



Fuels Safety Program ADVISORY

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Subject: Registration of High-Pressure Piping
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In Ontario, piping systems for fuels — such as natural gas, propane, fuel oil and digester/landfill/biogas (DLB) — that are to be burned in appliances or used for transportation are regulated by the Technical Standards and Safety Authority (TSSA) Fuels Safety Program under the *Technical Standards and Safety Act, 2000*, and the following regulations, which adopt the [TSSA High-Pressure Piping \(HPP\) Code 2020](#):

- O. Reg. 212/01 –
 - Section 1.15 of [Gaseous Fuels Code Adoption Document](#)
 - Section 2.1 of [Digester, Landfill and Bio-Gas Code](#)
- O. Reg. 213/01 – Section 1.1.9 of Fuel Oil Code Adoption Document
- O. Reg. 214/01 – Section 5.1 of [Compressed Gas CAD Amendment](#)

This Code does not apply to:

- O. Reg. 217/01: Liquid Fuels; and
- Propane piping system installed outdoors.

High-pressure piping registrations must comply with the High-Pressure Piping (HPP) Code and be approved by TSSA.

Gaseous piping systems must be registered if:

- i) Operating over 125 pounds per square inch gauge (psig) (862 kilopascals (kPa)) in Piping systems installed outdoors, or
- ii) Operating over 66 psig (452 kPa) for piping systems installed indoors.

Fuel oil piping must be registered if:

- i) Design pressure is above 100 psig for design temperature below 38C, or
- ii) Design pressure is above 15 psig for design temperature above 38C.

Submissions for Registration and Approval

Electronic copies of drawings (process flow diagrams, piping and installation drawings) in PDF format should be submitted with system specifications and the [Application for Approval of High-Pressure System Form](#).

The documents must be submitted in a PDF format and be sized so that they can be read and printed on paper no larger than 297 mm (11 inches) by 420 mm (17 inches).

The documents must include the following information:

- Scope: Indicate the start and end of the line for which you are submitting the application.
 - For fuel oil applications related to high-rise buildings, usually the scope is from downstream of the pump set to the day tank inlet.
 - For tie-in connections, see Section 6.3 of TSSA-HPP.
 - For NG, H₂, and DLB, the scope of the HPP approval is from any point downstream of the customer's meter to the end point defined by the applicant.
- Design code \ code of construction (e.g., CSA Z662, ASME B31.1 or ASME B31.3)
- Material and piping specifications, for example:
 - Pipe: ASTM A 106 or ASTM A 53; Type E, F or S; Schedule 10, 40, 80, etc.; and Grade A or B
 - Fittings: Socket weld, butt weld or threaded connection to ASME B1.20.1, etc.
- Line size (nominal pipe diameter)
- Approximate length of pipe
- Medium (fuel oil, NG, H₂ or DLB)
- Design pressure
- Design temperature
- Over pressure protection and location (safety/relief valve setting must be less than or equal to design pressure)
- Pressure test criteria (if using a pneumatic test, explain why necessary)
 - Test pressure based on the selected code
 - Test medium
 - Test duration

- Joint type (welded or threaded). If welded, indicate whether it is socket or butt welded
- Non-destructive examination (NDE)
- Component certification for fittings, connections and valves (focus on pressure and temperature rating)

Modifications to a High-Pressure Piping System

The following changes are considered modifications that require a new approval from TSSA:

- Any change to design pressure and/or temperature
- Any alteration to pipe material specification, size and/or minimum schedule (pipe thickness)
- Any alteration to pipe joining method
- Any modification to fitting material specification and/or minimum rating/class
- Any change to non-destructive examination requirements
- Any change to over pressure protection arrangement or change
- The addition of a new energy source (i.e., heat exchanger, boiler, pump, compressor)
- If the change requires calculations/analysis or alters calculations/analysis already on file
- Any change to the medium (gas or fluid) carried by the piping system

If the change is not a modification as defined above, no new approval is required.

For any changes to the piping system that require pressure tests to be performed as per the code of construction (i.e., changes to the layout), the test must be witnessed by a TSSA inspector. Please contact your local TSSA Fuels Safety inspector to schedule this test. [View the TSSA website for more details.](#)

If the change to the piping system is considered a modification of an existing or approved piping system, a new approval is required for the modified parts only. If at the time of original installation, the piping system installation did not meet the applicable safety code that was in effect, the piping system shall be registered according to current code requirements.