

NOVATO FIRE PROTECTION DISTRICT FIRE LOSS MANAGEMENT DIVISION



Developed by _____
Forrest M. Craig, Fire Marshal

Approved by _____
Jeffrey A. Meston, Fire Chief

Fire Protection Standard 307

LIQUIFIED PETROLEUM GASES

Date: 10/24/00

Revision: 09/15/02

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This standard has been developed pursuant to Article 82 of the Uniform Fire Code as adopted by ordinance by the Novato Fire Protection District. It is intended that this standard be used as a guide for establishing a reasonable degree of fire and life safety for the storage, handling and transportation of liquefied petroleum gases.

I. Scope

The standard shall apply to the storage, use, handling and transportation of liquefied petroleum gas and the installation, design and construction of all equipment pertinent to systems for such uses.

II. Allowable Areas

The following quantities are the established limits in which bulk storage of liquefied petroleum gases is prohibited:

- A. The storage of more than 12,000 gallons of LPG is hereby prohibited in all areas without specific approval of the Fire District.
- B. The storage of any LPG in any residential setting and in all heavily populated or congested commercial areas as established by the City of Novato or the County of Marin, whichever is applicable is prohibited.

Exceptions to the restrictions:

- 1. Where natural gas lines are not available to directly connect.
- 2. Limited quantities only when used in conjunction with home LPG barbecues, recreational vehicles, patio heaters, or similar uses. The maximum quantity is 10 gallons water capacity.

III. Permits

Prior to the Novato Fire Protection District authorizing installation of a tank system, the applicant shall apply for and obtain Environmental / Design Review / Use Permit approval from the Community Development Department of the City of Novato and the County of Marin.

A Fire District Permit is required:

- A. To install, store, or maintain any LPG container.

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Exception: In single-family dwellings, portable containers less than 10 gallons water capacity and where the maximum quantity used or stored does not exceed 10 gallons water capacity.

- B. To operate any tank vehicle which is used for the transportation of LPG.
 Note: where a single container or the aggregate capacity of interconnected containers is over 120 gallons water capacity, the installer shall submit three complete sets of plans and specifications including all of the information regarding compliance with the requirements specified in IV below.

IV. Domestic LPG Installation

- A. Location of tanks and regulating equipment.
 - 1. Each individual tank shall be located with respect to the nearest important building or line of adjoining property, which may be built upon, or openings in buildings according to the following:

Capacity – Gallons	Minimum Distance of Tank from Buildings and Property Lines And Openings in Buildings
Portable Container less than 500 gallons**	5 feet
Not more than 500 gallons	10 feet
501 to 1200 gallons	25 feet
1201 gallons and up	50 feet

**This distance may be waived if minimum distance from opening is maintained and the wall against which the tank is located is of at least one hour fire resistive construction (stucco-block-brick) and the relief valve is directed away from the wall.

- 2. Within the limits established by zoning requirements of the City of Novato and the County of Marin restricting the storage of liquefied petroleum gas for the protection of heavily populated or congested commercial areas, the aggregate capacity of any one installation shall not exceed 10 gallons water capacity, except that in particular installations, this capacity limit may be altered at the discretion of the chief after

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consideration of special features such as topographical conditions, nature of occupancy and proximity to buildings, capacity of proposed tanks, degree of private fire protection to be provided and facilities of the local fire district.

3. Multiple container installations with a total storage water capacity of more than 180,000 gallons (150,000 gallons LP gas capacity) shall be subdivided into groups containing not more than 180,000 gallons in each group. Such groups shall be separated by a distance of not less than 50 feet, unless the tanks are:
 - a. Mounted in an approved manner, or
 - b. Protected with approved insulation on such areas that may be subject to impingement of ignited gas from pipelines or other leakage, or
 - c. Protected by firewalls of approved construction, or
 - d. Protected by an approved system for application of water, or
 - e. Protected by other approved means

Where one of these forms of protection is provided, the separation shall not be less than 25 feet between such container groups.

4. No storage tank shall be located less than 10 feet from the nearest street line or sidewalk, 20.105 (e).
 5. Filling connections for tanks shall not be located less than 15 feet from any opening into or under any building, where such opening is below the level of the filling connection. Avoid, if possible, any situation where the tank is at higher grade than buildings containing sources of ignition.
 6. Regulators shall be located outside of buildings
 7. All tanks or cylinders shall be mounted and earthquake braced on stable noncombustible foundations.
- B. Piping
1. Fire District responsibility extends only to piping outside of buildings. Consult the Novato Fire Protection District for interior plumbing.
 2. All piping between the tank control valve and the regulator shall be schedule #80 (extra strong) or copper, brass or aluminum tubing suitable for a working pressure of 400 psi. This portion of the system shall be tested to the vapor pressure of the gas or 125 psi, whichever is greater

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3. All piping beyond the regulator shall be suitable for a working pressure of 125 psi and tested on 20 psi.
4. All underground piping shall be factory wrapped or coated with asphalt and where possible shall be buried at least 18" below grade.
5. All piping and regulators shall be rigidly supported.
6. Aluminum fittings and tubing shall not be permitted where connection must be broken in order to fill the tank or cylinder.
7. Any hose used in the system must be approved for L. P. gas service.

C. Signs

1. All tanks over 60 gallons capacity shall have painted on two sides the word "FLAMMABLE" in letters 3 inches in height for tanks up to 500 gallons, and letters 5 inches in height for tanks greater than 500 gallons. In addition the words "NO SMOKING OR OPEN FLAME PERMITTED WITHIN _____ * _____ FEET" shall appear on the sides of the tank or container.

* 25 feet – 6- to 120 gallons

* 50 feet – 1201 gallons and up

V. Maintenance

A. Minimum requirements for LPG installations

1. All combustibles shall be removed from within 10 feet of any tank, vaporizer or transfer connections (includes grass and weeds).
2. Above ground tanks shall be protected from impact from vehicles by means of crash posts, fences or railings.
 - a. Where crash posts are used: crash posts shall be six (6) feet long, two (2) feet of which shall be below grade encased in concrete. Posts shall be four (4) inches in diameter and shall be set 48 inches on center and at least three (3) feet from the tank.
 - b. When a fence is used: It shall be six (6) feet in height and a minimum of three (3) feet from tank. All fenced areas shall be kept

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locked when unattended and shall have at least two means of emergency access.

3. Hose and piping shall be maintained in good repair.
4. Flammable and No Smoking signs shall be maintained
5. Relief valves unobstructed

VI. Abandonment of Liquefied Petroleum Gas Equipment

- A. Whenever the use of liquefied petroleum gas equipment has been discontinued, it shall be abandoned in an approved manner within a period of thirty (30) days.

All of the following procedures may be used when approved by the Chief:

1. Removal of all liquefied petroleum equipment
2. Burn-off of contents of container
3. Venting contents of container to atmosphere when discharge of gas can be led to a safe point of discharge.
4. All service openings shall be capped or plugged after contents have been removed from container

VII. Dispensing and Overfilling

- A. The dispensing of liquefied petroleum gases shall be performed by a qualified attendant.
- B. It shall be illegal for any person, firm, corporation, association, club or organization to operate a self-service liquefied petroleum gas dispensing operation which is open to the public.