Fuels Safety Program	Ref. No.: FS-281-26
Propane Code Adoption Document Amendment	**Publication Date:** April 8, 2026 **Effective Date:** June 8, 2026

IN THE MATTER OF:

Technical Standards and Safety Act 2000, S.O. 2000, c. 16,
Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), and
Ontario Regulation 211/01 (Propane Storage and Handling)

The Director for the purposes of Ontario Regulation 211/01 (Propane Storage and Handling), pursuant to section 9 (1) of Ontario Regulation 223/01 (Codes and Standards Adopted by Reference), hereby provides notice that the PROPANE CODE ADOPTION DOCUMENT published by the Technical Standards and Safety Authority and dated June 1, 2001, as amended, is further amended as follows:

All sections of the Propane Code Adoption Document previously published are revoked and replaced with the following:

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Background

This amendment to the Propane Code Adoption Document (CAD) revokes and replaces the previous amendment (FS-259-21, dated October 12, 2021). Background information is included for the provisions.

This CAD amendment adopts new requirements approved by the CSA B149.1, B149.2, B149.3 and B149.5 Code Committees for the 2025 Code that are considered important to be implemented in Ontario now and addresses gaps in the current codes to enhance safety.

Changes in this version include the following:

- Adoption of B149.2- 25 for propane storage and handling requirements (Item 1)
- Adoption of, B149.5- 25 for propane vehicle conversion requirements (Item 2)
- Adoption of B149.3- 25 for appliances and equipment on highway vehicles, mobile units, etc. when propane is used for fuel purposes
- Adoption of NFPA 160 - Standard for the use of Flame Effects Before an Audience, 2021 Edition

1.0 Propane Storage and Handling Code

1. The CSA Standard B149.2:25 “Propane Storage and Handling Code” published in February 2025 by the Canadian Standards Association is adopted with the following amendments:

1.1. Clause 3 is amended by revoking the definitions of “Appliance” and “Approved”.

1.2. Clause 3 is amended by adding the following definition:

Cylinder exchange - a type of a propane cylinder handling facility where propane in refillable cylinders are sold or otherwise distributed to an end user.

Background:

Definitions of “appliance” and “approved” are in the Propane Storage and Handling Regulation.

“Authority Having Jurisdiction” is structured in the Technical Standards and Safety Act, 2000 and O. Reg. 211/01, Propane Storage and Handling.

Manufacturer’s instructions that are not certified may be used as guidelines but are not mandatory.

1.3. Clause 4.1.4 is revoked and the following substituted:

4.1.4
Where a conflict exists between the manufacturer’s certified instructions and this Code, the requirements of this Code shall prevail unless otherwise approved by the authority having jurisdiction.

1.4. Clause 4.2.3 is revoked and the following substituted:

4.2.3
The approval of the assembly or construction of an appliance is subject to the authority having jurisdiction.

1.5. Clause 6.5.2.6 is amended by adding the following:

6.5.2.6.3
Cylinder exchange shall have cylinders stored in no more than four (4) cabinets and each cabinet shall contain no more than 500 lbs of propane

1.6 Clause 7.1 is amended by adding:

7.1.17
All installed tanks shall require a recorded tank inspection every 10 years, in accordance with criteria acceptable to the authority having jurisdiction.

1.7. Clause 7.2 is amended by adding:

7.2.6
Pressure relief valves (PRV) of tanks shall be visually inspected periodically to ensure that there are no impediments that will prevent them from operating properly. The frequency of the periodic visual inspection depends on the operating environment and the manufacture's recommendation.

7.2.7
The PRV inspection shall be recorded at a minimum interval of every five (5) years. The record shall include the date of inspection and the person carrying out the inspection. The inspection will ensure that:

- The outlet and, where applicable, weep hole are open and free to discharge;
- There are no signs of corrosion, cracks, debris, tampering, or other mechanical damage;
- There is no leakage;
- The discharge is directed to a safe location, and any piping installed is adequately supported and does not obstruct the discharge;
- The seal, where applicable, has not been broken;
- The rain cap, where applicable, has been installed.

7.2.8
Tanks of greater than 2,500 USWG shall have the relief valves rebuilt and certified, or replaced every 10 years. All overdue relief valves shall be rebuilt and certified, or replaced by May 1, 2024.

7.2.9
Tanks of 2,500 USWG or less shall have the relief valves rebuilt and certified, or replaced every 25 years. All overdue relief valves shall be rebuilt/certified or replaced by May 1, 2027.

7.2.10
Tank owners shall have a plan that provides an achievable pathway for full compliance as per Clause 7.2.8 and 7.2.9 within the implementation periods stated above.

7.2.11
Within a ten (10) year period from the implementation of these requirements (seven [7] years for tanks of greater than 2500 USWG), each owner should keep records of the PRV* for each in-service tank, including;

- The name of the PRV manufacturer;
- The date on which the PRV was put into service;
- Approval stamp - the PRV must have the UL code symbol on it in accordance with the applicable design code (ANSI/UL 132);
- A record that the set pressure of the PRV meets the specified requirements for the

- tank;
- A record that the relief capacity in SCFM air conforms to the appropriate rate for the size of the tank; and
- Records of this information shall be held by the distributor and may be kept in hard copy or electronic format.

*Not all valves have a nameplate. If there is no nameplate the markings are stamped into the body of the valve. All valves should be marked with the manufacturer's name or an abbreviation, the manufacturer's part number, set pressure, capacity, date or date code for year of manufacture, and the UL rating code symbol.

2.0 Installation code for Propane Fuel Systems and Containers on motor vehicles

2. The CSA Standard B149.5:25 "Installation code for propane fuel systems and containers on motor vehicles" published in 2025 by the Canadian Standards Association is adopted with the following amendments:

2.1 Clause 3 is amended by revoking the definition of "Approved".

2.2 Clause 4.1.5 is revoked and the following substituted:

4.1.5
Where a conflict exists between the manufacturer's certified instructions and this code, the requirements of this code shall prevail unless otherwise approved by the authority having jurisdiction.

2.3 Subclause 5.12 is amended by adding the following:

5.12.6
Fuel systems shall be inspected every five years in accordance with B149.5-25 Annex E.

5.12.7
A label applied in accordance with 5.12 shall show an expiry date of 5 years after the date of conversion or inspection.

5.12.8
Where a label described in 5.12 is missing or lost, a new label may be applied showing the remaining time until expiry without a vehicle inspection, provided that documentation is provided of the vehicle conversion or most recent vehicle inspection date.

5.12.9
The inspection required in 5.12.6 shall be carried out by a holder of a valid Internal Combustion Alternate Fuel Technician, Propane (ICE-P) certificate. The inspection shall be carried out at a registered vehicle conversion centre.

5.12.10
Propane conversion centres shall keep records of the vehicles that have been converted or inspected. Records shall include:

1. Date of conversion/inspection,
2. VIN number, licence plate number and the make and model of vehicle,
3. TSSA label numbers (TSSA issued door label and window label number),
4. Certificate holder name who did the conversion, and
5. Bill of Materials (BOM) of the conversion.

3.0 Natural gas and propane installation code

3. The CSA Standard B149.1:25 “Natural gas and propane installation code” published in 2025 by the Canadian Standards Association is adopted for the installation requirements for mobile homes and recreational vehicles.

4.0 Field approval of Fuel Appliances

4. The following provisions related to field approval of fuel appliances are hereby adopted.

4.1. Scope and Application

4.1.1.
This section establishes the requirements for approval of appliances that are custom made, built on site or produced in limited numbers.

4.1.2.
Approval under this section is limited to the fuel features of appliances/equipment where fuel features mean components that use fuel, handle fuel, control combustion or vent combustion products and features of construction and installation that relate to the safe use and handling of fuel.

4.1.3.
Approval under this section is for code compliance and safety. It does not include performance of the appliance or equipment.

4.1.4.
TSSA Field Approval applies to the installation of the appliance, and, except for mobile or portable appliances, is valid only for the specific physical location where the appliance is installed. If the appliance or equipment is moved, even within the same physical address, the approval is void and the appliance must be re-approved in its new location.

4.1.5.
If the appliance approved under this section is modified, the approval is void and the modified appliance must be re-approved.

Note: For further details, refer to the TSSA Advisory Maintenance vs. Modification and Upgrading, Ref. No. FS-133-08.

Where a deviation from this section is required, a separate application for a variance shall be made and approval of a variance shall be obtained prior to appliance approval.

4.2. Required Documentation

4.2.1
An application for field approval shall be made to the TSSA Statutory Director and shall include:

(a) Completed Application for Field Approval;
(b) Process description;
(c) Electrical schematic;
(d) Valve train diagram, combustion schematic or piping and instrumentation diagram (P&ID);
(e) Bill of materials for all fuel features; and

A prepayment in the amount as specified on the application for field approval, using one of the payment methods must be submitted with the application.

4.2.2
For Class A appliances, the following additional information shall be submitted:

(a) Safety ventilation calculation as per NFPA 86; and
(b) Calculation for the explosion relief area

4.2.3
For appliances that use programmable controllers for flame safety, the following additional information shall be submitted:

(a) A letter from a Professional Engineer as defined by the Ontario Professional Engineers Act confirming the system has been reviewed by them and that it complies with section 12.7 of CSA B149.3:25, as amended;
(b) Functional logic diagrams complete with timer and counter presets;
(c) Power distribution drawings;
(d) A list of all error and alarm messages, their meaning, and suggested operator reactions;
(e) A description of the microprocessor-based system and BMS operation;
(f) Training arrangements;
(g) Security procedures, privileges level, and assignments; and
(h) At the time of commissioning and site verification, an electronic copy of the as-built system program code.

4.2.4
Notwithstanding clauses 4.2.1, 4.2.2 and 4.2.3, an applicant may be required to provide such other information or documentation as may be required by the Director or an inspector.

4.3 CSA B149.3 Code for the Field Approval of Fuel Related Components on Appliances and Equipment

The CSA-B149.3:25 entitled "Code for the Field Approval of Fuel Related Components on Appliances and Equipment" prepared by the Canadian Standards Association, is adopted with the following amendments:

4.3.1
Clause 1.2 (g) is revoked, and the following is substituted for it:

(g) fuels not included under the TSS Act.

4.3.2
Clause 1.2 is amended by adding to it the following sub-clause:

(i) propane used as refrigerant.

4.3.3
Section 3 is amended by revoking the definitions of "**Appliance**", "**Approved** and by adding the following definitions:

Appliance – as defined in the applicable regulation under the Technical Standards and Safety Act

Class A Appliance - an **appliance** that has heat utilization **equipment** operating at approximately atmospheric pressure, where there is a potential hazard of explosion or fire due to the presence of flammable volatiles or combustible materials processed or heated in the furnace.

Exception:
(1) Oven or furnaces having concentration of flammable volatiles less than or equal to 0.5% of the **Lower Flammable Limit (LFL**).
(2) Special atmosphere furnaces, **oxidizers**, cremators and fume incinerators.

Approved – as defined in the applicable regulation under the Technical Standards and Safety Act.

Biogas— A gas that by the nature of the biological process produces primarily methane from the decomposition of organic waste material at a landfill site or under anaerobic conditions within digester.
Note: By the nature of the biological process under anaerobic conditions, its production and constituents are considered flammable, corrosive, wet, and potentially hazardous. It can contain traces of water, hydrogen sulphide gas, and dissolved ammonium and bicarbonate ions. By reason of its high inert content, biogas has a slow rate of flame propagation compared to natural gas and propane.

Where the term "biogas" is used, the requirements of this Code include, and apply equally to, any of the following gases or mixtures of them: wastewater digester gas, organic digester gas, and landfill gas:

Wastewater digester gas -a biogas produced in a digester from organic sewage sludge from a municipal wastewater treatment plant. It is generally composed of approximately one-half to two-thirds methane and one--third carbon dioxide that is produced from the decomposition of organic residues.
Organic digester gas- a biogas produced in a digester at a location other than a wastewater treatment plant. It is generally composed of approximately one-half to two-thirds methane and one-third carbon dioxide that is produced from the decomposition of organic residues.
Landfill gas - a biogas consisting primarily of methane, carbon dioxide, water, and traces of hydrogen sulphide gas from the decomposition of organic waste material at a landfill site.

Confined space – a space whose volume is less than 50 ft3/1000 Btu/hr (4.8 m3/kW) of the aggregate input rating of all **appliances** installed in that space.

Lower Flammable Limit (LFL) - the lowest concentration of a flammable gas or vapour in air within which a flame can be propagated.

Operating Engineer - a holder of a subsisting certificate of qualification as an operating engineer under O. Reg. 219/01.

Pressure Controller - a combination of control **valve** and associated measuring, transmitting and controlling elements that maintains a constant outlet pressure at varying rates of flow.

Ventilation (with respect to the space in which an **appliance** is installed) - the removal of inside air, leaked or spilled products of combustion, or flue gases from the space in which an **appliance** is installed to outside the space, and the replacement of same by air from outside the space.

4.3.4
Clause 4.3 is revoked and replaced with the following:

4.3 A pressure regulator shall be of the spring-loaded, pressure-balanced type, or pressure controller type.

4.3.5
The following clauses are added:

4.10 The pressure regulator settings shall be protected from unauthorized access and adjustment.

4.11 The materials of construction of the pressure regulator shall be compatible with the anticipated operating conditions and fluids, and shall provide adequate protection from moisture, corrosion and components of the fuel gas.

4.12 The installation, operating and maintenance manuals for a pressure regulator shall be provided to the end user and shall be available on site.

4.13 The flow direction shall be marked on the pressure regulator.

4.14 When a pressure controller type of regulator is used, a documented assessment shall be provided to demonstrate that there is appropriate evidence, based on proven-in-use, that the pressure regulator is suitable for the application.

4.3.6
Clause 8.2.3 is revoked and the following is substituted for it:

8.2.3 When a fuel air ratio control (FARC) system is used, it shall be in compliance with ISO 23552-1 or Annex D.

4.3.7
Clause 8.3.7 is revoked and the following is substituted for it:

8.3.7 Proven combustion airflow **and exhaust air** flow by mechanical means
When a burner combustion air supply or exhaust is provided by mechanical means, fuel shall be prevented from entering the burner until the mechanically produced sufficient airflow to the burner is proven by means of an airflow proving device as per Clauses 12.6 or 16.2.5. In the event of failure of airflow to the burner, fuel shall be shut off.

4.3.8
Clause 10.6.2 is revoked and the following is substituted for it:

10.6.2 An **appliance pressure regulator** shall be equipped

(a) for lighter-than-air gas, with a **bleed vent** leading outdoors in accordance with CSA B149.1 or into the **combustion chamber** adjacent to a continuous pilot, unless the **appliance pressure regulator** having an inlet pressure not in excess of 2 psig (14 kPa) is constructed or equipped with a leak-limiting system that restricts the escape of gas to not more than 2.5 ft^3 (0.0708 m^3) per hour of a gas having a specific gravity of 0.6 and the fuel contains no more than 7 mg of hydrogen sulphide per cubic metre of gas at an absolute pressure of 101.325 kPa at 15°C. A regulator with leak-limiting system shall only be installed in a ventilated space; or
(b) for heavier-than-air gas, with a **bleed vent** leading outdoors in accordance with CSA B149.2, unless the **appliance pressure regulator** having an inlet pressure not in excess of 2 psig (14 kPa) is constructed or equipped with a leak-limiting system that restricts the escape of gas to not more than 1 ft^3 (0.0283 m^3) per hour of a gas having a specific gravity of 1.53 and the fuel contains no more than 7 mg of hydrogen sulphide per cubic metre of gas at an absolute pressure of 101.325 kPa at 15°C. A regulator with leak-limiting system shall not be installed in a **confined space**.

*Note: For the purposes of installation of **appliance pressure regulators** with a vent-limiting means, a ventilated space should not be considered a **confined space.***

4.3.9
Clause 10.6.10 is revoked and the following is substituted for it:

10.6.10 A safety limit or a safety relief device shall not be isolated, bypassed, or in any way made ineffective by a **valve** or other device except as permitted in Section 2.7.16 of this CAD.

4.3.10
Clause 12.1.3 is revoked and the following is substituted for it:

12.1.3 Except as specified in Clause 12.1.4, where intermediate relays are used in the limit circuit or used to control safety shut off valves or used to control direct spark transformer igniters, a safety relay that provides redundancy and a self-monitoring function to ensure the contacts are operating properly, or an equivalent circuit, shall be used.

4.3.11
Clause 12.2 is amended by adding the following:

12.2.4 For a single boiler venting into a dedicated venting system without any economizers or emission control devices, the purge shall be based on the volume of the internal flue passages up to the flue collar.

12.2.5 For a single boiler venting into a dedicated venting system without any economizers or emission control devices, the purge shall be based on the volume of the internal flue passages up to the flue collar.

12.2.6 For appliances that rely on natural convection with no mechanical air supply, calculations shall be submitted taking into account various environmental conditions and any unburnt gas mixture that may have accumulated in the appliance, to have a pre-purge of at least four (4) air changes of the combustion zone and flue gas passages.
Where appliances that rely on natural convection and equipped with air damper(s) and/or draft damper(s) in control of air flow, interlocks shall be provided to make sure the dampers are proven in the fully open position during purge period.

4.3.12
Clause 12.4.1 is amended by adding to it the following sub-clause:

(h) high water in a steam boiler other than a boiler under continuous attendance by an operating engineer.

4.3.13
A new clause 12.4.5 is added to section 12.4:

12.4.5 The sensing element for the low water cut-off shall be located above the lowest safe permissible water level established by the boiler manufacturer.

4.3.14
Sub-clause 12.5.2 (b) is revoked and the following is substituted for it:

(b) immediately upstream of the multifunctional control.

4.3.15
Clause 12.7.1 is revoked and the following is substituted for it:

12.7.1 General
When microprocessors are used as a primary safeguard device they shall be certified to IEC61508-2(hardware) and IEC61508-3(programming software) and installed as per the manufacturer's safety manual. The requirements of Clause 12.7.2 shall apply or a functional safety assessment shall be performed by competent personnel other than the designer, to verify full compliance with IEC 61511 standard. A letter from a Professional Engineer as defined by the Ontario Professional Engineers Act shall be provided confirming the system has been reviewed by him/her and that it complies with IEC 61511 standard.

Note: Programmable logic controllers (PLCs) and distributed control systems (DCSs) form pairs of a family of microprocessor-based burner management systems (BMSs) for diverse

4.3.16
Clause 12.7.2.2. is revoked and the following is substituted for it:

12.7.2.2.
The programmable logic controller and associated I/O shall be solely dedicated to the individual appliance and its associated process control and safety functions. The following requirements shall apply:
(a) The software program for the BMS shall reside in non-volatile memory.
(b) A watchdog timer internal to the BMS processor shall monitor the program scan time. In the event of an occurrence of a non-deterministic condition, all outputs shall de-energize,

resulting in an immediate master fuel trip. The time allowed for a single processor scan shall not exceed three times the predefined scan time. An external watchdog timer shall not be required.

(c) In the event of a power failure, the programmable logic controller system hardware and software shall not prevent the system from reverting to a fire-safe condition. A safe condition shall be maintained upon restoration of power.

(d) The BMS shall be equipped with a master fuel trip function that shall directly de-energize the main burner and main igniter header safety trip valves and associated vent valves when a master fuel trip command caused by operator intervention or by any of the critical system processes or component failures are present; their operation shall result in a fire-safe condition. No logic sequence, or device, that allows momentary closing and subsequent inadvertent re-opening of the main or igniter fuel valves shall be permitted. Once a master fuel trip is initiated, it shall require operator action before operation of the affected burners can resume.

(e) Redundant processors with automatic transfer schemes shall be permitted. The designer shall be familiar with the conditions that would initiate a processor transfer and be fully satisfied that combustion safety is not compromised with the addition of redundancy hardware and/or the switching of processors.

(f) The designer of the BMS and the software for system operation shall provide the end user and the authority having jurisdiction with the documentation needed to verify that all related devices and safety logic are functional before the BMS is placed in operation. Passwords and/or entry level privileges shall be provided before access to the processor's memory shall be permitted. Inadvertent memory erasure shall be prevented by restricted access and high-level password-protected software. The system designer shall be responsible for the distribution of the BMS software program and may transfer the password for memory access to the end user when documentation control procedures are in place. The end user shall not make program alterations without written approval from the system designer or a qualified professional engineer in conjunction with the system designer. The end user shall keep the written approval on file until the equipment or appliance is decommissioned.

4.3.17

Clause 12.7.2.3.1 is revoked and the following is substituted for it:

12.7.2.3.1

Critical input signals are process parameters that activate a BMS master fuel trip and shall be configured in the fail-safe mode. Input channels for all critical signals shall incorporate a continuous self-test feature that satisfies the requirements of Clause 12.7.2.3.2 or 12.7.2.3.3, or they shall be hard-wired to the master fuel trip relay. Bypass switches for critical field inputs shall not be permitted. For petrochemical, refinery industries and integrated steel mills, the use of bypasses may be permitted by the authority having jurisdiction for the purposes of on-line testing or maintenance if the following is met:

1) Documented and approved mitigations are implemented during the override period; and
2) A strict time limit is enforced upon the bypass.

4.3.18

Clause 12.7.2.3.2 is revoked and the following is substituted for it:

12.7.2.3.2

All safety critical inputs shall be monitored for faults.

Example: The interrogation voltage to all critical field devices can be periodically removed. Upon detection of the fault, one of the following shall occur:

(a) For systems using a one out of one or a one out of two voting scheme, any safety input channel recognized as faulty shall be alarmed and a BMS trip shall be activated;

(b) For systems using a one out of two or a two out of two voting scheme with diagnostics, a single faulty input shall be alarmed and the system may default to one out of one voting scheme;

(c) For systems using a two out of two or a two out of three voting scheme, a channel recognized as faulty shall indicate a trip for that channel;
(d) For systems using a two out of three voting scheme with diagnostics, a single faulty input shall be alarmed and the system may default to a two out of two voting scheme;
(e) For systems using voting schemes other than listed above, the approval shall be obtained from the authority having jurisdiction.

4.3.19
Clause 12.7.2.3.3 is revoked and the following is substituted for it:

12.7.2.3.3 The design of the BMS communications to other non-safety microprocessor based systems, including operator stations, shall ensure that any failure of the communications shall not adversely affect the ability of the BMS to bring the process to a safe state. Signals from other non-safety microprocessor based systems that initiate a master fuel trip shall be hard-wired. BMS trips may be allowed over safety certified communications. When analog field devices are used for critical input signals, the following shall apply:

a) a faulted analog signal used as the primary process variable measurement shall initiate a master fuel trip or default to an approved safe condition;
b) a faulted analog signal used as a supporting signal to compensate and improve the accuracy of the primary measurement device shall initiate an alarm; and
c) digital signal variables from field devices, available using digital communication protocols (e.g., HART, Modbus), shall not be permitted as the primary signal to initiate a master fuel trip. These signals are permitted as a secondary trip function (e.g., to identify a faulted transmitter) or as an alarm function.

Notes:
1) A HART or Modbus are examples are digital communication protocols.
2) An example of a secondary trip function is to identify a faulted transmitter.

4.3.20
Clause 12.7.2.4 is revoked and the following is substituted for it:

12.7.2.4
All safety critical outputs shall be monitored for faults. Interposing relays shall only be used where the power demand exceeds the power rating of the output module or where the operating voltage for the field device is outside of the range offered by the output modules. Where interposing relays are used, the relay shall be sized to the voltage and current requirements of the equipment being controlled. Electronic output switches or dry relay contacts may be used in systems operating on AC voltages. They shall have a rating sufficient to control the application in both ON/OFF and continuous operations. Arc suppression devices can be used if necessary and shall be configured in a way to fail safe.

4.3.21
Clause 12.7.2.6 is revoked and the following is substituted for it:

12.7.2.6
Functional testing shall be performed and documented on the complete system. Functional testing shall include all aspects of the BMS, including the hard-wired tripping circuit, processor scan time, and I/O scan time. Where videographical display systems are involved in control selection and display, video response times shall be tested and recorded for all time-critical BMS safety functions.

4.3.22
Clause 14 is revoked and the following is substituted for it:

14. Rating Plate

14.1 An appliance shall have a clearly legible permanent rating plate that shall include the following information:

(a) manufacturer's or vendor's name;
(b) appliance type and identification number;
(c) electrical specifications;
(d) type of fuel(s);
(e) maximum input rating in Btu/hr (kW);
(f) minimum purge time;
(g) approval standard;

14.2 For gas fired appliances, in addition to information required in 14.1, the following shall be provided on the rating plate:
(a) inlet pressure at the point of connection;
(b) maximum burner manifold fuel pressure;
(c) minimum burner manifold fuel pressure, if applicable;

14.3 For fuel oil fired appliances, in addition to information required in 14.1, the following shall be provided on the rating plate:
(a) where applicable, minimum and maximum fuel oil nozzle pressure;
(b) where applicable, minimum and maximum atomizing media type and pressure;
(c) where applicable, nozzle sizes, angles and patterns;

14.4 For Class A appliances, in addition to the information required in 14.1, the following additional information shall be provided on the rating plate:
(a) Solvent used
(b) Solvent and volatiles entering the appliance (US Gals/Litres per batch or per hour)
(c) Maximum appliance operating temperature (°F or °C)
(d) Exhaust blower capacity SCFM (m^3/hr)
(e) CAUTION: This appliance is designed and approved for the above conditions. Prior to any change in the solvent type, solvent loading or oven operating temperature, recheck and document that the above exhaust capacity is sufficient to maintain appliance atmosphere at or below 25% LFL.

4.3.23
A new clause 16.10.12 is added:

16.10.12. Explosion relief

Explosion relief shall comply with clause 16.2.4 of CSA B149.3-25 except for the chamber of an indirect-fired oven that incorporates a single combustion airflow path through the heat exchanger and does not recirculate the products of combustion.

4.3.24
A new clause 16.11 is added:

16.11 Fume Incinerators and Oxidizers
Fume Incinerators and Oxidizers and incinerators shall comply with Section 10 of NFPA 86-2023 excluding Clause 10.6.3.1.

4.3.25
A new clause 21 is added:

21 Boilers for use with waste gas

21.1 Boilers firing Biogas shall comply with both the CSA B149.6 Code for Biogas Generation and Utilization and CSA B149.3 Code for Field Approval of Fuel Burning Appliances and Equipment.

21.2 An appliance, including all accessories, components, equipment and material used shall be a type and rating approved for the biogas and waste gas composition and operating conditions.

21.3 Boilers for use with waste gas shall comply with the following additional requirements:

(a) A flash-back (flame) arrester and a check valve shall be installed downstream of the safety shut-off valve or valves on the waste gas valve train.

Note: The check valve is not required at the connection of a burner if the burner is so designed that it prevents the introduction of air, oxygen or other gas into the digester gas piping.

(b) For dual fired boilers a check valve or equivalent shall be installed on the standby gas (secondary fuel) valve train immediately upstream of the standby gas (secondary fuel) connection to provide isolation for the standby (secondary fuel) valve train.

(c) When an automatic safety shut-off valve comes in contact with the waste gas, it shall be suitable for use with the waste gas. Suitability can be demonstrated via declaration from the valve manufacturer. The valve or valves shall be designed so that its invert does not allow accumulation of moisture.

(d) Boilers shall be equipped with a natural or propane gas pilot burner.

(e) Piping, tubing and fittings in contact with the waste gas shall be made of stainless steel.

(f) Components in contact with the waste gas shall be suitable for use with waste gas. Suitability can be demonstrated via declaration from the component manufacturer.

(g) The pressure taps for the low and high gas pressure safety devices shall be located on the top of the pipe.

4.3.26
Annexes D and E are adopted as a mandatory part of the code.

4.3.27
Annex F is adopted as a mandatory part of the code.

4.3.28
Section 1 of Annex F.1 is revoked and the following is substituted for it:

a. Two oxygen safety shut-off valves in series, each of them equipped with a proof of closure switch, shall be provided in the oxygen supply line. The proof of closure switches shall be integrated with the start-up circuit of the combustion safety control.

4.3.29
Section f) of Annex F.1 is revoked.

4.3.30
Section g) of Annex F.1 is revoked and the following is substituted for it:

7g). Safety shut-off valves shall not be used as modulating control valves unless they are designed as both safety shut-off and modulation valves and tested for concurrent use.

5.0 Mobile Food Service Equipment (MFSE)

Annex J (Mobile outdoor food service unit) of CSA B149.3-25 code, published by the Canadian Standards Association, is adopted as mandatory with the following amendments:

5.1
Clause J.1 is revoked, and the following is substituted for it:

J.1 General
This section applies to mobile food service equipment commonly referred to as “food trucks or trailers” either open-air or enclosed type.
These requirements cover or make reference to the entire fuel features of the truck/trailer including:

a) the storage of fuel;
b) transmission of gas (piping/tubing);
c) burning of gas;
d) combustion air; and
e) exhaust air.

These requirements are not intended to approve individual appliances or components. The expectation is that all appliances and components used will be certified and suitable for the application.

5.2
The following clauses are added to Clause J.1:

J.1.1 Approval
All MFSEs are required to have a Field Approval issued by TSSA or alternatively must be certified and labeled by a Certification Organization accredited by Standards Council of Canada. The approval must include the entire assembly cart, truck, trailer, etc., including the fuel supply assembly, piping, appliances, ventilation and warning labels.

J.1.2 Annual Inspections
The owner/operator of an MFSE shall ensure that a certified gas technician inspects the MFSE annually using the Annual Inspection Certificate in the form in Annex S of the Gaseous Fuels CAD. Upon successful completion of the inspection the owner/operator shall retain the certificate with the MFSE until the subsequent inspection. All MFSE may be subject to TSSA inspection to confirm annual inspection is current.

5.3.
Clause J.2 is amended with the following:

The definition of “**Mobile outdoor food service uni**t” is revoked and substituted with the following:

Mobile Food Service Equipment (MFSE): is mobile equipment containing propane or other hydrocarbon fuel fired cooking appliances, a means of water heating or power generation, and, if applicable, associated fuel storage.

For the purposes of this document, MFSE includes the following types of equipment (except as noted under Exemptions):

a. a self-propelled vehicle such as a truck or van fitted with food service equipment and either equipped with propane supply cylinders or intended for connection to propane supply cylinders at the operation site.

b. a trailer or cart fitted with food service equipment intended to be towed to the operation site and either equipped with propane supply cylinders or intended for connection to a propane supply cylinder at the operation site.
c. a portable cart fitted with food service equipment that is not towed but may be transported to an operation site and provided with a propane supply cylinder that may be enclosed in the cart.

Exemptions:
In some cases, a self-propelled vehicle or a trailer may be located at a fixed site and is not intended to be relocated. Such units are not considered MFSE if they meet the following criteria:

1. Some form of municipal licence has been issued to permit operation in a permanent location only; or,
2. If there is no such licence in place, but the unit has been installed as follows:
    a. the vehicle has been fitted to a foundation or has been raised on concrete blocks, jack stands or equivalent;
    b. all wheels have been removed;
    c. tongues or tow bars have been removed; and,
    d. the vehicle is connected to one or more utility services:
        i. electricity - no plugs or generators and approved by the authority having jurisdiction;
        ii. water,
        iii. sewers or septic systems;
        iv. natural gas or propane if it is hard piped to a 420 lb cylinder or larger);

Notes:
1. If the vehicle attends various events at different locations such as fairs, rib festivals, etc. it will be considered a MFSE.
2. Units deemed to qualify under the exemptions above are nevertheless required to meet the applicable provisions of the CSA B149.1:25 Natural Gas and Propane Installation Code and CSA B149.2:25 Propane Storage and Handling Code.

5.4
Clause J.3.6 is amended to add the following at the end of existing clause:

A cylinder valve shall be protected by
a) being set into a recess of a cylinder; or
b) a ventilated cap or collar that is a part of the cylinder.

5.5
Clause J.3.8 is amended to add the following at the end of the existing clause:

J.3.8.1
A container located on the exterior of a vehicle shall
a) not project beyond the side of the vehicle;
b) not be installed on the roof of the vehicle unless accepted by the authority having jurisdiction;
c) if installed on the rear of the vehicle, be protected from damage by extending the bumper or frame rearward beyond the container, using material at least equivalent in strength;
d) not be mounted ahead of the front axle of a self-propelled vehicle;
e) when located on the A-frame of a vehicle designed to be towed, be mounted as close as possible to the body of the vehicle;
f) not be attached to any door; and
g) A container from which vapour only is to be withdrawn shall be installed or equipped in such a manner as to prevent the accidental withdrawal of liquid propane.

5.6
Clause J.3.9 is revoked.

5.7
Clause J.3.11 is amended to add the following at the end of the existing clause:

J.3.11.1
A cylinder shall be installed on a vehicle with the discharge from the cylinder relief valve not less than:

a) 3 ft (1 m) on a horizontal plane from any building opening when the opening is below the level of the relief valve discharge.
b) 10 ft (3 m) on a horizontal plane from the air intake of any appliance or air-moving equipment; and
c) 0 ft (3 m) on a horizontal plane from any source of ignition.

Items (b) and (c) shall not apply to an appliance when the cylinder retention means is incorporated and certified as part of the appliance.

5.8
Clause J.3.13 is amended to add the following at the end of the existing clause:

A container shall be located so that the discharge from the relief valve is:

a) into the open air;
b) directed away from the vehicle; and
c) not less than 3 ft (1 m) horizontally from an opening into a vehicle, including combustion air inlets or flue gas outlets, below the level of such discharge.

5.9
Clause J.3.25 is amended to add the following at the end of the existing clause:

A label made of durable material that is not adversely affected by water, employing an adhesive that is not water soluble, shall be affixed adjacent to the filling location. The label shall be worded as follows:

“EQUIPPED WITH A STOP-FILL VALVE. USE OF FIXED-LIQUID-LEVEL GAUGE IS NOT REQUIRED”.

5.10
Clause J.3.32 is amended to add the following at the end of the existing clause:

J.3.32.1
The tank manufacturer shall provide tank mounting brackets complete with a resilient material to be installed between the supports or clamping bands and a container such that there is no direct metal-to-metal contact with the container.

5.11
Clause J.3.41 is amended to add the following at the end of the existing clause:

1. This minimum clearance shall be measured from the bottom of the tank or from the lowest portion of any part of the fuel system when installed, whichever is lower, and shall not be less than the following:
    i. between the axles
        1. 7 in (175 mm) on vehicles with a wheelbase of 127 in (3175 mm) or less; or
        2. behind the rear axle, 8 in (200 mm); or
    ii. 9 in (225 mm) on vehicles with a wheelbase in excess of 127 in (3175mm).

    The tank or any other portion of the fuel system shall be installed above a plane that contacts the bottom of the rear tires, and the lowest most rearward part of the vehicle as received from the manufacturer.

5.12
Clause J.3.50 is revoked with the following substituted for it:

All cylinders shall be secured by brackets, straps, or carriers designed and fabricated to withstand calculated loading in any direction equal to at least four times the weight of the cylinder when filled with propane. Non-metal straps must bear a manufacturer's label stating the load rating of the strap. Straps must be UV resistant as declared by the manufacturer.

5.13
Clause J.4.1.2 is amended to add the following at the end of the existing clause:

J.4.1.2.1
Piping shall comply with ASTM A53/A53M or ASTM A106.

J.4.1.2.2
When an appliance is removed for servicing or repair, the supply line or branch line to that appliance shall be sealed by means of a cap or plug.

J.4.1.2.3
When piping or tubing is run in a sleeve, the sleeve shall be of such material and so installed as to protect the piping or tubing from damage and galvanic action.

J.4.1.2.4
When piping or tubing passes through an exterior wall, it shall be sealed watertight and the portion of piping or tubing that runs through the wall shall be sleeved or double wrapped with a waterproof wrap

5.14
Clause J.4.1.3 is revoked, with the following substituted for it:

A fitting used with steel pipe shall be
a) either malleable iron or steel and shall comply with ANSI/ASME B16.3; or
b) certified to Standard ANSI LC-4/CSA 6.32.

5.15
Clause J.4.1.7 is revoked.

5.16
Clause J.4.1.8 is revoked.

5.17
Clause J.4.1.9 is amended to include the following at the end of the existing clause:

Hose shall not be used in lieu of piping or tubing but may be used in conjunction with piping or tubing.

5.18
Clause J.4.1.10 amended to add the following at the end of the existing clause:

J.4.1.10.1
a) Piping, tubing, and hose shall be of sufficient size to provide a supply of gas to meet the requirements of volume and pressure at the point of use.
b) The piping or tubing system shall be designed to prevent the loss in pressure between the appliance and the last-stage regulator from exceeding 1 in w.c.
c) A hose connector rated at not less than 350 psig (2500 kPa) shall be provided between
   i) the cylinder valve outlet and the inlet of the regulator when the regulator is rigidly mounted on a support bracket; or
   ii) the regulator outlet and the main propane piping or tubing when the regulator is rigidly fixed to the cylinder valve outlet.

d) Propane piping and tubing located beneath a vehicle shall be securely fastened.
e) Propane piping or tubing shall be so located or protected as to prevent damage.

5.19
Clause J.4.1.14 is revoked and the following is substituted for it:

All propane piping and tubing shall be supported by metal straps or hangers that have been galvanized or received equivalent protection. These supports shall be placed at intervals of not more than 4 ft (1.25 m), except where support is provided by the structure, and shall be anchored within 6 in (150 mm) of each end of the main propane line.

5.20
Clause J.4.1.21 is amended to add the following at the end of the existing clause:

Connections within the vehicle are permitted for MFSE's.

5.21
Clause J.4.1.24 is amended to add the following at the end of the existing clause:

J.4.1.24.1
Where tubing passes directly through walls, floors ceilings, and partitions, it shall be protected by grommets that fit snugly in both the line and the hole through which the line passes. Grommets shall be securely held in position and prevent abrasion or damage to the line from vibration. Grommets shall be made of rubber, plastic, leather, or a similar material (not metal). They shall extend completely through the member. Silicone, butyl caulk, and similar materials with adhesive qualities may be used as or in addition to grommets if they encircle the tubing and will not become dislodged from the hole.

J.4.1.24.2
Accessible means shall be made in the supply line at the furthest point from the fuel supply to conduct load testing.

5.22
Clause J.4.1.40 is revoked.

5.23
Clause J.4.1.42 is revoked.

5.24
Clause J.4.1.44 is revoked and the following is substituted for it:

The discharge from a regulator vent, line relief valve, or hydrostatic relief valve shall terminate outdoors and:

a) be located not less than 3 ft (1 m) horizontally from any building opening that is below the level of such discharge and not beneath any building; and
b) not less than 10 ft (3 m) in any direction from air openings into a direct-vent appliance, a mechanical air intake, or a source of ignition (including electrical generators).
c) be directed to the outside of any enclosed space;
d) be located in such a manner as to prevent contact between propane and any tank or vehicle;
e) be directed upward or downward within 45 degrees of vertical; ~~and~~
f) have a rain cap or other protector, where required;~~.~~
g) when discharging downwards, shall be provided with a protective screen; and;
h) if ~~on~~ a vehicle carrying propane tanks or cylinders, the regulator relief vent terminations shall be vented below the lowest point of the MFSE body so as not to create accumulation.

5.25
Clause J.4.2.4 is revoked with the following substituted for it:

Appliances may be connected to the gas supply with black iron or steel piping, CSST tubing, appliance connectors certified to CSA/ANSI Z21.24/CSA 6.10 or movable appliance connectors certified to ANSI Z21.69/CSA 6.16 according to the requirements of CSA B149.1.

5.26
Clause J.4.2.5 is amended to add the following at the end of the existing clause:

Bleed vents on the equipment shall be in a downward position.

5.27
Clause J.4.2.7 is revoked, and the following is substituted for it:

Tubing shall be
a) stainless steel tubing, 300 series;
b) brass tubing conforming with ASTM B135/B135M; or
c) rated for five times the design pressure of that location in the system.
d) Corrugated stainless steel tubing (CSST) and associated fittings shall comply with ANSI/LC 1/CSA 6.26 or CSA publication CGA Certification Laboratory Requirement LAB-009.
e) Corrugated stainless steel tubing (CSST) shall not be used as a gas connector.

5.28
Clause J.4.2 is amended to add the following new clauses:

J.4.2.9
A regulator shall be installed on the vehicle in such a manner that its safe operation will not be impeded by weather conditions, and it shall be protected by a substantial metal or plastic hood of the enclosed style.

J.4.2.10
When provision is made for mounting a cylinder on the A-frame of a vehicle, a rigidly mounted support bracket for mounting the regulator shall be provided. The regulator shall be protected in accordance with Clause J.4.2.9.

5.29
Clause J.5.1 is amended to add the following at the end of the existing clause:

Appliances shall be subjected to Field Approval if not certified to above standards.

An appliance shall have the clearances to combustibles where the temperature on adjacent combustible material shall not exceed:
i) 50°C (90°F) rise above ambient for any surface in contact or underneath the appliance; or
ii) 65°C (117°F) rise for all other surfaces.

5.30
Clause J.5.3 is revoked and the following is substituted for it:

J.5.3
All appliances installed in a self-propelled vehicle or in a trailer or cart shall be mechanically fastened to the vehicle, trailer or cart with a non-combustible restraining device. The retaining device shall prevent movement under normal operating conditions while stationary or in transport including rough roads or fields.

J.5.4
Every gas-fired heating appliance, water heater and refrigerator installed in a mobile food service truck or trailer vehicle shall be of the direct-vent appliance type or equivalent and shall be installed to provide complete separation of the combustion system from the atmosphere inside the vehicle.

5.31
Clause J.7.1 is amended to add the following at the end of the existing clause:

When an exhaust system protected by an automatic fire-extinguishing system is installed over an appliance not provided with a flame safeguard, the operation of the fire-extinguishing system shall be interlocked with the gas supply to the appliance so as to automatically shut off the gas, including the pilot, to the appliance to be protected by the system and also to any other appliance that can be affected by the extinguishing system.

Applicants should contact fire safety officials to determine if their particular MFSE requires a fire extinguishing system.

5.32
Clause J.7.2 is amended to include the following sub-clauses:

J.7.2.1
The valve used to shut off the gas supply referred to in clause J.7.2 shall be an automatic electrically operated fast closing valve:

i) of the manual reset type; or
ii) provided with a remote manual reset function.

The valve or remote reset device shall be identified as to its function and have permanent legible relighting instructions posted adjacent to it.

Note: When all the appliances in an MFSE incorporate safety shut-off devices that require the user to manually relight the appliance following loss of flame, a separate manual reset feature is not required.

J.7.2.2
The label required by clause J.7.2.1 shall as a minimum direct the user to turn off all burners prior to resetting the gas supply and to follow the appliance manufacturer's instructions for relighting.

For example:

MANUAL RESET FOR EXHAUST FLOW INTERLOCK VALVE
In the event of an exhaust flow failure, the gas supply to the appliances will shut off automatically and will require a manual reset. Before resetting the gas supply –
• Turn all burner valves to the "OFF" position. • Wait 5 minutes. • Reset the gas supply by manually opening the interlock valve or by activating the manual reset switch.
Relight the appliances following the appliance manufacturer's instructions.

5.33
Clause J.9 is revoked and substituted with the following:

The installation and operation manual for each appliance shall be supplied with and retained in the food truck.

5.34
Clause J.10.1 is revoked and substituted with the following:

In addition to the appliance rating plate(s), each MFSE shall contain a general rating plate identifying all fuel burning equipment. The TSSA approval sticker shall be attached to this rating plate. The following information shall be included:

a) Appliance(s) Manufacturer's or vendor's name
b) Appliance type(s) and identification number
c) Vehicle Identification (V.I.N or License Plate Number)
d) Electrical specifications
e) Type of fuel(s)
f) Maximum input rating in Btu/hr (Each Appliance)
g) Inlet pressure at the point of connection
h) Maximum and minimum burner manifold fuel pressure
i) Clearances to combustibles (inches), if not on the appliance rating plate.

5.35
Clause J.10.2 is revoked and substituted with the following:

Danger Labels
A readily visible danger label containing the following text shall be affixed to all MFSE, adjacent to the propane container:

DANGER

- Never use cooking appliances for space heating
- Ensure the supply tank valve is shut-off when appliances are not in use

BEFORE TURNING ON PROPANE:

- Make certain all propane connections are tight, all appliance valves have been turned off and any unconnected outlets are capped
- If an open door is used for ventilation/combustion air, ensure the door is open before turning on propane

AFTER TURNING ON THE PROPANE

- Light all pilots of appliances to be used
- Each connection, including those at appliances, regulators, and cylinders, should be leak tested initially and periodically with soapy water by the operator. Never use a lighted match or other flame when checking for leaks
- Shut off the propane supply immediately if any leaks are discovered; and
- Cap or plug the propane supply line if the propane tank is disconnected

For all Self-Propelled MFSE, the following additional danger label shall be affixed at the vehicle's fueling point and at the propane container with the following wording:

DANGER

- To avoid risk of death or serious injury, turn off all propane appliances, pilot lights and igniters during refueling the vehicle or refilling propane containers

The word "**DANGER**" shall be a minimum of ¼-inch (6.4 mm) in height. All other words on the label shall be a minimum 1/8-inch (3.2 mm) in height.

For Carts with Self-Contained Propane Supply System the following additional statement shall appear on the label.

- For Outdoor Use Only. If Stored Indoors, Detach Cylinder and Leave Outdoors.

5.36
Clause J.10.3 is revoked.

5.37
The following additional clauses are added:

J.12 Special Provisions for Generators and Openings Proximate to Cylinders and Regulators

J.12.1
Notwithstanding any other code requirements, the discharge from a regulator vent, line relief valve, or hydrostatic relief valve on a MFSE may be located:

a) less than 3 ft (1 m) horizontally from any building opening that is below the level of such discharge and not beneath any building; and
b) less than 10 ft (3 m) in any direction from air openings into a direct-vent appliance, a mechanical air intake, or a source of ignition (which includes Generators) provided that the following conditions are met:
   i. its associated cylinder will be isolated from the entrance door of the truck, and/or from the Generator by means of a metal shield extending from just above the top of the cylinder collar down to the cylinder platform and sealed to the wall of the truck,
   ii. its vents will be piped downward to below the door opening and/or generator and directed away from the vehicle, and
   iii. a label will be attached adjacent to each cylinder which reads:

DANGER
Propane Cylinder Relief Valves Must Be Directed Away from the Vehicle into Open Air.

Note: Notwithstanding clause J.3.49, when the “metal shielding” is part of a cabinet or recess, then it must have ventilation holes on the side opposite the entrance door and/or generator. The combined vent area shall not be less than 5 in2 (3000 mm^2). Also, the vent of the regulator, line relief valve, or hydrostatic relief is to be piped down through the base of the cabinet, terminate under the vehicle, and be directed toward the side of the vehicle.

J.12.2
Notwithstanding any other code requirements, a cylinder may be installed outside on a MFSE, with the discharge from the cylinder relief valve less than:

a) 3 ft (1 m) on a horizontal plane from any MFSE opening when the opening is below the level of the relief valve discharge;
b) 10 ft (3 m) on a horizontal plane from the air intake of any appliance or air-moving equipment; and
c) 10 ft (3 m) on a horizontal plane from any source of ignition (which includes Generators).

Items (b) and (c) shall not apply to an appliance provided that the following conditions are met:

i. the cylinder will be isolated from the entrance door of the truck, and/or from the Generator by means of a metal shield extending from just above the top of the cylinder collar down to the cylinder platform and sealed to the wall of the truck,
ii. its vents will be piped downward to below the door opening and/or generator and directed away from the vehicle, and

iii. a label will be attached adjacent to each cylinder which reads:

DANGER
Propane Cylinder Relief Valves Must Be Directed Away from the Vehicle into Open Air.

Note: Notwithstanding clause J.3.49, when the “metal shielding” is part of a cabinet or recess, then it must have ventilation holes on the side opposite the entrance door and/or generator. The combined vent area shall not be less than 5 in2 (3000 mm2). Also, the vent of the regulator, line relief valve, or hydrostatic relief is to be piped down through the base of the cabinet, terminate under the vehicle, and be directed toward the side of the vehicle.

J.12.3
Notwithstanding any other code requirements, a container may be located so that the discharge from the relief valve is less than 3 ft (1 m) horizontally from an opening into a vehicle, including combustion air inlets or flue gas outlets, below the level of such discharge;
provided that the following conditions are met:

i. its associated cylinder will be isolated from the entrance door of the truck, and/or from the Generator by means of a metal shield extending from just above the top of the cylinder collar down to the cylinder platform and sealed to the wall of the truck,
ii. its vents will be piped downward to below the door opening and/or generator and directed away from the vehicle, and
iii. a label will be attached adjacent to each cylinder which reads:

DANGER
Propane Cylinder Relief Valves Must Be Directed Away from the Vehicle into Open Air.

Note: Notwithstanding clause J.3.49, when the "metal shielding" is part of a cabinet or recess, then it must have ventilation holes on the side opposite the entrance door and/or generator. The combined vent area shall not be less than 5 in^2 (3000 mm^2). Also, the vent of the regulator, line relief valve, or hydrostatic relief is to be piped down through the base of the cabinet, terminate under the vehicle, and be directed toward the side of the vehicle.

5.38
The following additional clauses are added:

J.13 Portable Carts (with Self-Contained Propane Supply Systems)

1) A food service cart having more than two wheels shall have means to lock the cart in a stationary position.
2) Integral retention means shall be provided on a food service cart to limit the movement of the propane gas cylinder. With the cylinder installed per the manufacturer's Instructions, lateral movement shall not exceed 1 in (25.4 mm) at the retention means, and the cylinder or any portion thereof shall not become dislodged from its retention means when a lateral force equal to the full weight of the cylinder is applied in any direction at the center of the vertical height of the cylinder. This test shall be conducted with the installed cylinder empty and full.
3) If the means is for attachment to the protective collar of the cylinder, it shall not interfere with the operation of the cylinder valve. Any movement shall not transmit strain to rigid tubing or pipe connections.
4) Retention means shall not depend on openings in either the cylinder's protective collar or foot ring unless the appliance manufacturer specifies the following information:
    a. the cylinder manufacturer(s) identity (symbol, trade name, etc.) as marked on the cylinder.
    b. the marked cylinder water capacity or LPG capacity (in pounds) as stated by the cylinder manufacturer(s); and
    c. cylinder(s) that are to be approved for use with the appliance shall be provided by the appliance manufacturer for test.
5) Mounting and retention means shall incorporate adequate adjustments to accommodate the size cylinder specified by the manufacturer.
6) A food service cart for connection to a self-contained LP-gas supply system shall be equipped with a pressure regulator. The regulator shall comply with the Standard for Pressure Regulating Valves for LP Gas, ANSI/UL 144, as a part of the self-contained LP-gas supply system.
7) The regulator shall be installed in such a location that it will not attain a temperature above 130°F (54.4°C).
8) The regulator shall incorporate a pressure relief valve or overpressure device.
9) A food service cart with input ratings exceeding 100,000 Btu/h shall be equipped with a two-stage regulator.

10) The inlet of the pressure regulator for connection to a self-contained propane system shall be fitted for attachment to one of the following:
    a. A CGA No. 791 Cylinder Connection Device and complying with the Standard for Cylinder Connection Devices, ANSI Z21.81 • CSA 6.25 or the Standard for Adapters and Cylinder Connection Devices for Portable LP-Gas Cylinder Assemblies, UL2061;
    b. a CGA No. 810 Cylinder Connection Device and complying with the Standard for Cylinder Connection Devices, ANSI Z21.81 • CSA 6.25, or the Standard for Adapters and Cylinder Connection Devices for Portable LP-Gas Cylinder Assemblies, UL 2061.
11) Except for a No. 600 Connection, connection devices shall:
    a. not permit the flow of gas until a positive gas seal has been achieved;
    b. have a thermal shut-off device complying with the Standard for Cylinder Connection Devices, ANSI Z21.81 • CSA 6.25, or the Standard for Adapters and Cylinder Connection Devices for Portable LP-Gas Cylinder Assemblies, UL 2061; and
    c. have an excess flow device complying with the Standard for Cylinder Connection Devices, ANSI Z21.81 • CSA 6.25, or the Standard for Adapters and Cylinder Connection Devices for Portable LP-Gas Cylinder Assemblies, UL 2061.
12) For appliances with a manufacturer's rated input of 80,000 Btu/hr (23 448 W) and below (with a 5 percent plus or minus tolerance), Class I excess flow device shall be used. For appliances with a manufacturer's rated input higher than 80,000 Btu/hr (23 448 W) (with a 5 percent plus or minus tolerance), Class II device may be used.
13) The by-pass flow rate after the device activates will be no greater than 10 scf/hr (0.28 m^3/hr).
14) A cylinder connection device shall have its primary seal attached to the cylinder portion of the device.
15) The appliance side portion of a cylinder connection device shall not be capable of attachment to the cylinder portion of a Compressed Gas Association No. 510 Connection.
16) On food service carts for connection to a self-contained gas supply, provision shall be made between the supply cylinder regulator outlet and the main gas burner valve, by means of a flexible connection for expansion, contraction, jarring and vibration. Aluminum tubing shall not be used for this purpose.
17) Flexible connections, including hose, shall be as short as practicable, suitable for the purpose and the temperature to which exposed.
18) A food service cart shall be provided with a gas hose assembly complying with the current Standard, Elastomeric Composite Hose and Couplings for Conducting Propane and Natural Gas, CAN/CGA-8.1 or with the current Standard, Thermoplastic Hose and Hose Couplings for Conducting Propane and Natural Gas, CAN1-8.3.
19) Gas hose assemblies shall be of such length or otherwise restrained so that the regulator cannot drop to the ground when disconnected from the cylinder valve.
20) Provision shall be made so the hose cannot come into contact with surfaces whose temperatures are in excess of 140°F (60°C) when the gas appliances are in operation.
21) A cylinder valve's temperature shall not exceed 130°F (54.5°C).
22) The enclosure for the propane gas cylinder shall isolate the cylinder from the burner compartment to provide (1) shielding from radiation, (2) a flame barrier, and (3) protection from foreign material, such as hot drippings.
23) There shall be a minimum clearance of 2 in (50.8 mm) between the floor of the propane gas cylinder enclosure and the ground.
24) The design of a food service cart shall be such that (1) the propane gas cylinder can be connected, disconnected and the connections inspected and tested outside the cylinder enclosure; and (2) those connections which could be disturbed when installing the cylinder in the enclosure can be leak tested inside the enclosure.

J.14 Generators

For MFSE which have a self-contained generator, a vapour tight separation between the generator and cooking appliance area is required. A door with a complete seal will suffice to meet this requirement.

6.0 Biogas Generation and Utilization

Where Propane is employed in the operation of Biogas facilities, it shall meet the requirements of Ontario Regulation 211/01 (Propane Storage and Handling).

7.0 Field Approval of Flame Effects

The standard, NFPA 160, “Standard for the use of Flame Effects Before an Audience, 2021 Edition” is adopted for use in the province of Ontario with the following amendments:

7.1
Clause 1.1 is revoked and replaced with the following:

This standard shall apply to temporary flame effects using propane, butane or natural gas as the fuel for entertainment, exhibition, demonstration, or simulation, including their design, fabrication, installation, testing, control, operation and maintenance.

7.2
Clause 1.3.2 is revoked, and the following is substituted for it:

This standard shall apply to the following:

i. Use of indoor and outdoor flame effects (see 3.3.13, Flame Effect)
ii. Design, fabrication, installation, testing, control, operation, and maintenance of equipment, materials, procedures, and systems used to produce flame effects
iii. Rehearsal, videotaping, audiotaping, or filming of any television, radio, or movie production if such production is before an audience and includes the use of flame effects
iv. Rehearsal of any production incorporating flame effects intended to be presented before an audience
v. Storage and holding at a venue where flammable and combustible materials are to be used to create flame effects

vi. That portion or component of any hybrid flame effect that utilizes fuels, materials, devices, and methodologies governed by this standard

7.3
Clause 3.3 is amended by adding the following definition:

Deadperson switch. A manually controlled system designed to automatically interrupt the fuel to the flame effect equipment.

7.4
Clause 5.1.2 is revoked.

7.5
Clause 7.10.1 is revoked, and the following is substituted for it:

The flame effect performers, operators, and assistants shall be protected by clothing or other means suitable for their exposure to flame effects. Protective clothing requiring fire resistance shall be

tested and demonstrated to be flame retardant, and documentation shall be furnished to the authority having jurisdiction upon request.

7.6
Clause 7.10.2 is revoked.

7.7
Clause 7 is amended by adding the following at the end of it:

7.12 Propane Cylinders

7.12.1
Propane cylinders shall be:

a. in an upright position on a firm footing and secured to prevent them from being accidentally tipped over;
b. a cylinder in use inside a building shall not be located near an exit, stairway, or an area normally used or intended for safe evacuation of people;
c. positioned so that the relief valve points away from any sources of ignition.

7.12.2
Inversion of propane cylinders to supply a propane effect is strictly prohibited.

7.12.3
When changing cylinders, clear the area within fifteen feet of the cylinder installation of all sources of ignition, use only the proper sized wrench for making connections.

7.12.4
Where liquid propane is used for a flame effect, all applicable requirements of the B149.2 “Propane storage and handling code” and the CSA-B149.3 “Code for the field approval of fuel-related components on appliances and equipment”, shall apply (both codes shall apply with Ontario amendments).

7.8
Clause 8.4 is revoked and the following substituted for it:

8.4
All flame effect operators shall have a valid Record of Training (R.O.T.) required for the use and handling of natural gas or propane construction heaters, or the necessary ROT for other type of equipment.

7.9
Clause 9.1.3.2 is revoked, and the following is substituted for it:

Any flame effect control systems that are disconnected from their power source or de-energized by means of a removable activator, keyswitch, or coded arming system shall not be permitted to be left unattended while connected to a fuel source.

7.10
Clause 9.3.2.5 is amended to add the following at end of existing clause:

9.3.2.5.1 System using Fuel Accumulators (Propane Cannons) for Film
Fuel Accumulators (propane cannons) used in flame effect systems shall meet the following requirements:

a) An accumulator tank shall be designed, manufactured, and certified as an unfired pressure vessel with a minimum design pressure of not less than 250 psig.

b) Unless otherwise approved, welding shall not be done to the shell, head, or any other part of an accumulator tank.
c) Field welding of an accumulator tank shall be made only on saddle plates or brackets.
d) An accumulator tank shall be equipped with a properly sized, spring loaded relief valve in accordance with section 10.2 of the Ontario Propane Code. The relief valve shall be set at a pressure not exceeding the pressure rating of the lowest rated component.
e) A pressure gauge shall be provided with each accumulator tank.
f) A quarter turn manual shut-off valve and a quick disconnect device shall be installed at the connection to the inlet of an accumulator tank. This valve shall remain closed until charging of the accumulator tank.
g) The outlet of the accumulator tank shall be piped to the effect valve.
h) Propane shall not be put into an accumulator tank until the air and moisture in the tank has been purged in accordance with the procedures described in Annex A, Section A-4, “Removal of Air and Moisture from Cylinders and Motor Fuel Containers,” in the B149.2-20 “Propane storage and handling code”.
i) An accumulator tank shall be charged as close to the time of the actual arming and firing of the effect as is practical.
j) Where the fuel supply to an accumulator tank is not disconnected and removed after charging, the supply piping to the accumulator tank shall be equipped with the following:
k) A pressure regulator;
l) A manual quarter turn shut-off valve;
m) A pressure gauge;
n) two automatic safety shut-off valves piped in series and wired in parallel through a deadperson switch; and
o) A high gas pressure switch with a setting no higher than 10% of the pressure intended for the accumulator tank.
p) The complete system with all components and accessories in place shall be leak tested at the system operating pressure prior to use.
q) Fuel accumulators shall have a written record of tests of flame effect size related to accumulator tank pressures and burner types (nozzles) including wind conditions and ignition types at the time of the tests. This written record shall be available upon the request of the authority having jurisdiction.
r) The mixing of air or any other oxidizing media with fuel in an accumulator tank shall be prohibited. The mixing of an inert gas with fuel in an accumulator tank is permissible.
s) Where an accumulator tank is used indoors, the products of combustion shall:
    i. be effectively vented to the outdoors by a chimney, vent or continuously operating exhaust fan; or
    ii. have the environment around the flame effect monitored for carbon monoxide levels. A carbon monoxide monitoring system shall be set to alarm at a level not greater than 25 ppm carbon monoxide. The flame effect shall be discontinued until the level of carbon monoxide is reduced to below 25 ppm.
t) Where an accumulator tank is used indoors, means shall be provided to purge gas from the volume of the space to which the flame effect is used:
    i. at least four times of the entire volume and flue passages; or
    ii. a combustible gas analyzer in conjunction with a purge system shall be used to confirm that gas has not accumulated beyond 25% of the lower explosive limit throughout the entire volume and flue passages.
u) At least one portable dry chemical fire extinguisher of not less than 20-B,C rating shall be provided in a readily accessible location to the operator.
v) Unless completely purged of propane, an accumulator tank shall not be used with any other product and shall be stored outdoors in accordance with section 6.5.2 of the B149.2-20 “Propane storage and handling code”. The person purging the accumulator tank shall be a holder of a Record-of-Training for filling cylinders.
w) An accumulator tank may be stored indoors when completely purged of propane.

7.11
Clause 9.3 is amended to add the following clause at the end of it:

9.3.7
Fireplace Kits

Where the special effect is to simulate a flame in a fireplace, the following requirements shall apply.

a) Where the flame effect is to be installed in an existing fireplace:
   i) the chimney/vent shall be inspected and adequate draft through the chimney/vent to exhaust combustion products shall be confirmed;
   ii) the fireplace enclosure shall comply with the Ontario Building Code or be certified by a recognized testing organization;
   iii) combustible materials shall be shielded from open flames by using fire-rated materials; and
   iv) except as specified in 7-3.2.6 (iv), a maximum capacity of 20 lbs. of propane for each fireplace kit may be used indoors;
   v) with multiple fireplace kit installations, an aggregate capacity of more than 100 lbs of propane connected for use shall not be used indoors.
b) The burner and supports shall be made of non-combustible materials.
c) At least one portable dry chemical fire extinguisher of a total not less than 20-B,C rating shall be provided in a readily accessible location to the operator.
d) Piping or tubing shall not be exposed to high temperatures and flame impingement.
e) The flame effect shall be controlled by a regulator and a quarter turn manual safety shut-off valve**.**
f) Where the flame effect will continuously operate for longer than 10 minutes,
   i) an automatic safety shut-off valve controlled by a deadperson switch shall be installed in the fuel supply line to the burner; or
   ii) a quarter turn manual valve will be installed as an effect *valve* and another quarter turn manual valve controlling the fuel supply shall be installed at the fuel supply system. The fuel supply valve will be installed and controlled by a second operator and located not less than 10 feet from the effect valve and primary operator.
g) Where a cylinder is used indoors with a capacity in excess of 1 lb. of propane,
   i) except as provided in (ii) an excess flow valve shall be installed. The excess flow valve shall be either integral with the cylinder valve or in the connection to the cylinder valve outlet. In either case, it shall be installed in such a manner that undue strain will not cause breakage between the cylinder and the valve.
   ii) A deadperson switch shall be installed with an automatic safety shut-off valve where an excess flow valve is not installed.

h) Unless completely separated from the flame with a 2 hour fire rated shield, a cylinder shall not be located less than 10 feet from the flame effect.
i) When a hose is used, it shall be inspected before connection, not exceed 75 feet in length and shall be protected, by location or other means, from impact and excessive heat.
j) The operator shall remain in constant attendance at the safety shut-off valve during operation and have visual access to the flame effect at all times.
k) During non-operation times, the operator shall close the quarter turn manual shut-off valve and the cylinder or fuel supply valve.
l) Cylinders not in use shall be stored in accordance with the CSA 149.2 code.

9.3.8
Flame Bars and other Flame Effects

Where the special effect is to simulate a flame the following shall apply.

a) Where the input to the flame effect is less than 400 000 BtuhBtu/hr,
   i) The requirements of section 7.3.2.5 (fireplace kits) shall apply.
   ii) A pressure indicator shall be installed downstream of the regulator;

iii) The estimated height of the flame for a specified pressure, burner and pipe/tube size shall be tested and documented prior to installation and operation;
iv) It is permissible not to install an excess flow valve provided an automatic shut-off valve controlled by a deadperson switch is installed.

b) Where the input to the flame effect is 400 000 BtuhBtu/hr or greater,
i) The system will be controlled by
- two automatic safety shut-off valves piped in series, wired in parallel and activated by a deadperson switch shall be installed or;
- a quarter turn manual *valve* will be installed as an effect valve and another quarter turn manual valve controlling the fuel supply will be installed at the fuel supply system. The fuel supply valve will be installed and manually controlled by a second operator and located not less than 10 feet from the effect valve and primary operator;

ii) A pressure indicator shall be installed;
iii) The estimated height of the flame for a specified pressure, burner and pipe/tube size shall be tested and documented prior to installation and operation;
iv) The total capacity of cylinders used indoors and connected together shall not exceed 300 lbs. of propane and not more than one manifold of cylinders may be located in the same area unless separated by a distance of at least 50 feet;
v) When a hose is used, it shall be inspected before connection, shall not exceed 75 feet in length and shall be protected, by location or other means from impact and heat;
vi) The burner and supports shall be made of non-combustible materials;
vii) Unless completely separated from the flame with a 2 hour fire rated shield, a cylinder shall not be located less than 10 feet from the flame effect; and
viii) A cylinder shall not be exposed to temperatures in excess of 125°F (50°C).

c) At least one portable dry chemical fire extinguisher of a total not less than 20-B,C rating shall be provided in a readily accessible location to the operator.

d) Where a flame effect is used indoors, the products of combustion shall:
i) be effectively vented to the outdoors by a chimney, vent or continuously operating exhaust fan; or
ii) have the environment around the flame effect monitored for carbon monoxide levels. A carbon monoxide monitoring system shall be set to alarm at a level not greater than 25 ppm carbon monoxide. The flame effect shall be discontinued until the level of carbon monoxide is reduced below 25 ppm.

9.3.9
Where certified appliances are temporarily installed and used, all combustion safety interlocks, combustion safeguards, excess temperature limits, pressure relief valves, lower water cut-outs, and other applicable safety controls shall be tested for proper operation prior to activating the appliance.

7.12
Clause 10.1.2 is revoked.

7.13
Clause 12 is amended with the following addition:

Approvals under this clause are not permitted for use unless AHJ approval is granted.

7.14
Clause 13 is revoked

7.15
Clause 14 is revoked

7.16
Clause 15.2 is revoked, and substituted with the following:

Where flame effect systems use piping, such piping shall be pressure tested in accordance with the code under which they were fabricated.

7.17
Clause 16.1 is revoked and substituted with the following:

The wide range in size, arrangement, and location of flame effects covered by this standard shall preclude the inclusion of detailed fire protection provisions that are applicable to all flame effects. The provisions of this chapter shall be subject to verification or modification through analysis of local conditions.

8.0 Effective Date

This amendment is effective June 8 2026.

DATED at Toronto this April 8, 2026.

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Owen Kennedy
Director, O. Reg. 211/01 (Propane Storage and Handling)