

4.10 Electrical Bonding of Gastite®/FlashShield™ CSST

- a) Unlike Gastite®, there are no additional bonding requirements for FlashShield™ imposed by the manufacturer’s installation instructions. FlashShield™ is to be bonded in accordance with the National Electrical Code NFPA 70 Article 250.104 in the same manner as the minimum requirements for rigid metal piping. However, installers must always adhere to any local requirements that may conflict with these instructions.
- b) Direct bonding of Gastite® CSST is required for all gas-piping systems incorporating Gastite® CSST whether or not the connected gas equipment is electrically powered. This requirement is provided as part of the manufacturer’s instruction for single-family and multi-family buildings. A person knowledgeable in electrical system design, the local electrical code and these requirements should specify the bonding for commercial applications.

Gastite® CSST installed inside or attached to a building or structure shall be electrically continuous and direct bonded to the electrical ground system of the premise in which it is installed. The gas piping system shall be considered to be direct bonded when installed in accordance with the following:

The piping is permanently and directly connected to the electrical service equipment enclosure, the grounded conductor at the electrical service, the grounding electrode conductor (where of sufficient size) or to one or more of the grounding electrodes used. For single and multi-family structures, a single bond connection shall be made downstream of the individual gas meter for each housing unit and upstream of any CSST connection. The bonding conductor shall be no smaller than a 6 AWG copper wire or equivalent. The bonding wire shall be attached in an approved manner in accordance with NEC Article 250.70 and the point of attachment for the bonding wire shall be accessible. Bonding/grounding clamps shall be installed in accordance with its listing per UL 467 and shall make metal-to-metal contact with the piping. This bond is in addition to any other bonding requirements as specified by local codes.

For attachment to the CSST gas piping system, a single bonding clamp must be attached to either a segment of steel pipe, a rigid pipe component or to the Gastite brass hex fitting. For attachment to a segment of steel pipe or a rigid pipe component any bonding clamp listed to UL467 may be used. For attachment to a Gastite hex fitting, clamps manufactured by Erico (part number CWP1JSH for 3/8" & 1/2", CWP2JSH for 3/4" thru 1-1/4" and CWP3JSH for 1-1/2" & 2") must be used. The corrugated stainless steel tubing portion of the gas piping system shall not be used as the point of attachment of the bonding conductor at any location along its length under any circumstances. See examples provided in Figures 4-88 and 4-89.

Proper bonding and grounding will reduce the risk of damage and fire from a lightning strike. Lightning is a highly destructive force. Even a nearby lightning strike that does not strike a structure directly can cause all electrically conductive systems in the structure to become energized. If these systems are not adequately bonded, the difference in electrical potential between the systems may cause the charge to arc from one system to another. Arcing can cause damage to CSST. Direct bonding and grounding as set forth above will reduce the risk of arcing and related damage over a non direct bonded system.

Depending upon conditions specific to the location of the structure in which the Gastite system is being installed, including but not limited to whether the area is prone to lightning, the owner of the structure should consider whether a lightning protection system is necessary or appropriate. Lightning protection systems are beyond the scope of this bulletin, but are covered by NFPA 780, the Standard for the Installation of Lightning Protection Systems and other standards.

Fig. 4-88 - Bonding Clamp on Steel Pipe Segment or Gastite Stub-Out.
(Remove any paint or coating on pipe surface beneath clamp location)

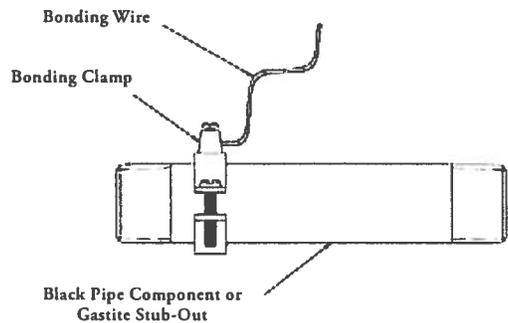


Fig. 4-89 - Bonding Clamp on Gastite fitting.
(Clamp #CWP1JSH, CWP2JSH or CWP3JSH)

