Clause 11 “Ropes and chains” as further detailed in **5.4.2**;
(b) Clause 12 “Inspection, testing, and maintenance” as further detailed in **5.4.3**;
(c) Clause 13 “Operation of passenger ropeways and passenger conveyors” as further detailed in **5.4.4**;
(d) Annex’s “B, C, D, E, F, G ,H, I ,J and K”, and any changes set out in **part 5** of this document, and
(e) any applicable requirements in **5.16** though **5.31**.

5.4.2 The following requirements within Clause 11 “Ropes and chains” apply to “pre-2011” installations:

(a) Clause 11.8.2 “Wire rope tows”,
(b) Clause 11.9.5 “Wire rope clips and thimbles”
(c) Clause 11.10 “Non-destructive testing of ropes, sleeves, and sockets”,
(d) Clause 11.11 “Wire rope maintenance”,
(e) Clause 11.12 “Protruding broken wires”,
(f) Clause 11.13 “Replacement of repair of wire rope”,
(g) Clause 11.14 “Locked coil track rope broken wires”,
(h) Clause 11.15 “Wire rope log”,
(i) Clause 11.16 “Splice Certificate”,
(j) Clause 11.18 “Maintenance” for chains used in tensioning systems.

5.4.3 The requirements of Clause 12 “Inspection, testing, and maintenance” shall be complemented and supplemented with a maintenance manual produced in accordance with clause 4.38.4 “Maintenance manual”.

5.4.4 The requirements of Clause 13 “Operation of passenger ropeways and passenger conveyors” shall be complemented and supplemented with the following:
(a) an operations manual produced in accordance with clause 4.38.3 “Operations manual”
(b) loading and unloading areas shall be maintained during the operation of passenger ropeways and passenger conveyors in accordance with clause 4.26 “Loading and unloading areas”

5.5 Requirements for POST-2011 and Altered Passenger Ropeways and Passenger Conveyors

5.5.1 Post-2011 and altered passenger ropeways or passenger conveyors, shall conform to the code adopted in **5.1**, except as modified by **5.6** to **5.31** excluding **5.17.**

5.6 Protection Against Overspeed for Surface Ropeways & Conveyors

5.6.1 Surface ropeways and conveyors shall incorporate protection against the possibility of the device speed exceeding more than 10% of the maximum design speed.

5.7 Z98 clause 4.23.2.4 "Evacuation drive"

5.7.1 Clause 4.23.2.4 of Z98 is revoked and replaced with the following;

CAD 4.23.2.4
The emergency brake, antirollback device, deropement switches required in clauses 4.30.6.1 through 4.30.6.4 inclusive, and emergency stops required in clause 4.30.5 shall be capable of operation while the evacuation drive is in operation.

5.8 Z98 clause 4.24.3.2(c) "Emergency Brake"

5.8.1 Clause 4.24.3.2(c) of Z98 is revoked and replaced with the following;

CAD 4.24.3.2(c)
(c) 15% overspeed, as detected from the speed of the drive sheave or haul rope; and

5.9 Z98 clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" (General Applicability)

5.9.1 The general applicability of clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" shall not apply if all applicable prescriptive requirements of the code are met.

5.9.2 Any variance to or deviation from the prescriptive requirements related to the design of safety circuits *(see definitions)* shall comply with clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.9.3 New configurations or novel designs which cannot be precisely classified in CSA Z98-07, shall ensure that their safety circuit designs comply with 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.9.4 Where feature(s) of safety circuits for a passenger ropeway or conveyor is not specified in CSA Z98-07, safety circuits shall comply with 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.10 Z98 clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" (Compliance to)

5.10.1 Where conformance to clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" is required as specified in **5.9**, compliance shall be demonstrated as required in **5.10.2** or **5.10.3**.

5.10.2 Safety circuits function shall conform to highest requirement class (RC/AK) specific to hazard situation/safety function tabulated in Annex C of EN 13243:2004 or,

5.10.3 Safety circuits function shall conform to EN 12929:2004, EN 13243:2004 and EN 13223:2004 or equivalent.

5.11 Z98 clause 4.30.1.11 “Safety circuits”

5.11.1 Clause 4.30.1.11of Z98 is revoked and replaced with the following;

CAD 4.30.1.11 “Safety circuits”
Safety circuits shall incorporate redundancy and monitoring mechanisms. Monitoring of redundancy incorporated in safety circuits shall be done as a minimum, once per day. Relays and contactors used in safety circuits shall have force guided, mirrored, or mechanically linked contacts for monitoring purposes. Redundancy in safety circuits using software systems shall use diversification to avoid common mode failure.

5.12 Z98 clause 4.30.1.13 “Contactors, relays or magnetically operated switches”

5.12.1 An acceptable deviation from clause 4.30.1.12 “Redundancy” as allowed by Z98 shall comply with **5.10.3**.

5.13 Z98 clause 4.30.8.3 “Photoelectric safety switches”

5.13.1 An acceptable use of photoelectric safety switches as allowed by Z98 shall comply with **5.10.2** or **5.10.3.**

5.14 Z98 clause 4.32.3 “Two-Way Communication”

5.14.1 Clause 4.32.3 “Two-Way Communication” of Z98 is revoked and replaced with the following;

CAD 4.32.3
An audible two-way voice communication system shall be provided for machine rooms when the ropeway can be operated from those areas.

5.15 Z98 clause 5.10.2(c) “Service Brake”

5.15.1 Clause 5.10.2(c) of Z98 is revoked and replaced with the following;

CAD 5.10.2(c)
(c) when a service stop in a cabin is actuated;

5.16 Z98 clauses 13.15.1 and 13.15.2 “Evacuation with evacuation drive”

5.16.1 Clause 13.15.1 and 13.15.2 of Z98 is revoked and replaced with the following;

CAD 13.15.1
The deropement switches and emergency stops required in clause 4.30.5 shall be operable while operating with the evacuation drive.

CAD 13.15.1
If deropement switches and/or emergency stops are not operational due to a malfunction, the ropeway may be evacuated with the evacuation drive if the;
(a) full length of the ropeway is kept under surveillance; and
(b) observers are in communication with the operator throughout the evacuation.

5.17 Single Failure Protection

5.17.1 Every passenger ropeway installed before June 1, 2001 shall be so constructed and installed that the failure of any single, magnetically operated switch, contactor containing metal-to-metal contacts or relay to release does not prevent the passenger ropeway from stopping in response to an emergency stopping device nor permit the passenger ropeway to start or run if any emergency stopping device is activated.

5.17.2 Every passenger ropeway installed on or after June 1, 2001 that is considered a “pre-2011” device shall be so constructed and installed that none of the following events prevents the passenger ropeway from stopping in response to an emergency stopping device nor permits the passenger ropeway to start or run if any emergency stopping device is activated;

(a) the occurrence of a single ground;

(b) the failure of a single magnetically operated switch, contactor or relay;

(c) the failure of a single solid-state device; or

(d) a software system failure.

5.17.3 The devices used to satisfy the requirements of **5.17.2** shall be checked prior to starting of the passenger ropeway, as a minimum, once per day.

5.17.4 Where a single ground is detected as set out in clause **5.17.2(a)** or an event referred to in **5.17.2(b**) to **5.17.2 (d)** is detected, the passenger ropeway shall not restart.

5.17.5 Implementation of redundancy in a passenger ropeway by a software system is permitted provided that there is diversification to avoid common mode failure.

5.18 Log Books

5.18.1 In addition to data specified in section 34 of the Regulation, the log book of a passenger ropeway or passenger conveyor shall contain,

(a) all data required in the code adopted in section **5.1** of this document;
(b) all data on any increases or decreases to the mass of the carriers;

(c) a record of all pre-season inspections carried out in accordance with section **5.19** of this document;

(d) a record of all major and minor alterations; and

(e) a record of all five-year periodic tests referred to in section **5.30** of this document.

5.18.2 In addition to the requirements of subsection 34.(2) of the Regulation,

(a) non-destructive testing (NDT) records shall be kept from a historical reference date of October 1, 2001 or from the date any passenger ropeway or passenger conveyor was commissioned if after October 1, 2001, until the passenger ropeway or passenger conveyor is dismantled.

(b) major and minor alteration records shall be kept until the passenger ropeway or passenger conveyor is dismantled.

(c) a record of all engineering and assessment reports referred to in **5.20** of this document shall be kept until the above-surface passenger ropeway is dismantled.

5.19 Preseason Inspection *(168/02)*

5.19.1 The holder of a licence for a passenger ropeway shall perform a preseason inspection prior to the start of each ski season to ensure that the lift is in compliance with requirements as set out in **part 5** of this document.

5.19.2 The results of the inspection shall be recorded in a form acceptable to the director.

5.20 Aging Ski Lift Assessment

5.20.1 Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director. Note: see Director's guideline 224/07.

5.21 Requirements to Limit Tube Tow Detachment *(178/03 & 182/03)*

5.21.1 The word "tube(s)" has the same meaning as "secondary carrier(s)" used in Z98.

5.21.2 In addition to Parts **5.4** and **5.5**, tube tows shall comply with the requirements of **5.21.3** through **5.21.7**

5.21.3 The designer shall specify the method to verify the haul rope tension.

5.21.4 Connection of Tubes to Towing Attachments

(a) Manufacturers/designers of tube tows shall verify that the type of tube attachment connection is compatible for their towing attachment design.

(b) Manufacturers/designers of tube tows must allow for a safety margin that will ensure that the tubes will not detach as a result of changes in the tension force on the tether connecting the towing attachment to the tube. Changes of tension force on tether due to uneven tow path, foreseeable movement of passengers in tubes, passengers feet dragging on snow while seated in an acceptable position in tubes and acceleration/deceleration feature of tube tows shall be considered.

(c) For tube tows with automatic detachment at a predetermined unloading point, manufacturers/designers of tube tows shall specify minimum and maximum weight restrictions of tube users.

5.21.5 Tubes

(a) Tube sizes shall match tow path design so that a detached tube will slide clear of the uphill path of any of the following tubes.

(b) Tubes shall be designed to accommodate the passenger size.

5.21.6 Towing attachments

(a) The length of tube towing attachment shall be designed to maintain a minimum operational clearance from the snow along the tube tow-path and hauling rope while the tube is being hauled along the tow path.

(b) Factor of safety of all attachments to the haul rope and components for pulling tubes shall be based upon their impact strength at low temperatures.

(c) The designer/manufacturer shall specify the maximum tension force on all attachments to the haul rope and components for pulling tubes along their tow path.

(d) The designer/manufacturer shall specify procedures for inspection of all attachments to the haul rope and components for pulling tubes to verify their safety. Inspection procedures shall include criteria to evaluate the necessity of their replacement.

5.21.7 Tow Path, Crossfall and Containment Barriers

(a) Means to protect passenger in a tube against contacting any part of tube tow including grips shall be provided along the entire length of the tow path.

(b) Means shall be provided to keep tubes on the pre-defined tow path.

5.22 Alterations

5.22.1 Where an alteration is made to a passenger ropeway or passenger conveyor the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of **5.5**.

5.22.2 One or more of the following actions on a passenger ropeway or passenger conveyor shall constitute a major alteration:

(a) an increase or decrease in,

(1) the rated speed of the carriers,

(2) the maximum capacity of the ropeway;

(b) an increase or decrease by more than ten per cent, or an accumulated increase or decrease by more than ten per cent, of the dead weight of the carriers or counter-weight system;

(c) an increase or decrease in the length or rise of the travel of the passenger ropeway;

(d) a change,

(1) in the carrier design or manufacturer,

(2) in the line sheaves and sheave assemblies design,

(3) in the type of power supply to the machine,

(4) in the type of driving machine,

(5) in the location of a machine or tensioning system,

(6) in the type of tensioning system,

(7) that would result in a reclassification of the passenger ropeway,

(8) in tower length or an addition of a new tower.

(e) a change in,

(1) the method or type of operation,

(2) the method or type of motion control

(3) location of the controller

(f) a replacement of the controller,

(g) an alteration to the controller, other than an alteration to the motor starters.

5.22.3 Any action or work performed on a passenger ropeway that results in a change to the original design or the operational characteristics of the passenger ropeway or affects the inherent safety of the passenger ropeway and not listed in subsection **5.22.2** shall constitute a minor alteration.

5.22.4 Minor alterations shall be reported and inspected as required by section 19 of the Regulation.

5.23 Bar Lift Requirements

5.23.1 Every bar lift shall,

(a) be equipped with an anti-rollback device in accordance with 7.8 of Z98;

(b) have a tow path designed and maintained in accordance with 7.2.4 of Z98;

(c) be so constructed that maximum stopping shall be maintained in accordance with 7.7.1.2 of Z98 ; and

(d) be so constructed that, where a brake is used in order to obtain conformance with the requirement of subsection **5.23.1(c)** the brake shall conform to code adopted in **part 5.**

5.24 Rope Tow Requirements

5.24.1 Every rope tow shall,

(a) be equipped with an anti-rollback device in accordance with 8.13 of Z98;

(b) have a tow path designed and maintained in accordance with 8.2.5 of Z98;

(c) be so constructed that maximum stopping shall be maintained in accordance with 8.12.1.2 of Z98 ; and

(d) be so constructed that, where a brake is used in order to obtain conformance with the requirement of subsection **5.24.1(c)** the brake shall conform to code adopted in **part 5.**

5.25 Fibre Rope Tow Requirements

5.25.1 The return rope on a fibre rope tow shall have vertical clearances in accordance with 8.4.1 of Z98.

5.26 Chair Lift or Gondola Lift Requirements

5.26.1 Every chair lift or gondola lift shall,

(a) have a service brake that is located in accordance with 4.24.2.1 of Z98;

(b) be so equipped that the evacuation drive that drives the circulating rope is rendered inoperative in accordance with section **5.7 (CAD 4.23.2.4)**

(c) be equipped with a readily available work carrier in accordance with 4.27.10 and Annex B of Z98.

5.27 Carrier Grip Requirements

5.27.1 Where a work carrier is affixed to a lift line by means of rope grips that use friction as a gripping method, rope grips shall be installed in accordance with the code adopted in **part 5.**

5.27.2 A grip referred to in subsection **5.27.1** shall be so designed so as not to cause any damage to the hauling rope sheave, bullwheel or the liners of the sheave or bullwheel in accordance with the code adopted in **part 5**.

5.28 Restraining Bar Requirements

5.28.1 Each chair of a chair lift shall be equipped with a restraining device in accordance with 6.13.2 of Z98.

5.29 Haul Rope Retention on Chairlifts

5.29.1 Support, hold-down, and combination sheave assemblies on all chair lifts shall meet the requirements of the code adopted in **part 5**.

5.30 Load Test Requirements *(111/93)*

5.30.1 All above-surface passenger ropeways shall be load-tested periodically at intervals not exceeding five (5) years. The periodic load testing of the ropeway shall be carried out under the direction and supervision of the designer/manufacturer of the ropeway or a qualified professional engineer.

5.30.2 The results of five-year periodic tests shall be performed in accordance with the code adopted in **part 5** and recorded on the form provided in Annex H of Z98.

5.30.3 Original copies of the test shall be signed by either the designer/manufacturer of the ropeway or a qualified professional engineer and shall be kept on site in the log book.

5.31 Manufacturers/Designers Bulletins

5.31.1 Manufacturer(s) of passenger ropeway(s) or conveyor(s) shall inform owners about the requirements associated with their safety bulletins or alerts in addition to the requirement of Section 35 of the Regulation.

5.31.2 In addition to the requirement of Section 35 of the Regulation, owner(s) of passenger ropeway(s) or conveyor(s) shall inform manufacturer(s) about findings which may require the issuing of a safety bulletin or alerts.

5.31.3 Owners are responsible to carry out the requirements of manufacturer's safety bulletin or alerts.

Part 6

6 CONSTRUCTION HOISTS

6.1 Applied Code [CAD Amendment 216-07]

6.1.1 Every construction hoist shall conform to the following:

(a) workers' rail guided construction hoists shall conform to CAN/CSA Standard Z185-M87(R2001), Safety Code for Personnel Hoists; [CAD Amendment 216-07]

(b) workers' rope-guided construction hoist shall conform to, American National Standard ANSI/ASSE A10.22 – 2007 Safety Requirements for Rope-guided and Non-guided Workers' Hoist; and [CAD Amendment 216-07]

(c) material construction hoist, CSA Standard Z 256-M87(R2006), Safety Code for Material Hoists, [CAD Amendment 216-07]

and any applicable changes set out in this document. [CAD Amendment 246-11]

6.2 Rated Load

6.2.1 For the purpose of this Document and subsection 31.(3) of the Regulation, "rated load" or "rated loading" in the codes referred to in section **6.1** means "maximum capacity".

6.3 Continuously Controlled by Power

6.3.1 Every construction hoist shall be so designed that the car movement in both the up and down direction is continuously controlled by power.

6.4 Broken Rope Safety

6.4.1 A material construction hoist that is equipped with a broken rope type safety shall not be registered unless a type test indicates that the safety is capable of stopping the car when it is free falling with its rated load.

6.5 Limitation on Speed

6.5.1 Where the load-carrying unit of a workers' rope-guided construction hoist passes through a restricted area at a platform or floor, a control device that positively and automatically lowers the speed of the load-carrying unit to that specified in the related design submission while the load-carrying unit passes through the restricted area shall be installed on the hoist, except where the design submission indicates that no speed limitation is required.

6.5.2 In lieu of the control device referred to in subsection **6.5.1**, an operator utilising a system of signals may be used to manually control the speed of the hoist.

6.6 Attendant Operation

6.6.1 Every workers' rail-guided construction hoist, shall while in operation, be attended by an attendant who shall be stationed in the load-carrying unit, and who shall operate the construction hoist and also supervise the loading, passage and unloading of persons and freight.

6.6.2 Every material construction hoist shall while in operation be,

(a) attended by one or more attendants stationed at each location where freight is being loaded or unloaded; and

(b) operated by,

(1) an attendant stationed at the location of the operating devices, provided that the operating devices can be automatically rendered inoperative should an unsafe condition for operation of the construction hoist exist, or

(2) an operator stationed at the driving unit where the driving unit and its operating devices cannot automatically be rendered inoperative should an unsafe condition for operation of the construction hoist exist.

6.6.3 Subsections **6.6.1** and **6.6.2** apply with necessary modifications to the providing of attendants and operators for workers' rope-guided construction hoists.

6.7 Up Overspeed Protection

6.7.1 Every workman's construction hoist that is equipped with a counterweight having a mass greater than the mass of the empty car shall be provided with a means for protecting against uncontrolled car speed in the up direction and such means shall conform to the following:

(a) It shall detect any uncontrolled movement of the car prior to or at least when the car reaches a predetermined overspeed and shall cause the car to stop prior to the time when the counterweight strikes its buffers, or at least reduce car speed to the speed for which the buffers are designed.

(b) It shall be capable of performing as required in paragraph (a) without assistance from any hoist component which solely without built in redundancy, controls the speed, or deceleration, or stops the car during normal operation.

(c) It shall not develop an average retardation of the car in excess of 9.81 m/sec^2 during the stopping phase.

(d) It shall prevent uncontrolled movement of the car through control of the speed of, and acting upon the,

(1) car;

(2) counterweight;

(3) suspension or compensating rope system; and

(4) drive sheave, provided that the traction between the suspension ropes and the drive sheave are continuously monitored and the construction hoist is automatically removed from service when the rope slippage exceeds a predetermined amount.

(e) When it is activated or during the stopping phase, it or another hoist component shall cause the power supply of the driving machine to be interrupted.

(f) It shall be capable of performing at least ten operations without any adjustments.

(g) All components that require periodic examination and maintenance for the purpose of maintaining their operational reliability, shall be readily accessible.

(h) Its performance shall be checked during the initial and periodic inspections unless its performance reliability is substantiated otherwise.

(i) It shall be provided with a making plate indicating maximum capacity for which it may be used and the speed at which it is set to operate.

6.8 Additional Requirements for Workers' Rail Guided Construction Hoists [CAD Amendment 216-07]

6.8.1 In addition to the requirements of **6.1.1(a)**, workers' rail-guided construction hoists shall conform to the following:

(a) Clause 14.4.2 of CAN/CSA-Z185-M87 (R2001) shall be replaced with the following;

(1) The occurrence of a single ground or a software system failure or the failure of

a) a switch which does not have contacts that are positively separated;

b) a contactor;

c) a relay; or

d) a solid state device;

shall not render any electrical protective device ineffective.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Clause 18.1.1(c) of CAN/CSA-Z185-M87 (R2001) shall be replaced with:

Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

(e) Workers' construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase. [CAD Amendment 216-07]

6.9 Additional Requirements for Workers' Rope-Guided Construction Hoists [CAD Amendment 216-07]

6.9.1 In addition to the requirements of **6.1.1(b)**, workers' rope-guided construction hoists shall conform to the following:

(a) The occurrence of a single ground or a software system failure or the failure of

(1) a switch which does not have contacts that are positively separated;

(2) a contactor;

(3) a relay; or

(4) a solid state device;

shall not render the, deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake ineffective.

Note: Requirements only apply to the circuits in which the deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake are used and not to the devices themselves.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render the Deadman Control Switch, Limit Switches, or the Automatic Friction Brake ineffective and shall not cause the cage to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) All references to NFPA 70 (Clause 2.1, Clause 3.24, and Clause 4.13 of ANSI A10.22-2007) shall be replaced with Ontario Electrical Safety Code as referenced in **2.2.1(b)** of this document. [CAD Amendment 216-07], [CAD Amendment 246-11]

6.10 Additional Requirements for Material Construction Hoist [CAD Amendment 216-07]

6.10.1 In addition to the requirements of **6.1.1(c)**, material construction hoists shall conform to the following:

(a) Clause 15.3.2 of CAN/CSA-Z256-M87 (R2006) shall be replaced with the following;

(1) The occurrence of a single ground or a software system failure or the failure of

a) a switch which does not have contacts that are positively separated;

b) a contactor;

c) a relay; or

d) a solid state device;

shall not render any electrical protective device ineffective.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Clause 19.1.3 of CAN/CSA-Z256-M87 (R2006) shall be replaced with:

Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

(e) Material construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase. [CAD Amendment 216-07]

6.11 Maintenance Log Book [CAD Amendment 255-12]

6.11.1 Each elevating device of a type listed in **6.1.1** shall be provided with a maintenance log book as required by O.Reg 209/01 s.34 Log books.

6.11.2 Maintenance records in the form of a log book shall document compliance with related construction hoist codes, Code Adoption Document (CAD) requirements and any manufacturer recommended tasks extracted from the manufacturers maintenance and operation manuals, and shall include records on the following activities:

(a) description and dates of maintenance task performed;

(b) description and dates of examinations, tests;

(c) description and dates of adjustments, repairs, and replacements;

(d) description and dates of any tasked noted in the Guideline for Maintenance Logs – Construction Hoists (Guideline 256/12); and

(e) description and dates of all call backs (trouble calls) or reports that are reported to elevator personnel by any means, including corrective action taken.

(f) log records to document compliance with the maintenance, examinations and test activities listed in (a) through (d) shall also include:

(1) Building name and/or address;
(2) TSSA installation number;
(3) Contractor's (owners) name;
(4) Contractor's Registration Number;
(5) the code section, reference, requirement or clause number associated with a task;
(6) a description of the task performed;
(7) the prescribed maintenance frequency of the task;
(8) the date the task was performed; and

(9) upon completion of the task, the printed name, signature, and TSSA certificate number of the person who completed the maintenance, examination or tests.

6.11.3 Where a part of an elevating device which directly affects the safe operation of the device is found to be defective, the record of the relevant maintenance task shall not be signed off by the party performing the task until the defective part is adjusted, repaired or replaced, and the safety of the device restored.

6.12 Location of the Maintenance Log Book [CAD Amendment 255-12]

6.12.1 The maintenance log book shall be kept in the machine room or on the device or near the device location or, in the alternative if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.12.2 Log book data shall be readily available as required by O.Reg 209/01 s.34.(3)

6.13 Manufacturers Maintenance and Operation Manual [CAD Amendment 255-12]

6.13.1 For each construction hoist the manufacturers maintenance and operations manual shall be retained.

6.13.2 The manufacturers maintenance and operation manual shall be kept in the machine room or on the device or near the device location or in the alternative, if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.13.3 The manufacturers maintenance and operation manual shall be readily available and immediately provided to an inspector upon request.

6.14 Operator Training [CAD Amendment 255-12]

6.14.1 Every operator must have the required knowledge and experience to operate an elevating device and owners, licensees and/or lessees, must ensure operators are trained to safely operate such devices and must be satisfied that the operator is aware of potential hazardous situation connected therewith as required by O.Reg 209/01 s.40.

6.14.2 Owners, licensees, lessees providing training or other trainers providers shall develop and maintain written operator training programs and written policies and procedures to ensure compliance with the regulation and **6.14.1**.

6.14.3 Written training programs shall include applicable portions of the manufacturers maintenance and operation manual to address the requirements of the regulation and **6.14.1** and shall include the minimum requirements for operator training as outlined in the Guide for Operator's Logs and Operator Training Requirements – Construction Hoists (Guideline 257/12).

6.14.4 Copies of the documentation required under **6.14.2** shall be kept on site, shall contain current and complete information and shall be readily available and immediately provided to an inspector upon request.

6.14.5 Training records shall be maintained by the training provider ("trainer") and shall include the following information:
(a) the name of the person(s) who received the operator training;
(b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
(c) the date of training;
(d) the signature of the trained operator; and,

(e) the signature of the trainer.

6.14.6 A copy of the training records identified in **6.14.5** shall be maintained on site and readily available and immediately provided to an inspector upon request.

6.14.7 Individuals who are trained as operators, and have achieved sufficient competence to operate the device safety shall be issued by the trainer an "Operator's Proof of Training" document which must certify that the operator is competent to operate the device safely and must specify the following information:
(a) the operators name;
(b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
(c) the date the training was received; and
(d) the signature of the trainer.

6.14.8 The trainer shall issue an "Operator's Proof of Training" document in the form of a letter or wallet card or equivalent as per **6.14.7**.

6.15 Operator's Proof of Training [CAD Amendment 255-12]

6.15.1 Operators are required to carry their "Operator's Proof of Training" document whenever they operate an elevating device.

6.15.2 "Operator's Proof of Training" shall be readily available and immediately provided to an inspector upon request.

6.15.3 An "Operator's Proof of Training" may be immediately revoked by an Inspector, owner, licensee, lessee or trainer where there is reason to believe that the operator lacks the competence to safely operate the elevating device and the operator may no longer operate the device.

6.16 Daily Operator's Log [CAD Amendment 255-12]

6.16.1 Each elevating device type listed in **6.1.1** shall have a corresponding "Daily Operator's Log" in which a current and accurate record of all required start up checks as required by the device manufacturer, owner, licensee, lessee or device operator shall be kept and shall include the minimum requirements for operator's logs as outlined in the Guideline for Operator's Logs – Construction Hoists (Guideline 257/12).

6.16.2 Operator's of a device must satisfy themselves, at the start of each shift, that the device is safe to operate as required by O.Reg 209/01 s.42 by conducting a series of start up checks as outlined in the Guideline for Operator's Log – Construction Hoists and shall record and sign off these checks in the "Daily Operator's Log".

6.16.3 The "Daily Operator's Log" must contain the following information:

(a) the Building name and/or address;

(b) the TSSA device installation number;

(c) a list of the daily checks as required by **6.16.1;**

(d) the Operator's printed name and signature acknowledging completion of all daily checks after the device is found to be in safe working order and the date of such checks.

6.16.4 Where a part of the elevating device which directly affects the safe operation of the device is found to be defective, the log shall not be signed off and the device shall not be put into operation until the defect is adjusted, repaired or replaced, by a registered mechanic.

6.17 Location of the Daily Operator's Log [CAD Amendment 255-12]

6.17.1 The "Daily Operator's Log" shall be kept in the machine room, on the device, or near the device location, or in the alternative, if it is kept at another location on the site, a notice will be posted in the machine room or device location indicating the alternate location.

6.18 Signage [CAD Amendment 255-12]

6.18.1 Every car, cage or platform shall be equipped with a sign as follows:

(a) The sign shall display the message, "Only Operators who have their valid "Operator's Proof of Training" card on their person shall operate this device";

(b) The sign shall be of such material and construction that the letters are stamped, etched, cast or otherwise applied to remain permanently visible; and

(c) The height of the letters shall not be less than 12 mm (1/2 in.).`

6.19 Incident and Issue Reporting [CAD Amendment 255-12]

6.19.1 Incidents shall be reported as required by O.Reg 209/01 s.36. See also Director's Guideline 230/09.

6.19.2 Device operators shall report device incidents and any safety related issues to supervisory personnel who are responsible for taking the appropriate action or following the incident report requirements required by the regulation.

Part 7

7 ELEVATING DEVICES FOR PERSONS WITH PHYSICAL DISABILITIES

7.1 Applied Code [CAD Amendment 238-09]

7.1.1 Each newly installed elevating device for persons with physical disabilities shall conform to the requirements of CSA Standard B355-09, Lifts for persons with physical disabilities including and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.2 Maintenance [CAD Amendment 238-09]

7.2.1 All lifts for persons with physical disabilities shall conform to the maintenance requirements of CSA-B355-09 Lifts for persons with physical disabilities including Annex B and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.3 Maintenance Log Book [CAD Amendment 238-09]

7.3.1 The log book shall, as a minimum, contain the following information:

(a) Building name and/or address,

(b) TSSA or MCCR installation number,

(c) Contractor's and Owner's name,

(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,

(f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 238-09]

7.3.2 Where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted repaired or replaced. [CAD Amendment 238-09]

7.4 Location of the Log Book [CAD Amendment 238-09]

7.4.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 238-09]

7.5 Access to Lift

7.5.1 Every owner of an unenclosed vertical platform lift and every owner of an unenclosed stair platform lift or stairchair lift shall ensure that the public does not have access to the area where the lift is installed while the lift is in operation.

7.5.2 Subsection **7.5.1** does not apply in the case of an unenclosed stair platform lift or stairchair lift where,

(a) the owner of the lift is able to control and identify persons who will be using the lift or the area where the lift is installed and the owner familiarizes those persons in advance of using the area or lift with the safety rules and procedures concerning the use of the area and the lift; and

(b) and the lift meets the requirements of subsection **7.6**.

7.6 Lift Operation with Persons Nearby

7.6.1 Where an unenclosed stair platform lift or stairchair lift is being operated at the same time that other persons are using the area in which the lift is installed,

(a) audio-visual signals shall be emitted that warn persons using the lift and persons in the area where the lift is installed at all times when the platform is unfolded and until the lift is parked in a safe position at a terminal; and

(b) every leading edge or surface of that portion of the lift and its carriage that carries the passengers in both directions of travel shall be equipped with sensitive devices that meet the requirements of clause 7.2.4. and 8.5.4. of the standard adopted in section **7.1** of this Document and that are operational whenever the carriage is in motion.

7.7 Usage of Device

7.7.1 The owner of a lift for persons with physical disabilities shall ensure that,

(a) the device is used primarily for the transportation of persons with physical disabilities;

(b) detailed operating instructions are posted at every operating station;

(c) the operation of the device is restricted to attendants designated by the owner or those persons who in the opinion of the owner are able to use the device without an attendant; and

(d) the persons using the device receive instruction and training that emphasizes the hazards associated with improper use of the device.

7.8 Requirements for Restricted Operation

7.8.1 The operation of a lift for persons with physical disabilities shall be restricted by means of a key-control for the operating device as set out in subsection **7.8.2** and **7.8.3** or by a method acceptable to the director that provides the same degree of safety.

7.8.2 A key-control for an operating device may be by means of an on/off lockable switch located near and controlling one or more operating devices or each operating device may be directly key-controlled.

7.8.3 The key for a key-control for an operating device shall be removable only when the switch is in an "off" position.

7.8.4 Folding down of a platform on a stair platform lift shall be restricted to persons authorised to use the lift, by the following means:

(a) in the case of a platform that is folded down by power – by means of a key-controlled switch or by a method acceptable to the director; and

(b) in the case of a platform that is folded down manually – by means of a keyed lock or by a method acceptable to the director.

7.8.5 Lowering of a barrier arm, if provided, shall be restricted to persons authorised to use the lift by means of a keyed switch or lock or by a method acceptable to the director.

7.9 Instructions for Use and Owner Requirements

7.9.1 Every owner of an elevating device for persons with physical disabilities shall,

(a) ensure that the instructions for the device are posted at the location of each operating device that will inform a person with physical disabilities of the established procedure to gain access to and to use the device and, in the case of unenclosed devices, that such instructions include, but are not limited to, cautioning the user to observe the lift runway for possible obstructions;

(b) ensure that an attendant is available to operate the device when a person with physical disabilities requires assistance;

(c) where an attendant is required and is not permanently stationed at the location of the operating device ensure that a notice is posted at the entrance to the elevating device that indicates the procedure to be followed to obtain assistance; and

(d) provide instruction that an unoccupied platform of an unenclosed stair platform lift should not be called or sent from a landing station unless it is in the raised and folded position. [CAD Amendment 238-09]

7.9.2 A person shall only operate an unenclosed vertical platform lift, an unenclosed stair platform lift or a stairchair lift, if the person is satisfied that only persons using the lift have access to the area where the lift is installed.

7.9.3 Subsection **7.9.2** does not apply to a person operating an unenclosed stair platform lift or a stairchair lift while other persons are using the area in which the lift is installed where,

(a) the conditions set out in subsection **7.5.2** exist;

(b) the person operating the lift is an attendant and has, while operating the lift in the folded down position, a clear view of the lift runway in the direction of its movement by walking along with the carriage while it is in motion or has by being stationed at a point, a clear view of the runway;

(c) the person using the lift has, while using the lift, a clear view of the lift runway in the direction of travel; and

(d) the audio-visual signals required under subsection **7.6.1(a)** are operational.

7.10 Notice Required Regarding Restricted Use

7.10.1 A notice that the use of a lift for persons with physical disabilities is restricted to persons with physical disabilities shall be posted at each location of a device, at landing or runway entrances of the device and at the load-carrying unit of the device.

7.11 Supplementary Owners Report

7.11.1 In addition to those requirements set out in sections 15 and 16 of the Regulation, the design submission for a lift for persons with physical disabilities shall include a detailed report, completed on a form provided by the director, from the owner of the elevating device, in which the proposed methods of compliance with sections **7.5** to **7.8** and **7.9.1** of this Document shall be described.

7.12 Change of Ownership & Supplementary Owners Report

7.12.1 In addition to the requirements of section 29 of the Regulation, where there is change in the ownership of a lift for persons with physical disabilities or a substantive change in the type of occupancy of a building in which a lift for persons with physical disabilities is installed, the new owner of the lift shall submit to the director, a detailed report on a form provided by the director in which the proposed methods of compliance with sections **7.5** to **7.8** and **7.9.1** of this Document shall be described.

7.13 Pressure Sensor Requirement for Vertical Platform Lifts *(248/11)*

7.13.1 All vertical platforms, where any part of the hydraulic cylinder is above the top of the hydraulic oil storage tank, shall be equipped with a pressure sensor that when activated shall prevent the operation of the lowering valve or valves in conformance with clause 6.6.8 of CSA B355-09 Lifts for Persons with Physical Disabilities [CAD Amendment-261-13]

Elevating and Amusement Devices Safety Division	Ref. No.: 261/13	Rev. No.: 1
Elevating Devices Code Adoption Document - Amendment	Date: May 1, 2013	Date: September 15, 2013

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16

- and -

Ontario Regulation 223/01
(Codes and Standards Adopted by Reference)

- and -

Ontario Regulation 209/01
(Elevating Devices)

Subject: **Elevating Devices Code Adoption Document - Amendment 261/13-r1**

The Director for the purposes of Ontario Regulation 209/01 (Elevating Devices), pursuant to section 4 of Ontario Regulation 223/01 (Codes and Standard Adopted by Reference), hereby provides notice that the Elevating Devices Code Adoption Document dated June 1, 2001, published by the Technical Standards and Safety Authority is amended as follows:

1. **All sections of the Elevating Device Code Adoption Document dated June 1, 2001 are hereby revoked and replaced with the following:**

   1. The Elevating Devices Code Adoption Document - Amendment 261/13-r1, dated September 15, 2013 and published by the Technical Standards and Safety Authority, is hereby adopted.

2. **This amendment is effective September 15, 2013.**

_____
Roland Hadaller, P.Eng.
Director, O. Reg. 209/01 (Elevating Devices), made under the *Technical Standards and Safety Act, 2000*

ELEVATING DEVICES CODE ADOPTION DOCUMENT AMENDMENT 261/13-r1

September 15, 2013

Elevating and Amusement Devices Safety Program
Technical Standards and Safety Authority

3300 Bloor Street West, 14th Floor, Centre Tower, Toronto, Ontario M8X 2X4
Telephone: 416-734-3300 Fax: 416-231-5435 Toll Free: 1-877-682-8772
Putting Public Safety First

Background

This document and the codes it adopts establish requirements and minimum standards for the design, construction, installation, erection, maintenance and alteration of elevating devices. It has been developed in consultation with the Elevating Devices Advisory Council, the Field Advisory Committee, and various industry stakeholders.

Pursuant to s. 4(1) of O. Reg. 223/01 (Codes and Standards Adopted by Reference) made under the *Technical Standards and Safety Act, 2000*, the "Elevating Devices Code Adoption Document" published by TSSA and dated June 1, 2001 (the "CAD") forms a part of O. Reg. 209/01 (Elevating Devices).

The CAD, in turn, adopts various codes. Since its adoption as part of O. Reg. 209/01, the CAD has been amended several times to adopt different versions of codes and to make modifications to those codes.

CAD amendment 261/13, adopted May 1, 2013, replaced all previous CAD amendments and is a consolidation of previous CAD amendments and applicable Directors Orders.

This revision, 261/13-r1, makes minor revisions to CAD amendment 261/13. Highlights of changes introduced in this revision are as follows:

- clarify collapsible handrails (if used) must extend to 42" when opened
- clearance from car top handrail to shear hazards in the hoistway must be 4" after Nov 1, 2013
- dedicated function fire alarms (DFFA) if used in building with existing systems must be integrated as one system
- DFFA if used in buildings not requiring alarm systems must be marked as elevator recall systems
- owners must annually test DFFA used solely as elevator recall systems
- transit facilities may stop escalators as permitted by NFPA 130
- existing installations must have MCP's in place by March 31, 2014
- car top railing compliance has been revised to May 1, 2014
- a hydraulic elevator to electric elevator alteration scope has been added
- clarify if FCR retrofits where missed, autorecall is now required for all cars
- A summary table of pending compliance due dates has been added to end of Part 3

For the user's convenience, this CAD amendment indicates previous amendments using the colour coding and reference symbols in the following table:

Colour Coding and Reference Symbols Used in CAD Amendment 261/13-r1

7.5	is a reference to another section in this CAD amendment
(197/06)	is a reference to a predecessor document (Director's Order, Enforcement Procedure, etc.)
7.2.4.	is a reference to a section in an external document or code
~~as part of~~	is a reference to text from a published code that is not part of this code but is shown for reference only
Red Text	is used to identify changes from the previous CAD amendment or TSSA-specific additions to a published code
★	is used to denote a TSSA-specific alteration
Blue greyed	denotes a maintenance permission that will expire on March 31, 2014
Peach highlight	-identifies new text contained in CAD Amendment 261/13-r1 -identifies text from the A17.1/B44-2013 code introduced in Amendment 261/13-r1

Note that definitions contained in O. Reg. 209/01 apply to the code.

For more information contact:

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Table of Contents

Elevating Devices
Code Adoption Document
Amendment 261/13-r1

Part 1

1 GENERAL

1.1 Definitions

1.1.1 The terms in this Code Adoption Document amendment (Document) have the same meaning as in the *Act* or the Regulation unless otherwise specified herein.

1.1.2 Where a provision of a code or standard adopted in this Document is inconsistent with the requirements of this Document, the provision of this Document shall prevail.

1.1.3 In this Document,

(a) "Regulation" means Ontario Regulation 209/01 (Elevating Devices) made under the *Technical Standards and Safety Act, 2000*.

(b) "CSA" means the Canadian Standards Association.

(c) "CAN" means a standard recognised as a National Standard of Canada and approved by the Standards Council of Canada.

(d) "ANSI" means the American National Standards Institute.

(e) "freight elevator-P" means a freight elevator upon which passengers are permitted to ride;

(f) "common-mode failure" means the result of an event(s) which because of dependencies, causes a coincidence of failure states of components in two or more separate channels of a redundancy system, leading to the defined system failing to perform its intended function. [CAD Amendment 216-07]

(g) "software system failure" means a behaviour of the software, including its support (host) hardware, that is not in accordance with the intended function. [CAD Amendment 216-07]

(h) "solid-state device" means an element that can control current flow without moving parts. [CAD Amendment 216-07]

(i) "dedicated function fire alarm system" means a protected premises fire alarm system installed specifically to perform fire safety function(s) [CAD Amendment 250-11] See also definition in NFPA 72. [CAD Amendment 261/13]

(j) "minor alteration – type A" means a minor alteration per O. Reg. 209/01 which requires the signature and seal of a professional engineer per O.Reg 209/01 15.(6) [CAD Amendment 250-11]

(k) "minor alteration – type B" means a minor alteration per O.Reg 209/01 19.(1) which may be signed as per O.Reg 209/01 15.(9) [CAD Amendment 250-11]

1.2 Exceptions

1.2.1 Except where otherwise indicated, this Document applies to all elevating devices and parts thereof.

1.2.2 Despite subsection **1.2.1** and unless otherwise specified in the Regulation, in this Document or by the director, the codes and standards referred to in this Document do not apply to existing elevating devices except for those sections respecting alterations, the inspection, testing, maintenance, operation and use of the elevating device, including signage and instructions relating to the use of the elevating device.

Part 2

2 GENERAL TECHNICAL REQUIREMENTS

2.1 Welding

2.1.1 The welding of a steel structure on an elevating device shall conform to the requirements of CSA Standard W59-03, Welded Steel Construction (Metal Arc Welding). [CAD Amendment 246-11]

2.1.2 The welding of a steel structure on an elevating device shall be undertaken by a fabricator or contractor qualified to the requirements of CSA Standard W47.1-03, Certification of Companies for Fusion Welding of Steel Structures. [CAD Amendment 246-11]

2.1.3 The field welding of piping and fittings on an elevating device shall conform to the requirements of CSA Standard B51-03, Code for the Construction and Inspection of Boilers. [CAD Amendment 246-11]

2.1.4 Despite subsections **2.1.1**, **2.1.2** and **2.1.3**, an equivalent welding standard may be used if it is acceptable to the director.

2.2 Electrical

2.2.1 Electrical equipment shall conform to the requirements of,

(a) Ontario Electrical Safety Code as amended from time to time; and [CAD Amendment 246-11]

(b) CAN/CSA B44.1/ASME A17.5-04, Elevator and Escalator Electrical Equipment, or [CAD Amendment 246-11]

(c) CAN/CSA C22.2 No. 14, Industrial Control Equipment (applicable to elevating devices other than elevators, escalators, moving walks, dumbwaiters, material lifts, and lifts for persons with physical disabilities). [CAD Amendment 246-11]

2.3 Rope Clips

2.3.1 Where clips are permitted to fasten metal rope in an elevating device,

(a) the minimum number of clips to be used on each rope ends shall be,

(1) two clips for rope under nine millimetres in diameter,

(2) three clips for rope nine millimetres in diameter and over but under sixteen millimetres in diameter,

(3) four clips for rope sixteen millimetres in diameter and over but under nineteen millimetres in diameter;

(b) the rope end shall be bent over a heart-shaped thimble that has a groove of a radius equal to that of the rope or shall be provided with protection that a director considers equivalent;

(c) the clips shall be spaced at a distance apart equal to six times the rope diameter from the short end of the rope;

(d) U-type clips shall be placed so that the U bolts bear on the short or dead end of the rope and the bases bear on the load part of the rope; and

(e) the nuts on the clips shall not be fully tightened until after the rope has been under load and all nuts shall be fully tightened while the rope is still loaded.

2.4 Rope Replacement *(17/84)(122/95)*

2.4.1 When changing or shortening ropes on counterweighted elevators, the installation shall be provided with a data plate permanently and securely attached in the pit, in the vicinity of the counterweight buffer, indicating the maximum designed counterweight runby. [CAD Amendment 246-11]

2.4.2 The minimum stranding for cables used to relate any car or landing door shall be not less than 7 x 19 construction. [CAD Amendment 246-11]

2.5 Relocation of an Elevating Device

2.5.1 Where an elevating device is relocated it shall meet the requirements of the applicable code or standard adopted in this Document, unless otherwise specified in this Document or by the director.

2.6 Alteration

2.6.1 Where an alteration is made to an elevating device the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of codes or standards adopted in this document, including any changes set out in this document. [CAD Amendment 250-11]

2.6.1 Unless otherwise specified in this Document or by the director, and without limiting generality of the Regulation, the following alteration to an elevating device shall constitute a major alteration:

(a) An increase by more than 10 per cent in,

(1) the rated speed of the load-carrying unit,

(2) the maximum capacity, or

(3) the dead-weight of the machine, load-carrying unit or counter-weight;

(b) except for construction hoists, an increase or decrease in the distance of the travel of the load-carrying unit;

(c) a change in,

(1) the method or type of operation,

(2) the method or type of motion control,

(3) the type or size of guide rails or other guiding means for the load-carrying unit or counter-weight,

(4) the type of safety device or other safety stopping device for the load-carrying unit or counter-weight,

(5) the power supply to the machine,

(6) the type of driving machine or brake,

(7) the location of ;

a) the elevating device,

b) elevating device controller, [CAD Amendment 246-11]

c) the machine,

d) the load-carrying unit,

e) the counter-weight, or

(8) the working pressure of a hydraulic system by more than 10 per cent;

(d) a replacement of the controller; [CAD Amendment 246-11]

(e) changes that would result in a reclassification of the elevating device; and

(f) the addition of an entrance to the elevating device.

2.6.2 Unless otherwise specified in this Document or by the director, and without limiting the generality of the Regulation, any action or work performed on an elevating device that is not specified in subsection **2.6.2** and that results in a change to the original design or the operational characteristics of the elevating device or affects the inherent safety level of the elevating device, shall constitute a minor alteration.

2.7 Rack and Pinion Safeties [CAD Amendment 213-07]

2.7.1 Any repair or rebuild of a type 'D' rack and pinion safety where the manufacturer has stated that such work shall only be performed by the manufacturer, may either be;

(a) repaired, rebuilt or replaced by the manufacturer; or

(b) repaired or rebuilt in accordance with a procedure certified by a professional engineer.

2.7.2 The procedure referred to in clause **2.7.1(b)** shall be filed with the director and shall be available to the inspector upon request. [CAD Amendment 213-07]

2.8 Format of Submission Documents

2.8.1 Where a design submission is in paper format it shall;

(a) be submitted as one copy unless the submission includes oversized drawings;

(b) drawings that are not legible when printed on 11" x 17" paper are considered oversized and shall be submitted as four paper copies as well as in an electronic media form that contains the oversized drawings in unprotected PDF, JPEG or TIFF format;

(c) pages larger than 11”x17” provided in hardcopy shall be folded and submitted without any binding. [CAD Amendment 246-11]

2.8.2 Electronically submitted design submissions shall be as follows;

(a) filled specification sheets shall be provided in excel format;

(b) other supporting documentation shall be provided in unprotected PDF, excel or word format;

(c) where electronic pages exceed 11”x17” paper size, the information shall be legible to the smallest detail when printed to 11”x17”, otherwise they shall also be provided as four hardcopies;

(d) pages larger than 11”x17” provided in hardcopy shall be folded and submitted without any binding;

(e) documents received electronically, will be returned electronically at the conclusion of the design review. [CAD Amendment 246-11]

2.9 Hydraulic Elevating Device Oil Loss Monitoring Program [CAD Amendment 212-07-r1]

2.9.1 Every contractor who maintains a hydraulic elevating device with buried cylinders or buried piping shall ensure there is a written oil loss monitoring program.

2.9.2 A “hydraulic elevating device” means a non-portable device for hoisting and lowering or moving persons or freight and includes an elevator, dumbwaiter, manlift, incline lift, construction hoist, stage lift, platform lift and special elevating device that incorporates one or more hydraulic cylinders.

2.9.3 The purpose of the oil loss monitoring program is to identify any loss of oil which cannot be accounted for in the hydraulic system.

2.9.4 If a contractor performs maintenance on a hydraulic elevating device with buried cylinders or buried piping, the contractor shall ensure that a written oil loss monitoring program is developed and maintained before the contractor performs work on the hydraulic elevating device.

2.9.5 The oil loss monitoring program shall include: [CAD Amendment 246-11]

(a) the requirement to provide an oil loss monitoring log (“OLM log”) for each hydraulic elevating device with buried cylinders or buried piping;

(b) the requirement for the OLM log to reference the elevating device installation number;

(c) the requirement to establish a fixed reference level for the oil and the requirement to mark the reference level on the tank, dip stick or other suitable location via permanent means;

Note: “permanent” implies affixed in such a manner so as to not be easily removed or repositioned.

(d) the requirement to document in the OLM log the location of the mark for the fixed reference level;

(e) the requirement to check that the oil level is at the established reference point when the device is level with the lowest landing during each scheduled maintenance visit;

(f) if the fixed reference level needs to be intentionally adjusted, the requirement to document and record the changes to the established reference level and reason for establishing the new reference level;

(g) the requirement to record in the OLM log any quantity of oil added or removed from the hydraulic system;

(h) that during each maintenance visit, even if no oil is added, the requirement to record in the OLM log the oil level and the date of the scheduled maintenance visit;

(i) if oil is added or removed, the requirement to record in the OLM log the dates oil was added or removed from the hydraulic system;

(j) the requirement to record in the OLM log the reason oil was added to or removed from the hydraulic system;

(k) the requirement to record in the OLM log the mechanic's printed and legible name, signature and certification number for every entry made;

(l) the requirement to keep the OLM log in the elevator machine room, in a readily identifiable location;

(m) the requirement that the OLM log be kept in the elevator machine room for a period of at least five years from the date of the last entry in the OLM log;

(n) the requirement to never allow oil levels to exceed the fixed reference level for the oil level;

(o) the requirement to record in the OLM log the frequency of oil monitoring activities;

(p) the requirement that, despite **(o)**, hydraulic elevating devices with buried single bottom cylinders be monitored on a monthly basis;

(q) the requirement that installations registered by MCCR prior to September 4, 1978 with an installation number below 031909 shall be monitored monthly, unless a notification* (in the form provided by the TSSA) is sent to the Director, advising why the monthly requirements should not apply, and the registered notification is posted along with the OLM log;

* A notification form is available from www.tssa.org. The "Subject" entry should state, Non Single Bottom Cylinder and the "TSSA Reference No." should state, 212/07-r1.

(r) if there is any oil loss which cannot be accounted for, the requirement to immediately remove a hydraulic elevating device from service until the cause for the oil loss is determined and the cause and associated remedy noted in the OLM log;

(s) the requirement to report in writing any oil loss attributed to leaks in buried cylinders or buried piping to the TSSA Elevating Devices Director within 7 days;

(t) the requirement to provide maintenance personnel adequate training related to the contractor's oil loss monitoring program;

(u) the requirement to maintain up-to-date written records showing who provided and who received the training referred to in **(t)**, the nature of the training and the date when it was provided. A record of training shall be available to the TSSA upon request.

(v) the requirement that the contractor's oil loss monitoring program be posted or otherwise available in the machine room, and

(w) the requirement that the collection containers shall not exceed 19 L (5 gal) per cylinder.

2.9.6 Oil that is returned to the hydraulic system from recovery containers, either by manual means or automatically via scavenger pumps, need not be recorded.

Note: if oil from recovery containers is not suitable for return to the tank, it must be measured and an equivalent amount must be added to the system when recovery containers are emptied. If additional oil is needed to reach the fixed reference level it must be recorded as new oil. [CAD Amendment 212-07-r1]

2.10 Proper Use of Jumpers *(Elevator Industry Field Employees' Safety Handbook) (01/82)*

2.10.1 Each contractor shall have written procedures for the use of jumpers when working on elevating device circuits. Each contractor is responsible for ensuring that their mechanics understand the procedure and are equipped to follow it. Each mechanic is responsible for ensuring that they adhere to the procedure. [CAD Amendment 246-11]

2.10.2 The written procedures shall contain not less than the minimum requirements prescribed in Section 6 of the 2010 edition of the Elevator Industry Field Employees' Safety Handbook. [CAD Amendment-261/13]

2.11 Component Fastenings *(10/84) (36/86) (125/96)(193/05)*

2.11.1 Where components are fastened or retained via machine threads, roll pins, c-clips, or similar, precautions must be taken to ensure that the fastenings can satisfactorily remain secure while resisting movement or vibration of the equipment.

2.11.2 Where the effectiveness of a fastener is rapidly degraded as a result of removal and reinstallation during maintenance activities, such fasteners shall be replaced and not reused. [CAD Amendment 250-11]

2.12 Passage Across Roofs *(231/08)*

2.12.1 In addition to O.Reg 209/01, s.37, if passage across a roof is required for access to elevating device equipment where there is no parapet or guardrail at least 1070 mm (42 in.) high around the roof or passageway, the following shall apply to facilitate safe passage from the roof top access point to the elevating device equipment:

(a) buildings with elevating device installations commissioned on or after December 27, 1985 (effective date of B44-M85) shall be provided with:

(1) a permanent, unobstructed and substantial walkway not less than 600 mm (24 in.) wide,

(2) a guardrail, on all sides of the walkway designed to meet the requirements of the Occupational Health and Safety Regulations, where there is an exposure to a fall hazard, except

(b) buildings with elevating device installations commissioned before December 27, 1985 shall be provided with:

(1) the requirements of 2.12.1(a)(1) and 2.12.1(a)(2), or

(2) the requirements of 2.12.1(a)(1) and an engineered lifeline in lieu of a guardrail, provided the lifeline is designed to accommodate a travel restraint (safety belt) or fall arrest system in accordance to current requirements of the Occupational Health and Safety Regulations. [CAD Amendment 250-11]

2.12.2 The requirement for safe passage across roof tops shall also ensure

(a) adequate lighting is available to safely access the elevator machinery space such that where natural lighting is inadequate to ensure the safety of any worker, artificial lighting is provided and shadows and glare are reduced to a minimum

(b) the means for safe access are maintained, including but not limited to ensuring: snow removal as needed, secure footing, no standing water, and the upkeep of safety equipment such as walkways, lifelines, and fixed ladders. [CAD Amendment-261/13]

2.13 Parts affecting Safe Operation [CAD Amendment-261/13]

2.13.1 Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.

2.13.2 Where a defective part that can impact the safety of the operation is identified, the part shall be adjusted, repaired or replaced, or a risk assessment carried out to determine if the device can remain in service where the work cannot be carried out immediately. The nature of the defect and the anticipated date of repair or replacement shall be noted in the log book.

Part 3

3 ELEVATORS, DUMBWAITERS, ESCALATORS, MOVING WALKS, MATERIAL LIFTS AND FREIGHT PLATFORM LIFTS

3.1 Applied Codes and Standards [CAD Amendment 250-11] [CAD Amendment 261/13]

3.1.1 Every elevator, dumbwaiter, escalator, moving walk, material lift, and freight platform lift shall conform to the requirements of:

(a) ASME A17.1-2010/CSA B44-10 Safety Code for Elevators and Escalators,

Note: Parts 1, 5.10, 8.1, 8.6, 8.7, 8.8, 8.9, 8.10 and 8.11 apply to both new and existing installations. For the purpose of these parts, existing installations means devices installed under the 2010 code and prior editions.

(b) ASME A17.6-2010 Standard for Elevator Suspension, Compensation, and Governor Systems.

(c) The requirements of **3.1(a)** are adopted with the following modifications and clarifications:

(1) Requirements which are identified as applicable to "jurisdictions not enforcing NBCC" are not adopted, unless otherwise stated. *Note: NBCC means the National Building Code of Canada;*

(2) Requirements identified as applicable "in jurisdictions enforcing NBCC" are adopted;

(3) Any reference to the "building code" or to the National Building Code of Canada or "NBCC" in this definition and throughout the Code shall be deemed to refer to the Ontario Regulation 350/06 made under the Building Code Act 1992, as amended, commonly known as Ontario Building Code or OBC;

(4) Where there is inconsistency between the Regulations and this Code (e.g. Requirement 2.15.9.2 related to the car-platform guards or aprons) the Regulation prevails, unless otherwise specified in this Amendment;

(5) Any reference containing a star ★ notation (example **8.7.3.31★**) is a TSSA defined alteration or additional requirement;

(6) Requirement 2.5.1.6 is revoked and the following substituted:

2.5.1.6 Clearance Between Car Platform Apron and Pit Enclosure.
Where the lowest landing sill, on each side of the hoistway, projects into the hoistway, the clearance between the car platform apron and the pit enclosure or fascia plate shall be not more than 32 mm (1.25 in.). This clearance shall be maintained, between the bottom face of the apron and the pit fascia, until the car is resting on its fully compressed buffer.

(7) Requirement 2.7.3.2.2 is revoked and the following substituted:

2.7.3.2.2 Where the passage is over a roof having a slope exceeding 15 deg from the horizontal, or over a roof where there is no parapet or guardrail at least 1 070 mm (42 in.) high around the roof or passageway, a permanent, unobstructed and substantial walkway not less than 600 mm (24 in.) wide, equipped ~~on the side sloping away from the walk~~ with a railing conforming to 2.10.2.1, 2.10.2.2, and 2.10.2.3 and 2.10.2.4 or **2.12.1(a)(2)** of the CAD on all sides, shall be provided from the building exit door at the roof level to the means of access.

(8) Requirement 2.7.8.4 is revoked and the following substituted:

2.7.8.4 A permanent means of communication between the elevator car and a remote machine room, control space ~~and~~ or control room shall be provided.

(9) Requirement 2.10.2 is revoked and the following substituted (see also **3.8.2**): *(245/10)*

2.10.2 Standard Railing / Guard Rail
A standard railing / guard rail shall be substantially constructed of metal and shall consist of a top rail, intermediate rail or equivalent structural member or solid panel, and toe-board.

2.10.2.1 Top Rail
The top rail shall have a smooth surface, and the upper surface shall be located at a vertical height of 1 070 mm (42 in.) from the working surface. **For alterations only:** On elevator car tops of existing devices where a non collapsible guard rail is being added, this dimension is permitted to be reduced to a height between 910 mm (36 in.) and 1070 mm (42 in.).

2.10.2.2 Intermediate Rail, Member, or Panel
The intermediate rail or equivalent structural member or solid panel shall be located approximately centered between the top rail and the working surface.

2.10.2.3 Toe-Board
The toe-board shall be securely fastened and have a height not less than 125 mm (5 in.) above the working surface.

2.10.2.4 Strength of Standard Railing / Guard Rail
2.10.2.4.1 Strength
In jurisdictions enforcing NBCC, guards shall be fixed in position and designed to resist the following:
(a) a horizontal load applied inward or outward, of 750N/m (52 lbf/ft) or a concentrated load of 1000N (225 lbf) applied at any point, whichever governs, at the top of every guard rail
(b) elements within the guard, including solid panels and pickets, shall be designed for a load of 500 N (112 lbf) applied over an area of 100 mm by 100 mm (4 in. x 4 in.) located at any point in the element or elements so as to produce the most critical effect. These loads need not be considered to act simultaneously with the loads provided for in (a) and (c).
(c) The minimum specified load applied vertically at the top of every required guard shall be 1500 N/m (103 lbf/ft) and need not be considered to act simultaneously with the horizontal load provided for in (a)

Note: The loads specified in 2.10.2.4.1 are extracted from O. Reg. 350/06 (Building Code) Article 4.1.5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section14(2).
For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(5) of O. Reg. 350/06 (Building Code). For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

2.10.2.4.2 Deflection
A standard railing shall be capable of resisting anywhere along its length the following forces when applied separately, without deflecting more than 75 mm (3 in.) and without permanent deformation:
(a) a force of at least 890 N (200 lbf) applied in any lateral or downward vertical direction, at any point along the top rail.
(b) a force of at least 666 N (150 lbf) applied in any lateral or downward vertical direction at any point along the center of the intermediate rail, member, or panel. If the standard railing is a solid panel

extending from the top rail to the toe-board, the application of the force specified in 2.10.2.4(a) shall be considered to meet the requirements of 2.10.2.4(b).

(c) a force of 225 N (50 lbf) applied in a lateral direction to the toe-board.

(10) Requirement 2.14.1.7 is amended and supplemented with the following (see also **3.8.2**): *(245/10)*

2.14.1.7.2 ~~When the car has reached its maximum upward movement (2.4.6.1),~~ The following minimum clearances shall be provided to mitigate shearing hazards caused by relative motion between ~~from the top rail of~~ the standard railing and the ~~to~~ building structure or equipment not attached to the car:

(a) when the car has reached its maximum upward movement (2.4.6.1):

(1) 100 mm (4 in.) vertically

(2) 300 mm(12 in.) horizontally towards the centerline of the car enclosure top

(3) 100 mm (4 in.) horizontally in the direction towards the hoistway enclosure

(b) throughout the hoistway 100 mm (4 in.) horizontally in the direction towards the hoistway enclosure for submissions received after November 1, 2013. [CAD Amendment 261/13-r1]

2.14.1.7.5 Where a standard guardrail per 2.10.2 cannot be provided due to overhead clearance issues, a foldable, collapsible or other stowable design shall be acceptable provided that:

(1) the car will not operate in "top-of-car inspection operation" unless the railing is in the fully extended position,

(2) the car will not operate in "normal operation", "hoistway access operation", or any type of "inspection operation" other than "top-of-car inspection operation", unless the railing is in the fully retracted position,

(3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly/positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),

(4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,

(5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly/positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),

(6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4 of A17.1-2007/B44-07,

(7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,

(8) when in the fully extended position the handrail shall not be less than 1 070 mm (42 in.) in height and shall meet the requirements of 2.10.2, and

(9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per R.R.O. 1990, Reg. 851 (Industrial Establishments) made under the *Occupational Health and Safety Act*, s. 85) while engaging or lowering the alternative height guardrail provided for in 2.14.1.7.5

(11) Requirement 2.14.2.1.2 is revoked and the following substituted:

2.14.2.1.2 In jurisdictions enforcing the NBCC

(a) materials in their end-use configuration, other than those covered by 2.14.2.1.2(b), 2.14.2.1.3, and 2.14.2.1.4, shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723, or CAN/ULC-S102:
   (1) flame spread rating of 0 to 75
   (2) smoke development classification of 0 to 450

(b) floor surfaces shall have a flame spread rating of 0 to 300 with smoke development classification of 0 to 450, based on the test conducted in accordance with the requirements of CAN/ULC-S102.2

(c) not adopted

(12) Requirement 2.27.3.2.2 is revoked and the following substituted:

2.27.3.2.2 In jurisdictions enforcing the NBCC, the requirements of (a) through (c) are applicable to new installations and the requirements of (a) through (h) are applicable for alterations as amended below:

(a) smoke detectors, or heat detectors in environments not suitable for smoke detectors (fire alarm initiating devices), used to initiate Phase I Emergency Recall Operation, shall be installed in conformance with the requirements of the NBCC, and shall be located

   (1) at each floor served by the elevator
   (2) in the associated elevator machine room, machinery space containing a motor controller or electric driving machine, control space, or control room, and
   (3) in elevator and dumbwaiter shafts per,
      (i) O. Reg. 350/06 Article 3.2.4.10.(e) if a fire alarm system is required by O. Reg. 350/06 Article 3.2.4.1, except as provided in O. Reg. 350/06 Article 3.2.4.15., or
      (ii) O. Reg. 332/12 Article 3.2.4.11.(e) if a fire alarm system is required by O. Reg. 332/12 Article 3.2.4.1, except as provided in O. Reg. 332/12 Article 3.2.4.16.

(b) alternate floor recall required by 2.27.3.2.4 is not required if the floor area containing the recall level is sprinklered. (ref O.Reg 350/06 article 3.2.4.14.(3) or O. Reg. 332/12 article 3.2.4.15.(3)). Note: If fire detectors are provided in the hoistway at or below the lowest landing of recall, an alternate (upper) recall shall be provided in accordance with 2.27.3.2.3(d).

(c) where a building fire alarm system is not required by OBC or where an alteration is being performed and the existing building fire alarm system does not provide suitable signaling, the devices referred to in 2.27.3.2.2(a) shall be installed and shall be connected to a Dedicated Function Fire Alarm (DFFA). The installation of this control panel shall conform to the following:

   (1) in a building with an existing fire alarm system, the building fire alarm system and the Dedicated Function Fire Alarm system shall be interconnected. [CAD Amendment-261/13]
   (2) in a building without an existing fire alarm system, the Dedicated Function Fire Alarm control panel used to initiate elevator recall shall be permanently identified as “Elevator Recall Control and Supervisory Control Unit” in lettering not less than 6mm (0.25in.) in height.
   (3) the installation or alteration of any fire alarm systems or DFFA system must be installed in accordance with CAN/ULC-S524 (Installation of Fire Alarm Systems), and
   (4) where a DFFA has been installed to serve as an Elevator Recall Control and Supervisory Control Unit, the system shall be subject to inspection and testing in accordance with CAN/ULC-S536 (Inspection and Testing of Fire Alarm Systems). For these systems the owner or contractor shall provide written confirmation of testing at the initial inspection, and confirmation of annual testing shall be available to an inspector upon request.

NOTE(S):

1. (2.27.3.2.2(a) (b) and (c)): Smoke and heat detectors (fire alarm initiating devices) are referred to as fire detectors in the NBCC. Pull stations are not deemed to be fire detectors.
2. The installation or alteration of a fire alarm system, including dedicated function fire alarm systems require permits and installation by qualified personnel.
3. See 8.6.11.1 for notes related to DFFA testing.

(ALTERATIONS ONLY)

(d) for alterations **8.7.2.16, 8.7.3.17 (change in type of service)** and **8.7.2.27.6, 8.7.3.31.7 (operation control)**, that require conformance to 2.27,

(1) requirements 2.27.3.2.2(a)(1), 2.27.3.2.2(a)(2) and 2.27.3.2.2(c) do not apply within a floor area if the floor area is sprinklered and the sprinkler system is electrically supervised in conformance with O. Reg. 350/06 Sentence 3.2.4.9.(2). The activation of the electrically supervised system shall cause automatic recall.

(2) requirements 2.27.3.2.2(a)(3) does not apply.

(e) for alterations **8.7.2.27.4 and 8.7.3.31.5 (controllers),** if firefighters' emergency operation was required or provided at the time of the original installation, or required or provided by a subsequent alteration,
the requirements of (1) below apply, otherwise the requirements of (2) below apply:

(1) requirements, 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)

(2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.

(f) for alterations **8.7.2.27.5 and 8.7.3.31.6 (motion control)**, emergency operation and signaling devices where required by NBCC at the time of the original installation, or required or provided by a subsequent alteration,
the requirements of (1) below apply, otherwise the requirements of (2) below apply:

(1) requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c)

(2) the installation shall as a minimum conform to the requirements of 2.27.3.1 (manual recall), unless the introductory exemption in 2.27.3 applies.

(g) for alterations under **8.7.2.28** or **8.7.3.31.8 (emergency operation and signaling devices)** or **8.7.2.28★2** or **8.7.3.31★9 (fire code retrofit)** that require conformance to all or part of 2.27 the requirements of 2.27.3.2.2(a), 2.27.3.2.2(b) and 2.27.3.2.2(c) apply.

(h) In all cases the level of activation shall not be diminished per 8.7.1.2.

(13) The opening requirement of 3.7 – Machinery Spaces, Machine Rooms, Control Spaces and Control Rooms, is revoked and the following substituted:

A machinery space outside the hoistway containing a hydraulic machine and a motor controller shall be a machine room, or a machinery space with headroom of not less than 2130 mm(84").

(14) Requirement 5.2.1.4.4 – Alternative to Top Car Clearance Requirement, is adopted for new and existing buildings

(15) Requirement 5.2.1.14 is supplemented with the following:

(n) where conformance to 2.14.1.7 is required, the provisions of 2.10.2.1 or 2.14.1.7.5 are permitted for new installations.

(16) Requirement 5.2.1.15.2 is revoked and the following substituted: *(166/01)*

5.2.1.15.2 Platform Guards.

(a) Requirement 2.15.9.2 applies to LU/LA elevators that utilize traction drives and that serve 3 or more floors.

(b) Requirement 2.15.9.2 does not apply to LU/LA elevators utilizing hydraulic or roped hydraulic drive and serving 2 or more floors, provided that the following requirements are met:

(1) The platform guard shall have a straight vertical face, extending below the floor surface of the platform of not less than the depth of the unlocking zone plus 75 mm (3 in.) but in no case less than the maximum distance from the landing that it takes to stop 165 and hold the car upon detection and actuation of the device as prescribed in 2.19.2.

(2) Owners of LULA elevators shall complete and sign a SUPPLEMENTARY OWNERS REPORT FOR LULA ELEVATORS indicating their understanding that:
- (i) *only elevator personnel are permitted to unlock hoistway doors*
- (ii) *only emergency personnel are permitted to perform emergency evacuations*.
- (iii) access to the unlocking device is controlled or has a controlled procedure
- (iv) owners shall ensure the appropriate building personnel are made aware of these requirements

(3) Signage shall be provided on the apron plate that meets the following criteria:
- (i) lettering shall be a minimum of 16 mm in height
- (ii) the sign shall remain permanent and readily legible, viewable from the hall
- (iii) the Context of the message shall convey the following information:
  - (a) a 'warning' advising of the potential fall hazard that exists below when the car is above the floor level
  - (b) lower the car prior to attempting rescue of trapped passengers
  - (c) lowering and Rescue by trained personnel only.

(17) Requirement 5.2.1.16.5 - Maximum Rise limitation for LULA elevators is not adopted;

(18) Sections 5.3, 8.6.7.3 and 8.7.5.3 – Private Residence Elevators, are not adopted;

(19) Sections 5.4, 8.6.7.4 and 8.7.5.4 – Private Residence Inclined Elevators, are not adopted;

(20) Sections 5.7, 8.6.7.7 and 8.7.5.7 – Special Purpose Personnel Elevators, are not adopted;

(21) Sections 5.8, 8.6.7.8 and 8.7.5.8 – Marine Elevators, are not adopted;

(22) Sections 5.9, 8.6.7.9 and 8.7.5.9 – Mine Elevators, are not adopted;

(23) Section 5.10 "Elevators Used for Construction" is adopted with the following modifications:

a) "Elevators Used for Construction" shall have the same meaning as "temporary elevator" used in Ontario Regulation 209/01;

b) 5.10.1.9.5(a) is not adopted,

c) 5.10.1.9.5(b) is revoked and the following substituted:

5.10.1.9.5(b)

(b) regardless of car speed, hoistway doors shall be provided with either of the following:

(1) interlocks conforming to 2.12.2

(2) combination mechanical locks and electric contacts conforming to 2.12.3

(24) Requirement 6.1.6.3.1(a) is supplemented with the following:

Additionally, escalator operation in accordance with Section 5.5.2 of NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems (2010 Edition), shall be permitted for transit facilities.

(25) "Material lift – type B" shall mean the same as the term "freight platform lift – type B" used in Ontario Regulation 209/01;

(26) Requirement 7.4.2.2 is revoked and the following substituted: *(48/87) (189/05)*

7.4.2.2

Type B Material Lifts shall be permitted to carry one operator and be provided with in-car mounted operating devices, subject to the following limitations:

(a) Access to and usage of Type B Material Lifts is restricted to authorized personnel.
(b) The rated speed is not to exceed 0.15 m/s (30 ft/min).
(c) not adopted
(d) Travel does not exceed 7 600 mm (300 in.).
(e) They are operated only by continuous-pressure control devices.
(f) They shall not be accessible to the general public.
(g) The upper limit of travel shall be
  (1) level with the top penetrated floor; or
  (2) level with the top landing where no floor is penetrated.
(h) They are permitted to serve one or more intermediate landings, provided that these landings have doors as required in 7.4.14.

(27) Requirement 7.4.14.8 is added:

7.4.14.8

Requirement 2.12.3 applies only to Type A Material Lifts.

(28) Requirement 7.5.12.2.6 is revoked and the following substituted:

7.5.12.2.6

Requirement 2.26.2.5 does not apply. Each control station shall be provided with an emergency stop switch (switches) conforming to 2.26.2.5(a), (b), and (c), except that the emergency stop switch located at each landing may be of a constant-pressure type. And it shall cause the power to be removed from the driving machine when operated.

(29) Sections 7.8 to 7.11 – Dumbwaiters and Material Lifts with Automatic Transfer Devices, that meet the requirements as specified in item **2(3)(j)** of the Elevating Device Regulation 209/01, are not adopted;

(30) The requirements of Section 8.6. Maintenance, Repair, Replacement and Testing is adopted as modified and clarified in **3.3** of the Code Adoption Document;

(31) The requirements of Section 8.7 – Alterations, is adopted, as modified and clarified in **3.4** of the Code Adoption Document;

(32) Section 8.7.7.3 Material Lifts and Dumbwaiters with Automatic Transfer Devices, is not adopted, except 8.7.7.3.2 is adopted;

(33) Section 8.9 – Code Data Plate, is adopted except that the requirements shall not apply to the existing devices installed or altered to versions of the B44 Code earlier than B44-00;

(34) Section 8.11 - Periodic Inspection and Test Requirements are not adopted.

3.2 Performance Based Safety Code

3.2.1 Where conformance with the prescriptive requirements in **3.1** are not strictly met, conformance may be demonstrated through compliance to the requirements in ASME A17.7-2007/CSA B44.7-07 Performance-based safety code for elevators and escalators.

3.3 Maintenance, Repair, Replacement, and Testing

3.3.1 A Maintenance Control Program (MCP) referred to in the code adopted in **3.1**shall have the same meaning as "general instructions for maintenance' referred to in O.Reg 209/01 s.25.(2)

3.3.2 A copy of the Maintenance Control Program shall be provided for every new elevating device installation as required in O.Reg 209/01 s.15.(4)(c) ,where a Maintenance Control Program has been implemented.

(a) For new installations for which a design submission is received on or after May 1, 2013 the Maintenance Control Program shall be available to the inspector at the time of the acceptance inspection, and a copy shall be forwarded to the elevating devices program prior to the inspection. Where appropriate, versions of MCP's may be filed with the director.

(b) For existing or altered installations the Maintenance Control Program shall be fully implemented not later than March 31, 2014. [CAD Amendment-261/13-r1]

3.3.3 Where a Maintenance Control Program has been implemented on an existing device, a copy of the Maintenance Control Program (MCP) shall be supplied to the owner of the elevating device.

3.3.4 Section **8.6 Maintenance, Repair, Replacement, and Testing** is revoked and the following substituted;

8.6 MAINTENANCE, REPAIR, REPLACEMENT, AND TESTING

Requirement 8.6 applies to maintenance, repairs, replacements, and testing.

Maintenance, repair and replacement shall be performed to provide compliance with the code applicable at the time of installation or alteration.

NOTES:

(1) See 8.7 for alteration requirements.

(2) See "General" in Preface for assignment of responsibilities.

8.6.1 General Requirements

8.6.1.1 Maintenance, Repair, and Replacement

8.6.1.1.1 Equipment covered within the scope of this Code shall be maintained in accordance with

(a) 8.6. and an established Maintenance Control Program including any requirements specified in the Code Adoption Document, or

(b) 8.6.1, 8.6.2, 8.6.3, 8.6.11 and the supplemental maintenance requirements and intervals specified in CSA standard B44.2-07 Maintenance requirements and intervals for elevators, dumbwaiters, escalators, and moving walks, including any requirements specified in the Code Adoption Document.

Requirement (a) is applicable for

(1) new installations submitted on or after May 1, 2013,
(2) any existing devices where an Maintenance Control Program has been implemented, and
(3) all devices maintained after March 31, 2014. [CAD Amendment-261/13]

Requirement (b) is applicable until March 31, 2014 for

(1) existing installations, or
(2) new installations submitted prior to May 1, 2013. [CAD Amendment-261/13-r1]

8.6.1.1.2 Maintenance, repairs, replacements, and tests shall conform to 8.6 and the applicable
(a) Code at the time of the installation; and
(b) Code requirements at the time of any alteration; and
(c) ASME A17.3 if adopted by the authority having jurisdiction

8.6.1.1.3 It is not the intent of 8.6 to require changes to the equipment to meet the design, equipment nameplate(s) or performance standard other than those specified in 8.6.1.1.2, unless specifically stated in 8.6. (see 8.6.3.2, 8.6.5.8, 8.6.8.3 and 8.6.8.4.3).

8.6.1.2 General Maintenance Requirements

8.6.1.2.1 A written Maintenance Control Program where implemented shall be in place to maintain the equipment in compliance with the requirements of 8.6 and the following, otherwise the requirements of 8.6.1.1.1(b) apply.

The MCP shall specify examinations, tests, cleaning, lubrication, and adjustments to applicable components at regular intervals (see definition for maintenance) and shall comply with the following:

(a) A Maintenance Control Program for each unit (see 8.6.1.1.1) shall be provided by the person(s) and/or firm maintaining the equipment and shall be viewable on site by elevator personnel at all times from time of acceptance inspection and test or from the time of equipment installation or alteration (see 8.10.1.5).

(b) The MCP shall include, but not be limited to, the code required maintenance tasks, maintenance procedures and examinations and tests listed with the associated requirement (see 8.6.4 to 8.6.11). Where maintenance tasks, maintenance procedures, or examinations or tests have been revised in 8.6 the MCP shall be updated.

(c) The MCP shall reference On-Site Equipment Documentation (see 8.6.1.2.2) needed to fulfill 8.6.1.2.1(b) and On-Site Maintenance Records (see 8.6.1.4.1) that record the completion of all associated maintenance tasks specified in 8.6.1.4.1(a).

(d) Where the MCP is maintained remotely from the machine room, machinery space, control room, or control space (see 8.11.1.8) instructions for on-site locating or viewing the MCP either in hard copy or in electronic format shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The instructions shall be permanently legible with characters a minimum of 3mm (0.125in) in height.

(e) In addition to s. 32(1) of the Regulation, the specified scheduled maintenance intervals (see 1.3) shall, as applicable, be based on

(1) equipment age, condition, and accumulated wear ,
(2) design and inherent quality of the equipment ,
(3) usage,
(4) environmental conditions,
(5) improved technology,
(6) the manufacturer's recommendations and original equipment certification for any SIL rated devices or circuits (see 8.6.3.12 and 8.7.1.9), and

(7) the manufacturer's recommendations based on any A17.7/B44.7 approved components or functions.

(f) Procedures for tests, periodic inspections, maintenance, replacements, adjustments, and repairs for traction-loss detection means, broken-suspension-member detection means, residual-strength detection means, and related circuits shall be incorporated into and made part of the Maintenance Control Program.
[See 2.20.8.1, 2.20.8.2, 2.20.8.3, 8.6.11.10, 8.10.2.2.2(cc)(3)(c)(2), 8.10.2.2.2(ss), and 8.6.4.19.12.]

(g) The manufacturer's or installer's procedures for tests, periodic inspections, maintenance, replacements, adjustments, and alterations repairs, of SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) shall be incorporated into the Maintenance Control Program. (ref TN 08-802)

8.6.1.2.2 On-Site Documentation
The following documents specified in 8.6.1.2.2 (a), (b), and (c) shall be written and permanently kept on-site in the machine room, machinery space, control room, control space, or in the means necessary for test (2.7.6.4) in hard copy for each unit for elevator personnel.

The documentation specified in 8.6.1.2.2(d) shall be on-site and available to the specified personnel.

(a) Up-to-date wiring diagrams detailing circuits of all electrical protective devices (see 2.26.2) and critical operating circuits (see 2.26.3).

(b) Procedures for inspections and tests not described in A17.2 and procedures or methods required for elevator personnel to perform maintenance, repairs, replacements and adjustments, as follows:

(1) all procedures specifically identified in the code as required to be written (e.g. 8.6.4.20.8 check out procedure for leveling, 8.6.5.16.5 check out procedure for over speed valve, and 8.6.8.15.7 check out procedure for reversal stop switch, etc),
(2) unique maintenance procedures or methods required for inspection, tests, and replacement of SIL rated E/E/PES electrical protective devices and circuits (see 2.26.4.3.2, 2.26.9.3.2(b), 2.26.9.5.1(b), and 2.26.9.6.1(b)),
(3) unique maintenance procedures or methods required for inspection, tests, and replacement of equipment applied under alternative arrangements (see 1.2.2.1) shall be provided by the manufacturer or installer, and
(4) unique maintenance procedures or unique methods required for inspection and test of equipment specified in an A17.7/B44.7 Code Compliance Document (CCD).

(c) Written checkout procedures:

(1) to demonstrate E/E/PES function as intended (see 8.6.4.19.10),
(2) for elevator leveling speed with open doors (see 8.6.4.20.8),
(3) for hydraulic elevator over speed valve (see 8.6.5.16.5),
(4) for escalator reversal stopping device (see 8.6.8.15.7), and
(5) for escalator handrail retarding force (see 8.6.8.15.13).

(d) Written procedures for the following:

(1) evacuation procedures for elevators by authorized persons and emergency personnel shall be available on site. (see 8.6.11.5.2 and A17.4)
(2) the procedure for cleaning of a car and hoistway transparent enclosures by authorized persons. (see 8.6.11.4.2)

8.6.1.2.3 Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced.

8.6.1.3 Maintenance Personnel.
Maintenance, repairs, replacements, and tests shall be performed only by elevator personnel (see 1.3).

8.6.1.4 Log Book of Maintenance Records
Maintenance records shall document compliance with 8.6. Instructions for locating the maintenance records of each unit, for viewing on site, shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. These records shall be retained for the most recent 5 years or from the date of installation or adoption of this code edition, whichever is less or as specified by the authority having jurisdiction. Existing maintenance records up to 5 years shall be retained.

8.6.1.4.1 On-Site Maintenance Records
8.6.1.4.1(a) Maintenance Control Program Records

(1) A record that shall include the maintenance tasks listed with the associated requirements of 8.6 identified in the Maintenance Control Program (8.6.1.2.1), other tests (see 8.6.1.2.2), examinations and adjustments, and the specified scheduled intervals shall be maintained.

(2) The specified scheduled maintenance intervals (see 1.3) shall, as applicable, be based on the criteria given in 8.6.1.2.1(e).

(3) MCP records shall be viewable on-site by elevator personnel in either hard copy or electronic format acceptable to the authority having jurisdiction and shall include but not limited to the following:
(a) site name and address,
(b) service provider (Contractor) name,
(c) conveyance identification (ID) (TSSA or MCCR installation number) and type,
(d) date of record,
(e) a description of the maintenance task, interval, and associated requirements of 8.6,
(f) indication of completion of maintenance task,
(g) year and month when the task was performed,
(h) Contractor's Registration Number, and
(i) the printed name, signature and mechanic certification number of the person(s) who completed the task, except that where tasks are not yet completed, or where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the task is complete or the defect is adjusted repaired or replaced. *(242/10)*

Note [8.6.1.4.1(a)]: ~~Recommended format for documenting maintenance control program records can be found in non-mandatory Appendix Y. This is only an example format.~~ A specific maintenance control program that includes all maintenance needs is required for each unit.

8.6.1.4.1 (b) Repair and Replacement Records
The repairs and replacements listed in paragraphs (1) and (2) below shall be recorded and shall be kept on-site for viewing by elevator personnel in either hard copy or electronic format. Instructions for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. The record shall include an explanation of the repair or replacement, date, and name of person(s) and/or firm performing the task. The record of repairs and replacements shall be retained by the owner of the equipment for the most recent 5 years or from the date of installation or adoption of this code edition, whichever is less, or as specified by the authority having jurisdiction and shall be a permanent record for the installation. These records may be kept remotely from the site.

(1) Repairs (8.6.2.1- 8.6.2.5) including repairs of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

(2) Replacements (8.6.3.1 - 8.6.3.11 except 8.6.3.7 and 8.6.3.10) including replacements of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

8.6.1.4.1 (c) Other Records

The written records listed in paragraphs (1) to(4) below shall be kept on-site for each unit. Instructions for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. These records shall be retained for the most recent 5 years from of the date of installation or adoption of this code edition, whichever is less, or as specified by the authority having jurisdiction. The record shall include the date and name of person(s) and/or firm performing the task.

(1) A record of oil usage (8.6.5.7).
(2) A record of findings for firefighter's service operation required by 8.6.11.1 with identification of the person(s) that performed the operation.
(3) Periodic tests (see 8.6.1.7) shall be documented or recorded in accordance with 8.6.1.7.2.
(4) Written record to document compliance with replacement criteria specified in ASME A17.6 requirement 1.10.1.1(c).

8.6.1.4.1 (d) Acceptance Tests

A permanent record of the results of all Acceptance tests as required by 8.10.1.1.4 and 8.10.1.1.5 shall be kept with the on-site records.

8.6.1.4.2 Call Backs (Trouble Calls)

A record of call backs shall be maintained and shall include the description of reported trouble, dates, time and corrective action(s) taken that are reported by any means to elevator personnel. These records shall be made available to elevator personnel when performing corrective action. For elevator personnel other than personnel performing the corrective action, records will be available upon request and shall be maintained for a minimum of one year. Instructions on how to report any need for corrective action (trouble calls) to the responsible party shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The instructions shall be permanently legible with characters a minimum of 3mm (0.125 in.) in height.

~~**8.6.1.5 Code Data Plate**~~

~~**8.6.1.5.1** The Code data plate shall comply with 8.9.~~

8.6.1.6 General Maintenance Methods and Procedures

8.6.1.6.1 Making Safety Devices Inoperative or Ineffective.

No person shall at any time make inoperative or ineffective any device on which safety of users is dependent, including any electrical protective device, except where necessary during tests, inspections (see 8.10 and 8.11), maintenance, repair, and replacement, provided that the installation is first removed from normal operation. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7 and 8.6.1.6).

8.6.1.6.2 Lubrication.

All parts of the machinery and equipment requiring lubrication shall be lubricated with lubricants equivalent to the type and grade recommended by the manufacturer. Alternative lubricants shall be permitted when intended lubrication effects are achieved. All excess lubricant shall be cleaned from the equipment. Containers used to catch leakage shall not be allowed to overflow.

8.6.1.6.3 Controllers and Wiring

(a) The interiors of controllers and their components shall be cleaned when necessary to minimize the accumulation of foreign matter that can interfere with the operation of the equipment.
(b) Temporary wiring and insulators or blocks in the armatures or poles of magnetically operated switches, contactors, or relays on equipment in service are prohibited.

(c) When jumpers are used during maintenance, repairs, or testing, all jumpers shall be removed and the equipment tested prior to returning it to service. Jumpers shall not be stored in machine rooms, control rooms, hoistways, machinery spaces, control spaces, escalator/moving walk wellways, or pits (see also 8.6.1.6.1).
NOTE [8.6.1.6.3(d)]: See "Elevator Industry Field Employees' Safety Handbook" for recommended minimum jumper control procedures.

(d) Control and operating circuits and devices shall be maintained in compliance with applicable Code requirements (see 8.6.1.1.2).

(e) Substitution of any wire or current-carrying device for the correct fuse or circuit breaker in an elevator circuit shall not be permitted.

8.6.1.6.4 Painting.
Care shall be used in the painting of the equipment to make certain that it does not interfere with the proper functioning of any component. Painted components shall be tested for proper operation upon completion of painting.

~~**8.6.1.6.5 Fire Extinguishers.**~~
~~In jurisdictions not enforcing NBCC, Class "ABC" fire extinguishers shall be provided in elevator electrical machine rooms, control rooms, and control spaces outside the hoistway intended for full bodily entry, and walk-in machinery and control rooms for escalators and moving walks; and they shall be located convenient to the access door.~~

8.6.1.6.6 Workmanship.
Care should be taken during operations such as torquing, drilling, cutting, and welding to ensure that no component of the assembly is damaged or weakened. Rotating parts shall be properly aligned.

8.6.1.6.7 Signs and Data Plates.
Required signs and data plates that are damaged or missing shall be repaired or replaced.

8.6.1.7 Periodic Tests.
The frequency of maintenance and tests shall conform to the following;

(a) Where a Maintenance Control Program is in effect,

(1) the maintenance frequency shall be established as prescribed in 8.6, but in no case shall the interval between maintenance visits to an elevating device excluding wind tower elevators exceed three months, nor shall it exceed the manufacturer's specified limit or other imposed limit which is less than three months (see CAD 2.9 for example of a one month limit), and

(2) testing shall be performed at intervals specified in Appendix N, such that;
(a) category 1 tests are performed annually,
(b) category 3 tests are performed every 3 years and
(c) category 5 tests are performed every 5 years.

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(b) Where the maintenance method follows B44.2-07

(1) the maintenance frequency shall be established as prescribed in B44.2-07, but in no case shall the interval between maintenance visits extend beyond three months.

(2) Where frequencies of maintenance, examinations or inspections identified in B44.2-07 are extended:

(a) the altered maintenance, examination and/or inspection frequencies must take into account the age and inherent quality of the equipment, the frequency and method of usage, and the recommendation(s) by either the original manufacturer, or manufacturer's agent, or the maintaining contractor;

(b) the owner and maintenance contractor shall agree in writing to the altered maintenance, examination and/or inspection frequencies;

(c) the log book shall either capture this agreement or make reference to another document where such an agreement is made;

(d) a copy of the altered maintenance, examination and/or inspection frequency agreement shall be made available to TSSA upon request;

(e) the interval between maintenance visits shall not exceed three (3) months;

(f) the frequency of tests** identified in B44.2 shall not be altered; and

(g) despite the allowance to adjust maintenance, examination or inspection frequencies as stated above, the frequency of activities listed in B44.2-07 section 5.2.1 shall not be altered.

**where the terms:
'operate'- (or equivalent thereof), such as "governors shall be operated by hand" or
'check'- (or equivalent thereof), such as "skirt switches shall be checked" are used, the frequency of these tests shall not be altered.

The frequency of periodic tests shall be established by the authority having jurisdiction as required by 8.11.1.3.
NOTE: Recommended intervals for periodic tests can be found in Non-mandatory Appendix N.

8.6.1.7.1 Not adopted
~~Periodic tests shall be witnessed by an inspector employed by the authority having jurisdiction or by a person authorized by the authority having jurisdiction. The inspector shall conform to the requirements in 8.11.1.1.~~

8.6.1.7.2 Periodic Test Records
A periodic test record for all periodic tests containing the applicable code requirement(s) and date(s) performed, and the name of the person or firm performing the test, shall be kept readily visible adjacent to or securely attached to the controller of each unit in the form of a log book record ~~metal tag~~ or other format designated by and acceptable to the authority having jurisdiction. If any of the alternative test methods contained in **8.6.4.20** were performed then the test record ~~tag~~ must indicate alternative testing was utilized for the applicable requirement.

8.6.1.7.3 No person shall at any time make any required safety device or electrical protective device ineffective, except where necessary during tests. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7).

8.6.1.7.4 All references to "Items" and "Parts" are to Items in ~~A17.2~~.

8.6.2 Repairs
See 8.6.2.1 through 8.6.2.5 for general requirements for repairs.

8.6.2.1 Repair Parts. Repairs shall be made with parts of at least equivalent material, strength, and design (see 8.6.3.1).

8.6.2.2 Welding and Design.
Welding and design of welding shall conform to 8.7.1.4 and 8.7.1.5.
8.6.2.3 Repair of Speed Governors.
Where a repair is made to a speed governor that affects the tripping linkage or speed adjustment mechanism, the governor shall be checked in conformance with 8.6.4.19.2. Where a repair is made to the governor jaws or associated parts that affect the pull-through force, the governor pull-through force shall be checked in conformance with 8.6.4.19.2(b). A test tag shall be attached, indicating the date the pull-through test was performed.

8.6.2.4 Repair of Releasing Carrier.
When a repair is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with 8.6.4.20.2(b) ~~8.11.2.3.2(b)~~.

8.6.2.5 Repair of Suspension and Compensating Means and Governor Ropes.
Suspension and compensating members and governor ropes shall not be lengthened or repaired by splicing (see 8.7.2.21).

8.6.2.6 Repairs involving SIL Rated Device(s)
SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) shall:
(a) not be repaired in the field
(b) be permitted to be repaired in accordance with the provisions for repair where included in the listing/certification, and
(c) shall not be affected by other repair(s) such that the listing/certification is invalidated.

8.6.3 Replacements
8.6.3.1 Replacement Parts.
Replacements shall be made with parts of at least equivalent material, strength, and design.

8.6.3.2 Replacement Suspension Means.
Suspension means, compensation means, and governor ropes shall be replaced when they no longer conform to the requirements of ASME A17.6. Replacement of suspension means, compensation means, and governor ropes shall conform to the requirements of ASME A17.6 as stated in 8.6.3.2.1 through 8.6.3.2.3.

8.6.3.2.1 For steel wire rope, ASME A17.6, Section 1.10 shall apply.
NOTE (8.6.3.2.1): See Non-mandatory Appendix T for inspection and replacement of steel wire ropes.

8.6.3.2.2 For aramid fiber ropes, ASME A17.6, Section 2.9 shall apply.

8.6.3.2.3 For noncircular elastomeric-coated steel suspension members, ASME A17.6, Section 3.7 shall apply.

8.6.3.3 Replacement of Suspension-Means Fastenings and Hitch Plates.
Replacement of suspension-means fastenings and hitch plates shall conform to the requirements in 8.6.3.3.1 through 8.6.3.3.5.

8.6.3.3.1 When the suspension-means fastenings are replaced with an alternate means that conforms to 2.20.9, load-carrying ropes shall be in line with the shackle rod.

8.6.3.3.2 Existing hitch plates that do not permit the load-carrying ropes to remain in line with the shackle rods shall have the replacement fastening staggered in the direction of travel of the elevator and counterweight, or the hitch plates shall be replaced.

8.6.3.3.3 Replacement hitch plates shall conform to 2.15.13 and shall provide proper alignment of load carrying ropes and shackle rods.

8.6.3.3.4 Replacement fastenings shall be permitted to be installed on the car only, the counterweight only, at either of the dead-end hitches, or at both attachment points.

8.6.3.3.5 Rope fastenings at the drum connection of winding-drum machines shall comply with 8.6.4.10.2.

8.6.3.4 Replacement of Governor or Safety Rope

8.6.3.4.1 Governor ropes shall be of the same size, material, and construction as the rope specified by the governor manufacturer, except that a rope of the same size but of different material or construction shall be permitted to be installed in conformance with 8.7.2.19.

8.6.3.4.2 The replaced governor ropes shall comply with 2.18.5.

8.6.3.4.3 After a governor rope is replaced, the governor pull-through force shall be checked as specified in 8.6.4.20.2(b). ~~8.11.2.3.2(b)~~.

8.6.3.4.4 ~~A test tag indicating the~~ The date when the pull-through test was performed shall be ~~attached~~ recorded in the log book.

8.6.3.4.5 The safety rope shall comply with 2.17.12.4 and 2.17.12.5.

8.6.3.4.6 A new rope data tag conforming to 2.18.5.3 shall be installed at each rope replacement, and the date of the rope replacement shall be recorded in the maintenance records (8.6.1.4.1(b)(2)).

8.6.3.5 Belts and Chains.

If one belt or chain of a set is worn or stretched beyond that specified in the manufacturer's recommendation, or is damaged so as to require replacement, the entire set shall be replaced.

Sprockets and toothed sheaves shall also be replaced if worn beyond that specified in the manufacturer's recommendations.

8.6.3.6 Replacement of Speed Governor.

When a speed governor is replaced with a governor of the same make and model (see also 8.7.2.19), it shall conform to 2.18. When a releasing carrier is provided, it shall conform to 2.17.15. The governor rope shall be of the type and size specified by the governor manufacturer. The governor shall be checked in conformance with 8.6.4.20.2. ~~8.11.2.3.2~~. Drum-operated safeties that require continuous tension in the governor rope to achieve full safety application shall be checked as specified in 8.6.4.20.1 ~~8.11.2.3.1~~ and 8.7.2.19.

8.6.3.7 Listed/Certified Devices

8.6.3.7.1 Where a listed/certified device is replaced, the replacement shall be subject to the applicable engineering or type test as specified in 8.3, or the requirements of CSA B44.1/ASME A17.5. Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The device shall be labeled by the certifying organization (see 8.6.1.1). In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.

8.6.3.7.2 Where a component in a listed/certified device is replaced, the replacement component shall be subject to the requirements of the applicable edition of CSA B44.1/ASME A17.5 and/or the engineering or type test in 8.3.Hoistway door interlocks, hoistway door combination mechanical lock and electric contact, and door or gate electric contact, shall conform to the type tests specified in 2.12.4.1. The component shall be included in the original manufacturer's listed/certified device documentation or as a listed/certified replacement component (see 8.6.1.1). Each replacement component shall be plainly marked for identification in accordance with the certifying organization's procedures. In jurisdictions not enforcing NBCC, door panels, frames, and entrances hardware shall be provided with the instructions required by 2.11.18.

NOTE (8.6.3.7): Devices that may fall under this requirement are included but not limited to hoistway door locking devices and electric contacts, car door contacts and interlocks, hydraulic control valves, escalator steps, fire doors, and electrical equipment.

8.6.3.8 Replacement of Door Reopening Device.

Where a reopening device for power-operated car doors or gates is replaced (see also 8.7.2.13), the following requirements shall apply:

(a) The door closing force shall comply with the Code in effect at the time of the installation or alteration.

(b) The kinetic energy shall comply with the Code in effect at the time of the installation or alteration.
(c) When firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation.

8.6.3.9 Replacement of Releasing Carrier.
Where a replacement is made to a releasing carrier, the governor rope pull-out and pull-through forces shall be verified in conformance with 8.6.4.20.2(b) ~~8.11.2.3.2(b)~~.

8.6.3.10 Replacement of Hydraulic Jack, Plunger, Cylinder, Tanks, and Anticreep Leveling Device
8.6.3.10.1 A hydraulic jack replacement shall be classified as an alteration and shall comply with 8.7.3.23.1.
8.6.3.10.2 A plunger replacement shall be classified as an alteration and shall comply with 8.7.3.23.2.

8.6.3.10.3 A cylinder replacement shall be classified as an alteration and shall comply with 8.7.3.23.3.

8.6.3.10.4 A tank replacement shall be classified as an alteration and shall comply with 8.7.3.29.

8.6.3.10.5 An anticreep leveling device replacement shall be classified as an alteration and shall comply with 8.7.3.31.3.

8.6.3.11 Replacement of Valves and Piping.
(a) Where any ~~valves,~~ piping, or fittings are replaced, replacements shall conform to 3.19. ~~with the exception of 3.19.4.6. Replacement control valves must conform to the Code under which it was installed.~~
(b) Where any valve is replaced with a valve of the same make and model, the replacement shall conform to 3.19.
(c) Where any control or overspeed valve is replaced with a valve of different make or model, the replacement shall be classified as an alteration and shall comply with 8.7.3.24.

8.6.3.12 Runby and Clearances After Reroping or Shortening.
The minimum car and counterweight clearances specified in 2.4.6 and 2.4.9 shall be maintained when new suspension means are installed or when existing suspension means are shortened. The minimum clearances shall be maintained by any of the methods described in 8.6.3.12.1 through 8.6.3.12.3 (see 8.6.4.11). (see also CAD **2.4**)

8.6.3.12.1 Limit the length that the suspension means are shortened.

8.6.3.12.2 Provide blocking at the car or counterweight strike plate. The blocking shall be of sufficient strength and secured in place to withstand the reactions of buffer engagement as specified in 8.2.3. If wood blocks are used to directly engage the buffer, a steel plate shall be fastened to the engaging surface or shall be located between that block and the next block to distribute the load upon buffer engagements.

8.6.3.12.3 Provide blocking under the car or counterweight buffer or both of sufficient strength and secured in place to withstand the reactions of buffer engagement as described in 8.2.3.

8.6.3.12.4 Provide the month and year the suspension means were first shortened. Appropriate data shall be recorded on the data tag (see 2.20.2.2.2).

8.6.3.13 Replacement of Demarcation Lights
Fluorescent lighting fixtures shall be permitted to be replaced by any type light source, except incandescent sources, and shall comply with all other applicable step demarcation lighting requirements under which the escalator was installed or altered.

8.6.3.14 Replacements involving SIL Rated Device(s) (See 1.3)
(a) SIL Rated Device (see 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) shall not be affected by other replacement(s) such that the listing/certification is invalidated.

(b) Where a SIL Rated Device (see 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) is replaced, it shall be considered a replacement only when the replacement device is the original manufacturer's listed/certified SIL rated device or the original manufacturer's listed/certified SIL rated replacement device; otherwise it shall be considered an alteration (see 8.7.1.9(d)).

(c) Where a non-SIL Rated Device used to satisfy 2.26.4.3.1, 2.26.8.2, 2.26.9.4(a), 2.26.9.5.1(a), or 2.26.9.6.1(a) is replaced with SIL Rated Device, it shall be considered an alteration. (see 8.7.1.9(c)).

8.6.3.15 to 8.6.3.24 Reserved

8.6.3.25 Replacement of Driving Machine *(226/07)*
Where a driving machine is replaced it shall be considered an alteration and shall conform to the requirements of 8.7.2.25.1(a) except that:

(a) if the elevator controllers are pre-B44-00 and the installation had ascending car overspeed and unintended car movement protection existing
  (1) ascending car overspeed and unintended car movement protection shall be retained
  (2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
  (3) the means shall require manual reset

(b) if the elevator controllers are pre-B44-00 and the installation had only ascending car overspeed protection existing
  (1) ascending car overspeed protection shall be retained
  (2) the addition of unintended car movement protection is permitted
  (3) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
  (3) the means shall require manual reset

(c) if the elevator controllers are pre-B44-00 and ascending car overspeed and unintended car movement protection was not previously existing
  (1) ascending car overspeed and unintended car movement protection shall be provided
  (2) the detection means are permitted to meet the requirements of B44-M90 clause 3.16 or later
  (3) the means shall require manual reset

8.6.3.26 Replacement of Controller *(226/07)*
Where an elevator controller is replaced is shall conform to the requirements specified in 8.7.2.27.4(a) or 8.7.3.31.5(a) whichever is applicable.

8.6.3.27 Replacement of Anticreep Leveling Device *(226/07)*
Where an anticreep leveling device is replaced it shall conform to 8.7.3.31.3.

8.6.4 Maintenance and Testing of Electric Elevators
The maintenance and testing of electric elevators shall conform to 8.6.1 through 8.6.4.

8.6.4.1 Suspension and Compensating Means
8.6.4.1.1 Suspension and compensating means shall be kept sufficiently clean so that they can be visually inspected. Suspension Means shall be inspected at intervals not exceeding 12 months and replaced per the replacement criterion specified in A17.6 or B44.2.

8.6.4.1.2 Steel wire ropes shall be lightly lubricated. Precautions shall be taken in lubricating suspension steel wire ropes to prevent the loss of traction. Lubrication shall be in accordance with instructions on the rope data tag [see 2.20.2.2.2(n)], if provided.

8.6.4.1.3 Equal tension shall be maintained between individual suspension members in each set. ~~Suspension members are considered to be equally tensioned when the smallest tension measured is within 10% of the highest tension measured.~~ When suspension-member tension is checked or adjusted, an antirotation device conforming to the requirements of 2.20.9.8 shall be permitted.

Note: Suspension members are considered to be equally tensioned when the smallest tension measured is within 10% of the highest tension measured.

8.6.4.2 Governor Wire Ropes

8.6.4.2.1 The ropes shall be kept clean.

8.6.4.2.2 Governor wire ropes shall not be lubricated after installation. If lubricants have been applied to governor ropes, they shall be replaced, or the lubricant removed, and the governor and safety shall be tested as specified in 8.6.4.19.2(b) and 8.6.4.18.2.

8.6.4.3 Lubrication of Guide Rails

8.6.4.3.1 The lubrication of guide rails shall be in accordance with the requirements on the crosshead data plate (see 2.17.16), where provided.

8.6.4.3.2 Where a data plate is not provided, the lubrication of guide rails shall conform to the following:

(a) Guide rails, except those of elevators equipped with roller or other types of guiding members not requiring lubrication, shall be kept lubricated.

(b) Where sliding-type safeties are used, the guiderail lubricants, or prelubricated or impregnated guideshoe gibs, where used, shall be of a type recommended by the manufacturer of the safety (see 8.6.1.6.2. and 2.17.16).

8.6.4.3.3 If lubricants other than those recommended by the manufacturer are used, a safety test conforming to 8.6.4.20.1 shall be made to demonstrate that the safety will function as required by 2.17.3.

8.6.4.3.4 Rails shall be kept clean and free of lint and dirt accumulation and excessive lubricant. Means shall be provided at the base of the rails to collect excess lubricant.

8.6.4.3.5 Rust-preventive compounds such as paint, mixtures of graphite and oil, and similar coatings shall not be applied to the guiding surfaces, unless recommended by the manufacturer of the safety. Once applied, the safety shall be checked as specified in 8.6.4.20.1.

8.6.4.4 Oil Buffers

8.6.4.4.1 The oil level shall be maintained at the level indicated by the manufacturer. The grade of oil to be used shall be as indicated on the buffer marking plate, where required (see 2.22.4.10 and 2.22.4.11).

8.6.4.4.2 Buffer plungers shall be kept clean and shall not be coated or painted with a substance that will interfere with their operation.

8.6.4.4.3 Buffer oil shall not be stored in the pit or hoistway or on top of the car.

8.6.4.5 Safety Mechanisms

8.6.4.5.1 Safety mechanisms shall be kept lubricated and free of rust, corrosion, and dirt that can interfere with the operation of the safety.

8.6.4.5.2 The required clearance between the safety jaws and the rail shall be maintained.

8.6.4.6 Brakes

8.6.4.6.1 The driving-machine brake shall be maintained to ensure proper operations, including, but not limited to the following:

(a) residual pads (antimagnetic pads)
(b) lining and running clearances
(c) pins and levers
(d) springs
(e) sleeves and guide bushings
(f) discs and drums
(g) brake coil and plunger

8.6.4.6.2 If any part of the driving machine brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the brake when required (see 2.24.8.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity. A test complying with 8.6.4.20.4 shall be performed.

8.6.4.6.3 If any part of the emergency brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the emergency brake when required (see 2.19.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

8.6.4.7 Cleaning of Hoistways and Pits
8.6.4.7.1 Hoistways and pits shall be kept free of dirt and rubbish and shall not be used for storage purposes.

8.6.4.7.2 Landing blocks and pipe stands shall be permitted to be stored in the pit, provided that they do not interfere with the operation of the elevator and do not present a hazard for persons working in the pit.

8.6.4.7.3 Pit access doors shall be kept closed and locked.

8.6.4.7.4 Water and oil shall not be allowed to accumulate on pit floors.

8.6.4.8 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms
8.6.4.8.1 Floors and machinery and control spaces shall be kept free of water, dirt, rubbish, oil, and grease.

8.6.4.8.2 Articles or materials not necessary for the maintenance or operation of the elevator shall not be stored in machinery spaces, machine rooms, control spaces, and control rooms.

8.6.4.8.3 Flammable liquids having a flashpoint of less than 44°C (110°F) shall not be kept in such rooms or spaces.

8.6.4.8.4 Access doors shall be kept closed and locked.
8.6.4.8.5 Machinery spaces and control spaces located in the hoistway shall not be used for storage purposes (see also 8.6.4.7.1).

8.6.4.9 Cleaning of Top of Cars.
The tops of cars shall be kept free of oil, water, dirt, and rubbish, and shall not be used for storing lubricants, spare parts, tools, or other items.

8.6.4.10 Refastening or Resocketing of Car-Hoisting Ropes on Winding-Drum Machines
8.6.4.10.1 General.
The hoisting ropes of elevators having winding-drum driving-machines with 1:1 roping, if of the babbitted rope socket type, shall be resocketed, or for other type of fastenings, replaced or moved on the rope to a point above the existing fastening at the car ends at intervals no longer than
(a) 1 year, for machines located over the hoistway.
(b) 2 years, for machines located below or at the side of the hoistway.

(c) where auxiliary rope-fastening devices conforming to 2.20.10 are installed, refastening at the periods specified is not required, provided that, where such devices are installed, all hoisting ropes shall be refastened on the failure or indication of failure of any rope fastening.
(d) where the elevator is equipped with a drum counterweight, the fastenings shall be examined for fatigue or damage at the socket. Where fatigue or damage is detected, the ropes shall be refastened in conformance with 8.6.4.10.2.

8.6.4.10.2 Procedure.
(a) In resocketing babbitted rope sockets or replacing other types of fastenings, a sufficient length shall be cut from the end of the rope to remove damaged or fatigued portions. The fastenings shall conform to 2.20.9. Where the drum ends of the ropes extend beyond their clamps or sockets, means shall be provided to prevent the rope ends from coming out of the inside of the drum and to prevent interference with other parts of the machine.
(b) the suspension wire ropes shall conform to 2.20.7.

8.6.4.10.3 Tags. A legible metal tag shall be securely attached to one of the wire rope fastenings after each resocketing or changing to other types of fastenings and shall bear the following information:
(a) the name of the person or firm who performed the resocketing or changing of other types of fastenings and
(b) the date on which the rope was resocketed or other types of fastening changed
The material and marking of the tags shall conform to 2.16.3.3, except that the height of the letters and figures shall be not less than 1.5 mm (0.0625 in.).

8.6.4.11 Runby
8.6.4.11.1 The car and counterweight runby shall be permitted to be reduced (see 2.4.2), provided the car or counterweight does not strike the buffer, the top car clearances are not reduced below that required at the time of installation or alteration, and the final terminal stopping device is still operational (see also 8.6.3.3.3).

8.6.4.11.2 Where spring-return oil buffers are provided and compression was permitted with the car at the terminals (see 2.4.2 and 2.22.4.8), the buffer compression shall not exceed 25% of the buffer stroke.

8.6.4.12 Governors
8.6.4.12.1 Governors shall be examined to ensure that all seals are intact and manually operated to determine that all moving parts, including the rope-grip jaws and switches, operate freely.

8.6.4.12.2 Governors, governor ropes, and all sheaves shall be free from contaminants or obstructions, or both, that interfere with operation or function, including the accumulation of rope lubricant or materials, or both, in the grooves of governors or sheaves.

8.6.4.13 Door Systems
8.6.4.13.1 General. All landing and car-door or gate mechanical and electrical components shall be maintained to ensure safe and proper operation at an interval not exceeding 6 months, including but not limited to, the following:
(a) hoistway door interlocks or mechanical locks and electric contacts
(b) car door electric contacts or car door interlocks, where required
(c) door reopening devices
(d) vision panels and grilles, where required
(e) hoistway door unlocking devices and escutcheons
(f) hangers, tracks, door rollers, up-thrusts, and door safety retainers, where required
(g) astragals and resilient members, door space guards, and sight guards, where required
(h) sills and bottom guides, fastenings, condition, and engagement
(i) clutches, engaging vanes, retiring cams, and engaging rollers
(j) interconnecting means
(k) door closers, where required
(l) means to restrict hoistway or car door opening ~~and expiration date for the alternate power source~~ , where required.

8.6.4.13.2 Kinetic Energy and Force Limitation for Automatic Closing, Horizontal Sliding Car and Hoistway Doors or Gates.

Where a power-operated horizontally sliding door is closed by momentary pressure or by automatic means, the closing kinetic energy and closing force shall be maintained to conform to 2.13.4 and 2.13.5.

8.6.4.14 Hoistway Access Switches.
Hoistway access switches, where provided, shall be maintained.

8.6.4.15 Car Emergency System.
Emergency operation of signaling devices (see 2.27), lighting (see 2.14.7), communication (see 2.27.1.1.2, 2.27.1.1.3, and 2.27.1.2) and ventilation (see 2.14.2.3), shall be maintained. Where a dedicated function fire alarm system has been added to comply with CAD requirement 2.27.3.2.2(c) the owner shall ensure that testing of the "Elevator Recall Control and Supervisory Control Unit" is performed annually.

8.6.4.16 Stopping Accuracy.
The elevator shall be maintained to provide a stopping accuracy at the landings during normal operation as appropriate for the type of control, in accordance with applicable Code requirements.

8.6.4.17 Ascending Car Overspeed and Unintended Car Movement Protection.
Devices for ascending car overspeed and unintended car movement protection shall be maintained (see 2.19).

8.6.4.18 Compensation Sheaves and Switches
8.6.4.18.1 Suspension and compensation means shall be maintained to prevent the compensation sheave from reaching the upper or lower limit of travel and to prevent unintended actuation of compensation sheave switch(es) during normal operation.

8.6.4.19 Periodic Test Requirements — Category 1
NOTE: For test frequency, see 8.11.1.3.

8.6.4.19.1 Oil Buffers. Car and counterweight buffers shall be tested to determine conformance with the applicable plunger return requirements (Item 5.9.2.1).

8.6.4.19.2 Safeties

(a) Examinations.
All working parts of car and counterweight safeties shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 8.7.2.14 through 8.7.2.28 (see 2.17.10 and 2.17.11). Check the level of the oil in the oil buffer and the operation of the buffer compression-switch on Type C safeties.

(b) Tests.
Safeties shall be subjected to the following tests with no load in the car:

(1) Type A, B, or C governor-operated safeties shall be operated by manually tripping the governor with the car operating at the slowest operating speed in the down direction. In this test, the safety shall bring the car to rest promptly. In the case of Type B safeties, the stopping distance is not required to conform to 2.17.3. In the case of Type C safeties, full oil buffer compression is not required. In the case of Type A, B, or C safeties employing rollers or dogs for application of the safety, the rollers or dogs are not required to operate their full travel (Item 2.29.2.1).

(2) Governor-operated wood guide-rail safeties shall be tested by manually tripping the governor with the car at rest and moving the car in the down direction until it is brought to rest by the safety and the hoisting ropes slip on traction sheaves or become slack on winding drum sheaves (Item 2.29.2.(d)).

(3) Type A and wood guide-rail safeties without governors which are operated as a result of the breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2.1).

8.6.4.19.3 Governors.
Governors shall be operated manually to determine that all parts, including those which impart the governor pull-through tension to the governor rope, operate freely [Item 2.13.2.1(a)].

8.6.4.19.4 Slack-Rope Devices and Stop Motion Switch on Winding Drum Machines.
Slack-rope devices on winding drum machines shall be operated manually and tested to determine conformance with the applicable requirements. The final terminal stopping device and the machine final (stop motion switch) shall be examined and tested by disabling the normal stopping device, normal terminal stopping device and final terminal stopping device located in the hoistway and operating the unit to verify proper operation. (Item 2.20)

8.6.4.19.5 Normal and Final Terminal Stopping Devices.
Normal and final terminal stopping devices shall be examined and tested to determine conformance with the applicable requirements (2.25) (Items 2.20, 2.28.2.1, 3.5.2.1 and 3.6.2.1).

8.6.4.19.6 Firefighters' Emergency Operation.
Firefighters' emergency operation (Phase I and II) shall be tested annually to the requirements of 8.6.11.1. Additional testing may be performed to determine conformance with the applicable requirements. Phase I recall shall be tested by individually activating fire alarm initiating device inputs to the elevator control, the three position switch at the designated landing and where provided, the two position switch at the building fire control station. (see Part 6 of A17.2)

8.6.4.19.7 Standby or Emergency Power or Emergency ~~Lowering~~ Operation.
Operation of elevators equipped with standby or emergency power shall be tested to determine conformance with the applicable requirements (Item 1.17.2.1). Tests shall be performed with no load in the car. Elevators equipped with auxiliary power lowering shall be tested to ensure that they comply with 3.26.10 of ASME A17.1/CSA B44. The main disconnect switch auxiliary contact shall be tested to ensure compliance with Section 38 of the Canadian Electrical Code, Part I.

8.6.4.19.8 Power Operation of Door System.
The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.1). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.4.19.9 Broken Rope, Tape, or Chain Switch.
Where a rope, tape, or chain is used to connect the motion of the car to the machine room normal limit, the switch that senses failure of this connection shall be tested for compliance with 2.26.2.6 (Item 3.26.1.1).

8.6.4.19.10 Functional Safety of SIL Rated Devices.
Verify SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.3.2(b), 2.26.9.5.1(b), and 2.26.9.6.1(b) are as identified on wiring diagrams (8.6.1.6.3) with part identification, SIL, and certification identification information.
The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that SIL Rated Devices, Safety Functions (see table 2.26.4.3.2), and related circuits operate as intended.

8.6.4.19.11 Ascending Car Overspeed Protection and Unintended Car Movement Devices

(a) **Examinations.** All working parts of ascending car overspeed protection and unintended car movement devices shall be examined to determine that they are in satisfactory operating condition and that they conform to the applicable requirements of 2.19.1.2(a) and 2.19.2.2(a).

(b) **Tests.** Ascending car overspeed protection shall be subjected to tests to demonstrate compliance with 2.19.1 with no load in the car at the slowest operating speed (inspection speed) in the up direction.

(c) **Tests.** Unintended car movement shall be subjected to tests with no load in the car. Testing shall confirm compliance with 2.19.2 due to an elevator rollaway caused by a brake and releveling failure. ~~at the slowest operating speed in the up direction.~~

8.6.4.19.12 Traction-Loss Detection Means.
Where provided, conformance with the traction-loss detection means specified in 2.20.8.1 shall be demonstrated by

(a) causing relative motion between the drive sheave and the suspension means either by bottoming the car or counterweight [see 8.6.4.20.10(b)], or

(b) an alternative test provided in the Maintenance Control Program [see 8.6.1.2.1(f)]

8.6.4.19.13 Broken-Suspension-Member and Residual-Strength Detection Means
Where provided, testing of broken-suspension and residual-strength detection means shall comply with the following:

(a) The broken-suspension-member detection means shall be tested by simulating a slack suspension member or a loss of a suspension member as appropriate (see 2.20.8.2).

(b) Suspension-member residual-strength detection means shall be tested to simulate a reduction of residual strength to 2.20.8.3.

8.6.4.19.14 Occupant Evacuation Operation.
Occupant Evacuation Operation shall be tested to determine conformance with the applicable requirements. Deficiencies shall be corrected. A record of findings shall be available to the building owner and the authority having jurisdiction.

8.6.4.19. 15 Emergency Communications
Emergency Communications shall be tested to determine conformance with the applicable requirements (Item 1.6)

8.6.4.19. 16 Means to Restrict Hoistway or Car Door Opening
Means to restrict hoistway or car door opening shall be tested to determine conformance with the applicable requirements (Item 1.18)

8.6.4.19.17 to 8.6.4.19.24 Reserved

8.6.4.19.25 Driving Machine Brakes
Testing shall be performed to ensure that the car decelerates from the rated speed when power is removed from the driving machine and brakes while empty and travelling upward at the rated speed. Any rate of deceleration shall be considered acceptable. A means other than the disconnect switch should be used to remove the power.

For new installations and where the annual testing per 8.6.4.19.25 occurs after the first five year load test conducted under 8.6.4.20.4 or 8.6.4.20.10, the following additional actions are required. [Note: Successful demonstration of 8.6.4.20.4 and 8.6.4.20.10 testing confirms proper adjustment of the driving machine brake.]
(a) Marking plates for brakes (see 2.24.8.5) shall be checked and modified where necessary to reflect a brake setting method which specifies either;
  (1) the required no load torque for both the clockwise and counter clockwise directions,
  (2) the no load braking slide distance associated with the car travelling in the up direction or
  (3) the requirements to test the driving machine brake annually with rated load, in which case a marking tag to indicate spring force shall be utilized / retained to provide an interim brake checking method.
(b) Except as permitted in (a)(3), marking plates utilizing spring length or spring force shall be replaced.

(c) Following the first five year load test, driving machine brakes shall be tested annually to ensure they are adjusted properly per the marking plate for brakes requirements.

8.6.4.20 Periodic Test Requirements — Category 5
NOTE: For test frequency, see 8.11.1.3.

Where category 5 tests require the use of load for testing purposes, alternative no load methods shall be permitted where the alternative method is acceptable to the Director.

8.6.4.20.1 Car and Counterweight Safeties.
Types A, B, and C car and counterweight safeties shall be tested in accordance with **8.6.4.20.1(a)** or subject to approval by the authority having jurisdiction with **8.6.4.20.1(b)**.

(a) Rated Load and Rated Speed Test.
Car safeties, except those operating on wood guide rails, and their governors, shall be tested with rated load in the car. Counterweight safety tests shall be made with no load in the car. Tests shall be made by tripping the governor by hand at the rated speed. The following operational conditions shall be checked (Item 2.29.2.):

(1) Type B safeties shall stop the car with the rated load within the required range of stopping distances for which the governor is tripped (Item 2.29.2.) and the level of the platform checked for conformance to 2.17.9.2.
(2) For Type A safeties and Type A safety parts of Type C safeties, there shall be sufficient travel of the safety rollers or dogs remaining after the test to bring the car and its rated load to rest on safety application at governor tripping speed. The level of the platform shall be checked for conformance to 2.17.9.2.

(b) Alternative Test Method for Car Safeties.
The alternative test methods shall comply with requirement 8.6.11.10, and the following:

(1) The testing of safeties with any load in the car, centered on each quarter of the platform symmetrically with relation to the centerlines of the platform from no load up to rated load, and at not less than rated speed shall be permitted provided that,
a) when the alternative test is performed, the test shall stop the car and verify that the safeties will be capable of stopping an overspeeding car in accordance with the requirements of Section 2.17 applicable to the specific classification of safeties, and
b) when applied the method shall verify that the safeties perform or are capable of performing in compliance with 8.6.4.20.1(a) and the platform shall not be out of level more than 30 mm/m (0.36 in/ft) in any direction.

(2) A test record ~~tag~~ as required in 8.6.1.7.2 shall be provided.

Governor-operated wood guide-rail safeties shall be tested by tripping the governor by hand with the car at rest and moving the car in the down direction until it is brought to rest by the safety and the hoisting ropes slip on traction sheaves or become slack on winding drum sheaves (Item 2.29.2.). (Note: Aligns with 4.2.2.1 of B44.2-10)

NOTE: To ensure that the safety will retard the car with the minimum assistance from the elevator driving machine and minimize the development of slack rope and fallback of the counterweight, the switch on the car operated by the car safety mechanism should, for the duration of the test, be temporarily adjusted to open as close as possible to the position at which the car safety mechanism is in the fully applied position.

8.6.4.20.2 Governors
(a) The tripping speed of the governor and the speed at which the governor overspeed switch, where provided, operates shall be tested to determine conformance with the applicable requirements and the adjustable means shall be sealed (Item 2.13.2.1).

(b) The governor rope pull-through and pull-out forces shall be tested to determine conformance with the applicable requirements, and the adjustment means shall be sealed (Item 2.13.2.1).

(c) not adopted ~~After these tests in jurisdictions enforcing NBCC, a metal tag indicating the date of the governor tests, together with the name of the person or firm that performed the tests, shall be attached to the governor in a permanent manner~~.

8.6.4.20.3 Oil Buffers

(a) Car oil buffers shall be tested to determine conformance with the applicable requirements by running the car
(1) onto the buffer with rated load at rated speed, or
(2) subject to approval by the authority having jurisdiction, with
(a) any load, from no load up to rated load onto the buffer at rated speed when the requirements of 8.6.11.10 are complied with, provided that when applied the method verifies that the buffer performs or is capable of performing in compliance with 8.6.4.20.3(a), except as specified in **8.6.4.20.3(b)** and (c) (Item 5.9.2.1). or,

(b) onto the buffer with any load, from no load up to rated load, and at less than rated speed, when the requirements of 8.6.11.10 are complied with, provided that when applied the method verifies that the buffer performs or is capable of performing in compliance with 8.6.4.20.3(a),

(b) For reduced stroke buffers, this test shall be made at the reduced striking speed permitted (Item 5.9.2.1).

(c) This test is not required where a Type C safety is used (see 8.6.4.20.1).

(d) In making these tests, the normal and emergency terminal stopping devices shall be made temporarily inoperative. The final terminal stopping devices shall remain operative and be temporarily relocated, if necessary, to permit compression of the buffer during the test.

(e) After completion of the test, a metal tag, indicating the date of the test, together with the name of the person or firm who performed the test, shall be attached to the buffer [Item 5.3.2(b)].

(f) Counterweight oil buffers shall be tested by running the counterweight onto its buffer at rated speed with no load in the car, except as specified in **8.6.4.20.3(b)** and (c) (Item 5.9.2.1), or at reduced speed if requirements of 8.6.11.10 are met.

(g) A test record ~~tag~~ as required in 8.6.1.7.2 shall be provided.

8.6.4.20.4 Driving Machine Brake(s).

For passenger elevators and all freight elevators, the driving machine brake shall be tested for compliance with applicable requirements, in accordance with **8.6.4.20.4(a)** or subject to approval by the authority having jurisdiction with **8.6.4.20.4(b)**. For elevators installed under A17.1-2000/B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate.
Upon completion of the test, the means of adjusting the holding capacity shall be sealed to prevent changing the adjustment without breaking the seal. The seal shall bear or otherwise attach the identification of the person or firm that installed it. (See also 8.6.1.7.2 Periodic Test Records ~~Tags~~).

(a) Test with load per Table **8.6.4.20.4**.
Place the load as shown in Table **8.6.4.20.4** in the car. The driving machine brake, on its own, shall hold the car with this load. With no load in the car the driving machine brake shall hold the empty car at rest, and shall decelerate an empty car traveling in the up direction from governor tripping speed. The driving machine brake on freight elevators of class C-2 loading, when loaded to their maximum design load shall hold the elevator car at rest (Item 2.17.2.1).

(b) Alternative Test Method for Driving Machine Brakes.
The alternative test methods shall comply with requirement 8.6.11.10, and the following:

1) Any method of verifying conformity of the driving-machine brake with the applicable Code requirements (see 2.24.8.3 and Table **8.6.4.20.4**) shall be permitted, including the testing method of the brakes with or without any load in the car, provided that when applied the method verifies that the brake performs or is capable of performing in compliance with 8.6.4.20.4(a) and shall include,
2) A test record ~~tag~~ as required in **8.6.1.7.2** shall be provided.

Upon completion of the test, the means of adjusting the holding capacity shall be sealed to prevent changing the adjustment without breaking the seal. The seal shall bear or otherwise attach the identification of the person or firm that installed it. (See also 8.6.1.7.2 Periodic Test Record ~~Tags~~)

Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.1). (Note: Aligns with 4.6.4 of B44.2-10) For elevators installed under A17.1-2000/B44-00 and later editions, have the brake setting verified in accordance with the data on the brake marking plate.

8.6.4.20.5 Reserved

8.6.4.20.5 Emergency and Standby Power Operation.
Not adopted. (see 8.6.4.19.5)
~~Operation of elevators equipped with emergency or standby power shall be examined and tested for conformance with the applicable requirements (Item 2.17.2.1 1.17.2.1).~~

8.6.4.20.6 Emergency Terminal Stopping and Speed-Limiting Devices.
Emergency terminal speed-limiting devices, where provided, shall be tested for conformance with applicable requirements (2.25.4; and Item 5.3.2.1). For static control elevators, emergency terminal stopping devices, when provided, shall be tested for conformance with applicable requirements (2.25.4) (Item 2.28.2.1).

8.6.4.20.7 Power Opening of Doors.
Determine that power opening of car and hoistway doors only occurs as permitted by the applicable requirements ~~when the car is at rest at the landing, or in the landing zone, except, in the case of static control, check that power shall not be applied until the car is within 300 mm (12 in.) of the landing~~ (Item 1.10.2).

Table 8.6.4.20.4 Brake Test Loads

Class of Service	Not Permitted to Carry Passengers	Permitted to Carry Passengers
Passenger	Not applicable	125% rated load
Freight	Rated load	125% rated load
One Piece Load by 2.16.7	Rated load or one piece load, whichever is greater	125% rated load or one piece load, whichever is greater

8.6.4.20.8 Leveling Zone and Leveling Speed.
Check that the leveling zone does not exceed the maximum allowable distance. Check that the leveling speed does not exceed 0.75 m/s (150 ft/min). For static control elevators, the person or firm installing or maintaining the equipment shall provide a written checkout procedure and demonstrate that the leveling speed with the doors open is limited to a maximum of 0.75 m/s (150 ft/min) and that the speed-limiting (or speed monitor) means is independent of the normal means of controlling this speed [Item 1.10.2(b)].

8.6.4.20.9 Inner Landing Zone.
For static control elevators, check that the zone in which the car can move with the doors open is not more than 75 mm (3 in.) above or below the landing (Item 1.10.2.1).

8.6.4.20.10 Braking System, Traction and Traction Limits.
Traction and traction limits on traction elevators shall be verified for compliance with 2.24.2.3 in accordance with **8.6.4.20.10(a)** or subject to approval by the authority having jurisdiction, with **8.6.4.20.10(b)**.

(a) Dynamic Stopping Test.
Traction elevators shall be tested to ensure that:

(1) during an emergency stop initiated by any of the electrical protective device(s) listed in 2.26.2 (except 2.26.2.13), (except buffer switches for oil buffers used with Type C car safeties) at the rated speed in the down direction, with passenger elevators and freight elevators permitted to carry passengers carrying 125% of their rated load, or with freight elevators carrying their rated load, cars shall safely stop and hold the load (see 2.24.2.3.1, 2.24.2.3.2 and 2.24.2.3.3); and

(2) if either the car or the counterweight bottoms on its buffers or becomes otherwise immovable, one of the following shall occur (see 2.24.2.3.4):
(a) the suspension means shall lose traction with respect to the drive sheave and not allow the car or counterweight to be raised; or
(b) the driving system shall stall and not allow the car or counterweight to be raised.

(3) with a load in the car in accordance with Table **8.6.4.20.4**, the braking system and traction relation shall be tested to show the system can safely stop and hold the car, and where required by 2.16.2.2.4(c) shall relevel the car.

(b) Alternative Test Method for Braking System, Traction and Traction Limits.
Alternative test methods shall comply with requirement 8.6.11.10 and the following;

(1) Other methods for verifying traction for compliance with 2.24.2.3, and traction limits in compliance with 2.24.2.3.4 shall be permitted provided the test method complies with the following:
(a) When applied, the method shall verify that the elevator traction system performs, or is capable of performing, in compliance with the performance requirements of **8.6.4.20.10(a)**; and
(b) The braking system and traction relation shall be tested to show the system can safely stop and hold the car, and where required by 2.16.2.2.4(c) shall relevel the car without load in the car.

(2) A test record ~~tag~~ as required in 8.6.1.7.2 shall be provided.

8.6.4.20.11 Emergency Brake. (Note: Aligns with 4.29 of B44.2-10)
For passenger elevators and all freight elevators, the emergency brake shall be tested at rated speed in the up direction with no load in the car for compliance with 2.19.3.2.

8.6.4.21 Drive Sheaves With Nonmetallic Groove Surfaces and Steel Wire Ropes.
Where steel wire ropes have worn through a nonmetallic drive-sheave groove surface and have not damaged the supporting sheave surface beneath the nonmetallic sheave groove surface, the groove surfaces shall be replaced and the steel wire ropes shall be inspected for conformance to the criteria of ASME A17.6, Section 1.10, and replaced, if necessary. Where the sheave-supporting surfaces have been damaged, the drive sheave shall also be replaced or repaired and the groove surfaces shall be replaced.

8.6.4.22 Maintenance of Seismic Devices
8.6.4.22.1 A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.
8.6.4.22.2 The counterweight displacement switch components, where provided, shall be:
a) maintained in accordance with the manufacturer's recommendations, and
b) properly aligned and tensioned and kept free of dirt, debris and other contaminants that may interfere with proper operation.

8.6.5 Maintenance and Testing of Hydraulic Elevators
The maintenance and testing of hydraulic elevators shall conform to 8.6.1 through 8.6.3, and the applicable requirements of 8.6.4 and 8.6.5.

8.6.5.1 Pressure Tanks

8.6.5.1.1 Cleaning.

Pressure tanks shall be thoroughly cleaned internally at least every 3 years and prior to the inspection and test required by 8.6.5.15.

8.6.5.1.2 Level.

The liquid level in pressure tanks should be maintained at about two-thirds of the capacity of the tank.

8.6.5.2 Piston Rods.

Piston rods of roped-hydraulic elevators shall be thoroughly cleaned prior to the test required by 8.6.5.15.

8.6.5.3 Water-Hydraulic Plungers.

Plungers of water-hydraulic elevators shall be thoroughly cleaned to remove any buildup of rust and scale prior to the test required by 8.6.5.15.

8.6.5.4 Tank Levels.

The level of oil in the oil tanks shall be checked and, where necessary, adjusted to comply with the prescribed minimum and maximum level.

8.6.5.5 Gland Packings and Seals

8.6.5.5.1 Examination and Maintenance.

Where pressure piping, valves, and cylinders use packing glands or seals, they shall be examined and maintained to prevent excessive loss of fluid. When a cylinder packing or seal or a pressure-piping seal is replaced, the integrity of the entire hydraulic system shall be verified by operating it at relief-valve pressure for not less than 15 sec.

8.6.5.5.2 Collection of Oil Leakage.

Oil leakage collected from each cylinder head seals or packing gland shall not exceed 19 L (5 gal) before removal. The container shall be covered and shall not be permitted to overflow.

8.6.5.6 Flexible Hoses and Fittings.

Flexible hose and fittings assemblies installed between the check valve or control valve and the cylinder, and that are not equipped with an overspeed valve conforming to 3.19.4.7, shall be replaced not more than 6 years beyond the installation date. Existing hose assemblies that do not indicate an installation or replacement date shall be replaced. Replacements shall conform to 3.19.3.3.1(a) through (e) and 3.19.3.3.2.

8.6.5.7 Record of Oil Usage.

(a) Oil monitoring shall conform to 2.9 of the Code Adoption Document.
~~For systems where the part of cylinder and/or piping is not exposed for visible examination, a written record shall be kept of the quantity of hydraulic fluid added to the system and emptied from leakage collection containers and pans. The written record shall be kept in the machine room.~~

(b) When the quantity of hydraulic fluid loss cannot be accounted for, the test specified in 8.6.5.14.1 and 8.6.5.14.2 shall be made.

8.6.5.8 Safety Bulkhead.

Not later than May 1, 2015, hydraulic cylinders installed below ground shall conform to 3.18.3.4, or the elevator shall conform to 8.6.5.8(a) or 8.6.5.8(b):

(a) the elevator shall be provided with car safeties conforming to 3.17.1 and guide rails, guide-rail supports, and fastenings conforming to 3.23.1; or

(b) the elevator shall be provided with a plunger gripper conforming to 3.17.3. The plunger gripper shall grip the plunger when the applicable maximum governor tripping speed in Table 2.18.2.1 is achieved.

8.6.5.9 Relief-Valve Setting.
The relief-valve adjustment shall be examined to ensure that the seal is intact. If the relief-valve seal is not intact, tests shall be conducted in accordance with 8.6.5.14.1.

8.6.5.10 Runby and Clearances After Reroping or Shortening.
The minimum car and counterweight clearances and runby shall be maintained in compliance with the applicable code when replacement suspension ropes are installed or when existing suspension ropes are shortened.

8.6.5.11 Cylinder Corrosion Protection and Monitoring
8.6.5.11.1 Corrosion Protection Monitoring.
Where monitored cylinder corrosion protection is required, the monitoring means shall be examined and maintained.

8.6.5.11.2 Corrosion Protection Loss.
If the monitoring means detects that loss of corrosion protection has occurred, the means of corrosion protection shall be repaired or replaced.

8.6.5.12 Anticreep and Low Oil Protection.
The anticreep function and low oil protection shall be maintained to operate in compliance with the applicable code.

8.6.5.13 Overspeed Valve Setting.
Overspeed valves shall be calibrated and maintained in accordance with the manufacturer's recommendations including replacement of the valve seals or entire valves at intervals specified.
All elevators provided with field adjustable overspeed valves shall have the adjustment means examined to ensure the seal is intact. If the overspeed adjustment seal is not intact, compliance with 8.6.5.16.5 shall be verified and a new seal shall be installed.

8.6.5.14 Periodic Test Requirements — Category 1
NOTE: For test frequency, see 8.11.1.3.

8.6.5.14.1 Relief Valve Verification of Setting and System Pressure Test.
The relief valve setting shall be tested to determine that it will bypass the full output of the pump before the pressure exceeds 150% of the working pressure. Once this is established, test the entire system to ensure that it will withstand this pressure. It shall be sealed if the relief valve setting is altered or if the seal is broken (Item 2.31).

8.6.5.14.2 Hydraulic Cylinders and Pressure Piping.
This test shall be performed after the relief valve setting and system pressure test in 8.6.5.14.1:
(a) Cylinders and pressure piping that are exposed shall be visually examined.
(b) Cylinders and pressure piping that are not exposed shall be tested for leakage, which cannot be accounted for by the visual examination in 8.6.5.14.2(a) (Item 2.36.2). The duration of the test shall be for a minimum of 15 min (Item 2.36.2).

8.6.5.14.3 Additional Tests.
The following tests shall also be performed:
(a) Normal Terminal Stopping Devices (8.6.4.19.5) (Item 2.28)
(b) Governors (8.6.4.19.3) (Item 2.13)
(c) Safeties (8.6.4.19.2) (Item 2.9)
(d) Oil Buffers (8.6.4.19.1) (Items 3.29 and 5.8)
(e) Firefighters' Emergency Operation (8.6.4.19.6) (Items 6.3 and 6.4)
(f) Standby or Emergency Power Operation (8.6.4.19.7) (Item 1.17)
NOTE: Absorption of regenerated power (2.26.10) does not apply to hydraulic elevators.
(g) Power Operations of Door System (8.6.4.19.8) (Items 4.6 and 4.7)
(h) Emergency Terminal Speed-Limiting Device and Emergency Terminal Stopping Device (3.25.2) (Item 3.6.2.2)
(i) Low Oil Protection Operation (3.26.9) (Item 2.39.2)

8.6.5.14.4 Flexible Hose and Fitting Assemblies.
Flexible hose and fitting assemblies shall be tested at the relief valve setting pressure for a minimum of 30 s. Any signs of leakage, slippage of hose fittings, damage to outer hose covering sufficient to expose reinforcement, or bulging, or distortions of the hose body is cause for replacement.

CAUTION: If the motor protection or motor overloads trip during this test, DO NOT change the adjustment or jumper the overloads. Damage to the motor can result from running the motor without adequate overload protection.

8.6.5.14.5 Pressure Switch.
The pressure switch and its related circuits shall be tested for conformance with applicable requirements (3.26.8) (Item 2.37).

8.6.5.14.6 Power Operation of Door System.
The closing forces and speed of power-operated hoistway door systems shall be tested to determine conformance with the applicable requirements (Item 1.8.2). For elevators required to comply with 2.13.4.2.4, the time in the door Code zone distance shall be measured and compared with the time specified on the data plate.

8.6.5.14.7 Slack-Rope Device.
The slack-rope device shall be tested on a roped hydraulic elevator by causing a slack-rope condition to occur and verify that it will remove power in compliance with 3.18.1.2.5 (Item 3.31.2).

8.6.5.14.8 Plunger Gripper
A plunger gripper, where provided, shall be examined and tested per 8.10.3.2.5(n), except testing is permitted to be performed without rated load.

8.6.5.15 Periodic Test Requirements — Category 3
NOTE: For test frequency, see 8.11.1.3.
8.6.5.15.1 Unexposed Portions of Pistons.
Piston rods of roped water-hydraulic elevators shall be exposed, thoroughly cleaned, and examined for wear or corrosion. The piston rods shall be replaced if at any place the diameter is less than the root diameter of the threads (Item 5.11).

8.6.5.15.2 Pressure Vessels.
Pressure vessels shall be checked to determine conformance with the applicable requirements, thoroughly cleaned, internally examined, and then subjected to a hydrostatic test at 150% of the working pressure for 1 min (3.24.4) (Item 2.33).

8.6.5.16 Periodic Test Requirements — Category 5
NOTE: For test frequency, see 8.11.1.3.
8.6.5.16.1 Governors, safeties, and oil buffers, where provided, shall be inspected and tested as specified in 8.6.4.20.1, 8.6.4.20.2, and 8.6.4.20.3 at intervals specified by the authority having jurisdiction. Where activation is allowed or required both by overspeed and slack rope, the safety shall have both means of activation tested.

8.6.5.16.2 Coated ropes shall be required to have a magnetic flux test capable of detecting broken wires, in addition to a visual examination.

8.6.5.16.3 Wire rope fastenings shall be examined in accordance with Item 3.23 of A17.2. Fastenings on roped-hydraulic elevators utilizing pistons that are hidden by cylinder head seals shall also be examined, even if it is temporarily necessary to support the car by other means and disassemble the cylinder head.

8.6.5.16.4 Not adopted (see 8.6.5.14.8). ~~A plunger gripper, where provided, shall be examined and tested per 8.10.3.2.5(n).~~

8.6.5.16.5 Overspeed valves, where provided, shall be inspected and tested to verify that they will stop the car, traveling down with rated load, within the specified limits of 3.19.4.7.5(a) using a written procedure supplied by the valve manufacturer or the person or firm maintaining the equipment. If the seal has been altered or broken, the overspeed valve shall be resealed after successful test (Item 5.15.2).

8.6.5.16.6 Freight elevators of Class C2 loading shall sustain and level the elevator car with the maximum load shown on the freight elevator loading sign (Item 2.17.2.2).

8.6.5.17 Plunger Gripper. Plunger grippers, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.6 Maintenance and Testing of Elevators With Other Types of Driving Machines

8.6.6.1 Rack-and-Pinion Elevators.

The maintenance of rack-and-pinion elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6. Where the car and/or counterweight safeties are sealed to prevent field adjustment and examination, they shall be returned to the manufacturer for replacement of components and calibration at the interval recommended by the manufacturer. A data plate shall be installed to show the date that the next maintenance/calibration is due.

8.6.6.1.1 Rack-and-Pinion Elevator Periodic Test.

Rack-and-pinion elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20. The test requirements shall apply to the corresponding requirements of 4.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.2 Screw-Column Elevators.

The maintenance of screw-column elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.2.1 Screw-Column Elevator Periodic Test.

Screw-column elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 4.2. Any additional requirements for this equipment shall also be checked during these tests.

8.6.6.3 Hand Elevators.

The maintenance of hand elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.6.3.1 Hand Elevator Periodic Test.

Hand elevators shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.4.20. The test requirements shall apply to the corresponding requirements in 4.3. Any additional requirements for this equipment shall also be checked during these tests. The driving-machine brake required by 4.3.19.2 shall be tested with both empty car and rated load in the car.

8.6.7 Maintenance and Testing of Special Application Elevators

8.6.7.1 Inclined Elevators.

The maintenance of inclined elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.1.1 Periodic Test.

Inclined elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.1. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.2 Limited-Use/Limited-Application Elevators.
The maintenance of limited-use/limited-application elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.2.1 Periodic Test.
Limited-use/limited applications elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.2. Any additional requirements for this equipment shall also be checked during these tests.

~~**8.6.7.3 Private Residence Elevators.**~~
~~The maintenance of private residence elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.~~

~~**8.6.7.3.1 Periodic Test.**~~
~~Private residence elevators and lifts should be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.3. Any additional requirements for this equipment should also be checked during these tests.~~

~~**8.6.7.4 Private Residence Inclined Elevators.**~~
~~The maintenance of private residence inclined elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.~~

~~**8.6.7.4.1 Periodic Test.**~~
~~Private residence inclined elevators and lifts should be subject to the periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.4. Any additional requirements for this equipment should also be checked during these tests.~~

8.6.7.5 Power Sidewalk Elevators.
The maintenance of power sidewalk elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.5.1 Periodic Test.
Sidewalk elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.5. Any additional requirements for this equipment shall also be checked during these tests.

8.6.7.6 Rooftop Elevators.
The maintenance of rooftop elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.6.1 Periodic Test.
Rooftop elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.6. Any additional requirements for this equipment shall also be checked during these tests.

~~**8.6.7.7 Special Purpose Personnel Elevators.**~~
~~Except in jurisdictions enforcing NBCC, maintenance of special purpose personnel elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6 (see Section 5.7).~~

~~**8.6.7.7.1 Periodic Test.**~~
~~Special purpose personnel elevators shall be subject to the applicable tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements in 5.7. Any additional requirements for this equipment shall also be checked during these tests.~~

~~**8.6.7.8 Shipboard Elevators.**~~
~~The maintenance of shipboard elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.~~

~~**8.6.7.8.1 Periodic Test.**~~
~~Shipboard elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.8. Any additional requirements for this equipment shall also be checked during these tests.~~

~~**8.6.7.9 Mine Elevators.**~~
~~Except in jurisdictions enforcing NBCC, maintenance of mine elevators shall conform to 8.6.7.9.1 through 8.6.7.9.5.~~ ~~**8.6.7.9.1**~~ ~~Rails on mine elevators shall be kept free of rust and scale, that will prevent proper operation of the car (or counterweight) safety device.~~

~~**8.6.7.9.2**~~ ~~Oil buffers that are installed on elevators where water can accumulate in the pit shall be checked every 60 days for accumulation of water.~~

~~**8.6.7.9.3**~~ ~~The mine elevator hoistway shall be maintained to minimize the entry of water and formation of ice, that would interfere with the operation of the elevator.~~

~~**8.6.7.9.4 Suspension, Compensating, and Governor Ropes.**~~
~~When elevator suspension, compensating, or governor ropes show deterioration caused by corrosion, the replacement wire ropes shall be constructed of electrogalvanized or other types of corrosion resistant material suitable for the environment and application. The installation shall conform to 8.7.2.21 for suspension ropes and 8.7.2.19 for governor ropes. Where emergency replacement of wire ropes is required, noncorrosion resistant wire ropes shall be permitted to be installed for temporary use. These emergency replacement noncorrosion resistant wire ropes shall be replaced by corrosion resistant wire ropes within one year of installation.~~

~~**8.6.7.9.5 Periodic Test.**~~
~~Mine elevators shall be subject to the applicable periodic tests specified in 8.6.4.19, 8.6.4.20, and 8.6.5.14 through 8.6.5.16. The test requirements shall apply to the corresponding requirements of 5.9. Any additional requirements for this equipment shall also be checked during these tests.~~

8.6.7.10 Elevators Used for Construction.
The maintenance of elevators used for construction shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.10.1 Periodic Test Requirements — Category 1.
For electric elevators, test as specified in 8.6.4.19.1 through 8.6.4.19.5. For hydraulic elevators, test as specified in 8.6.5.14.1, 8.6.5.14.2, 8.6.5.14.3(a) through (d), and 8.6.5.14.4. Where permanent doors have been installed, test as specified in 8.6.4.19.8.

8.6.7.10.2 Periodic Test Requirements — Category 3.
For hydraulic elevators, test as specified in 8.6.5.15.

8.6.7.10.3 Periodic Test Requirements — Category 5.
For electric elevators, test as specified in 8.6.4.20.1 through 8.6.4.20.4, and 8.6.4.20.6. For hydraulic elevators, test as specified in 8.6.5.16.

8.6.7.11 Wind Turbine Tower Elevator
The maintenance of wind turbine tower elevators shall conform to the applicable requirements of 8.6.7.11.1 thorough 8.6.7.11.3.

8.6.7.11.1 Periodic Test Requirements – Category 1
Wire rope gripping safeties with slack rope actuation, or wire rope gripping safeties with an internal centrifugal governor shall be tested with rated load in the car. Governor operated safeties shall be tested by manually tripping the governor at the rated speed. The overspeed switch on the governor shall be made ineffective during the test.

8.6.7.11.2 Wind Turbine Tower Elevators.
The maintenance of wind turbine tower elevators shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.

8.6.7.11.3 Car and Counterweight Safeties.
Types A, B, and C car safeties except those operating on wood guide rails, and their governors, wire rope gripping safeties with slack rope actuation, or wire rope gripping safeties with an internal centrifugal governor, shall be tested with rated load in the car. Counterweight safety tests shall be made with no load in the car. Tests for governor operated safeties shall be made by manually tripping the governor at the rated speed. The overspeed switch on the governor shall be made ineffective during the test. Type A safeties and wire rope gripping safeties without governors that are operated as a result of the breaking or slackening of the hoisting ropes shall be tested by obtaining the necessary slack rope to cause it to function (Item 2.29.2.1) and hold the car with rated load. The following operational conditions shall be checked (Item 2.29.2.1):

8.6.7.12 Outside Emergency Elevators.
The maintenance, repair, and replacement of outside emergency elevators shall conform to 8.6.1 through 8.6.3 and A17.7/B44.7 requirement 2.12.2.

8.6.7.12.1 Periodic Test Requirements -- Category 1.
Outside emergency elevators shall be subject to applicable periodic tests specified in 8.6.4.19.1 through 8.6.4.19.5, 8.6.4.19.7, 8.6.4.19.8, 8.6.4.19.10, and A17.7/B44.7 requirement 2.12.3. Outside emergency elevators are not required to be powered by electric driving machine motors.

8.6.7.12.2 Periodic Test Requirements -- Category 5.
Outside emergency elevators shall be subject to applicable periodic tests specified in 8.6.4.20.1 through 8.6.4.20.11 and A17.7/B44.7 requirement 2.12.3. Outside emergency elevators are not required to be powered by electric driving machine motors.

8.6.8 Maintenance and Testing of Escalators and Moving Walks
(a) The maintenance of escalators submitted and registered to A17.1-2004/B44-04 and later (effective January 1, 2006) shall conform to 8.6.1 through 8.6.3 and 8.6.8.

(b) Not later than May 1, 2015 all escalators shall be brought into conformance with the requirements of 8.6.8.2 (Step-to-Skirt Clearance) and 8.6.8.3 (Step/Skirt Performance Index).

(c) Escalators installed to CSA B44-75s3 (1982) or earlier, and for escalators where the skirt panels are not made of low-friction material or have not been permanently treated with a friction-reducing material, a friction-reducing agent shall be applied monthly by authorized personnel until those escalators are brought into conformance with 8.6.8.2 and 8.6.8.3.3 after which the application of friction-reducing agents will no longer be permitted, and the requirements of 8.6.8(a) apply. [241/10]

8.6.8.1 Handrails.
Handrails shall operate at the speed specified in the applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the step speed by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.8.2 Step-to-Skirt Clearance.
Clearances shall be maintained in compliance with the applicable codes. Alternatively, the clearance on either side of the steps and between the steps and the adjacent skirt guard shall not exceed 4 mm (0.16 in.) and the sum of the clearances on both sides shall not exceed 7 mm (0.28 in.).

NOTE: The allowable clearances are applicable as follows:
~~(a) ASME A17.1-1955 through A17.1d-1970; not more than 4.8 mm (0.1875 in.) with a total of both sides not more than 6.4 mm (0.25 in.), except where skirt obstruction devices are installed at the lower entrance for escalators installed under the ASME A17.1-1965 through A17.1d-1970.~~
~~(b) ASME A17.1-1971 through A17.1-1979 editions: not more than 9.5 mm (0.375 in.) on each side.~~
~~(c) ASME A17.1-1980 through A17.1c-1999 and ASME A17.3: not more than 4.8 mm (0.1875 in.) on each side.~~
~~(d) For equipment installed under ASME A17.1d-2000 and later editions, the clearance (loaded gap) not more than 5 mm (0.2 in.) when 110 N (25 lbf) force is laterally applied from the step to the adjacent skirt panel. See 6.1.3.3.5.~~

NOTE (on CSA B44 Requirements): The allowable clearances are applicable as follows:
(a) B44-1960 through B44S3-1982 — not more than 4.8 mm (0.1875 in.) on each side. Sum of both sides not more than 6.4 mm (0.25 in.).
(b) B44-1985 through B44S2-1998 — Not more than 5 mm (0.197 in.) on each side. Sum of both sides not more than 6 mm (0.236 in.).
(c) For equipment installed under CSA B44-00—not more than 4 mm (0.157 in.) on each side. Sum of both sides not more than 7 mm (0.28 in.)
(d) For equipment installed under CSA B44-00 Update 1 and later editions — clearance (loaded gap) shall be not more than 5 mm (0.2 in.) when 110 N (25 lbf) force is laterally applied from the step to the adjacent skirt panel. See 6.1.3.3.5.

8.6.8.3 Step/Skirt Performance Index
8.6.8.3.1 The step/skirt performance index, when the escalator is subjected to the test specified in 8.6.8.15.19, shall be the maximum value of the recorded instantaneous step/skirt index $e^y/(e^y + 1)$, where
(SI Units)
e = 2.7183
y = −3.77 + 2.37 (u) + 0.37 (Lg)
u= the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 110 N normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.
Lg = the clearance between the step and the adjacent skirt panel when 110 N is applied from the step to skirt panel, mm
The applied load shall not deviate from 110 N by more than ±11 N. The load shall be distributed over a round or square area not less than 1 940 mm^2 and not more than 3 870 mm^2.

(Imperial Units)
e = 2.7183
y = −3.77 + 2.37 (u) + 9.3 (Lg)
u = the sliding coefficient of friction of a polycarbonate test specimen on the skirt panel at the measurement point calculated when subjected to a 25 lbf normal load. The coefficient of friction shall be measured without addition of any field-applied lubricant.

Lg = the clearance between the step and the adjacent skirt panel when 25 lbf is applied from the step to skirt panel, in.
The applied load shall not deviate from 25 lbf by more than ±2.5 lbf. The load shall be distributed over a round or square area not less than 3 in.2 and not more than 6 in.2

8.6.8.3.2 The step/skirt performance index polycarbonate test specimen shall conform to the following specifications:
(a) Material: Polycarbonate without fillers
(b) Color: Natural, no pigments
(c) Finish: Glossy (roughness less than 0.8 µm (32 µin.)
(d) Area in contact with skirt panel: 2 900 ± 325 mm^2 (4.5 ± 0.5 in.2) and at least 0.8 mm (0.03 in.) thick
(e) Specification: GE Lexan 100 series or equivalent polycarbonate

8.6.8.3.3 The escalator step/skirt performance index shall be one of the following, whichever is applicable:
(a) ≤ 0.15
(b) ≤ 0.25 for escalators installed under ASME A17.1a-2002/CSA B44-00 Update 1 and later editions and when a skirt deflector device complying with the requirements of 6.1.3.3.7 is provided
(c) ≤ 0.4 for escalators installed under ASME A17.1-2000/CSA B44-00 and earlier editions and a skirt deflector device is provided

8.6.8.4 Combplates
8.6.8.4.1 Combs with any broken teeth shall be repaired or replaced. Where two adjacent teeth are missing, the escalator shall be removed from operation.

8.6.8.4.2 Combs shall be adjusted and maintained in mesh with the slots in the step surface so that the points of the teeth are always below the upper surface of the treads.

8.6.8.4.3 For units installed under A17.1b-1992 and later editions of the Code, comb-step impact devices shall be adjusted to operate in compliance with the forces specified in 6.1.6.3.13.

8.6.8.5 Escalator Skirt Panels and Skirt Obstruction Devices
(a) Damaged skirt or dynamic skirt panels shall be replaced or repaired and the installation shall conform to 8.6.8.2 and 8.6.8.3.3.

(b) The skirt obstruction devices shall be checked for proper adjustment and operation.

8.6.8.6 Steps
8.6.8.6.1 Steps with broken treads shall be repaired or replaced.
8.6.8.6.2 Steps with dented or damaged risers shall be repaired or replaced.
8.6.8.6.3 Steps that are worn or damaged and that do not provide proper engagement with the combplates shall be repaired or replaced.

8.6.8.6.4 The width or depth of the slots in the tread surface of steps that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.8.7 Rollers, Tracks, and Chains. Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.8.8 Signs. Caution signs shall be provided in compliance with 6.1.6.9. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.1.6.9.

8.6.8.9 Guards at Ceiling Intersections.
Damaged or missing guards shall be repaired or replaced in compliance with 6.1.3.3.11.

8.6.8.10 Antislide Devices.
Damaged or missing antislide devices shall be repaired or replaced.

8.6.8.11 Handrail Guards.
Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.8.12 Brakes.
Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.8.13 Cleaning.
The interiors of escalators and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.8.14 Entrance and Egress Ends.
Escalator landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.8.15 Periodic Test Requirements — Category 1
NOTE: For test frequency, see 8.11.1.3.

8.6.8.15.1 Machine Space.
The machine space access, lighting, receptacles, operation, and conditions shall be examined (Items 8.1 and 10.1). All escalator components shall be cleaned and examined. These components shall include, but not be limited to
(a) oil drip pans
(b) upper and lower stations
(c) steps and rollers
(d) step frames, risers, and treads
(e) tracks
(f) truss components

8.6.8.15.2 Stop Switch.
The machine space stop switches shall be tested (Items 8.2 and 10.2).

8.6.8.15.3 Controller and Wiring.
Controller and wiring shall be examined (Items 8.3 and 10.3).

8.6.8.15.4 Drive Machine and Brake.
The drive machine and brakes shall be examined and tested, including test of the brake torque (Items 8.4 and 10.4).

8.6.8.15.5 Speed Governor.
The mechanical speed governor, if required, shall be tested by manually operating the trip mechanism (Items 8.5 and 10.5).

8.6.8.15.6 Broken Drive-Chain Device.
Operation of the broken drive-chain device, on the drive chain, shall be tested by manually operating the actuating mechanism (Items 8.6 and 10.6).

8.6.8.15.7 Reversal Stop Switch.
The reversal stop switch (to prevent reversal when operating in the ascending direction) shall be tested by manually operating it to determine that it functions properly (Items 8.7 and 10.7). If the device cannot be manually operated, the person or firm maintaining the equipment shall provide a written
checkout procedure and demonstrate the device complies with the requirements of the Code.

8.6.8.15.8 Broken Step-Chain or Treadway Device.
The broken or slack step-chain or treadway device shall be tested by manual operation (Items 8.8 and 10.8).

8.6.8.15.9 Step Upthrust Device.
The operation of the step upthrust device shall be tested by manually displacing the step, causing the device to operate (Items 7.9 and 8.9).

8.6.8.15.10 Missing Step or Pallet Device.
The missing step or pallet device shall be tested by removing a step or pallet and verifying that the device will properly function (Items 8.10 and 10.10).

8.6.8.15.11 Step or Pallet Level Device.
The step, or pallet level device shall be tested by simulating an out of level step or pallet and verifying that the device functions properly (Items 8.11 and 10.11).

8.6.8.15.12 Steps, Pallet, Step or Pallet Chain, and Trusses.
The steps, pallet, step or pallet chain, and trusses shall be visually examined for structural defects, mechanical condition, and buildup of combustible materials (Items 8.12 and 10.12).

8.6.8.15.13 Handrail Safety Systems.
The handrail operating system shall be visually examined for condition. The handrail entry device, and the stopped handrail or handrail speed monitoring device, shall be tested by disconnecting of handrail motion sensor (Items 8.13 and 10.13). The person or firm maintaining the equipment shall provide a written checkout procedure and demonstrate that the handrail speed does not change when a retarding force, up to the maximum required by code, is applied opposite to the direction of travel (Items 7.3 and 9.3).

8.6.8.15.14 For outdoor escalators and moving walks that require heaters, test the heaters for condition and operation (Items 8.3 and 10.3).

8.6.8.15.15 Permissible Stretch in Escalator Chains.
Escalators shall have periodic examination of the clearance between successive steps to detect wear or stretch of the step chains. The clearance shall not exceed 6 mm (0.25 in.) (Item 7.9).

8.6.8.15.16 Disconnected Motor Safety Device.
Operation of the device shall be tested and verified (see 6.1.6.3.10 or 6.2.6.3.8) (Item 8.6 or 10.6).

8.6.8.15.17 Response to Smoke Detectors (6.1.6.8 or 6.2.6.7) (Items 8.15 and 10.15)

8.6.8.15.18 Comb-Step or Comb-Pallet Impact Device.
For escalator or moving walks required to comply with Rules 805.1u, 805.3n, 905.1r, or 905.3k in A17.1d-2000 or earlier editions, or requirements 6.1.6.3.13 or 6.2.6.3.11, the comb-step/pallet-impact devices shall be tested in both the vertical and horizontal directions by placing a vertical and horizontal force on the combplate to cause operation of the device. The vertical and horizontal tests shall be independent of each other. The horizontal force shall be applied at the front edge center and both sides; the force shall be applied in the direction of travel into the combplate. The vertical force shall be applied at

the front edge center. Both the vertical and horizontal forces required to operate the device shall be recorded (6.1.6.3.13 and 6.2.6.3.11; Items 7.7.2 and 9.7.2). See 8.6.9.2.3 for horizontal forces required.

8.6.8.15.19 Step/Skirt Performance Index

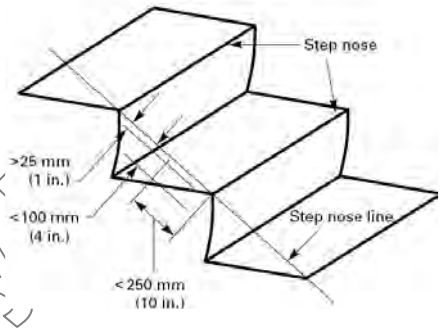
(a) The escalator skirt shall not be cleaned, lubricated, or otherwise modified in preparation for testing. The escalator instantaneous step/skirt index measurements [6.1.3.3.9(a)] shall be recorded at intervals no larger than 150 mm (6 in.) from each side of two distinct steps along the inclined portion of the escalator, where the steps are fully extended. Test steps shall be separated by a minimum of 8 steps.

(b) A load of 110 N (25 lbf) shall be laterally applied from the step to the adjacent skirt panel. The applied load shall not deviate from 110 N (25 lbf) by more than ±11 N (2.5 lbf). The load shall be distributed over a round or square area not less than 1 940 mm^2 (3 in.2) and not more than 3 870 mm^2 (6 in.2).

(c) No vertical load exceeding 220 N (50 lbf) shall be applied to the test step and adjacent steps.

(d) The coefficient of friction shall be measured with the test specimen conforming to the requirements of 8.6.8.3.2 sliding in the direction of the step motion under a 110 N (25 lbf) normal force at the operating speed of the escalator and shall be measured with devices having sensitivity better than ±2.2 N (0.5 lbf). The direction of step motion shall be the direction of normal operation. If the escalator is operated in both directions, the down direction shall be used for the test.

Fig. 8.6.8.15.19(e)



(e) For both the coefficient of friction measurement and the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250 mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).

(f) The step/skirt performance index shall conform to the requirements in 8.6.8.3 or A17.3, Requirement 5.1.11 (Item 7.17).

8.6.8.15.20 Clearance Between Step and Skirt (Loaded Gap).

Escalators installed under ASME A17.1d–2000 shall be tested as follows (Item 7.17):

(a) Loaded gap measurements shall be taken at intervals not exceeding 300 mm (12 in.) in transition region (6.1.3.6.5) and before the steps are fully extended. These measurements shall be made independently on each side of the escalator.

(b) The applied load shall not deviate from 110 N (25 lbf) by more than ±11 N (2.5 lbf) (6.1.3.3.5). The load shall be distributed over a round or square area no less than 1 940 mm^2 (3 in.2) and no more than 3 870 mm2 (6 in.2).

(c) For the loaded gap measurements, the center of the applied load shall be between 25 mm (1 in.) and 100 mm (4 in.) below the nose line of the steps. The center of the applied load shall be not more than 250mm (10 in.) from the nose of the step. See Fig. 8.6.8.15.19(e).

8.6.8.15.21 Inspection control devices shall be tested and inspected to determine conformance with the requirements of 6.1.6.2.2 for escalators and 6.2.6.2.2 for moving walks.

8.6.8.15.22 Step Lateral Displacement Device (6.1.6.3.14).

For curved escalators, manually test the device.

8.6.8.15.23 Seismic Risk Zones 2 or Greater.

Verify that operation of the seismic switch complies with requirements of 8.5.4 (Items 7.20.2 and 9.20.2).

8.6.8.15.24 Maintenance of Seismic Devices.
A seismic switch, where provided, shall be maintained in accordance with the manufacturer's recommendations.

8.6.9 Maintenance of Moving Walks
The maintenance of moving walks shall conform to 8.6.1 through 8.6.3 and 8.6.9.

8.6.9.1 Handrails.
Handrails shall operate at the speed specified in applicable codes. The handrail speed monitoring device, when provided, shall cause electric power to be removed from the driving-machine motor and brake when the speed of either handrail deviates from the treadway by 15% or more and continuously within a 2 s to 6 s range. Cracked or damaged handrails that present a pinching effect shall be repaired or replaced. Splicing of handrails shall be done in such a manner that the joint is free of pinching effect.

8.6.9.2 Combplates
8.6.9.2.1 Combs with any broken teeth shall be repaired or replaced.

8.6.9.2.2 Combs shall be adjusted and maintained in mesh with the slots in the treadway surface so that the points of the teeth are always below the upper surface of the treads.

8.6.9.2.3 For units installed under A17.1b–1992 and later editions of the Code, comb-pallet impact devices shall be adjusted to operate in compliance with the forces specified in 6.2.6.3.11.

8.6.9.3 Pallets

8.6.9.3.1 Pallets with broken treads shall be repaired or replaced.

8.6.9.3.2 Intermeshing moving walk pallets that are damaged at the mesh shall be repaired or replaced.

8.6.9.3.3 Pallets that are worn or damaged and that do not provide proper engagement with the combplates shall be repaired or replaced.
8.6.9.3.4 The width or depth of the slots in the tread surface of pallets that do not meet the applicable Code requirements shall be repaired or replaced.

8.6.9.4 Rollers, Tracks, and Chains.
Rollers, tracks, and chains shall be examined, repaired, or replaced when necessary to ensure required clearances.

8.6.9.5 Belt-Type Treadway.
Belt-type treadways that are damaged or worn in such a manner that the treadway does not provide a continuous unbroken treadway surface or proper engagement with the combplates shall be repaired or replaced.

8.6.9.6 Signs.
Caution signs shall be provided in compliance with 6.2.6.8. Damaged or missing signs shall be replaced. Additional signs, if provided, shall comply with 6.2.6.8.

8.6.9.7 Guards at Ceiling Intersections.
Damaged or missing guards shall be repaired or replaced in compliance with 6.2.3.3.7.
8.6.9.8 Antislide Devices.
Damaged or missing antislide devices shall be repaired or replaced.

8.6.9.9 Handrail Guards.
Damaged or missing hand or finger guards shall be repaired or replaced.

8.6.9.10 Brakes.
Brakes shall be maintained in compliance with the applicable requirements of 8.6.4.6, and adjusted to the torque shown on the data plate, where provided.

8.6.9.11 Cleaning.
The interiors of moving walks, and their components shall be cleaned to prevent an accumulation of oil, grease, lint, dirt, and refuse. The frequency of the cleaning will depend on service and conditions, but an examination to determine if cleaning is necessary shall be required at least once a year.

8.6.9.12 Entrance and Egress Ends.
Moving walk landing plates shall be properly secured in place. Landing plates shall be kept free of tripping hazards and maintained to provide a secure foothold. All required entrance and exit safety zones shall be kept free from obstructions.

8.6.9.13 Clearances.
The clearance between each side of the treadway and the adjacent skirt panels, when provided, shall be maintained in compliance with 6.2.3.3.6. The clearance between the top surface of the treadway and the underside of the balustrade shall be maintained in compliance with 6.2.3.3.5 for skirtless balustrades.

8.6.10 Maintenance and Testing of Dumbwaiters and Material Lifts
8.6.10.1 Material Lifts and Dumbwaiters Without Automatic Transfer Devices.
The maintenance of material lifts and dumbwaiters without automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6. Not later than May 1, 2014, all type 'B' material lifts and all type 'A' and type 'B' freight platform lifts shall be retrofitted as required by CAD requirement **3.9.2**.

8.6.10.1.1 Periodic Test.
Dumbwaiters shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests. On winding drum machines, the slack-rope devices required by 2.26.2.1 shall be permitted to be tested as specified in Item 2.18. The driving-machine brake shall be tested to determine conformance with 7.2.10 (Item 2.18).

8.6.10.2 Material Lifts and Dumbwaiters With Automatic Transfer Devices.
The maintenance of material lifts and dumbwaiters with automatic transfer devices shall conform to 8.6.1 through 8.6.3 and the applicable requirements of 8.6.
8.6.10.2.1 Periodic Test.
Material lifts and dumbwaiters with automatic transfer devices shall be subject to the applicable periodic tests specified in 8.6.4.19 and 8.6.5.14. The test requirements shall apply to the corresponding requirements in Part 7. Any additional requirements for this equipment shall also be checked during these tests.

8.6.11 Special Provisions
8.6.11.1 Firefighters' Emergency Operation. *(239/10)*

(a) Elevators that incorporate any form of Firefighters' Emergency Operation are required to have this operating mode tested on an annual basis to verify that the firefighters' feature is operational and ready for use by firefighters or emergency personnel if required during a fire or other emergency.

(b) The minimum required inspection checks shall be those listed on the form **"Maintenance Checklist for Firefighters' Emergency Operation - Record of Inspection Checks"**

(c) The owner or the owner's authorized agent may perform the necessary annual testing provided they are trained and instructed in the use of Firefighters' Emergency Operation and the testing requirements.

(d) The owner or the owner's authorized agent shall record the results of the test on the form provided by the designated administrative authority or on a form containing not less than the tests prescribed on this form, and shall leave a copy at the location of the log book.

(e) A record of findings shall be recorded and shall be available to elevator personnel and to the authority having jurisdiction.

(f) Any deficiencies found during the testing shall be recorded and rectified.

(g) Despite, (d) and (e) where the owner's authorized agent is a registered elevating devices contractor employing an appropriately qualified EDM mechanic capable of rectifying deficiencies', a single log book entry shall be permitted to indicate a successful test of Firefighters' Emergency Operation.

Note:
1) It is the responsibility of the elevating devices owner to ensure firefighters' emergency operation testing is performed annually.
2) Section 7.2 of the Ontario Fire Code requires testing at three month intervals in high buildings.
3) Where a dedicated function fire alarm system has been added to comply with CAD requirement 2.27.3.2.2(c) the owner shall ensure that testing of the "Elevator Recall Control and Supervisory Control Unit" is performed annually in accordance with CAN/ULC-S536 (Inspection and Testing of Fire Alarm Systems), and written confirmation of testing kept in the machine room or location of the elevator's log books.

~~All elevators provided with firefighters' emergency operation shall be subjected monthly, by authorized personnel, to Phase I recall by use of the key switch, and a minimum of one-floor operation on Phase II, except in jurisdictions enforcing the NBCC. Deficiencies shall be corrected. A record of findings shall be available to elevator personnel and the authority having jurisdiction.~~

8.6.11.2 Two-Way Communications Means. The two-way communications means shall be checked annually by authorized personnel in accordance with the following:

(a) Two-way communications means shall be checked to verify that two-way communications is established; or

(b) All elevators installed under ASME A17.1a-2002/ CSA B44-00 Update 1 and later editions shall have the two-way communications means checked by pressing the "HELP" button in the car to verify that the visual indicator [2.27.1.1.3(c)] is functional and that the answering authorized personnel can receive the building location and elevator number [2.27.1.1.3(d)]; and

(c) Where communications from the building into the elevator is provided, check the two-way communications means to each car.

8.6.11.3 Access Keys.

Keys required for access, operation, inspection, maintenance, repair, and emergency access shall be made available only to personnel in the assigned security level, in accordance with 8.1.

8.6.11.4 Cleaning of a Car and Hoistway Transparent Enclosure

8.6.11.4.1 The cleaning of the exterior of transparent car enclosures or transparent hoistway enclosures from inside the hoistway shall be performed only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.4.2 and 8.6.11.4.3.

8.6.11.4.2 A written cleaning procedure shall be made and kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.4.3 The procedure shall identify the hazards and detail the safety precautions to be utilized.

8.6.11.4.4 All personnel assigned to cleaning shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.4.5 A record of authorized personnel trained as specified in 8.6.11.4.4 shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

8.6.11.5 Emergency Evacuation Procedures for Elevators

8.6.11.5.1 The evacuation of passengers from stalled elevators shall be performed only by authorized, elevator and emergency personnel (see 1.3) in compliance with the procedures specified in 8.6.11.5.2 through 8.6.11.5.6.

8.6.11.5.2 A written emergency evacuation procedure shall be made and kept on the premises where an elevator is located.

8.6.11.5.3 The procedure shall identify the hazards. The procedure shall also detail the safety precautions utilized in evacuating passengers from a stalled elevator.

8.6.11.5.4 All authorized personnel who are assigned to assist in evacuating passengers from a stalled elevator, and all persons who use special purpose personnel elevators and wind turbine tower elevators, shall be given a copy of these procedures and all necessary training to assure that they understand and comply with the procedures.

8.6.11.5.5 These procedures shall be available to authorized elevator and emergency personnel.

8.6.11.5.6 A record of authorized personnel trained, and all persons who use special purpose personnel elevators, as specified in 8.6.11.5.4, shall be kept on the premises where the elevator is located and shall be available to the authority having jurisdiction.

NOTE (8.6.11.5): See ASME A17.4, Guide for Emergency Personnel.

8.6.11.6 Escalators and Moving Walks Startup and Procedures

8.6.11.6.1

(a) Escalators and moving walks shall be started only by authorized personnel (see 1.3) trained in compliance with the procedures specified in 8.6.11.6.2 through 8.6.11.6.5.

(b) Out of service or stopped escalators ~~shall~~ should not be used as a means of access or egress by non-authorized personnel and ~~shall~~ should be properly barricaded if accessible to the general public to prevent such use.

NOTE(S):

(1) Proper barricades are described in the Elevator Industry Field Employee Safety Handbook-Escalator/Moving Walk Barricades.

(2) Per provisions in OBC and NFPA 130, escalators in rapid transit facilities may form part of the pedestrian egress route.

(3) Stationary escalators do not have uniform tread rise and may pose unique risks not associated with typical stairways.

(4) The treadway of a stationary escalator relies on the escalators brake to ensure the treadway will not move under loading conditions (eg pedestrian traffic). Escalators should never be used as a stairway if the brakes holding capacity is suspect. See 8.6.11.6.2(c2) for confirmation of adequate breaking capacity. See CAD 3.21 for stopping distance check sign.

(5) See CAD 2.13 for parts affecting safe operation and risk assessment for device use.

8.6.11.6.2 The following procedure shall be utilized when starting an escalator or moving walk:

(a) Prior to starting the unit, observe the steps or pallets and both landing areas to ensure no persons are on the unit or about to board. Run the unit away from the landing.

(b) Verify correct operation of the starting switch.

(c1) Verify correct operation of the stop buttons.
(c2) Observe steps stop within the distance on the daily stopping distance check sign (usually one step length or less).
(d) Verify correct operation of each stop button cover alarm, if furnished.
(e) Visually examine the steps or treadway for damaged or missing components; combplates for broken or missing teeth; skirt or dynamic skirt panels and balustrades for damage.
(f) Verify that both handrails travel at substantially
the same speed as the steps or the treadway, are free from damage or pinch points, and that entry guards are in place.
(g) Visually verify that all steps, pallets, or the treadway is properly positioned.
(h) Verify that ceiling intersection guards, anti-slide devices, deck barricades, and caution signs are securely in place.
(i) Verify that demarcation lighting is illuminated, if furnished.
(j) Check for uniform lighting on steps/tread not contrasting with surrounding areas.
(k) Verify that the safety zone is clear of obstacles and that the landing area and adjacent floor area are free from foreign matter and slipping or tripping hazards.
(l) Check for any unusual noise or vibration during operation.

If any of these conditions is unsatisfactory in 8.6.11.6.2(a) through (l), the unit shall be placed out of service. Barricade the landing areas and notify the responsible party of the problem.

8.6.11.6.3 Escalators and moving walks subject to 24-h operation shall be checked daily by authorized personnel.

8.6.11.6.4 A record of authorized personnel trained as specified in 8.6.11.6.2 shall be kept on the premises where the escalator(s) or moving walk(s) or both is located and shall be available to the authority having jurisdiction.

8.6.11.7 Operating Instructions for Means Specified in 2.7.5.1.1 or 2.7.5.2.1.
A written procedure for operating the means shall be posted in a permanent manner in plain view at an appropriate location on or adjacent to the means (see 2.7.5.1.1 or 2.7.5.2.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.8 Egress and Reentry Procedure From Working Areas in 2.7.5.1.3 or 2.7.5.2.3.
A written procedure to outline the method for egress and reentry shall be posted in a permanent manner in plain view at an appropriate location at the egress/reentry point (see 2.7.5.1.3 or 2.7.5.2.3). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.9 Operating Instructions for Retractable Platforms.
A written procedure to outline the method for the use of retractable platforms shall be posted in
a permanent manner in plain view at an appropriate location on or adjacent to the retractable platform (see 2.7.5.3.1). The posting shall conform to ANSI Z535.4 or CAN/CSA Z321, whichever is applicable (see Part 9).

8.6.11.10 Category 5 tests without Load via Alternative Test Methodologies
8.6.11.10.1 Where Permitted
Alternative test methods without load are permitted for category 5 testing subject to approval by the Authority Having Jurisdiction of;
(a) car and counterweight safeties per **8.6.4.20.1,**
(b) oil buffers per **8.6.4.20.3,**
(c) driving machine brakes per **8.6.4.20.4**, and
(d) braking system, traction and traction limits per **8.6.4.20.10**
Note: See 8.10 note 2.

8.6.11.10.2 Alternative Test Method and Tools
(a) An alternative test method shall be:
i) based on sound engineering principles,
ii) validated and documented via engineering tests,

(b) The method, measuring devices and tools shall be capable of producing reliable and consistent measurements, suitable for the intended measurement. The monitoring and calibration of the measuring devices or tools shall be in accordance with the providers guidelines.

8.6.11.10.3 Alternative Test Method Procedure

The alternative test method shall;

(a) include requirements to obtain and verify car and counterweight masses if necessary for the test,
(b) have a procedure document that;
  i) defines the permissible equipment range and limitations regarding use,
  ii) establishes monitoring and calibration criteria for tools or measuring devices as appropriate,
  iii) defines the test set-up procedure,
  iv) provides instructions on how to interpret results and correlate the results to pass fail criteria,
(c) describe how to correlate no load test results with previously acquired full load and no load results,
(d) be included in the maintenance control program (see 8.6.1.2.1(a)),
(e) include the information required by 8.6.1.2.1(f) where applicable, and
(f) require a report conforming to 8.6.11.10.4

8.6.11.10.4 Alternative Test Method Report

The alternative test method report shall;

(a) identify the alternative test tool (make / model) used to perform the test,
(b) identify of the company performing the tests, names of personnel conducting and witnessing the tests, and testing dates,
(c) contain all required print outs or record of tests required to demonstrate compliance to the testing requirement that were gathered during an acceptance test,
(d) identify which results from the baseline test are to be used for future compliance evaluation,
(e) record the car and counterweight masses that were obtained per 8.6.11.10.3(a) during the acceptance test and during any subsequent category 5 test if required by test method,
(f) contain all subsequent category 5 results with pass-fail conclusions regarding code compliance, and
(g) remain on site or shall be available to elevator personnel and the authority having jurisdiction.

8.6.11.11 Examination After Shutdown Due to Traction Loss.

Where the traction-loss detection means has been actuated [see 2.20.8.1 and 8.6.1.2.1(g)], the elevator shall not be returned to service until a physical examination of the drive sheave and suspension means has been conducted. The elevator shall not be moved until all passengers are out of the elevator and the elevator is posted out-of-service. In addition to the suspension-means evaluation criteria in 8.11.2.1.3(cc), any suspension-means or drive-sheave condition that would adversely affect the traction capability of the system (see 2.24.2.3) shall be corrected before returning the elevator to service.

NOTE: See lockout/tagout procedures in Elevator Industry Field Employees' Safety Handbook for procedure for removing the elevator from service.

8.6.11.12 Examination After Safety Application.

After any safety application on a traction elevator has occurred, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary.

8.6.11.13 Occupant Evacuation Operation.

All elevators provided with Occupant Evacuation Operation shall be subjected, by authorized personnel, to a check of the operation in conjunction with the fire alarm system testing in accordance with the requirements of NFPA 72. Deficiencies shall be corrected. A record of findings shall be available to elevator personnel and the authority having jurisdiction.

8.6.11.14 Examination After Shutdown Due to Broken-Suspension-Member Detection Means.

After any application of the broken-suspension-member detection means, whether due to testing or during normal service, the driving-machine sheave, all other sheaves, where furnished, and retainers and suspension members shall be examined throughout their complete length to ensure that all suspension members are properly seated in their respective sheaves, and that no damage has occurred to sheaves, suspension members, or retainers. The elevator shall not be returned to service until this physical examination has been conducted and any repairs made, if necessary. Where a single suspension member has been damaged or broken, the entire suspension means shall be replaced in accordance with 8.6.3.2.

3.4 Alterations

3.4.1 Notwithstanding section **2.6**, alterations of an elevator, dumbwaiter, escalator, moving walk, and material lifts shall conform to the requirements of the code adopted in subsection **3.1** and as specified by the director.

3.4.2 Alterations to freight platform lifts type - B shall conform to the requirements for Material Lifts Type - B as required by the code adopted in subsection **3.1** and as specified by the director.

3.4.3 Alterations to freight platform lifts type - A shall conform to the requirements for Material Lifts Type- B as required by the code adopted in subsection **3.1** and as specified by the director, except that 'in-car' controls are prohibited and no persons shall be permitted to ride.

3.4.4 Alteration submission documents shall adhere to the Director's Guideline on alterations and shall be accompanied by a completed alterations checklist.

3.4.5 Section **8.7 Alterations** is revoked and the following substituted;

SECTION 8.7
ALTERATIONS
Requirement 8.7 applies to alterations.
NOTES:
(1) See Nonmandatory Appendix L for an index of the requirements for alterations.
(2) See 8.6 for maintenance, repair, and replacement requirements.

8.7.1 General Requirements
8.7.1.1 Applicability of Alteration Requirements.
When any alteration is performed, regardless of any other requirements of 8.7, the installation, as a minimum, shall conform to the following applicable Code requirements:
(a) the Code at the time of installation
(b) the Code requirements for the alteration at the time of any alteration
(c) ASME A17.3 if adopted by the authority having jurisdiction

8.7.1.2 Items Not Covered in 8.7.
Where an alteration not specifically covered in 8.7 is made, it shall not diminish the level of safety below that which existed prior to the alteration. See also 1.2.

8.7.1.3 Testing.
Where alterations are made, acceptance inspections and tests shall be conducted as required by 8.10.2.3 for electric elevators, 8.10.3.3 for hydraulic elevators, or 8.10.4.2 for escalators and moving walks.

8.7.1.4 Welding.
Welding of parts on which the support of the car, counterweight, escalator, or moving walk depends, including driving machines, escalator, or moving walks, trusses, girders, and tracks, shall conform to 8.8 and 8.7.1.5.

8.7.1.5 Design.
Design shall be verified by a licensed professional engineer for welding, repair, cutting, or splicing of members upon which the support of the car, counterweight, escalator, or moving walks, trusses, girders, and tracks depends.

8.7.1.6 Temporary Wiring.
During alterations, temporary wiring shall be permitted. The electrical protective devices of cars in normal operation shall not be rendered inoperative or ineffective.

8.7.1.7 Repairs and Replacements.
Repairs and replacements shall conform to 8.6.2 and 8.6.3.

8.7.1.8 Code Data Plate.
In jurisdictions enforcing NBCC, the data plate required by 8.9.1 shall include the code and edition in effect at the time of alteration and the requirements in 8.7 that were applicable to the alteration.

8.7.1.9 Alterations involving SIL Rated Device(s) (See 1.3)
(a) A SIL Rated Device(s) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) shall not be:
(1) modified such that the modification invalidates the listing/certification; or
(2) affected by other alteration(s) such that the listing/certification is invalidated,

(b) Where a SIL Rated Device (See 1.3) used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) is replaced with a non SIL Rated Device, the replacement shall meet the applicable requirements of 2.26.4.3.1, 2.26.8.2, 2.26.9.4(a), 2.26.9.5.1(a), and 2.26.9.6.1(a).

(c) Where a non-SIL Rated Device used to satisfy 2.26.4.3.1, 2.26.8.2, 2.26.9.4(a), 2.26.9.5.1(a), or 2.26.9.6.1(a) is replaced with a SIL Rated Device, the replacement shall meet the applicable requirements of 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b).

(d) Where a SIL rated device used to satisfy 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), or 2.26.9.6.1(b) is replaced with a SIL Rated Device that is not the original manufacturer's listed/certified SIL rated device or the original manufacturer's listed/certified SIL rated replacement device the replacement shall meet the applicable requirements of 2.26.4.3.2, 2.26.8.2, 2.26.9.4(b), 2.26.9.5.1(b), and 2.26.9.6.1(b).

(e) An up-to-date Maintenance Control Program (8.6.1.2.1) and wiring diagrams (8.6.1.6.3) shall be provided where they are affected by an alteration involving a SIL Rated Device (see 1.3).

8.7.2 Alterations to Electric Elevators
8.7.2.1 Hoistway Enclosures
8.7.2.1.1 Hoistway Enclosure Walls.
Where alterations are made to any portion of a hoistway enclosure wall, that portion which is altered shall conform to the following:
(a) Requirement 2.1.1.
(b) Requirement 2.1.5.
(c) Requirement 2.1.6.
(d) Requirement 2.5.
(e) Requirement 2.7.3.4.6. and 2.7.3.4.7,
(f) Requirement 2.8.

(g) Requirement 8.7.2.10, where the portion of the wall that is altered includes an entrance assembly.
(h) Where a hoistway is altered so as to create a single blind hoistway, entrances and emergency doors shall be provided as required by 2.11.1.

8.7.2.1.2 Addition of Elevator to Existing Hoistway.
Where an elevator is added to an existing hoistway, the number of elevators in that multiple hoistway shall be in accordance with the requirements of the building code. The horizontal clearances for the added elevator and the clearances between the added car and adjacent cars shall conform to 2.5.

8.7.2.1.3 Construction at Top of Hoistway.
Any alteration to the construction at the top of the hoistway shall conform to 2.1.2.1 and 2.1.3. See also 8.7.2.4.

8.7.2.1.4 Construction at Bottom of Hoistway.
Any alteration to the construction at the bottom of the hoistway shall conform to 2.1.2.2, 2.1.2.3, and 2.2. See also 8.7.2.4.

8.7.2.1.5 Control of Smoke and Hot Gases.
Alterations to a hoistway that affect the means used to prevent the accumulation of smoke and hot gases in case of fire shall conform to 2.1.4.

8.7.2.2 Pits.
Alterations made to the pit shall conform to 2.2 and 2.1.2.3. See also 8.7.2.4.

8.7.2.3 Location and Guarding of Counterweights.
Where new counterweights are installed or where counterweights are relocated, their location, guarding, and clearances shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 2.6.

8.7.2.4 Vertical Car and Counterweight Clearances and Runbys.
No alteration shall reduce any clearance or runby below that required by 2.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.1, 8.7.2.17.2, and 8.7.2.25.2.

8.7.2.5 Horizontal Car and Counterweight Clearances.
No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.2.17.2.

8.7.2.6 Protection of Spaces Below Hoistways.
Where alterations are made to an elevator or the building such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 2.6.

8.7.2.7 Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms
8.7.2.7.1 Enclosures.
Where an alteration consists of the construction of new machinery spaces, machine rooms, control spaces, or control rooms, it shall conform to 2.7. Electrical equipment clearances shall conform to NFPA 70 or CSA-C22.1, whichever is applicable. Where alterations are made to any portion of machinery spaces, machine rooms, control spaces, or control rooms, that portion which is altered shall conform to 2.7.

8.7.2.7.2 Means of Access.
Any alteration that affects the safe and convenient means of access to a machine room, machinery space, control space or control room shall conform to 2.7.3.1, 2.7.3.2, and 2.7.3.3 to the extent existing conditions permit.

8.7.2.7.3 Access Doors and Openings.
Where an alteration is made to any access door or opening, it shall conform to 2.7.3.4. Where an alteration is made to an access door in an overhead machinery space, a stop switch shall be provided conforming to 2.7.3.5.

8.7.2.7.4 Headroom.
No alteration shall reduce the headroom below that required by 2.7.4, or the existing headroom, whichever is less.

8.7.2.7.5 Windows and Skylights.
Alterations made to windows and skylights shall conform to 2.1.5.

8.7.2.7.6 Lighting.
No alteration shall be made that diminishes the lighting of a machine room or machinery space below that required by 2.7.9.1.

8.7.2.7.7 Ventilation.
No alteration shall be made that diminishes the ventilation of a machine room or machinery space below that required by 2.7.9.2.

8.7.2.7★1 Elevator Equipment Guarding
The installation of elevator equipment guarding shall conform to the following;

(a) 2.7.2 maintenance path and clearance
(b) 2.7.3.4.2 access doors or openings in cage style guarding where full bodily entry is expected shall provide a minimum width of 750 mm (29.5 in.) and a minimum clear height of 2030 mm (80 in.)
(c) 2.10.1 as a minimum
(d) guarding shall be openable or removable only by use of common tools
(e) operating procedures or work instructions shall be provided and available in the location of the guarding, to inform users on how to safely access the equipment for inspection, testing or maintenance
(f) working clearances in front of electrical control equipment shall not be less than 1000 mm (39 in.) as per CAD requirements 2.2.1 (per Ontario Electrical Safety Code38-005 2(c)) or the permissible clearance required at the time of the original installation.
(g) access for the operation of the disconnecting means shall be
(1) 1000 mm for installations installed under the Ontario Electrical Safety Code 2000 edition or later, or
(2) 750mm (29.5 in.) for installations installed under Ontario Electrical Safety Code 1998 edition or prior, or
(3) if less than 750 mm, the existing clearances shall not be further reduced
(h) installation by a registered contractor (O.Reg 209/01 s.24)
(i) large or heavy sections of guards that may need to be removed or opened for maintenance access shall be designed to be removed or easily handled by one person.

8.7.2.8 Electrical Equipment, Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.
The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.2.9 Machinery and Sheave Beams, Supports, and Foundations.
Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, relocated, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building
structure to support the loads shall be verified by a licensed professional engineer.

8.7.2.10 Entrances and Hoistway Openings
8.7.2.10.1 General Requirements

(a) Where all new hoistway entrances are installed, they shall conform to 2.11, 2.12, 2.13, and 2.29.2.
(b) Where one or more, but not all, new hoistway entrances are installed, they shall conform to 2.11.2 through 2.11.8 and 8.7.2.10.5. The entire installation shall also conform to 2.11.6, 2.12, 2.13, and 2.29.2.

(c) Where an alteration is made to any hoistway entrance, it shall conform to 2.11.3, 2.11.5, 2.11.7, 2.11.8, and 8.7.2.10.5. The entire installation shall also conform to 2.12, 2.13, and 2.29.2.
(d) Where an emergency door is added or altered, it shall conform to 2.11.1 and 8.7.2.10.5.
(e) Where access openings for cleaning are installed, they shall conform to 2.11.1.4 and 8.7.2.10.5.

8.7.2.10.2 Horizontal Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new horizontal slide-type entrance is installed, it shall conform to 2.11.11.

New components that are installed as part of an alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.1, 2.11.11.1, and 2.11.11.6.
(b) Hanger tracks and track supports shall conform to 2.11.11.2.
(c) Entrance frames shall conform to 2.11.11.3. An applied frame shall be permitted to be fastened to an existing frame, provided that the combination of the new and existing frames conforms to 2.11.11.3, 2.11.11.5.1, 2.11.11.5.2, and 2.11.11.5.3.
(d) Hangers shall conform to 2.11.11.4.
(e) Panels shall comply with 2.11.11.5, 2.11.11.6, and 2.11.11.7, except that the overlap required by 2.11.11.5.1 shall be not less than 13 mm (0.5 in.).
(f) Door safety retainers shall conform to 2.11.11.8.

8.7.2.10.3 Vertical Slide-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new vertical slide-type entrance is installed, it shall conform to 2.11.12.

New components that are installed as part of an alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.3 and 2.11.12.1.
(b) Entrance frames shall conform to 2.11.12.2.
(c) Rails shall conform to 2.11.12.3.
(d) Panels shall conform to 2.11.12.3 through 2.11.12.6, and 2.11.12.8.
(e) Guides shall conform to 2.11.12.5.
(f) Sill guards shall conform to 2.11.12.7.
(g) Pull straps shall conform to 2.11.12.8.

8.7.2.10.4 Swing-Type Entrances.

In addition to the requirements of 8.7.2.10.1, where any new swing type entrance is installed, it shall conform to 2.11.13.

New components that are installed as part of alteration to an entrance shall conform as follows:

(a) Landing sills shall conform to 2.11.10.1, 2.11.10.3, and 2.11.13.1.
(b) Entrance frames shall conform to 2.11.13.2 and 2.11.13.4.
(c) Panels shall conform to 2.11.13.3, 2.11.13.4, and 2.11.13.5.
(d) Hinges shall conform to 2.11.13.4.

8.7.2.10.5 Marking of Entrance Assemblies

(a) In jurisdictions enforcing the NBCC the following shall apply:
(1) When an entrance or door panel is altered, it shall have the fire protection rating not less than that of the existing entrance assembly
(2) it shall be labeled in accordance with NBCC

8.7.2.10★1 Removing Service to a Floor

Where service to a floors area is being discontinued, the following requirements shall apply:

(a) entrances shall be bolted shut
(b) the related interlock shall be removed from the safety string
(c) the rated floor buttons shall be removed from the car operating station
(d) 2.11.6.2

(e) 2.12.7 if the locked out floor contained the hoistway access switch

8.7.2.10★2 Addition of Hoistway Door Safety Retainers

The addition of hoistway door safety retainers shall comply with the requirements of 2.11.11.8.

8.7.2.11 Hoistway Door Locking Devices, Access Switches, and Parking Devices

8.7.2.11.1 Interlocks.

(a) Where the alteration consists of the installation of hoistway door interlocks, the installation shall conform to 2.12.1, 2.12.2, and 2.12.4 through 2.12.7~~, and 2.24.8.3~~.

(b) Despite the requirements in (a), conformance to 2.12.5, 2.12.6 and 2.12.7 is optional provided conformance to 2.12.5, 2.12.6 and 2.12.7 is not required by another alteration scope.

8.7.2.11.2 Mechanical Locks and Electric Contacts.

Where the alteration consists of the installation of hoistway-door combination mechanical locks and electric contacts, the installation shall conform to 2.12.1, 2.12.3, 2.12.4, and 2.12.6~~, and 2.24.8~~.

8.7.2.11.3 Parking Devices.

Where an alternation is performed to an elevator operated from within the car only, an elevator parking device shall be provided conforming to the following requirements:

(a) At every elevator landing that is equipped with an unlocking device, if
  (1) the doors are not automatically unlocked when the car is within the unlocking zone
  (2) the doors are not operable from the landing by a door open button or floor button

(b) Parking devices shall be permitted to be provided at other landings.

(c) Parking devices shall be located at a height not greater than 2 108 mm (83 in.) above the floor.

(d) Parking devices shall conform to the following requirements:
  (1) they shall be mechanically or electrically operated
  (2) they shall be designed and installed so that friction or sticking or the breaking of any spring used in the device will not permit opening or unlocking a door when the car is outside the landing zone of that floor
  (3) springs, where used, shall be of the restrained compression type, which will prevent separation of the parts in case the spring breaks

8.7.2.11.4 Access Switches and Unlocking Devices.

Where the alteration consists of the installation of hoistway access switches and/or hoistway-door unlocking devices, the installation shall conform to

(a) requirements 2.12.6 ~~and 2.24.8.3~~ for unlocking devices

(b) requirements 2.12.7~~, 2.24.8,~~ and 2.26.1.4 for access switches.

8.7.2.11.5 Restricted Opening of Hoistway Doors or Car Doors of Passenger Elevators.

Where a device that restricts the opening of hoistway doors or car doors is altered or installed, the device shall conform to 2.14.5.7.

8.7.2.12 Power Operation of Hoistway Doors.

Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, and 8.7.2.10.5.

8.7.2.12★1 Replacement of Door Operator

Where a door operator is replaced the replacement shall conform to the applicable requirements of 2.13 and 8.7.2.15★1, or 8.7.2.15★2.

8.7.2.13 Door Reopening Device.
Where a reopening device for power-operated car doors or gates is altered or added or replaced, the following requirements shall apply:

(a) requirement 2.13.4
(b) requirement 2.13.5
(c) when firefighters' emergency operation is provided, door reopening devices and door closing on Phase I and Phase II shall comply with the requirements applicable at the time of installation of the firefighters' emergency operation
(d) requirements 8.7.2.15★1 or 8.7.2.15★2.

8.7.2.14 Car Enclosures, Car Doors and Gates, and Car Illumination
8.7.2.14.1 Where an alteration consists of the installation of a new car, the installation shall conform to 2.14, 2.15, and 2.17 (see also 8.7.2.15.1).

8.7.2.14★1 Installation / Replacement of Car Operating Panel (COP)
The disconnect and reconnect of COP wiring shall be confirmed to verify functionality of COP features and operating devices. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.14★2 Installation of Video/Security Cameras and Monitors
Wiring methods shall conform to 2.8.2.1. Equipment shall be securely fastened and shall not create headroom issues per 2.14.1.2.3 and 2.14.2.4. Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.14★3 Installation of Other Equipment
The installation of other equipment is not permitted per 2.14.1.9 unless otherwise permitted under by a variance request.

8.7.2.14.2 The following requirements shall be conformed to where alterations are made to existing cars:

(a) Car enclosures shall conform to 2.14.1.2.
(b) Where an alteration is made to a top emergency exit, or where a new one is installed, it shall conform to 2.14.1.5.
(c) Where an alteration consists of the installation of glass in an elevator car, it shall conform to 2.14.1.8.
(d) Any equipment added to an elevator car shall conform to 2.14.1.9. and 8.7.2.15★1 or 8.7.2.15★2 as applicable.
(e) All side emergency exits shall be permanently fixed in the closed position. The corresponding side emergency exit on an adjacent car shall also be fixed in the closed position.
(f) Any alteration to passenger car ventilation shall conform to 2.14.2.3.
(g) Any alteration to car illumination or lighting fixtures shall conform to 2.14.7.
(h) Where partitions are installed in elevator *cars for the purpose of reducing the inside net platform areas for passenger use, they shall conform to 2.16.1.2. Where* conditions do not permit symmetrical loading, guide rails, car frames, and platforms shall be capable of sustaining the resulting stresses and deflections.
(i) Where an alteration consists of the installation of a car door or gate on an existing elevator car, the installation shall conform to 2.14.4, 2.14.5, and 2.14.6.

8.7.2.14.3 N/A - In jurisdictions not enforcing the NBCC

8.7.2.14.4 In jurisdictions enforcing the NBCC, where any alteration is made to the car enclosure, car doors, or car gates, other than as specified in 8.7.2.14.2, the installation shall conform to 2.14, except that existing car enclosure materials exposed to the hoistway are not required to conform to the flame spread ratings. The existing flame spread rating shall not be diminished.

8.7.2.14★4 Installation of Car Top Guardrail *(245/10)*

(a) A standard car top guardrails shall:
  (1) have a top rail not less than 1070 mm (42 in.) above the working surface, or as amended by 2.10.2.1;
  (2) have a mid rail (or equivalent structural member);
  (3) have a toe-board to a height of 125 mm (5 in.) above the working surface;

(4) be fixed in position and designed to resist the loads[1,2] specified in O. Reg. 350/06 (Building Code) Article 4.1.5.15, as required by Reg. 851 (Regulations for Industrial Establishments) Section14(2). See table in 5.2 for reference; and
(5) not deflect beyond the perimeter of the car top [A17.1/B44 2.14.1.7.1], and in no case shall the deflection exceed 75 mm (3 in.) when the forces of A17.1/B44 2.10.2.4 are applied.

[1] For Limit States Design a principal load factor of 1.5 applies per sentence 4.1.3.2(5) of O. Reg. 350/06 (Building Code).
[2] For Allowable Stress Design, typically 66% of ultimate stress (1.5 safety factor) is applied to material strength, in which case the stated loads are not factored.

(b) Where a car top railing is installed, the installation shall conform to 2.14.1.7. Where conformance with 8.7.2.14★4(a)(1) is not possible due to existing overhead conditions, a foldable, collapsible or other stow able design shall be acceptable provided that:
(1) the car will not operate in "top-of-car inspection operation" unless the railing is in the fully extended position,
(2) the car will not operate in "normal operation", "hoistway access operation", or any type of "inspection operation" other than "top-of-car inspection operation", unless the railing is in the fully retracted position,
(3) switches used to monitor the fully collapsed position shall have contacts that are positively opened mechanically when the railing is moved from its fully collapsed position (leaving the collapsed position will forcibly and positively remove the car from all modes of operation and top-of-car operation cannot be engaged until the extended position is reached),
(4) the switch used to monitor the fully collapsed position shall comply with the requirements of the car top transfer switch when in the open position, except the top-of-car operation shall not be permitted until the guardrail is in the fully extended position,
(5) switches used to monitor the fully extended position shall have contacts that are positively opened mechanically when the railing is moved from its fully extended position (leaving the extended position will forcibly and positively remove the car from top-of-car operation and other modes of operation cannot be engaged until the collapsed position is reached),
(6) related circuits for switches used to monitor the fully collapsed and fully extended position of the guardrail shall comply with 2.26.9.3 and 2.26.9.4,
(7) electrical means shall be provided to prevent upward movement of the car beyond the point required to maintain top of car clearances when the railing is not in the fully collapsed position,
(8) when in the fully extended position the handrail shall meet the height requirements of 2.14.1.7.
(9) a suitably designed and marked fall arrest anchor point shall be provided if there is worker exposure to a fall hazard (per Section 85 of Reg. 851, Regulations for Industrial Establishments) while engaging or lowering the alternative height guardrail where provided.

(c) Where a car top railing is installed the requirements of 8.7.2.15★1 or 8.7.2.15★2 apply.

8.7.2.15 Car Frames and Platforms
8.7.2.15.1 Alterations to Car Frames and Platforms.
Where alterations are made to a car frame or platform, the frame and platform shall conform to 2.15. Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.15★1 *(171/02)*
Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increase to the deadweight of the car by 115kg (255 Lbs.) including all weight changes since the car was originally installed the following requirements shall apply, except (a) does not apply if the cumulative increase is 11kg (25 Lbs.) or less;

(a) cars and counterweights shall be weighed prior to the alteration to establish starting weights
(b) materials added or removed during the alteration shall be weighed in or out, or the car shall be weighed after the alteration to establish final weight changes
(c) add on weight (or decreased weight) shall be recorded on an auxiliary data tag and posted on the crosshead or for cars without crossheads in a conspicuous location on the car top or adjacent to the original data
(d) an auxiliary data tag shall as a minimum contain;

(1) the date of the alteration,
(2) the weight added or removed from the car
(3) the weight added or removed from the counterweight
(4) the name of the alteration contractor
(5) the measured car weight prior to the alteration

(e) where glass, mirror, or overhead finishes are added to the car interior, a no load governor tripping speed safety tests or a no load rated speed buffer test shall be performed to ensure the security of finishes prior to the devices return to service (Minor A and Minor B alterations ONLY). For hydraulic elevators and emergency stop from rated speed in the up direction shall be performed.

8.7.2.15★2 *(171/02)*
Where an alteration results in an increase in the deadweight of the car by more than 115 kg (255 Lbs.) but less then 5% of car and capacity as originally installed including all weight changes since the car was originally installed the following requirements shall apply;

(a) requirements 8.7.2.15★1(a) through 8.7.2.15★1(e)
(b) an engineering assessment shall confirm compliance of any components affected by the weight change, including but not limited to;
(1) machines
(2) car and counterweight frames
(3) buffers
(4) traction and overbalance
(5) ropes
(6) plungers & working pressures
(7) safeties

8.7.2.15.2 Increase or Decrease in Deadweight of Car.
Where an alteration results in an increase or decrease in the deadweight of the car that is sufficient to increase or decrease the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to the following requirements:
(a) requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone plus 75 mm (3 in.)
(b) requirement 2.16
(c) requirement 2.17
(d) requirement 2.18
(e) requirement 2.20
(f) requirement 2.21, except as covered by 8.7.2.22.2
(g) requirement 2.22, except for 2.22.4.7, provided that conformance with
(1) requirement 2.22.4.10 is established otherwise
(2) requirement 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22
(h) requirement 2.23
(i) requirement 2.24, except 2.24.1
(j) requirement 8.7.2.9
(k) requirement 8.7.2.15★1(a) through 8.7.2.15★1(e)

8.7.2.16 Capacity, Loading, and Classification 8.7.2.16.1 Change in Type of Service.
Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to:

(a) requirements 2.11.1 through 2.11.3, and 2.11.5 through 2.11.8
(b) requirements 2.12 and 2.13
(c) requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11
(d) requirements 2.14 and as amended by 8.7.2.14★4 and 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.)
(e) requirement 2.17, except that where gradual wedge-clamp and drum-operated flexible guide-clamp safeties are reused, the stopping distances shall conform to the requirements of the Code at the time of installation [see ASME A17.2, Table 2.29.2(c)]
(f) requirement 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7
(g) requirements 2.16, 2.20, 2.24 through 2.27, except 2.24.1
(h) requirement 2.19

8.7.2.16.2 Change in Class of Loading. Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 (see also 8.7.2.16.4).

8.7.2.16.3 Carrying of Passengers on Freight Elevators.
Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to:

(a) 2.16.4
(b) CAD 3.12 or extent pit permits
(c) signage requirements in 2.16.5.

8.7.2.16.4 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to the following:

(a) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.4, 2.14.5, and 2.14.6.
(b) Requirement 2.15, except the car platform guard (apron) shall conform to 2.15.9 only to the extent the existing pit shall permit, but in no case less than the leveling or truck zone, plus 75 mm (3 in.).
(c) Requirement 2.16.
(d) Requirement 2.17.
(e) Requirement 2.18, except that the pitch diameters of existing governor sheaves are not required to conform to 2.18.7.
(f) Requirement 2.19.
(g) Requirement 2.20.
(h) Requirement 2.21, except as covered by 8.7.2.22.2.
(i) Requirement 2.22, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
(j) Requirement 2.23.
(k) Requirement 2.24.
(l) Requirements 2.26.1.4 and 2.26.1.5.
(m) Requirement 2.26.5.
(n) Requirement 8.7.2.9.

8.7.2.17 Change in Rise or Rated Speed
8.7.2.17.1 Increase or Decrease in Rise.
Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, the following requirements shall be conformed to:

(a) The terminal stopping devices shall be relocated to conform to 2.25.
(b) Where the increase in rise is less than 4 570 mm (180 in.), an existing winding-drum machine shall be permitted to be retained, provided the drum is of sufficient dimensions to serve the increased rise with not less than one full turn of wire rope remaining on the winding drum when the car or counterweight has reached its extreme limits of travel.
(c) The bottom and top clearances and runbys for cars and counterweights shall conform to 2.4, except as follows:
    (1) Where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
    (2) Where the increase in rise is at the lower end of the hoistway, the existing overhead car and counterweight clearances are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.
    (3) Where the decrease in rise is at the lowest end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.2.17.2 Increase in Rated Speed

(a) Increase in the rated speed of a winding-drum machine is prohibited, except as permitted in 8.7.2.17.2(c).
(b) Where the alteration involves an increase in the rated speed, except as specified in 8.7.2.17.2(c), the following requirements shall be conformed to:
    (1) The bottom runbys and the top clearances for cars and counterweights shall conform to 2.4.2 through 2.4.11.
    (2) Horizontal clearances shall conform to 2.5.
    (3) The car and counterweight buffers shall conform to 2.22, except that existing buffers, where retained, are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
    (4) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to 2.14.
    (5) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameters of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7. Where the new rated speed is greater than 3.5 m/s (700 ft/min), compensating rope tie-down shall be provided in compliance with 2.21.4.2.
    (6) The capacity and loading shall conform to 2.16.
    (7) The driving machine and sheaves shall conform to 2.24.
    (8) The terminal stopping devices shall conform to 2.25.
    (9) The operating devices and control equipment shall conform to 2.26, except that 2.26.4.1 through 2.26.4.3 shall apply only to the electrical wiring and equipment altered. Requirement 2.26.4.4 does not apply.
    (10) Suspension ropes and rope connection shall conform to 2.20.
    (11) Car overspeed protection and unintended car movement protection shall conform to 2.19.
(c) Where the increase in rated speed does not exceed 10% and does not exceed 0.20 m/s (40 ft/min), and is a result of a power supply change, and the new motor speed cannot match the existing motor speed, the installation is not required to conform to 8.7.2.17.2(b), except that the new rated speed shall not
    (1) exceed 0.75 m/s (150 ft/min) for Type A safeties
    (2) exceed 1 m/s (200 ft/min) when spring buffers are provided Governors shall be adjusted to conform to 2.18.2.1 and 2.18.2.2 (see also 8.7.2.27.3).

8.7.2.17.3 Decrease in Rated Speed.

Conformance with the following requirements shall be required when the alteration involves a decrease in the rated speed.

(a) Where the bottom runbys and the top clearances for cars and counterweights are less than as required by 2.4, they shall not be decreased by the speed reduction.
(b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
(c) The capacity and loading shall conform to 2.16.
(d) Capacity and data plates shall conform to 2.16.3, except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.

(e) New electrical equipment and wiring shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3.

8.7.2.18 Car and Counterweight Safeties

8.7.2.18.1 Where the alteration consists of the installation of new car safeties, the car safeties, car speed governor, and car guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.2 Where the alteration consists of the installation of new counterweight safeties, the counterweight safeties, counterweight speed governor, and counterweight guide rails shall conform to 2.17, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties, governors, and guide rails shall conform to 2.17.1 through 2.17.9, 2.17.15, 2.18, and 2.23, except as noted in 8.7.2.19.

8.7.2.18.4 Where existing rail reactions are not increased by the installation of new safeties, the existing hoistway construction for bracket support need not be modified.

8.7.2.19 Speed Governors and Governor Ropes.

Where any alteration is made to a speed governor, or where a new governor is installed, it shall conform to 2.18. Where there is a releasing carrier, it shall conform to 2.17.15. Governor ropes of a different material, or construction than originally specified by the governor manufacturer shall be permitted, provided that

(a) there is conformance with 2.18.6 and 2.18.7, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7

(b) a test is made of the car or counterweight safety and speed governor with the new rope to demonstrate that the safety will function as required by 2.17.3

8.7.2.20 Ascending Car Overspeed and Unintended Car Movement Protection.

The requirements of 2.19 shall be conformed to where a device for protection against ascending car overspeed and unintended car movement is altered or installed.

8.7.2.20★1

If elevator controllers are pre-B44-00 and the installation is already equipped with Ascending Car Overspeed (ACO) and Unintended Car Movement (UCM) protection, the installation shall conform to 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.20★2

If elevator controllers are pre-B44-00 and the installation is equipped with only ACO protection, the installation shall conform to 2.19.1, 2.19.3, and 2.19.4, except the detection means is permitted to meet B44-M90 or the code at the time of the alteration. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO detection was provided.

8.7.2.20★3

Where the alteration includes the voluntary addition of ACO and UCM protection, the installation shall conform to; 2.19 except the detection means is permitted to meet B44-M90 or the code at the time of the alteration and 2.7 as applicable to the installation of the equipment. The means shall require manual reset. The code data tag shall reflect under which code edition the ACO and UCM detection was provided.

8.7.2.21 Suspension Means and Their Connections

8.7.2.21.1 Change in Suspension Members.

Where the material, grade, number, or size of suspension members is changed, the new suspension members and their fastenings shall conform to 2.20. When existing sheaves are retained using suspension members different from those

originally specified, the original elevator manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.2.21.2 Addition of Suspension-Member Equalizers.
Where suspension-member equalizers are installed, they shall conform to 2.20.5.

8.7.2.21.3 Addition of Auxiliary Suspension-Member-Fastening Devices.
Where auxiliary suspension-member-fastening devices are installed, they shall conform to 2.20.

8.7.2.21.4 Exception for Suspension-Means Monitoring and Protection.

(a) Where there is a change to the type of suspension means the installation shall conform to 2.20.8 and 2.20.11.
(b) If a traction-loss detection means is provided, it shall comply with 2.20.8.1.
(c) If a broken suspension-means detection means is provided, it shall comply with 2.20.8.2.

Note: Elevators installed to editions prior to A17.1-2007, including A17.1a-2008, are exempt from all of the requirements of 2.20.8 and 2.20.11 provided that there is no change to the type of suspension means and that there is no alteration to the means themselves.

8.7.2.22 Counterweights
8.7.2.22.1 Where alterations are made to any part of a counterweight assembly, except guiding members, the installation shall conform to 2.21, except as specified by 8.7.2.22.2. See also 8.7.2.3.

8.7.2.22.2 Rod-type counterweights shall be permitted to be retained, provided they are equipped with a minimum of two suspension rods and two tie rods. The two suspension rods shall conform to 2.21.2.1 and 2.21.2.3 and shall be provided with locknuts and cotter
pins at each end. The tie rods shall conform to 2.21.1.2. Means shall be provided on each side of the counterweight to maintain the distance between the top and bottom guide weights in the event the counterweight lands on the buffer.

8.7.2.22.3 Where roller or similar-type guide shoes are installed, that allow a definite limited movement of the counterweight with respect to the guide rails, the clearance between the safety jaws and rails of the counterweight shall be such that the safety jaws
cannot touch the rails when the counterweight frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.2.23 Car and Counterweight Buffers and Bumpers.
Where alterations are made to car and counterweight buffers or bumpers, they shall conform to 2.22. The buffers are not required to conform to 2.22.4.7 if

(a) the buffer's load rating and properties defining method of absorbing and dissipating energy has not been altered
(b) the load rating of the buffer can be established by other means such as using original design data, original type testing data, marking plate, etc.
(c) the conformance with 2.22.4.5(b) can be established by other means such as adding a buffer switch conforming to 2.26.2.22

8.7.2.24 Guide Rails, Supports, and Fastenings.
Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 2.23. Guide rails, supports, fastenings, and joints of different design and construction than those provided for in 2.23 shall be permitted to be retained provided they are in accordance with sound engineering practice and will adequately maintain the accuracy of the rail alignment.

8.7.2.25 Driving Machines and Sheaves

8.7.2.25.1 Alterations to Driving Machines and Sheaves

(a) Where a driving machine is replaced, or installed as part of an alteration, the installation shall conform to 2.7.2, 2.9, 2.10.1, 2.19 as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3, 2.20, 2.24, and 2.26.8. Requirement 2.7.2 applies to the extent existing installations permit.

(b) Where alterations are made to driving machine components, the affected components shall conform to 2.24.2 through 2.24.9 and 2.26.8.

(c) Where an alteration consists of a change in the driving-machine sheave, the suspension ropes and their connections shall conform to 2.20. The sheave shall conform to 2.24.2, 2.24.3, and 2.24.4.

8.7.2.25★1

Where the driving machine worm or gear is replaced, the replaced components shall conform to the applicable requirements of 2.24.

Note: Refer to 8.7.2.7★1 for the addition of machine guarding.

8.7.2.25.2 Change in Location of Driving Machine

(a) Where the location of the driving machine is changed with no increase or decrease in rise, the installation shall conform to 2.7.2, 2.9, 2.10.1, and 2.24.2.3.

(b) Where the location of the driving machine is changed with an increase or decrease in rise, the entire installation shall conform to Part 2, except for the following:

(1) requirement 2.5 (see also 8.7.2.5).

(2) requirement 2.11 (see also 8.7.2.10).

(3) where the increase in rise is at the upper end of the hoistway, the existing bottom car clearance and car and counterweight runby are not required to conform to 2.4. However, if existing clearances are less than as required by 2.4, they shall not be decreased by the change in rise.

8.7.2.26 Terminal Stopping Devices.

Where an alteration is made to any terminal stopping device, the installation shall conform to 2.25.

8.7.2.27 Operating Devices and Control Equipment / Inspection Operation and Inspection Operation with Open Door Circuits

8.7.2.27.1 Top-of-Car Operating Devices.

Where there is an alteration to or addition of top-of-car inspection operation, it shall conform to 2.26.1.4.

8.7.2.27★1

Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.2.27★2

Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD **3.8.3.** Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.2.27.2 Car Leveling or Truck Zoning Devices.

Where there is an alteration to or addition of a car leveling device, or a truck zoning device, it shall conform to 2.26.1.6.

8.7.2.27★3

Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.2.27★4

Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.2.27.3 Change in Power Supply.

Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller, involving one of the following, whichever is applicable:

(a) change in voltage, frequency, or number of phases

(b) change from direct to alternating current or vice versa

(c) change to a combination of direct and alternating current Electrical equipment shall conform to 2.26.1.1, 2.26.1.2, 2.26.1.3, 2.26.1.4, 2.26.1.6, 2.26.2, 2.26.6, 2.26.7, 2.26.9, and 2.26.10. All new and modified equipment and wiring shall conform to 2.26.4.1, 2.26.4.2, and 2.26.4.3. Brakes shall conform to 2.24.8 and 2.26.8. Winding-drum machines shall be provided with final terminal stopping devices conforming to 2.25.3.5 [see also 8.7.2.17.2(b)].

8.7.2.27.4 Controllers

(a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:

(1) Terminal stopping devices shall conform to 2.25.

(2) The operating devices and control equipment shall conform to 2.26.1.4, 2.26.1.5, 2.26.1.6, 2.26.2 through 2.26.9, and 2.26.11.

(3) Requirement 2.27.2 applies when emergency power is provided.

~~(4) In jurisdictions not enforcing NBCC, 2.27.3 through 2.27.9 apply~~

~~(a) when travel is 8 m (25 ft) or more above or below the designated landing; or~~

~~(b) on installations when firefighters' emergency operation was required or provided at the time of installation.~~

(5) In jurisdictions enforcing NBCC, 2.27.3 through 2.27.9 apply ~~only if firefighters' emergency operation was required or provided at the time of installation~~.

(6) requirement 2.7.9.2

(b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

(c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

(d) Equipment and floors shall be identified as required by 2.29.

8.7.2.27★5

Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.2.27.5 Change in Type of Motion Control.

Where there is a change in the type of motion control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to

(1) 2.11.1 except;

(a) existing entrance openings less than 2030 mm in height or 800 mm in width are permitted to be retained

(b) requirement 2.11.1.4

(2) 2.11.2 through 2.11.6, except 2.11.6.3

(3) 2.11.8, 2.11.9

(4) 2.11.11.8 for horizontally sliding center opening and single speed entrances

(5) 2.11.12.8

~~through 2.11.13, except 2.11.11.9,~~

(6) 2.12, except
(a) requirement 2.12.2.4.3 to allow a minimum engagement of 6 mm
(b) 2.12.4, and
(7) 2.13.

(b) Car enclosures and car doors or gates shall conform to 2.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, ~~and~~ 2.14.1.8, 2.14.1.9 and 2.14.1.10
(2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6~~, and 2.14.2.4~~
(3) requirement 2.14.3
(4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
(5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
(6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that:
(1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
(2) the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.
(d) The capacity and loading shall conform to 2.16.8 (e), (f), (g) and (h).
(e) The terminal stopping devices shall conform to 2.25.
(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
~~(g) In jurisdictions not enforcing NBCC, emergency operation and signaling devices shall be provided and shall conform to 2.27.~~
In jurisdictions enforcing NBCC, emergency operation and signaling devices ~~where required by NBCC shall be provided and~~ where required by NBCC shall be provided and shall conform to 2.27
(h) Car overspeed protection and unintended movement protection shall conform to 2.19 as required by 8.7.2.20 and 8.7.2.20★1 through 8.7.2.20★3.
(i) Equipment and floors shall be identified as required by 2.29.
(j) requirement 2.7.9.2

8.7.2.27.6 Change in Type of Operation Control.
Where there is a change in the type of operation control, the installation shall conform to the following:
(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13, 2.12, and 2.13.
(b) Car enclosures and car doors or gates shall conform to 2.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
(2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
(3) requirement 2.14.3
(4) requirement 2.14.4.3 and 2.14.4.6
(c) The car safety, the counterweight safety (where provided), and the governor shall conform to 2.17 and 2.18, except that the pitch diameter of speed governor sheaves and governor tension sheaves are not required to conform to 2.18.7.
(d) The capacity and loading shall conform to 2.16.
(e) The terminal stopping devices shall conform to 2.25.
(f) The operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
(g) Emergency operation and signaling devices shall be provided and shall conform to 2.27.

(h) Equipment and floors shall be identified as required by 2.29.
(i) requirement 2.7.9.2

8.7.2.27.★6
Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(I).

8.7.2.27.★7
Where security / floor lockout systems are added the following shall apply:
(a) egress floor shall not be restricted when on FEO,
(b) door open buttons shall remain operative,
(c) requirement 2.11.6.2, and
(d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.2.27.★8
Where destination dispatch is added to an automatic operation control the following shall apply:
(a) 8.7.2.8
(b) changes to FEO shall apply to either 8.7.2.28 or to the code applicable at the time of the original installation or subsequent FEO related alteration.

8.7.2.27.7 On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21 is provided.
The stop switch shall conform to 2.26.4.3, and a single failure shall not render the In-Car stop switch ineffective per 2.26.9.3.

8.7.2.27.8 Electrical Protective Devices.
Where there is an alteration to or addition of an electrical protective device, it shall conform to 2.26.2 for that device.

8.7.2.28 Emergency Operations and Signaling Devices
(a) Where an alteration is made to car emergency signaling devices, the alteration shall conform to 2.27.1.
(b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.
(c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 2.27.3 through 2.27.8.
(d) Where the alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to 2.27.

8.7.2.28★1 *(175/02)*
Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.
8.7.2.28★2 *(60/88) (105/93) (219/07)*
Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD **3.20**.

8.7.3.★ Alteration Hydraulic to Electric Elevator [CAD Amendment-261/13-r1]
Where a hydraulic elevator that operated in an existing hoistway is being replaced with an electric elevator , the installation shall conform to Part 2, Electric Elevators, except for the following:
(a) Existing building conditions not in conformance to the latest code may be permitted to be retained
(b) Apron plates must conform to 2.15.9 or where a 1220 mm (48 in.) apron is not possible due to existing pit depth, an engineered solution providing 1220 mm (48 in.) of guarding shall be permitted.

Note: Existing building conditions may include items such as pit depth or no pit drains. Items not in conformance with Part 2 shall be noted in the design submission.

8.7.3 Alterations to Hydraulic Elevators

8.7.3.1 Hoistway Enclosures.

Alterations to hoistway enclosures shall conform to 8.7.2.1.

8.7.3.2 Pits. Alterations made to the pit shall conform to 2.1.2.3 and 2.2. See also 8.7.3.4.

8.7.3.3 Location and Guarding of Counterweights.

Where new counterweights are installed, they shall conform to 2.3 and 2.5.1.2. The installation shall also conform to 3.5.

8.7.3.4 Vertical Car and Counterweight Clearances and Runbys.

No alteration shall reduce any clearance or runby below that required by 3.4. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.5 Horizontal Car and Counterweight Clearances.

No alteration shall reduce any clearance below that required by 2.5. Existing clearances shall be permitted to be maintained, except as required by 8.7.3.22.1, 8.7.3.22.2, and 8.7.3.23.5.

8.7.3.6 Protection of Spaces Below Hoistways.

Where alterations are made to an elevator or the building, such that any space below the hoistway is not permanently secured against access, the affected installation shall conform to 3.6.

8.7.3.7 Machine Rooms and Machinery Spaces.

Alterations to machine rooms and machinery spaces shall conform to 8.7.2.7.2 through 8.7.2.7.7. Where an alteration consists of the construction of a new machine room or machinery space enclosure, it shall conform to 2.7 and 3.7. Electrical equipment clearances shall conform to the requirements of NFPA 70 or CSA-C22.1, whichever is applicable (see Part 9). Where alterations are made to any portion of a machinery room or machinery space, the portion that is altered shall conform to 2.7 and 3.7.

8.7.3.8 Electrical Wiring, Pipes, and Ducts in Hoistways and Machine Rooms.

The installation of any new, or the alteration of existing, electrical equipment, wiring, raceways, cables, pipes, or ducts shall conform to the applicable requirements of 2.8.

8.7.3.9 Machinery and Sheave Beams, Supports and Foundations.

Where new machinery and sheave beams, supports, foundations, or supporting floors are installed, or where alterations increase the original building design reactions by more than 5%, they shall conform to 2.9, and the adequacy of the affected building structure to support the loads shall be verified by a licensed professional engineer.

8.7.3.10 Hoistway Entrances and Openings.

Alterations to hoistway entrances shall conform to 8.7.2.10, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway where required by 8.7.2.10 and

(a) for all elevators where car or counterweight safeties are used
(b) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency

8.7.3.11 Hoistway Door Locking Devices.

Alterations to hoistway door locking devices, access switches, parking devices, and unlocking devices shall conform to 8.7.2.11, except that conformance with 2.24.8 is not required.

8.7.3.12 Power Operation of Hoistway Doors.
Where the alteration consists of the addition of, or alteration to, power opening or power closing of hoistway doors, the installation shall conform to 2.13, 8.7.2.10.1, 8.7.2.10.2, 8.7.2.10.3, 8.7.2.10.5, 8.7.2.12★1 , 8.7.2.12★2 and 8.7.3.10.

8.7.3.13 Car Enclosures. Where alterations are made to car enclosures, they shall conform to 8.7.2.14.

8.7.3.14 Car Frames and Platforms.
Where alterations are made to a car frame or platform, the frame and platform shall conform to 3.15. If safeties are used and if roller or similar-type guide shoes are installed, that allow a definite limited movement of the car with respect to the guide rails, the clearance between the safety jaws and rails of the car shall be such that the safety jaws cannot touch the rails when the car frame is pressed against the rail faces with sufficient force to take up all movement of the roller guides.

8.7.3.15 Safeties
8.7.3.15.1 Where the alteration consists of the installation of car safeties, the car safeties and car guide rails shall conform to 3.17.1, 3.23, and 3.28.

8.7.3.15.2 Where the alteration consists of the installation of counterweight safeties, the counterweight safeties and counterweight guide rails shall conform to 3.17.2, 3.23, and 3.28.

8.7.3.15.3 Where any alterations are made to existing car or counterweight safeties, the affected safeties and guide rails shall conform to 3.17, 3.23, and 3.28, except for cross-referenced 2.17.10 through 2.17.14, 2.17.16, and 2.21.4.2.

8.7.3.16 Governors and Governor Ropes.
Where alterations are made to governors or where they are added, they shall conform to 8.7.2.19.

8.7.3.17 Change in Type of Service.
Where an alteration consists of a change in type of service from freight to passenger or passenger to freight, the installation shall conform to

(a) requirements 2.11.1, 2.11.2, 2.11.3, and 2.11.5 through 2.11.8, except that emergency doors meeting the requirements of 2.11.1 are only required to be installed in the blind portion of the hoistway
  (1) for all elevators where car or counterweight safeties are used
  (2) for elevators where safeties are not used, emergency doors are not required on elevators where a manually operated valve is provided that will permit lowering the car at a reduced speed in case of power failure or similar emergency
(b) requirements 2.12 and 2.13
(c) requirements 2.22 and 3.22.2, except 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11
(d) requirements 3.14, 3.15, 3.17, 3.21, and 3.23
(e) requirement 2.18, where governors are provided, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7
(f) requirements 3.16, 3.18, 3.19, 3.20, 3.24, 3.25, 3.26, and 3.27.

8.7.3.18 Change in Class of Loading.
Where the class of loading of a freight elevator is changed, it shall conform to 2.16.2 as modified by 3.16.

8.7.3.19 Carrying of Passengers on Freight Elevators.
Where the alteration consists of a change in type of service from a freight elevator to a freight elevator permitted to carry passengers, the elevator shall conform to 3.16.4.

8.7.3.20 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to 2.26.1.4, 2.26.1.5, 2.26.5, 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21 Increase in Deadweight of Car.
Where an alteration results in an increase in the deadweight of the car that is sufficient to increase the sum of the deadweight and rated load, as originally installed, by more than 5%, the installation shall conform to 3.14 through 3.17, 3.20, and 3.21 through 3.23 (see also 8.7.3.23.4).

8.7.3.21★1 *(171/02)*
Where an alteration results in a cumulative decrease in the deadweight of the car by less than 5% of car and capacity as originally installed, or causes a cumulative increases to the deadweight of the car by 115 kg (255 lbs.) or less including all weight changes since the car was originally installed the requirements of shall 8.7.2.15★1 apply.

8.7.3.21★2 *(171/02)*
Where an alteration results in a cumulative increase in the deadweight of the car by more than 115 kg (255 lbs.) but less than 5% of car and capacity as originally installed including all weight changes since the car was originally installed the requirements of 8.7.2.15★2 shall apply.

8.7.3.22 Change in Rise or Rated Speed
8.7.3.22.1 Increase or Decrease in Rise.
Where an alteration involves an increase or decrease in the rise without any change in the location of the driving machine, it shall conform to the following:

(a) The terminal stopping devices shall be relocated to conform to 3.25.
(b) Where the increase in rise is at the lower end of the hoistway, bottom car and counterweight clearances and runbys shall conform to 3.4.1, 3.4.2, and 3.4.3, and existing top car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(c) Where the increase in rise is at the upper end of the hoistway, top car and counterweight clearances, runbys, and refuge spaces shall conform to 3.4, and existing bottom car and counterweight clearances and runbys that are less than as required by 3.4 shall not be decreased.
(d) The plunger shall conform to 3.18.2.
(e) Where the decrease is at the lower end of the rise, the installation shall conform to 2.2.4, 2.2.5, and 2.2.6.

8.7.3.22.2 Increase in Rated Speed.
Where an alteration increases the rated speed, the installation shall conform to the following:

(a) Requirement 2.5.
(b) Requirement 3.4.
(c) Requirements 3.21 and 3.22.2, except that existing buffers, where retained, are not required to conform to referenced 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.
(d) Car doors or gates shall be provided at all car entrances. Where new car doors or gates are installed, they shall conform to the applicable requirements of 3.14.
(e) Car and counterweight safeties and governors, where provided, shall conform to 3.17, except that the pitch diameters of existing governor sheaves and tension sheaves are not required to conform to 2.18.7.
(f) Requirement 3.16.
(g) Requirement 3.25.
(h) Requirements 3.26.1 through 3.26.6.
(i) Requirement 3.20.

8.7.3.22.3 Decrease in Rated Speed.
When the alteration involves a decrease in the rated speed, it shall conform to the following:

(a) If the bottom runbys and the top clearances for cars and counterweights are less than as required by 3.4, they shall not be decreased by the speed reduction.
(b) The tripping speed of the car speed governor and the counterweight speed governor, where provided, shall be adjusted to conform to 2.18.2 for the new rated car speed.
(c) The capacity and loading shall conform to 3.16.

(d) Capacity and data plates shall conform to 3.16.3(b), except the information required by 2.16.3.2.2(d) shall include the name of the company doing the alteration and the year of the alteration.
(e) New electrical equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.

8.7.3.23 Hydraulic Equipment

8.7.3.23.1 Hydraulic Jack.

Where a hydraulic jack is installed, altered, or replaced, it shall conform to 3.18.

8.7.3.23.2 Plungers.

Where a new plunger is installed or an existing plunger is altered, it shall conform to 3.18.1.2 and 3.18.2.

8.7.3.23.3 Cylinders.

Where a cylinder is installed, replaced, altered, or sleeved, it shall conform to 3.18.3. If the plunger is not equipped with a stop ring conforming to 3.18.4.1, the installation shall also conform to 3.18.1.2 and 3.18.2.

8.7.3.23.4 Increase in Working Pressure.

Where an alteration increases the working pressure by more than 5%, the installation shall conform to 3.18, 3.19, and 3.24.1 through 3.24.4. Requirements 3.18.3.8 and 3.19.4.6 do not apply to existing equipment.

8.7.3.23.5 Change in Location of Hydraulic Jack.

Where location of the hydraulic jack is changed, the installation shall conform to Part 3.

8.7.3.23.6 Relocation of Hydraulic Machine (Power Unit).

Where the hydraulic machine is relocated so that the top of the cylinder is above the top of the storage tank, the installation shall conform to 3.26.8.

8.7.3.23.7 Plunger Gripper.

Where the alteration consists of the addition of a plunger gripper, the following conditions must be met:
(a) the plunger gripper must comply with 3.17.3
(b) requirement 3.1.1(b) shall apply
(c) when buffers are compressed solid or to a fixed stop in accordance with 3.22.1, the plunger gripper shall not strike the car structure.

8.7.3.23.7★1 Plunger Gripper.

Where the alteration consists of the removal of a plunger gripper, the following conditions must be met:
(a) the cylinder must conform to 3.18.3
(b) an overspeed valve shall be installed in conformance with the requirements of 3.19.4.7
(c) bottom car runby shall conform to 3.4.2.1

8.7.3.24 Valves, Pressure Piping, and Fittings.

(a) Where an existing control valve is replaced with a valve of a different type, make or model, it shall conform to 3.19.
(b) Where relief or check valves or the supply piping or fittings are replaced ~~as part of an alteration~~, the components replaced shall conform to the applicable requirements of 3.19.
(c) Where electrically operated control valves are installed in place of existing mechanically operated control valves, for rated speeds of more than 0.5 m/s (100 ft/min), existing terminal stopping devices consisting of an automatic stop valve independent of the normal control valve and operated by the movement of the car as it approaches the terminals, where provided, shall be permitted to be retained.

8.7.3.25 Suspension Ropes and Their Connections

8.7.3.25.1 Change in Ropes.

Where the material, grade, number, or diameter of ropes is changed, the new ropes and their fastenings shall conform to 3.20. When existing sheaves are retained using ropes different from those originally specified, the original elevator

manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.

8.7.3.25.2 Addition of Rope Equalizers.
Where rope equalizers are installed, they shall conform to 2.20.5.

8.7.3.26 Counterweights.
Where alterations are made to counterweights, they shall conform to 8.7.2.22 and 3.21. Where counterweights are added to a previously uncounterweighted elevator, it shall conform to 3.4, 3.6, 3.14, 3.15, 3.17.2, 3.18, 3.20, and 3.21. See also 8.7.3.3.

8.7.3.27 Car Buffers and Bumpers.
Where alterations are made to car buffers or bumpers, the installation shall conform to ~~3.21~~ 3.22.1 and 3.22.2. Existing buffers are not required to conform to 2.22.4.5(b), 2.22.4.7, 2.22.4.10, and 2.22.4.11.

8.7.3.28 Guide Rails, Supports, and Fastenings.
Where alterations are made to car and counterweight guide rails, guide-rail supports, or guide-rail fastenings, or where the stresses have been increased by more than 5%, the installation shall conform to 3.23 and 3.28.

8.7.3.29 Tanks.
Where a new tank is installed ~~as part of an alteration~~ or altered, the tank shall conform to 3.24.

8.7.3.29★1 Addition of Oil Cooler
Where an oil cooler is installed or altered, the following requirements apply:
(a) 8.7.3.8
(b) 2.7.2 for the installed equipment
(c) 3.10 for the installed equipment

8.7.3.30 Terminal Stopping Devices.
Where an alteration is made to any terminal stopping device, the installation shall conform to 3.25.

8.7.3.31 Operating Devices and Control Equipment
8.7.3.31.1 Top-of-Car Operating Devices.
Where there is an alteration to, or addition of, a top-of-car operating device, it shall conform to 3.26.2.

8.7.3.31★1
Where there is an alteration to or addition of any type of inspection operation (see 2.26.1.4.1(a)), the alteration shall conform to the applicable requirements in 2.26.1.4.

8.7.3.31★2
Where there is an addition of a top-of-car operating device, the requirements of 2.26.1.4 apply. See CAD **3.8.3.** Requirement 8.7.2.15★1 or 8.7.2.15★2 applies.

8.7.3.31.2 Car Leveling or Truck Zoning Devices.
Where there is an alteration to, or addition of, a car leveling device or a truck zoning device, it shall conform to 3.26.3.2.

8.7.3.31★3
Where there is an alteration to or addition of car door bypass or hoistway door bypass switches, the alteration shall conform to 2.26.1.5.

8.7.3.31★4

Where there is an alteration to or addition of a system to monitor and prevent automatic operation of the elevator with faulty door contact circuits on power-operated car doors that are mechanically coupled with the landing doors while the car is in the landing zone, the alteration shall conform to the requirements in 2.26.5.

8.7.3.31.3 Anticreep Leveling Device.

Where there is an alteration or replacement of an anticreep leveling device, it shall conform to 3.26.3.1.

8.7.3.31.4 Change in Power Supply.

Where an alteration consists of a change in power supply at the mainline terminals of the elevator motion controller or motor controller involving

(a) change in voltage, frequency, or number of phases;
(b) change from direct current to alternating current, or vice versa; or
(c) change to a combination of direct or alternating current.

Electrical equipment shall conform to 3.26.1, 3.26.4, 3.26.5, and 3.26.6 (not including 2.26.4.4).

8.7.3.31★5 Addition of Soft Start

Where there is an addition of a soft start feature the follow shall apply;

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) 3.26.5

8.7.3.31★6 Addition of Power Efficiency Devices

Where there is an addition of power efficiency increasing devices the follow shall apply;

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.3.31.5 Controllers

(a) Where a motion controller or operation controller is installed without any change in the type of operation control or motion control, it shall conform to the following:
(1) Terminal stopping devices shall conform to 3.25.
(2) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.1.1, 2.26.1.3, and 2.26.12 do not apply.
(3) Requirement 2.27.2 applies when emergency power is provided.
~~(4) In jurisdictions not enforcing NBCC, 3.27.1 through 3.27.4 and 2.27.3 through 2.27.9 apply~~
~~(a) when travel is 8 m (25 ft) or more above or below the designated landing; or~~
~~(b) on installations when firefighters' emergency operation was required or provided at the time of the installation.~~
(5) In jurisdictions enforcing NBCC, 3.27.1 through 3.27.4 and 2.27.3 through 2.27.9 ~~apply only if firefighters' emergency operation was required or provided at the time of installation~~.

(b) Where a controller for the operation of hoistway doors, car doors, or car gates is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
(c) Where a controller for the elevator operation on emergency or standby power systems or firefighters' emergency operation is installed, all new and modified equipment and wiring shall conform to 2.26.4.1 and 2.26.4.2.
(d) Equipment and floors shall be identified as required by 2.29.

8.7.3.31★7

Where an elevator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.3.31.6 Change in Type of Motion Control.

Where there is a change in the type of motion control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 except 2.11.11.9,
(1) 2.11.1 except:

(a) existing entrance openings less than 2030 mm in height or 800 mm in width are permitted to be retained
(b) requirement 2.11.1.4

(2) 2.11.2 through 2.11.6, except 2.11.6.3
(3) 2.11.8, 2.11.9
(4) 2.11.11.8 for horizontally sliding center opening and single speed entrances
(5) 2.11.12.8 ~~through 2.11.13, except 2.11.11.9,~~ as modified by 3.11.1,
(6) and conform to 3.12.1 except
(a) requirement 2.12.2.4.3 to allow a minimum engagement of 6 mm
(b) 2.12.4,and
(7) 3.13.

(b) Car enclosures and car doors or gates shall conform to 3.14, the loading requirements specified by 2.14.1.6, and the requirements of 2.14.1.7 including the provisions of 2.14.1.7.5 for non standard guardrails, as specified in the CAD, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, ~~and~~ 2.14.1.8, 2.14.1.9 and 2.14.1.10
(2) requirements 2.14.2.1, 2.14.2.3 through 2.14.2.6~~, and 2.14.2.4~~
(3) requirement 2.14.3
(4) requirements 2.14.4.2.5, 2.14.4.3, 2.14.4.5.1(c) and 2.14.4.6
(5) requirements 2.14.5.1, 2.14.5.6 through 2.14.5.8
(6) requirements 2.14.7.1.3, 2.14.7.1.4 and 2.14.7.2 through 2.14.7.4

(c) The car safety (where provided) and the counterweight safety (where provided) shall conform to 3.17, and the governor (where provided) shall conform to 2.18, except that:
(1) where the safety factors required by 2.17.12.1 cannot be ascertained, performance testing shall be accepted, and
(2) the pitch diameter of speed-governor sheaves and governor tension sheaves are not required to conform to 2.18.7.

(d) The capacity and loading shall conform to 8.7.2.27.5(d) ~~3.16~~.
(e) The terminal stopping devices shall conform to 3.25.
(f) The operating devices and control equipment shall conform to 3.26. Requirements of 2.26.4.2 and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
(g) ~~In jurisdictions not enforcing NBCC, emergency operation and signaling devices shall conform to 3.27.~~ In jurisdictions enforcing NBCC, emergency operation and signaling devices ~~where required by NBCC shall be provided and~~ shall conform to 2.27.
(h) Equipment and floors shall be identified as required by 2.29.

8.7.3.31.7 Change in Type of Operation Control.

Where there is a change in the type of operation control, the installation shall conform to the following:

(a) The protection of the hoistway landing openings shall conform to 2.11.1 through 2.11.13 as modified by 3.11.1, and conform to 3.12.1 and 3.13.
(b) Car enclosures and car doors or gates shall conform to 3.14, except that where existing car enclosures and/or car doors or gates are retained, conformance with the following requirements is not required:
(1) requirements 2.14.1.3, 2.14.1.5.1, and 2.14.1.8
(2) requirements 2.14.2.1, 2.14.2.3, and 2.14.2.4
(3) requirement 2.14.3
(4) requirements 2.14.4.3 and 2.14.4.6
(c) The capacity and loading shall conform to 3.16.
(d) The terminal stopping devices shall conform to 3.25.
(e) The operating devices and control equipment shall conform to 3.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
(f) Emergency operation and signaling devices shall be provided and shall conform to 3.27.
(g) Equipment and floors shall be identified as required by 2.29.

(h) requirement 2.7.9.2

8.7.3.31★8
Where a Patient Wandering feature is added, doors shall close per 2.13.5.3 and the activation of phase 1 recall shall not be prevented per 2.27.3.1.6(I).

8.7.3.31.★9
Where security / floor lockout systems are added the follow shall apply:
(a) egress floor shall not be restricted when on FEO,
(b) door open buttons shall remain operative,
(c) requirement 2.11.6.2
(d) travel to all serviced landing shall be possible per 2.27.3.3.1(i).

8.7.3.31.8 Emergency Operation and Signaling Devices
(a) Where an alteration is made to car emergency signaling devices, the installation shall conform to 2.27.1.
(b) Where an alteration is made to, or consists of the addition of, an emergency or standby power system, the installation shall conform to the requirements of 2.27.2.
(c) Where an alteration is made to, or consists of the addition of, firefighters' emergency operation, the installation shall conform to 3.27.

8.7.3.31★10 *(175/02)*
Where the method of recall is being upgraded from manual to automatic recall, FEO features are permitted to operate as required at the time of the original FEO installation. Where the main recall level is not sprinklered, alternate floor recall shall be provided.

8.7.3.31★11 *(60/88) (105/93) (219/07)*
Where a firecode retrofit was required but not provided, and conformance to provide FEO is now being sought, the FEO features shall be as required by CAD **3.20**.

8.7.3.31.9 Auxiliary Power Lowering Operation.
Where auxiliary power lowering operation is installed or altered, it shall conform to 3.26.10.

8.7.3.31.10 In-Car Stop Switch.
On passenger elevators equipped with nonperforated car enclosures, the emergency stop switch, including all markings, shall be permitted to be removed if an in-car stop switch conforming to 2.26.2.21, 2.26.4.3, 2.26.9.3.1(a), and 3.26.4.2 is provided.

8.7.3.31.11 Electrical Protective Devices.
Where there is an alteration to or addition of an electrical protection device, it shall conform to 3.26.4 for that device.

8.7.4 Alterations to Elevators With Other Types of Driving Machines
8.7.4.1 Rack and Pinion Elevators.
Where any alteration is made to a rack-and-pinion elevator, the entire installation shall comply with 4.1.

8.7.4.2 Screw-Column Elevators.
Where any alteration is made to a screw-column elevator, the entire installation shall comply with 4.2.

8.7.4.3 Hand Elevators
8.7.4.3.1 Hoistway Enclosures and Machinery Space.
Where an alteration is made to any portion of a hoistway enclosure or machinery space, the altered portion shall conform to 4.3.1 and 4.3.4.

8.7.4.3.2 Top Car and Counterweight Clearances.
No alteration shall reduce any clearances or runby below that required by 4.3.3 or below the minimum clearances as originally installed.

8.7.4.3.3 Hoistway Entrances.
Where new entrances are installed, the new entrances shall conform to 4.3.6, 4.3.7, and 4.3.8.

8.7.4.3.4 Car Enclosures.
Where an alteration is made to a car enclosure, it shall conform to 4.3.9 and 4.3.11.

8.7.4.3.5 Car Frame and Platform.
Where an alteration is made to a car frame or platform, the frame or platform shall conform to 4.3.11, 4.3.12, 4.3.13, and 4.3.16.

8.7.4.3.6 Capacity and Loading.
No alteration shall reduce the rated load below that required by 4.3.14.1 and 4.3.14.2. Where the alteration involves an increase in rated load, the driving machine sheave shall comply with 4.3.19.1, 4.3.19.2, and 4.3.16.

8.7.4.3.7 Increase in Rise.
Where the alteration involves an increase in the total rise to exceed 4 600 mm (15 ft), it shall conform to 4.3.3.1, 4.3.3.2, 4.3.15, and
4.3.16.

8.7.4.3.8 Guide Rails and Fastenings.
Where an alteration involves the installation of guide rails, the guide rails and fastenings shall comply with 4.3.18.1, 4.3.18.2, and 4.3.18.3.

8.7.4.3.9 Overhead Beams and Supports.
Where the alteration involves a change in the arrangement of or load on the overhead beams and sheaves, the new arrangement shall conform to 4.3.5.1 and 4.3.5.2, except that wood shall be permitted to be retained if it is structurally sound.

8.7.4.3.10 Power Attachments.
No alteration shall implement the use of a power other than hand power.

8.7.5 Alterations to Special Application Elevators
8.7.5.1 Inclined Elevators.
Where any alteration is made to an inclined elevator, the entire installation shall comply with 5.1.

8.7.5.2 Limited-Use/Limited-Application Elevators.
Reserved.

8.7.5.2.★1 Alterations to Electric Limited-Use/Limited-Application Elevators
Alterations to Limited-Use/Limited-Application Elevators, shall conform to 8.7.2 and the requirements of Part 2 except as modified in section 5.2.

8.7.5.2.★2 Alterations to Hydraulic Limited-Use/Limited-Application Elevators
Alterations to Limited-Use/Limited-Application Elevators, shall conform to the 8.7.3 and the requirements of Part 3 except as modified in section 5.2.

8.7.5.3 Private Residence Elevators

8.7.5.3.1 When a building code occupancy classification of a private residence is changed in which a private residence elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.2.

8.7.5.4 Private Residence Inclined Elevators

8.7.5.4.1 When a building code occupancy classification of a private residence is changed in which a private residence inclined elevator is located, the elevator shall comply with the applicable requirements in Parts 2, 3, 4, or Section 5.1.

8.7.5.5 Power Sidewalk Elevators

8.7.5.5.1 Changes in Electrical Wiring or Electrical Equipment.

Where electrical wiring or equipment is installed as part of an alteration, it shall conform to 5.5.1.8.

8.7.5.5.2 Sidewalk Door.

Where a sidewalk door is installed as part of an alteration, it shall conform to 5.5.1.11.2, 5.5.1.11.3, and 5.5.1.11.4.

8.7.5.5.3 Change in Car Enclosure, Car Doors, and Gates.

Where the car enclosure, car door, or car gate is installed as part of an alteration, it shall conform to 5.5.1.14.

8.7.5.5.4 Bow Irons and Stanchions. Where the bow iron and stanchion is installed as part of an alteration, it shall conform to 5.5.1.15.2.

8.7.5.5.5 Increase in Rated Load.

Where the alteration consists of an increase in rated load, the bottom and top clearances and runbys shall conform to 5.5.1.16, 5.5.1.18, 5.5.1.21, and 5.5.1.25.4.

8.7.5.5.6 Increase in Rated Speed.

Where the alteration consists of an increase in rated speed, the capacity and loading shall conform to 5.5.1.15, 5.5.1.16, 5.5.1.19, and 5.5.1.22.

8.7.5.5.7 Existing Driving Machine.

Where the driving machine is installed as part of an alteration, it shall conform to 5.5.1.8, 5.5.1.9, 5.5.1.23, and 5.5.1.25.

8.7.5.5.8 Change in Type of Operating Devices and/ or Control Equipment.

Where the alteration consists of a change in the existing type of operation or control equipment, or both, the new operating devices and control equipment shall conform to 5.5.1.8 and 5.5.1.25.

8.7.5.6 Rooftop Elevators.

Where any alteration is made to a rooftop elevator, the entire installation shall comply with 5.6.

8.7.5.7 Special Purpose Personnel Elevators.

Where any alteration is made to a special purpose personnel elevator, the entire installation shall comply with 5.7.

8.7.5.8 Shipboard Elevators.

Where any alteration is made to a shipboard elevator, the entire installation shall comply with 5.8.

8.7.5.9 Mine Elevators

8.7.5.9.1 General Requirements.

Where any alteration is made to a mine elevator, the alteration shall conform to the requirements of 8.7.1 and 8.7.2, except as modified by 5.9.

8.7.5.9.2 Ascending Car Overspeed and Unintended Car Movement Protection.

Ascending car overspeed and unintended car movement protection shall be provided and shall conform to 2.19.

8.7.5.9.3 Car Top Protection. The car top access panel size requirements in 5.9.14.1(b) do not apply where the existing car top is retained. The dimensions of the existing car top access panel shall not be reduced by the alteration.

8.7.6 Alterations to Escalators and Moving Walks

8.7.6.1 Escalators

8.7.6.1.1 General Requirements.

A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1. The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.1 for that device or component.

When multiple driving machines per escalator are utilized, operating and safety devices required by 8.7.6.1 shall simultaneously control all driving machines. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.

8.7.6.1.2 Relocation of Escalator.

(a) Where an escalator is relocated, it shall comply with 6.1. The requirements of 6.1.7.4.2 do not apply to electrical equipment unchanged by the relocation. The requirements of 6.1.3.6.5 do not apply to existing escalators that were not required to comply with this requirement at the time of the original installation.

(b) Where an escalator is repositioned within the same building, CAD requirement 3.18 applies and the installation shall conform to the following;
(1) requirement 6.1.3.3.11, 6.1.3.3.12, 6.1.3.3.13
(2) requirement 6.1.3.4.3
(3) requirement 6.1.3.6.3, 6.1.3.6.4
(4) requirement 6.1.3.12
(5) requirement 6.1.3.13
(6) requirement 6.1.6.9
(7) requirement 6.1.7.4.1 and
(8) requirement 8.7.6.1.3

8.7.6.1.3 Protection of Floor Openings.

Any alteration to the floor openings in escalators shall comply with 6.1.1.1.

8.7.6.1.4 Protection of Trusses and Machinery Spaces Against Fire

Any alteration to the sides and/ or undersides of escalator trusses and machinery spaces shall conform to 6.1.2.1.

8.7.6.1.5 Construction Requirements

(a) Angle of Inclination. No alteration of an escalator shall change the angle of inclination, as originally designed, by more than 1 deg.
(b) Geometry. Any alteration to the geometry of the escalator components shall conform to 6.1.3.2.
(c) Balustrades. Any alteration to the balustrades shall conform to 6.1.3.3 for the altered components.
(d) Skirt Deflector Devices. Any alteration or addition of skirt deflector devices shall conform to 6.1.3.3.10

NOTE [8.7.6.1.5(c)]: The balustrade does not include the handrail.
NOTE [8.7.6.1.5(d)]: The vertical dimensions on existing skirt panels may not allow full compliance. See 1.2.

8.7.6.1.6 Handrails. Any alteration to the handrails or handrail system shall require conformance with 6.1.3.2.2, 6.1.3.4.1 through 6.1.3.4.4, 6.1.3.4.6, 6.1.6.3.12, and 6.1.6.4.

8.7.6.1.★1 Addition of Handrail Advertizing

The addition of handrail advertizing is not permitted per 6.1.6.9.2, unless otherwise permitted by a variance request.

8.7.6.1.7 Step System

(a) Any alteration to the step system shall require conformance with 6.1.3.3.5, 6.1.3.5 [except as specified in 8.7.6.1.7(b)], 6.1.3.6, 6.1.3.8, 6.1.3.9.4, 6.1.3.10.4, 6.1.3.11, 6.1.6.3.3, 6.1.6.3.9, 6.1.6.3.11, 6.1.6.3.14, and 6.1.6.5.

(b) Steps having a width less than 560 mm (22 in.) shall not be reduced in width by the alteration.

8.7.6.1.8 Combplates.

Any alteration of the combplates shall require conformance with 6.1.6.3.13.

8.7.6.1.9 Trusses and Girders.

Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the escalator's conforming to 6.1.3.7, 6.1.3.9.1, and 6.1.3.10.1. The installation of a new escalator into an existing truss shall conform to all of the requirements of 6.1.

8.7.6.1.10 Step Wheel Tracks.

Any alteration to the tracks shall result in the escalator's conforming with 6.1.3.8, 6.1.3.9.4, 6.1.3.10.1, and 8.7.1.4.

8.7.6.1.11 Rated Load and Speed.

Any alteration that increases the rated load or rated speed or both shall result in the escalator's conforming with 6.1.

8.7.6.1.12 Driving Machine, Motor, and Brake

(a) Driving Machine. An alteration to the driving machine shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.4, and 6.1.6.3.8.

(b) Driving Motor. An alteration to the drive motor shall result in the escalator's conforming to 6.1.3.9.2, 6.1.3.10.3, 6.1.4.1, 6.1.5.2, 6.1.5.3.1, 6.1.5.3.2, 6.1.6.3.2, 6.1.6.3.8, and 6.1.6.3.10.

(c) Machine Brake. An alteration to the machine brake shall result in the escalator's conforming to 6.1.3.9.3, 6.1.3.10.2, and 6.1.5.3.1.

8.7.6.1.13 Operating and Safety Devices.

Any alteration to or addition of operating and or safety devices shall conform to 6.1.6 for that device.

8.7.6.1.★2 Removal of Step Demarcation Lights *(226/07)*

The removal of step demarcation lights, shall be permitted if the device complies with the following:

(a) requirement 6.1.3.3.5,

(b) requirements 6.1.3.5.4, 6.1.3.5.5, 6.1.3.5.6, and

(c) requirement 6.1.3.6.2.

8.7.6.1.14 Lighting, Access, and Electrical Work.

An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.1.7 for that change.

8.7.6.1.15 Entrance and Egress.

Any alteration to the entrance or egress end shall comply with 6.1.3.6.1 through 6.1.3.6.4.

8.7.6.1.16 Controller.

Where a controller is installed ~~as part of an alteration~~, it shall conform to 6.1.6.10 through 6.1.6.15, and 6.1.7.4.

8.7.6.1.★3 Controller Replaced *(226/07)*

Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.1.★4 Relocation of Controller *(226/07)*

Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.1.★5 Addition of Soft Start *(226/07)*

Where there is an addition of a soft start feature the follow shall apply;

(a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3

(b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.1.★6 Power Efficiency Devices

Where there is an addition of power efficiency increasing devices the follow shall apply;

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,

(b) B44.1 certification for the new equipment.

8.7.6.2 Moving Walks

8.7.6.2.1 General Requirements.

A change in component parts that are interchangeable in form, fit, and function is not considered an alteration and need not comply with the requirements in this Section. See 8.6.3.1.

The addition of a component or a device that was not part of the original design is an alteration and must conform to the requirements of 8.7.6.2 for that device or component. When multiple driving machines per moving walk are utilized, operating and safety devices required by 8.7.6.2 shall simultaneously control all driving machines.

8.7.6.2.2 Relocation of Moving Walk.

Where a moving walk is relocated, it shall comply with 6.2.

8.7.6.2.3 Protection of Floor Openings. Any alteration to the floor openings for moving walks shall comply with 6.2.1.1.

8.7.6.2.4 Protection of Trusses and Machinery Spaces Against Fire.

Any alteration to the sides or undersides, or both, of movingwalk trusses and machinery spaces shall conform to 6.2.2.1.

8.7.6.2.5 Construction Requirements

(a) Angle of Inclination. Alteration of a moving walk that increases the angle of inclination shall require conformance with 6.2.

(b) Geometry. Any alteration to the geometry of the moving walk components shall require conformance with 6.2.3.2.

(c) Balustrades. Any alteration to the balustrades shall require conformance with 6.2.3.3.

NOTE [8.7.6.2.5(c)]: The balustrade does not include the handrail.

8.7.6.2.6 Handrails.

An alteration to the handrails or handrail system shall require conformance with 6.2.3.2.3, 6.2.3.4, 6.2.6.3.10, and 6.2.6.4.

8.7.6.2.7 Treadway System

(a) An alteration to the treadway system shall require conformance with 6.2.3.2.3, 6.2.3.3.5, 6.2.3.3.6, 6.2.3.5, 6.2.3.6 [except as specified in 8.7.6.2.7(b)], 6.2.3.8, 6.2.3.9, 6.2.3.10.4, 6.2.3.11.4, 6.2.3.11.5, 6.2.3.12, 6.2.6.3.3, 6.2.6.5, and 6.2.6.3.9.

(b) The minimum width of the moving walk shall be permitted to be less than that required by 6.2.3.7. The existing width, if less than required by 6.2.3.7, shall not be decreased by the alteration.

8.7.6.2.8 Combplates.

An alteration of the combplates shall require conformance with 6.2.3.8 and 6.2.6.3.11.

8.7.6.2.9 Trusses and Girders.
Any alterations or welding, cutting, and splicing of the truss or girder shall conform to 8.7.1.4. Alterations shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10.1, and 6.2.3.11.1. The installation of a new moving walk into an existing truss shall conform to all of the requirements of 6.2.

8.7.6.2.10 Track System.
Any alteration to the tracks shall result in the moving walk's conforming to 6.2.3.9, 6.2.3.10, 6.2.3.11.1, and 8.7.1.4.

8.7.6.2.11 Rated Load and Speed.
Any alteration that increases the rated load or rated speed or both shall result in the moving walk's conforming to 6.2.

8.7.6.2.12 Driving Machine, Motor, and Brake

(a) Driving Machine. An alteration to the driving machine shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.3.14, 6.2.3.15, 6.2.4, 6.2.5.1, 6.2.5.3.1, 6.2.5.3.2, 6.2.6.3.4, and 6.2.6.3.8.
(b) Drive Motor. An alteration to the drive motor shall result in the moving walk's conforming to 6.2.3.10.2, 6.2.3.11.2, 6.2.3.11.3, 6.2.4, 6.2.5.2, 6.2.5.3.1, 6.2.6.3.2, 6.2.6.3.7, and 6.2.6.3.8.
(c) Machine Brake. An alteration to the machine brake shall result in the moving walk's conforming to 6.2.3.10.3, 6.2.3.11.2, 6.2.3.11.3 ~~6.2.3.12.3,~~ 6.2.5.3.1, and 6.2.5.3.2.

8.7.6.2.13 Operating and Safety Devices.
An alteration to or addition of operating and/or safety devices shall conform with the specific requirements within 6.2.6 for that device.

8.7.6.2.14 Lighting, Access, and Electrical Work.
An alteration to or addition of lighting, access, or electrical work shall conform with the specific requirements within 6.2.7 for that change.

8.7.6.2.15 Controller.
Where a controller is installed as part of an alteration, it shall conform to 6.2.6.9 through 6.2.6.14, and 6.2.7.4.

8.7.6.2.★1 Controller Replaced *(226/07)*
Where a controller is replaced it shall conform to 8.7.6.1.16.

8.7.6.2.★2 Relocation of Controller *(226/07)*
Where an escalator controller is relocated and requires disconnection and reconnection of field wiring, requirement 2.8.2 applies. The installation shall be tested to verify functionality of all circuits impacted by the relocation.

8.7.6.2.★3 Addition of Soft Start *(226/07)*
Where there is an addition of a soft start feature the following shall apply:

(a) for control systems built to B44-00 and later, 6.1.7.4, 6.1.6.10.1, 6.1.6.10.2, 6.1.6.10.3
(b) for control systems built prior to B44-00 6.1.7.4.

8.7.6.2.★4 Power Efficiency Devices
Where there is an addition of power efficiency increasing devices the following shall apply:

(a) 2.26.4.1 and 2.26.4.2 for the new equipment,
(b) B44.1 certification for the new equipment.

8.7.7 Alterations to Dumbwaiters and Material Lifts
8.7.7.1 Dumbwaiters and Material Lifts Without Automatic Transfer Devices
8.7.7.1.1 General. When any alteration is made to a dumbwaiter or material lift, all work performed as part of the alteration shall comply with 7.1 through 7.6.

8.7.7.1.2 Increase in Rated Load.
Where an alteration involves an increase in the rated load, the installation shall conform to either of the following:
(a) requirement 7.2, except 7.2.1 for hand and electric dumbwaiters
(b) requirement 7.3, except 7.3.4.1 for hydraulic dumbwaiters
(c) requirement 7.4
(d) requirement 7.5
(e) requirement 7.6.

8.7.7.★1 Alteration to Freight Platform Lifts Type A
Where an alteration is made to a Type A freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts, except any reference to in-car operating devices and riders shall not apply.

8.7.7.★2 Alteration to Freight Platform Lift Type B
Where an alteration is made to a Type B freight platform lift, the alteration shall conform to the applicable requirements of 7.4, 7.5 and 7.6 for Type B material lifts.

8.7.7.2 Addition of Automatic Transfer Device.
Where an automatic transfer device is installed on an existing elevator or dumbwaiter, the resultant combination of material lift or dumbwaiter with automatic transfer device shall conform to Part 7.

8.7.7.3 Material Lifts and Dumbwaiters With Automatic Transfer Devices
8.7.7.3.1 Where any alteration is made to a material lift or dumbwaiter with an automatic transfer device, the entire installation shall comply with 7.7 through 7.10.

8.7.7.3.2 Where an automatic transfer device is removed from a dumbwaiter or material lift and is not replaced, the installation shall conform to 7.1 to 7,3 for dumbwaiters and 7.4 to 7.6 for Materials Lift Without Transfer Device.

8.7.7.3.3 Where a material lift is altered to be an elevator, it shall comply with Part 2 or Part 3.

8.7.7.3.4 Where a material lift or dumbwaiter with an automatic transfer device is altered to a dumbwaiter, it shall comply with 7.1 through 7.3.

3.5 Rated Load

3.5.1 For the purpose of this Document and subsection 31.(3) of the Regulation, “rated load” in the code adopted in subsection **3.1**, means “maximum capacity”.

3.6 Rope Clips

3.6.1 Rope clip fastenings shall not be used when suspension ropes are changed on an existing elevator.

3.7 Access to Machine Rooms and Spaces

3.7.1 Every elevator shall have a safe and convenient access to its machine room and machinery space. [CAD Amendment 246-11]

3.8 Requirements for Existing Passenger and Freight Elevators *(245/10) (173/02)*

3.8.1 Notwithstanding section 4 of the Regulation, every existing passenger and freight elevator that was installed before the 1st day of May, 1981 and that does not have car safeties, a speed governor, a braking system and hoistway-door interlocks or hoistway-door locks and contacts conforming to the requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition, shall conform to the applicable requirements of CSA B44, Safety Code for Elevators – edition 1975 as amended in 1977 and 1980, or any subsequent edition. [CAD Amendment 246-11]

3.8.2 Not later than May 1, 2014, all elevators equipped with a car top that is intended to serve as a platform for a worker, "where the perpendicular distance between the edges of the car enclosure top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance and on sides where there is no hoistway enclosure", shall be equipped with a guardrail in conformance with 2.10.2 as modified by 2.14.1.7 of the code adopted in **3.1** [CAD Amendment 250-11]

3.8.3 All existing passenger and freight elevators with full or partial car tops shall be equipped with a car top maintenance station and a structurally sound working surface. [CAD Amendment 250-11]

3.9 Requirements for Existing Dumbwaiters or Freight Platform Lifts *(253/12)*

3.9.1 Every existing power dumbwaiter or freight platform lift that was installed before the 1st day of May, 1981 and that does not have hoistway-door interlocks or hoistway-door locks and contacts shall be provided with a locking device that shall prevent the device from moving until the door or gate is closed and that shall prevent the door or gate from being opened unless the device is at the corresponding landing. [CAD Amendment 246-11]

3.9.2 All type 'A' and type 'B' freight platform lifts and type 'B' material lifts utilizing hoistway door mechanical lock and contracts shall have their mechanical lock and contacts upgraded to interlocks by May 1, 2014. New or modified circuits relevant to this upgrade shall be arranged such as to comply with A17.1-2010/B44-10, requirement 2.26.9.3.1(a) and (b). When a single ground or failure as specified in 2.26.9.3.1 occurs, the car shall not be permitted to restart.

3.10 Platform Apron Requirements *(166/01)*

3.10.1 Every passenger elevator installed before the 1st day of May, 1981 and currently operated in an apartment building, condominium apartment building or educational institution and every passenger elevator installed after that date in any building, shall be provided at the entrance side with a smooth apron made of metal not less than 1.5 millimetres thick, or made of material of equivalent strength and stiffness, reinforced and braced to the car platform such that:

(a) it does not extend less than the full width of the widest hoistway door opening;

(b) it has a straight vertical face, extending below the floor surface of the car-platform, of not less than 1,200 millimetres, except that for an existing elevator this may be reduced where the hoistway pit is not deep enough to accommodate a larger vertical face;

(c) its lower portion is bent back at an angle not less than 60 degrees and not more than 75 degrees from the horizontal; and

(d) it is securely braced and fastened in place to withstand a constant force of 500 newtons applied at right angles to and:

(1) at 450 millimetres from the top without deflecting more than six millimetres, or

(2) at 1,150 millimetres from the top without deflecting more than 50 millimetres,

and without permanent deformation.

3.10.2 Every passenger elevator referred to in subsection **3.10.1** shall have a pit deep enough to accommodate the apron required in subsection **3.10.1**, and to provide a minimum twenty-five millimetres clearance between the bottom edge of the apron and the pit floor when the car is on fully compressed buffers.

3.10.3 Traction drive Limited-Use/Limited-Application (LULA) elevators serving 3 or more floors shall conform to **3.10.1** and **3.10.2**, otherwise 2 stop traction, hydraulic or roped hydraulic drive Lulas' are exempt from these requirements provided that;

(a) a supplementary owners report for Lula elevators has been filed with the Director and;

(b) a permanent and readily visible sign viewable from the hall landing has been provided on the apron in lettering not less than 16 mm in height, that advises;

(1) of a potential fall hazard below the car,

(2) to lower the car prior to rescue and,

(3) that lower and rescue shall be undertaken by trained personnel only. [CAD Amendment 246-11]

3.11 Door Safety Retainers for Single Slide Doors *(61/88, 97/92,109/93)*

3.11.1 Every existing passenger elevator with single slide landing doors shall be equipped with safety retainers and shall ensure that;

(a) the retainer shall withstand without detachment or permanent deformation, a force of 1000 Newtons applied upward at any point along the width of the door panel and, while this force is maintained, an additional force of 1000 Newtons applied perpendicular to the door at its centre over an area of 300 x 300 mm

(b) the installation of retainers was done in accordance with instructions supplied by the manufacturer of the door safety retainers. [CAD Amendment 246-11]

3.12 Low Pressure Switch *(160/01)*

3.12.1 Every hydraulic elevator where the top of the cylinder when at its highest elevation is above the storage tank, shall be equipped with a low pressure switch to prevent operation of the lowering valve(s) and other requirements specified by the code at time of installation or alteration. [CAD Amendment 246-11]

3.13 Hoarding Between Hoistways Required

3.13.1 No elevator shall be operated where it is located adjacent to a hoistway of another elevating device in which installation or alteration work is being performed and where the operation of the elevator may be hazardous to the persons performing the work or persons inside the elevator, unless the hoistways are separated by a structure supported and braced so as to not deflect into the code required running clearance of the adjacent operating car or its counterweight [CAD Amendment-261/13].

3.13.2 Where the separating structure referred to in subsection **3.13.1** is made of perforated material, it shall reject a ball 25 millimetres in diameter. [CAD Amendment-261/13].

3.14 Installation Number

3.14.1 Every elevator shall have its installation number engraved or painted on the car crosshead or other conspicuous location on the top of the car, visible from the point of access.

3.15 Attendant Operation

3.15.1 Where an elevator is controlled from one location only, an attendant shall be stationed at the controls while the elevator is available for operation.

3.16 Persons Permitted to Ride

3.16.1 Except for a freight elevator-P, no person other than an attendant(s) or freight handler(s) shall ride or be permitted to ride in a freight elevator.

3.16.2 No person other than an attendant(s) or a designated freight handler(s) shall ride or be permitted to ride in a freight platform lift-Type B or a material lift Type-B. [CAD Amendment 246-11]

3.16.3 No person shall ride or be permitted to ride on a freight platform lift-Type A or a material lift Type-A. [CAD Amendment 246-11]

3.16.4 Despite **3.16.1** and **3.16.2**, a person(s) may remain inside a motor vehicle that is on an elevating device if the device is designated as a Class B- motor vehicle loading, and the device is operated by a trained attendant or operator. [CAD Amendment 246-11]

3.17 Escalator Caution Signs

3.17.1 Every escalator installed prior to March 23, 2002 shall be fitted with a caution sign that meets the requirements of clause 8.10 of CSA B44-94; Safety Code for Elevators, as amended by Supplements B44S1-97 and B44S2-98. [CAD Amendment 246-11]

3.18 Repositioning of an Escalator

3.18.1 Despite subsection **2.5** of this Document repositioning of an escalator within the same building or premises shall not constitute a new installation.

3.19 Escalator Brake Requirements *(85/91) (247/11)*

3.19.1 Escalators installed under B44-M90 or later editions of the code shall have a data tag as required by the code at the time of the installation. Escalators installed under a prior code edition shall have a data tag in conformance with **3.19.2**.

3.19.2 Every escalator shall have a permanent and readily visible data plate affixed to the brake or machine, indicating:

(a) the method of checking the brake setting and as a minimum shall include:

(1) the minimum torque, or

(2) the maximum spring length, or

(3) other checking method; and

(b) the maximum no-load stopping distance as related to the torque, spring length, or other method, and

(c) the testing procedure and interval. [CAD Amendment 246-11]

3.19.3 Every escalator shall have device specific brake adjustment procedures or instruction that provides instruction for the maintenance mechanics to correctly adjust and check the escalator brake(s).

3.19.4 The instructions or procedures shall

(a) be posted or made otherwise available in the upper escalator pit;

(b) include detailed instructions for setting the escalator brake;

(c) include all information provided on the existing brake data tag;

(d) be of durable material such that the information contained therein will remain legible;

(e) as a minimum include the maximum no-load stopping distance as related to the manufacturer's specified brake torque, spring length etc. Where this information is missing and cannot be obtained from the original manufacturer, it is acceptable for a professional engineer in the province of Ontario to determine the no-load stopping distance; and

(f) include the method of checking the brake setting such as the 'minimum torque', or the 'maximum spring length', or other method.

3.20 Fire Code Retrofits *(60/88, 105/93, 127/96, 149/99, 219/07)*

3.20.1 Where an alteration is in response to a Fire Code Retrofit order, **all** elevators in the group, affected by the retrofit order shall be provided with:

(a) manual phase one recall operation

(b) automatic phase one recall operation ~~if required by the Ontario Building Code at time of installation~~.

(c) phase two in-car operation

(d) Firefighter's Emergency Operation conforming to any code edition after and including CAN/CSA – B44-00 Update No. 2 Safety Code for Elevators, but in no case shall the code edition be less than the code under which the device was originally installed.

(e) FEO-K1 keys for all FEO switches.

(f) An FEO-K1 key for each switch location. [CAD Amendment 250-11]

3.20.2 Where Fire Alarm Initiating Devices need to be added to facilitate recall their installation shall be as required in 2.27.3.2.2(a) through (c) as revised in this CAD.

Note: Where a yellow hat designation was provided on an elevator that received an FCR upgrade, the yellow hat designation is required to remain, even if a subsequent alteration occurred that introduced a newer form of FEO Operation; switch markings, however, shall be upgraded from yellow to red.

3.21 Escalator Stopping Distance Check *(247/11)*

3.21.1 All escalators shall have a "Daily Stopping Distance Check" sign posted at each end of the escalator near the stop button or start switch.

3.21.2 The check sign shall communicate the following:

(a) Stop the empty running escalator. If the escalator travels more than " X" step(s) before stopping, do not restart. Barricade and call for service.

(1) The value of "X" in 3.21.2(a) shall be replaced with 1 or 2, and shall indicate the permitted number of steps, rounded to the nearest whole number, that was determined by the elevator contractor, that reflects the needed no load stopping distance required by the escalator brake.

3.21.3 The person(s) authorized by the owner to carry out the daily prestart checks of the escalator shall also perform the daily stopping distance check to verify the escalator braking capability aligns with the information contained on the stopping distance check sign. [CAD Amendment-261/13]

Summary of Pending Compliance Due Dates

Subject	Reference	Due Date
MCP for all existing devices (B44.2 no longer applicable)	CAD 3.3.2(b)	March 31, 2014
Single bottom cylinders	CAD 3.3.4 see 8.6.5.9	May 1, 2015
Escalators to meet Step/Skirt Performance Index	CAD 3.3.4 see 8.6.8(b)	May 1, 2015
4" railing clearance on new & alteration installs	CAD 3.1.1(c) (10)	November 1, 2013
Car top railing requirements	CAD 3.8.2	May 1, 2014
Material lifts/Freight platform lifts require interlocks	CAD 3.9.2	May 1, 2014

Part 4

4 MANLIFTS

4.1 Applied Code *(174/02)*

4.1.1 Every newly installed or altered manlift shall conform to the requirements of CSA Standard B311-02, Safety Code for Manlifts and any applicable changes set out in this document.

4.1.2 Conformance to Appendix A, B, & C is mandatory.

4.1.3 Section 7.32.9 of B311 applies to all Power-Type Manlifts. Top-of-car operating stations are not limited to lifts with wireless control and shall be provided on each power-type manlift.

4.1.4 Section 7.32 of B311: Note that requirements of section 7.36, Control and Operating Circuits, apply to "Wireless Control"as well. [CAD Amendment 246-11]

4.2 Top of Car Requirements for Power Type Manlift

4.2.1 Every power type manlift shall be provided with,

(a) a top-of-car operating device; and

(b) a protective guard railing on the top of the car.

4.3 Inspection and Testing of Safety Brake

4.3.1 The inspection and testing of a safety brake on an endless belt type manlift required in subsection 33.(2) of the Regulation shall ensure compliance with clause 5.2.2.3 of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

4.3.2 The inspection and testing of a safety device and overspeed governor on a counter-balanced or power type manlift required in subsection 33.(3) of the Regulation shall ensure compliance with clause 6.11.8 or 7.6.8.2, as the case may be, of CSA Standard B311-M1979, Safety Code for Manlifts and Supplement No. 1 1984.

4.4 Authorized Persons

4.4.1 No person shall use a manlift except those persons designated by the owner of the manlift as being properly trained in its operation and use.

4.5 Maintenance Log Book

4.5.1 The log book shall, as a minimum, contain the following information :

(a) Building name and/or address,

(b) TSSA or MCCR installation number,

(c) Contractor's and Owner's name,

(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,

(f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 246-11]

4.5.2 Where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted repaired or replaced. [CAD Amendment 246-11]

4.6 Location of the Log Book

4.6.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 246-11]

Part 5

5 PASSENGER ROPEWAYS AND PASSENGER CONVEYOR [CAD Amendment 246-11]

5.1 Applied Code

5.1.1 Every passenger ropeway and passenger conveyor shall conform to the requirements of CSA-Z98-07, Passenger ropeways and passenger conveyors, including Update No. 1 Z98-07 February 2010, and any additional applicable changes set out in this document.

5.1.2 Annexes "A, B, C, D, E, F, G, H, I, J and K" referenced in the Z98 standard are also adopted and apply to "post-2011" installations (as defined in **5.3**).

5.2 General Technical Requirements for Passenger Ropeways and Passenger Conveyors

5.2.1 The general technical requirements in Part 2 of the Code Adoption Document do not apply to passenger ropeways and passenger conveyors.

5.2.2 Passenger Ropeways and Passenger Conveyors shall conform to the following general technical requirements,

(a) Electrical equipment shall conform to the Ontario Electrical Safety Code as amended from time to time;

(b) In addition to CSA-Z98-07 requirements, welding on a passenger ropeway or passenger conveyor shall conform to the requirements of CSA W59-03 (R2008) Welded Steel Construction (Metal Arc Welding);

(c) Where a passenger ropeway or passenger conveyor is relocated it shall meet the requirements of **5.5** for post-2011 installations;

(d) Where an alteration is made to a passenger ropeway or passenger conveyor the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of **5.5**.

5.3 Definitions

5.3.1 In Part **5** of this document,

(a) "safety circuits" means E/E/PES of a passenger ropeway or passenger conveyor having an ability to carry out the functions necessary for mitigation of unacceptable failures by preventing movement or limiting speed of passenger ropeway or conveyor.

(b) NOTE:
1) Preventing movement may require a passenger ropeway or conveyor to stop or to prevent unwanted start-up
2) Limiting speed may require appropriate acceleration, deceleration or speed.

(c) "electrical/electronic/programmable electronic system" or "(E/E/PES)" means a system for control, protection, or monitoring based on one or more electrical/electronic/programmable electronic (E/E/PE) devices, including all elements of the system such as power supplies, sensors and other input devices, data highways and other communication paths, and actuators and other output devices.

(d) “electrical/electronic/programmable electronic” or “(E/E/PE)” means that based on electrical (E), and/or electronic (E), and/or programmable electronic (PE) technology.

(e) “programmable electronic” or “(PE)” means that based on computer technology which may be comprised of hardware, software, and of input and/or output units

(f) “pre-2011” means a passenger ropeway or passenger conveyor for which a design submission (initial or alteration) was registered before October 1, 2011.

(g) “post-2011” means a passenger ropeway or passenger conveyor for which a design submission (initial or alteration) was registered on or after October 1, 2011.

5.4 Requirements for PRE-2011 Passenger Ropeways and Passenger Conveyors

5.4.1 In the case of pre-2011 passenger ropeways or passenger conveyors the application of the code adopted in **5.1** is restricted to:

(a) Clause 11 “Ropes and chains” as further detailed in **5.4.2**;
(b) Clause 12 “Inspection, testing, and maintenance” as further detailed in **5.4.3**;
(c) Clause 13 “Operation of passenger ropeways and passenger conveyors” as further detailed in **5.4.4**;
(d) Annex’s “B, C, D, E, F, G ,H, I ,J and K”, and any changes set out in **part 5** of this document, and
(e) any applicable requirements in **5.16** though **5.31**.

5.4.2 The following requirements within Clause 11 “Ropes and chains” apply to “pre-2011” installations:

(a) Clause 11.8.2 “Wire rope tows”,
(b) Clause 11.9.5 “Wire rope clips and thimbles”
(c) Clause 11.10 “Non-destructive testing of ropes, sleeves, and sockets”,
(d) Clause 11.11 “Wire rope maintenance”,
(e) Clause 11.12 “Protruding broken wires”,
(f) Clause 11.13 “Replacement of repair of wire rope”,
(g) Clause 11.14 “Locked coil track rope broken wires”,
(h) Clause 11.15 “Wire rope log”,
(i) Clause 11.16 “Splice Certificate”,
(j) Clause 11.18 “Maintenance” for chains used in tensioning systems.

5.4.3 The requirements of Clause 12 “Inspection, testing, and maintenance” shall be complemented and supplemented with a maintenance manual produced in accordance with clause 4.38.4 “Maintenance manual”.

5.4.4 The requirements of Clause 13 “Operation of passenger ropeways and passenger conveyors” shall be complemented and supplemented with the following:
(a) an operations manual produced in accordance with clause 4.38.3 “Operations manual”
(b) loading and unloading areas shall be maintained during the operation of passenger ropeways and passenger conveyors in accordance with clause 4.26 “Loading and unloading areas”

5.5 Requirements for POST-2011 and Altered Passenger Ropeways and Passenger Conveyors

5.5.1 Post-2011 and altered passenger ropeways or passenger conveyors, shall conform to the code adopted in **5.1**, except as modified by **5.6** to **5.31** excluding **5.17.**

5.6 Protection Against Overspeed for Surface Ropeways & Conveyors

5.6.1 Surface ropeways and conveyors shall incorporate protection against the possibility of the device speed exceeding more than 10% of the maximum design speed.

5.7 Z98 clause 4.23.2.4 "Evacuation drive"

5.7.1 Clause 4.23.2.4 of Z98 is revoked and replaced with the following;

CAD 4.23.2.4
The emergency brake, antirollback device, deropement switches required in clauses 4.30.6.1 through 4.30.6.4 inclusive, and emergency stops required in clause 4.30.5 shall be capable of operation while the evacuation drive is in operation.

5.8 Z98 clause 4.24.3.2(c) "Emergency Brake"

5.8.1 Clause 4.24.3.2(c) of Z98 is revoked and replaced with the following;

CAD 4.24.3.2(c)
(c) 15% overspeed, as detected from the speed of the drive sheave or haul rope; and

5.9 Z98 clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" (General Applicability)

5.9.1 The general applicability of clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" shall not apply if all applicable prescriptive requirements of the code are met.

5.9.2 Any variance to or deviation from the prescriptive requirements related to the design of safety circuits *(see definitions)* shall comply with clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.9.3 New configurations or novel designs which cannot be precisely classified in CSA Z98-07, shall ensure that their safety circuit designs comply with 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.9.4 Where feature(s) of safety circuits for a passenger ropeway or conveyor is not specified in CSA Z98-07, safety circuits shall comply with 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations".

5.10 Z98 clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" (Compliance to)

5.10.1 Where conformance to clauses 4.30.1.8 "Safety levels" and 4.30.1.9 "Safety Considerations" is required as specified in **5.9**, compliance shall be demonstrated as required in **5.10.2** or **5.10.3**.

5.10.2 Safety circuits function shall conform to highest requirement class (RC/AK) specific to hazard situation/safety function tabulated in Annex C of EN 13243:2004 or,

5.10.3 Safety circuits function shall conform to EN 12929:2004, EN 13243:2004 and EN 13223:2004 or equivalent.

5.11 Z98 clause 4.30.1.11 "Safety circuits"

5.11.1 Clause 4.30.1.11of Z98 is revoked and replaced with the following;

CAD 4.30.1.11 "Safety circuits"
Safety circuits shall incorporate redundancy and monitoring mechanisms. Monitoring of redundancy incorporated in safety circuits shall be done as a minimum, once per day. Relays and contactors used in safety circuits shall have force guided, mirrored, or mechanically linked contacts for monitoring purposes. Redundancy in safety circuits using software systems shall use diversification to avoid common mode failure.

5.12 Z98 clause 4.30.1.13 "Contactors, relays or magnetically operated switches"

5.12.1 An acceptable deviation from clause 4.30.1.12 "Redundancy" as allowed by Z98 shall comply with **5.10.3**.

5.13 Z98 clause 4.30.8.3 "Photoelectric safety switches"

5.13.1 An acceptable use of photoelectric safety switches as allowed by Z98 shall comply with **5.10.2** or **5.10.3.**

5.14 Z98 clause 4.32.3 "Two-Way Communication"

5.14.1 Clause 4.32.3 "Two-Way Communication" of Z98 is revoked and replaced with the following;

CAD 4.32.3
An audible two-way voice communication system shall be provided for machine rooms when the ropeway can be operated from those areas.

5.15 Z98 clause 5.10.2(c) "Service Brake"

5.15.1 Clause 5.10.2(c) of Z98 is revoked and replaced with the following;

CAD 5.10.2(c)
(c) when a service stop in a cabin is actuated;

5.16 Z98 clauses 13.15.1 and 13.15.2 "Evacuation with evacuation drive"

5.16.1 Clause 13.15.1 and 13.15.2 of Z98 is revoked and replaced with the following;

CAD 13.15.1
The deropement switches and emergency stops required in clause 4.30.5 shall be operable while operating with the evacuation drive.

CAD 13.15.1
If deropement switches and/or emergency stops are not operational due to a malfunction, the ropeway may be evacuated with the evacuation drive if the;
(a) full length of the ropeway is kept under surveillance; and
(b) observers are in communication with the operator throughout the evacuation.

5.17 Single Failure Protection

5.17.1 Every passenger ropeway installed before June 1, 2001 shall be so constructed and installed that the failure of any single, magnetically operated switch, contactor containing metal-to-metal contacts or relay to release does not prevent the passenger ropeway from stopping in response to an emergency stopping device nor permit the passenger ropeway to start or run if any emergency stopping device is activated.

5.17.2 Every passenger ropeway installed on or after June 1, 2001 that is considered a “pre-2011” device shall be so constructed and installed that none of the following events prevents the passenger ropeway from stopping in response to an emergency stopping device nor permits the passenger ropeway to start or run if any emergency stopping device is activated;

(a) the occurrence of a single ground;

(b) the failure of a single magnetically operated switch, contactor or relay;

(c) the failure of a single solid-state device; or

(d) a software system failure.

5.17.3 The devices used to satisfy the requirements of **5.17.2** shall be checked prior to starting of the passenger ropeway, as a minimum, once per day.

5.17.4 Where a single ground is detected as set out in clause **5.17.2(a)** or an event referred to in **5.17.2(b**) to **5.17.2 (d)** is detected, the passenger ropeway shall not restart.

5.17.5 Implementation of redundancy in a passenger ropeway by a software system is permitted provided that there is diversification to avoid common mode failure.

5.18 Log Books

5.18.1 In addition to data specified in section 34 of the Regulation, the log book of a passenger ropeway or passenger conveyor shall contain,

(a) all data required in the code adopted in section **5.1** of this document;
(b) all data on any increases or decreases to the mass of the carriers;

(c) a record of all pre-season inspections carried out in accordance with section **5.19** of this document;

(d) a record of all major and minor alterations; and

(e) a record of all five-year periodic tests referred to in section **5.30** of this document.

5.18.2 In addition to the requirements of subsection 34.(2) of the Regulation,

(a) non-destructive testing (NDT) records shall be kept from a historical reference date of October 1, 2001 or from the date any passenger ropeway or passenger conveyor was commissioned if after October 1, 2001, until the passenger ropeway or passenger conveyor is dismantled.

(b) major and minor alteration records shall be kept until the passenger ropeway or passenger conveyor is dismantled.

(c) a record of all engineering and assessment reports referred to in **5.20** of this document shall be kept until the above-surface passenger ropeway is dismantled.

5.19 Preseason Inspection *(168/02)*

5.19.1 The holder of a licence for a passenger ropeway shall perform a preseason inspection prior to the start of each ski season to ensure that the lift is in compliance with requirements as set out in **part 5** of this document.

5.19.2 The results of the inspection shall be recorded in a form acceptable to the director.

5.20 Aging Ski Lift Assessment

5.20.1 Every above-surface passenger ropeway shall be subjected periodically to a complete engineering review and assessment to ensure its continued operational safety in accordance with guidelines set by the director. Note: see Director's guideline 224/07.

5.21 Requirements to Limit Tube Tow Detachment *(178/03 & 182/03)*

5.21.1 The word "tube(s)" has the same meaning as "secondary carrier(s)" used in Z98.

5.21.2 In addition to Parts **5.4** and **5.5**, tube tows shall comply with the requirements of **5.21.3** through **5.21.7**

5.21.3 The designer shall specify the method to verify the haul rope tension.

5.21.4 Connection of Tubes to Towing Attachments

(a) Manufacturers/designers of tube tows shall verify that the type of tube attachment connection is compatible for their towing attachment design.

(b) Manufacturers/designers of tube tows must allow for a safety margin that will ensure that the tubes will not detach as a result of changes in the tension force on the tether connecting the towing attachment to the tube. Changes of tension force on tether due to uneven tow path, foreseeable movement of passengers in tubes, passengers feet dragging on snow while seated in an acceptable position in tubes and acceleration/deceleration feature of tube tows shall be considered.

(c) For tube tows with automatic detachment at a predetermined unloading point, manufacturers/designers of tube tows shall specify minimum and maximum weight restrictions of tube users.

5.21.5 Tubes

(a) Tube sizes shall match tow path design so that a detached tube will slide clear of the uphill path of any of the following tubes.

(b) Tubes shall be designed to accommodate the passenger size.

5.21.6 Towing attachments

(a) The length of tube towing attachment shall be designed to maintain a minimum operational clearance from the snow along the tube tow-path and hauling rope while the tube is being hauled along the tow path.

(b) Factor of safety of all attachments to the haul rope and components for pulling tubes shall be based upon their impact strength at low temperatures.

(c) The designer/manufacturer shall specify the maximum tension force on all attachments to the haul rope and components for pulling tubes along their tow path.

(d) The designer/manufacturer shall specify procedures for inspection of all attachments to the haul rope and components for pulling tubes to verify their safety. Inspection procedures shall include criteria to evaluate the necessity of their replacement.

5.21.7 Tow Path, Crossfall and Containment Barriers

(a) Means to protect passenger in a tube against contacting any part of tube tow including grips shall be provided along the entire length of the tow path.

(b) Means shall be provided to keep tubes on the pre-defined tow path.

5.22 Alterations

5.22.1 Where an alteration is made to a passenger ropeway or passenger conveyor the altered components and functions and those components and functions that are affected by the alterations shall conform to the requirements of **5.5**.

5.22.2 One or more of the following actions on a passenger ropeway or passenger conveyor shall constitute a major alteration:

(a) an increase or decrease in,

(1) the rated speed of the carriers,

(2) the maximum capacity of the ropeway;

(b) an increase or decrease by more than ten per cent, or an accumulated increase or decrease by more than ten per cent, of the dead weight of the carriers or counter-weight system;

(c) an increase or decrease in the length or rise of the travel of the passenger ropeway;

(d) a change,

(1) in the carrier design or manufacturer,

(2) in the line sheaves and sheave assemblies design,

(3) in the type of power supply to the machine,

(4) in the type of driving machine,

(5) in the location of a machine or tensioning system,

(6) in the type of tensioning system,

(7) that would result in a reclassification of the passenger ropeway,

(8) in tower length or an addition of a new tower.

(e) a change in,

(1) the method or type of operation,

(2) the method or type of motion control

(3) location of the controller

(f) a replacement of the controller,

(g) an alteration to the controller, other than an alteration to the motor starters.

5.22.3 Any action or work performed on a passenger ropeway that results in a change to the original design or the operational characteristics of the passenger ropeway or affects the inherent safety of the passenger ropeway and not listed in subsection **5.22.2** shall constitute a minor alteration.

5.22.4 Minor alterations shall be reported and inspected as required by section 19 of the Regulation.

5.23 Bar Lift Requirements

5.23.1 Every bar lift shall,

(a) be equipped with an anti-rollback device in accordance with 7.8 of Z98;

(b) have a tow path designed and maintained in accordance with 7.2.4 of Z98;

(c) be so constructed that maximum stopping shall be maintained in accordance with 7.7.1.2 of Z98 ; and

(d) be so constructed that, where a brake is used in order to obtain conformance with the requirement of subsection **5.23.1(c)** the brake shall conform to code adopted in **part 5.**

5.24 Rope Tow Requirements

5.24.1 Every rope tow shall,

(a) be equipped with an anti-rollback device in accordance with 8.13 of Z98;

(b) have a tow path designed and maintained in accordance with 8.2.5 of Z98;

(c) be so constructed that maximum stopping shall be maintained in accordance with 8.12.1.2 of Z98 ; and

(d) be so constructed that, where a brake is used in order to obtain conformance with the requirement of subsection **5.24.1(c)** the brake shall conform to code adopted in **part 5.**

5.25 Fibre Rope Tow Requirements

5.25.1 The return rope on a fibre rope tow shall have vertical clearances in accordance with 8.4.1 of Z98.

5.26 Chair Lift or Gondola Lift Requirements

5.26.1 Every chair lift or gondola lift shall,

(a) have a service brake that is located in accordance with 4.24.2.1 of Z98;

(b) be so equipped that the evacuation drive that drives the circulating rope is rendered inoperative in accordance with section **5.7 (CAD 4.23.2.4)**

(c) be equipped with a readily available work carrier in accordance with 4.27.10 and Annex B of Z98.

5.27 Carrier Grip Requirements

5.27.1 Where a work carrier is affixed to a lift line by means of rope grips that use friction as a gripping method, rope grips shall be installed in accordance with the code adopted in **part 5.**

5.27.2 A grip referred to in subsection **5.27.1** shall be so designed so as not to cause any damage to the hauling rope sheave, bullwheel or the liners of the sheave or bullwheel in accordance with the code adopted in **part 5**.

5.28 Restraining Bar Requirements

5.28.1 Each chair of a chair lift shall be equipped with a restraining device in accordance with 6.13.2 of Z98.

5.29 Haul Rope Retention on Chairlifts

5.29.1 Support, hold-down, and combination sheave assemblies on all chair lifts shall meet the requirements of the code adopted in **part 5**.

5.30 Load Test Requirements *(111/93)*

5.30.1 All above-surface passenger ropeways shall be load-tested periodically at intervals not exceeding five (5) years. The periodic load testing of the ropeway shall be carried out under the direction and supervision of the designer/manufacturer of the ropeway or a qualified professional engineer.

5.30.2 The results of five-year periodic tests shall be performed in accordance with the code adopted in **part 5** and recorded on the form provided in Annex H of Z98.

5.30.3 Original copies of the test shall be signed by either the designer/manufacturer of the ropeway or a qualified professional engineer and shall be kept on site in the log book.

5.31 Manufacturers/Designers Bulletins

5.31.1 Manufacturer(s) of passenger ropeway(s) or conveyor(s) shall inform owners about the requirements associated with their safety bulletins or alerts in addition to the requirement of Section 35 of the Regulation.

5.31.2 In addition to the requirement of Section 35 of the Regulation, owner(s) of passenger ropeway(s) or conveyor(s) shall inform manufacturer(s) about findings which may require the issuing of a safety bulletin or alerts.

5.31.3 Owners are responsible to carry out the requirements of manufacturer's safety bulletin or alerts.

Part 6

6 CONSTRUCTION HOISTS

6.1 Applied Code [CAD Amendment 216-07]

6.1.1 Every construction hoist shall conform to the following:

(a) workers' rail guided construction hoists shall conform to CAN/CSA Standard Z185-M87(R2001), Safety Code for Personnel Hoists; [CAD Amendment 216-07]

(b) workers' rope-guided construction hoist shall conform to, American National Standard ANSI/ASSE A10.22 – 2007 Safety Requirements for Rope-guided and Non-guided Workers' Hoist; and [CAD Amendment 216-07]

(c) material construction hoist, CSA Standard Z 256-M87(R2006), Safety Code for Material Hoists, [CAD Amendment 216-07]

and any applicable changes set out in this document. [CAD Amendment 246-11]

6.2 Rated Load

6.2.1 For the purpose of this Document and subsection 31.(3) of the Regulation, "rated load" or "rated loading" in the codes referred to in section **6.1** means "maximum capacity".

6.3 Continuously Controlled by Power

6.3.1 Every construction hoist shall be so designed that the car movement in both the up and down direction is continuously controlled by power.

6.4 Broken Rope Safety

6.4.1 A material construction hoist that is equipped with a broken rope type safety shall not be registered unless a type test indicates that the safety is capable of stopping the car when it is free falling with its rated load.

6.5 Limitation on Speed

6.5.1 Where the load-carrying unit of a workers' rope-guided construction hoist passes through a restricted area at a platform or floor, a control device that positively and automatically lowers the speed of the load-carrying unit to that specified in the related design submission while the load-carrying unit passes through the restricted area shall be installed on the hoist, except where the design submission indicates that no speed limitation is required.

6.5.2 In lieu of the control device referred to in subsection **6.5.1**, an operator utilising a system of signals may be used to manually control the speed of the hoist.

6.6 Attendant Operation

6.6.1 Every workers' rail-guided construction hoist, shall while in operation, be attended by an attendant who shall be stationed in the load-carrying unit, and who shall operate the construction hoist and also supervise the loading, passage and unloading of persons and freight.

6.6.2 Every material construction hoist shall while in operation be,

(a) attended by one or more attendants stationed at each location where freight is being loaded or unloaded; and

(b) operated by,

(1) an attendant stationed at the location of the operating devices, provided that the operating devices can be automatically rendered inoperative should an unsafe condition for operation of the construction hoist exist, or

(2) an operator stationed at the driving unit where the driving unit and its operating devices cannot automatically be rendered inoperative should an unsafe condition for operation of the construction hoist exist.

6.6.3 Subsections **6.6.1** and **6.6.2** apply with necessary modifications to the providing of attendants and operators for workers' rope-guided construction hoists.

6.7 Up Overspeed Protection

6.7.1 Every workman's construction hoist that is equipped with a counterweight having a mass greater than the mass of the empty car shall be provided with a means for protecting against uncontrolled car speed in the up direction and such means shall conform to the following:

(a) It shall detect any uncontrolled movement of the car prior to or at least when the car reaches a predetermined overspeed and shall cause the car to stop prior to the time when the counterweight strikes its buffers, or at least reduce car speed to the speed for which the buffers are designed.

(b) It shall be capable of performing as required in paragraph (a) without assistance from any hoist component which solely without built in redundancy, controls the speed, or deceleration, or stops the car during normal operation.

(c) It shall not develop an average retardation of the car in excess of 9.81 m/sec^2 during the stopping phase.

(d) It shall prevent uncontrolled movement of the car through control of the speed of, and acting upon the,

(1) car;

(2) counterweight;

(3) suspension or compensating rope system; and

(4) drive sheave, provided that the traction between the suspension ropes and the drive sheave are continuously monitored and the construction hoist is automatically removed from service when the rope slippage exceeds a predetermined amount.

(e) When it is activated or during the stopping phase, it or another hoist component shall cause the power supply of the driving machine to be interrupted.

(f) It shall be capable of performing at least ten operations without any adjustments.

(g) All components that require periodic examination and maintenance for the purpose of maintaining their operational reliability, shall be readily accessible.

(h) Its performance shall be checked during the initial and periodic inspections unless its performance reliability is substantiated otherwise.

(i) It shall be provided with a making plate indicating maximum capacity for which it may be used and the speed at which it is set to operate.

6.8 Additional Requirements for Workers' Rail Guided Construction Hoists [CAD Amendment 216-07]

6.8.1 In addition to the requirements of **6.1.1(a)**, workers' rail-guided construction hoists shall conform to the following:

(a) Clause 14.4.2 of CAN/CSA-Z185-M87 (R2001) shall be replaced with the following;

(1) The occurrence of a single ground or a software system failure or the failure of

a) a switch which does not have contacts that are positively separated;

b) a contactor;

c) a relay; or

d) a solid state device;

shall not render any electrical protective device ineffective.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Clause 18.1.1(c) of CAN/CSA-Z185-M87 (R2001) shall be replaced with:

Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

(e) Workers' construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase. [CAD Amendment 216-07]

6.9 Additional Requirements for Workers' Rope-Guided Construction Hoists [CAD Amendment 216-07]

6.9.1 In addition to the requirements of **6.1.1(b)**, workers' rope-guided construction hoists shall conform to the following:

(a) The occurrence of a single ground or a software system failure or the failure of

(1) a switch which does not have contacts that are positively separated;

(2) a contactor;

(3) a relay; or

(4) a solid state device;

shall not render the, deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake ineffective.

Note: Requirements only apply to the circuits in which the deadman control switch, the limit switches which prevent overtravel, or the automatic friction brake are used and not to the devices themselves.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render the Deadman Control Switch, Limit Switches, or the Automatic Friction Brake ineffective and shall not cause the cage to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) All references to NFPA 70 (Clause 2.1, Clause 3.24, and Clause 4.13 of ANSI A10.22-2007) shall be replaced with Ontario Electrical Safety Code as referenced in **2.2.1(b)** of this document. [CAD Amendment 216-07], [CAD Amendment 246-11]

6.10 Additional Requirements for Material Construction Hoist [CAD Amendment 216-07]

6.10.1 In addition to the requirements of **6.1.1(c)**, material construction hoists shall conform to the following:

(a) Clause 15.3.2 of CAN/CSA-Z256-M87 (R2006) shall be replaced with the following;

(1) The occurrence of a single ground or a software system failure or the failure of

a) a switch which does not have contacts that are positively separated;

b) a contactor;

c) a relay; or

d) a solid state device;

shall not render any electrical protective device ineffective.

(b) Redundant software systems used to satisfy the requirements of **(a)** shall have a level of diversification sufficient to avoid common mode failures.

(c) Clause 19.1.3 of CAN/CSA-Z256-M87 (R2006) shall be replaced with:

Control equipment incorporating solid state devices and/or software systems in operating and control circuits shall be tested in accordance with the testing requirements of EN 12016:2004 by exposing it to interference levels at the test values specified for "safety circuits." The interference shall not render any electrical protective device ineffective and shall not cause the car to move. If enclosure doors or suppression equipment must remain installed to meet the above requirements, warning signs to that effect shall be posted on the control equipment.

(d) The normal terminal stopping device and final terminal stopping devices shall not control the same controller devices unless two or more separate and independent controller devices are provided, two of which shall complete both the driving-machine motor and the driving machine brake circuits in either direction of travel.

(e) Material construction hoists employing a two- or three-phase alternating-current driving machine motor, which is not driven from a direct current source through a static inverter, shall be provided with a means to inhibit the flow of alternating-current in each phase. [CAD Amendment 216-07]

6.11 Maintenance Log Book [CAD Amendment 255-12]

6.11.1 Each elevating device of a type listed in **6.1.1** shall be provided with a maintenance log book as required by O.Reg 209/01 s.34 Log books.

6.11.2 Maintenance records in the form of a log book shall document compliance with related construction hoist codes, Code Adoption Document (CAD) requirements and any manufacturer recommended tasks extracted from the manufacturers maintenance and operation manuals, and shall include records on the following activities:

(a) description and dates of maintenance task performed;

(b) description and dates of examinations, tests;

(c) description and dates of adjustments, repairs, and replacements;

(d) description and dates of any tasked noted in the Guideline for Maintenance Logs – Construction Hoists (Guideline 256/12); and

(e) description and dates of all call backs (trouble calls) or reports that are reported to elevator personnel by any means, including corrective action taken.

(f) log records to document compliance with the maintenance, examinations and test activities listed in (a) through (d) shall also include:

(1) Building name and/or address;
(2) TSSA installation number;
(3) Contractor's (owners) name;
(4) Contractor's Registration Number;
(5) the code section, reference, requirement or clause number associated with a task;
(6) a description of the task performed;
(7) the prescribed maintenance frequency of the task;
(8) the date the task was performed; and

(9) upon completion of the task, the printed name, signature, and TSSA certificate number of the person who completed the maintenance, examination or tests.

6.11.3 Where a part of an elevating device which directly affects the safe operation of the device is found to be defective, the record of the relevant maintenance task shall not be signed off by the party performing the task until the defective part is adjusted, repaired or replaced, and the safety of the device restored.

6.12 Location of the Maintenance Log Book [CAD Amendment 255-12]

6.12.1 The maintenance log book shall be kept in the machine room or on the device or near the device location or, in the alternative if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.12.2 Log book data shall be readily available as required by O.Reg 209/01 s.34.(3)

6.13 Manufacturers Maintenance and Operation Manual [CAD Amendment 255-12]

6.13.1 For each construction hoist the manufacturers maintenance and operations manual shall be retained.

6.13.2 The manufacturers maintenance and operation manual shall be kept in the machine room or on the device or near the device location or in the alternative, if it is kept at another location on the site, a notice shall be posted in the machine room or device location indicating the alternate location.

6.13.3 The manufacturers maintenance and operation manual shall be readily available and immediately provided to an inspector upon request.

6.14 Operator Training [CAD Amendment 255-12]

6.14.1 Every operator must have the required knowledge and experience to operate an elevating device and owners, licensees and/or lessees, must ensure operators are trained to safely operate such devices and must be satisfied that the operator is aware of potential hazardous situation connected therewith as required by O.Reg 209/01 s.40.

6.14.2 Owners, licensees, lessees providing training or other trainers providers shall develop and maintain written operator training programs and written policies and procedures to ensure compliance with the regulation and **6.14.1**.

6.14.3 Written training programs shall include applicable portions of the manufacturers maintenance and operation manual to address the requirements of the regulation and **6.14.1** and shall include the minimum requirements for operator training as outlined in the Guide for Operator's Logs and Operator Training Requirements – Construction Hoists (Guideline 257/12).

6.14.4 Copies of the documentation required under **6.14.2** shall be kept on site, shall contain current and complete information and shall be readily available and immediately provided to an inspector upon request.

6.14.5 Training records shall be maintained by the training provider ("trainer") and shall include the following information:

(a) the name of the person(s) who received the operator training;
(b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
(c) the date of training;
(d) the signature of the trained operator; and,

(e) the signature of the trainer.

6.14.6 A copy of the training records identified in **6.14.5** shall be maintained on site and readily available and immediately provided to an inspector upon request.

6.14.7 Individuals who are trained as operators, and have achieved sufficient competence to operate the device safety shall be issued by the trainer an "Operator's Proof of Training" document which must certify that the operator is competent to operate the device safely and must specify the following information:
(a) the operators name;
(b) the TSSA installation number of the device on which they were trained or the device/ device type(s) on which they were trained and the address associated with the device location;
(c) the date the training was received; and
(d) the signature of the trainer.

6.14.8 The trainer shall issue an "Operator's Proof of Training" document in the form of a letter or wallet card or equivalent as per **6.14.7**.

6.15 Operator's Proof of Training [CAD Amendment 255-12]

6.15.1 Operators are required to carry their "Operator's Proof of Training" document whenever they operate an elevating device.

6.15.2 "Operator's Proof of Training" shall be readily available and immediately provided to an inspector upon request.

6.15.3 An "Operator's Proof of Training" may be immediately revoked by an inspector, owner, licensee, lessee or trainer where there is reason to believe that the operator lacks the competence to safely operate the elevating device and the operator may no longer operate the device.

6.16 Daily Operator's Log [CAD Amendment 255-12]

6.16.1 Each elevating device type listed in **6.1.1** shall have a corresponding "Daily Operator's Log" in which a current and accurate record of all required start up checks as required by the device manufacturer, owner, licensee, lessee or device operator shall be kept and shall include the minimum requirements for operator's logs as outlined in the Guideline for Operator's Logs – Construction Hoists (Guideline 257/12).

6.16.2 Operator's of a device must satisfy themselves, at the start of each shift, that the device is safe to operate as required by O.Reg 209/01 s.42 by conducting a series of start up checks as outlined in the Guideline for Operator's Log – Construction Hoists and shall record and sign off these checks in the "Daily Operator's Log".

6.16.3 The "Daily Operator's Log" must contain the following information:

(a) the Building name and/or address;

(b) the TSSA device installation number;

(c) a list of the daily checks as required by **6.16.1;**

(d) the Operator's printed name and signature acknowledging completion of all daily checks after the device is found to be in safe working order and the date of such checks.

6.16.4 Where a part of the elevating device which directly affects the safe operation of the device is found to be defective, the log shall not be signed off and the device shall not be put into operation until the defect is adjusted, repaired or replaced, by a registered mechanic.

6.17 Location of the Daily Operator's Log [CAD Amendment 255-12]

6.17.1 The "Daily Operator's Log" shall be kept in the machine room, on the device, or near the device location, or in the alternative, if it is kept at another location on the site, a notice will be posted in the machine room or device location indicating the alternate location.

6.18 Signage [CAD Amendment 255-12]

6.18.1 Every car, cage or platform shall be equipped with a sign as follows:

(a) The sign shall display the message, "Only Operators who have their valid "Operator's Proof of Training" card on their person shall operate this device";

(b) The sign shall be of such material and construction that the letters are stamped, etched, cast or otherwise applied to remain permanently visible; and

(c) The height of the letters shall not be less than 12 mm (1/2 in.).`

6.19 Incident and Issue Reporting [CAD Amendment 255-12]

6.19.1 Incidents shall be reported as required by O.Reg 209/01 s.36. See also Director's Guideline 230/09.

6.19.2 Device operators shall report device incidents and any safety related issues to supervisory personnel who are responsible for taking the appropriate action or following the incident report requirements required by the regulation.

Part 7

7 ELEVATING DEVICES FOR PERSONS WITH PHYSICAL DISABILITIES

7.1 Applied Code [CAD Amendment 238-09]

7.1.1 Each newly installed elevating device for persons with physical disabilities shall conform to the requirements of CSA Standard B355-09, Lifts for persons with physical disabilities including and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.2 Maintenance [CAD Amendment 238-09]

7.2.1 All lifts for persons with physical disabilities shall conform to the maintenance requirements of CSA-B355-09 Lifts for persons with physical disabilities including Annex B and any applicable changes set out in the CAD. [CAD Amendment 238-09]

7.3 Maintenance Log Book [CAD Amendment 238-09]

7.3.1 The log book shall, as a minimum, contain the following information:

(a) Building name and/or address,

(b) TSSA or MCCR installation number,

(c) Contractor's and Owner's name,

(d) Year and month when a specific task is performed,

(e) The code section, reference or clause number associated with a maintenance task, a description of the task performed and the prescribed maintenance frequency of the task,

(f) The printed name and signature of the persons who completed the required maintenance task. [CAD Amendment 238-09]

7.3.2 Where a part directly affecting the safety of the operation is found to be defective, the record of the maintenance task shall not be signed off until the defect is adjusted repaired or replaced. [CAD Amendment 238-09]

7.4 Location of the Log Book [CAD Amendment 238-09]

7.4.1 The log book will be retained in the machine room or at the device location. If it is kept in another location in the building, a notice will be posted in the machine room indicating the alternate location. [CAD Amendment 238-09]

7.5 Access to Lift

7.5.1 Every owner of an unenclosed vertical platform lift and every owner of an unenclosed stair platform lift or stairchair lift shall ensure that the public does not have access to the area where the lift is installed while the lift is in operation.

7.5.2 Subsection **7.5.1** does not apply in the case of an unenclosed stair platform lift or stairchair lift where,

(a) the owner of the lift is able to control and identify persons who will be using the lift or the area where the lift is installed and the owner familiarizes those persons in advance of using the area or lift with the safety rules and procedures concerning the use of the area and the lift; and

(b) and the lift meets the requirements of subsection **7.6**.

7.6 Lift Operation with Persons Nearby

7.6.1 Where an unenclosed stair platform lift or stairchair lift is being operated at the same time that other persons are using the area in which the lift is installed,

(a) audio-visual signals shall be emitted that warn persons using the lift and persons in the area where the lift is installed at all times when the platform is unfolded and until the lift is parked in a safe position at a terminal; and

(b) every leading edge or surface of that portion of the lift and its carriage that carries the passengers in both directions of travel shall be equipped with sensitive devices that meet the requirements of clause 7.2.4. and 8.5.4. of the standard adopted in section **7.1** of this Document and that are operational whenever the carriage is in motion.

7.7 Usage of Device

7.7.1 The owner of a lift for persons with physical disabilities shall ensure that,

(a) the device is used primarily for the transportation of persons with physical disabilities;

(b) detailed operating instructions are posted at every operating station;

(c) the operation of the device is restricted to attendants designated by the owner or those persons who in the opinion of the owner are able to use the device without an attendant; and

(d) the persons using the device receive instruction and training that emphasizes the hazards associated with improper use of the device.

7.8 Requirements for Restricted Operation

7.8.1 The operation of a lift for persons with physical disabilities shall be restricted by means of a key-control for the operating device as set out in subsection **7.8.2** and **7.8.3** or by a method acceptable to the director that provides the same degree of safety.

7.8.2 A key-control for an operating device may be by means of an on/off lockable switch located near and controlling one or more operating devices or each operating device may be directly key-controlled.

7.8.3 The key for a key-control for an operating device shall be removable only when the switch is in an "off" position.

7.8.4 Folding down of a platform on a stair platform lift shall be restricted to persons authorised to use the lift, by the following means:

(a) in the case of a platform that is folded down by power – by means of a key-controlled switch or by a method acceptable to the director; and

(b) in the case of a platform that is folded down manually – by means of a keyed lock or by a method acceptable to the director.

7.8.5 Lowering of a barrier arm, if provided, shall be restricted to persons authorised to use the lift by means of a keyed switch or lock or by a method acceptable to the director.

7.9 Instructions for Use and Owner Requirements

7.9.1 Every owner of an elevating device for persons with physical disabilities shall,

(a) ensure that the instructions for the device are posted at the location of each operating device that will inform a person with physical disabilities of the established procedure to gain access to and to use the device and, in the case of unenclosed devices, that such instructions include, but are not limited to, cautioning the user to observe the lift runway for possible obstructions;

(b) ensure that an attendant is available to operate the device when a person with physical disabilities requires assistance;

(c) where an attendant is required and is not permanently stationed at the location of the operating device ensure that a notice is posted at the entrance to the elevating device that indicates the procedure to be followed to obtain assistance; and

(d) provide instruction that an unoccupied platform of an unenclosed stair platform lift should not be called or sent from a landing station unless it is in the raised and folded position. [CAD Amendment 238-09]

7.9.2 A person shall only operate an unenclosed vertical platform lift, an unenclosed stair platform lift or a stairchair lift, if the person is satisfied that only persons using the lift have access to the area where the lift is installed.

7.9.3 Subsection **7.9.2** does not apply to a person operating an unenclosed stair platform lift or a stairchair lift while other persons are using the area in which the lift is installed where,

(a) the conditions set out in subsection **7.5.2** exist;

(b) the person operating the lift is an attendant and has, while operating the lift in the folded down position, a clear view of the lift runway in the direction of its movement by walking along with the carriage while it is in motion or has by being stationed at a point, a clear view of the runway;

(c) the person using the lift has, while using the lift, a clear view of the lift runway in the direction of travel; and

(d) the audio-visual signals required under subsection **7.6.1(a)** are operational.

7.10 Notice Required Regarding Restricted Use

7.10.1 A notice that the use of a lift for persons with physical disabilities is restricted to persons with physical disabilities shall be posted at each location of a device, at landing or runway entrances of the device and at the load-carrying unit of the device.

7.11 Supplementary Owners Report

7.11.1 In addition to those requirements set out in sections 15 and 16 of the Regulation, the design submission for a lift for persons with physical disabilities shall include a detailed report, completed on a form provided by the director, from the owner of the elevating device, in which the proposed methods of compliance with sections **7.5** to **7.8** and **7.9.1** of this Document shall be described.

7.12 Change of Ownership & Supplementary Owners Report

7.12.1 In addition to the requirements of section 29 of the Regulation, where there is change in the ownership of a lift for persons with physical disabilities or a substantive change in the type of occupancy of a building in which a lift for persons with physical disabilities is installed, the new owner of the lift shall submit to the director, a detailed report on a form provided by the director in which the proposed methods of compliance with sections **7.5** to **7.8** and **7.9.1** of this Document shall be described.

7.13 Pressure Sensor Requirement for Vertical Platform Lifts *(248/11)*

7.13.1 All vertical platforms, where any part of the hydraulic cylinder is above the top of the hydraulic oil storage tank, shall be equipped with a pressure sensor that when activated shall prevent the operation of the lowering valve or valves in conformance with clause 6.6.8 of CSA B355-09 Lifts for Persons with Physical Disabilities [CAD Amendment-261/13]

Elevating and Amusement Devices Safety Division	Ref. No.: 262 / 13	Rev. No.:
DIRECTOR'S INFORMATION BULLETIN	Date: April 19, 2013	Date:

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01
(Elevating Devices)

- and -

ONTARIO REGULATION 222/01
(Certification and Training of Elevating Device Mechanics)

Subject: Maintenance and Repair of Elevating Devices by Qualified Mechanics

1. Introduction

All elevator contractors and consultants are reminded that if personnel, other than those whose regular duties include servicing of elevating devices, are assigned to this work in the event of a labour disruption on elevating devices, they must be qualified in accordance with the TSS Act, Regulation 209/01 and Regulation 222/01. Specific requirements are provided as follows for clarification.

2. Regulatory Extracts

Ontario Regulation 209/01 (Elevating Devices)

1. (1) In this Regulation,
"mechanic" means a person who holds a certificate referred to in section 4 of Ontario Regulation 222/01 made under the Act;
"mechanic-in-training" means a person who works under the supervision of a mechanic for the purpose of obtaining the qualifying time and experience required to obtain a certificate referred to in section 4 of Ontario Regulation 222/01;

24. (1) No person shall undertake any work on an elevating device unless the person is employed by a contractor and is either a mechanic or a mechanic-in-training working under the supervision of a mechanic. O. Reg. 252/08, s. 15.
(2) No person shall be involved in a task that is necessarily ancillary or incidental to the installation or maintenance of an elevating device unless he or she is supervised by a mechanic. O. Reg. 209/01, s. 24 (2).
(3) No mechanic shall be assigned or undertake work beyond the scope of his or her certificate or, in the case of passenger ropeway mechanics, beyond the scope of his or her experience or training. O. Reg. 209/01, s. 24 (3).

Ontario Regulation 222/01 (Certification and Training of Elevating Device Mechanics)

1. (1) In this Regulation,
"mechanic" has the same meaning as in Ontario Regulation 209/01;

"direct supervision" means, with respect to a mechanic-in-training, that a supervising certificate holder is on site and available to assist and supervise the mechanic-in-training;

3. (3) A supervising certificate holder shall not certify that a mechanic has met experience requirements required under this Regulation unless he or she has ensured that the mechanic has in fact met those requirements. O. Reg. 222/01, s. 3 (3).

4. (1) No person shall work on an elevating device as a mechanic without first having obtained a certificate from the director designating the person as one or more of the following:
1. An elevating device mechanic, class A (an "EDM-A certificate"). …
9. An elevating device mechanic-in-training, Class T (an "EDM-T certificate"). O. Reg. 222/01, s. 4 (1).

16. A person who holds an EDM-T certificate,
(a) may perform the same range and scope of work allowed under the scope of the certificate of the supervising certificate holder if those skills have been documented and signed by a qualified EDM; and
(b) may not work on any device or job function for which the EDM-T certificate holder does not have the documented skills, except under the direct supervision of the supervising elevating device mechanic. O. Reg. 222/01, s. 16.

3. Worker Qualifications

Maintenance and repair of elevators, escalators, and other elevating devices must be performed in accordance with the requirements of the Ontario Regulation 209/01, and Ontario Regulation 222/01, under the Technical Standards and Safety Act, 2000.

Individuals who are assigned work on an elevating device must be certified for that class of device or be a TSSA registered elevating devices mechanic-in-training (EDM-T) under the appropriate supervision.

To meet this requirement an EDM-T must;

- Carry their EDM-T certificate on their person
- Possess a "Practical Skills / Experience Sign-Off Document" or possess an "ATS/Skills Passport – Elevating Device Mechanic", that is readily available if requested by an inspector
- Work under direct supervision or ensure the appropriate "skills set / passport entry" is signed off if the work task is being performed under general supervision.

The TSSA Practical Skills / Experience Sign-Off Document" is available for download at www.tssa.org.
The Ontario "ATS/Skills Passport – Elevating Device Mechanic" passport is available free of charge from https://www.publications.serviceontario.ca/ecom/ (enter "231848" in the publication search field.)

4. Notes Related to Skills Passport Sign-off.

- Skills Passport can only be signed off by a current/valid certified supervising mechanic.
- An EDM-T cannot sign off or supervise another EDM-T.
- The signed off sections should accurately reflect the individual's duties throughout his/her period of training.
- Not all sections of the passport are mandatory.

Roland Hadaller, P.Eng.
Director, Ontario Regulation 209/01(Elevating Devices) and Ontario Regulation 222/01(Certification and Training of Elevating Device Mechanics) made under the *Technical Standards and Safety Act*, *2000*

Elevating and Amusement Devices Safety Division	Ref. No.: 263 / 13	Rev. No.:
DIRECTOR'S INFORMATION BULLETIN	Date: June 7, 2013	Date:

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16

- and -

ONTARIO REGULATION 209/01
(Elevating Devices)

- and -

ONTARIO REGULATION 222/01
(Certification and Training of Elevating Device Mechanics)

Subject: Elevating Devices Owners Bulletin – Owner Responsibilities

1. Introduction

All elevating device owners (including licensees, owner's reps, or property managers acting on behalf of the owner), must be aware that the elevating devices which they own/ operate must conform to specific regulatory requirements, and it is their responsibility to ensure that these requirements are being properly adhered to irrespective of the current labour disruption.

Where devices cannot be maintained in safe operating condition or where non-compliances may pose safety risk to the general public, elevators must be removed from service until such time as they are in compliance with the regulatory requirements.

2. Governing Documents

All owners should be aware of the regulatory documents impacting elevator ownership and safe operation including:

- Ontario Regulation 209/01 Elevating Devices
- Ontario Regulation 222/01 Certification and Training of Elevating Device Mechanics
  - available from www.e-laws.gov.on.ca or www.tssa.org/regulated/elevating/elevatingSafety.asp
- The latest elevating devices Code Adoption Document (CAD) amendment , CAD-261-13
  - available from www.tssa.org/regulated/elevating/elevatingSafety.asp

3. Work or Maintenance by Licensed Contractors

Owners are reminded that all elevator work must be undertaken by licensed contractors utilizing the services of certified & properly trained mechanics who have experience in the tasks being undertaken. These requirements are contained in the Elevating Device Regulation, O.Reg 209/01, and in the Certification and Training of Elevating Device Mechanics Regulation, O.Reg 222/01.

As a reminder of the above points, TSSA released Director's Information Bulletin 262/13 on April 19, 2013 and posted it on the TSSA web site. This notification was issued to all ED Web subscribers and highlights pertinent regulatory requirement for Contractor Licensing and Mechanic Certification.

4. Worker Qualifications

Individuals who are assigned work on an elevating device must be TSSA certified for that class of device or be a TSSA registered elevating devices mechanic-in-training (EDM-T) under the appropriate supervision of an elevating device mechanic. As well as being outlined in the regulations, worker qualifications requirements are described again in Director's Information Bulletin 262/13. Should there be any question related to worker qualifications, it is important to note that all elevating device mechanics (EDM's) must carry on their person a copy of their EDM certificate (similar in appearance to previous paper driver licences). TSSA inspectors require this documentation to be presented to establish credentials. Owners may wish to request the same. Director's information bulletin 262/13 clearly communicates that elevating device mechanics with a "T" designation (EDM-T) are permitted to only perform tasks for which they have been signed off to perform, or must work under direct supervision of a mechanic.

5. Incident Reporting

Owner's (and contractors) are reminded that incidents must be reported in accordance with the requirements of O.Reg 209/01 section 36.

To obtain additional clarification of these requirements a copy of the incident reporting guideline 230/09 is posted on the TSSA web site. This guideline provides several FAQ style questions and includes quick reference tables to identify "incident type" and the corresponding reporting requirements and reporting timelines.

6. Maintenance of Elevating Devices and Maintenance Frequency

Owners are reminded that all elevating devices in the province must be maintained by licensed contractors. Per the elevator code (A17.1/B44) the frequency of maintenance for elevating devices is typically determined by the contractor using factors such as design, inherent quality, usage, environmental factors, improved technology, and manufacturer recommendations. The authority having jurisdiction may mandate maintenance and inspection frequencies where required.

The position of TSSA is maintenance intervals must not exceed three months (tasks at three month intervals are not specifically identified) and the maintenance of door systems must not exceed six months. Hydraulic elevating devices with single bottom cylinders, however, must have their oil levels monitored monthly. These frequencies are defined in CAD-261-13. For high buildings (per the Ontario Building Code), the Fire Code requires elevator testing at three month intervals. See section 7.2 of the Fire Code.

The completion of a maintenance task must be recorded (signed off and dated) in the elevator's log book. The log book is typically kept in the elevator machine room. It is important to note that a maintenance task can only be signed off once the component being maintained is in a compliant state. Where a defective part directly affecting the safety of the operation is identified, the equipment shall be taken out of service until the defective part has been adjusted, repaired, or replaced. It is the owners responsibility to ensure that log books are being updated and the required maintenance is being performed. Contractors and mechanics also have a responsibility to ensure the work they perform is recorded in the log book. Maintenance task such as oil loss monitoring if not being performed may pose significant safety risks and this may require a device being removed from service.

Generally speaking improvements in elevator technology have increased elevator reliability over the years and have resulted in extended preventative maintenance intervals.

7. Entrapments

Should a passenger entrapment occur, the owner should contact their maintenance company for rescue assistance, and owners should ensure that no attempts at self rescue are being performed. If the maintaining contractor is unavailable owners may contact other elevating device contractors to see if they are in a position to assist with a rescue. If this possibility exists it is unlikely this contractor would be in a position to return the elevating device service following the rescue. In emergencies owners may need to utilize the services of emergency personnel to perform a rescue.

8. Fire Fighter's Elevators

For high buildings, the building code typically requires one elevator to be designated as the Fire Fighter's Elevator. The firefighter's car is generally that elevator in the group which services the most number of floors. In some instances multiple elevators in a bank can perform this function - yet one is typically selected as the Firefighter's Car.

If you are experiencing problems with the identified firefighter's elevator you may wish to determine if another car can serve that function in the event of an emergency situation. You may also wish to notify the local fire department of your situation so that alternate plans can be developed in advance of a life safety issue.

Roland Hadaller, P.Eng.
Director, Ontario Regulation 209/01(Elevating Devices) and Ontario Regulation 222/01(Certification and Training of Elevating Device Mechanics) made under the *Technical Standards and Safety Act*, *2000*

Elevating and Amusement Devices Safety Division	Ref. No.: 267/14
DIRECTOR'S ORDER	Date: May 15, 2014

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16

- and -

Ontario Regulation 209/01 (Elevating Devices)

Re: Retroactive Leveling Requirement for Passenger Elevators with Single Speed Controls

Applicable to: All Owners of Electric Passenger Elevators with Single Speed Controls
All Elevator Contractors

Under the authority of s. 31 of the Technical Standards and Safety Act, 2000, the Director under O. Reg. 209/01 (Elevating Devices) hereby orders that:

1. ORDER to Owners

1.1. All Electric Passenger Elevators with Single Speed Control systems that;

(a) have a single speed AC drive motor,
(b) use an open loop motion control system, and
(c) stop using the brake, whether the brake is modulated or continuously applied.

shall have the motion control system upgraded to a closed loop control and comply with CSA B44-10 - Safety Code for Elevators and Escalators (the "B44 Code"), section **2.26.11 - Car Platform to Hoistway Door Sills Vertical Distance**.

The requirements from the B44 Code are as follows:

> ***2.26.11 Car Platform to Hoistway Door Sills Vertical Distance***
> *Where ANSI/ICC A117.1 or ADAAG is not applicable, the vertical distance between the car platform sill and the hoistway door sill on passenger elevators shall be in accordance with the following:*
> *(a) it shall not exceed 13 mm (0.5 in.) on initial stop at a landing*
> *(b) the car shall relevel if the vertical distance exceeds 25 mm (1 in.) while loading or unloading*

This leveling requirement is being applied retroactively to existing installations of passenger elevators with single speed controls.

1.2. The compliance dates for this order are based on the installation number of the elevating device. The following table indicates the compliance date for each range of elevating device installation numbers.

Compliance Requirements	
Installation Number	**Compliance Date**
1 – 9481	January 1, 2018
9482 - 13371	January 1, 2019
13372 – 18161	January 1, 2020
18162 – 35418	January 1, 2021
35419 and higher	January 1, 2022

1.3. Where the above leveling requirement is met by an alteration that changes the type of motion control, the following alteration requirements (8.7.2.27.5★1) may be used as an alternative to the requirements of B44 Code section 8.7.2.27.5 (Change in the Type of Motion Control):

> **8.7.2.27.5★1 Change in type of motion control for single speed passenger elevators**
> Where there is a change in the type of motion control of a single speed elevator, the installation shall conform to the following:
> (a) The terminal stopping devices shall conform to 2.25
> (b) New and altered operating devices and control equipment shall conform to 2.26. The requirements of 2.26.4.2, 2.26.4.3, and 2.26.4.4 shall not apply to electrical equipment unchanged by the alteration.
> (c) Car overspeed protection and unintended movement protection shall conform to 2.19 as required by 8.7.2.20 or permitted by 8.7.2.20★1.

1.4. An alteration in accordance with alternative requirement 8.7.2.27.5★1 (above) is deemed to be a Major Alteration.

1.5. Where the leveling requirement is met by an alteration that changes the type of motion control in accordance with the requirements of B44 Code section 8.7.2.27.5, sub requirements 8.7.2.20★2 and 8.7.2.20★3 are not applicable. Both ascending car overspeed and unintended movement protection are required.

2. INSTRUCTIONS

2.1. All work must be performed by a TSSA registered contractor.

2.2. Work carried out in order to bring a device into compliance with this order is an alteration and a design submission with related electrical schematics shall be submitted to TSSA by a registered contractor.

2.3. The contractor who completes the alteration shall arrange for an inspection to be carried out as required by O. Reg. 209/01.

Background

TSSA formed a Risk Reduction Group (RRG) in 2010 to review the risks associated with aging elevators. The RRG, called the "Elevator Overspeed and Unintended Movement RRG", was tasked with examining the risks associated with devices having no emergency brakes and devices with leveling accuracy

problems, and to make recommendations on how these risks could be reduced. The group consisted of members representing TSSA, the elevator industry and elevating device owners.

The RRG data analysis indicated that the primary risk with aging elevators was with single speed devices. These devices typically do not have an emergency brake and experience problems with leveling accurately. Analysis of inspection and incident data determined that there was an unacceptable public risk of injury from single speed devices that will occur in 2020.

The new alteration requirement (8.7.2.27.5★1) introduced by this order focuses on the leveling aspects of B44 Code requirement 8.7.2.27.5 and is only permitted to be used on single speed devices. This new alteration requirement offers a more economical method to address the leveling risk identified by the RRG.

The compliance dates were determined based on the time period required to reach an unacceptable level of risk. It is estimated that 1100 devices are affected by this order. The affected devices have been split into five groups with the older devices requiring compliance before the newer devices. Dividing the devices into five groups with different compliance dates is intended to ensure that higher risk devices are in compliance sooner and to help spread out the work over a larger period of time to manage industry workload.

* * *

Any person involved in an activity, process or procedure to which this document applies shall comply with this document

This order is effective immediately.

DATED this 15th day of May, 2014

_____

Roland Hadaller P. Eng.
Director, O. Reg. 209/01

This order has been developed in consultation with the Elevating Devices Advisory Council and the Field Advisory Committee.

Elevating and Amusement Devices Safety Program	Ref. No.: 275 / 18
ADVISORY	Date: August 31, 2018

Subject: **Emergency Brake - Brake Lining Replacement**
Distribution: TSSA website

This advisory is to inform that the replacement of emergency brake linings, including rope gripper pad replacement requires testing to confirm the effectiveness the new linings.

On passenger elevators, this would require testing of the elevating devices in both directions; under Empty car up, and 125% loaded car down conditions.

Supporting Materials:

This advisory is supported by the following A17.1/B44 requirements:

8.6.4 Maintenance and Testing of Electric Elevators

8.6.4.6.3 If any part of the emergency brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the emergency brake when required (see 2.19.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

The proper function and holding capacity requires:

2.19.2 Unintended Car Movement Protection

2.19.2.2.(b) upon detection of unintended car movement, stop and hold the car, with any load up to rated load [see also 2.16.8(h)], by applying an emergency brake conforming to 2.19.3. The stopped position of the car shall be limited in both directions, to a maximum of 1 220mm (48 in.) as measured from the landing sill to the car sill.

and testing to reference 2.16.8.(h) per above requires 125% of rated load.

2.16.8 Additional Requirements for Passenger Overload in the Down Direction

2.16.8.(h) requirement 2.19.2.2(b), except that 125% of the rated load shall be used in place of the rated load.

Testing without load is deemed alternative testing and requires the use of a method acceptable to the Director.*

The testing requirements for emergency brake lining replacement (detailed above) are consistent with the requirements following a change or adjustment to the holding capacity of driving-machine brake (see below)

8.6.4.6.2 If any part of the driving-machine brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the brake when required (see 2.24.8.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity. A test complying with 8.6.4.20.4 shall be performed.

* Note: A17.1/B44-2013 to 2016, requirement 8.6.11.10 recognizes alternative testing for driving-machine brakes. A proposal is before the A17.1/B44 committee to extend this permission to emergency brakes as it was overlooked during the development of alternative testing language.

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Elevating and Amusement Devices Safety Program	Ref. No.: 275 / 18-r1	Ref. No.: 275 / 18
ADVISORY	Date: March 30, 2019	Date: August 31, 2018

Subject: **Emergency Brake - Brake Lining Replacement**
Distribution: TSSA website

This advisory is to inform that the replacement of emergency brake linings, including rope gripper pad replacement requires testing to confirm the effectiveness the new linings.

On passenger elevators, this would require testing of the elevating devices in both directions; under Empty car up, and 125% loaded car down conditions.

Supporting Materials:

This advisory is supported by the following A17.1/B44 requirements:

8.6.4 Maintenance and Testing of Electric Elevators

8.6.4.6.3 If any part of the emergency brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the emergency brake when required (see 2.19.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity.

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The testing requirements for emergency brake lining replacement (detailed above) are consistent with the requirements following a change or adjustment to the holding capacity of driving-machine brake (see below)

8.6.4.6.2 If any part of the driving-machine brake is changed or adjusted that can affect the holding capacity or decelerating capacity of the brake when required (see 2.24.8.3), it shall be adjusted and checked by means that will verify its proper function and holding capacity. A test complying with 8.6.4.20.4 shall be performed.

* Note: A17.1/B44-2013 to 2016, requirement 8.6.11.10 recognizes alternative testing for driving-machine brakes. A proposal is before the A17.1/B44 committee to extend this permission to emergency brakes as it was overlooked during the development of alternative testing language.

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Date: 11/30/18

Subject: Rope Gripper Lining Replacement or Lining Wear Adjustment - Minimum Testing Requirements

To: Whom it May Concern

The following procedure refers to an existing Rope Gripper Installation that was previously properly tested for compliance and qualified to ASME A17.1/B44 Elevator Safety Codes as well as any local elevator safety codes that may be appropriate. It is also assumed that the Rope Gripper has been in service prior to needing attention due to Lining Wear.

Minimum Testing Required for Returning to Service:

Prior to returning the car to service after changing linings (or rearranging wear shims), it is extremely important to ensure that the Rope Gripper Linings are fully seated, or in other words properly worn in, so that the Rope Gripper will apply proper pressure to the ropes.

When Brake Lining inspection/shimming/replacement is complete:

1. Turn the Pump Unit valve stem to AUTOMATIC.
2. Turn the pumping unit ON.
3. Carefully remove the security set screws. If necessary, use the hand pump to prevent rotating shaft from moving when removing the security set screws.
4. Turn the Pump Unit OFF. The Rope Gripper will grip the ropes.

Check to ensure that the rotating shaft is up around the corner(s) at the bottom of the cam. This will be indicated by the connecting arm position; the arm should **match or cover the wear-in line** marked on the Rope Gripper side wall when gripping the ropes.

1. If the line has not been matched or covered, refer to the manual (Bulletin 1144) for wear-in procedures.
2. If the line has been matched or covered, proper Rope Gripper operation can be confirmed with the following minimum testing requirements.

TEST PROCEDURE FOR COMPLIANCE WITH ELEVATOR SAFETY CODES

DURING THE FOLLOWING TWO TESTS, ALLOW THE BRAKE TO STOP THE CAR IF THE GRIPPER DOESN'T. When activated by either of these tests, the Gripper circuits must be manually reset.

Test 1) SLOW SPEED ASCENDING CAR TEST

With an empty car,

a) Run empty car up on inspection speed, hold the machine brake open and turn off the Rope Gripper test switch. The Rope Gripper should stop and hold the car

Test 2) ASCENDING CAR OVERSPEED TEST

With an empty car,

a) If practical, overspeed (approximately 10% over contract speed) the car in the "UP" direction while keeping the machine brake open. The governor overspeed switch will activate the Rope Gripper.
b) If it is impractical to overspeed the car, run the empty car up at high speed with the machine brake held open and manually trip the governor overspeed switch.

The gripper will stop the car before the counterweight strikes the buffer or, at least, reduce the car speed to the speed for which the buffer is designed.

With these two tests completed, the original stopping performance of the rope gripper is verified.

Background:

The brake linings of the Rope Gripper are designed to wear so as to protect the ropes from damage during an emergency stop. As the ropes pass between the linings, the linings will wear, especially after multiple high-speed stops.

When Rope Gripper lining wear becomes excessive, the excessive wear microswitch on the Rope Gripper will open and the Rope Gripper will not automatically reset to the loaded or ready position. At this point, it will be necessary for a licensed professional to inspect the Rope Gripper, make adjustments and/or replace parts as necessary before the Rope Gripper can be returned to service.

Instructions for adjusting the Rope Gripper for Lining Wear and for Lining Replacement after excessive wear appear in the Rope Gripper Manual, Bulletin 1144, which can be obtained at:

https://www.hollisterwhitney.com/support

Thank you for your interest in Hollister-Whitney products and the Rope Gripper in particular. If there are further questions or concerns, please do not hesitate to contact us.

Sincerely,

Brent Henderson
Mechanical Engineer
Engineering Manager
Hollister-Whitney Elevator Co., LLC