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**DIVISION: 15—MECHANICAL**  
**Section: 15190—Fuel Piping**

**REPORT HOLDER:**

**TITFLEX CORPORATION/GASTITE DIVISION**  
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**SPRINGFIELD, MASSACHUSETTS 01139-0054**  
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**EVALUATION SUBJECT:**

**GASTITE FLEXIBLE GAS PIPING SYSTEM**

## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2003 *International Fuel Gas Code*® (IFGC)
- 2003 *International Mechanical Code*® (IMC)
- 2003 *International Residential Code*® (IRC)
- 1997 *ICBO Uniform Mechanical Code* (ICBO UMC)
- 2003 *IAPMO Uniform Mechanical Code*\* (IAPMO UMC)
- 2003 *IAPMO Uniform Plumbing Code*\* (IAPMO UPC)

**Property evaluated:**

Gas piping

## 2.0 USES

The Gastite Flexible Gas Piping System is a fuel-gas piping system for natural or propane gas, intended for installation with fuel gas pressures not exceeding 5 psi (34 kPa); the system is installed in interior locations, and in exterior locations as permitted in IFGC Chapter 4, IMC Section 602.2.1, IRC Chapter 24, ICBO UMC Chapter 13, IAPMO UMC Section 602.2 and IAPMO UPC Chapter 12.

## 3.0 DESCRIPTION

The system consists of corrugated stainless steel tubes (CSST) and mechanical all-metal components designed for use only with the Gastite CSST. The CSST is composed of concentric, annular rings of Type 304 or 321 stainless steel with an international-yellow fuel-gas-colored polyethylene coating. The product is available in nominal  $\frac{3}{8}$ -,  $\frac{1}{2}$ -,  $\frac{3}{4}$ -, 1-,  $1\frac{1}{4}$ -,  $1\frac{1}{2}$ - and 2-inch-diameter (9.5, 12.7, 19.1, 25.4, 31.8, 38.1 and 50.8 mm) sizes, identified as part numbers S93-6A4, S93-8A4, S93-11B4, S93-16A4, S93-20A4, S93-24A4 and S93-32A4, respectively, for Type 304 material; Type 321 material is identified as part numbers S93-6A, S93-8A, S93-11B, S93-16A, S93-20A, S93-24A and S93-32A, respectively. Components utilize a metal-to-metal seal, and include mechanical fittings, distribution manifolds, shutoff valves, termination outlet devices, pressure regulators and protection devices.

## 4.0 INSTALLATION

Installation shall be in accordance with the "Gastite Design and Installation Guide" dated November 2002; NFPA 54; and IFGC Chapter 4, IRC Chapter 24, ICBO UMC Chapter 13, IAPMO UMC Chapter 6 and IAPMO UPC Chapter 12, as applicable. The system installation consists of CSST distribution lines installed between the gas meter and fuel gas appliances. CSST not in contact with the ground, but exposed to the outdoors, shall be installed in accordance with IFGC Section 404.7, IRC Section G2145.7, ICBO UMC Section 1312.4, or IAPMO UPC Chapter 12, as applicable. Distribution lines shall be protected from physical damage at points of support and when passing through structural members such as studs, joists and plates by the installation of approved premanufactured mechanical devices such as striker plates and oversized strip-wound metal conduit. In areas enforcing the IFGC or IRC, installation of the tubing is not permitted within ducts. In areas enforcing the ICBO UMC or the IAPMO UMC, installation of the tubing is not permitted within under-floor space that is used as an air supply plenum. The CSST shall be sized in accordance with capacity tables in the manufacturer's published installation instructions.

The system is used with supply pressures not exceeding 5 psi (34.5 kPa), and for low pressure [below  $\frac{1}{2}$  psi (3.4 kPa)] and medium pressure [2 psi (13.8 kPa)] equipment applications. Low pressure applications with system supply pressures below  $\frac{1}{2}$  psi (3.4 kPa) do not require a line regulator. System supply pressures exceeding  $\frac{1}{2}$  psi (3.4 kPa) but less than 2 psi (13.8 kPa) utilize a line regulator to limit downstream appliance utilization pressure to  $\frac{1}{2}$  psi (3.4 kPa). System supply pressures that exceed 2 psi (13.8 kPa) but do not exceed 5 psi (34 kPa) require a line regulator to limit downstream appliance utilization pressure to  $\frac{1}{2}$  psi (3.4 kPa), and an additional over-pressure protection device, installed between the line regulator and the appliance, to limit pressure to 2 psi (13.8 kPa). Medium pressure equipment applications with 2 psi (13.8 kPa) and greater supply pressures require a line regulator to limit downstream appliance utilization pressure to 2 psi (13.8 kPa). At supply pressures in excess of 2 psi (13.8 kPa), downstream appliance controls rated for the supply pressure, or protection by some other means, is needed.

Installation is performed by Titeflex Corporation trained and certified installers using Titeflex's published installation procedures.

## 5.0 CONDITIONS OF USE

The Gastite Flexible Gas Piping System described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation complies with this report, the manufacturer's published installation instructions and the applicable

code. If there is a conflict between the installation instructions and this report, this report shall govern.

- 5.2 The product shall be used only with natural gas and propane at operating pressures not exceeding 5 psi (34 kPa). Pressure regulators are required when fuel supply pressures exceed  $1/2$  psi (3.4 kPa).
- 5.3 The system shall be pressure-tested after installation in accordance with the applicable code.
- 5.4 The system is manufactured in Springfield, Massachusetts, under a quality control program with inspections by CSA International (AA-659).

#### 6.0 EVIDENCE SUBMITTED

- 6.1 Gastite Design and Installation Guide, dated November 2002.

- 6.2 Data in accordance with the ICC-ES Acceptance Criteria for Corrugated Stainless Steel Interior Fuel-Gas Piping Systems (AC99), dated January 2002.

- 6.3 A quality control manual.

#### 7.0 IDENTIFICATION

**Tubing:** Each 2 feet (610 mm) of tube bears the Gastite name, part number, rated pressure [5 psi (34 kPa)], equivalent hydraulic diameter (EHD), the words "Fuel Gas," the evaluation report number (ESR-1031) and the logo of the inspection agency (CSA International).

**Components:** Fittings, termination outlets and distribution manifolds are stamped with the Titeflex logo; the logo of the inspection agency (CSA International); the part numbers and the date stamp.