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Changes in the 2015 edition of B149.1 Natural Gas & Propane Installation Code

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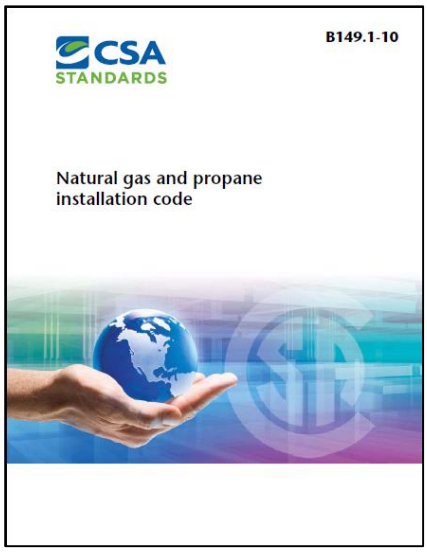
In 2015, the Canadian Standards Association (CSA) will issue new versions of the B149 Codes scheduled for release by CSA in August 2015. The 2015 Codes are meant to replace the current 2010 Codes in use. For the propane technician working in the field, it can be a challenge to determine what has been deleted, added or amended, since the last Code was published.



This article provides a summary of the clauses that have been amended, added and deleted in the CAN/CSA B149.1 Natural Gas & Propane Installation Code.

The 2015 editions of the Codes are the completion of a 5-year code cycle that CSA uses to keep the Codes updated to address new technologies, new installation materials, and changing building environments. The committees who update the codes also consider changes to improve the usability of the document. Many of the amendments consolidate subjects so that a gas technician has to only look in one place for the requirements of a specific component. For example, the requirements for appliance installation, regardless of where the appliance is being installed, home or RV, are now in the CAN/CSA B149.1 Natural Gas & Propane Installation Code instead of being split between this code and the CAN/CSA B149.2 Propane Storage & Handling Code.

The adoption of the 2015 Code is done by each province and territory separately with some Authorities Having Jurisdictions (AHJ) adopting the Codes immediately and others taking several years. A person must use the most current Code adopted in their Province or Territory for new or upgrading propane installations. In addition, each Province or Territory can, when adopting the Codes add, amend or delete clauses from the Code by way of their Code Adoption Document (CAD).

When inspecting installations one must use the Code in existence at the time the installation was installed as Codes are generally not retroactive. It is important to remember that an existing propane installation is considered to be in compliance if it still meets the requirements of the Code at the time of installation.
It is, therefore, crucial that the gas technician not only has the latest edition of the Code and current provincial regulations but access to previous Codes for reference when inspecting existing installations.

The following is a summary of revisions included in the 2015 edition of the CAN/CSA B149.1 Natural Gas & Propane Installation Code.

Section 2 – Reference Publications

Section 2 of the Code provides a listing of the supporting codes and publications referred to within the CAN/CSA B149.1 Natural Gas & Propane Installation Code. The following provides information related to references that have been changed or added.

Acceptance of ANSI/LC-4/CSA6.32-2012 Standard

The code accepts the ANSI/LC-4/CSA6.32-2012 Press-Connect Metallic Fittings for Use in Fuel Gas Distribution Systems Standard to permit the use of press-connect metallic fittings for use on natural gas and propane systems. The standard was originally developed for copper metallic press fittings but in 2012 the standard was revised to include other metallic materials (copper, carbon steel and stainless steel).

Section 3 – Definitions

Section 3 of the Code provides definitions of terms used within the Code. A number of definitions were added or amended in the 2015 edition of the CAN/CSA B149.1 Natural Gas & Propane Installation Code.

Boiler
An appliance intended to supply hot liquid or vapour for space-heating, processing, or power purposes and does not include appliances certified as water heaters. The definition was changed to exclude appliances certified as water heaters.

Flue backflow preventer (new)
A system or device used in common venting of positive pressure appliances to prevent the exhaust flue from active appliances sharing the system from flowing back into the vent of dormant or idling appliance(s). This definition recognizes check valve technology developed to prevent flue products backflow issues.

Gas Connector
Expansion of the definition of what is a "gas connector" to recognize the different types of appliance installations and connector applications;

- Permanently installed appliances where the gas connector is designed not to be repeatedly moved or disconnected/connected to the piping system.
- Movable appliances where the connector is designed for repeated movement and disconnects or reconnection.
- Gas connectors for outdoor use.
- Quick disconnect devices or gas convenience outlets.

Gas Convenience Outlet (new)
A permanently mounted certified hand-operated device that provides a means for connecting and disconnecting an appliance to the gas supply piping by way of a gas hose or gas connector.

Direct Gas-Fired Air Heaters (new)
The new definition recognizes that a direct gas-fired air heater may be capable of either ventilation mode, to off-set building heat loss; or process mode, intended for drying, baking or curing product; or both operating modes.

Pipe Wrap Tape (new)
Adhesive tape made of PVC or polyethylene material with a minimum thickness of 10 mil (0.25 mm), with an adhesive resistant to water. The definition explains what is considered to be acceptable wrap since field inspection continues to find unacceptable pipe wraps such as duct tape and thin, low-quality electrical tape being used in the applications addressed by the two subject clauses.

Quick-disconnect Device
The definition was expanded to address a disconnect device equipped with an automatic means to shut off the gas supply when the device is disconnected and is certified to ANSI Z21.41/CSA 6.9.

Section 4 – General
Section 4 of the Code describes the general requirements of propane and natural gas installations. Changes to Section 4 in the 2015 edition affect the following sub-sections:

4.8 Mobile homes
4.9 Hazardous locations
4.24 Odorization of propane
4.25 Mobile homes and recreational vehicles

New Section 4.8 - Mobile homes
This Section was transferred from the CAN/CSA B149.2-10 Propane Storage and Handling Code. It provides a single source for appliance and gas system installations regardless of installed location.

Revision to Clause 4.9.2
Recognizes engineered appliances that are used in hazardous locations that are not certified, but field approved.

New Clause 4.24.1
To address the odourization of natural gas from private natural gas wells where it is used for fuel purposes supplying an occupied building.

New Section 4.25 - Mobile homes and recreational vehicles
This Section was transferred from the CAN/CSA B149.2-10 Propane Storage & Handling Code. It provides a single source for the installation of appliances regardless of their installed location.

Section 5 – Pressure Controls
Section 5 of the Code describes the requirements for pressure controls in natural gas and propane installations. Changes to Section 5 in the 2015 edition affect the following sub-sections:

5.1 Gas system pressure
5.2 Pressure regulators

Clarification to Table 5.1
As currently written, the code suggests that it would be impossible to use natural gas in a building under construction. To be consistent, a value for the natural gas was inserted in the last row of Table 5.1 – Pressure inside buildings.

New Clauses 5.2.2.5 and 5.2.2.6
Two clauses dealing with regulators installed on vehicles from CAN/CSA B149.2-10 Propane Storage & Handling Code have been transferred to this Code so that all requirements for regulator installation are in a single source regardless of installed location.

Section 6 – Piping and tubing systems, gas hose, and fittings
Section 6 of the Code describes the requirements for piping and tubing systems, gas hose, and fittings in natural gas and propane installations. Changes to Section 6 in the 2015 edition affect the following sub-sections:

6.2 Material
6.9 Joints and connections
6.11 Appliance connections
6.15 Underground piping and tubing
6.16 Protection of piping and tubing
6.17 Identification of piping or tubing
6.18 Manual shut off valves
6.21 Gas connectors
6.27 Hoses

Revision to Clause 6.2.2
Recognizes fittings manufactured to ANSI LC-4/CSA 6.32

Revision to Clauses 6.9.1 and 6.9.9
Recognizes use of press connection joints.

Revisions to Section 6.11
To clarify how an appliance is to be connected to the gas piping system; addresses the use of corrugated stainless steel tubing (CSST) systems and tubing system installations and recognizes the use of gas convenience outlets.

Revisions to Clauses 6.15.2 & 6.15.3
To recognize the use of press-connect fittings on underground piping and tubing systems.

New Clause 6.16.1
To address the contact of metallic gas piping with a pipe of a different material which can result in galvanic corrosion.

Revision to Clause 6.16.7
To add the definition of "pipe wrap tape".

Revision to Clause 6.17.2
Clarifies that all piping/tubing needs to be identified; not just indoor piping/tubing systems at care, detention, occupancy, commercial, industrial, and assembly buildings.

Revision to Clause 6.18.1
Added wording to clarify that a manual shut-off valve must be certified for its intended purpose and rating.

New Clause 6.21.4
Permits the use of a gas connector certified to ANSI Z21.101/CSA8.5 for connecting ranges, refrigerators, and clothes dryers to the building piping.

New Section 6.27
Transfers clauses dealing with hoses transferred from CAN/CSA B149.2-10 Propane Storage & Handling Code to this Code to provide a single source for the installation of hoses.

Section 7 – Installation of specific types of appliances
Section 7 of the Code describes the requirements for specifics types of appliance installations. Changes to Section 7 in the 2015 edition affect the following sub-sections:

- 7.2 Generators, compressors/pressure boosters, stationary engines, and turbines
- 7.13 Central furnaces
- 7.18 Construction heaters and torches
- 7.19 Direct fired door air heaters
- 7.21 Non-recirculating direct gas-fired industrial air heaters (DFIAH)
- 7.22 Infrared heaters
- 7.26 Water heaters
- 7.27 Unit heaters

Revision to Clause 7.2.1.3
The clause related to venting and air supply excludes Clause 8.5.4 from the requirements to provide consistency of intent.

Revision to Clauses 7.2.4.2 & 7.2.4.3
This clause, related to stationary engines and turbines, recognizes ANSI Z21.21/CSA 6.5 C/I for safety shut-off valves and to permit the second safety shut-off valve to be installed upstream of the appliance zero governor type regulator.

Revision to Clause 7.13.1
Clarifies that a furnace must be installed on a firm level base.

Revision to 7.18.10
Changes the requirement to not leave a torch unattended to apply to both natural gas and propane.

Revisions to Section 7.19
The clause, related to direct-fired door air heaters, addresses the installation of refurbished used direct-fired door heaters that were originally certified to withdrawn Standard CGA 3.12 or CAN 1.3 12-78. There is a used market for these heaters and they can still be functional, if well maintained, after 30 years. Because of this used market, they will often be installed on renovations or new projects.

New Clause 7.21.1
This clause related to non-recirculating direct fired industrial air heaters was the result of editorially separating current clause 7.21.2 into two separate clauses and revise the numbering accordingly.

Revisions to renumbered Clause 7.21.8
Ensures that outside air dampers or closing louvers not certified as an integral part of the appliance are interlocked so that the main burners do not operate until the air dampers are fully open.

New to Section 7.22
Clauses were added to address the installation instructions for refurbished Direct Gas-Fired Process Air Heaters, which have not been manufactured since 2002.

Deleted Clause 7.26.4
The clause addressed minimum access clearance to the water heater burner. The present accessibility section and manufacturer's instructions were deemed adequate.

Revisions to Clause 7.27.6
Changes address return air inlets in combo heating systems. The present clause was found to be confusing and was rewritten for clarification.

Section 8 – Venting systems and air supply for appliances
Section 8 of the Code describes the requirements for venting systems and air supply for appliance installations. Changes to Section 8 in the 2015 edition affect the following sub-sections:

- 8.2 Air-supply determination for central-heating furnaces, boilers, and hot water heaters
- 8.3 Air supply openings and ducts
- 8.8 Air supply by mechanical means
- 8.10 Methods of venting appliances
- 8.14 Vent and chimney termination

8.16 Vents and chimneys serving two or more appliances
8.20 Size and height of interconnected vent connectors

Revision to Clause 8.2.4

Clarifies that an outdoor air supply to an enclosure can be sized using either table 8.3, for appliances having draft control devices; or table 8.4 for appliances not having draft control devices.

Revision to Clause 8.3.4

Ensures a combustion air supply device has air flow proving interlocked to the appliance(s) served and sufficient airflow is demonstrated.

Revision to Clause 8.8.2

The clause, related to air supply was found to be confusing and was rewritten for clarification.

Revision to Clauses 8.10.6, 8.14.13 & 8.20

Provides requirements for common venting of appliances with positive pressure venting. Check valve technology has been developed to prevent flue products backflow issues. This venting technology is currently permitted in Europe.

Revision to Section 8.16

For vents and chimneys serving two or more appliances, a note was added to explain differences between common venting of Category 1 & 11 appliances and Category 111 & 1V appliances.

About the Author

David Stainrod provides technical fuel and investigative consultation to the public and governments in both Canada and the United States. He is an active member of numerous provincial regulatory committees as well as CSA Codes and Strategic Steering committees. David is President of the Fuels Learning Centre and can be reached by email at david.stainrod@fuelslc.com.