

527 CMR: BOARD OF FIRE PREVENTION REGULATIONS

527 CMR 6.00: LIQUEFIED PETROLEUM GAS CONTAINERS AND SYSTEMS

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6.01: Purpose

The purpose of 527 CMR 6.00 is to provide minimum standards for LP-Gas systems for the protection and safety of the public at large.

6.02: Scope

- (1) Effective as of November 1, 1983, 527 CMR 6.00 shall, except as provided in 527 CMR 6.02(3), apply to the design, construction, location, installation, and operation of LP-Gas systems.
- (2) 527 CMR 6.00 shall not apply to the following:
 - (a) The transportation of liquefied petroleum gases over the highways in interstate or intrastate commerce;
 - (b) LP-Gas piping that is downstream of the first stage regulator and outside of buildings;
 - (c) The applications in 1-1.3 of NFPA 58, 1998 Edition.
- (3) Existing systems installed before November 1, 1983, may be continued in service provided that their continued operation does not constitute a threat to health or safety.

6.03: Definitions

The following terms shall have the meanings assigned to them unless the context clearly indicates otherwise.

Abandoned. Any container without use, either filling or draw off of LP-Gas, for a continuous period in excess of 12 months.

Approved. Approved by the State Fire Marshal.

ASME. The American Society of Mechanical Engineers.

Container. Any vessel, including cylinders and tanks, used for storing LP-Gas.

Cylinder. A container having a capacity not exceeding 1,000 pounds (120 gallons) water capacity.

Equipment. The container or containers, major devices such as vaporizers, relief valves, excess flow valves, regulators, etc., and interconnecting piping.

Gallon. The U.S. standard gallon.

Installation. A LP-Gas system.

Identification Decal, Vehicle. A label or decal placed on a vehicle fueled by propane gas identifying such vehicle for the fire service (See 527 CMR 6.07(7)(j)).

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License. A license required by CMR 6.00 and issued by the local licensing authority after a hearing in accordance with the provisions of M.G.L. c. 148, § 13.

Liquefied Petroleum Gas, LP-Gas. Any material which is composed predominantly of any of the following hydrocarbons or mixtures of same: propane, propylene, butanes (normal or isobutane), and butylenes.

LP-Gas Systems. An assembly of one or more containers with a means of conveying LP-Gas from the container to dispensing or consuming devices (either continuously or intermittently) and which incorporates components intended to achieve control of quantity, flow or pressure in the liquid or vapor state.

Marshal. The State Fire Marshal.

Person. Any individual, firm, association, or corporation.

Permit. A permit required by CMR 6.00 and issued by the head of the fire department under authority of M.G.L. c. 148, § 10-A.

Portable Container. A USDOT or ASME container of not more than 1,000 pounds (120 gallons) water capacity.

Qualified Person. A person selected by an employer and trained to perform a specific task or duty involving LP-Gas, who has the degree of competency necessary to accomplish the work in a safe manner.

Shall. A mandatory requirement.

Tank. A container of more than 1,000 pounds (120 gallons) water capacity used for the storage or utilization of LP-Gas.

USDOT. The U.S. Department of Transportation.

Valve Plug. An approved device designed to be installed on a container valve outlet for the purpose of preventing the flow of gas through the outlet. The plug shall be rated for a minimum gas pressure of 250 psig.

Vendor. Any individual, firm, or corporation who sells, installs, or dispenses LP-Gas and/or related equipment.

Warning Label, Cylinder. A label or decal placed on a cylinder informing the user of certain precautions to take.

6.04: Approval of Equipment

(1) The head of the fire department shall approve all LP-Gas installations or the State Fire Marshal as herein provided.

(2) The approval of any equipment, container, or appliance shall be based on compliance with accepted principles or recognized engineering practice; and the Marshal may consider as approved any equipment, container, or appliance which meets the standards set up by any of the following organizations:

- Underwriters Laboratories (UL)
- National Fire Protection Association (NFPA)
- Interstate Commerce Commission (ICC)
- American Society of Mechanical Engineers (ASME)
- American Petroleum Institute (API)
- American Gas Association (AGA)
- Factory Mutual Research Corporation (FM)

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Such equipment, container, or appliance shall bear some mark of identification to indicate the standard to which it conforms.

(3) LP-Gas installations having a product vapor pressure greater than that allowed for commercial propane each measured at 100°F shall be subject to approval by the Marshal.

(4) All parts of LP-Gas systems not specifically provided for in 527 CMR 6.00 shall be designed and constructed to provide a reasonable degree of safety.

6.05: Installation of Equipment - Compliance Requirements

(1) All LP-Gas systems shall be installed and maintained in accordance with the requirements of 527 CMR 6.00 except as provided in 527 CMR 6.02(3).

(2) No LP-Gas equipment shall be connected to any appliance that is not designed, constructed, or adapted for LP-Gas use.

(3) The owner of the storage equipment shall be responsible for the installation of the LP-Gas facility and for maintaining it in a safe operating condition.

(4) No person shall install, remove, connect, disconnect, fill or refill any LP-Gas container without permission of the owner of the container.

(5) Only a qualified person shall install, remove, connect, disconnect, sell, fill, refill, deliver or permit to be delivered, or operate any LP-Gas system utilizing containers of over 30 pounds (7.1 gallons) product capacity.

(6) The Marshal may order the user of a system to meet additional requirements:

(a) Where unusual conditions exist;

(b) When it necessary for the protection of life and property;

(c) Provided the additional requirements are within the intent and purpose of 527 CMR 6.00.

(7) An approved valve plug shall be installed on portable LP-Gas containers of 108 pound (12.9 gallon) water capacity (nominal 45 pound product capacity), or less, whether filled, partially filled, or empty (if they have been in LP-Gas service), as follows:

(a) At consumer sites or distributing points, but not connected for use;

(b) In storage for resale by dealer or reseller. (See NFPA 58-1998)

(8) A sign legibly marked, shall be posted stating: "MASSACHUSETTS STATE FIRE MARSHAL APPROVED VALVE PLUGS shall be installed on containers as required by 527 CMR 6.00."

6.06: Emergency Reporting Procedure and Equipment

(1) All LP-Gas installations exceeding 98 pounds (23 gallons) individual or aggregate water capacity shall be provided with a marker plate or sign indicating who should be called in the event of an emergency involving the LP-Gas installation. The marker or sign shall include the name and telephone number of the LP-Gas supplier, plant installer, owner, or operator who will respond to the emergency.

(2) The LP-Gas supplier, plant installer, owner or operator shall respond when notified of all LP-Gas emergencies occurring at his installation and shall maintain a 24-hour phone service.

6.07: Installation Standards and Procedures

(1) NFPA No. 58 Standards Adopted by Reference

(a) The standards prescribed by NFPA 58-1998 Edition entitled *Liquefied Petroleum Gas Code* are adopted as health and safety standards and shall apply according to their

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provisions, except that the NFPA Chapter 6 on Vehicular Transportation of LP-Gas and Section 3-2.5 Installation of Containers on Roofs of Buildings shall not apply.

(b) Each person engaged in LP-Gas operations and equipment installation shall protect the public by complying with the NFPA 58-1998 standards prescribed by 527 CMR 6.07(1)(a).

(c) Where any conflict occurs between the standards prescribed in NFPA 58-1998 and the regulations in 527 CMR 6.00, 527 CMR 6.00 shall prevail.

(2) Container Markings

(a) All LP-Gas containers shall be legibly marked with recognized USDOT labels.

(b) User connected containers of 30 pounds (7.1 gallons) product capacity, or less, shall bear a "WARNING" label informing the user not to take the cylinder inside a building unless authorized by 527 CMR 6.00.

(3) Container Storage Outside of Buildings

(a) Permanent containers installed and refilled at an installation shall be installed outside of buildings, except as otherwise provided in 527 CMR 6.07(1)(a).

(b) Containers installed outside of buildings shall be located in accordance with NFPA 58-1998, Table 3-2.2.2, except that Note (b)(1) of Table 3-2.2.2 shall read:

1. DOT specification containers shall be located and installed so that the discharge from the container safety relief device is at least three feet horizontally away from any building opening below the level of such discharge, *a building opening is not within a three foot arc from the discharge of the container safety relief device*, and shall not be beneath any building unless this space is well ventilated to the outside and is not enclosed for more than 50% of its perimeter. The discharge from any container safety relief devices shall be located not less than five feet in any direction away from any exterior sources of ignition, openings into direct-vent (sealed combustion system) appliances, or mechanical ventilation air intakes. (Note: Words italicized do not appear in NFPA 58 (Note 527 CMR 6.07(3)(b)1.))

(c) Where there is a possibility of damage to storage systems from motor vehicles or other heavy objects, protection against such damage shall be provided.

(d) The tops of storage containers shall be in the same horizontal plane when the containers are interconnected by liquid piping.

(e) Storage located outside of buildings for cylinders awaiting use, resale, or part of a cylinder exchange point shall be located at least 20 feet from any doorway or opening in a building frequented by the public; 20 feet from any automotive service station fuel dispenser; and in accordance with NFPA 58-98 Section 5-4. The head of the fire department may increase the distances herein provided, where, in his opinion, conditions are such as to warrant such increases.

(f) Storage areas having containers awaiting use or resale shall be posted with adequate "NO SMOKING" and "FLAMMABLE GAS" or to indicate the contents, such as "FLAMMABLE GAS - PROPANE" or "FLAMMABLE GAS -BUTANE". Containers shall be stored within a suitable enclosure or otherwise protected against tampering.

(4) Underground Installation of Storage Containers

(a) ASME container assemblies listed for underground installation shall be installed as outlined in NFPA 58-1998 3-2.4.8 and as follows:

1. Precautions shall be taken to prevent damage to the container and the protective coating during handling. Any damage to the coating shall be repaired before backfilling.

2. Containers shall be set substantially level on a firm foundation (firm earth may be used) and surrounded by earth or sand firmly tamped in place. Backfill shall be free of rock or similar abrasives.

3. No underground container may be abandoned in place and any abandoned underground container must be removed by the tank owner under the direction of the Head of the Fire Department within a reasonable time.

(5) Container Storage Inside Buildings

(a) Storage or use of LP-Gas containers above the first floor of a building used for habitation is prohibited. This does not apply to motor vehicles with permanently mounted LP-Gas engine fuel containers. (Exception: The applications addressed in NFPA 58-1998 Section 3-4.1 and sections 3-4.3 through 3-4.8)

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- (b) Portable LP-Gas containers stored inside buildings in accordance with NFPA 58-1998, Section 3-4.1, 3-6.3.6, and Chapter 5 shall be considered as full containers for the purpose of determining the maximum quantities of LP-Gas permitted.
- (c) Containers stored inside buildings shall not be near exits, stairways or in areas normally used or intended to be used for the safe egress of occupants.
- (d) Containers of one pound product capacity, or less, used for torches, lanterns, and similar applications may be stored or displayed in a building frequented by the public provided the total quantity of product does not exceed 200 pounds and a permit has been issued by the Marshal. (See NFPA 58-1998 5- 3.1)
- (e) Containers of one pound product capacity, or less, may be stored in buildings not frequented by the public and may exceed 300 pounds product capacity provided that the necessary precautions are taken as outlined in NFPA 58-1998 5-3 and a permit has been issued by the Marshal.
- (f) The maximum quantity of LP-Gas stored in a building or room of special construction shall be 10,000 pounds. The building or room shall comply with NFPA 58-1998 5-3.2.1.
- (g) Container storage areas shall have at least one portable fire extinguisher with a minimum of 20 pounds of dry chemical and a BC rating.
- (h) Container storage areas shall be posted in compliance with 527 CMR 6.07(3)(e).

(6) Distributing Points, Distributing Plants, and Industrial Plants

- (a) 527 CMR 6.07(6) shall apply to:
 - 1. Distributing points of any capacity;
 - 2. Distributing plants of any capacity; or
 - 3. Industrial plants of 2,000 gallons aggregate water capacity or more.
- (b) If loading or unloading is normally done during other than daylight hours, adequate lights shall be provided to illuminate storage containers, control valves, and other LP-Gas equipment.
- (c) Suitable roadways or means of access for extinguishing equipment, such as wheeled extinguishers or fire department apparatus, shall be provided.
- (d) The LP-Gas system shall be enclosed within an industrial type fence at least six feet high with at least two egress gates opening outward and remotely located from each other, or be within an approved fence plant area and protected from tampering.
- (e) The LP-Gas system shall be protected against vehicle damage, with substantial bumper guards where necessary.
- (f) The storage, loading, unloading, cylinder and vehicle filling areas, and other strategic points shall be adequately posted in accordance with 527 CMR 6.07(3)(e).
- (g) Only a qualified person shall dispense LP-Gas into any LP-Gas container.
- (h) Before any portable container can be filled at a vendor site, the qualified operator shall make a careful examination of every container each time it is to be filled and the container shall be rejected if:
 - 1. There is evidence of exposure to fire, bad gouges or dents, seriously corroded areas, leaks, or other conditions indicating possible weakness which might render it unfit for service, or
 - 2. the cylinder is more than 12 years old and has not been requalified in accordance with DOT regulations.
- (i) Before a container mounted on a vehicle is filled, the vehicle engine shall be shut off and all sources of ignition, such as pilot lights, smoking materials, etc., within the immediate area shall be extinguished.
- (j) Storage outside of buildings for cylinders awaiting use, resale or exchange shall comply with NFPA 58-1998 5-4, the head of the fire department may increase the distances as herein provided.

(7) Vehicle Fuel Dispensers.

- (a) Vehicle fuel dispensers shall comply with NFPA 58-1998 3-9, and shall be approved by the Marshal prior to operation.
- (b) "NO SMOKING" and "STOP ENGINE WHEN REFUELING" signs shall be displayed at the filling station. The signs shall have block letters at least two inches high with either red letters on a white background or white letters on a red background.

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(c) Every motor vehicle powered by propane gas shall bear a reflective decal. The decal shall be placed on an exterior vertical or near-vertical surface on the lower right rear of the vehicle but not on the bumper inboard from any other markings. A vehicle may have additional decals. Decal shall be of the following shape:

Silver Scotchlite lettering 1" high

Black background

Silver Scotchlite border



Vehicle Identification Decal

6.08: Permits and Licenses

(1) Installation and Inspection

(a) No person shall install or connect any LP-Gas equipment unless a permit to install LP-Gas has been obtained from the head of the fire department.

No permit shall be required, however, to make a connection in the replacement of a portable container, or the filling of a stationary container.

(b) Application for a permit to install LP-Gas shall be made in the name of the owner or occupant of the premises by the person, firm, or corporation who will make the installation or connection. If the aggregate amount of LP-Gas to be stored exceeds 2,000 gallons, then a license as required by 527 CMR 6.08(2)(b) must first be obtained and a copy of the license shall be submitted with the application for a permit to install LP-Gas. If any one tank for the storage of LP-Gas exceeds 10,000 gallons, then the requirements of 520 CMR 12.00 must be complied with and documentation of compliance with 520 CMR 12.00 shall be submitted with the application for a permit to install LP-Gas.

(c) The head of the fire department may limit the quantity of LP-Gas that may be stored under a permit or order the installer of a system to meet additional requirements:

1. Where unusual conditions exist;
2. When it necessary for the protection of life and property;
3. Provided the additional requirements are within the intent and purpose of 527 CMR 6.00.

(d) Upon completion of an installation or connection authorized by a permit to install LP-Gas, the person, firm or corporation having made the installation or connection shall certify in writing on a form approved by the Marshal to the head of the fire department that the work has been completed, and in conformity with the requirements of 527 CMR 6.00.

(e) Upon receipt of such certification of completion, the head of the fire department shall make an inspection of the installation within a reasonable time; and if same is found to be in accordance with 527 CMR 6.00, he shall issue to the owner or occupant a permit for the keeping, storage, manufacture or sale LP-Gas in connection therewith, except where such storage is otherwise authorized by license; provided however, that if such installation is found not to be in accordance with 527 CMR 6.00, the permit shall be withheld and shall not be issued until the proper corrections have been made as directed, by written notice if requested, within a reasonably specified time and prior to any LP-Gas being stored in the container(s).

(2) Storage License or Registration

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- (a) No person shall keep or use any LP-Gas, or install or connect any LP-Gas equipment to any appliance except in accordance with the requirements of 527 CMR 6.00.
- (b) In accordance with the provisions of M.G.L. c. 148, § 13, 2,000 gallons of LP-Gas, in the aggregate, is hereby prescribed as the maximum amount that may be kept, stored, manufactured or sold, in one or more containers without a license or registration, or either of them, provided that a permit for the keeping, storage, manufacture or sale of LP-Gas has been obtained, except as hereinafter provided for.
- (c) When more than 2,000 gallons of LP-Gas will be stored, manufactured or sold, a license shall first be obtained from the local licensing authority by the owner or occupant of the premises in accordance with the provisions of M.G.L. c. 148, § 13.
- (d) The permit for the keeping, storage, manufacture or sale of LP-Gas must be obtained from the head of the fire department as provided by M.G.L. c. 148, §§ 10A and 23.
- (e) No permit will be required for the storage and use of an amount less than 42 pounds (ten gallons), provided that the provisions of 527 CMR 6.01 through 6.07 shall apply.
- (f) The permit for the keeping, storage, manufacture or sale of LP-Gas may be revoked by the head of the fire department as provided by M.G.L. c. 148, §§ 10A and 23, if the installation is changed or modified in any way or of the provisions of 527 CMR 6.00 are not complied with.

REGULATORY AUTHORITY

527 CMR 6.00: M.G.L. c. 22, §14; c. 148, §§9, 10 and 28.