

Liquid Propane Gas

Requirements for Installation

January 2018 – Updated to 2018 I-Codes

General Requirements:

All Liquid Propane Gas Facilities shall be readily accessible for inspection, reading, testing, and shutting off the gas supply at all times. All service piping and main supply shut-off valves shall be outside the building. Discharge from Relief Valves shall be into open air and shall be not less than 5 feet horizontally away from any opening into a building which is below such discharge.

Gas Piping and Container Requirements:

Materials allowed for yard piping include copper, PE (**only pipe specifically approved for exterior buried piping systems may be used**) and factory machine applied coated/wrapped black pipe with the joints of the black pipe wrapped with ten mill tape which is half lapped and double wrapped.

Trenching shall be 18 inches minimum depth cover for copper, PE, and for black pipe. For an above-grade installation, pipe must be 6 inches minimum above grade and protected from damage.

An air pressure test of 30 pounds (psi) for outside propane lines with joints is required to be on the installation **when the inspector arrives**. If there are NO joints in the trench, no test is required, **however**, the inspector needs to see the open trench with pipe in.

The air pressure test for interior piping is 10 pounds (psi). Only black iron or corrugated stainless steel tubing (CSST) is allowed for the interior gas piping.

No gas piping shall be buried under any structure. It is not allowed in or under any exterior slab, unless it is sleeved and prior approval has been given for such installation.

TABLE 6104.3 - LOCATION OF LP-GAS CONTAINERS

LP-GAS CONTAINER CAPACITY (water gallons)	MINIMUM SEPARATION BETWEEN LP-GAS CONTAINERS AND BUILDINGS, PUBLIC WAYS OR LOT LINES OF ADJOINING PROPERTY THAT CAN BE BUILT UPON		MINIMUM SEPARATION BETWEEN LP-GAS CONTAINERS ^{b, c} (feet)
	Mounded or underground LP-gas containers ^a (feet)	Above-ground LP-gas containers ^b (feet)	
Less than 125 ^{c, d}	10	5 ^e	None
125 to 250	10	10	None
251 to 500	10	10	3
501 to 2,000	10	25 ^{e, f}	3
2,001 to 30,000	50	50	5
30,001 to 70,000	50	75	(0.25 of sum of diameters of adjacent LP-gas containers)
70,001 to 90,000	50	100	
90,001 to 120,000	50	125	

For SI: 1 foot = 304.8 mm, 1 gallon = 3.785 L.

TABLE 6104.3 Footnotes:

- a. Minimum distance for underground LP-gas containers shall be measured from the pressure relief device and the filling or liquid-level gauge vent connection at the container, except that all parts of an underground LP-gas container shall be 10 feet or more from a building or lot line of adjoining property which can be built upon.
- b. For other than installations in which the overhanging structure is 50 feet or more above the relief-valve discharge outlet. In applying the distance between buildings and ASME LP-gas containers with a water capacity of 125 gallons or more, a minimum of 50 percent of this horizontal distance shall also apply to all portions of the building which project more than 5 feet from the building wall and which are higher than the relief valve discharge outlet. This horizontal distance shall be measured from a point determined by projecting the outside edge of such overhanging structure vertically downward to grade or other level upon which the LP-gas container is installed. Distances to the building wall shall not be less than those prescribed in this table.
- c. When underground multicontainer installations are comprised of individual LP-gas containers having a water capacity of 125 gallons or more, such containers shall be installed so as to provide access at their ends or sides to facilitate working with cranes or hoists.
- d. At a consumer site, if the aggregate water capacity of a multicontainer installation, comprised of individual LP-gas containers having a water capacity of less than 125 gallons, is 500 gallons or more, the minimum distance shall comply with the appropriate portion of Table 6104.3, applying the aggregate capacity rather than the capacity per LP-gas container. If more than one such installation is made, each installation shall be separated from other installations by at least 25 feet. Minimum distances between LP-gas containers need not be applied.
- e. The following shall apply to above-ground containers installed alongside buildings:
1. LP-gas containers of less than a 125-gallon water capacity are allowed next to the building they serve when in compliance with Items 2, 3 and 4.
 2. Department of Transportation (DOTn) specification LP-gas containers shall be located and installed so that the discharge from the container pressure relief device is at least 3 feet horizontally from building openings below the level of such discharge and shall not be beneath buildings unless the space is well ventilated to the outside and is not enclosed for more than 50 percent of its perimeter. The discharge from LP-gas container pressure relief devices shall be located not less than 5 feet from exterior sources of ignition, openings into direct-vent (sealed combustion system) appliances or mechanical ventilation air intakes.
 3. ASME LP-gas containers of less than a 125-gallon water capacity shall be located and installed such that the discharge from pressure relief devices shall not terminate in or beneath buildings and shall be located at least 5 feet horizontally from building openings below the level of such discharge and not less than 5 feet from exterior sources of ignition, openings into direct vent (sealed combustion system) appliances, or mechanical ventilation air intakes.
 4. The filling connection and the vent from liquid-level gauges on either DOTn or ASME LP-gas containers filled at the point of installation shall not be less than 10 feet from exterior sources of ignition, openings into direct vent (sealed combustion system) appliances or mechanical ventilation air intakes.
- f. This distance is allowed to be reduced to not less than 10 feet for a single LP-gas container of 1,200-gallon water capacity or less, provided such container is at least 25 feet from other LP-gas containers of more than 125-gallon water capacity.

2018 INTERNATIONAL FUEL GAS CODE® LP-GAS PIPING INSTALLATIONS SCHEDULE**40 METALLIC PIPE****Capacity in thousands of Btu per Hour**

Length	Pipe Size						Gas	
	1/2	3/4	1	1 1/4	1 1/2	2	Inlet Pressure	Undiluted Propane
								10.0 psi
10	3,320	6,950	13,100	26,900	40,300	77,600	Pressure Drop	1.0 psi
20	2,280	4,780	9,000	18,500	27,700	53,300	Specific Gravity	1.50
30	1,830	3,840	7,220	14,800	22,200	42,800		
40	1,570	3,280	6,180	12,700	19,000	36,600		
50	1,390	2,910	5,480	11,300	16,900	32,500		
60	1,260	2,640	4,970	10,200	15,300	29,400		
70	1,160	2,430	4,570	9,380	14,100	27,100		

POLYETHYLENE PLASTIC PIPE**Capacity in thousands of Btu per Hour**

Length	Pipe Size						Gas	
	1/2	3/4	1	1 1/4	1 1/2	2	Inlet Pressure	Undiluted Propane
								11.0 psi
10	340	680	1,230	2,130	3,210	5,770	Pressure Drop	0.5 psi
20	233	468	844	1,460	2,210	3,970	Specific Gravity	1.50
30	187	375	677	1,170	1,770	3,180		
40	160	321	580	1,000	1,520	2,730		
50	142	285	514	890	1,340	2,420		
60	129	258	466	807	1,220	2,190		
70	119	237	428	742	1,120	2,010		

SEMIRIGID COPPER TUBING**Capacity in thousands of Btu per Hour**

Length	Pipe Size						Gas	
	1/4	3/8	1/2	5/8	3/4	1	Inlet Pressure	Undiluted Propane
								10.0 psi
10	513	1,060	2,150	3,760	5,330	11,400	Pressure Drop	1.0 psi
20	352	727	1,480	2,580	3,670	7,839	Specific Gravity	1.50
30	283	584	1,190	2,080	2,940	6,290		
40	242	500	1,020	1,780	2,520	5,380		
50	215	443	901	1,570	2,230	4,770		
60	194	401	816	1,430	2,020	4,320		
70	179	369	751	1,310	1,860	3,980		