



**Liquid Propane
 Informational guide to submitting plans**

Plans are to be submitted to: **State Fire Marshal**
215 E. 7TH ST.
Des Moines, Iowa 50319

This guide was produced to assist in conducting inspections/installations of LP tank installations and systems to determine code compliance in accordance with NFPA 58, 2014 edition, as formally adopted by the Iowa Administrative Code 661-226 (101). This handout shall NOT be construed as a substitute for NFPA 58, 2014 edition. Any person using this handout is reminded to consult NFPA 58 in its entirety for a complete listing regarding the requirements for LP tank installations. Note: (NFPA 54, 2015 edition, shall apply to the installation of fuel gas piping systems). *To purchase a copy of NFPA 58 or 54, call NFPA at 1-800-344-3555.*

Stationary installations utilizing storage containers of over 2000-gallon individual water capacity, or with aggregate water capacity exceeding 4000 gallon, shall be submitted to the State Fire Marshal's Office: In addition to the information from below, include a letter of approval from the local authority, (city or county) where the tank is located.

Liquid Propane plans

OWNER INFORMATION		PROJECT INFORMATION			CONTRACTOR INFORMATION	
Name		Facility Name			Customer ID# Contractor Name	
Company Name		Site Address			Number and Street	
Number and Street		<input type="checkbox"/> City <input type="checkbox"/> Village <input type="checkbox"/> Town of:			City, State, Zip Code	
City, State, Zip Code		County			Contact Person Customer ID#	
Telephone Number	Fax	Fire Dept. Providing Fire Coverage			Telephone Number	Fax
Number		FDID #			Number	
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- A detailed site plan that shows the general layout of the land is required. Be sure to show all distances to buildings, property lines, and other use areas such as residences. Site plans must be legible to be accepted.

Site Plans shall include the following information:

- 1. Electrical.
- 2. Location of Emergency shutoffs/electrical disconnects.
- 3. Trespass precautions. Chain Link Fence/Locked Controls.
- 4. Location of extinguisher.
- 5. Manufacturer Specification Sheet(s) for all equipment. (Valves, hoses, etc.) . **Note: A description or layout of the piping system shall be submitted for review. Location of all valves is required.**
- 6. Local approval letter.

INSTALLATION CHECKLIST FOR LP TANK CONTAINERS

Container Type: ASME approved. The container shall be marked or stamped with a Data Plate.

Note: Railcars not permitted.

Container Information:

Container Size-

Year Built-

Manufacturer's Serial #--

National Board #-

Pressure-

Inches Length-

Inches Diameter-

Shell Thickness-

Head Thickness-

Tank Location: Minimum Distance to Buildings, & Other Properties.

2001-30,000=50ft

30,001-70,000=75ft

70,001-90,000=100ft

90,001-120,000=125ft

Protection against Tampering: for (Bulk Plant & Industrial LP gas Systems) and (Cylinder Dispensing and Vehicle Fuel Stations) -- To minimize the possibilities for trespassing and tampering, the area that includes container appurtenances, pumping equipment, loading & unloading facilities, and container filling facilities shall be protected by one of the following methods:

(A) Enclosure with at least a 6-ft high industrial type fence. There shall be at least two means of emergency access from the fenced enclosure. Clearance shall be provided to permit maintenance and at least 3 feet should be provided to allow access to exits.

(B) As an alternate to fencing, suitable devices that can be locked in place shall be provided. Such devices, when in place, shall effectively prevent unauthorized operation of any of the container' appurtenances, system valves or equipment.

Vehicle Protection Posts: Where physical damage to LP gas containers or systems from vehicles is a possibility, precautions shall be taken against damage by vehicles. Required to protect all equipment, piping, & tanks.

1. Guard post shall be constructed of steel not less than 4 in. in diameter & shall be filled with concrete.

2. They shall be spaced not more than 4ft on center

3. They shall be set not less than 3ft deep in a concrete footing of not less than 15-in. diameter

Note: Other approved protection is acceptable.

Valves: Container valves properly installed per NFPA 58, 2014 Edition- Section- 5.7.4

Emergency Shut-off: A pull type shut off system shall be attached to the tank to stop the flow of product out of the tank in an emergency, on stationary installations with aggregate w/c of more than 4,000 gal. Emergency controls shall comply with NFPA 58, 2014 Edition- Section- 6.12.

- All new installations and existing installations of emergency shutoff valves shall have at least one clearly identified and easily accessible manually operated remote emergency shutoff device. The device shall be located not less than 25 ft (7.6 mm) or more than 100 ft (30.5 m) in the path of egress from the emergency shutoff valve.
- Emergency controls, where applicable, shall be conspicuously marked and readily accessible.

Gauges: 1. An internal spring-type, flush-type full internal or external pressure relief valve.

1. A fixed maximum liquid level gauge.
2. A float gauge, rotary gauge, slip tube gauge, or a combination of these gauges.
3. A pressure gauge.
4. A temperature gauge.

Labeling: The tank shall be labeled with the words "Liquid Propane," "Flammable," and a "No Smoking," or "No Open Flame" sign posted near the tank.

Supports: Cement saddles with felt pad liner between the cement and container.

Piping: Properly supported, protected from physical damage, and corrosion. Flexible piping installed to prevent movement and settlement where required. Buried Pipe shall have a minimum of 18 in. of cover.

Electrical Services: No part of an LP tank shall be located in the area 6 feet horizontally from a vertical plane beneath overhead electric power lines that are over 600 volts, nominal. Class I division I within 5ft all directions from transfer connections and division II within 15ft.

Lighting: If operations are conducted in other than daytime hours, an outside security light shall be installed.

Vaporizer: Shall be 15 feet from tank load pipes, 15 feet from container shut off valves, 10 feet from a tank, and 25 feet to a building or line of adjoining property.

Fire Extinguisher: Each industrial plant, bulk plant, and distribution point shall be provided with at least one approved fire extinguisher, minimum capacity of 18 lb. B:C rated dry chemical.

- NFPA 10- All fire extinguishers shall be inspected tested and tagged by a competent company yearly and documentation of such testing kept on record for inspection purposes.

Bonding or Grounding: NFPA 54-Piping systems shall be electrically continuous & bonded.

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS, AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE.

Name and official title of Owner or Owner's Authorized Representative

Print:

Signature:

Title:

Date:



Iowa State Fire Marshal Division
[Flammable and Combustible Liquid Codes]

This guide was produced to assist in conducting inspections of LP containers over 2,000 gallon to determine code compliance in accordance with NFPA 58, 2014 edition, as formally adopted by the Iowa Administrative Code Chapter 226. This handout shall NOT be construed as a substitute for NFPA 58, 2014 edition. Any person using this handout is reminded to consult NFPA 58 in its entirety for a complete listing regarding the requirements for LP tank installations. Note: (NFPA 54, 2015 Edition, shall apply to the installation of fuel gas piping systems). To purchase a copy of NFPA 58 or 54, call NFPA at 1-800-344-3555.

INSPECTION/INSTALLATION CHECKLIST FOR LP TANK CONTAINERS

Tank Type: Containers shall be designed, fabricated, tested and marked (or stamped) in accordance with ASME. Containers shall have a visible Data Plate with the container information. **(Note: Railcars not permitted for stationary installation).**

Tank Location: Minimum Distance to Buildings, & Other Properties.

- <125= 0ft
- 125-500=10ft
- 501-2000=25ft
- 2001-30,000=50ft
- 30,001-70,000=75ft
- 70,001-90,000=100ft
- 90,001-120,000=125ft

Protection against Tampering: for (Bulk Plant & Industrial LP gas Systems) and (Cylinder Dispensing and Vehicle Fuel Stations) -- To minimize the possibilities for trespassing and tampering, the area that includes container appurtenances, pumping equipment, loading & unloading facilities, and container filling facilities shall be protected by one of the following methods:

- (a) Enclosure with at least a 6-ft high industrial type fence. There shall be at least two means of emergency access from the fenced enclosure. Clearance shall be provided to permit maintenance and at least 3 feet should be provided to allow access to exits.
- (b) As an alternate to fencing, suitable devices that can be locked in place shall be provided. Such devices, when in place, shall effectively prevent unauthorized operation of any of the container' appurtenances, system valves or equipment.

Container Valves/Gauges: Container valves and other appurtenances shall be properly installed. Consult NFPA 58-5.7.4 to assure proper valves and other appurtenances are installed.

Vehicle Protection Posts: Where physical damage to LP gas containers, piping or systems from vehicles is a possibility, precautions shall be taken against damage by vehicles as detailed in Section 312 of the 2009 Edition of the IFC as follows:

1. Guard post shall be constructed of steel not less than 4 in. in diameter & shall be filled with concrete.
2. They shall be spaced not more than 4ft on center.
3. Set not less than 3ft deep in concrete footing of not less than a 15-inch diameter
3. Set with the top of the post not less than 3 ft above ground.
4. Located not less than 3 ft from the protected object.

Note: Other approved equivalent protection is acceptable.

Labeling: The container shall be labeled with the words "Liquefied Petroleum Gas, or Propane ," "Flammable," and a "No Smoking," or "No Open Flame" sign posted near the tank.

Supports: Cement saddles with felt pad liner between the cement and container.

Piping: Piping systems shall be properly installed per NFPA 58, 2014 Edition 6.9.

Height from Ground: LP tanks shall not be located higher than 5 feet off the ground measured at the bottom of the tank.

Electrical Services: No part of an LP tank shall be located in the area 6 feet horizontally from a vertical plane beneath overhead electric power lines that are over 600 volts, nominal. Class I division I within 5ft all directions from transfer connections and division II within 15ft.

Lighting: If operations are conducted in other than daytime hours, an outside security light shall be installed.

Vaporizer: Shall be 15 feet from tank load pipes, 15 feet from container shut off valves, 10 feet from a tank, and 25 feet to a building or line of adjoining property.

Emergency Shut-off: A pull type shut off system shall be attached to the tank to stop the flow of product out of the tank in an emergency, on stationary installations with aggregate w/c of more than 4,000 gal. Emergency controls shall comply with NFPA 58, 2014 Edition- Section 6.12.

All new installations and existing installations of emergency shutoff valves shall have at least one clearly identified and easily accessible manually operated remote emergency shutoff device. The device shall be located not less than 25 ft (7.6 mm) or more than 100 ft (30.5 m) in the path of egress from the emergency shutoff valve.

- Emergency controls, where applicable, shall be conspicuously marked and readily accessible.

Sources of Ignition: Smoking, open flames, metal cutting or welding, portable electric tools are not permitted within 25 feet of LP operation.

Separation from AST sites: 20 feet separation required between LP and Class I and Class II flammable and combustible liquids.

Ammonia Conversion: Tank must be cleaned and piping purged pressure tested or replaced. All equipment shall be converted to propane service. Tank shall contain less ammonia than the quantity required to turn red litmus paper blue.

Fire Extinguisher: Each industrial plant, bulk plant, and distribution point shall be provided with at least one approved fire extinguisher, minimum capacity of 18 lb. B:C rated dry chemical.

- **NFPA 10-** All fire extinguishers shall be inspected tested and tagged by a competent company yearly and documentation of such testing kept on record for inspection purposes.

Other

- Containers showing serious denting, gouging, or excessive corrosion shall be removed from service.
- Relief valve vent stacks shall be located a minimum of 7ft above the container, & equipped with rain caps.
- Combustible materials, weeds & grass shall not be permitted within 10 feet of a container.
- Aboveground containers shall be kept properly painted.
- Cargo vehicles unloading into storage containers shall be at least 10 ft. from the container.
- Cargo vehicles shall not transfer LP gas into dispensing station storage while parked on a public way.
- LP gas for agricultural purposes - Air moving equipment, such as blowers on crop dryers or on heaters, within 50 feet of the point of transfer shall be shut down while containers are being refilled.

- LP gas containers shall be located outside of buildings. (Some exceptions include containers used for fuel to industrial forklifts, and heating equipment in buildings undergoing construction.)
- If stored in buildings in accordance with section 8.3 of NFPA 58, containers shall not be located near exits, stairways or in areas used for the egress of people.
- Empty containers that have been in LP gas service shall be stored outdoors, and protected from trespass and tampering.

Portable Cylinders & Dispensing.

- Note: Location of Containers awaiting use, resale or exchange, shall be in accordance with NFPA 58, 2014 edition Table 8.3.1.
- Cylinder valves shall be protected. Screw-on caps or collars shall be securely in place on all containers stored, regardless of whether they are full, partially full, or empty, and container outlet valves shall be closed & plugged or capped.
- Cylinder dispensing stations shall be protected against physical damage and be installed on a concrete foundation or be installed as a complete unit on a substantial base.
- An excess-flow check valve or a differential back pressure valve shall be installed in or on the dispenser at the point at which the dispenser hose is connected to the liquid piping.
- A manual shutoff valve and excess-flow check valve shall be located in the liquid line between the pump and dispenser inlet where the dispensing device is installed at a remote location and is not part of a complete storage and dispensing unit mounted on a common base.
- Cylinder dispensing structures or buildings shall be of noncombustible material, and have natural or mechanical ventilation per chapter 10 of NFPA 58.
- Cylinder dispensing stations shall have an identified accessible switch or circuit breaker located not less than 20ft or more than 100ft from the dispensing device to shut off the power in the event of an emergency.
- Portable cylinders awaiting use or resale shall be located outside of buildings and at least 5 ft. from any doorway frequented by the public. Buildings with one means of egress cylinders shall be 10ft from doorway opening.
- Portable cylinders awaiting use or resale shall be protected by a lockable ventilated metal locker or rack or by a 6-ft. high industrial fence in accordance with section (a) Protection against Tampering. Note: Lockers or fenced area shall be properly labeled. Lockers shall be properly labeled, "PROPANE", "Flammable," and a "No Smoking," or "No Open Flame".
- Lockers holding portable cylinders awaiting use or resale shall be protected from vehicle impact.
- Storage locations holding portable cylinders awaiting use or resale shall be protected by at least one 18-lb. dry chemical B:C rated fire extinguisher.