TECHNICAL SAFETY BC

DIRECTIVE

NATURAL GAS AND HYDROGEN REFUELLING STATIONS – GAS SAFETY REGULATION REQUIREMENTS

This directive is being issued by a provincial safety manager pursuant to section 30 of the *Safety Standards Act*.

Date of Issue: October 1, 2022

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Scope

This directive details **design and installation** requirements for compressed or liquefied natural gas (CNG/LNG) and hydrogen dispensing stations in accordance with the *Safety Standards Act* (SSA) and Gas Safety Regulations (GSR).

Definitions

Building – a structure or part of a structure used or intended for supporting or sheltering persons, animals, or property and classified by its occupancy in accordance with the BC Building Code and City of Vancouver building by-laws when applicable.

Container (with respect to natural gas storage) – either a cylinder, tank, or non-cylindrical storage unit that complies with the requirements of Transport Canada, The American Society of Mechanical Engineers, the US Department of Transportation, CSA B51, or CSA/ANSI NGV 2 for storage and transportation of compressed natural gas.

Dispensing system – an assembly intended to dispense natural gas or hydrogen for vehicles.

Dispenser (with respect to natural gas as a fuel) – a dispensing system that meets the requirements of ANSI/IAS NGV 4.1/CSA 12.5 consisting at a minimum of an electronic head containing embedded controls, an electronic display, pressure gauge, valves (manual and automatic), a pressure relief valve (PRV), and at least one vehicle refuelling hose and breakaway device. Fill posts are not qualified as dispensers.

Public station – a refuelling station where natural gas or hydrogen is offered for sale to the general public.

Refuelling station – a facility for the dispensing of natural gas and includes all stationary equipment and associated components downstream from the inlet manual shutoff valve of the compressor(s). For gas components upstream of the compressor inlet, see CSA B149.1 or clause 3 of CSA B51, as applicable.

Details

Gas Safety Regulation section 25 requires that an applicant for an installation permit for a gas system or proposed gas system must, if required by a provincial safety manager, provide drawings in support of the application and pay any required fee.

Prior to installation of a natural gas or hydrogen refuelling station and its gas regulated equipment, the owner (or representative) of the same shall apply for a gas design registration. The design must be registered by Technical Safety BC **before** installation work begins.

Companies operating with a valid Safety Management Plan under the Alternative Safety Approaches Regulation must comply with the requirements of this directive **unless an acceptable alternative** has been specifically identified under the terms of any current plan.

Design registration and installation criteria

A Technical Safety BC **refuelling station** requires acceptance documentation from the following associated authorities having jurisdiction, this must be submitted to Technical Safety BC for review prior to issuance of a design registration:

- The local government in which the facility is to be located. This may include, however not be limited to, business licensing, issuance of building permit where applicable, confirmation of site zoning type, based on zoning a completion of an occupancy load determination document (could be provided by a "registered professional" recognized by the local government or the area fire department if stated by a local government bylaw); and

- The fire department responsible for the area where it is to be located.

Refuelling station design registration applications are to demonstrate compliance towards the following associated adopted code(s):

- CAN/BNQ – 1784-000 Canadian hydrogen installation code
- CSA B108 – Compressed natural gas fuelling stations installation code
- CSA B149.1 – Natural gas and propane installation code
- CSA - Z662 Oil and gas pipeline systems code

The submittal **must** contain: a statement of compliance, all drawings, specifications, calculations, and instructions necessary to construct, install, operate, and maintain the equipment. A detailed **site-specific risk assessment** and demonstration of the management systems employed to control process hazards may be required (CAN/CSA Z767 Process Safety Management is considered a best practice document). Documentation must be signed off and sealed by a professional engineer who is registered with the Association of Professional Engineers and Geoscientists of BC.

For detailed information on design registration applications see: Design Registration Fuelling Stations

For sites where a permanent fuel container is **not** in place and the dispenser is supplied by a portable tanker trailer that is sited all: applicable clearances, setbacks, protection requirements etc. concerning stationary gas equipment would apply under the applicable recognized codes, standards, or other recognized documents, unless specific requirements for the type of siting is outlined in the equipment reference documents. (i.e., mobile refuelling units).

Design submissions for Technical Safety BC approval should account for compliance based on all expected modes of operation including **total** natural gas storage capacities at any given time on the site. Significant changes to modes of operation or **modifications** of existing installations such as change in container capacities or location (permanent or non-permanent) on the site must be re-submitted for approval to Technical Safety BC.

Consideration of future development – When selecting locations, due consideration must be given to the development plans of the area. If a building permit has been issued for the area around a proposed installation, such future development needs to be taken into consideration in the design and application for registration of the installation.

All regulated gas equipment being installed as part of a refuelling station must be certified or listed to a nationally recognized standard **where** one exists. If no recognized standard exists for an associated piece of equipment, then a separate design registration and product approval must be applied for and obtained.

Natural gas and hydrogen refuelling station sites require the acceptance of a design registration prior to the installation of any regulated equipment or systems. All applicable **installation permits** must be obtained and in place **prior** to performing regulated work.

Prior to final approval of all installation permits, an **operating permit** application for a Class 3G - Natural Gas Dispenser (for CNG stations), or a Class 8 - Special Type (for LNG and hydrogen stations) must be applied for by the owner/operator of the site and be in place before the facility is placed into operation.

Any revision, modification, or alteration of an existing site installation, such as an addition or relocation of a dispenser must be approved by Technical Safety BC and other authorities having jurisdiction as noted above. A new application for design registration must be submitted, accepted, and registered **prior** to the installation of any regulated equipment or system.

“Like-for-like” replacement of components during normal maintenance will not be construed as a modification of an existing installation, installation permits are required where applicable (i.e., replacement of a dispenser).

It is the sole responsibility of the equipment and system owner to ensure compliance is maintained throughout the lifecycle of the associated site.

Other agencies

Local governments, fire departments, and/or other applicable ministries of both federal and provincial governments may have approval or permit requirements for other aspects of vehicle fuelling operations, such as land use, overall site and non-dispensing equipment. Technical Safety BC approval does not constitute approval by any other regulatory body or agency. The applicant is responsible for identifying and complying with any applicable requirements from agencies which administer those requirements.

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References:
Safety Standards Act
Gas Safety Regulation
CSA Z662 - Oil and gas pipeline systems code
CSA B149.1 - Natural gas and propane installation code
CSA B108 - Compressed natural gas fuelling stations installation code
CAN/BNQ 1784-000 - Canadian hydrogen installation code