

TSSA
MOBILE FOOD SERVICE EQUIPMENT CODE
TSSA-MFSE-2014
August 2014



Technical Standards and Safety Authority
Fuels Safety Program
3300 Bloor Street West, 14th Floor, CentreTower
Toronto ON M8X 2X4
Tel: (416) 734-3300
Fax: (416) 231-7525
www.tssa.org

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TECHNICAL STANDARDS AND SAFETY AUTHORITY

FOREWORD

TSSA Director's Order FS-056-06 Mobile Food Service Equipment (including Revision No. 1, issued June 1, 2013) requires all Mobile Food Service Equipment (MFSE) built after February 13, 2006 to have a Field Approval by TSSA or alternatively to be certified and labeled by an Certification Organization accredited by Standards Council of Canada.

This code sets out minimum requirements for a TSSA Field Approval. TSSA reserves the right to impose additional requirements for the issuance of a Field Approval for MFSE.

Definitions in this Code have the same meaning as those contained in the relevant regulations made under the *Technical Standards and Safety Act, 2000*.

Inquiries regarding this document may be addressed to:

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1. Purpose

This Code sets out the minimum requirements that TSSA engineering staff will assess when performing an Engineering Review for the issuance of a Field Approval for Mobile Food Service Equipment (MFSE). It is intended to assist manufacturers and owners of MFSE in meeting the minimum requirements for MFSE.

Where a deviation from this Code is required, the manufacturer or owner shall make a separate application for a variance. The approval of the variance must be obtained before TSSA will assess the MFSE field approval application.

MFSE are commonly known as, but not limited to, “Coffee Trucks”, “Chip Wagons”, “Hot Dog Carts” and “Hamburger Carts”.

This Code takes into consideration the unique nature of MFSE, which is not addressed in the CSA-B149.3-10 standard. This Code does take into consideration the certification standards for “Food Service Equipment – CSA-1.8” and “Outdoor Cooking Gas Appliances - CSA 1.6”.

2. Scope

These requirements apply to the engineering review process for MFSE utilizing propane or other hydrocarbon fuel fired cooking equipment. The review includes evaluation of the storage of fuel, supply of fuel, acceptability of the individual appliances and components and the exhaust system.

3. Definitions

The following definition(s) apply to this code:

Mobile Food Service Equipment (MFSE): mobile equipment, whether or not permanently parked, containing propane or other hydrocarbon fuel fired cooking appliances and, if applicable, associated fuel storage.

4. Types of MFSE

4.1 An MFSE may be:

- i. 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 a propane supply cylinder at the operation site.
- ii. 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.

- iii. 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.

Note: If the equipment is mounted on a permanent foundation (no jacks), with the wheels removed and connected to one or more services (electrical power, water, sewers or gas), that would render the unit unlikely to be easily relocated, it would not be considered an MFSE, but rather a permanent structure and subject to the requirements of CSA Codes B149.1 and B149.2.

- 4.2 An MFSE may utilize one or more fuel fired appliances, such as griddles, coffee urns, fryers, steamers, hot plates, water heaters.
- 4.3 Some MFSE have a self-contained electric generator. These generators typically use the same fuel that powers the MFSE vehicle.

5. Requirements for MFSE

5.1 General

- 5.1.1 Appliances used with an MFSE shall be of a certified type or shall be subjected to a Field Approval where permitted by the CSA B149.3.
- 5.1.2 MFSE which contains hydrocarbon fired equipment within an enclosed space shall have a mechanical exhaust system interlocked with the fuel supply line so that operation is permitted only when exhaust airflow is proven.
- 5.1.3 The valve used to shut off the gas supply referred to in clause 5.1.2 shall be identified as to its function and have permanent legible relighting instructions posted adjacent to it. The valve shall be an automatic electrically operated fast closing valve:
 - (i) of the manual reset type; or
 - (ii) provided with a remote manual reset function.
- 5.1.4 The label required by clause 5.1.3 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.

5.1.5 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.

5.1.6 Means shall be provided to prevent liquid propane entering vapour lines as a result of splashing. Note: Some pressure regulators perform this function.

5.1.7 A deep fat fryer shall meet the requirements of section 7.31.6 of CSA B149.1-10:

7.31.6

A clearance of not less than 16 in (400 mm) shall be provided between a deep fat fryer and an open flame of an adjacent appliance unless a noncombustible divider extending not less than 7 in (175 mm) above the fryer and the open flame of the adjacent appliance is provided.

5.1.8 Fire extinguishing systems in MFSE shall comply with section 4.19.1 from CSA-B149.1-10, which provides:

4.19.1

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.

5.2 Self-Propelled MFSE

5.2.1 The entirety of the combustion air inlets shall be located at least 36 inches from any gasoline filler spout on the MFSE if the inlet is located above or at the same level. If any portion of the inlet is located below the spout, the distance shall be the sum of the vertical distance below the spout and 36 inches

5.3 Portable Carts (with Self-Contained Propane Supply Systems)

5.3.1 A food service cart having more than two wheels shall have means to lock the cart in a stationary position.

- 5.3.2 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.
- 5.3.3 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.
- 5.3.4 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.
- 5.3.5 Mounting and retention means shall incorporate adequate adjustments to accommodate the size cylinder specified by the manufacturer.
- 5.3.6 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.
- 5.3.7 The regulator shall be installed in such a location that it will not attain a temperature above 130°F (54.4°C).
- 5.3.8 The regulator shall incorporate a pressure relief valve or overpressure device.
- 5.3.9 A food service cart with input ratings exceeding 100,000 Btu/h shall be equipped with a two-stage regulator.
- 5.3.10 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, UL 2061;
 - 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; or

- c. a CGA No. 600 Cylinder Connection Device complying with 1.6.8, and incorporating a filter on the inlet connection with minimum filtering of 80 micron size.

5.3.11 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.

5.3.12 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.

5.3.13 The by-pass flow rate after the device activates will be no greater than 10 scf/hr (0.28 m³/hr).

5.3.14 A cylinder connection device shall have its primary seal attached to the cylinder portion of the device.

5.3.15 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.

5.3.16 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.

5.3.17 Flexible connections, including hose, shall be as short as practicable, suitable for the purpose and the temperature to which exposed.

5.3.18 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.

- 5.3.19 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.
- 5.3.20 Provision shall be made so the hose cannot come into contact with surfaces whose temperatures are in excess of 140F (60C) when the gas appliances are in operation.
- 5.3.21 A cylinder valve's temperature shall not exceed 130°F (54.5°C).
- 5.3.22 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.
- 5.3.23 There shall be a minimum clearance of 2 in (50.8 mm) between the floor of the propane gas cylinder enclosure and the ground.
- 5.3.24 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.

6. Valve Trains

- 6.1 Mobile food service trailers and trucks shall be provided with a manual shut-off valve located downstream of the pressure regulator and upstream of all appliances, on the exterior of the vehicle in a readily accessible location adjacent to the gas supply.
- 6.2 Each appliance shall be provided with a manual isolation valve.
- 6.3 All components shall be certified to the appropriate standard.
- 6.4 Appliance supply connections
 - Appliances may be connected to the gas supply with black iron or steel piping, copper tubing, appliance connectors certified to CSA Standard 6.10 or Movable Appliance connectors certified to CSA Standard 6.16 according to the requirements of CSA B149.1-10

7. Fuel Supply for Self-Propelled, Trailer and Towed Cart Type MFSE (Containers, Cylinders, Tanks, Piping, Tubing)

The requirements of sections 11.1 through 11.7 of the CSAB149.2-10 code shall apply with the exception of clause 11.6.17.

For MFSEs connections within the vehicle are permitted.

8. Clearances to Combustible Construction

If the individual appliance bears a recognized certification mark, the clearances to combustibles shall be verified. If the appliance does not bear a recognized mark, the temperature on adjacent combustible material shall be measured and shall not exceed:

- (a) 50°C (90°F) rise above ambient for any surface in contact or underneath the appliance; or
- (b) 65°C (117°F) rise for all other surfaces.

9. Danger Labels

The following danger labels shall be affixed to all MFSE, be readily visible and located adjacent to the propane container with the following wording:

DANGER

- Cooking appliances shall not be used for space heating
- When the propane appliance is not in use or the vehicle is stored, shut off the supply of propane to the appliance (at the propane tank)

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, shall be leak tested initially and periodically with soapy water by the operator. Never use a lighted match or other flame when checking for leaks
- Do not leave a system turned on or containers connected until the system has been proven to be leak (propane) tight
- When the containers are disconnected, the propane supply line shall be capped or plugged

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

DANGER

- All pilot lights, appliances and their igniters shall be turned off during refueling of the motor fuel tanks and/or propane containers. Failure to comply can result in death or serious injury.

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 and Leave Cylinder Outdoors.

10. General Rating Plate

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 will be attached to this rating plate, please include a 2" x 2" space. The following information shall be included:

- a. Appliance(s) Manufacturer's or vendors 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 Btuh (All Appliances)
- 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.

11. Resources

- Director's Order – FS-056-06 (including Revision No. 1, issued June 1, 2013)
- CSA-B149.3-10 – “Field Approval Code of Fuel-Related Components on Appliances and Equipment”
- CSA-1.8 – “Food Service Equipment”
- CSA-1.6 – “Outdoor Cooking Gas Appliances”
- CSA-B149.2-10 – “Propane and Storage Handling Code”
- CSA-B149.1-10 – “Natural Gas and Propane Installation Code”