

## 2015 IRC

### Add Sections R102.7.1.1 and R102.7.1.1.1 as follows:

**R102.7.1.1 Corrugated stainless steel tubing (CSST) generally:** Gas distribution systems comprised wholly or partially of CSST lawfully installed on the date of adoption of this code may remain in place and minor leaks may be repaired in accordance with manufacturer's installation instructions and this code; however, replacement of an entire branch, or expansions to the system shall not be done except with materials complying with this code for new installations pursuant to a permit and in compliance with R102.7.1.1.1(b) below.

**R102.7.1.1.1 Unbonded corrugated stainless steel tubing (CSST):** Gas distribution systems comprised wholly or partially of CSST lawfully installed on the date of adoption of this code and not electrically bonded directly to the electrical system service grounding electrode conductor in accordance with Section G2411.1.1 shall be so bonded prior to:

- a. Restoration of natural gas service in the event that service is discontinued for any reason other than nonpayment;
- b. Receipt of an inspection approval or gas utility release by the City of Rockwall subsequent to repair or alteration of any part of the fuel gas system, including equipment or appliance replacement requiring a permit.

### Section G2403; add definitions:

**CORRUGATED STAINLESS STEEL TUBING (CSST):** A flexible stainless steel piping system designed for the distribution of natural and/or liquefied petroleum (LP) gas that is manufactured and listed in accordance with ANSI LC 1/CSA 6.26. CSST will normally be identified by a bright yellow, dielectric (non-conductive) jacket.

**CONDUCTIVE-JACKETED CORRUGATED STAINLESS STEEL TUBING (CJ-CSST):** A flexible stainless steel piping system designed for the distribution of natural and/or liquefied petroleum (LP) gas that is manufactured and listed in accordance with ANSI LC1/CSA 6.26 and that is enclosed in an electrically conductive outer jacket designed to intercept, dissipate and/or re-route extraneous electrical current in order to mitigate damage to the underlying stainless steel tubing. CJ-CSST will normally be identified by a black jacket with white or yellow lettering. For purposes of this code, CJ-CSST shall be listed in accordance with the International Code Council, Inc. (ICC) PMG Listing Criteria No. LC 1027, approved February 2011, or any equivalent such standard as approved by the Code Official, with the exception that the current components for the indirect effects 2 testing at Section 4.4.2 of said standard shall be as follows:

Current Components - Indirect Effects 2 Testing; LC 1027 Section 4.4.2 (Amended)					
Component 1		Component 2		Component 3	
Return Stroke		Intermediate Current		Continuing Current	
$L_{pk}$ (kA)	$AI \times 10^6$ (A2 s)	$L_{av}$ (kA)	Charge (C)	$L_{av}$ (A)	Charge (C)
30 minimum	.055 minimum	2	10	200–800	85 minimum*
*Average continuing current in negative cloud-to-ground lightning flashes (95th percentile) as per table A21, SAE ARP5412 B (Also, Cianos & Pierce, Aug. 1972). The un-amended LC 1027 standard specifies 26C, minimum, which represents the 50th percentile.					

Delete existing Sections G2411.1.1, G2411.1.1.1, G2411.1.1.2, G2411.1.1.3, G2411.11.4 and G2411.5

Add the following sections:

**G2411.1.1 CSST and CJ-CSST electrical bonding.**

**G2411.1.1CSST and CJ-CSST electrical bonding.** Conductive-jacketed corrugated stainless steel tubing systems (CJ-CSST) and existing corrugated stainless steel tubing systems (CSST) subject to Section R102.7.1.1 shall be bonded to the electrical service grounding electrode system. This requirement applies regardless of the number of segments of such piping in the system.

**G2411.1.1.1 Bonding jumper.** The bonding jumper shall be not less than #6 AWG copper or equivalent, attached to the gas piping system at an accessible location between the point of delivery and the first downstream CSST or CJ-CSST fitting using a U.L. 467 listed bonding clamp attached to a length of rigid piping, a malleable iron fitting, a prefabricated manifold or a brass hex fitting.

**G2411.1.1.2 Bonding jumper routing and length.** The bonding jumper shall be continuous, shall not exceed 75' in length, and no bend in the conductor shall include an angle of less than 90 degrees, nor a radius of bend of less than 8 inches except at the grounding bus terminus in the electrical panel, where applicable.

**Section G2413.4; change to read as follows:**

**G2413.4 Sizing tables and equations.** Where Tables G2413.4 (1) through G2413.4 (21) are used to size piping or tubing, the pipe length shall be determined in accordance with section G2413.4.1, G2413.4.2 or G2413.4.3. Where the tables refer to "corrugated stainless steel tubing (CSST)," they shall be deemed to refer only to "conductive jacketed corrugated stainless steel tubing (CJ-CSST)," as defined in Section G2403.

**Section G2414.5.3; change to read as follows:**

**G2414.5.3 Conductive-jacketed corrugated stainless steel tubing (CJ-CSST).** Conductive-jacketed corrugated stainless steel tubing (CJ-CSST) shall be listed in accordance with ANSI LC 1/CSA 6.26 and ICC PMG LC 1027 (February 2011) as amended by this code.

**Section G2415.2; change to read as follows:**

**G2415.2 CSST and CJ-CSST.** CSST piping systems and tubing, as defined in Section G2403, shall not be installed. CJ-CSST piping systems, as defined in section G2403 shall be installed in accordance with the terms of their approval, the conditions of listing, the manufacturer's instructions and this code. Where any of these provisions conflict, the more restrictive shall govern.

**Add Section G2415.2.1; to read as follows:**

**G2415.2.1 Routing and clearances.** CJ-CSST piping and tubing shall be routed and installed such that a permanent twenty-four inch (24") clearance is maintained from all metallic vents, chimneys, flues, masts, pipes and similar items that extend through the roof to the outside atmosphere, including their metallic component parts. A permanent barrier consisting of one-half inch (1/2") gypsum wallboard, or equivalent, may substitute for the required clearance.

**Section G2422.1.2.3 (411.1.3.3); delete Exception 1 and Exception 4.**

**G2422.1.2.3 (411.1.3.3) Prohibited locations and penetrations.** Connectors shall not be concealed within, or extended through, walls, floors, partitions, ceilings or appliance housings.

**Exceptions:**

2. Rigid steel pipe connectors shall be permitted to extend through openings in appliance housings.
3. Fireplace inserts that are factory equipped with grommets, sleeves or other means of protection in accordance with the listing of the appliance.

## 2015 IFCG

### Add Sections 102.4.1 and 102.4.2 as follows:

**102.4.1 Corrugated stainless steel tubing (CSST) generally:** Gas distribution systems comprised wholly or partially of CSST lawfully installed on the date of adoption of this code may remain in place and minor leaks may be repaired in accordance with manufacturer's installation instructions and this code; however, replacement of an entire branch, or expansions to the system shall not be done except with materials complying with this code for new installations pursuant to a permit and in compliance with 102.4.2(b) below.

**102.4.2. Unbonded corrugated stainless steel tubing (CSST):** Gas distribution systems comprised wholly or partially of CSST lawfully installed on the date of adoption of this code and not electrically bonded directly to the electrical system service grounding electrode conductor in accordance with Section 310.1.1 shall be so bonded prior to:

- a. Restoration of natural gas service in the event that service is discontinued for any reason other than nonpayment;
- b. Receipt of an inspection approval or gas utility release by the City of Rockwall subsequent to repair or alteration of any part of the fuel gas system, including equipment or appliance replacement requiring a permit.

### Section 202; add definitions:

**CORRUGATED STAINLESS STEEL TUBING (CSST):** A flexible stainless steel piping system designed for the distribution of natural and/or liquefied petroleum (LP) gas that is manufactured and listed in accordance with ANSI LC 1/CSA 6.26. CSST will normally be identified by a bright yellow, dielectric (non-conductive) jacket.

**CONDUCTIVE-JACKETED CORRUGATED STAINLESS STEEL TUBING (CJ-CSST):** A flexible stainless steel piping system designed for the distribution of natural and/or liquefied petroleum (LP) gas that is manufactured and listed in accordance with ANSI LC1/CSA 6.26 and that is enclosed in an electrically conductive outer jacket designed to intercept, dissipate and/or re-route extraneous electrical current in order to mitigate damage to the underlying stainless steel tubing. CJ-CSST will normally be identified by a black jacket with white or yellow lettering. For purposes of this code, CJ-CSST shall be listed in accordance with the International Code Council, Inc. (ICC) PMG Listing Criteria No. LC 1027, approved February 2011, or any equivalent such standard as approved by the Code Official, with the exception that the current components for the indirect effects 2 testing at section 4.4.2 of said standard shall be as follows:

Current Components - Indirect Effects 2 Testing; LC 1027 Section 4.4.2 (Amended)					
Component 1		Component 2		Component 3	
Return Stroke		Intermediate Current		Continuing Current	
$L_{pk}$ (kA)	$AI \times 10^6$ (A <sup>2</sup> s)	$L_{av}$ (kA)	Charge (C)	$L_{av}$ (A)	Charge (C)
30 minimum	.055 minimum	2	10	200–800	85 minimum*
*Average continuing current in negative cloud-to-ground lightning flashes (95th percentile) as per table A21, SAE ARP5412 B (Also, Cianos & Pierce, Aug. 1972). The un-amended LC 1027 standard specifies 26C, minimum, which represents the 50th percentile.					

Delete existing Sections 310.1.1, 310.1.1.1, 310.1.1.2, 310.1.1.3, 310.1.1.4 and 310.1.1.5.

Add the following sections:

**310.1.1 CSST and CJ-CSST electrical bonding.**

**310.1.1 CSST and CJ-CSST electrical bonding.** Conductive-jacketed corrugated stainless steel tubing systems (CJ-CSST) and existing corrugated stainless steel tubing systems (CSST) subject to Section 102.4.1 shall be bonded to the electrical service grounding electrode system. This requirement applies regardless of the number of segments of such piping in the system.

**310.1.1.1 Bonding jumper.** The bonding jumper shall be not less than #6 AWG copper or equivalent, attached to the gas piping system at an accessible location between the point of delivery and the first downstream CSST or CJ-CSST fitting using a U.L. 467 listed bonding clamp attached to a length of rigid piping, a malleable iron fitting, a prefabricated manifold or a brass hex fitting.

**310.1.1.2 Bonding jumper routing and length.** The bonding jumper shall be continuous, shall not exceed 75' in length, and no bend in the conductor shall include an angle of less than 90 degrees, nor a radius of bend of less than 8 inches except at the grounding bus terminus in the electrical panel, where applicable.

**Section 402.4; change to read as follows:**

**402.4 Sizing tables and equations.** Where tables 402.4(1) through 402.4(37) are used to size piping or tubing, the pipe length shall be determined in accordance with section 402.4.1, 402.4.2 or 402.4.3. Where the tables refer to "corrugated stainless steel tubing (CSST)," they shall be deemed to refer only to "conductive jacketed corrugated stainless steel tubing (CJ-CSST)," as defined in section 202.

**Section 403.5.4; change to read as follows:**

**403.5.4 Conductive-jacketed corrugated stainless steel tubing (CJ-CSST).**

Conductive-jacketed corrugated stainless steel tubing (CJ-CSST) shall be listed in accordance with ANSI LC 1/CSA 6.26 and ICC PMG LC 1027 (February 2011) as amended by this code.

**Section 404.2; change to read as follows:**

**404.2 CSST and CJ-CSST.** CSST piping systems and tubing, as defined in section 202, shall not be installed. CJ-CSST piping systems, as defined in section 202, shall be installed in accordance with the terms of their approval, the conditions of listing, the manufacturer's instructions and this code. Where any of these provisions conflict, the more restrictive shall govern.

**Add Section 404.2.1; to read as follows:**

**404.2.1 Routing and clearances.** CJ-CSST piping and tubing shall be routed and installed such that a permanent twenty-four inch (24") clearance is maintained from all metallic vents, chimneys, flues, masts, pipes and similar items that extend through the roof to the outside atmosphere, including their metallic component parts. A permanent barrier consisting of one-half inch (1/2") gypsum wallboard, or equivalent, may substitute for the required clearance.