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## Temporary Heat for Construction Sites

**Subject: Permits and Installation Requirements for Gas-Fired Heaters**

This bulletin has been jointly developed by Safety Services and the Gas Technical Council to inform the construction industry of the installation requirements for gas-fired construction heaters and torches utilized in Alberta.

Designers, Builders, Rental Companies, Installers, Natural Gas/Propane Suppliers and Safety Codes Officers are reminded that construction sites utilizing gas-fired heaters for temporary heating shall comply with the **Safety Codes Act** and Regulations.

The **Safety Codes Act** under the **Permit Regulation** (AR 204 /2007) states a permit in the gas discipline is required to install, alter or add to a gas system and includes the following:

- Installation of natural gas and propane construction heaters;
- Gas piping and tubing, hose and fittings from the gas supply;
- All propane containers with a capacity of greater than 454 litres water capacity or when containers are manifolded together, the aggregate capacity of the containers exceed 454 litres water capacity; and
- Propane vaporizers when required.

The permit issuer can **only issue** a permit in the gas discipline to a **qualified gasfitter** for the installation of gas-fired equipment at a construction site. However, a propane tank set permit may be issued to a person who has satisfactorily completed a course of training acceptable to the Administrator for the installation of propane tanks only.

Note: A supplier of gas shall not connect or supply gas, to any new gas installation until the permit issued in respect of that gas installation is presented to the supplier by the person applying for the service.

The Natural Gas and Propane Installation Code (CAN/CSA-B149.1-10) applies to the installation of appliances, equipment, components, and accessories where gas is used for fuel purposes and includes the piping and tubing system.

This Code under Clause 7.18 contains the minimum requirements for construction heaters and torches as follows:

**7.18.1** - A construction heater shall be located to minimize the danger of damage and upset.

**7.18.2** - A construction heater shall be installed on a solid, level, noncombustible base or, where so designed, suspended in accordance with the manufacturer's certified installation instructions.

**7.18.3** - Combustible material such as straw, canvas, wood, and debris shall be kept clear of a construction heater in accordance with the clearances specified on the heater's instruction plate.

**7.18.4** - When a construction heater is operating, an adequate air supply shall be provided.

**7.18.5** - Piping, tubing, hose, and fittings shall be supported, secured, and protected from damage and strain.

**7.18.6** - When a construction heater is connected to temporary piping, the piping and connections shall be in accordance with the requirements of **Clause 6**. In addition, a shut-off valve shall be provided with a lever or hand wheel when a branch line is in service. Hose may be used as a connector to a heater if the shut-off valve is installed immediately upstream from the hose.

**7.18.7** - It shall be the responsibility of the **lessor** of a construction heater, at the time of delivery to the lessee, to ensure that

- (a) the construction heater is approved and in **safe operating condition**; and
- (b) the lessee is instructed in the safe installation and use of the construction heater and components in accordance with the requirements of Clause 7.18.

**7.18.8** - It shall be the responsibility of the **user** of a construction heater and its components to ensure that

- (a) the construction heater and its components are installed and used in accordance with the requirements of Clause 7.18;
- (b) the maintenance of the construction heater and its components is performed by a qualified installer;
- (c) the handling and operation of the construction heater and its components are done by persons who have been instructed in such handling and operation; and
- (d) a malfunctioning or damaged construction heater is removed from service.

**7.18.9** - A construction heater shall

- (a) only be installed in a building under construction, repair, or improvement; and
- (b) not be installed in any inhabited dwelling unit or inhabited sections of a building.

**7.18.10** - A propane torch intended for manual operation **shall not be left unattended while in operation.**

The Propane Storage and Handling Code (CAN/CSA-B149.2-10), applies to the storage, handling, transfer of propane and includes the installation of containers and equipment.

This Code under Clauses 6 and 7 contains the minimum requirements for cylinder installations and tanks such as the following:

**6.4.4** – A **cylinder** that is damaged, leaking, or corroded beyond TC limits, or is due for a prescribed re-examination, shall not be filled but shall be removed from service.

### Cylinders at construction sites

**6.5.3.1** - A **cylinder** not connected for use shall be stored outdoors.

**6.5.3.2** – Cylinders shall

- (a) be stored in an area that provides protection from tampering;
- (b) be stored in an area free of vehicular or mobile **equipment** travel, or protected by barriers or the equivalent;
- (c) be placed such that the relief valve on any cylinder is not less than 3 ft (1 m) horizontally from any building opening that is below the level of the relief valve discharge;
- (d) be placed such that the relief valve discharge is not less than 10 ft (3 m) on the horizontal plane from the air intake of any appliance or air-moving equipment;
- (e) be stored in an area where “NO SMOKING” signs are prominently displayed. These signs shall be in accordance with Clause 7.12.3.
- (f) Be a distance of 25 ft (7.5 m) from any building, property line, or point of assembly; and
- (g) Not store more than 1000 lb (450 kg) of propane in total.

**6.5.3.3** - Each **cylinder** on a construction site shall be equipped with a collar designed to protect the **cylinder valve** when in use.

**6.5.3.5** - A **cylinder** may be used indoors in the construction, repair, or improvement of a **building** or **structure**, including its fixtures and **equipment**, provided that

- (a) a **pressure regulator** is employed and directly connected to the **appliance** or **cylinder valve**, or located on a manifold that is connected to the **cylinder valve**;
- (b) the total capacity of **cylinders** connected together **does not exceed 300 lb** (135 kg) of propane, and not more than one such manifold of **cylinders** is located in the same floor area unless separated by a distance of at least 50 ft (15 m);
- (c) any **cylinder** with a capacity greater than 1 lb (0.5 kg) of propane is equipped with an **excess-flow valve**. The **excess-flow valve** shall be either integral to the **cylinder valve** or in the connection with the **cylinder valve** outlet. In either case, it shall be installed in such a manner that undue strain beyond the **excess-flow valve** will not cause breakage between the **cylinder** and the **valve**;
- (d) the **cylinder**-regulating **equipment** and manifold are not located where they are subject to damage or to temperatures in excess of 125°F (50 °C);
- (e) when repair work is being carried out in a **building** not under construction and occupied, any **cylinder** used in the repair work is under the supervision of the operator at all times;
- (f) each **cylinder** is provided with a protective collar; and
- (g) a **cylinder** up to and including 100 lb (45 kg) of propane that is connected for use to a **construction heater** is secured in an upright position; and
- (h) any construction heater connected to the cylinder is installed and used in accordance with clause 7.18 of CSA B149.1.

**6.5.3.6** - A **cylinder** in use inside a **building** shall not be located near an exit, stairway, or area intended for the safe evacuation of people.

**6.5.3.7** – Connection and disconnection of **cylinders** shall be done in a well-ventilated area with no source of **ignition** within 10 ft (3 m) of the point of connection.

**6.7.1** – Each **cylinder** shall be set upon a firm, level, weatherproof base, located on consolidated ground at grade level, and shall be equipped with **flexible connectors** to offset any movement affecting the piping or tubing.

### Propane Tank Systems

**7.7.6** - A **tank** and its supports that show evidence of damage, deterioration, or incorrect installation shall not be filled.

**7.10.1** - Every **tank** shall be located outside of a **building**.

**7.10.2** - A **tank** used in a consumer application shall be located with respect to a property line, **building opening**, or an adjacent **tank** in accordance with Table 7.4. A **tank** shall be located with respect to a **building** wall in accordance with Table 7.4, except that

- (a) a maximum of four **tanks**, each less than 125 USWG (475 L), that are manifolded together to form a system may be located against a common wall of a **building**. Not more than one such manifold system may be located against a common wall of a **building** unless separated by a distance of 10 ft (3 m);
- (b) for aggregate capacities over 125 USWG (475 L) and up to and including 500 USWG (1900 L), the clearance from **building** walls may be reduced to 3 ft (1 m) for a single **tank**, provided that
  - (i) the **building** wall is of concrete or masonry construction;
  - (ii) there is a minimum of 10 ft (3 m) to the nearest **building opening**; and
  - (iii) the **tank** is used only for vapour service; and
- (c) for aggregate capacities over 125 USWG (475 L) and up to and including 5000 USWG (19 000 L), the clearances from **building** walls of other than concrete or masonry construction may be reduced to the clearances specified for concrete or masonry wall construction if protection acceptable to the **authority having jurisdiction** is provided.

When **containers** are installed in locations that do not afford protection from damage from motor vehicles on any street, highway, avenue, alley, or parking lot, they shall be protected by posts or guardrails in compliance with Clause 7.19.4 unless otherwise **approved** by the **authority having jurisdiction**.

### Direct-fired vaporizers

**9.3.1** –Subject to clause 9.3.4, a **direct-fired vaporizer** shall not be permitted in a pumphouse, a container filling or storage room, or in any other building or room.

**9.3.2** - A **direct-fired vaporizer** is considered a source of **ignition** and shall be located at a distance in accordance with the requirements of Table 7.4 from any **tank** or from the fill points of any **tank**, and at least 25 ft (7.5 m) from a **building** or property line.

**9.3.4** - A **direct-fired vaporizer** may be installed in a **building** used exclusively to house it and its related **equipment**, provided that the **building** is constructed in accordance with Clause 7.17.3, and a sign is prominently displayed on the exterior of the building at all entrances with the wording “WARNING: STORAGE OF ANY MATERIALS AND EQUIPMENT IS PROHIBITED”\* (in lettering that is a minimum of 2 in (50 mm) high).

<p align="center"><b>Table 7.4</b>  <b>Location of above-ground tanks for consumer applications limited to vapour withdrawal and/or liquid withdrawal to a vaporizer</b>                      (See Clauses 7.10.2 and 9.3.3.)</p>				
Total aggregate water capacity, USWG (L)	Minimum distance, ft (m), between tank and property line; adjacent concrete or masonry building wall with no openings within the specified clearance; source of ignition*	Minimum distance, ft (m), between tank and building wall of other than concrete or masonry construction	Minimum distance, ft (m), between tank and building opening	Minimum distance, ft (m), between tank and adjacent tank†
Up to and including 125 (475)	None‡	None	3 (1)	None
Over 125 (475) up to & including 1000 (3800)	10 (3)	10 (3)	10 (3)	3 (1)
Over 1000 (3800) up to & including 2000 (7800)	10 (3)	25 (7.5)	25 (7.5)	3 (1)
Over 2000 (7800) up to & including 5000 (19 000)	15 (5)	25 (7.5)	25 (7.5)	3 (1)
Over 5000 (19 000) up to & including 10 000 (38 000)	25 (7.5)	25 (7.5)	25 (7.5)	3 (1)
Over 10 000 (38 000)	§	§	§	§

\* Distances to property lines may be amended by the authority having jurisdiction.  
 † If tanks of a multiple tank installation are installed on a common base or pier, the clearances may be reduced at the discretion of the authority having jurisdiction.  
 ‡ 10 ft (3 m) from any source of ignition.  
 § At the discretion of the authority having jurisdiction.

Personnel performing installation, operation, and maintenance work shall be properly trained in such functions. Therefore, it is highly recommended that vendors, construction workers and gasfitters obtain training specifically related to the use and installation of construction heaters.

The purpose of this notice is to ensure that **designers, builders, rental companies, installers and gas suppliers** are aware of the provisions for construction heat and that when deviation from the requirements may be necessary, permission shall be obtained from the **authority having jurisdiction** before work proceeds. Such permission will apply only to the specific site and installation for which it is given.

Under the **Safety Codes Act** it is the responsibility of the owner, vendor, contractor, and user to ensure that the installation and operation of construction heaters and torches complies with the *Act* and are in accordance with the regulations.