



# Implementation Guideline for Companies requesting TSSA Certificate(s) of Authorization for the Shop Fabrication, Field Installation, Repairs, Alterations and Erection of Piping Systems

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## 1. SCOPE:

This guideline defines the requirements to be followed when applying for Certificate(s) of Authorization with the Technical Standards and Safety Authority (TSSA) for the shop fabrication, field installation, repairs, and erection of piping systems in accordance with CSA B51, CSA B52, ASME B31.1, ASME B31.3, ASME B31.5 and CSA Z7396.1 (as applicable).

This guideline also defines the requirements to be followed when applying for a Certificate of Authorization with the TSSA for the shop fabrication, field installation, repairs, and erection of piping systems in accordance with ASME Section I, and ASME B31.1 for Boiler External Piping.

## 2. ABBREVIATIONS:

<b>AIA</b>	Authorized Inspection Agency
<b>AI</b>	Authorized Inspector
<b>ASME</b>	American Society of Mechanical Engineers
<b>CSA</b>	Canadian Standards Association
<b>TSSA</b>	Technical Standards and Safety Authority
<b>MCAO*</b>	Mechanical Contractors Association of Ontario
<b>HRAI*</b>	Heating, Refrigeration and Air Conditioning institute of Canada
<b>ORAC*</b>	Ontario Refrigeration and Air Conditioning Contractors Association

\*MCAO, HRAI and ORAC are Trade Organizations in Ontario. BPV Member Organization companies may utilize registered welding and/or brazing procedures for use in the Quality Program as set out in their agreement with the applicable Trade Organization. The use of these procedures and controls are required to be addressed in the Quality Program Manual.

## 3. AUTHORIZED INSPECTION AGENCY (AIA):

The Authorized Inspection Agency in Ontario for new piping installations, repairs and alterations to pressure equipment is the TSSA.

## 4. REFERENCED DOCUMENTS:

- TSSA Safety Information Bulletin: SB02-02 Rev. 2 *Requirements for Manufacturers and Installers of Pressure Piping Parts and Systems*
- Quality Program Manual Checklist: *Certification of Pressure Piping System Fabricators, Installers, Repairers and Alterers*

## 5. APPLICATION FOR NON-NUCLEAR ONTARIO CERTIFICATE OF AUTHORIZATION:

The Company shall complete the *Application for Non-Nuclear Ontario Certificate of Authorization*. The Company shall submit the application with the required deposit\* as indicated on the application.



The Company shall indicate if there are additional manufacturing locations. When the application is received by the TSSA, the BPV Administrative Assistant will contact the Company and forward the Quality Program Checklist and audit instructions.

\*If the applying Company is a Trade Organization Member, utilizing the Trade Organization Quality Program, check off the applicable box on the application form and submit with the reduced Trade Organization fee. Please note that proof of membership with the Trade Organization's BPV Program is required to be sent with the application. If the Company is an HRAI BPV Member, proof of membership is not required.

## 6. SCHEDULING THE AUDIT:

The TSSA BPV Administrative Assistant will schedule a mutually agreeable time and location with the Company for the audit. The Company is required to submit a copy of the completed Quality Program Manual, Quality Program Checklist and completed Implementation Checklist to the TSSA BPV Administrative Assistant prior to the audit.

When the audit has been scheduled, the Company shall adhere to the scheduled time and date. Careful attention should be noted, as cancelling the audit less than fifteen (15) working days to the mutually agreed date may result in cancellation charges (see the *Application for Non-Nuclear Ontario Certificate of Authorization* notes).

## 7. THE QUALITY PROGRAM AND THE QUALITY MANUAL:

The Company shall implement a Quality Program and document it in a Quality Program Manual\* as required by the TSSA Safety Information Bulletin: SB02-02 Rev. 2 that describes how the Company will control the processes as outlined in the Quality Program Manual Checklist.

The Company shall address all the elements as detailed in the Quality Program Manual Checklist. The Company shall appoint personnel to fulfil the requirements of the Quality Program.

\*Trade Organizations may provide a manual to their clients for use. It is up to the Company requesting the Certificate(s) of Authorization to ensure that all requirements of the Quality Program Checklist are addressed in the manual.

## 8. CODE BOOKS:

The Company shall maintain a copy of, or have direct access to the latest Edition of the following applicable Code books\*:

- CSA B51 *Boiler, Pressure Vessel and Pressure Piping Code*
- CSA B52 *Mechanical Refrigeration Code*
- CSA Z7396.1 *Medical Gas Pipeline Systems Part 1*
- ASME B31.1 *Power Piping Code*
- ASME B31.3 *Process Piping Code*
- ASME B31.5 *Refrigeration Piping and Heat Transfer Components*
- Any other supporting Codes as applicable

\*Contact the auditor if assistance is needed to determine the required Code books.



**9. WELDING AND BRAZING** (When applicable to the Quality Program):

Welding and Brazing Procedures

The Company shall have the applicable Welding and/or Brazing Procedure(s) registered with the TSSA to complete the work they are requesting to perform in accordance with the applicable Code of Construction and ASME Section IX.

Welders/Welding Operators and Brazers/Brazing Operators

The Company shall have Welding and/or Brazing Personnel qualified in accordance with the registered procedure.

**10. NON-DESTRUCTIVE EXAMINATION (NDE) OF WELDS** (When applicable to the Quality Program):

NDE includes (as applicable):

- Radiographic Examination
- Ultrasonic Examination
- Liquid Penetrant Examination
- Magnetic Particle Examination
- Visual Examination\*

The Company shall determine what NDE is required in their Quality Program. If NDE is required, the Company is required to perform or sub-contract this examination. The controls shall be described in the Quality Manual.

\*Certification of visual examination personnel may be qualified in accordance with:

- ASME B31.1, Chapter VI, Paragraph 136
- ASME B31.3, Chapter VI, Paragraph 341
- AWS QC1
- CSA 178.2 Level 1

**11. AUDIT DEMONSTRATION ITEM:**

The Company shall demonstrate the Quality Program to the TSSA Quality Assessment Specialist. Prior to the audit, the Company shall prepare a demonstration mock-up that will demonstrate the Company's ability to perform work in accordance with their Quality Program.

The demonstration shall be a mock job or may be an actual job if agreed upon between the TSSA Quality Assessment Specialist and the Company. The demonstration mock-up will be reviewed at the time of the audit by the TSSA Quality Assessment Specialist.

When using a demonstration mock-up, the local TSSA AI need not be involved (unless the Company is applying for Boiler External Piping per ASME Section I). The piping mock-up does not require registration with the TSSA.

The demonstration mock-up does not need to be exactly as shown in the samples below. The Company may provide a different arrangement or item. This is acceptable providing the demonstration mock-up is adequate to demonstrate compliance with the Company's Quality Program.

**Special Note (1):** Only one (1) mock-up is required. For example, when the Company has both welding and brazing in their Quality Program, the Company does not need to provide both a welded and brazed mock-up. If a Company has both welding and brazing in their Quality Program, *a welded mock-up is required as a minimum.*

**Special Note (2):** The Company should contact the Auditor for clarification or to seek any exceptions to the Demonstration Item (point 13) listed below.

**12. RENEWAL OF CERTIFICATE(S) OF AUTHORIZATION:**

Certificate(s) of Authorization expire every three (3) years. The Company will receive a renewal notification from the TSSA BPV Administrative Assistant approximately six (6) months prior to the expiry of the current certificate(s). If a renewal package has not been received by the Company three (3) months prior to the expiration date, the Company shall contact the BPV Administrative Assistant for guidance.

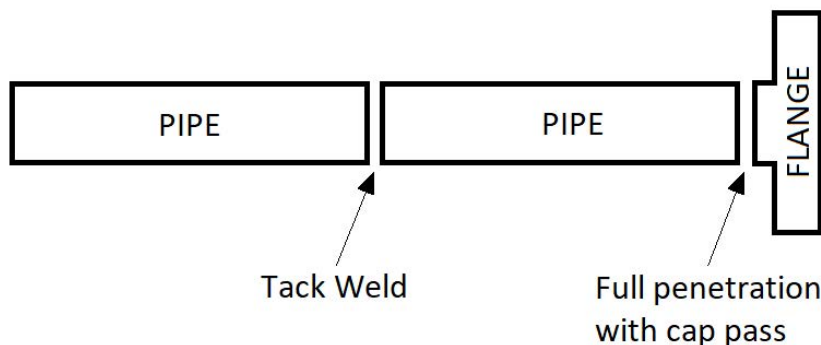
**13. DEMONSTRATION ITEM:**

The purpose of the demonstration item is to evaluate the applicant’s Quality Control System (QCS) and implementation. For evaluation of the QCS, the applicant must demonstrate to the current Code rules sufficient administration and construction to show that they have the knowledge and ability to produce the Code items typical of those covered by the QCS.

The construction functions may be demonstrated using current work, a mock-up, or a combination of the two. Any current Code work ongoing at the time of the audit is subject to the audit team’s review.

The Company shall address all the elements detailed in the Demonstration Item Checklist as applicable to the scope of activities that apply to their program. Contents of the demonstration document package shall be per the Company’s Quality Manual. The following mock-up examples show multiple scenarios typical of work performed. Please note the most stringent scenario that applies to the QCS is required for the demonstration item.

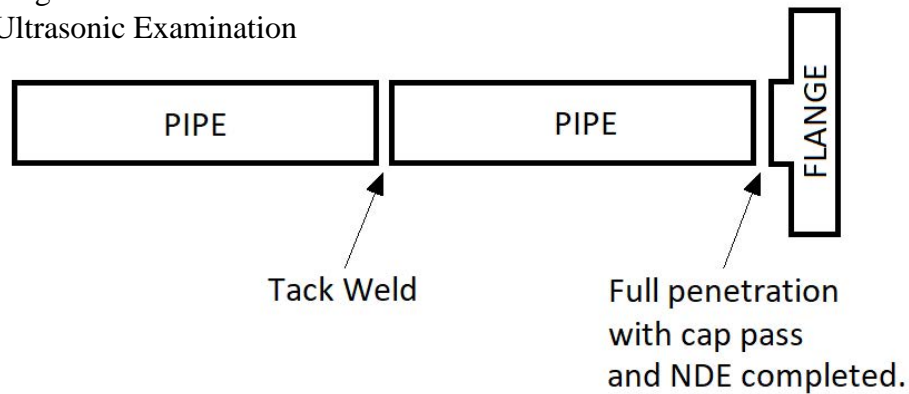
- a. A typical demonstration item for Quality Programs with welding, or welding and brazing, and no NDE (with the exception of visual inspection):



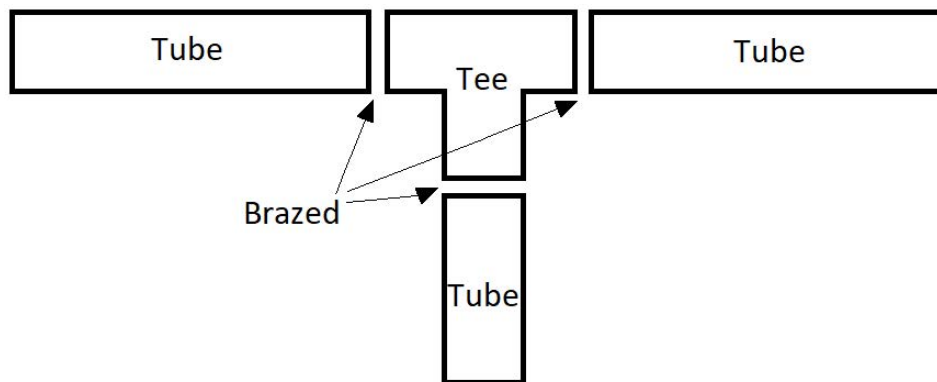
b. A typical demonstration item for Quality Programs with welding, or welding and brazing, and NDE:

Demonstrate any one of the following on a completed weld:

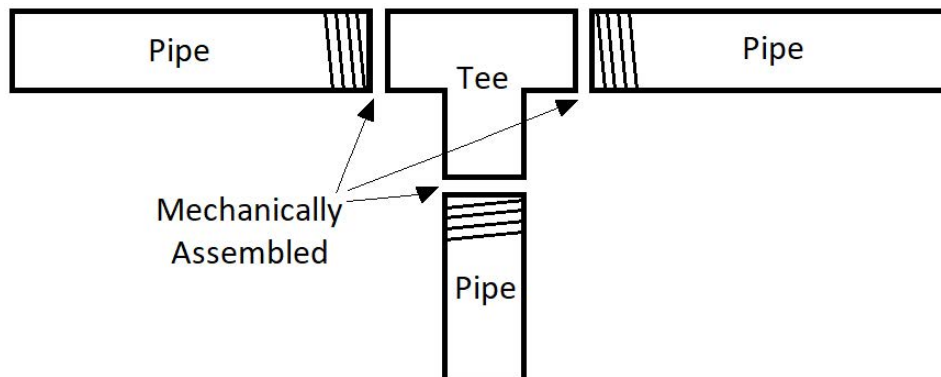
- Radiographic Examination
- Liquid Penetrant Examination
- Magnetic Particle Examination
- Ultrasonic Examination



c. A typical demonstration item for Quality Programs with brazing only:



d. A typical demonstration item for Quality Programs with no welding or brazing:





## 14. DEMONSTRATION ITEM CHECKLIST

Company Name: \_\_\_\_\_

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

No.	Quality Element and Sub-Elements	Yes	No	N/A	Comments
1	<b>MANUAL CONTROL</b>				
	(a) A signed copy of the Quality Control Manual (QC Manual) is available during the review of the demonstration item.				
	(b) Proof of review of the current editions for the applicable TSSA Code Adoption Document, CSA, ASME, and NBIC Code Books (as applicable) by the Company representative.				
2	<b>DRAWINGS, DESIGN CALCULATIONS AND SPECIFICATION CONTROL</b>				
	(a) As applicable, the drawings and calculations for the demonstration item have been approved by the Company representative and available in the job package.				
	(b) The demonstration drawing and/or design specification contains all required information as stated in the QC Manual.				
	(c) When required, the drawings and calculations have been stamped by a professional engineer and registered with TSSA.				
	(d) When required, documented verification of new computer program revisions have been made within 6 months of the new Code edition.				
3	<b>MATERIAL CONTROL</b>				
	(a) Purchase Orders, Material Lists, etc., include all the information as described in the QC Manual for the purchasing of materials.				
	(b) As applicable, the Purchase Orders, Material Lists, etc., have been reviewed and accepted by the Company representative. All Purchase Orders, Material Lists, etc., are included in the job package.				
	(c) Proof of material inspection has been documented as stated in the QC Manual.				
	(d) All material is identified and traceable. Any Mill Test Reports, Certificates of Conformance, and Statutory Declarations are available in the job package.				
	(e) As applicable, mill test reports have been reviewed and accepted and when required chemical & mechanical properties verified to ASME Section II.				
	(f) As applicable, all welding and/or brazing material is clearly identified and suitable stored.				
	(g) As applicable, all non-conforming material has been identified and handled in accordance with the QC Manual.				
4	<b>EXAMINATION AND INSPECTION PROGRAM</b>				
	(a) An Inspection and Test Checklist or Plan has been prepared and lists all stages of fabrication, examination, and test.				
	(b) The Inspection and Test Checklist or Plan includes columns for inspections performed by the Company representative and the Authorized Inspector (AI), as applicable.				
	(c) No work has proceeded past required inspection points as set out by the Company representative and the AI, as applicable.				
	(d) All required tests and examinations have been completed and reviewed by the Company representative prior to obtaining the acceptance of the AI. The complete Inspection and Test Checklist or Plan is included in the job package.				
	(e) As applicable, the Company representative has completed the Data Report and submitted to the AI for review and acceptance. The completed Data Report is included in the job package.				



No.	Quality Element and Sub-Elements	Yes	No	N/A	Comments
5	<b>NON-CONFORMANCES</b>				
	(a) Any non-conformances for the demonstration item have been raised per the QC Manual and the Non-Conformance report available in the job package.				
6	<b>WELDING AND/OR BRAZING CONTROL (AS APPLICABLE)</b>				
	(a) An individual has been appointed by the Company as a Welding/Brazing Supervisor. The appointment is documented and records for the Welding/Brazing Supervisor is available.				
	(b) All Welding/Brazing Procedure Specifications and Procedure Qualification Records used for the demonstration item have been registered with TSSA and included in the job package.				
	(c) All Welders/Welding Operators and/or Brazers/Brazing Operators performing work on the demonstration item have been certified by TSSA and included in the job package.				
	(d) The demonstration item includes the identification of each welder/brazer.				
	(e) As applicable, welding and/or brazing logs have been maintained by the Company representative and copies of any applicable logs are included in the job package.				
	(f) All Welding/Brazing Procedure Specifications are available to the Welder/Brazer in the work area.				
	(g) As applicable, welding or brazing subcontractor information is included in the job package.				
	(h) As applicable, any bonding procedures and bonding performance qualifications (including bonding logs) is included in the job package.				
	(i) Welding/brazing material storage and conditioning of low-hydrogen electrodes is controlled.				
7	<b>NON-DESTRUCTIVE EXAMINATION</b>				
	(a) As applicable, the NDE Company procedures and personnel qualifications are up to date and have been reviewed and accepted by the Company representative.				
	(b) As applicable, all NDE reports for the demonstration item have been accepted by the Company representative and available in the job package.				
	(c) Unless subcontracting out visual examination an individual has been certified by the Company as a Visual Weld Examiner. The certification is documented and records for the Visual Weld Examiner are available.				
(d) When required, all Visual Examination Reports for the demonstration item have been accepted by the Visual Weld Examiner and available in the job package.					
8	<b>HEAT TREATMENT</b>				
	(a) As applicable, Post Weld Heat Treatment (PWHT) procedures, time/temperature charts and other PWHT documentation have been reviewed and accepted by the Company representative and available in the job package.				
9	<b>CALIBRATION OF MEASURING AND TEST EQUIPMENT</b>				
	(b) Documentation for calibrated items used for the demonstration item shall be included in the job package.				
	(c) All calibrated items shall be suitable stored.				
	(d) All calibrated items shall be identified, and records of calibration shall be maintained.				
10	<b>RECORDS RETENTION</b>				
	(a) The demonstration job package shall include all relevant documentation as stated in the QC Manual.				