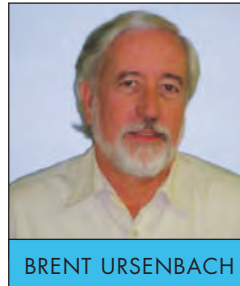


MECHANICAL CODE DISCUSSION

Gas Pipe Testing



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PROCEDURES FOR GAS PIPE testing are found in Section 406 – International Fuel Gas Code (IFGC) and Section G2417 – International Residential Code (IRC). Quoting several sub-sections in the IFGC, with comments on each:

406.1 General. Prior to acceptance and initial operation, all *pipng* installations shall be **visually inspected** and **pressure tested** to determine that the materials, design, fabrication, and installation practices comply with the requirements of this code.

- The inspector must have access to the entire line to visually inspect the piping for compliance to all code requirements identified.
- The pressure testing of some form is required for all piping.

406.1.3 New branches. Where new branches are installed to new *appliances*, only the newly installed branches shall be required to be pressure tested. **Connections between the new *pipng* and the existing *pipng* shall be tested with a**

noncorrosive leak-detecting fluid or other *approved* leak detecting methods.

- A new line, connected to an existing line, ran to a new appliance, must be pressure tested, with the connection between the new and old piping, checked with soap bubbles, electronic detection, or a meter spot test.
- Changing from 4 oz. to 2 lb. psi is consider a new line, so the entire line must be tested.



406.3.3 Appliance and equipment disconnection. 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 *pipng* system** by disconnecting them and capping the outlet(s).

- When testing a new line, simply shutting of ball valves at the appliances only isolates, it does not disconnect the test pressure from the appliance. At a minimum, the unions or connectors should be checked to prevent the possibility of excessive pressure up against the appliance gas valve.

406.4 Test pressure

measurement. Test pressure shall be measured with a manometer or with a pressure-measuring device designed and **calibrated** to read, record, or indicate a pressure loss caused by 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.

■ **The gauge shall be calibrated.**

What’s the condition of the test gauges bouncing around in the back of your pipe fitters truck? I often encounter gauges in terrible condition which do not go to zero when all air is discharged from the system. I’ve inspected lines with no pressure and a beat-up gauge stuck at 15 psi.

■ The minimum deflection of the gauge must be 20% of full scale, i.e., 20 psi on a 100-psi gauge; however, the inspector must make a judgement call on the required device design of the gauge. Based on my experience testing hundreds if not thousands of gas lines through my career, and observing many

more as a code official, a 30 psi / 1 psi increment gauge requires a minimum 10 psi, with a 20 to 30-minute duration. If you want to test to a minimum lowest pressure, 3 psi for 4 oz. or 6 psi for a 2 lb. meter set, the gauge will need to be a 0.1 psi increment gauge.

406.4.2 Test duration. Test duration shall be not less than 1/2 hour for each 500 cubic feet (14 m³) of pipe volume or fraction thereof. When testing a system having a volume less than 10 cubic feet (0.28 m³) or a system **in a single-family dwelling, the test duration shall be not less than 10 minutes.** The duration of the test shall not be required to exceed 24 hours.

■ This sub-section recognizes small,

short lines will show a leak in a short period of time, while a large longer line requires a longer test. The 10 minutes is a minimum time for a single-family dwelling. I mark the gauge when I arrive on a site, then complete all requested inspections. The test duration might be 30 minutes, and hour, or longer.

In summary; install per all code and manufacturer’s requirements, use a good gauge, isolate, and disconnect appliances, pressurize to a deflection where a pressure drop is readily observable, and insure an inspection is scheduled and can be completed.

Thanks again for your comments and questions. —Brent ■

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