



***Austin Fire Department
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NOVEMBER 18, 2009

Please Note (12-01-16): The Fire Marshal's Office is in the process of updating this document based on more recent code references. However, while the code references may be slightly dated, the contained information and guidelines are valid.

I. HAZARDS OF LP-GAS

1. Propane, or LP-Gas, is a flammable gas that is heavier than air and has an expansion ratio of 260:1. The gas is odorless but is required by State law to be odorized. Propane can form a large, flammable vapor cloud. If ignited, the vapor cloud can become a jet fire or worse, result in a vapor cloud explosion.

II. PERMIT

1. When a business uses or stores more than 100 cubic feet of propane, an Aboveground Hazardous Materials Storage permit is required. One 20 pound (5 gallon water capacity) cylinder contains 172 cubic feet of propane.

III. CYLINDERS

1. Cylinders must be equipped with a metal collar which protects the valve.
2. Cylinders shall be qualified in accordance with DOT regulations. DOT allows new cylinders to remain in service for 12 years before a requalification is required. After 12 years of service, DOT 4A or 4AA cylinders must be hydrostatically tested and inspected every 10 years thereafter. The container's date of manufacture and any test dates are stamped on the protective metal collar.
3. A condemnation tag should be affixed to cylinders that have not been qualified within the specified time periods or the markings are illegible. The basis for condemning the container should be documented.
4. The cylinder valve shall be equipped with an excess flow safety valve. The excess flow safety valve shall be UL or FM listed and shall be installed directly in the outlet of the container valve. The excess flow safety valve shall not be installed ahead of the regulator.

IV. CYLINDER STORAGE

1. Cylinders larger than 2 ½ pounds shall not be stored or handled inside of Group A occupancies or on their enclosed patios or on their roofs.

- a. Enclosures on patios include:
 1. Solid masonry walls, or
 2. Privacy fences with gaps less than 1", or
 3. Any other construction that restricts the dissipation of the propane gas in case of a leak.
- Exception: Any large area with adequate ventilation subject to AFD approval.
2. Because of the threat to firefighter safety resulting from a container BLEVE or explosion, the Fire Department will not permit the storage of LP-Gas cylinders inside of Group A occupancies unless a room is constructed which meets the Building Code requirements for a Group H, Division 2 occupancy
3. Cylinders stored outside of buildings must be in a secure location. A secured location means:
 - a. A noncombustible, ventilated cylinder storage cabinet that is secured by a lock, or
 - b. An area enclosed by a minimum 6 foot high chain link fence constructed of noncombustible material that is not screened with slats or other materials that obstructs natural ventilation, or
 - c. Locations where 24 hour on-site security is present.
4. Cylinders must be stored a minimum of 10 feet from building openings (including windows), exit access doors, exits, stairways, any other means of egress or combustible materials. This distance may be reduced to 5 feet for buildings with two or more exits. Up to 6 cylinders may be stored.
5. If the area where cylinders are stored is subject to automobile or truck traffic, vehicle impact protection will be required around the cylinder cage. The requirements for vehicle impact protection are specified in IFC Section 312.
6. Cylinders must be stored upright so the pressure relief valve is in the vapor space of the container. For the purpose of identifying full versus empty containers, a common practice is to store empty cylinders upside down. This practice is dangerous because the liquid propane absorbs heat from a fire, slowing or preventing the operation of the pressure relief valve which could cause a BLEVE.

V. HEATERS

1. Heaters shall be specifically approved as propane consuming appliances. This information is normally indicated on the heater nameplate.
2. Heaters must be listed by UL, FM, or the American Gas Association. Equipment that is not listed shall be condemned and removed from service.
3. The heater must be equipped with a tilt or tip-over switch that automatically shuts off the flow of gas if the appliance is tilted more than 15 degrees from vertical. **
4. The heater may be supported by the container provided its design prevents the transfer of conduction heat onto the LP-Gas container. Cylinder valves, connectors, regulators, piping or tubing shall not be used as the structural support for the heater.
5. All heaters shall be equipped with an automatic device that will shut off the flow of gas to the main burner and pilot, if used, in the event of flame extinguishment or combustion failure. **

6. Heaters having an output of more than 50,000 BTUs per hour (BTUh) shall be equipped with either:**
 - a. A pilot that must be lighted and proved before the main burner can be turned on, or
 - b. An electronic ignition system.

VI. HEATER LOCATION AND OPERATION

1. Heater shall not be located on roofs of buildings except as allowed below.
2. Heaters shall not be located inside any building, tent or membrane structures as defined in IFC Chapter 23.
3. Heaters must be located at least 5 feet from the building, exits and exit discharges.
4. Heaters shall not be located beneath, or closer than 5 feet to combustible overhangs, awnings, sunshades, canopies or similar combustible attachments to buildings and combustible decorations. Heater placement shall not violate the listing for their use.
 - a. The section of this Rule (Rule number VI, 4) prohibiting heater locations beneath combustible overhangs, awnings, sunshades, canopies or similar combustible attachments to buildings and combustible decorations will be enforced beginning on 3/31/2010.
5. Heaters shall not block pedestrian or vehicular traffic in a public right of way.
6. Replacement of gas cylinders in the heating appliance shall not be conducted while the public is present.

VII. HEATERS ON ROOFS

1. Listed propane heaters with 20-lb cylinders or less shall be used.
2. Heaters shall be secured from being knocked over. Acceptable methods include using chains or mechanical fasteners.
3. Propane heaters must be located at least 10 feet from building openings and at least 20 feet from air intakes of air-conditioning and ventilating systems.
4. Propane heaters must be located at least 10 feet from exits.
5. The maximum quantity allowed on the roof is the exempt amount of 1000 cubic feet. This is equal to a maximum of five 20-lb cylinders.
6. Cylinders shall not be transported through the building to the roof unless approved by AFD. The cylinders must be transported during nonbusiness hours with the valve outlets plugged, capped or sealed. The stairway used to transport the cylinders must be occupied only by those engaged in moving the cylinder.
7. The roof must be fire resistant construction or noncombustible construction, or the building must be fully sprinklered.
 - a. This Rule (Rule number VII, 7) will begin on 3/31/2010. Acceptable alternate means of heating include heaters fueled by natural gas and electricity.
8. Cylinders must not be located on roofs that are entirely closed by parapets more than 18-inches high unless the parapets are breached with low-level ventilation openings of a minimum **144** square inches no more than 15 feet apart. Parapets shall not exceed 42-inches in height.

VIII. HEATERS ON PATIOS

- 1) Patios without a roof must be open on at least two sides.
 - a) Exception: If the patio area is more than 3500 square feet, one propane heater may be used. An additional propane heater may be used for each additional 3500 square feet in area.
- 2) Patios with a roof must be open on 3 sides.
- 3) The maximum quantity allowed on the patio is the exempt amount of 1000 cubic feet. This is equal to a maximum of five 20-lb cylinders.

This list of requirements was compiled from various codes such as the 2003 IFC Chapter 38, NFPA 58, the 2008 edition and a new section in the 2009 IFC Section 603.4.2. Revised 11/18/2009.