

## **BONDING AND GROUNDING FAQs**

**Q:** Is WARDFLEX required to be bonded?

**A:** Yes, WARDFLEX CSST must be bonded.

**Q:** Is WARDFLEX considered bonded if it is connected to an appliance?

**A:** Yes, according to NFPA 54 section 7.13, the gas-piping system "...shall be considered bonded when it is connected to appliances that are connected to the appliance grounding conductor of the circuit supplying that appliance," but Ward Manufacturing also requires supplemental direct bonding.

**Q:** Should WARDFLEX be directly bonded using a bonding clamp and wire routed so as to provide an electrically continuous path to ground?

**A:** Yes, Ward Manufacturing requires a supplemental direct bond. There are several methods that can be used to meet the installation requirements. See Technical Bulletin 2008-1, WARDFLEX® CSST Electrical Bonding for details.

**Q:** What size jumper wire is required for direct bonding?

**A:** A minimum of a number 6 AWG copper wire is required for direct bonding .

**Q:** What type of bonding clamp should be used?

**A:** Any UL-467-approved bonding clamp can be used.

**Q:** How far away from the electrical service panel should the bonding clamp be placed?

**A:** The bonding clamp should be placed as close as possible to the electrical service panel.

**Q:** How many bonding connections are required per installation?

**A:** A minimum of one (1) bond on the consumer outlet side of the gas meter is required per system.

**Q:** Can a separate grounding electrode be installed to bond the WARDFLEX® CSST system?

**A:** No. The WARDFLEX® CSST system is required to be bonded to the electrical service grounding system. The use of an independent grounding electrode could cause a difference in potential between the gas piping system and other metallic systems in the structure that are tied to the electrical service grounding system. This difference in potential could allow arcing to occur. In cases where no other options are present, a secondary grounding electrode may be installed but must be connected to a common grounding electrode conductor (i.e. electrical service grounding electrode) per the requirements of the National Electric Code.