

**CHAPTER 38**  
**LIQUEFIED PETROLEUM GASES**

**SECTION FC 3801**  
**GENERAL**

**3801.1 Scope.** This chapter shall govern the manufacture, storage, handling and use of LPG and the installation and operation of LPG equipment relating to such systems.

**Exceptions:**

1. Use of LPG or LPG mixtures as a refrigerant in a refrigerating system regulated by the construction codes, including the Mechanical Code, and FC606.
2. Storage and use of LPG in connection with special effects.
3. Outdoor storage and use for private, noncommercial barbecues within the lot line of a Group R-3 occupancy, as set forth in FC307.

**3801.2 Permits.** Permits shall be required as set forth in FC105.6.

**3801.2.1 Deliveries.** Distributors shall not deliver LPG containers to any location in quantities requiring a permit unless a permit for such installation, storage or use has been issued for that location.

**3801.3 Design and installation documents.** Design and installation documents for LPG storage facilities and stationary installations shall be submitted to and approved by the department in accordance with FC105.4.

**3801.4 General.** LPG shall be stored, handled and used, and devices, equipment and systems utilizing LPG shall be designed, installed, operated and maintained, in accordance with this chapter, the rules and NFPA 58.

**3801.5 Supervision.** The storage, handling and use of LPG shall be supervised in accordance with FC 3801.5.1 through 3801.5.8.

**3801.5.1 Connecting and disconnecting of LPG containers.** The connecting and disconnecting of LPG containers with a capacity greater than 16.4 ounces (0.465 kg) shall be conducted by a person holding a certificate of fitness.

**3801.5.2 Tar kettles.** The storage, handling and use of a tar kettle that requires a permit shall be under the personal supervision of a person holding a certificate of fitness.

**3801.5.3 Torch operations.** Torch operations using LPG containers with a capacity greater than 16.4 ounces (0.465 kg) LPG shall be performed by a person holding a certificate of fitness.

**3801.5.4 Curing concrete, drying plaster and similar applications.** The use of LPG for curing concrete, drying plaster and similar applications shall be under the personal supervision of a person holding a certificate of fitness.

**3801.5.5 Manhole operations.** The storage, handling and use of LPG at manhole operations shall be under the personal supervision of a person holding a certificate of fitness.

**3801.5.6 Street fairs and similar outdoor gatherings.** The storage, handling and use of LPG at street fairs and similar outdoor gatherings shall be under the personal supervision of a person holding a certificate of fitness.

**3801.5.7 Hot air balloon tethering operation.** The storage, handling and use of LPG for hot air balloon tethering operations shall be under the personal supervision of a person holding a certificate of fitness and a United States Federal Aviation Administration license, except as may otherwise be provided in the rules.

**3801.5.8 General supervision.** Except as otherwise provided in FC 3801.5.1 through 3801.5.7, the storage and use of LPG in quantities requiring a permit shall be under the general supervision of a person holding a certificate of fitness.

## **SECTION FC 3802 DEFINITIONS**

**3802.1 Definition.** The following term shall, for the purposes of this chapter and as used elsewhere in this code, have the meaning shown herein.

**LIQUEFIED PETROLEUM GAS (LPG).** A material which is composed predominantly of the following hydrocarbons or mixtures of them: propane, propylene, butane (normal butane or isobutane) and butylenes. Methylacetylene-propadiene mixtures (MAPP-gas) shall be deemed to be an LPG.

## **SECTION FC 3803 INSTALLATION OF EQUIPMENT**

**3803.1 General.** LPG equipment shall be installed in accordance with the construction codes, including the Fuel Gas Code, the rules and NFPA 58, except as otherwise provided in this chapter.

**3803.2 Indoor storage, handling and use of LPG containers.** The storage, handling and use of LPG containers indoors shall be in accordance with FC 3803.2.1 and 3803.2.2.

**3803.2.1 Portable containers.** Portable LPG containers, as defined in NFPA 58, shall not be stored, handled or used indoors except as authorized by the commissioner, NFPA 58 and FC 3803.2.1.1 through 3803.2.1.8.

**3803.2.1.1 Use in basement, pit or other area below grade.** LPG containers shall not be used in a cellar, basement, pit or other area below grade where heavier-than-air gas might collect. LPG containers shall not be used in an above-grade underfloor space or basement unless such location is provided with an approved means of ventilation.

**Exceptions:**

1. Use with self-contained torch assemblies in accordance with FC3803.2.1.6 and the rules.
2. Manhole operations in accordance with the rules.

**3803.2.1.2 Construction site heating.** Portable containers may be used in buildings, or parts thereof, undergoing construction, in accordance with NFPA 58, FC 313.5 and 1403, and the rules.

**3803.2.1.3 Group F occupancies.** Portable LPG containers shall not be stored, handled or used indoors in Group F occupancies, except as the commissioner may authorize by rule.

**3803.2.1.4 Group E and I occupancies.** Portable LPG containers shall not be allowed in Group E and I occupancies, except as set forth in this section and the rules. In Group E and I occupancies, portable LPG containers are allowed to be used for research purposes. Such containers shall not be used in classrooms. Such containers shall not exceed 16.4 ounces (0.465 kg) of LPG. Where more than one such container is present in the same room, each container shall be separated from other containers by a distance of not less than 20 feet (6096 mm).

**3803.2.1.5 Group A occupancies.** Portable LPG containers may be brought into a building on a temporary basis for use in conducting a demonstration, or in connection with a trade show or other public exhibition. Such use, and incidental storage and handling, shall be in accordance with the rules, and the containers shall be promptly removed from the premises upon completion of the demonstration or exhibition. Where more than one LPG container is in use in the same room, and are fueling different devices or equipment, the containers shall be separated from each other by a distance of not less than 20 feet (6096 mm).

**3803.2.1.6 Use with self-contained torch assemblies.** Portable LPG containers are allowed to be used to supply approved self-contained torch assemblies. Such containers shall not exceed 16.4 ounces (0.465 kg) of LPG.

**3803.2.1.7 Use for food preparation.** Use of LPG for commercial cooking is allowed only when authorized by this code or the rules.

**3803.2.1.8 Residential storage.** LPG container storage in Group R-2 and R-3 occupancies shall not exceed four containers per dwelling unit, each container having a

capacity not exceeding 16.4 ounces (0.465 kg) of LPG. Storage of such LPG containers in a basement, cellar or other area below grade is prohibited.

**3803.2.2 Industrial vehicles.** Containers on industrial vehicles shall comply with the requirements of FC309, NFPA 58, and the rules.

**3803.3 Location of equipment and piping.** Equipment and piping shall not be installed in locations where such equipment and piping is prohibited by the construction codes, including the Fuel Gas Code, or the rules.

## **SECTION FC 3804 RESERVED**

## **SECTION FC 3805 PROHIBITED STORAGE, HANDLING AND USE OF LPG**

**3805.1 Unapproved equipment.** LPG shall not be used for the purpose of operating any device, equipment or system unless such device, equipment or system is approved for use with LPG.

**3805.2 Release to the atmosphere.** LPG shall not be released to the atmosphere except as authorized by the commissioner.

**3805.3 General prohibitions.** It shall be unlawful to:

1. store, handle or use LPG in any container with a capacity greater than 100 pounds (45.4 kg) of LPG.
2. store, handle or use LPG in a basement, cellar or other area below grade, except as authorized by the commissioner.
3. store LPG in any outdoor or indoor storage facility, or store, handle or use LPG for a stationary LPG installation that has not been approved.
4. store, handle or use LPG without a permit when such storage, handling or use exceeds the quantities set forth in FC105.6.
5. store, handle or use in, or bring or allow into, any residential occupancy, or on any lot containing a building used for a residential occupancy, any LPG container with a capacity greater than 16.4 ounces (0.465 kg), except as authorized by the commissioner.
6. store, handle or use in, or bring or allow into, any nonresidential building, any LPG container with a capacity greater than 16.4 ounces (0.465 kg) LPG, except as authorized by the commissioner.
7. store LPG containers on the roof of any building.

8. handle or use on the roof of any building LPG containers with a capacity greater than 16.4 ounces (0.465 kg), except as authorized by the commissioner.
9. store, handle or use LPG in or on motor vehicles, except as temporary storage incidental to transportation, or as a fuel for generating motive power for a motor vehicle, or as otherwise authorized by the commissioner.
10. store, handle or use LPG for a stationary LPG installation in any area where access to piped natural gas from a public utility is available, except as authorized by the commissioner.
11. store, handle or use LPG in any equipment used or previously used for natural gas, except as may be authorized by the commissioner on an emergency basis.
12. store, handle or use LPG for space heating or water heating, except as authorized by the commissioner.
13. store, handle or use LPG in or for any appliance that withdraws or utilizes LPG in a liquid form except as authorized by the commissioner.
14. use nonmetallic pipe, tubing and components for any installation, appliance or equipment using LPG, except as authorized by the commissioner.
15. store LPG containers with a capacity greater than 16.4 ounces (0.465 kg) LPG indoors in any residential occupancy and in any building where an outdoor location for such LPG container storage is available.
16. store or operate a floor maintenance machine utilizing LPG indoors.
17. manufacture LPG.
18. dispense LPG and fill LPG containers as set forth in FC3806.

## **SECTION FC 3806 DISPENSING AND FILLING**

**3806.1 Dispensing and filling.** It shall be unlawful to dispense LPG, fill a container with LPG, or transfer LPG in any state from one container to another.

## **SECTION FC 3807 SAFETY PRECAUTIONS AND DEVICES**

**3807.1 Safety devices.** Safety devices on LPG containers, equipment and systems shall not be tampered with or otherwise rendered inoperable and the service unsafe.

**3807.2 Smoking and other sources of ignition.** “No Smoking” signs complying with the requirements of FC310 shall be posted when required by the commissioner. Smoking is

prohibited in accordance with FC Chapter 3. Control of other sources of ignition shall comply with the requirements of FC Chapter 3 and NFPA 58.

**3807.3 Clearance to combustibles.** LPG containers shall be kept a minimum of 10 feet (3048 mm) from vegetation, rubbish and other combustible waste and combustible materials.

**3807.4 Protecting containers from vehicles.** Where exposed to vehicular damage due to proximity to alleys, driveways or parking areas or when required by the commissioner, LPG containers, regulators and piping shall be protected in accordance with FC312.

## **SECTION FC 3808 PORTABLE FIRE EXTINGUISHERS**

**3808.1** Reserved.

**3808.2 Portable fire extinguishers.** Portable fire extinguishers complying with the requirements of FC906 shall be provided as specified in NFPA 58 and the rules.

## **SECTION FC 3809 STORAGE OF PORTABLE LPG CONTAINERS**

**3809.1 General.** Storage of portable LPG containers shall comply with the requirements of FC 3809.2 through 3809.14, and shall be approved by the commissioner.

### **Exceptions:**

1. Containers that have not previously contained LPG.
2. Containers stored for use at construction sites.

**3809.2 Exposure hazards.** Containers in storage shall be stored in locations that minimize exposure to physical damage, tampering or excessive temperature rise.

**3809.3 Position.** Containers in storage having individual capacity greater than 1 pound (0.454 kg) of LPG shall be positioned with the pressure relief valve in direct communication with the vapor space of the container.

**3809.4 Separation from means of egress.** Containers shall not be stored or left unattended near exit access doors, exits, stairways, exit discharge areas, or other areas designed or used as a means of egress.

**3809.5 Quantity.** Empty containers that have been in LPG service shall be considered as full containers for the purpose of determining the maximum quantities of LPG allowed in FC 3809.9 and 3809.11.

**3809.6 Storage on roofs.** Containers shall not be stored, or connected for use in a stationary LPG installation, on the roof of any building or structure.

**3809.7 Storage in basement, pit or other area below grade.** LPG containers shall not be stored in a cellar, basement, pit or other area below grade.

**3809.8 Protection of valves on containers in storage.** Container valves shall be protected by screw-on-type caps or collars which shall be securely in place on all containers stored regardless of whether they are full, partially full or empty. Container outlet valves shall be closed.

**3809.9 Storage within buildings accessible to the public.** LPG containers constructed in accordance with the United States Department of Transportation (DOTn) specifications with a maximum capacity of 16.4 ounces (0.465 kg) of LPG used in completely self-contained hand torches and similar devices are allowed to be stored for sale or displayed in a building accessible to the public. Buildings shall be protected by a sprinkler system in storage and display areas when quantities exceed permit amounts. The quantity of LPG shall not exceed 200 pounds (91 kg).

**3809.10 Storage within buildings not accessible to the public.** The quantity of LPG containers allowed in one storage location in a building not accessible to the public, such as an industrial building, shall not exceed a maximum capacity of 300 pounds (136 kg) of LPG. Where LPG containers are stored in more than one location on the same floor of a building, the storage areas shall be separated by a minimum of 300 feet (91 440 mm).

**Exception:** Storage of LPG at construction sites shall be in accordance with the rules.

**3809.11.** Reserved.

**3809.12 Location of outdoor storage.** Outdoor storage, including storage of containers for sale and containers connected for use, shall be located not less than 20 feet (6096 mm) from building openings, 20 feet (6096 mm) from any motor vehicle fuel dispenser and 10 feet (3048 mm) from any combustible material and, as applicable, in accordance with FC Table 3809.12. Outdoor storage of LPG shall be limited to not more than 400 pounds (181.6 kg) of LPG and shall be located at or above grade level.

**Exception:** Storage of LPG at construction sites shall be in accordance with the rules.

**3809.12.1 Proximity to hazards.** Storage shall not be located where the stored LPG would be exposed to the following hazards in the event of the failure of their structure or containment systems:

1. Electric power lines.
2. Piping containing flammable or combustible liquids.

3. Piping containing flammable gases.

4. Piping containing oxidizing materials.

**FC TABLE 3809.12  
DISTANCES FROM OUTDOOR LPG STORAGE AREA TO EXPOSURES**

<b>TYPE OF OUTDOOR EXPOSURE</b>	<b>LPG STORAGE AREA MORE THAN 100 POUNDS LPG UP TO MAXIMUM 400 POUNDS LPG MINIMUM DISTANCE TO EXPOSURE (FEET)</b>
Building or structure of combustible construction	10
Subway entrance, exit or other opening	25
Flammable and combustible liquids Aboveground – 1,000 gallons or less	10 <sup>a</sup>
Flammable and combustible liquids Aboveground – in excess of 1,000 gallons	20 <sup>a</sup>
Flammable and combustible liquids Below ground tank – 1,000 gallons or less	10 <sup>a</sup>
Flammable and combustible liquids Below ground tank – 1,000 gallons or less Vent or fill opening of tank	15 <sup>a</sup>
Flammable and combustible liquids Below ground tank – in excess of 1,000 gallons	15 <sup>a</sup>
Flammable and combustible liquids Below ground tank – in excess of 1,000 gallons Vent or fill opening of tank	15 <sup>a</sup>
Flammable gas storage area, 1,500 SCF or less	10 <sup>a</sup>
Flammable gas storage area, More than 1,500 SCF up to maximum 3,500 SCF	20 <sup>a</sup>
Oxygen storage – 20,000 SCF or less	In accordance with NFPA 51 <sup>a</sup>
Oxygen storage – in excess of 20,000 SCF	In accordance with NFPA 55 <sup>a</sup>
Fast-burning solids, such as ordinary lumber, excelsior or paper	10 <sup>a</sup>
Slow-burning solids, such as heavy timber or coal	10 <sup>a</sup>
Air compressor intakes or inlets to heating, ventilating or air- conditioning equipment	5
Group A occupancies and public gathering places	25
Public sidewalks and parked motor vehicles	10
Public streets, private roads and lot lines	10 <sup>a</sup>

For SI: 1 foot = 304.8 mm, 1 cubic foot = 0.02832 m<sup>3</sup>, 1 gallon = 3.785 L.

a. The minimum required distances may be reduced to 5 feet when protective structures having a minimum fire-resistance rating of 2 hours interrupt the line of sight between the container and the exposure. The protective structure shall be at least 5 feet from the exposure. The configuration of the protective structure shall be designed to allow natural ventilation to prevent the accumulation of hazardous gas concentrations.

**3809.13 Protection of containers.** Containers shall be stored within a suitable enclosure or otherwise protected against tampering. Vehicular protection shall be provided as required by the commissioner.

**3809.14 Electrical equipment.** Except as otherwise provided in NFPA 58, electrical equipment within 3 feet (914 mm) in any direction of an outdoor LPG facility shall comply with the Class I, Division 2 wiring requirements of the Electrical Code for hazardous locations, unless electrical equipment is separated from such area by a wall or other solid partition having no openings.