

661—226.5(101) Pressure testing.

226.5(1) Pressure testing required. After assembly and after any modification or repair, metallic LP-gas piping and hose shall be pressure-tested as follows:

a. Piping systems having operating pressures greater than 20 psig shall be pressure-tested in accordance with the following:

(1) Prior to acceptance and initial operation, all piping installations shall be visually inspected and pressure-tested to determine that the materials, design, fabrication, and installation practices comply with the requirements of this chapter.

(2) Inspection shall consist of visual examination, during or after manufacture, fabrication, assembly, or pressure tests as appropriate.

(3) When repairs or additions are made following the pressure test, the affected piping shall be tested. Minor repairs and additions are not required to be pressure-tested, provided that the work is inspected and connections are tested with a noncorrosive, leak-detecting fluid or other leak-detecting methods approved by the authority having jurisdiction.

(4) When new branches are installed to a new appliance or appliances, only the newly installed branch or branches shall be required to be pressure-tested. Connections between the new piping and the existing piping shall be tested with a noncorrosive, leak-detecting fluid or approved leak-detecting methods.

(5) A piping system shall be tested as a complete unit or in sections. A valve in a line shall not be used as a bulkhead between gas in one section of the piping system and test medium in an adjacent section, unless a double block and bleed valve is installed. A valve shall not be subjected to the test pressure unless it can be determined that the valve, including the valve-closing mechanism, is designed to safely withstand the pressure applied during the test.

(6) Regulator and valve assemblies fabricated independently of the piping system in which they are to be installed shall be permitted to be tested with inert gas or air at the time of fabrication.

(7) Prior to testing the system, the interior of the pipe shall be cleared of all foreign material.

(8) The test medium shall be air, nitrogen, carbon dioxide, or an inert gas. Oxygen shall not be used.

(9) Test pressure shall be measured with a pressure-measuring device designed and calibrated to read, record, or indicate a pressure loss due to leakage during the pressure test period. The source of pressure shall be isolated before the pressure tests are made. Mechanical gauges used to measure test pressures shall have a range such that the highest end of the scale is not greater than five times the test pressure.

(10) The test pressure to be used shall be no less than 50 psi and shall not exceed 75 psi.

(11) Expansion joints shall be provided with temporary restraints, if required, for the additional thrust load under test.

(12) Appliances and equipment that are not to be included in the test shall be either disconnected from the piping or isolated by blanks, blind flanges, or caps. Flanged joints at which blinds are inserted to blank off other equipment during the test shall not be required to be tested.

(13) Where the piping system is connected to appliances or equipment designed for operating pressures of less than the test pressure, such appliances or equipment shall be isolated from the piping system by disconnecting them and capping the outlet(s).

(14) Where the piping system is connected to appliances or equipment designed for operating pressures equal to or greater than the test pressure, such appliances or equipment shall be isolated from the piping system by closing the individual appliance or equipment shutoff valve(s).

(15) All testing of piping systems shall be performed in a manner that protects the safety of employees and the public during the test.

(16) Test duration shall be not less than one-half hour for each 500 ft³ (14 m³) of pipe volume or fraction thereof. The duration of the test shall not be required to exceed 24 hours.

Exception:

When a system having a volume of less than 10 ft³ (0.28 m³) is tested, the test duration shall be a minimum of 10 minutes.

b. Piping systems having operating pressures of 20 psig or less, all polyethylene and polyamide piping, and piping to which NFPA 54 National Fuel Gas Code, 2015 edition, is applicable shall be tested in accordance with that code.

226.5(2) Testing for leakage. Immediately after the gas is turned on into a new system or into a system that has been initially restored after an interruption of service, the piping system shall be checked for leakage in accordance with this chapter and Section 8.2 of NFPA 54, National Fuel Gas Code, 2015 edition. Where leakage is indicated, the gas supply shall be shut off until the necessary repairs have been made.

a. All LP-gas piping systems that have operating pressures of 20 psig or less and all polyethylene and polyamide piping shall have system and equipment leakage tests performed in accordance with this chapter and Section 8.2 of NFPA 54, National Fuel Gas Code, 2018 edition.

b. Piping systems that serve industrial occupancies with LP-gas vapor pressures between 20 psig and 50 psig shall be tested in accordance with the requirements of the authority having jurisdiction.

c. All LP-gas liquid piping systems and vapor piping systems operating at pressures greater than 20 psig shall be tested for leakage in accordance with this chapter as follows:

(1) Propane liquid shall not be used.

(2) Propane vapor may be utilized.

(3) Methods utilized to perform leak tests may be measurement of flow, measurement of sustained pressure for a period of time sufficient to disclose any leaks, or other procedures adequate to verify the system is gas-tight.

226.5(3) Tests shall not be made with flame.

226.5(4) Out-of-gas customers or interruption of service system start-up procedure. When a delivery of propane is made to any on-site container which is out of gas, or if propane service was interrupted, the delivery person shall comply with the following procedures.

a. When the “out-of-gas customer” is not present:

(1) The container service valve shall be shut off; and

(2) A tag shall be placed on the container service valve for the equipment the container services, indicating the container is out of service. The tag shall inform the gas customer to contact a qualified person to perform a leak check or other test on the system, as required by rules of the fire marshal, before turning on the container. Further action is the responsibility of the customer.

b. When the “out-of-gas customer” is present:

(1) The container service valve shall be shut off; and

(2) The gas customer shall be informed that the container is out of service and a qualified person must perform a leak check or other test on the system as required by this chapter or Section 8.2 of NFPA 54 National Fuel Gas Code, 2018 edition, before turning on the container service valve. Further action is the responsibility of the customer.

[ARC 9235B, IAB 11/17/10, effective 1/1/11; ARC 1868C, IAB 2/18/15, effective 3/25/15; ARC 4642C, IAB 8/28/19, effective 10/2/19]