



DIRECTIVE

RETAIL PROPANE REFUELING STATIONS

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

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General Details

This Directive details the requirements for the design, installation and operation of retail propane refueling stations in accordance with B149.2 Propane Storage and Handling Code.

Specific Details

Definitions for this Directive

“Retail Propane Refuelling Station”- means a retail facility of any storage capacity consisting of a single container and associated equipment for the storage and dispensing of liquid propane to motor vehicles or approved cylinders and taxi fleet propane dispensing facilities with storage over 1000 U.S.W.G. (3800L) Multiple container installations are not permitted;

“Container”- means a cylinder or tank.

“Institutional Occupancy”- Institutional occupancy means the occupancy or use of a building, or part thereof, by persons who are involuntarily detained, detained for penal or correctional purposes whose liberty is restricted, or buildings where persons require special care or treatment because of health, age, mental or physical limitations.

Other Agencies

Municipalities, local fire departments and/or other applicable Ministries of both Federal and Provincial Governments may have approval/permit requirements for other aspects of Propane dispensing operations such as the business, overall site and non-dispensing equipment. BCSA approval does not constitute approval by any other regulatory body or agency. The applicant is responsible for identifying and complying with any applicable requirements and agencies that administer those requirements. Validation documentation from the above noted or other applicable agencies shall be submitted to the BCSA prior to issuance of the final Operating permit.



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All new propane refuelling stations will require approval/verification documents of the installation drawings by:

- a) The Municipality in which it is to be located, this may include, however not be limited to; business licensing and application/site zoning.
- b) The Fire Department responsible for the area in which it is to be located, this may include, however not be limited to; a completed population density classification document and,
- c) The BC Safety Authority, an application for design registration must be submitted and approved **prior** to the start of construction. This includes a site drawing, the confirmation of zoning, a population classification and that the applicant intends to install the dispenser system to the applicable section requirements of the CAN/CSA B149.2 Propane Storage / Handling Code and this Directive.

An appropriate installation permit must be in place **before** construction takes place and a valid operating permit at time of completion.

All modifications of existing installations such as change in container size or container location on the site must be approved by the same authorities.

In addition, there must also be an installation permit in place **before** any modifications are made. Replacement of items of equipment during normal maintenance will not be construed as a modification of an installation. If a container is replaced by a container of the same size due to a change in supplier at a location which falls into Class 3 or 4, the following documentation will be required:

- i. acceptance from the local fire authority that the fire protection is acceptable, or
- ii. an engineer's certificate, certifying that the fire protection is acceptable to the local fire authority.

Owners of propane refuelling stations are hereby given notice that, after an approved installation has been completed, development to the property surrounding or adjacent to the site on which the container is located may require re-evaluation of the installation's classification by the approving authorities. Revisions to the installation's classification may necessitate modifications to the installation such that it continues to comply with required safety clearances and fire protection. If modifications can not be carried out the propane container may have to be removed.

An example of this situation would be the filling-in of a ravine next to an existing installation such that a building could now be erected at a distance to the container of less than that permitted for a container without additional fire protection. The installation may become acceptable if fire protection, acceptable to the local fire department, is installed on the container.



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Class Locations

Class location will be determined by applying the criteria established in this directive. The class location is enclosed by a line that extends 100 metres from any external surface of propane container. The class location is determined by the dwelling units within the class location and by the normal population density occupant load determined from Table 3.1.17.1 of the BC building Code.

For the purpose of this clause, each dwelling unit in a multiple dwelling unit building is counted as a separate unit. Only that portion of the building or population within the prescribed area will be included. If agreement is not reached between the propane company and the fire department, then an ordinance map of the installation must be provided to the BC Safety Authority by the Municipality and the final decision will lie with the Provincial Safety Manager. For unincorporated areas or where there is no fire department, the class location must be determined by a provincial safety officer.

CLASS 1 - Industrial Parks, open areas - A Class 1 location is any area which has a maximum of ten (10) buildings or dwelling units intended for human occupancy, and an area inhabited by not more than thirty (30) people.

If there are no dwellings in the prescribed area, the maximum population density may be up to one hundred (100) people.

CLASS 2 - Low population density - A Class 2 location may include industrial, commercial, and some residential occupancies. It is any area which may have more than ten (10) but less than twenty (20) dwelling units intended for human occupancy, or an area inhabited by more than thirty (30) but by less than one hundred and fifty (150) people.

CLASS 3 - Medium population density - A Class 3 location may include residential, townhouses, light industrial or commercial occupancies. It is any area which may have more than twenty (20) but less than (50) dwelling units intended for human occupancy or an area inhabited by more than one hundred and fifty (150) but less than three hundred (300) people.

CLASS 4 - Heavy population density - A Class 4 location may include high rises, offices, hotels and below grade occupancies. It is any area which has fifty (50) or more dwelling units intended for human occupancy, or an area inhabited by more than three hundred (300) people.

Calculating Population Density of Hotels, Motels, Restaurants and Dwelling Units - Population density of hotels, motels and restaurants will be determined by using 100% of the licensed occupancy with-in 100m. Population density of dwelling units is deemed to be three persons per unit.

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Design and Installation Criteria

Containers Left Unattended - "Unattended" means no qualified person on site. A staffed installation must not be left unattended and must be shut down with all valves closed and power to the pump shut off when there is no qualified staff in attendance.

Card lock stations may be left unattended. A special valving system must be utilized on all card lock systems. The liquid withdrawal opening shall be equipped with an *internal* safety control *valve* or an *internal excess-flow valve with* a remotely operated *valve* of the emergency shut-off type installed within 6 in (150 mm) of the *excess-flow valve*. The liquid control valve shall be automatically powered open when the system is activated and closed when the system is deactivated.

Unattended cardlock systems are not permitted in Class 4 zones.

Consideration of Future Development - When classifying 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 will be taken into consideration in the design and classification of the installation.

"Remote Dispensing" - means that the dispenser must be not less than 25'-0" (7.62m) from the dispensing container used for auto propane and outside of the confines of the dispensing container protection devices for cylinder filling. For cylinder filling, this may be achieved by protection posts 1m from the transfer point. The dispenser and cylinder filling point must be separated by at least 1m.

"Flexible Metal Connectors" - Flexible metal connectors must consist of an approved continuous convoluted metal covered by braid. Flexible hose is **NOT** acceptable.

"Emergency Shutdown" - An emergency automatic shutdown of the container liquid and vapour withdrawal lines must be provided for all containers. For the vapour openings to the tank, an excess flow valve will satisfy this requirement.

On containers over 5000 U.S.W.G. (19000L) or where the liquid and vapour lines exceed 1-1/4", the emergency shutdown must also extend to the filling liquid and vapour lines for the road tanker filling point. These safeties must be designed to shut down the container if the road tanker inadvertently moves without previously disconnecting the hoses.

Tanks with a Bulk Head Fitting - For all containers over 5000 U.S.W.G. (19000L) or having liquid and vapour lines are greater than 1-1/4" diameter, a tank truck or cargo liner transfer connection must be located:

- Not less than 25 ft. (7.62m) from the line of adjoining property and any source of ignition and
- Within the line of the protection posts on the side of the container farthest from the property line.

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Underground Storage Containers - Underground storage containers must be installed to conform to the requirements of the CSA B.149.2 and must be:

- Not less than 50 ft. (15.24m) from a basement or below ground crawl space,
- Monitored for corrosion as specified in CSA B.149.2

Cylinder Filling and Purging - Cylinders may be filled in a Class 4 zone providing:

- the cylinder fill point is remote from the container by a distance of 10 ft. (3m) or the tank is fire protected, and
- there must be no purging of cylinders permitted and a notice to this effect must be publicly displayed.

All cylinder purging must be carried out as specified in the CSA B.149.2.

A.L.R.T. and Bridge Clearance - An above ground propane container must not be installed within 150', (45.72m) of the A.L.R.T. track, bridge or similar structure used to transport, or travelled by the public at large.

PROPANE DISPENSING ON RECREATIONAL VEHICLE SITES - All propane dispensing at recreational vehicle sites must comply with the following requirements:

- All equipment for dispensing to permanently mounted tanks on any vehicle in recreational vehicle parks must be equipped with a breakaway coupling.
- A dispenser must be remotely operated and located not less than 25'-0" (7.5m) from the storage tank.
- Access to, and egress from, the recreational vehicle park must be located at least 50 feet from the tank in order that the vehicles may be evacuated in the event of a fire.
- All cylinders being filled must be equipped with a fixed level gauge or a stop fill valve.
- Vehicle engines must be shut-off, all pilot lights extinguished and appliances turned off.
- All other requirements must comply with the current issue of the CSA B149.2.

Compliance to these requirements will allow cylinders to be, refilled in-situ, on the vehicle.

Failure to comply with these requirements will necessitate removal of the cylinder from the vehicle and filling by weight.

If permanent buildings are located in the recreational vehicle park, the site must be considered to be a propane refuelling station and must be designed and installed in accordance with the Class Location requirements. If the dispenser is outside the boundary of the recreational vehicle park, it must be discounted. If the dispenser is within 25'-0' (twenty five feet) of the recreational vehicle park, it must be considered to be within the park.

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AMENDED REQUIREMENTS OF CSA B.149.2 RETAIL DISPENSING FOR SINGLE CONTAINERS (NOT INCLUDING BULK PLANTS) CLASS LOCATION IS AREA CONTAINED BY LINE 330 FEET (100m) FROM TANK.				
Tank clearance from buildings structures,* major traffic areas. **	Class 1 25'(7.5m) from buildings,300'(90m) From institutional buildings. Refer to ALRT and Bridge Clearance Requirements.	Class 2 25'(7.5m) from buildings,300'(90m) From institutional buildings. Refer to ALRT and Bridge Clearance Requirements.	Class 3 25'(7.5m) from buildings,300'(90m) From institutional buildings. Refer to ALRT and Bridge Clearance Requirements.	Class 4 Buried or vaulted tanks only. Refer to Underground Storage Requirements.
Maximum Tank Capacity	18,000 USWG (68,000L)	Up to 10,000 USWG (38000L) maximum above ground. Over 10,000 USWG (38,000L) buried or vaulted as per CSA B.149.2	Up to 5,000 USWG (19,000L) maximum above ground. Over 5,000 USWG (19,000L) buried or vaulted as per CSA B149.2	Up to 10,000 USWG (38,000L) maximum buried or vaulted as per CSA B.149.2
Remote Dispensing	Required for tank capacities over 2,000 USWG (7800L)	Required	Required	

*Notwithstanding CSA B149.2 Table 7.5 no above ground tank shall have less than 25' -0" (7.5m) clearance from a building, except when a wall or other structure, satisfactory to the Fire Department, is constructed between the tank and the building.

**In traffic areas, the minimum clearance from the nearest surface of a public thoroughfare travelled by traffic shall be 20' – 0" (6m). Clearances to property lines which may be built upon must be a minimum of 3.5 '(1m). If an adjacent building site is subsequently built upon, the tank must be moved to comply with the appropriate code clearances.


 Wayne Lock
 Provincial Safety Manager - Gas

References:

Safety Standards Act
 Gas Safety Regulation
 Safety Standards General Regulation
 CSA B149.2 Propane Storage and Handling Code

For more information on the British Columbia Safety Authority, please visit our web site at:
www.safetyauthority.ca

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