TECHNICAL SAFETY BC

BOILERS, PRESSURE VESSELS, AND REFRIGERATION

Class B

Contractor Licence Guideline

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Class B Contractor Licence Guideline

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Safety Notice

Disclaimer:

Please note that references to the legislation, codes, directives, safety orders, and web pages throughout this document may not reflect the most recent versions available.

Also, the references in this outline are not an exhaustive list of all examples that may apply to a particular situation.

Users exercise their best judgement and expertise to assess whether these references are current and applicable to their specific situation.

The latest version of this document is available in PDF format on the Technical Safety BC website: https://www.technicalsafetybc.ca/

Contents

1. Scope of this Guideline

This guideline will assist applicants in developing, updating, or revising quality control programs that are applicable to a Class B contractor licence under the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation (the "Regulation"). The guideline should be used in conjunction with our regulatory notice, Directive: Boiler, Pressure Vessel & Refrigeration Contractor Licencing Requirements (D-BP 2019-01).

2. Application for a Class B Contractor Licence

To apply for a Class B contractor licence, the applicant must submit a completed application form, a current copy of their documented quality control program, and pay the non-refundable application fee to Technical Safety BC.

Application submission options, the schedule of applicable fees, and related information are available on our website.

3. What is a Quality Control Program?

A quality control program is a documented manual that provides a complete and detailed overview of the regulated work being done, this manual must be updated regularly.

Quality control programs must detail the organization's processes, procedures, and controls for maintaining compliance with the requirements within the scope of work described. Quality control programs must take into consideration all applicable regulatory requirements, including, but not limited to, the Safety Standards Act (the Act) and Regulations, adopted codes, directives, and safety orders.

The necessary scope and detail of the program will depend on the complexity of the work to be done and on the size of the organization whose employees will be performing the regulated work. Regulated work may be performed in a fixed location for example, in a shop, at a field location(s) or at both, provided the quality control program describes the controls.

The submission of a documented quality control program is required as a part of the application process for a Class B contractor licence.

4. Contents of a Quality Control Program Manual

Appendices A and B detail the minimum information to document in a quality control program manual. The information in the appendices provides guidance for the planning, development, implementation, and maintenance of an effective quality control program and may be used in conjunction with Appendix F in CSA B51: Boiler, pressure vessel, and pressure piping code.

Depending on the scope of the regulated work to be performed and the specific applicable code requirements, additional information beyond the contents of this guideline may be required.

5. Review and Acceptance of the Applicant's Quality Control Program

Technical Safety BC reviews the quality control program for acceptance before issuing a contractor licence. Additionally, in accordance with the adopted CSA B51 code, the applicant will need to demonstrate that they meet the following requirements:

- They have adequate equipment, facilities, and certified individuals to perform the scope of work specified in their quality control program.
- They have a thorough working knowledge of their quality control program including any written processes, procedures, or forms to be completed for the demonstration.
- The submitted mock up demonstration package would consist of required forms to be used for the regulated scope of work listed in the accepted quality control program.

Technical Safety BC will review the submitted demonstration project and assess the application of the quality control program requirements. Once both the manual and demonstration project are accepted and applicable fees are paid, Technical Safety BC will issue the Class B contractor licence.

6. Maintaining the Quality Control Program

Quality control programs must remain current, up-to-date, and in compliance with the Safety Standards Act. They must accurately reflect the current requirements contained in the Act and Regulations, adopted codes, directives, and safety orders as amended from time to time.

A licensee may change, update, or revise their quality control program at any time, provided they submit the changes, updates, or revisions to Technical Safety BC before implementation. Changes, updates, or revisions can be submitted online. For more information, see the Directive: Boiler, Pressure Vessel, and Refrigeration Contractor Licensing Requirements.

The licensee must review their quality control program for any changes that may affect the program and must submit any required revisions to Technical Safety BC for review and acceptance prior to implementation. At a minimum, quality control programs must be reviewed annually prior to submitting for licence renewal.

7. Audits of the Licenced Contractor’s Quality Control Program

Quality control programs are subject to inspection, including investigation, monitoring, and audit, by Technical Safety BC at any time. We inspect a licensee’s quality control programs and associated regulated activities to confirm that a contractor is meeting the expectations under their licence, including, but not limited to, following and applying all aspects of their quality control program.

Appendix A. Quality Control Program Manual Guideline

The following provides guidance for documenting an effective quality control program within a manual and may be used in conjunction with CSA B51, including 'Annex F'.

Depending on the complexity of the regulated work to be performed and the specific applicable code requirements, additional information that is beyond the contents of this guideline may be required in the manual.

1. Cover page

The cover page of the quality control program manual should include:

- the organization's name, logo, and physical address,
- the contractor's licence number and class,
- a summary or preview of the quality control program's scope,
- the manual's issue date,
- the manual's edition,
- the manual's revision level, and
- whether the manual is a controlled or uncontrolled copy of the document.

2. Scope

Provide a detailed scope (see Table 1) of work that identifies the regulated work to be performed by the organization. Include:

- Reference to the class of contractor licence.
- A listing of all adopted code sections and standards applicable to the described scope of work, using and by retaining up-to-date copies of the applicable codes adopted by the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation (the "Regulation"). Indicate that the regulated work will be performed according to the described scope of work.
- A description of the controls that are put in place to ensure that regulated work outside of the scope of the licence will not be performed, and that the contractor will comply with the terms and conditions on the licence.
- Specifics as to where the regulated work will be taking place and include provisions for implementing the quality control program in a shop, at field location(s), or both, as is applicable.
- A listing the activities that will be performed solely by the licensee's organization and those that will be subcontracted to competent third parties. Examples of activities to consider are design, drawings, pressure welding, non-destructive examination, and heat treatment.

During the review of the quality control program, Technical Safety BC will use the scope of work provided to determine the complexity of the regulated work to be performed.

Table 1. This scope of work is applicable to a Class B contractor licence. See the schedule of the Regulation for a list of the adopted codes and standards.

Class B	Reference: Scope of work
Limited capacity boiler, pressure vessel and pressure piping	Install, maintain, and repair the following plant types: • Fluid heating plants of 75 m2 or less of heating surface. • Steam heating plants of 30m2 or less heating surface. • Power plants of 10m2 or less of heating surface; and • Water heaters with inputs exceeding 120 kW. Install and maintain: • Pressure vessels associated with the above plants; and • Pressure piping associated with the above plants. *Conforming to CSA B51 and following any applicable code(s) referenced. i.e., ASME CSD-1, ASME B31.9, National Board NB-23

3. Statement of Authority and Responsibility

Describe the authority and responsibilities of the person(s) in charge of the quality control program (i.e., Quality Control Manager). In addition, provide documentation, in the Statement of Authority section of the quality control program manual, that those in charge have the freedom to identify non-compliances and to take corrective actions, including stopping work if needed, with the full support of management.

The highest authority noted on the organizational chart must sign the Statement of Authority and Responsibility. Include a copy of that signed statement in the quality control program manual.

4. Tables of Contents, Revision History, and Defined Terms

In this section of the manual, include the following three tables:

- A table of contents, listing the manual's sections and exhibits, along with its revision level. Include room for the contractor to approve the manual and for Technical Safety BC to accept it by signing and dating.
- A table that tracks the manual's revision history.
- A table of definitions (glossary) for all abbreviations, including titles of personnel, quality control documents, organizations, cited codes, standards, laws, and regulations, and any technical terms used frequently within the manual.

5. Manual Control

In the quality control program manual, stipulate provisions for how it will be prepared, revised, distributed, and implemented. The provisions should specify the person(s) responsible (i.e., Quality Control Manager) for the manual's control, including who will submit revisions of the manual to Technical Safety BC. This section should describe how the licenced contractor will review and update the manual to ensure that knowledge of the Safety Standards Act and Regulations, directives, safety orders, adopted codes, and standards is maintained and kept current.

6. Organizational Chart

Include an organizational chart that shows the reporting relationships and lines of communication between management, engineering, purchasing, manufacturing, production, inspection, quality control, and subcontractors, as applicable, and as reflects the actual organization. Brief explanations

of the duties and responsibilities of key personnel (i.e., Quality Control Manager) whose performance affect the quality control program are also required.

7. Drawings, Design, Calculations, and Specifications (*if applicable, see Appendix B*)

In the manual, include the provisions that will be used in the quality control program to identify the minimum information necessary, in the form of drawings, specifications, or other means, to comply with the applicable code.

- Describe the procedures that will be applied to ensure that the latest applicable drawings, design calculations, specifications, and instructions are used for installation, assembly, examination, inspection, and testing in the work to be undertaken. If the design and drawing function is subcontracted to a third party, describe the process by which the organization will review and approve those documents before they are released to the production team.

- If computer calculations will be used in creating the drawings, design, calculations or specifications for the regulated work, the codes regarding boilers, pressure vessels, and pressure piping require that any computer-generated calculations used in regulated work be verified manually before use and that the verification documents or computer files be retained. Include provisions in the manual for this verification and documentation to help ensure the computer program or software used produces acceptable calculations.

- Identify the person(s) responsible for preparing, reviewing, and approving designs and drawings for regulated work, the person(s) responsible for specifying the materials to be used, and the person(s) responsible for controlling regulated work that will be performed in the shop and/or at the field location(s). Identifying the responsible person(s) by their title(s) without names is acceptable.

- Should the project's approved designs and drawings be revised, include descriptions of the controls that will be applied to ensure obsolete designs and drawings are withdrawn from the shop and field location(s) and are replaced with the revised designs and drawings.

- Describe the controls that will be used to ensure that regulated work will be performed only when the original design of regulated equipment has been registered with Technical Safety BC, according to the Regulation and CSA B51 requirements.

8. Material Control

Specify and describe the system that will be used for ordering, receiving, and controlling material. This quality control program element helps ensure that the correct material (including welding or brazing consumables) is procured, inspected after receipt, properly stored, and released for production:

- Define the controls that will be used for maintaining material traceability until project completion, including heat numbers and colour code applications.
- Include provisions to ensure that the received materials have the required material certifications, material test reports, or certificates of conformity to meet the applicable code requirements.
- Specify and describe the material control system in place to ensure that only the intended material is used when performing regulated manufacturing work, either in shop or in field location(s). Specify that only the intended material is used within the scope of the licence, and that the material is used according to the specifications of the applicable codes and standards.
- Include provisions for how materials that are not in compliance with the registered design or the applicable code will be handled, as well as provisions to ensure the substitution of materials is allowed. Include applicable procedures for how substitute materials will be controlled and the

designation of the individual who is authorized to approve them with the boiler safety officer's approval.

9. Installation, Repair, Alteration, or Construction

Designate and identify the person(s) responsible for overall quality control program management for the regulated installation, repair, alteration, or construction work. The person(s) to identify in the manual include those responsible for material ordering, receiving, and inspecting materials after receipt. Further, include those responsible for issuing materials to be used, and those responsible for examining and inspecting regulated work in the shop and field location(s). Include provisions for ensuring work is conducted by certified individuals, obtaining any required permit(s), and that all required inspections are to be performed by a boiler safety officer employed by Technical Safety BC.

In addition, include provisions in the manual for liaison with Technical Safety BC's boiler safety officer and for providing the boiler safety officer with unrestricted access to a controlled copy of the quality control program manual, all quality control program records, and to all locations within the shop and/or field location(s) where the regulated work is being conducted.

10. Welding and Brazing Control (*if applicable, see Appendix B*)

In the manual, include provisions that pressure welding and brazing work to be performed will conform to the requirements of the Act and Regulations, adopted codes, directives, and safety orders.

- Describe the measures that will be used to prepare, qualify, and register welding and/or brazing procedure specifications when required with Technical Safety BC when required.
- Include provisions to ensure a welder/brazier is qualified to the registered welding and/or brazing procedure per CSA B51 by a Recognized Test Administrator when required.
- Define the measures that will be used to control welding/brazing and to ensure that the work undertaken is traceable, as is required by the applicable codes. This includes measures for tracking the storage and distribution of welding/brazing consumables.
- For pressure welding, describe the process that will be used to ensure: only individuals who hold a pressure welder Certificate of Qualification are assigned to perform pressure welding on a regulated product, that the extent of their work is limited to the pressure welder certificate class that they hold, and that these individuals maintain all applicable qualifications.
- Include provision for Technical Safety BC's boiler safety officer's obligation to require re-qualification of a welder/brazier or procedure with just cause, per code.

In addition, include provisions in the manual for the subcontracting of welding on regulated products to ensure subcontracted welding companies hold valid contractor licences issued by Technical Safety BC and have Technical Safety BC accepted quality control programs. In the event the organization subcontracts pressure welding services, provisions should be in place, and be described within the manual, to clarify the use of the subcontractor's quality control program or the main contractor's quality control program for pressure welding controls and documentation.

11. Non-Destructive Examination (*if applicable, see Appendix B*)

Specify and describe the controls and measures that will be used to ensure performed or subcontracted non-destructive examination occurs according to the applicable code requirements. The described controls and measures must address the requirement that personnel qualified in accordance with the organization's written practice must complete the non-destructive examinations and that the written practice must contain non-destructive examination procedures that previously have been demonstrated to be effective, in accordance with code requirements.

12. Heat Treatment (*if applicable, see Appendix B*)

Include provisions in the manual for the control of the heat treatment performed or subcontracted by the organization. Specify measures to ensure that it will comply with the applicable codes and standards. Require that records such as heat treatment charts and thermocouple attachment schematics are kept on file and made available to the boiler safety officer.

13. Examination and Inspection Program

Include provisions in the manual to ensure that the inspections and tests required by the Act, Regulations and the applicable codes are undertaken and recorded accordingly:

- Describe the procedures for the types of inspections and tests to be performed.
- Identify the person(s) responsible for the control of the inspection plan (i.e., Quality Control Manager).
- Specify that before the work starts, an inspection plan be submitted and reviewed by Technical Safety BC's boiler safety officer to determine the inspection stages, and that the boiler safety officer will be given unrestricted access to all required documentation for the regulated products being installed, repaired, altered, or assembled.
- Include provisions to ensure that all regulated activities include a submitted declaration and have been inspected by Technical Safety BC's boiler safety officer before any repair, alteration, or piping construction reports are presented for acceptance.
- Detail the procedures of how any pressure testing (hydrostatic and/or pneumatic) will be conducted safely on regulated products.

14. Calibration

Include provisions in the manual for the calibration of measuring and testing equipment. This includes specifying the calibration methods used, the frequency of calibration, and how calibration records will be kept, as well as any other requirements stipulated by the Act and Regulations and the applicable codes.

15. Correction of Non-Compliances

Specify and describe the system that will be used for correcting non-compliances and any other condition that does not comply with the requirements of the Act and Regulations, design, specifications, and applicable codes. Stipulate that non-compliances must be corrected or eliminated for the completed component to be considered compliant.

In the manual, specify how all non-compliances and their disposition will be documented. Describe how the person(s) responsible will inform Technical Safety BC's boiler safety officer of non-compliant conditions for review and acceptance.

16. Record Retention

Describe the measures that will be enacted as part of the quality control program to ensure that records related to the project are maintained as required by the Act and Regulations and the applicable codes.

17. Exhibits

Include samples or screenshots of any forms referenced within the manual that include the company name / logo & contractor licence number. The manual's text should also cite the referenced forms' titles in a way that is consistent with how they appear in the exhibits.

Technical Safety BC forms that are referenced within the manual do not need to be included as exhibits.

Appendix B. Elements of a Quality Control Program Manual

The following table and information expand on the information provided in Appendix A and can be used by contractors to develop and review their quality control program and its manual, as needed.

Depending on the scope of work, the information provided below may or may not be applicable to all contractors. Conversely, depending on the complexity of the regulated work to be performed and the specific code requirements, additional information beyond the contents of this table may be required.

Contractors should fill and submit this table with their quality control program manual to Technical Safety BC to facilitate the review of the manual.

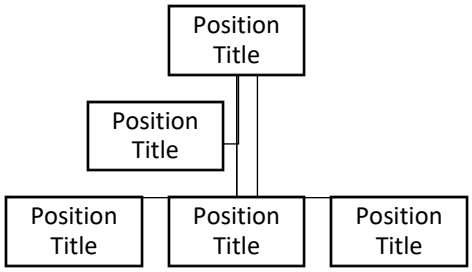
Organization name:

Date:

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
1. Cover page	1.1	Organization name, logo (if applicable), and physical address.		
	1.2	Class of contractor licence, and number issued by Technical Safety BC.		
	1.3	Date of manual, its edition number, revision number, and whether the submitted copy is a controlled or uncontrolled copy.		
	1.4	Summary or preview statement of the contractor license scope, including any location(s) work is to be performed.		
2. Scope	2.1	Contractor license class referenced; statement that regulated work will be performed according to the scope of work described per Table 1 and how the organization will comply with any terms or conditions.		
	2.2	Detailed written scope of the regulated installation, repair, alteration, or construction work to be performed by organization under the licence class.		
	2.3	Applicable code sections and standards used for the regulated work either referenced or listed. Per Section 4 of the Power Engineers, Boiler, Pressure Vessel, and Refrigeration Safety Regulation, the adopted codes and standards are listed under the schedule.		
	2.4	Provisions to ensure regulated work outside the scope of contractor license or capability of contractor will not be performed and how the organization may subcontract to another licenced contractor.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	2.5	Identification of any activities that will or may be subcontracted, such as design, drawings, pressure welding, non-destructive examination, and heat treatment.		
	2.6	Identification of where regulated work is to take place and how the quality control program will be implemented in a shop or at a field location(s).		
3. Statement of authority and responsibility	3.1	Statement indicating the authority and responsibility of those in charge of the quality control program (i.e.; Quality Control Manager) to comply with the Safety Standards Act and Regulations.		
	3.2	Appointment and identification of a company representative or position within the company (i.e. Quality Control Manager) with sufficient and well-defined responsibility, authority, and freedom to identify non-compliances and to take corrective action, including stopping work if needed.		
	3.3	Appointment and identification of a company representative or position within the company (i.e. Quality Control Manager) responsible for the development, understanding, review, and acceptance of the quality control program.		
	3.4	Confirmation, in writing, of management's full support of those responsible (i.e. Quality Control Manager) for implementing the quality control program.		
	3.5	Statement of Authority and Responsibility signed by the highest authority listed on the organization chart.		
4. Tables of contents, revision history, and defined terms	4.1	Table of contents listing all sections and exhibits of the manual, including page numbers, and revision levels for each section and exhibit.		
	4.2	Include a revision history table or other means that explains any changes made to the manual.		
	4.3	Include blank space for contractor approval of the quality control program manual: name, signature, and date.		
	4.4	Include blank space for Technical Safety BC acceptance of the quality control program manual: name, signature, and the date.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	4.5	Include a glossary defining all abbreviations used in the manual, including titles of personnel, control documents, organizations, codes, standards, Act and Regulations, as well as any term needing definition.		
5. Manual control	5.1	Identification of the person(s) responsible (i.e. Quality Control Manager) for the quality control program manual, including the submission of revisions to Technical Safety BC.		
	5.2	Description of controls that will be used to prepare, revise, distribute, and implement the manual in the shop and at a field location(s).		
	5.3	Description of how the manual will be revised (by page, paragraph, or section, etc.), how revisions will be highlighted within the manual, and how controlled copies of the manual will be kept current.		
	5.4	Provision for the submission of manual revisions to Technical Safety BC for acceptance before implementation using applicable submission options available on our website, as required.		
	5.5	Provisions for when and how the manual will be reviewed and kept up to date to ensure the manual accurately reflects the requirements of the Act and Regulations, adopted codes, standards, safety orders, directives, and information bulletins. **Note:** The Safety Standards Act, Section 24(3)(a), and Technical Safety BC Directive: Boiler, Pressure Vessel & Refrigerator Contractor Licensing requires quality control programs to be reviewed and updated at least annually before licence renewal.		
	5.6	A statement expressing that uses of uncontrolled copies of the manual should be for informational purposes only.		
	5.7	Exhibit: A list of those who have been distributed a controlled copy of the manual.		
6. Organization chart	6.1	Include a chart showing the reporting relationships and lines of communication between management, engineering, purchasing, manufacturing, production, field work, inspection, and quality control roles (i.e., Quality Control Manager), as applicable. The chart should also show the lines of communication with subcontractors, as applicable.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
		Example of organization chart:  ***Note:*** *Personnel names need not be included. If names are specified, changes in personnel may require revisions to the manual.*		
	6.2	Brief explanations of the duties and responsibilities of key personnel (i.e. Quality Control Manager) whose performance affects the quality control program.		
	6.3	A note, if applicable, that states personnel may hold more than one title.		
7. Drawings, designs, calculations, and specifications	7.1	If the organization does not complete any design responsibilities, please include a minimum statement in this section of the manual: "Design requirements will be supplied to <company name> by the main contractor, owner, or end user responsible for the regulated equipment. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed."		
	7.2	Provisions to identify the minimum information necessary to comply with the applicable code(s) of construction in the form of drawings, specifications, or other means. Applicable to construction of pressure piping, and refrigeration systems, all alterations, and repairs exceeding definitions are found in IB-BP 2020-02.		
	7.3	Procedures to ensure that the latest applicable drawings, design calculations, specifications, and instructions are used for installation, repair, alteration, or piping construction work, including examination, inspection, and testing requirements.		
	7.4	Provisions to ensure that any computer program used for preparing calculations or conducting analysis meets the minimum requirements of code.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	7.5	Description of the mechanism that will be used to review and approve subcontracted (third-party) design and drawing documents before they are released to the production team.		
	7.6	Identification of the person(s) responsible for preparing, reviewing, and approving the design and drawings for regulated work.		
	7.7	Identification of the person(s) responsible for specifying which materials will be used for the regulated work.		
	7.8	Description of the controls to be applied if design drawings are revised and of the measures that will be used to ensure obsolete drawings are withdrawn from shop and field location(s) and replaced with revised design drawings.		
	7.9	Provisions to ensure that regulated work will be performed only if the original design and the altered design of regulated equipment have been registered with Technical Safety BC, per Section 82 and Section 84 of the Regulation, as applicable.		
	7.10	Provision for the completion and submission of designs for registration with Technical Safety BC, when applicable. This applies to all boilers, pressure vessels, pressure fittings, and construction of pressure piping exceeding 3" NPS. See the Technical Safety BC requirements at Boilers and pressure vessels design registration for more information.		
	7.11	Description of field controls for regulated work that will be performed in the field, as applicable.		
8. Material control	8.1	Identification of the system that will be used for ordering, receiving, and controlling material to ensure that the correct material (including welding consumables) is procured, inspected after receipt, safely stored, and released for use.		
	8.2	Identification of the system that will be used for controlling materials to ensure that only the intended materials are used when performing regulated work and that the materials meet the specifications of the applicable codes and standards.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	8.3	Provisions that all received materials will have the required material certifications, material test reports, or certificates of conformity that satisfy applicable code requirements.		
	8.4	Provision for verification inspection and documentation of materials and their material certifications, material test reports, or certificates of conformity.		
	8.5	Descriptions of the measures established for the proper identification, handling, and storage of materials in shop or field location.		
	8.6	Controls to maintain material traceability, including heat number, colour coding, tabulation, as-built drawings, etc., and identification of the system that to track the controls and materials.		
	8.7	Provisions for the transfer of material identifications when material is cut into two or more pieces.		
	8.8	Provisions for handling materials that are not in compliance with the registered design or the applicable code.		
	8.9	Provision for material certifications to be made available to Technical Safety BC's boiler safety officer upon request.		
	8.10	Provision for materials found to be a non-conformance during receiving inspections.		
	8.11	Description of field controls for regulated work that will be performed in the field, as applicable.		
	8.12	Exhibit: Material receiving report.		
9. Installation, repair, alteration, or construction	9.1	Description of the scope and type of installation, repair, alteration, or construction work the organization is capable of, and intends to conduct, including the identification of the applicable codes and required installation permit(s).		
	9.2	Identification of who is responsible for the overall quality control program (i.e. Quality Control Manager) with regards to the regulated installation, repair, alteration, or construction work.		
	9.3	Identification of the person(s) responsible for material ordering, receiving, and inspection of the material received. Further, identifying those responsible for issuing		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
		the materials to be used, and those responsible for examining and inspecting the shop or field location.		
	9.4	Provisions for all required regulatory inspections to be performed by a boiler safety officer employed by Technical Safety BC. Notification should be given in accordance with Directive D-BP-2024-04.		
	9.5	Provision for informing Technical Safety BC, in advance, when the regulated work will start. This is required under Section 61(1) and Section 86 of the Regulation.		
	9.6	Provision for certified individuals completing the work while adhering to the applicable code of installation, repair, alteration, or construction, as determined by the applicable regulated work conducted		
	9.7	If applicable, submission of the required design for registration with Technical Safety BC. This is required under Section 82 of the Regulation. See the Technical Safety BC requirements on Boilers and pressure vessels design registration for more information.		
	9.8	Provision for using applicable installation codes and equipment manufacturer requirements for: proper structural supporting, assuring clearance, and access. Include details to ensure requirements for expansion, piping, valves, controls and over-pressure protection devices are considered.		
	9.9	Detailed description of the required documentation package(s) that will be collated during installation, repair, alteration, or construction work, including the applicable piping construction or repair / alteration reports.		
	9.10	Provisions for liaison with Technical Safety BC's boiler safety officer, including providing access to a controlled copy of the quality control program, access to quality control program records, and access to locations within the shop or field location(s) where the regulated work will be completed.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
10. Welding and brazing control	10.1	If the organization will not be completing any pressure welding and/or brazing responsibilities, please include a minimum statement in this section of the manual: "<company name> will not conduct any pressure welding or brazing under this quality control program and will subcontract these responsibilities to a licenced contractor working to a TSBC accepted quality control program. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed."		
	10.2	Identification of the person (i.e. Quality Control Manager) responsible for: • preparing, revising, and submitting welding procedure specifications (WPS) and brazing procedure specifications (BPS) to Technical Safety BC; • conducting procedure qualification tests under the direct supervision of the licensee and for recording the results on the procedure qualification record (PQR); • certifying procedures and verifying performance qualification records; • selecting the WPS and BPS to be registered and used for regulated work; • assigning and ensuring that each welder is qualified for each welding process to be used; and • instructing, supervising, and assigning welders or braziers for regulated work.		
	10.3	Description of the measures that will be used to prepare, qualify, and register welding and brazing procedure specifications when required with Technical Safety BC. This is a requirement under Section 78(2) of the Regulation. Register a design with Technical Safety BC.		
	10.4	Identification of any references or resources for the development and preparation of WPS, BPS, and PQR. Use the formats suggested in the ASME code, Section IX: • Form QB-482: Suggested format for a brazing procedure specification (BPS) • Form QB-483: Suggested format for a brazing procedure qualification record (PQR) • Form QW-482: Suggested format for welding procedure specifications (WPS) • Form QW-483: Suggested format for procedure qualification records (PQR)		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	10.5	Controls listed for completing revision(s) of the registered WPS or BPS and resubmittal to Technical Safety BC.		
	10.6	Provisions to ensure brazing performance qualifications are completed and documented per CSA B51. Ensuring only individuals who hold a pressure welder certificate of qualification are assigned to perform pressure welding on a regulated product. See Technical Safety BC's requirements regarding pressure welder certification. This is a requirement under Section 5(3) of the Regulation.		
	10.7	Provisions to ensure that the extent of the work of individuals holding welder certificates of qualification is limited to the certificate class that they hold. Class A, Class IT, and Class R – only need to be specified if Class IT and/or Class "R" will be utilized by the organization.		
	10.8	Provisions for a pressure welder's certificate of qualification and other applicable qualifications to be maintained and renewed as required.		
	10.9	Provisions for welding performance qualifications to be conducted by a recognized test administrator (RTA). The welding examiner at the RTA will complete and certify the required ASME form(s) and enter qualification(s) into the welder's logbook. See the Technical Safety BC Directive: Qualification Requirements for Pressure Welders for information.		
	10.10	Provisions to ensure that the continuity of welder and brazier qualifications for each welding and brazing process used are maintained. Performance qualifications may need to be updated or retested if the process is not used within six (6) months.		
	10.11	Provision to requalify a welder or brazier if a change occurs in any of the essential variables listed for each welding or brazing process.		
	10.12	Provisions to ensure that each welder, welding operator or brazier is assigned an identifying number, letter, or symbol that will be used to identify the individual's work.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	10.13	Provisions for welding or brazing traceability as required by the applicable codes. These include, but are not limited to, weld / brazing maps, drawings, and welder / brazier ID marking.		
	10.14	Reference to the use of ASME's Form QW-484A: Suggested format A for welder performance qualifications (WPQ) and Form QW-484B: Suggested format B for welding operator performance qualifications (WOPQ) for the qualification of welding operators. The welding examiner at a recognized test administrator (RTA) is responsible for completing these forms.		
	10.15	If applicable, reference to the use of ASME's Form QB-484: Suggested format for a brazer/brazing operator performance qualification (BPQ) for the qualification of braziers. The welding examiner at a recognized test administrator (RTA) is responsible for completing these forms.		
	10.16	Measures established for the removal and inspection of tack welds not completed by a qualified welder.		
	10.17	Provisions to ensure that, if subcontracted: Welding or brazing completed on regulated equipment is done by a company holding a valid Technical Safety BC license that includes pressure welding or brazing within the scope of their accepted quality control program.		
	10.18	Measures established for the storage, distribution, and return of welding or brazing consumables.		
	10.19	Provisions for covered welding electrodes, such as low hydrogen and stainless steel, to be stored in accordance with the welding material manufacturer's recommendations.		
	10.20	Measures to control welding in the field, when applicable.		
	10.21	Exhibit: Welder or Brazier continuity log.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
11. Non-destructive examination (NDE)	11.1	If the organization will not be completing any non-destructive examination responsibilities, please include a minimum statement in this section of the manual: "<company name> will not conduct any non-destructive examination under this quality control program and will subcontract these responsibilities to a qualified contractor working to a written practice including procedures. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed."		
	11.2	Controls and measures to ensure performed or subcontracted non-destructive examination meets the requirements of the applicable code(s) and is completed by qualified personnel.		
	11.3	If work will be subcontracted, identification of the subcontractor items to be verified by the license holder, retained with the job file, and presented to the boiler safety officer.		
	11.4	Identification of the person(s) responsible for determining if non-destructive examination is required per the applicable code.		
	11.5	Indication of whether non-destructive examination will be performed in-house, subcontracted, or both. If performed in-house, all code requirements must be covered within the quality control program.		
	11.6	Provision for identifying the appropriate non-destructive examination procedures and written practices that are applicable to the scope of code and regulated work, and for ensuring that they have been demonstrated to meet the requirements of the applicable code.		
	11.7	Provision to ensure or verify that the personnel who will be performing non-destructive examinations are qualified in accordance with Canadian General Standards Board CAN/CGSB-48.9712/ISO 9712 and the applicable code.		
	11.8	Provision to ensure non-destructive examinations performed according to written procedures when required by the applicable code.		
	11.9	Provision to ensure equipment used for non-destructive examinations has been calibrated.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	11.10	Provision for documentation and records of non-destructive examinations to be prepared as specified by the applicable code.		
	11.11	Exhibit: Non-Destructive Examination (NDE) Organization appointment letter.		
12. Heat treatment	12.1	If the organization will not be completing any heat treatment responsibilities, please include a minimum statement in this section of the manual: "<company name> will not conduct any heat treatment under this quality control program and will subcontract these responsibilities to a qualified contractor. <company name> will ensure requirements of the Act, Regulations or adopted codes are followed."		
	12.2	Provisions for control of the heat treatments performed or subcontracted by the organization.		
	12.3	If work is to be subcontracted, identification of the subcontracted items that will be verified by the license holder, retained with job file, and presented to Technical Safety BC's boiler safety officer.		
	12.4	Written procedures and instructions specifying the heat treatment requirements specified by the applicable code(s).		
	12.5	Description of the measures in place to ensure that the heat treatment work, charts, and records comply with the applicable codes and standards.		
	12.6	Provision to ensure records such as a heat treatment chart and thermocouple attachment schematic are kept on file and made available to the boiler safety officer on request.		
	12.7	Provisions to identify whether the heat treatment equipment used requires calibration and, if it does, what controls are in place to ensure compliance.		
	12.8	Exhibit: Heat treatment instruction form.		
13. Examination and inspection program	13.1	Provisions to ensure inspection and testing comply with the requirements of the Act, Regulations, applicable codes, and that they are recorded accordingly.		
	13.2	Procedures specified for the types of inspections and tests performed.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
	13.3	Identification of the person (i.e. Quality Control Manager) responsible for: • controlling the inspection and test plan; • notifying Technical Safety BC'sboiler safety officer when required; • specifying the pressure test requirements; and • monitoring pressure tests, performing examinations, and documenting results.		
	13.4	Provision for the presentation of the inspection and test plan, if applicable, to Technical Safety BC's boiler safety officer before the work starts, to allow for review and the designation of inspection and hold points.		
	13.5	Provision for notifying Technical Safety BC's boiler safety officer in advance of reaching designated inspection and test plan hold points.		
	13.6	Details, controls, and procedures for how pressure testing (hydro and pneumatic) will be conducted safely, including the calibrated gauges and the dial range that are to be used. The requirements for pneumatic pressure testing procedures with stored energy values greater or lower than 1677 kJ can be found at Technical Safety BC's pneumatic testing design registration page.		
	13.7	Provisions to ensure final inspections are performed and all Act, Regulation, and applicable codes requirements have been met.		
	13.8	Provisions to ensure all installation, repair, alteration, or construction activities include a submitted declaration and have been inspected by Technical Safety BC's boiler safety officer before any repair, alteration, or construction reports are presented for acceptance.		
	13.9	Measures established to control field activities, as applicable.		
	13.10	Exhibit: Inspection and test plan (ITP), checklist, traveler, or process sheets. The form(s) must provide for the contractor's, owner's inspector, and Technical Safety BC's boiler safety officer's signoffs and note dates of when the examinations were performed.		
	13.11	Exhibit: Pressure test report(s).		

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	13.12	Exhibit: Pressure testing procedure.		
	13.13	Exhibit: Visual inspection procedure. This applies only if code-required visual inspection is completed by the licensee.		
14. Calibration	14.1	Provisions for the calibration of measuring and test equipment.		
	14.2	Description of the method to be used for identifying equipment requiring calibration, as well as of the method for indicating the status or due date of calibration (e.g., with stickers, tags, etc.).		
	14.3	Description of the method to be used for maintaining and tracking calibration records.		
	14.4	Provision to ensure that the gauges used for pressure testing are calibrated and that the calibration frequency is identified and recorded.		
	14.5	Provision for identifying and handling non-conforming equipment.		
	14.6	Descriptions of any other applicable requirements stipulated by the applicable codes.		
	14.7	Provision for calibration records to be made available to Technical Safety BC'sboiler safety officer when required.		
	14.8	Exhibit: List of measuring and test equipment that requires calibration, with information such as identifier and calibration status, dates, frequency, etc.		
15. Correction of non-compliances	15.1	System specified for correcting non-compliances and any condition that does not comply with the requirements of the Act and Regulations, design, specifications, and applicable codes.		
	15.2	Identification of the person(s) responsible for the resolution of non-compliances.		
	15.3	Provision for non-compliances to be corrected or eliminated before the completed component can be considered compliant.		
	15.4	Provisions for the documentation of non-compliances and their disposition.		

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	15.5	Provision for Technical Safety BC's boiler safety officer to be informed of non-compliant conditions.		
	15.6	Exhibit: An example of non-compliance record form to be used to document a non-compliance and its disposition.		
	15.7	Exhibit: A sample facsimile of non-compliance identification or "hold" tag and label.		
16. Record retention	16.1	Measures to ensure that the records are maintained as required by the Act and Regulation, and applicable codes.		
	16.2	Identification of records that may be required to be maintained.		
	16.3	Provision to ensure that all required records are maintained for at least seven (7) years. Section 72(1)(a) of the Regulation notes this as a requirement.		
17. Exhibits	17.1	Samples of forms or facsimiles referenced within the manual contain the company name and logo, and the titles are consistent with those of the forms referenced in the text of the manual. Technical Safety BC forms referenced within the manual need not be included as manual exhibits.		
	17.2	Sample forms in this section identified as "SAMPLE" or "EXHIBIT."		
	17.3	Forms or facsimiles, when referenced throughout the manual, include the title and exhibit or sample number for each referenced in a table of contents.		

Section	Elements of a Quality Control Program Manual, per section		Applicability (Yes, No, N/A)	Manual reference (page number or section)
Additional notes				

Technical Safety BC is an independent, self-funded organization mandated to oversee the safe installation and operation of technical systems and equipment.

In addition to issuing permits, licences, and certificates, we work with industry to reduce safety risks through assessment, education and outreach, enforcement, and research.

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