

### **Corrugated Stainless Steel Tubing (CSST)**

At its meeting held on September 10, 2008, the State Fire Prevention and Building Code Council determined that adopting this rule on an emergency basis is necessary to preserve public safety by clarifying requirements for electrical bonding of gas piping, clarifying requirements for protection of gas piping against physical damage, and adding new requirements for installation of gas piping made of corrugated stainless steel tubing (CSST), which will increase protection against fires caused by lightning strikes in the vicinity of buildings equipped with CSST gas piping and fires caused by accidental punctures of CSST gas piping.

### **BACK** **TEXT**

**EFFECTIVE September 25, 2008**

Subdivision (d) of section 1220.1 of title 19 NYCRR is amended by adding new paragraphs (9), (10), (11), and (12) to read as follows:

(9) 2007 RCNYS Section G2411.1. For the purposes of applying the 2007 RCNYS in this State, the text of Section G2411.1 in Chapter 24 of the 2007 RCNYS shall be deemed to be amended and restated in its entirety to read as follows:

“G2411.1 (310.1) Gas pipe bonding - systems that contain no CSST. In the case of a gas piping system that contains no corrugated stainless steel tubing (CSST), each above-ground portion of the gas piping system that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. Gas piping shall be considered to be likely to become energized if any gas utilization equipment is connected to any portion of the gas piping system and to any electrical circuit(s). For the purposes of this Section G2411.1, gas piping shall be considered to be bonded to an effective ground-fault current path if such gas piping is connected to gas utilization equipment that is connected to the equipment grounding conductor of the circuit supplying that equipment. Nothing in this Section G2411.1 shall prohibit the bonding a gas piping system that contains no CSST in any manner described in Section E3509.7 of this code. (10) 2007 RCNYS Section G2411.2.”

(10) For the purposes of applying the 2007 RCNYS in this State, a new Section G2411.2 (to include sections G2411.2, G2411.2.1, G2411.2.2, and G2411.2.3) shall be deemed to be added to Chapter 24 of the 2007 RCNYS, immediately following Section G2411.1, said new Section G2411.2 to read as follows:

“G2411.2 (310.2) Gas pipe bonding - systems that contain CSST. A gas piping system that contains any corrugated stainless steel tubing (CSST) shall be electrically continuous and shall be bonded to the

electrical service grounding electrode system at the point where the gas service enters the building or structure. No portion of the gas piping system shall be used as or considered to be a grounding electrode or a grounding electrode conductor. CSST shall be installed and bonded in accordance with this section G2411.2, and the stricter of: (a) the requirements set forth in the CSST manufacturer's installation instructions, or (b) the requirements set forth in Sections G2411.2.1, G2411.2.2, G2411.2.3, and G2415.5.

**“G2411.2.1 Bonding jumper.** Where the electric service for the individual installation is 200 amperes or less, the bonding jumper shall not be smaller than 6 AWG copper wire or 4 AWG aluminum or copper-clad aluminum wire, and shall be permanently connected to the grounding electrode system. Where the electric service for the individual installation is more than 200 amperes, the bonding jumper size shall be determined in accordance with Table E 3503.1, and shall be permanently connected to the grounding electrode system.

**“G2411.2.2 Bonding clamp.** The bonding jumper shall be connected to the gas piping system with a bonding clamp that is listed for the material of the bonding jumper and for the material of the component of the gas piping system to which the bonding clamp is attached. The bonding clamp shall be attached to the gas piping system at a point which is inside the building or structure in which the gas piping is installed, on the downstream side of the gas meter or regulator, in an unconcealed and readily accessible space, and as close as practicable to the point where the gas service enters the building or structure. The bonding clamp shall be attached to a segment of metallic fuel gas pipe which (a) is a component of the gas piping system, (b) is electrically continuous with all CSST components of the gas piping system, (c) is made of steel or wrought-iron, (d) complies with Section G2414.4.2 of this code and with all other applicable provisions of Section G2414 of this code, and (e) is not less than 3 inches (76 mm) in length. Neither the CSST nor the brass hexagonal nut on the CSST fitting shall be used as an attachment point for the bonding clamp.

**“G2411.2.3 Prohibited uses.** CSST shall not be supported on or by other electrically conductive systems including copper water pipe, electric power cables, air conditioning and heating ducts, communication cables and structural steel beams. Electrical wiring, including the bonding jumper, shall be

supported and secured independently of the CSST so that it does not come in contact with the CSST.”

**(11) 2007 RCNYS Section G2415.5.** For the purposes of applying the 2007 RCNYS in this State, the text of Section G2415.5 in Chapter 24 of the 2007 RCNYS shall be deemed to be amended and restated in its entirety, to include sections G2415.5 and G2415.5.1 and to read as follows:

**“G2415.5 (404.5) Protection against physical damage.** In concealed locations, where piping other than black or galvanized steel is installed through holes or notches in wood studs, joists, rafters or similar members less than 1.75 inches (44.45 mm) from the nearest edge of the member, the pipe shall be protected by shield plates. Such shield plates shall comply with the requirements of Section G2415.5.1, shall cover the area of the pipe where the member is notched or bored, and shall extend a minimum of 4 inches (102 mm) above sole plates, below top plates and to each side of a stud, joist or rafter. The movement of piping made of corrugated stainless steel tubing (CSST) shall not be otherwise constrained by straps, clips or other support devices. In addition, where CSST is installed in a concealed location and parallel to any stud, joist, rafter, or similar member, the CSST shall be protected by shield plates in any area where the CSST is not (a) physically supported in a manner that ensures the CSST will always be at least 1.75 inches (44.45 mm) away from the nearest edge of any member or (b) encased in a protective metal pipe made of schedule 40 steel or iron pipe or in a protective pipe sleeve made of a material approved by the code enforcement official as the equivalent of schedule 40 steel or iron pipe. Such shield plates shall comply with the requirements of Section G2415.5.1, shall cover the area the CSST is located, and shall extend a minimum of 4 inches (102 mm) to each side of the CSST.

**“G2415.5.1. Shield plates.** In all cases, shield plates shall be certified or listed as complying with ANSI LC-1. In addition, in the case of piping made of CSST, shield plates shall be listed for use with the manufacturer’s CSST system.”

**(12) 2007 RCNYS Section E3509.7.** For the purposes of applying the 2007 RCNYS in this State, the text of Section E3509.7 in Chapter 35 of the 2007 RCNYS shall be deemed to be amended and restated in its entirety to read as follows:

**“E3509.7 Bonding other metal piping.** Where installed in or attached to a building or structure, metal piping systems likely to become energized shall be bonded to the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes

used. A piping system shall be considered to be likely to become energized if any equipment or appliance is connected to any portion of the piping system and to any electrical circuit(s). The bonding jumper shall be sized in accordance with Table E3808.12 using the rating of the circuit capable of energizing the piping. The equipment grounding conductor for the circuit that is capable of energizing the piping shall be permitted to serve as the bonding means. The points of attachment of the bonding jumper(s) shall be accessible.

**“EXCEPTIONS:**

**“1. Interior metal water piping systems shall be bonded in accordance with Section E3509.6 of this code.**

**“2. Gas piping systems that contain no corrugated stainless steel tubing (CSST) shall be bonded in accordance with Section G2411.1 of this code.**

**“3. Gas piping systems that contain CSST shall be installed and bonded in accordance with Section G2411.2 of this code.”**

Subdivision (b) of section 1224.1 of title 19 NYCRR is amended to read as follows:

(b) Referenced standards. Certain published standards are denoted in the 2007 FGCNYS as incorporated by reference into 19 NYCRR Part 1222. Such standards are incorporated by reference into this Part 1224. Such standards are identified in the 2007 FGCNYS, and the names and addresses of the publishers of such standards from which copies of such standards may be obtained are specified in the 2007 FGCNYS. Such standards are available for public inspection and copying at the office of the New York State Department of State specified in subdivision (a) of this section. In addition, the 2005 edition of standard NFPA 70, entitled “National Electrical Code” (said standard being hereinafter referred to as NFPA 70-2005) shall be deemed to be one of the standards incorporated by reference into this Part 1224. The name and address of the publisher of NFPA 70-2005 from which copies of said standard may be obtained are:

<u>National</u>	<u>Fire</u>	<u>Protection</u>	<u>Association</u>
<u>Batterymarch</u>			<u>Park</u>
<u>Quincy,</u>	<u>MA</u>		<u>02269.</u>

NFPA 70-2005 is available for public inspection and copying at the office of the New York State Department of State specified in subdivision (a) of this section.

Subdivision (c) of 1224.1 of Title 19 NYCRR is amended by adding new paragraphs (2), (3), and (4), to read as follows:

(2) 2007 FGCNYS Section 310.1. For the purposes of applying the 2007 FGCNYS in this State, Section 310.1 in Chapter 3 of the 2007 FGCNYS shall be deemed to be amended and restated in its entirety to read as follows:

**“310.1 Gas pipe bonding - systems that contain no CSST. In the case of a gas piping system that contains no corrugated stainless steel tubing (CSST), each above-ground portion of the gas piping system that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. Gas piping shall be considered to be likely to become energized if any gas utilization equipment is connected to any portion of the gas piping system and to any electrical circuit(s). For the purposes of this Section 310.1, gas piping shall be considered to be bonded to an effective ground-fault current path if such gas piping is connected to gas utilization equipment that is connected to the equipment grounding conductor of the circuit supplying that equipment. Nothing in this Section 310.1 shall prohibit the bonding a gas piping system that contains no CSST in any manner described in Section 250.104(B) of NFPA 70-2005.”**

**(3) 2007 FGCNYS Section 310.2. For the purposes of applying the 2007 FGCNYS in this State, a new Section 310.2 (to include sections 310.2, 310.2.1, 310.2.2, and 310.2.3) shall be deemed to be added to Chapter 3 of the 2007 FGCNYS, immediately following Section 310.1, said new Section 310.2 to read as follows:**

**“310.2 Gas pipe bonding - systems that contain CSST. A gas piping system that contains any corrugated stainless steel tubing (CSST) shall be electrically continuous and shall be bonded to the electrical service grounding electrode system at the point where the gas service enters the building or structure. No portion of the gas piping system shall be used as or considered to be a grounding electrode or a grounding electrode conductor. CSST shall be installed and bonded in accordance with this section 310.2, and the stricter of: (a) the requirements set forth in the CSST manufacturer’s installation instructions, or (b) the requirements set forth in Sections 310.2.1, 310.2.2, 310.2.3, and 404.5 of this code.**

**“310.2.1 Bonding jumper. Where the electric service for the individual installation is 200 amperes or less, the bonding jumper shall not be smaller than 6 AWG copper wire or 4 AWG aluminum or copper-clad aluminum wire, and shall be permanently connected to the grounding electrode system. Where the electric service for the individual installation is more than 200 amperes, the bonding jumper size shall be determined in accordance with Table 250.66 and Sections 250.66(A) through 250.66(C) of NFPA 70-2005, and shall be permanently connected to the grounding electrode system.**

**“310.2.2 Bonding clamp. The bonding jumper shall be connected to the gas piping system with a bonding clamp that is listed for the material of the bonding jumper and for the**

material of the component of the gas piping system to which the bonding clamp is attached. The bonding clamp shall be attached to the gas piping system at a point which is inside the building or structure in which the gas piping is installed, on the downstream side of the gas meter or regulator, in an unconcealed and readily accessible space, and as close as practicable to the point where the gas service enters the building or structure. The bonding clamp shall be attached to a segment of metallic fuel gas pipe which (a) is a component of the gas piping system, (b) is electrically continuous with all CSST components of the gas piping system, (c) is made of steel, wrought-iron, copper (if permitted by Section 403.4.3 of this code), or brass (if permitted by Section 403.4.3 of this code), or aluminum, (d) complies with the applicable provisions of Section 403.4 of this code and with all other applicable provisions of Section 403 of this code, and (e) is not less than 3 inches (76 mm) in length. Neither the CSST nor the brass hexagonal nut on the CSST fitting shall be used as an attachment point for the bonding clamp.

“310.2.3 Prohibited uses. CSST shall not be supported on or by other electrically conductive systems including copper water pipe, electric power cables, air conditioning and heating ducts, communication cables and structural steel beams. Electrical wiring, including the bonding conductor, shall be supported and secured independently of the CSST so that it does not come in contact with the CSST.”

(4) 2007 FGCNYS Section 404.5. For the purposes of applying the 2007 FGCNYS in this State, Section 404.5 in Chapter 4 of the 2007 FGCNYS shall be deemed to be amended and restated in its entirety, to include sections 404.5 and 404.5.1 and to read as follows:

“404.5 Protection against physical damage. In concealed locations, where piping other than black or galvanized steel is installed through holes or notches in wood studs, joists, rafters or similar members less than 1.75 inches (44.45 mm) from the nearest edge of the member, the pipe shall be protected by shield plates. Such shield plates shall comply with the requirements of Section 405.5.1, shall cover the area of the pipe where the member is notched or bored, and shall extend a minimum of 4 inches (102 mm) above sole plates, below top plates and to each side of a stud, joist or rafter. The movement of piping made of corrugated stainless steel tubing (CSST) shall not be otherwise constrained by straps, clips or other support devices. In addition, where CSST is installed in a concealed location and parallel to any stud, joist, rafter, or similar member, the CSST shall be protected by

shield plates in any area where the CSST is not (a) physically supported in a manner that ensures the CSST will always be at least 1.75 inches (44.45 mm) away from the nearest edge of any member or (b) encased in a protective metal pipe made of schedule 40 steel or iron pipe or in a protective pipe sleeve made of a material approved by the code enforcement official as the equivalent of schedule 40 steel or iron pipe. Such shield plates shall comply with the requirements of Section 405.5.1, shall cover the area the CSST is located, and shall extend a minimum of 4 inches (102 mm) to each side of the CSST.

“405.5.1. Shield plates. In all cases, shield plates shall be certified or listed as complying with ANSI LC-1. In addition, in the case of piping made of CSST, shield plates shall be listed for use with the manufacturer’s CSST system.”

EFFECTIVE September 25, 2008

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