



Fuels Safety Program	Ref. No.: FS-211-14
Propane Code Adoption Document Amendment	Date: August 1, 2014

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16,
Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), *and*
Ontario Regulation 211/01 (Propane Storage and Handling)

The Director for the purposes of Ontario Regulation 211/01 (Propane Storage and Handling), pursuant to section 9(1) of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), hereby provides notice that the PROPANE CODE ADOPTION DOCUMENT published by the Technical Standards and Safety Authority and dated June 1, 2001, as amended, is further amended as follows:

All sections of the Propane Code Adoption Document dated June 1, 2001 are revoked and replaced with the following:

Background:

This amendment to the Propane Code Adoption Document (CAD) revokes and replaces the previous amendment (FS-201-12 revision no. 1, dated December 1, 2012). A delta symbol (Δ) in the margin indicates a provision that is new or that has been changed by this CAD amendment. Background information is included for such new or changed provisions.

This CAD amendment adopts new requirements approved by the B149.2 and B149.5 Code Committees for the 2015 Code that are considered important to be implemented in Ontario now and addresses gaps in the current codes to enhance safety.

Major changes in this version include following:

- New definitions added for “construction site” and “cylinder exchange”
- New requirements for cylinder storage, including storage at construction sites and roof tops.
- New requirements for cylinder exchanges
- Reiterating the need for compliance with Branch Standard #9 or a full risk and safety management plan for facilities in heavily populated or congested areas
- New certification requirements for valves, components and accessories for propane vehicle conversion; replacing IGAC Protocol 01-97.

1. The CSA Standard B149.2-10 “Propane Storage and Handling Code” published in January 2010 by the Canadian Standards Association is adopted with the following amendments:

1.1 Clause 1.2 is amended by adding the following subclause:

(i) propane used as refrigerant.

1.2 Clause 3 is amended by revoking the definitions of “Appliance”, “Approved”, and “*Authority having jurisdiction*”

1.3 Clause 3 is amended by adding the following definitions:

Authority having jurisdiction — the Director designated for the purposes of O. Reg. 211/01 (Propane Storage and Handling).

Δ

Construction site – a temporary worksite involving construction activities such as the erection, alteration, and dismantling or demolition of a building or equipment, re-roofing of a building, or digging.

Δ

Cylinder exchange - a facility where propane in refillable *cylinders* is sold or otherwise distributed to an end user, with cylinders stored in no more than four (4) cabinets and each cabinet contains no more than 500 lb of propane.

Background:

Definitions for “construction site” and “cylinder exchange” were added to clarify code application and licensing requirements.

1.4 Clause 4.1.4 is revoked and the following substituted:

4.1.4

Where a conflict exists between the manufacturer’s *certified* instructions and this Code, the requirements of this Code shall prevail unless otherwise *approved* by the *authority having jurisdiction*.

1.5 Clause 4.2.3 is revoked and the following substituted:

4.2.3

The approval of the assembly or construction of an *appliance* is subject to the *authority having jurisdiction*. (See TSSA Field Approval Code, TSSA-FA-2012.)

1.6 Clause 6.1.2 is revoked and the following substituted:

6.1.2

Refillable vapour service *cylinders* manufactured after January 1, 2008 with a capacity of 4 lb (1.8 kg) through 40 lb (18.2 kg) shall be equipped with an overfill

prevention device (OPD) in compliance with UL 2227; except for:
(a) ***cylinders*** used in industrial truck service; or,
(b) ***cylinders*** identified and used for industrial welding and cutting gases.

1.7 Clause 6.1.14 is revoked and the following substituted:

6.1.14

Cylinders requalified in accordance with Clause 6.1.5 and with a propane capacity of 40 lb (18 kg) or less shall be equipped with a *cylinder valve* that does not permit the flow of propane until a positive seal has been achieved. Industrial cylinders manufactured under specification DOT-4BW260/TC-4BWM18 are exempt from this requirement when used in cutting or welding applications. When requalifying DOT-4BW260/TC-4BWM18 *cylinders*, valve replacement may be made by using a valve outlet conforming to the CGA 510 standard, not requiring a positive seal and with a PRV set at 405 psi.

1.8 Clause 6.4.4 is revoked and the following substituted:

6.4.4

(a) Before filling a ***container***, it shall be inspected. If a ***cylinder*** has a sleeve, it shall be removed to facilitate the visual inspection prior to filling the ***cylinder***.
(b) A ***cylinder*** that is damaged, leaking, or corroded beyond TC limits, or is due for a prescribed re-examination, shall not be filled but shall be removed from service.

△ 1.9 Table 6.3 is amended by deleting “that have a maximum capacity of 20 lb (9 kg)” from the note ‡

Background:

There are cylinder exchanges, especially in rural areas, handling cylinders larger than 20 lbs. This revision allows larger cylinders in cages as long as the maximum capacity remains 500 lbs (see also definition of cylinder exchange).

△ 1.10 Clause 6.5.1.14 is revoked and substituted with

6.5.1.14

A ***cylinder*** that contains propane liquid or vapour shall not be stored on the roof of a ***building***, unless it is stored in accordance with clause 6.5.3.8 or connected for use in accordance with clause 6.8.

Background:

A new Clause 6.5.3.8 was added to specify requirements for cylinders on rooftops (see section 1.14) to remove the gap in the requirements for rooftops at construction sites. This clause was revised to reference cylinders on rooftops to the new clause 6.5.3.8 as well as the existing clause 6.8.

1.11 Subclause 6.5.2.4 (d) is revoked and the following substituted:

(d) It shall be maintained in an upright position.

Δ **1.12** Clause 6.5.3.1 is revoked and substituted with the following:

6.5.3.1

6.5.3.1.1

Any *cylinder* that is not properly connected for use in an approved manner is deemed to be in storage.

6.5.3.1.2

(a) A stored *cylinder* shall be located in a storage area that is outdoors and that complies with the requirements of clause 6.5.3.2.

(b) Notwithstanding clause 6.5.3.1.2(a), a *cylinder* storage area in a structure with overhead protection, walls, or both shall be deemed to be outdoors if the following conditions are met:

- i. The structure is designed to be enclosed by no more than two solid walls on the level the *cylinders* are stored,
- ii. The *cylinders* are located within 25 ft (7.6 m) of an open area of the perimeter opening,
- iii. When a wall of the structure is a part a building, that building must be under construction, repair, improvement, and there must be no inhabited dwelling units or inhabited sections of that building,
- iv. There are no openings through which gas may travel to a lower elevation, such as an open stairway on the floor on which the cylinders are located, and
- v. There are no wall openings through which gasses could travel into another structure or building.

(c) *Cylinders* may be stored in a cabinet that meets clause 6.5.2.4, in the storage area.

(d) A storage area may be on a roof of a structure or *building* provided the conditions of clause 6.5.3.8 are met.

Background:

The new clause expands the old clause to summarize the general requirements for cylinder storage at construction sites.

- Δ **1.13** Clause 6.5.3.2 is revoked and replaced with the following:

6.5.3.2

Cylinders in storage shall

- a) be stored in an area that:
 - i. provides protection from tampering;
 - ii. is free from vehicular or mobile equipment travel, or protected by barriers or equivalent protection;
 - iii. has “NO SMOKING” signs that are prominently displayed. These signs shall be in accordance with Clause 7.12.3; and
 - iv. meets the requirements of Table 6.3
- b) be placed such that the relief valve on any cylinder is not less than 3 ft (1 m) horizontally from any building opening that is below the level of the relief valve discharge;
- c) be placed such that the relief valve discharge is not less than 10 ft (3 m) on the horizontal plane from the air intake of any appliance or air-moving equipment;
- d) be stored in an area that meets the requirements of Clause 6.5.1 and 6.5.3.8.

Background:

This clause was revised to remove the limitation of 1,000 lb maximum storage. The 1,000 lb limitation was new in the 2010 code but it was found to be impractical during implementation, considering the scale of some construction. To maintain adequate safety distances for the cylinders, compliance with Table 6.3 will require greater separation distances for larger quantities.

- Δ **1.14** A new Clause 6.5.3.8 is added, as follows:

6.5.3.8 Cylinders on building rooftops

Cylinders on building rooftops shall comply with the following:

- (1) A propane **cylinder** shall not be on the roof of a building unless the cylinder is to be connected for work undertaken on the roof during the current or the following work shift.
- (2) **Cylinders** not in use shall be stored in accordance with provisions of clause 6.5.3.2 and the following shall additionally be met:
 - a. the **cylinder** weight shall not exceed the capacity of the roofing structure;
 - b. the storage area shall be at least 10 ft (3 m) from the building edge or a change in elevation of more than 3 feet (1 m);
 - c. **cylinders** shall be secured to maintain the cylinder in its proper storage position during inclement weather; and
 - d. all **cylinders** shall be removed upon completion of the work.
- (3) **Cylinders** properly connected in an **approved** manner to the appliance it serves shall be adequately secured from inclement weather.

(4) No more than 1000 lb (450 kg) of propane in total capacity shall be on the roof.

Background:

A new clause was added to specify all the relevant requirements for rooftop application at construction sites taking into consideration the practical side of such an operation.

Δ 1.15 A new Clause 6.5.11 is added:

6.5.11 Cylinder Exchange

6.5.11.1 General Requirements

In addition to other applicable cylinder storage requirements such as clause 6.5.1.9 and Table 6.3, facilities operating **cylinder exchanges** that are accessible to the public shall comply with the following requirements.

- a) **Cylinders** shall be stored in a lockable, ventilated metal cabinet or other **approved** enclosure.
- b) **Cylinders** shall be accessible only by authorized personnel or by use of an automated exchange system in accordance with Section 6.5.11.2
- c) A sign shall be posted on the entry door of the business operating the **cylinder exchange** stating “DO NOT BRING PROPANE CYLINDERS INTO THE BUILDING”.
- d) An emergency contact information sign shall be posted within 10 ft (3 m) of the cylinder storage cabinet.
- e) Electrical equipment within 5 ft (1.5 m) of **cylinder exchange** cabinets shall have a rating according to the Canadian Electrical Code, Part 1, Class 1, Group D, Division 2.
- f) Protection of **cylinders** for resale shall be as per 6.5.4.2 (b)

6.5.11.2 Automated Cylinder Exchange Machine

Cylinder exchange stations that include an automated vending system for exchanging **cylinders** shall comply with the following additional requirements:

- a) The Automated **Cylinder Exchange** Machine shall only permit access to a single **cylinder** per individual transaction.
- b) Cabinets storing **cylinders** shall be designed such that **cylinders** can only be placed inside when they are oriented in the upright position.
- c) Devices operating door releases for access to stored **cylinders** shall be permitted to be pneumatic, mechanical or electrically powered.
- d) A manual override control shall be permitted for use by authorized personnel. On Automated **Cylinder Exchange** Machines, the vending system shall not be capable of returning to automatic operation after a manual override until the system has been inspected and reset by authorized personnel.
- e) Inspections shall be conducted by authorized personnel to verify that all **cylinders** are secured, access doors are closed and the Automated **Cylinder**

Exchange Machine has no visible damage or obvious defects which necessitate placing the station out of service.

- f) There shall be a system, activated by a fusible link, designed to create a temporary inert atmosphere in the interior of the cabinet
- g) The system shall be equipped with a propane detector and if the system detects a propane leak the Automated **Cylinder Exchange** Machine will put itself in an out-of-service condition and send an email notification to the supplier.
- h) The area where the Automated **Cylinder Exchange** Machine is located shall be illuminated.
- i) All moving mechanisms in the Automated **Cylinder Exchange** Machine shall be of non-sparking construction.

Background:

The new clause provides specific requirements for cylinder exchanges using cages or automated cylinder exchange machines. There is a minimum distance of 5' between the cylinder exchange storage and any source of ignition.

There are provisions in Table 7.6, Part K that require electrical equipment rating within 5' of outdoor cylinder storage areas with aggregate storage capacities of up to 1,000 lb storage and within 15' for storage capacities up to 2,000 lbs.

CSA-B149.2 Technical Committee reviewed the requirements and approved the distance of 5' for cylinder cages irrespective of capacity, noting that cylinder cages will be limited to 4 cages of 500 lb capacity each up to four cages for cylinder exchange facilities.

1.16 Clause 6.6 (Transportation of cylinders) is revoked.¹

1.17 Clause 6 is amended by adding the following:

6.10 Requirements for Operation of Appliances and Cylinders at Shows, Exhibitions or other Similar Events

The operation of appliances and cylinders at shows, exhibitions, or other similar events shall comply with Annex J of CSA-B149.1-10 as adopted by Gaseous Fuel Code Adoption Document published by the Technical Standards & Safety Authority.

6.11 Filling cylinders under 100 lbs from bulk trucks

The filling of **cylinders** under 100 lbs from bulk trucks shall comply with Annex M of this Code.

¹ The subject matter falls under the federal Transportation of Dangerous Goods Regulation.

1.18 Clause 7.8.1 is revoked and the following substituted:

7.8.1

A **tank** shall only be installed underground in accordance with the manufacturer's instructions and the requirements of this section.

1.19 Clause 7.8.11 is revoked and the following substituted:

7.8.11

The minimum distance between the top of an underground **tank** and grade shall be in accordance with subclauses 7.8.12(c) and (d). Adequate protection in the form of fencing, guardrails, or bumper posts that comply with the requirements of clause 7.19.4 shall be provided for the above ground piping system and relief *valve* exhaust stacks to prevent abrasive action or physical damage from vehicular traffic. Tanks with a capacity below 2000 USWG are not required to have an exhaust stack.

1.20 Clause 7.8.12 is revoked and the following substituted:

7.8.12

An underground **tank** shall be located a minimum distance of

- (a) 5 ft (1.5 m) from a line of adjoining property that cannot be built upon and from other underground services;
- (b) 10 ft (3 m) from a line of adjoining property that may be built upon and from another underground tank;
- (c) 6 in. (15 cm) below grade in areas where there is no vehicle traffic or where the tank is protected from damage by vehicles by fencing, guardrails or bumper posts that comply with the requirements of clause 7.19.4; and
- (d) 18 in. (46 cm) below grade in areas where vehicular traffic can be expected.

1.21 Clause 7.8 is amended by adding following clause:

7.8.18

Underground **tanks** shall be inspected in accordance with the manufacturer's recommendations.

Δ **1.22** Clause 7.12.6 is revoked and the following is substituted:

7.12.6

In heavily populated or congested areas, the **authority having jurisdiction** may determine restrictions on individual **tank** capacity, total storage, parking of **tank trailers** and **cargo liners**, distance to line of adjoining property, and other requirements. The **filling plants** and **refill centres** shall comply with the requirements in Branch Standard No. 9 or a full risk and safety management plan

prepared by a Professional Engineer acceptable to the **authority having jurisdiction**.

Background:

The Clause was revised to add a sentence to reiterate the requirements to comply with the Branch Standard No. 9 or an accepted risk and safety management plan for facilities in the heavily populated or congested areas.

1.23 Subclause 7.19.4.2(b) is amended by appending the following sentence:

Alternatively, the Ontario Provincial Standard Drawing precast concrete barrier (OPSD-920.010 or 920.014, 911.140) may be used.

1.24 Clause 7.19.4 is amended by adding to it the following clauses:

7.19.4.4

Protection of **tanks** used to supply propane to **buildings** or sites under construction, repair or improvement may be accomplished by the installation of posts, guardrails or reinforced concrete barriers as required in clauses 7.19.4.1, 7.19.4.2 and 7.19.4.3 or by using:

- (a) concrete castings, weighting at least 900 lbs (410 kg) and not less than 30 inches (750 mm) in height. Any opening between barriers shall not exceed 54 inches (1350 mm); or
- (b) a continuous berm pile having a minimum height of 36 inches (900 mm). Distances between barriers and **tanks** shall be in compliance with the typical illustrations shown in Annex B.

7.19.4.5

In mine sites, logging facilities or asphalt plants, a continuous berm pile having a minimum height of 36 inches (900 mm) may be used to protect propane storage **tanks** and **equipment**.

1.25 Clause 8.12.3 is revoked and the following substituted:

8.12.3

The contents of a **tank** on a **tank truck** or a **cargo liner** shall not be transferred to the cargo **tank** on another **tank truck** or **cargo liner** unless the operation is carried out at a **filling plant**.

Except for an emergency such as a loss of power due to unexpected natural weather, the transfer of propane from a cargo **tank** to another **tank truck** or **cargo liner** at the **filling plant** shall be **approved**.

*Note: TSSA will consider the following before granting an approval to transfer propane from a cargo tank to another tank truck or cargo liner at a **filling plant**:*

- *The filling plant shall hold a valid licence*
- *The filling plant shall have a permanent licenced storage capacity of at least the largest tank truck, or the amount of the truck to truck transfer shall be specifically approved by TSSA*
- *The transfer shall be performed by a Propane Truck Operator (PTO) certificate holder*
- *The risks associated with the operation, including mitigation measures and emergency procedures in place*
- *Sufficient space to accommodate both **tank trucks** without blocking any emergency exits shall be maintained; and*
- *All requirements and minimum clearances of CSA B149.2-10, including emergency shutoff valves shall be complied with.*

1.26 Clause 8.14.3 is amended by adding to it the following:

(c) Notwithstanding (a) and (b), a **tank truck, tank trailer** or **cargo liner** carrying propane shall not be parked and used for storage in a congested or heavily populated area or within 50 ft of a **building** used for assembly, care or detention or multiple residential occupancy.

1.27 A new Clause 12 is added, as follows:

12 Operation, Maintenance, and Personnel Training

12.1 General

Each holder of a licence to operate a *filling plant* or a *container refill centre*, or any company acting as a distributor as defined in O. Reg, 211/01, shall develop documented operation, maintenance, and training procedures based on its experience, knowledge of its propane plants, and the conditions under which the procedures will be used. Clause 12.2 contains basic requirements and minimum standards for the safe operation and maintenance of propane operations and for personnel training.

Note: Because there are many variables, it is not possible to prescribe a set of operation and maintenance procedures that will be adequate from the standpoint of safety in all cases without being burdensome and, in some cases, impractical.

12.2 Operations and Maintenance Procedures

Procedures shall be established appropriate to *tank systems, filling plants, container refill centres* and other facilities as follows:

- (a) Operating procedures sufficient to ensure safety and reliability in the day-to-day operation of the facility.
- (b) Maintenance procedures covering testing, inspection, monitoring and documentation, equipment repair and general upkeep.

12.2.1 Documentation of procedures

The procedures in clause 12.2 shall be documented in a form appropriate to the particular facility in notices, manuals, guidelines, or other recorded instructions on display or readily available at the facility.

12.2.2 Review and revision of procedures

The procedures shall be reviewed as necessary to ensure they are promptly modified upon any equipment or organizational changes.

12.2.3 Operating procedures

The operating procedures shall be appropriate to the particular facility and shall take into account, amongst other things, the following:

- (a) Emergency procedures.
- (b) Emergency evacuation procedures and designated safe location.
- (c) Product transfer and handling procedures.
- (d) Monitoring of essential functions and equipment.
- (e) Housekeeping and site maintenance.
- (f) Any manufacturer's operating instructions for equipment.
- (g) Equipment not in use (i.e. isolation, deactivation, identification).
- (h) Maintaining clear spaces for access.
- (i) Maintaining clearances for setbacks.
- (j) Personnel safety.
- (k) Personal protective equipment.
- (l) Control of ignition sources.
- (m) Grounding and bonding.
- (n) Control of access, security and lock-up.
- (o) Vehicle movement and parking.
- (p) Operator experience.

12.2.4 Maintenance Procedures

12.2.4.1

Maintenance procedures shall be appropriate to the particular facility and shall take into account, amongst other things, the following:

- (a) Inspection of protective devices and alarms.
- (b) Regular inspection and testing of hoses.
- (c) Regular review of emergency procedures.
- (d) Regular review of emergency evacuation procedures and designated safe location.
- (e) Propane purging procedures.
- (f) Isolation and tagging.
- (g) Fire extinguishers and firefighting equipment.
- (h) Piping, pumps, valves and other propane equipment.
- (i) Storage tanks.

- (j) Electrical equipment.
- (k) Fencing and security measures, signage and notices.
- (l) Lighting.
- (m) Regular inspection and testing of vaporizers in a grid-type distribution systems.
- (n) Any manufacturer's maintenance instructions for equipment.

12.2.4.2

Persons who perform maintenance on propane systems shall be a certificate or record of training holder and trained in the hazards of the system and in the maintenance and testing procedures applicable to the facility.

1.28 The annexes are amended by adding Annex M as follows:

Annex M

Conditions for Filling Cylinders under 100 lbs from Bulk Trucks

M.1

Section 27 of O. Reg. 211/01 establishes the conditions for *cylinder* handling facilities. In summary, the following is required:

M.1.1

- Subsection 27(1) requires that each facility is licensed;
- Subsection 27(3)(c) requires a letter from the local municipality stating that the proposed site does not contravene the zoning by-laws; and
- Subsection 27(3) (d) requires drawings for each site.

M.1.2

Each application shall be approved in accordance with the requirements of O. Reg. 211/01 under the *Technical Standards and Safety Act, 2000*, and the conditions outlined below. Non-conformity with any of the conditions specified shall thereby cause the approval to lapse.

M.1.3

Each proposed site shall be approved. Drawings shall be submitted in accordance with O. Reg. 211/01, s. 27(3) (d).

M.1.4

Applications must include a letter from the local municipality stating that the refueling of propane *cylinders* does not contravene any applicable zoning bylaws.

M.1.5

Calculations shall be submitted confirming that Branch Standard No. 9 has been met.

M.1.6

Cylinders must be secured when being filled.

M.1.7

Hoses used for refueling the **cylinders** shall be of the type used in **container refill centres**.

M.1.8

The refilling of **cylinders** shall be performed in accordance with written procedures for refilling **cylinders** from a bulk truck.

2. The CSA Standard B149.5-10 “Installation Code for Propane Fuel Systems and Tanks on Highway Vehicles” published in January 2010 by the Canadian Standards Association is adopted with the following amendments:

2.1 Clause 3 is amended by revoking the definitions of “Approved” and “Authority having jurisdiction”.

2.2 Clause 3 is amended by adding to it the following definition:

Authority having jurisdiction — the Director designated for the purposes of O. Reg. 211/01 (Propane Storage and Handling).

2.3 Clause 4.1.5 is revoked and the following substituted:

4.1.5

Where a conflict exists between the manufacturer’s *certified* instructions and this code, the requirements of this code shall prevail unless otherwise approved by the authority having jurisdiction.

Δ 2.4 Clause 4.2.4 is revoked and the following substituted:

4.2.4.1

Valves, components, and accessories shall be **approved** to the relevant standards as per Annex F1 and in accordance with the process as described in Annex F2.

4.2.4.2

For **valves, components, and accessories** manufactured before October 1, 2015, they shall either be **approved** as per Section 4.2.4.1 or **approved** to the relevant

standards as per Annex E and also meets the IGAC Protocol No 09-17, issued on June 26, 2009.

Background:

Requirements for propane vehicle conversion components were stipulated in existing IGAC Protocol 09-17 using Annex E. It required the process to be reviewed and endorsed by a P. Eng. However, it was noted that the quality and competence of the P. Eng performing the task were not guaranteed and consistent. The B149.5 Technical Committee worked with CSA to develop a new process to improve the consistency and quality to be adopted in the 2015 edition. The new process requires a recognized accredited certification body, instead of a P. Eng., to endorse the European R67 components.

To adopt the process before the new edition is published, a new Annex F was added for that purpose. To allow time for implementation of the new requirements, the existing system as outlined in IGAC Protocol No 09-17 and Annex E will be accepted in parallel with the new Annex F for a year.

2.5 Clause 5.3.4.6 is revoked and the following substituted:

5.3.4.6

A **shut-off valve** on a **tank** shall be accessible; the removal of any cover shall not require the use of tools.

2.6 Clause 5.5.2 is revoked and the following substituted:

5.5.2 Tanks and any other **components** of the fuel system shall be installed with as much road clearance as practicable. This clearance shall be measured from the bottom of the tank or the lowest fitting, support or attachment on the tank or fuel system or its housing (if any), whichever is lowest, as follows:

1. **Tanks** and any **component** of the fuel system installed between axles shall be no lower than the lowest point forward of the tank or fuel system on:
 - (a) the lowest structural component of the body;
 - (b) the lowest structural component of the frame or subframe, if any;
 - (c) the lowest point of the engine;
 - (d) the lowest point of the transmission (including the clutch housing or torque converter housing, as applicable).
2. **Tanks** and fuel system **components** installed behind the rear axle and extending below frame shall be no lower than the lowest point of the following points and surfaces:
 - a. Not lower than the lowest point of the structural component of the body, engine, transmission (including clutch housing or torque converter housing, as applicable), forward of the tank or fuel system. Also no lower than the lines extending rearward from each wheel at the point where the wheels contact the ground directly below the centre of the axle to

the lowest and most rearward structural interference (i.e. bumper, bumper frame, etc.).

- b. Where there are two or more rear axles, the projections shall be made from the rearmost axle.

2.7 Subclause 5.7.6 is amended by adding the following:

5.7.6.4

A supply line of a vehicle or a return line from the engine to the *tank* shall be installed to maintain a clearance of at least 2 inches (50 mm) from any positive unfused terminal.

2.8 Subclause 5.7.7 is amended by adding the following:

5.7.7.8

A supply line that pierces a panel of a vehicle shall be protected from damage by a grommet, bulkhead fitting or a similar device.

2.9 Subclause 5.13 is amended by adding the following subclauses:

5.13.5

Tanks shall be inspected every five years in accordance with the "Province of Ontario 5 Year Periodical Visual Inspection Procedure and Criteria for Propane Fuel Systems and Tanks on Highway Vehicles." Where the Inspection Procedure contains a requirement that conflicts with a requirement in this code, the requirements in this code shall prevail.

5.13.6

A label applied in accordance with 5.13.1 shall show an expiry date of 5 years after the date of conversion or inspection.

5.13.7

Where a label described in 5.13.1 is missing or lost, a new label may be applied showing the remaining time until expiry without a vehicle inspection, provided that documentation is provided of the vehicle conversion or most recent vehicle inspection date.

5.13.8

The inspection required in 5.13.6 shall be carried out by a holder of a valid Internal Combustion Alternate Fuel Technician, Propane (ICE-P) certificate. The inspection shall be carried out at a registered vehicle conversion centre.

Δ 2.10 A new Annex F is added:

Annex F (normative)

Relevant Standards for valves, components, and accessories

Note: This Annex is a mandatory part of this Code.

F1. Components shall be in compliance with the appropriate reference Standard shown below:

Component	Reference Standard
Automatic liquid level control (stop-fill) valves	UL 125 or Annex 3 of Standard R67*
Back check valves	UL 125 or Annex 7 of Standard R67*
Carburetor, mixers, and adapters	Annex 11 of Standard R67
Electronic liquid level sensor	Annex 3 of Standard R67*
Filler valves (remote fuelling)	UL 125 or Annex 9 of Standard R67*
Fixed liquid level vent valves	UL 125 or Annex 3 of Standard R67*
Float type liquid level gauges	UL 565 or Annex 3 of Standard R67*
Fuel rail	Annex 11 of Standard R67*
Fuel tanks	See Clause 5.2 of this Code
Gas dosage unit	Annex 12 of Standard R67*
Gas pressure regulator	Annex 6 of Standard R67*
Hydrostatic relief valves	UL 132
Liquid excess flow valves	UL 125 or Annex 3 of Standard R67*
Power supply bushing	Annex 3 of Standard R67*
Pressure and temperature sensors and switches	Annex 13 of Standard R67*
Propane fuel pumps	Annex 4 of Standard R67*
Propane heat exchanger	CSA B51
Propane injection devices	Annex 11 of Standard R67*
Solenoid valves	UL 429 and UL 125; or Annex 3 of Standard R67*

Supply/return lines	See Clauses 5.7.2 and 5.7.3 of this Code
Vaporizers	Annex 6 of Standard R67*
Withdrawal (service) valves other than solenoid type valves	UL 125 or Annex 7 of Standard R67*

**Components shall be suitable for temperatures of – 40 °C and relief pressures based on service.*

F2. Canadian Recognition of Propane Components tested by ILAC Signatory to accepted Canadian Requirements

Note:

The purpose of this Annex is to facilitate the acceptance of R67 components in Canada, as currently recognized by reference in the CSA B149.5 Installation Code for Propane Fuel Systems and Tanks on Highway Vehicles.

This protocol is approved by the Interprovincial Gas Advisory Council (IGAC), and is intended as guidance to Provincial authorities having jurisdiction, to serve as a reference document on which to base Provincial acceptance of R67 components, as revised in the CSA B149.5 Code.

It is noted that Standards Council of Canada recognizes accredited product certifications, *including product testing performed at laboratories that are accredited by an ILAC signatory*. However, in this case, the test has to be performed to the standard recognized by the provincial regulator and it has to be verified that the test is within the scope of accreditation granted to the laboratory by the signatory. CSA B149.5 Installation Code for Propane Fuel Systems and Tanks on Highway Vehicles recognizes the suitability of propane components that meet the requirements of various sections of R67 "UNIFORM PROVISIONS CONCERNING: I. APPROVAL OF SPECIFIC EQUIPMENT OF MOTOR VEHICLES USING LIQUEFIED PETROLEUM GASES IN THEIR PROPULSION SYSTEM". Due to current market conditions, there is a lack of component certification conducted by agencies accredited by Standards Council of Canada (SCC), thereby necessitating a protocol to facilitate acceptance of these components that have been tested by an ILAC Signatory.

F2.1 Use of propane components tested by an ILAC Signatory Accredited Laboratory

F2.1.1 Components in compliance with R67 as determined by an ILAC signatory accredited laboratory may be acceptable for use in Canada in accordance with the limitations of Annex F of CSA B149.5, subject to the approval of the *Authority Having Jurisdiction*.

F2.1.2 Components shall bear a marking of a circle surrounding the letter “E” followed by the distinguishing number of the country which has granted approval, as stated in section 5 of R67 e.g. **Germany** = E1, **Czech Republic** = E8, etc.

F2.1.3 Homologation and test reports shall be reviewed by a certification body accredited by Standards Council of Canada on behalf of Canadian distributor to verify compliance with R67 as revised by CSA B149.5.

Note: *The Canadian distributor includes those who import the product direct for their own use.*

F2.1.4 The Canadian distributor shall have a documented quality program, acceptable to the certification body, which ensures that they order, receive and supply compliant components. Prior to distribution to the market, the distributor shall ensure that the markings meet the requirements of the B149.5 code. All transactions shall be traceable to facilitate recalls if required. Measures shall be established within the quality control program to provide for a systematic review and correction of nonconformities. The distributor shall keep the approved quality control system in use and enforce conformity with its provisions with respect to any components made and distributed under this Annex.

F2.1.5 Components shall bear a marking identifying the name of the manufacturer or Canadian distributor and the words “CSA B149.5”.

Background:

See section 2.4 (Clause 4.2.4) above.

3. The TSSA **Field Approval Code**, TSSA-FA-2012, is adopted for the approval of assembly or construction of an appliance.

This amendment is effective October 1, 2014.

DATED at Toronto this 1st day of August, 2014

ORIGINAL SIGNED BY

John Marshall

Director, O. Reg. 211/01 (Propane Storage and Handling)

Any person involved in an activity, process or procedure to which this document applies shall comply with this document. This document was developed in consultation with the TSSA Propane Council and the TSSA Propane Risk Reduction Group