

LP GAS INDUSTRIAL CHECK LIST

NFPA 58 (2008)

ck	Summary	Code Ref.	Code
	Piping, Liquid / Vapor In or Out		
	Strainers, Screens or other approved method required to prevent debris from entering system. (existing by July 1, 2011	NFPA 58 6.18.2.5	System piping shall be designed to prevent debris from impeding the action of valves and other components of the piping system. This requirement shall be effective for existing installations on July 1, 2011. (screens shall be installed on the swivel end of all system piping)
	ESV Location or Backflow Check Valve when flow to container only. (58-6.12.3)	NFPA 58 6.12.2	Emergency shut off valve shall be installed within 20 lineal ft. of the nearest end of the hose or swivel type connections.
	ESV Protected with Thermal shutoff	NFPA 58 6.12.6	Emergency shutoff valve shall have automatic shutoff through thermal actuation with a melting point of thermal element less than 250 degrees F.
	ESV Fuse Link Location	NFPA 58 6.12.6	Fusible link shall be installed within 5 ft. from the nearest end of the hose or swivel type piping connection to liquid transfer line.
	Internal Valves require Thermal Shutoff new and existing.	NFPA 58 6.11.3	Automatic shutdown of internal valves in liquid service shall be provided using thermal (fire) actuation. The thermal sensing element of the internal valve shall be within 5 ft (1.5 m) of the internal valve.
	Internal Valves require Remote Shutoff new and existing.	NFPA 58 6.11.4	At least one remote shutdown station for internal valves in liquid service shall be installed not less than 25 ft (7.6 m) or more than 100 ft (30 m) from the liquid transfer point. This shall be retroactive to all internal valves required by the code.
	Internal Valves require Remote Shutoff SIGN new and existing.	NFPA 58 6.11.4	Emergency remote shutdown stations shall be identified by a sign, visible from the point of transfer, incorporating the words "Propane — Container Liquid Valve Emergency Shutoff" in block letters of not less than 2 in. (51 mm) in height on a background of contrasting colors to the letters.
	ESV has manual shutoff at the ESV	NFPA 58 5.12.4(3)	Manual shutoff device shall be provided at each emergency shutoff valve installation location.
	ESV has Remote Shutoff	NFPA 58 6.12.10 (2)	Manual shutoff device shall be provided at a remote location, greater than 25 ft. and less than 100 ft. from emergency shutoff valve.
	ESV provided for each piping leg to Bulk Head with Liquid 1 1/2" or larger Vapor 1 1/4" or larger	NFPA 58 6.12.5	Emergency shutoff valve shall be installed on each leg of a multi leg piping each of which is connected to a hose or a swivel type connection on one side and to a header of 1 1/2 inch in diameter or larger on the other side.
	Breakaway stanchion at Bulkhead listed (or minimum 12" threaded Sch. 80 pipe)	NFPA 58 6.12.8	Breakaway stanchion shall be provided so that if a pull away break occurs on the hose or swivel type connection side while retaining intact the valves and piping on the plant side.
	Backflow Check Valve properly designed for application	NFPA 58 6.12.4	The backflow check valve shall have a metal-to-metal seat or a primary resilient seat with metal back-up, not hinged with combustible material, and shall be designed for this specific application.
	Liquid Line -Internal valve or Backflow Check Valve in combination with positive shutoff valve when flow to container required for container 4000 WG or more when new (2004). (existing July 1, 2011 option per 58-5.7.2.2 (D))	NFPA 58 5.7.4.2(B)	Liquid withdrawal openings in new installations shall be equipped with an internal valve that is fitted for remote closure and automatic shutoff using thermal (fire) actuation where the thermal element is located within 5 ft (1.5 m) of the internal valve.
	Excess Flow valve or Backflow Check Valve in combination with positive shutoff valve or Internal Valve required for Vapor Line.	NFPA 58 5.7.4.2(A)	Vapor withdrawal openings shall be equipped with either of the following: (1) A positive shutoff valve located as close to the container as practical in combination with an excess-flow valve installed in the container or (2) An internal valve.
	Hydrostatic relief required where liquid trapped (valves and backchecks)	NFPA 58 6.13	Hydrostatic relief valve shall be installed in sections of liquid piping between shutoff valves where liquid can be trapped.
	Rain Caps Hydrostatic Relief Valve	NFPA 58 6.7.2.4	Hydrostatic relief valves shall have rain caps installed.
	Liquid and vapor lines Labeled or Color Coded.	NFPA 58 5.7.8.5	LP Gas Liquid and Vapor lines shall be labeled or color coded.
	ESV Remote clearly Identified (58-6.12.10(1)) use 58-6.11.5	NFPA 58 6.11.5	Emergency remote shutdown stations shall be identified by a sign, visible from the point of transfer, incorporating the words "Propane — Container Liquid Valve Emergency Shutoff" in block letters of not less than 2 in. (51 mm) in height on a background of contrasting colors to the letters.
	Properly Sized Excess Flow Valve Required at container and change of pipe size	NFPA 58 5.8.1.1(H)	The connection or line that leads to or from any individual opening shall have greater flow capacity than the rated flow of the excess-flow valve protecting the opening.
	Annual test of ESV and Backflow Check Valve. Documentation needed	NFPA 58 6.12.9	ESV and Backflow Check Valves shall be tested Annually and Documented.
	Piping Secured	NFPA 58 6.9.3.10	Aboveground piping shall be supported and protected against physical damage by vehicles.
	Piping painted to protect from corrosion	NFPA 58 6.9.3.11	LP Gas Piping shall be protected against corrosion (Rust). Paint or coat piping.
	Piping not used for ground	NFPA 58 6.9.3.15	LP-Gas piping shall not be used as a grounding electrode.
	Swing Joint or piping for Expansion provided	NFPA 58 6.9.3.9	Piping systems including interconnecting of permanently installed containers shall compensate for expansion, contraction, jarring, vibration, and settling.

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	Flex connectors max. 5 ft.	NFPA 58 6.9.6.2	Flexible connectors and hose used as flexible connectors shall not exceed 60 in. in length where used with liquid or vapor piping on portable or stationary tanks 2000WG or less.
	Separation Distances		
	Point of Transfer	NFPA 58-T.6.5.3	
	Distance between containers and Important Buildings	NFPA 58-T.6.3.1	
	Separation from Flammable Liquids minimum 20 ft.	NFPA 58 6.4.5.5	The minimum horizontal separation between aboveground LP gas containers and aboveground tanks containing liquids having flash points below 200 degrees F shall be 20 ft.
	Fire Protection		
	Minimum 18 Lb. Fire Extinguisher Required	NFPA 58 6.25.4.2	Each industrial plant, bulk plant, and distributing point shall be provided with at least one approved portable fire extinguisher having a minimum capacity of 18 lb (8.2 kg) of dry chemical with a B:C rating. Where fire extinguishers have more than one letter classification, they can be considered to satisfy the requirements of each letter class.
	Fire Safety Analysis (FSA) 4000 WG or more	NFPA 58 6.25.3.2	The modes of fire protection shall be specified in a written product release prevention and incident preparedness review.
	Provide copy of FSA at site and Fire Department	NFPA 58 6.25.3.3	The review shall be submitted by the owner, operator, or their designee to the authority having jurisdiction and local emergency responders.
	FSA to be updated	NFPA 58 6.25.3.4	The review shall be updated when storage capacity or transfer system is modified.
	Special Safety requirements	NFPA 58 6.25.3.6	If in the preparation of the incident prevention review it is determined that a hazard to adjacent structures exists that exceeds the protection provided by the provisions of the code, special protection shall be provided in accordance with 6.23.5.
	Fire Department Access Required	NFPA 58 6.25.4.1	Roadways or other means of access for emergency equipment, such as fire department apparatus, shall be provided.
	NFPA 704 Marking Required	IFC (06) 2703.5	Unless otherwise exempted by the fire code official, visible hazard identification signs as specified in NFPA 704 for the specific material contained shall be placed on stationary containers and above-ground tanks and at entrances to locations where hazardous materials are stored, dispensed, used or handled in quantities requiring a permit and at specific entrances and locations designated by the fire code official.
	Ignition Source Control		
	Combustible materials, weed and grass not to closer than 10ft of container	NFPA 58 6.4.5.2	Loose or piled combustible material and weeds and long dry grass shall be separated from containers by a minimum of 10 ft.
	Container not under power >600 volts	NFPA 58 6.4.5.12	LP Gas tanks and dispensers shall not be installed within 6 ft. of a vertical plane beneath any overhead power line(s) that are over 600 volts nominal.
	Smoking, Sparks and Flame Prohibited and Enforced	NFPA 58 7.2.3.2(B)	Smoking, open flames, portable electric tools, and extension lights shall be prohibited within 25 feet of the point of transfer.
	No Smoking Posted from all directions of approach	IFC (06) 310.3	
	Electrical equipment per Code	NFPA 58 6.22.2.1	Electrical equipment and wiring shall be installed per code requirements for electrically classified areas.
	Ignition control procedures followed during transfer operations	NFPA 58 7.2.3.2	Ignition control procedures and requirements shall be used during transfer operations.
	Misc. / Other		
	Container properly Painted	NFPA 58 6.6.1.4	Tanks shall be kept free of rust, they shall be kept properly painted.
	Traffic Protection Provided where needed	NFPA 58 6.6.1.2	Vehicle impact protection shall be provided in accordance with the IFC section 312, or in accordance with State Fire Marshal policies.
	Interconnected containers at same vapor Level	NFPA 58 6.6.3.2	ASME containers that have liquid interconnections shall be installed so that the maximum permitted filling level of each container is at the same elevation.
	Corrosion at Bulk container Saddles	NFPA 58 6.6.3.5	The part of an ASME container in contact with saddles or foundations or masonry shall be coated or protected to minimize corrosion.
	Relief Valve directed to open space	NFPA 58 6.7.2.3	Pressure relief devices on the following ASME containers shall be installed so that any gas released is vented away from the container upward and unobstructed to the open air (1) Containers of 125 gal (0.5 m3) or more water capacity installed in stationary service (2) Portable storage containers (3) Portable tanks (4) Cargo tanks
	Fence required with 2 gates if greater than 100 sq. ft., fill point more than 3 ft from gate.	NFPA 58 6.18.4.2	Area around tank and loading/unloading area shall be enclosed in a 6 ft. high industrial chain link fence with at least two (2) remotely located access gates.
	Gates on fence to be locked when not attended.	NFPA 58 6.18.4.2	Gate(s) shall be kept locked at all times when not dispensing propane.
	Data plate required for tanks.	NFPA 58 5.2.8.3	Each LP Gas tank shall have a stainless steel nameplate or data plate per ASME. Data plate shall not be painted or obscured. If illegible, data plate shall be replaced.

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NFPA 58 (2008)

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	LP Hose Marked LP 350 psi	NFPA 58 5.9.6.4(A)	LP Gas hose used for LP Gas transfer shall be marked "LP GAS, PROPANE, 350 PSI WORKING PRESSURE".
	System and Piping free of leaks	NFPA 58 6.14.1	After assembly, piping systems (including hose) shall be tested and proven free of leaks at not less than the normal operating pressure.
	Damaged or leaking hose to be replaced	NFPA 58 7.2.4.5	Leaking or damaged hose shall be immediately repaired or removed from service.
	Canopy open for at-least 50% of sides	NFPA 58 6.24.3.3	Dispensing areas under a canopy shall be ventilated and not enclosed for more than 50% of its perimeter.
	Dispensers and dispensing stations	NFPA 58 6.24.3.8	The container liquid withdrawal opening used with vehicle fuel dispensers and dispensing stations shall be equipped with one of the following: (1) An internal valve fitted for remote closure and automatic shutoff using thermal (fire) actuation. (2) A positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container, plus an emergency shutoff valve that is fitted for remote closure and installed downstream in the line as close as practical to the positive shutoff valve.
	Dispensers and dispensing stations	NFPA 58 6.24.3.9	An identified and accessible remote emergency shutoff device for either the internal valve or the emergency shutoff valve required by 6.24.3.8(1) or (2) shall be installed not less than 3 ft (1 m) or more than 100 ft (30 m) from the liquid transfer point.
	Dispensers and dispensing stations	NFPA 58 6.24.3.10	Emergency shutoff valves and internal valves that are fitted for remote closure as required in this section shall be tested annually for proper operation.
	Dispenser Secure and mounted	NFPA 58 6.24.3.12	All dispensers either shall be installed on a concrete foundation or shall be part of a complete storage and dispensing unit mounted on a common base and installed in accordance with 6.6.3.1(G). Protection against physical damage shall be provided for dispensers.
	Operations and Maintenance		
	Operations and Maintenance	14.2.1.5	Each facility shall prepare and maintain in a common location or locations written operating procedure manuals that contain the written operating procedures required by 14.2.1.
	Operations and Maintenance	14.2.2.1	Written procedures shall be the basis for conducting activities associated with the systems referenced in Section 14.1. Operating procedures shall be updated whenever a change occurs that affects the operation of a system and prior to its startup. The written procedures shall address the requirements in 14.2.2.2 and 14.2.2.3, where applicable.
	Operations and Maintenance	14.3.1	Written maintenance procedures shall be the basis for maintaining the mechanical integrity of LP-Gas systems.
	Operations and Maintenance	14.3.1.1	Procedures shall be updated whenever a change occurs that affects the maintenance of a system.
	Operations and Maintenance	14.3.1.2	Persons who perform maintenance on these LP-Gas systems shall be trained in the hazards of the system and in the maintenance and testing procedures applicable to the installation.
	Operations and Maintenance	14.3.1.3	Any maintenance contractor shall ensure that each contract maintenance employee is so trained or under the immediate supervision of such a trained person to perform the maintenance procedures.
	Operations and Maintenance	14.3.2.1	Maintenance manuals for all equipment at the facility shall be kept at the facility and shall be available to maintenance personnel. Manuals for normally unattended facilities shall be permitted to be stored at a location where they will be accessible for maintenance personnel servicing the unattended location.
	Operations and Maintenance	14.3.2.2	Maintenance manuals shall include routine inspections and preventative maintenance procedures and schedules.
	Operations and Maintenance	14.3.2.3	Each facility shall maintain a record of all maintenance of fixed equipment used to store and transfer LP-Gas. Maintenance records for normally unattended facilities shall be maintained at the unattended facility or at another location.
	Operations and Maintenance	14.3.2.4	Maintenance records shall be made available to the authority having jurisdiction during normal office hours.
	Operations and Maintenance	14.3.2.5	Maintenance records shall be retained for the life of the equipment.
	Operations and Maintenance	14.3.3.1	Facilities shall prepare and implement a maintenance program for all plant fire protection equipment.
	Operations and Maintenance	14.3.3.2	Maintenance activities on fire protection equipment shall be scheduled so that a minimum of equipment is taken out of service at any time and is returned to service in a reasonable period of time.
	Operations and Maintenance	14.3.3.3	Water-based automatic fire-extinguishing systems shall be maintained in accordance with NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
	Operations and Maintenance	14.3.3.4	Portable fire extinguishers shall be maintained in accordance with NFPA 10, Standard for Portable Fire Extinguishers.

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	Operations and Maintenance	14.4.1.1	An SLGS shall be a system with 99 or fewer users connected to a single supply source, except for the following: (1) A system with nine or fewer users where no part of the system is located in a public place (2) A system supplying one user where the system is located entirely on the user's premises
	Operations and Maintenance	14.4.1.2	Each meter or regulator outlet connected to a consumer of gas shall be considered a user.
	Operations and Maintenance	14.4.2	Each SLGS shall maintain a damage prevention program to minimize damage to underground portions of the system.
	Operations and Maintenance	14.4.2.1	In the United States, each SLGS operator shall register and participate in a one call notification center located in the geographical area of the system location.
	Operations and Maintenance	14.4.3.1	In the United States, an incident report shall be filed for incidents that involve one or more of the following: (1) The release of gas from the SLGS where death(s) occurs or personal injury resulting inpatient hospitalization occurs. (2) The estimated property damage, including the cost of gas, exceeds \$50,000.
	Operations and Maintenance	14.4.3.2	Incident reports shall contain an analysis of the cause of the accident, repairs made, and other significant factors.
	Operations and Maintenance	14.4.3.3	Incident reports shall be sent to the authority having jurisdiction.
	Container Appurtenances		
	Container pressure relief valve required	NFPA 58 5.7.2.4	Internal spring type, flush type full internal, or external pressure relief valve shall be installed.
	Relief Piping extended upward 7 ft.	NFPA 58 6.7.2.7	Relief valve piping shall be installed vertically upward at least 7 ft. above the top of the LP Gas container.
	Rain Cap required for Relief Valves	NFPA 58 6.7.2.4	Rain caps shall be installed on pressure relief valves that do not restrict relief device flow.
	Fix Liquid Level Gauge except Tanks manufactured before Dec. 31, 1965	NFPA 58 5.7.4.4(2)	A fixed maximum liquid level gauge shall be installed on each LP Gas tank.
	Min two gauges required including Fixed Liquid Level gauge.	NFPA 58 5.7.4.4(3)	A float gauge, rotary gauge, slip tube gauge or a combination of these gauges a minimum of two shall be installed on each tank.
	Pressure Gauge required if 4000 WG or more	NFPA 58 5.7.4.4(4)	A pressure gauge shall be installed on each LP Gas tank.
	Temperature Gauge required if 4000 WG or more	NFPA 58 5.7.4.4(5)	A temperature gauge shall be installed on each LP Gas tank.
	Appurtenances at least 250 psi	NFPA 58 5.7.1.3	Container appurtenances shall have a service pressure rating of at least 250 psig
	Relief Valves to be marked	NFPA 58 5.7.2.8	Each pressure relief valve shall be plainly and permanently marked with the following: (1) The pressure in psig at which the valve is set to start-to-leak (2) Rated relieving capacity in cubic feet per minute of air at 60°F (16°C) and 14.7 psia (101 kPa) (3) The manufacturer's name and catalog number
	Fixed liquid gauge required to have marking showing the percentage set for.	NFPA 58 5.7.5.4	ASME containers shall have permanently attached to the container adjacent to the fixed maximum liquid level gauge, or on the container nameplate, markings showing the percentage of capacity that is indicated by that gauge.
	Relief Valves in vapor space of container	NFPA 58 6.6.1.1	Level containers shall be so that the pressure relief valve is in direct communication with the vapor space of the container.