



# Training Guide

(Rev. Sep. 2011)

## Flexible Gas Piping Systems



# Training Guide

This training guide is to be used in conjunction with the Gastite Design and Installation Guide to assist an authorized Gastite/FlashShield trainer in teaching the methods and procedures for the installation of the Gastite/FlashShield Flexible Gas Piping System.

## Preparation:

1. The Gastite/FlashShield Design and Installation Guide with attached testing material will be made available to all individuals wishing to become a qualified installer.
2. A pen or other writing instruments will be made available for notes and testing.
3. A tubing cutter wrenches and utility knife will be made available to facilitate the fitting assembly procedure.
4. A sufficient quantity of sample tubing lengths and fittings will be made available to ensure that all participants have the opportunity to demonstrate an understanding of the fitting assembly procedure.

## Training:

1. The authorized trainer will review all essential items as outlined in this guide with references to the appropriate sections of the Design and Installation Guide.
2. The authorized trainer will demonstrate the correct fitting assembly procedure.
3. Participants will be given the opportunity to demonstrate an understanding of the correct fitting assembly procedure.
4. The training process will include the opportunity for questions and answers.

## Testing:

1. The authorized trainer will administer the required certification test comprised of multiple choice and true-false questions.
2. Participants will complete all questions and contact information.
3. After testing, the trainer will review the answers to all questions to ensure complete understanding.
4. Participants will remove "Temporary Certificate" from test to be used to purchase and install Gastite CSST for a period of 90 days from training.
5. Trainer will mail completed tests to the Gastite Customer Service Department for issuance of "Permanent Certificate" card.

## Training Guidelines:

1. The techniques outlined are recommended practice for generic applications. These practices must be reviewed for compliance with all applicable codes. Where a conflict exists between these guidelines and local requirements, *local requirements will take precedence*. It is the ultimate responsibility of the installer to determine local code acceptance.
2. The Gastite/FlashShield flexible gas piping system may only be installed by a qualified installer who has successfully completed the Gastite/FlashShield Training Program. A certification card is required to purchase and install the Gastite/FlashShield system.
3. Sizing of the Flexible Gas Piping System must be performed using the capacity tables in the Design and Installation Guide or other code approved CSST tables.

4. Only the components provided or specified by Gastite are to be used in the installation. Use of tubing and fittings from other flexible gas piping systems is strictly prohibited.
5. The Gastite/FlashShield flexible gas piping system may be joined to other fuel gas piping systems by using approved threaded pipe couplings at the interface.
6. Flexible gas piping must never be used as a grounding electrode or as the grounding path for appliances or the electrical systems. Refer to local codes for other approved grounding points. In the absence of local codes, refer to National Fuel Gas Code, NFPA-54 and National Electrical Code, NFPA-70.
7. Direct bonding of Gastite CSST is required for all gas piping systems incorporating Gastite CSST.
8. Unlike Gastite, there are no additional bonding requirements for FlashShield imposed by the manufacturer.
9. Care should be taken when installing Gastite tubing runs to maintain as much separation as reasonably possible from other electrically conductive systems in the building. This requirement does not apply to FlashShield material.
10. FlashShield fittings must be assembled utilizing the jacket lock feature to obtain continuity and full design performance.
11. FlashShield fittings will work on original Gastite tubing, but the original Gastite XR2 fittings will not work on FlashShield tubing.
12. Flexible gas piping routed in a location that is concealed, constrained and within 3 inches of a potential threat shall be protected against damage by approved protection devices.
13. Open ends of the tubing are to be temporarily plugged or taped closed prior to installation to prevent entrance of dirt, dust or other debris.
14. Installation clearance holes for routing flexible gas piping are to be approximately 1/2 inch greater than the outside diameter of the tubing. Drilling of any structural member must be in accordance with all local codes.
15. The protective plastic jacketing should be kept in place as much as practical to protect the tubing from corrosive threats. All exposed portions of stainless steel installed outdoors must be wrapped. Contact with corrosive chemicals such as soldering fluxes and acid based masonry cleaners must be followed by a thorough rinse and wipe dry.
16. Tubing shall be supported with pipe straps, bands or hangers suitable for the size and weight of the tubing, at intervals not to exceed those shown in the tables outlined in the Design and Installation Guide.
17. Gastite/FlashShield flexible gas piping should only be connected to non-moveable appliances. Connections to moveable appliances such as ranges and clothes dryers should be accomplished by using an approved appliance connector.
18. For installations buried underground, concrete, asphalt or embedded in concrete, Gastite flexible gas piping must be routed in a non-metallic watertight conduit, which has an inside diameter at least 1/2 inch larger than the outside diameter of the tubing. No mechanical joints are permitted within the conduit.
19. A manifold assembly utilizing a pounds-to-inches regulator shall include a shut-off valve ahead of the regulator and be installed in an accessible location so that the regulator can be inspected maintained and serviced if necessary.
20. For Maxitrol and OARA regulators utilizing a vent-limiting orifice, the regulator must be mounted in a horizontal upright position. For outdoor venting, the vent line must be at least the same size as the vent connection and no longer than 30 feet long before upsizing. For outdoor installations, the vent-limiting orifice must be removed and replaced with an outdoor vent protector or inverted with the open port facing down.
21. Pietro Fiorentini regulators have an integral vent limiter and can be mounted in any position; additionally Pietro Fiorentini regulators do not have a largest single appliance limitation.
22. All pressure regulators must be isolated or removed for all system pressure tests.

23. The Gastite flexible gas piping system must be pressure tested for leaks during rough construction in accordance with all local codes. In the absence of local code requirements, the system must be tested in accordance with the most current edition of the National Fuel Gas Code, NFPA-54.

**Attention:**

The installation of Gastite/FlashShield flexible gas piping must be performed by a qualified installer who has successfully completed the Gastite/FlashShield training program. The installer must also meet all qualifications required by the state and/or local administrative authority administering the provisions of the code where the gas piping is to be installed.

**Warning:**

Improper installation or operation of the system may result in fire, explosion or asphyxiation. Only the components provided or specified by Gastite as part of the fuel gas piping system are to be used in the installation. *Use of components from other flexible gas piping systems is strictly prohibited and may result in poor system performance and serious bodily injury or property damage.*

**Code acceptance:**

While every effort has been made to prepare this document in accordance with all regional model codes in effect at its printing, Gastite cannot guarantee that the local administrative authority will accept the most recent version of the codes. *It is the ultimate responsibility of the installer to determine acceptance of any building component including gas piping. Gastite assumes no responsibility for labor or material for installations made without prior determination of local code acceptance.*

**Limitations of the Guidelines:**

It would be impossible for this guide to anticipate and cover every possible variation in building configurations, construction styles, appliance loads and local code requirements. Therefore, there will be applications that are not covered in this document and training program. The user should exercise good judgement on system design and installation, or seek technical input from other qualified sources. Additional information pertaining to gas piping systems is available from the local gas utility or propane supplier. This training guide must be used in conjunction with the most current edition of the Gastite/FlashShield Design and Installation Guide.



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