

SECTION 4.10 — ELECTRICAL BONDING/GROUNDING



WARNING! FIRE / FUEL GAS PIPING

The TracPipe® flexible gas piping **MUST** be bonded to the building's grounding electrode per NFPA 54.

It is **HIGHLY RECOMMENDED** to equipotentially bond all mechanical systems to the building's grounding electrode. Refer to ANSI/NFPA 70 The National Electrical Code.

1. Definitions:

Grounding: The process of making an electrical connection to the general mass of the earth. This is most often accomplished with ground rods, ground mats or some other grounding system. Low resistance grounding is critical to the operation of lightning protection techniques.

Bonding: The process of making an electrical connection between the grounding electrode and any equipment, appliance, or metal conductor: pipes, plumbing, flues, etc. Equipment bonding serves to protect people and equipment in the event of an electrical fault.

Equipotential Bonding: The process of making an electrical connection between the grounding electrode and any metal conductor: pipes, plumbing, flues, etc., which may be exposed to a lightning strike and can be a conductive path for lightning energy towards or away from the grounding electrode.

- The National Fuel Gas Code NFPA 54/ANSI Z223 states, "Each above ground portion of a gas piping system upstream from the equipment shutoff valve shall be electrically continuous and bonded to any grounding electrode, as defined by NFPA 70, *National Electrical Code* (ANSI/NFPA 70 1999 Edition.)"
- The **TracPipe**® gas piping system shall be bonded in accordance with the National Fuel Gas Code, NFPA 54/ANSI Z223. The piping system is not to be used as a grounding conductor or electrode for an electrical system.

- For bonding of the **TracPipe**® system, a bonding clamp must be attached to the brass AutoFlare® fitting adapter (adjacent to the pipe thread area – see Figure 4-21) or to a black pipe component (pipe or fitting) located in the same electrically continuous gas piping system as the AutoFlare® fitting. The corrugated stainless steel portion of the gas piping system **SHALL NOT** be used as the bonding attachment point under any circumstances. Bonding electrode conductor sizing shall be in accordance with Article 250 (Table 250-66) of ANSI/NFPA 70. The bonding is a requirement of the National Electrical Code.

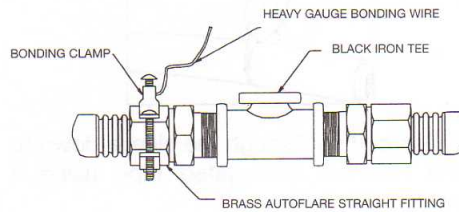


Figure 4-21

BRASS BONDING CLAMPS

TracPipe AutoFlare FITTING SIZE RANGE	BONDING CLAMP SIZE	PART NO. OR EQUAL (Bridge Port)
3/8" & 1/2" & 3/4"	1/2" & 3/4"	1309-B
1"	1-1/4"	1313-B
1-1/4"	2"	1314-B
1-1/2"	2-1/2"	1314-B
2"	3"	1315-B

IMPORTANT SAFETY PRECAUTION

- Failure to properly bond the **TracPipe**® flexible gas piping may lead to damage to the CSST system in the event of a lightning strike.
- The lightning may arc to or from another metal system, creating a hole in the wall of the **TracPipe**® CSST.
- This presents a risk of fire in the building, and could lead to serious personal injury or significant property damage.

