



Alliant Energy - Gas Service Manual

Chapter 5 – Customer Gas Piping and Equipment

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A. GENERAL REQUIREMENTS

1. The Company assumes no responsibility for the installation, maintenance, or operation of the customer gas piping and equipment beyond the meter outlet.
2. The Customer shall, at their own expense, furnish, install, and maintain all building gas piping and gas utilization equipment beyond the Company's metering facility.
3. Customer gas piping shall be of adequate size for any gas load that may be reasonably expected to develop (NFPA 54, Chapter 6).
4. Customer gas piping and equipment shall be installed and maintained at all times in accordance with the Company's GSM and with all applicable codes and regulations. Refer to GSM Chapter 1 "General Information" for applicable codes.
5. Customer piping and equipment shall be securely supported (NFPA 54, Section 7.2.6).
6. Clear of obstructions, including but not limited to, and/or an accumulation of ice or snow, and pedestrian traffic.

B. CUSTOMER GAS PIPING – MATERIALS

1. Customer piping materials shall be in accordance with NFPA 54, Chapter 5.
2. Cast iron piping shall not be used (NFPA 54, Section 5.5.2.1).
3. Steel, Stainless Steel, and Wrought Iron Pipe shall be at least Schedule 10 and shall comply with the dimensional standards of ANSI/ASME B36.10M, *Welded and Seamless Wrought Steel Pipe*, and with one of the following industry standards (NFPA 54, Section 5.6.2.2):



- a) ASTM A53, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless*
 - b) ASTM A106, *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*
 - c) ASTM A312, *Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes*
4. Steel tubing shall comply with the following industry standard (NFPA 54, Section 5.5.3.2):
 - a) ASTM A254, *Standard Specification for Copper-Brazed Steel Tubing*
 5. Stainless Steel tubing shall comply with one of the following industry standards (NFPA 54 Section, 5.5.3.3):
 - a) ASTM A268, *Standard Specification for Seamless and Welded Ferritic and Martensitic Stainless Steel Tubing for General Service*
 - b) ASTM A269, *Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service*
 6. Copper tubing shall comply with one of the following industry standards (NFPA 54, Section 5.5.3.4):
 - a) ASTM B 88, *Specification for Seamless Copper Water Tube*
 - b) ASTM B 280, *Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*

Copper tubing shall be Type K or Type L. Type M copper tubing shall not be used. Copper tubing shall be permanently marked in accordance with its governing specification. Copper tubing markings are color coded as follow:

- a) Type K is green
 - b) Type L is blue
 - c) Type M is red
7. Aluminum alloy pipe shall comply with the following industry standard (NFPA 54, Section 5.5.2.5):
 - a) ASTM B241, *Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.*

Aluminum alloy 5456 shall not be used.

Aluminum alloy pipe shall be coated to protect against external corrosion where it is in contact with masonry, plaster, or insulation, or is subject to repeated wettings by such



liquids as water, detergent, or sewage (NFPA 54, Section 5.5.2.5).

8. Aluminum alloy pipe and tubing shall not be used in exterior locations or underground (NFPA 54, Section 5.5.2.5 and Section 5.5.3.5).

Aluminum alloy pipe and tubing shall comply with one of the following industry standards (NFPA 54, Section 5.5.2.5 and Section 5.5.3.5):

- a) ASTM B210, *Standard Specification for Aluminum and Aluminum*



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- b) The piping is joined by fittings listed in ANSI LC 4/CSA 6.32, Press-Connect Metallic Fittings for Use in Fuel Gas Distribution Systems, and installed according to the manufacturer's installation instructions. Fittings that are approved for outdoor and/or below ground use must be protected from corrosion with a





2. The customer shall protect susceptible piping from corrosion (NFPA 54, Section 7.1.3).
3. All above ground metallic customer gas piping shall be coated with a corrosion resistant material to protect against atmospheric corrosion (NFPA 54, Section 7.2.2).
4. All above ground piping that partially or completely penetrates through an exterior wall shall be protected against corrosion using an inert coating or wrap.

A protective sleeve may be added for additional protection. If a protective sleeve is added, the space between the gas piping and the sleeve, and between the sleeve and the wall, shall be sealed to prevent the entry of gas, water, insects, or rodents (NFPA 54, Section 7.1.5).

Wall penetration protection must extend beyond the penetration so that it is visible.

- a) The recommended protection method is wrapping with an inert wrap or tape material. The piping shall be sealed around its circumference at the point of the exterior penetration to prevent the entry of water, insects and rodents.

- 1) The Company recommends an all-weather corrosion protectant pipe wrap or tape with a thickness of 10 to 20 mil (thousandths of an inch), and a PVC backing for impact and abrasion resistance.





3. The required bonding connection may be made from the piping to one of the following:
 - a) The electrical service equipment enclosure (breaker panel);
 - b) The grounded conductor at the electrical service;
 - c) The grounding electrode conductor (where of sufficient size); or
 - d) Directly to the grounding electrode.

The bond may also be made to a lightning protection system grounding electrode (but not to down conductors) if the resulting length of the bonding conductor is shorter.

4. The bonding jumper shall connect to any metallic fitting within the CSST piping system as long as the bonding jumper does not exceed 75 ft. in length. Listed clamps are manufactured to facilitate attachment of the bonding conductor to either a segment of rigid pipe or to a CSST-copper alloy fitting. The bonding conduc7Tw [(L)2(ic [(r)765 0[0)Tj [(of)-2(t



K. TRANSITION TO PIPING MATERIAL OTHER THAN STEEL

1. When a material other than steel is used for customer piping, steel pipe shall be used from the outlet of the Company's metering facility to a transition point inside the building. The transition shall be made using a joint method approved in NFPA 54, Section 5.5.
2. In the rare event building design elements or construction features prevent the transition from occurring inside the building, the transition may be made on the external side of the building as close as possible to the point of entrance to the building and be rigidly supported or securely fastened to the building wall.

NOTE: For manufactured home piping transition requirements, refer to GSM Chapter 6.

3. When CSST is used inside a building, external transitions to company owned steel piping must be made with a manufacturer approved flange mount termination plate.
4. If CSST piping is to be connected to customer owned steel piping to serve outdoor equipment, a manufacturer approved fitting must be used at the point of transition.
5. The two figures on the following page depict the configuration of an outdoor transition to indoor CSST piping using a flange mounted termination plate.

