

6104.3.1

Installation on Roof Prohibited

CHANGE TYPE: New

CHANGE SUMMARY: A stationary LP-gas installation on the roof of a building is not allowed.

2012 CODE: 6104.3.1 Installation on Roof Prohibited. LP-gas containers used in stationary installations shall not be located on the roofs of buildings.

CHANGE SIGNIFICANCE: The IFC adopts NFPA 58, *Liquefied Petroleum Gas Code*, by reference, and many of its requirements are linked to specific provisions in Chapter 61. Liquefied petroleum gas (LP-gas) is a mixture of several flammable gases, including ethane, propane, and butane. LP-gas is a liquefied compressed gas as defined in Section 202 because it is stored as a liquid in a low-pressure gas cylinder or tank. It can be withdrawn as either liquid or gas depending on the cylinder or container design. LP-gas has an approximate vapor density of 1.52 (with air = 1), making it heavier than air, and an approximate flammable range of 2.0% to 10.1% by volume in air. NFPA 58 requires LP-gas to be odorized before it is made available to consumers so that they can detect a leak with their olfactory senses—in the general population, detection of the odorant generally occurs at 20% to 25% of the gas mixture’s lower flammable limit.

A stationary LP-gas installation is defined in NFPA 58 as “an installation of LP-gas containers, piping and equipment for indefinite use at a particular location; an installation is not normally expected to change in status, condition, or location.” A stationary installation is assembled from



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A 2000-gallon-water-capacity stationary ASME container is prohibited on the roof of a building.



Portable cylinders on roofs are not prohibited by Section 6104.3.1. (Courtesy of Midwest Roofing Contractors Association, Glenview, IL)

approved Department of Transportation (DOT) cylinders or ASME-compliant containers, piping, and equipment such as pressure regulators that remain on the site for an indefinite time period. Section 105.7.10 requires a construction permit for any LP-gas system.

Installation of stationary containers on the roof of buildings is prohibited by Section 6.6.7 of NFPA 58, unless such placement is specifically approved by the code official or authority having jurisdiction as well as the fire department. Only after approvals have been granted by the fire code official and fire department can consideration be given to installing a stationary container on a building roof. NFPA 58 limits these installations to a maximum of 4000-gallon water capacity and only allows them on the roof of Type I or II buildings with minimum 2-hour structural assemblies. Numerous other requirements for the arrangement of piping and valves, the preparation of a written fire safety analysis, and location of the stationary container are also specified in NFPA 58.

Based on Section 6104.3.2.1, stationary LP-gas containers are not permitted on the roof of any building. The IFC requirement takes precedence over the NFPA 58 requirements because of the code text in IFC Section 102.7.1.

Section 6104.3.2.1 does not prohibit the building owner or tenant from using LP-gas cylinders inside buildings or on roofs or balconies. LP-gas is commonly used by contractors for soldering water or refrigerant piping systems. Many roof covering systems are applied using LP-gas-fueled torch systems. These instances constitute hot work and must comply with the requirements in IFC Chapter 35; torch-applied roofing systems also need to comply with the requirements in Section 3317 for hot work. When LP-gas cylinders are required on a building roof or inside a building for maintenance or construction reasons, their on-site transportation and use should comply with the NFPA 58, Section 6.19 requirements for cylinders, equipment, piping, and appliances in buildings, building roofs, and exterior balconies.