

CNG STATION APPROVAL CHECKLIST

1. Review process & secure permits

- Meet with the TSSA-Fuels Safety and the local municipality to inform them of the proposed project and to review the approval and permitting process.
- Acquire municipal building permit for station construction.
- Acquire permit from the TSSA-Fuels Safety for CNG station design and construction.

Note: The regulation and approval of: (a) fuels; and (b) pressure vessels may reside in different groups within the TSSA.

2. Submit documents & get approvals

- Contact equipment manufacturers (e.g. CNG dryer, CNG compressor package, CNG dispensing equipment, other pressure retaining equipment) to provide:
 - P&IDs with all pipe sizes and pressure ratings shown as well as detailed Bills of Material indicating all component specifications and provincial CRNs OR third-party certification for the equipment
 - CRNs for CNG storage vessels

Note: This information may be requested by the TSSA or it may be the responsibility of you, your agent, or the equipment manufacturer to submit without being requested. This information will be reviewed by the TSSA-Fuels Safety and by the TSSA-Pressure Vessels groups.

- Submit the following documentation to the TSSA-Fuels Safety:
 - Site plans indicating setbacks and separations consistent with CSA B108 and any additional provincial regulations
 - Narrative description of the station size, equipment to be installed and operation equipment
 - Installation Piping and Instrumentation Diagrams (P&ID) with all pipe sizes and pressure ratings shown as well as with detailed Bills of Material provided that

indicate all component specifications and provincial CRNs. Check Section 204 of the Reference Table on page 3 for any exemptions that may apply.

- Hazardous locations diagram
- Single line electrical schematics

- Acquire electrical approval on each piece of major equipment from a third-party inspection agency or by "special inspection" by the Electrical Safety Authority.

3. Construct station & plan for inspections

- Begin site construction once equipment and station design are approved. The TSSA-Fuels Safety will have specified certain hold and inspection points, such as pressure testing of underground pipe with the trenches open.

- Once construction is complete, obtain approval from the TSSA-Fuels Safety to energize the equipment and introduce natural gas to the station. The TSSA-Fuels Safety will also ask that you provide proof of electrical approval and pressure vessel CRNs at this stage.

Note: The TSSA-Fuels Safety will provide a temporary permit to operate during commissioning.

- Once all equipment has been commissioned and tested, submit a request for a final site inspection to the TSSA. This site inspection may include testing of safety equipment, such as emergency shut down (ESD) systems.

4. Get operating permit & plan for re-certification

- Upon successful completion of the final inspection, the local municipality will issue an occupancy permit and the TSSA-Fuels Safety will issue an operating permit.

- Review and understand the requirements for station re-certification as detailed in local regulations.

HOW TO GET A CNG REFUELING STATION APPROVED

ONTARIO

What You Need to Know

Congratulations on making the decision to switch your fleet to compressed natural gas (CNG). Whether you decide to work with an experienced engineering firm or you enter into a contract for a turnkey station, there are steps to be aware of to get a CNG station approved. At the beginning of the planning process, start by contacting your local natural gas utility to confirm natural gas supply and available pressure.



The CNG Station Approval Checklist on the next page outlines the steps involved in getting a station approved in Ontario. The Reference Table on the last two pages provides extra detail on process, review, inspection, and other requirements.



The primary code that applies is the CSA B108 – Natural Gas Fueling Stations Installation. This Code applies to public and private CNG stations including fast fill and time fill stations.



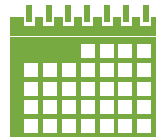
Public stations can refuel to a settled pressure of 3,000 psi. Private stations can refuel to a settled pressure of 3,600 psi. Work is underway to allow all Canadian stations to refuel to a settled pressure of 3,600 psi.



CNG station installation in Ontario is regulated by the Technical Standards and Safety Authority (TSSA) and by local municipalities. The TSSA oversees fuel safety and pressure vessels. Municipalities check for compliance with local bylaws. No federal approval is required.



Knowledgeable experts and equipment suppliers can help with station options, approvals, and permits.



The total timeline to build a new CNG station will vary, but you should plan for a minimum of six to nine months based on equipment lead time as well as time for review and approval.

HOW TO USE THIS REFERENCE TABLE

To learn about the requirements for station approval, start in the Description column for the area of interest and read across the row. The information in this Reference Table is intended to provide extra detail related to the process outlined in the Checklist on page 2. Please note that blanks mean there are no current requirements in this area. Note that additional approvals beyond those outlined in the Table may be required depending on the specific circumstances.

CNG STATION APPROVAL REFERENCE TABLE

Item	Description	Overall Station Design	Pressure Vessels and Piping	Electrical
General Code Requirements				
100	Authority Name	TSSA - Fuels Safety	TSSA - Pressure Vessels	Electrical Safety Authority (ESA)
110	Primary Review and Inspection Code(s)	CSA B108	CSA B51 (vessels) and ASME B31.3 (piping)	Ontario Electrical Code
111	Secondary Inspection Code or Regulation	ONTARIO REGULATION 214/01 COMPRESSED NATURAL GAS		Canadian Electrical Code
112	Secondary Inspection Code or Regulation	Compressed Natural Gas Code Adoption Document June 2001		
Canadian Registration Number (CRN) Requirements				
200	Required on Piping Systems:		Yes	
201	Required on Vessels: (Note that as per ASME Section VIII--Vessels are >15 psig, and >1.5 FT ³ inside volume, and >6" inside diameter.)		ASME vessels from outside of Canada must have National Board registration. CSA B51 Part 2 Ground Storage cylinders must also have CRN	
202	Required on what components:		Plumbing, fittings, valves & instrumentation. OEM compressor packages are exempt	
203	Special CRN Requirements:			
204	Exemptions:	The OEM compressor package from the inlet flange to the outlet fitting The OEM is encouraged but not required to follow CSA 12.8 (NGV 4.8) for the design of the package Any equipment that has a 3rd party Certification		
Licensing Requirements				
300	Designer Licensing	Station design requires TSSA Registration		
301	Equipment Supplier Licensing	None		
302	Station Developer	None		
303	Station Construction Contractor	TSSA Certificate		
304	Station Maintenance Contractor	TSSA Certificate		
305	Station Operator	TSSA License	Operating Engineer or Compressor Operator required to be on site if >150Hp is operational at any time	
Process Steps				
400	Project Inception	Informal meeting to discuss the nature, size and location of the project		

Item	Description	Overall Station Design	Pressure Vessels and Piping	Electrical
Process Steps (continued)				
401	Site Design	Submission stamped by ON PEng can be sent directly to TSSA Director for immediate approval. Alternative is for non-ON PEng submitter to send to TSSA Fuels Safety for review and approval. Submit site layout drawings demonstrating compliance with B108 on setbacks and other issues. Submit a narrative describing the station size, configuration and operations. Submit P&IDs with line sizes, pressures, temperatures, and a bill of material with all pressure retaining components listed. For an OEM compressor package, a function box without details is sufficient but a statement indicating the design standard (such as CSA 12.8) is preferred.		
402	Equipment Design	Submit a narrative describing the equipment size, configuration and operations. Submit P&IDs with line sizes, pressures, temperatures, and a bill of material with all pressure retaining components listed with their ON CRNs. For an OEM compressor package, a detailed P&ID is sufficient but a statement indicating the design standard (such as CSA 12.8) is preferred.		
403	Equipment in Plant Inspections--In Province	Must be witnessed by TSSA--except for OEM compressor packages. Pneumatic testing to 120% or hydro testing to 150% of design pressure.		2nd party electrical inspection by recognized agency (such as CSA or ETL)
404	Equipment in Plant Inspections--Out of Province	Must be witnessed by National Board Inspections Agency. Pneumatic testing to 120% or hydro testing to 150% of design pressure.		3rd party electrical inspection by recognized agency (such as CSA or ETL)
405	Site Testing	Must be witnessed by TSSA--except for OEM compressor packages. Pneumatic testing to 120% or hydro testing to 150% of design pressure.		
406	Site Inspection	TSSA-Fuels Safety		ESA for installation and possibly for "Special Inspection" of panels and equipment if no 3rd party inspection was done in plant
407	Final Operating Permit	TSSA will advise the Municipality that all CNG requirements have been met once TSSA-Fuels, TSSA-Pressure Vessels and ESA have completed their inspections satisfactorily.		