

# Spring Lake Township Building Department

## Michigan Township Services Muskegon

384 N. Third, Suite E  
Fruitport, MI 49415

Phone (231) 865-3310 or (231)865-6977  
Toll Free 1-800-722-4145  
Fax (231) 865-6191

May 13, 2011

Spring Lake Township Board of Trustee's  
106 S Buchanan  
Spring Lake, MI 49456

Re: Corrugated stainless steel tubing (CSST)

Dear Board,

After recently being made aware of a serious safety concern regarding the installation and use of corrugated stainless steel tubing (CSST) used for gas piping in buildings, Spring Lake Officials feel compelled to bring this matter to the Board for recommendation of implementing public awareness. A lighting strike to CSST has recently been determined to be the cause of a Spring Lake Township residential fire resulting in a total loss of property. Spring Lake Township Fire Chief, Rick Nuvill, has obtained concurring reports from other fire investigators throughout the State that indicate CSST to possibly be an inferior product and a health, life and safety concern. Prior to November 21<sup>st</sup>, 2008, CSST was not required to be bonded (grounded). Technical bulletin TB2008-02 (copy enclosed) now clearly defines proper installation methods. Owners of homes and buildings having CSST installed prior to 11-21-08 may want to consider proper bonding to possibly reduce the risk of damage in the event of a lighting strike. Residents that are unsure of CSST being properly installed are highly recommended to contact a qualified Electrician to verify such potential hazards. If you have any questions or concerns regarding this matter you may contact me or Spring Lake Township Mechanical Inspector Bob Modreske at the above numbers.

Sincerely,



Greg Mason  
Building Official

cc: Lukas Hill Community Development Director  
Spring Lake Township Fire Chief – Rick Nuvill

CAN EMERGENCY PERSONNEL LOCATE YOU? International Fire Code section 505 & 503 require that all buildings be posted with addresses plainly visible and legible from the street or road fronting the property. Letters, numbers and symbols indicating addresses shall be a minimum of 4 inches in height with a ½ inch stroke and shall be contrasting with background colors.

The bonding jumper shall be sized in accordance with table 3908.12 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 may serve as the bonding means.

\* E3609.7.2 Corrugated stainless steel tubing (CSST).  
Corrugated stainless steel tubing gas piping systems shall be bonded by connection to a metallic piping segment or fitting, either outside or inside the building, between the individual gas meter and the first CSST fitting. The bonding jumper shall be sized in accordance with Table E3603.1 based on the size of the service-entrance conductor or feeder supplying each occupancy and as permitted in Table E3603.1 note (d) but not smaller than 6 American Wire Gauge (AWG) copper (or equivalent).

R 408.30537a Wiring methods.

Rule 537a. Sections E3803.6 and E3803.9 and Tables E3801.2, E3801.4, and E3802.1 are amended to read as follows:

E3803.6 Raceway seals. Conduits or raceways shall be sealed or plugged at either or both ends where moisture will enter and contact live parts. Sealants shall be identified for use with the cable insulation, shield, or other components.

E3803.9 Earth movement. Where direct buried conductors, raceways, or cables are subject to movement by settlement or frost, direct buried conductors, raceways, or cables shall be arranged to prevent damage to the enclosed conductors or to equipment connected to the raceways.

Table E3801.2  
ALLOWABLE WIRING METHODS

ALLOWABLE WIRING METHOD	DESIGNATED ABBREVIATION
Armored cable	AC
Electrical metallic tubing	EMT
Electrical nonmetallic tubing	ENT
Flexible metal conduit	FMC
Intermediate metal conduit	IMC
Liquidtight flexible conduit	LFC
Metal-clad cable	MC
Nonmetallic sheathed cable	NM
Rigid polyvinyl chloride conduit	PVC
Rigid metallic conduit	RMC
Service entrance cable	SE
Surface raceways	SR
Underground feeder cable	UF
Underground service cable	USE



Titeflex Corporation  
603 Hendee Street  
Springfield, MA 01104  
Tel. 800-662-0208  
Fax. 413-739-7325  
www.gastite.com  
gastite@titeflex.com

## Technical Bulletin TB2008-02

### Improved Routing Requirements for Gastite® CSST

November 21, 2008

This technical bulletin provides new routing requirements for Gastite® CSST designed to increase the safety of the product in the event of a lightning strike. Lightning is a highly destructive force. Direct and indirect lightning strikes can cause systems in the structure to become electrically energized. Differences in potential between systems may cause arcing to occur between the systems. This arcing can cause damage to CSST, including holes.

Bonding and grounding of all continuous metallic systems should help create equal potential between systems and reduce the risk of arcing. Physical separation between Gastite® CSST and other metallic systems should additionally reduce the risk of arcing.

In light of these safety measures the November 2008 Design & Installation Guide will contain the following changes:

#### **Section 4.0 Installation Practices**

4.1 (f) Supporting CSST – Tubing shall be supported in a workmanlike manner with pipe straps, bands or hangers suitable for the size and weight of the tubing, at intervals not to exceed those shown in Table 4-3. A proper support is one which is designed as a pipe hanger, does not damage the tubing during installation, and provides full support. “J” hooks may not be used as they may damage the CSST. Zip ties/cable ties are not to be used as a primary support, but may be used to organize or bundle CSST. See Table 4-5 for supporting CSST in a rooftop application.

*When supporting CSST tubing runs the use of other conductive metallic systems such as metallic appliance vents, metallic ducting and piping, and electrical cables must be avoided.*

#### **4.3 Routing**

##### **4.3.1 Vertical Runs**

Vertical runs are the preferred run method. Tubing runs should be relatively plumb and free to move within the wall cavity without any physical support between the floors. For support requirements refer to Section 4.1. Where any run is greater than two stories or 20-ft, additional support (appropriate to the weight of the tubing) must be provided at the point of penetration through the floor.

*Care should be taken when installing vertical runs to maintain as much separation as reasonably possible from other electrically conductive systems in the building.*

##### **4.3.2 Horizontal Runs**

Tubing routed on top of ceiling joists and other structural members which comply with the horizontal support spacing requirements will be considered sufficiently supported. See Figures 4-24, 4-25, 4-26 and 4-27 for examples of acceptable support configurations when routing Gastite. Gastite may be routed beneath, through and alongside floor and ceiling joists. Due consideration must be given to future construction possibilities. Horizontal runs in concealed areas must conform to Section 4.4 Protection.

*Care should be taken when installing horizontal runs to maintain as much separation as reasonably possible from other electrically conductive systems in the building.*

As with all Gastite documents, the techniques outlined within this bulletin are subject to all local fuel gas and building codes.



Titeflex Corporation  
603 Hendee Street  
Springfield, MA 01139  
Tel. 800-662-0208  
Fax. 413-739-7325  
www.gastite.com  
gastite@titeflex.com

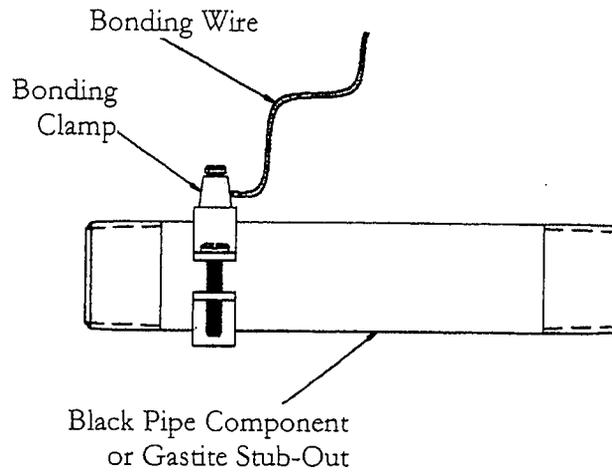


Figure 2

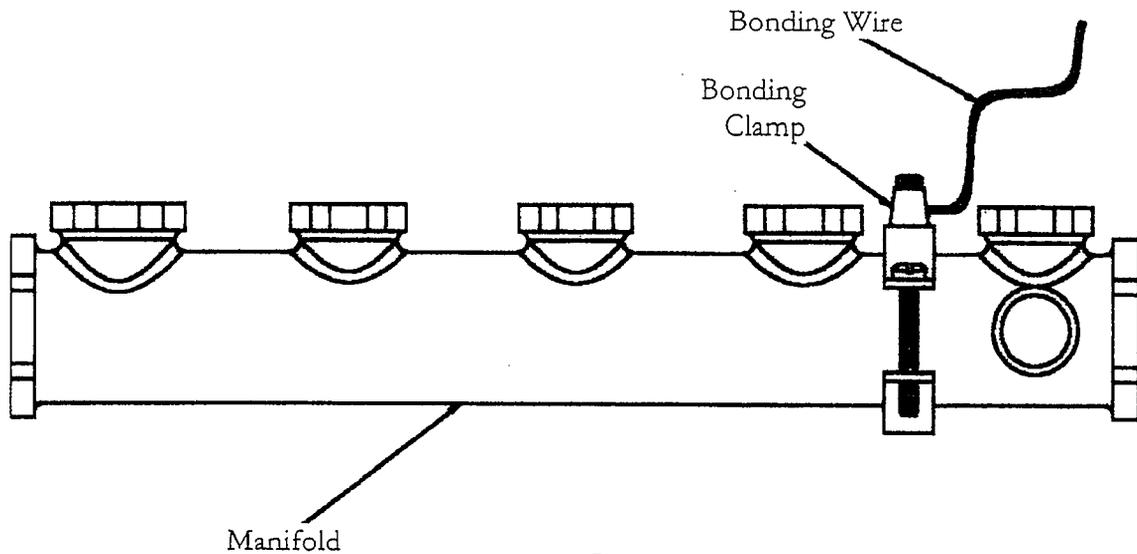


Figure 3

# Important Gastite Lightning Safety Warning

YOUR ROLE IS CRUCIAL!

Lightning is a highly destructive force—and nothing's more important than ensuring lightning safety in new and existing homes—and, as always, inspectors form the essential first line of defense. At Gastite, we require direct bonding for our Corrugated Stainless Steel Tubing (CSST) gas piping—and have updated our installation requirements to help ensure safety. It is essential to understand that all metallic systems within a home can be affected by lightning strikes. Safety isn't just about how each system is installed—it's also about how each installation relates to other home metallic systems. To help maximize safety, contractors should ensure proper installation of every metallic system per local codes and requirements as well as per our CSST installation requirements.

**Remember, lightning safety depends on you!**



 Areas with high lightning risk include but are not limited to: Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, New Mexico, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia and West Virginia.

## LIGHTNING SAFETY WARNING

- 1 PROPERLY BONDING** and grounding the Corrugated Stainless Steel Tubing (CSST) system may reduce the risk of damage and fire from a lightning strike. Lightning is a highly destructive force. Even a nearby lightning strike that does not strike a structure directly can cause systems in the structure to become electrically energized. Differences in potential between systems may cause the charge to arc between systems. Such arcing can cause damage to CSST, including holes. Bonding and grounding should reduce the risk of arcing and related damage. The building owner should confirm that a qualified contractor has properly bonded the CSST gas system to the grounding electrode system of the premises. Refer to Section 4.10 Electrical Bonding/Grounding in the Gastite Design & Installation Guide for details on bonding & grounding CSST.
- 2 ALL OWNERS** should consult a lightning safety consultant to determine whether installation of a lightning protection system would be required to achieve sufficient protection for all building components from lightning. Factors to consider include whether the area is prone to lightning. Areas with high lightning risk include but are not limited to: Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, New Mexico, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia and West Virginia. One currently available source of information regarding areas more prone to lightning than others is the flash density map provided by the National Weather Service which can be found at [http://www.lightningsafety.noaa.gov/lightning\\_map.htm](http://www.lightningsafety.noaa.gov/lightning_map.htm). Lightning protection systems are beyond the scope of this manual and installation guidelines, but are covered by National Fire Protection Association, NFPA 780, the Standard for the Installation of Lightning Protection Systems, and other standards.
- 3 THE OWNER** should confirm with the local gas supply utility company that a suitable dielectric union is installed at the service entry of the structure between underground metallic piping and the gas pipes going into the building as required by code.
- 4 NATIONAL ELECTRIC CODE** (NEC), Section 250.104b, states that “bonding all piping and metal air ducts within the premises will provide additional safety”. Gastite recommends that all continuous metallic systems be bonded and grounded. The owner should confirm with an electrical or construction specialist that each continuous metallic system in a structure has been bonded and grounded by an electrical professional in accordance with local building codes. This should include, but is not limited to metallic chimney liners, metallic appliance vents, metallic ducting and piping, electrical cables, and structural steel.
- 5 CARE SHOULD BE TAKEN** when installing any type of fuel gas piping (including CSST, iron, or copper) to maintain as much separation as reasonably possible from other electrically conductive systems in the building. Refer to sec. 4.3 Routing, in the Gastite D&I Guide for installation techniques. Consult local building codes as to required separations for CSST from such conductive systems including metallic chimney liners, metallic appliance vents, metallic ducting and piping, and electrical cables. See for instance the Indiana Residential Code, section 675 IAC 14-4.3-155.5 Section G2411.1; gas pipe bonding.
- 6 LOCAL BUILDING CODES** are controlling, however, as a general practice, fuel gas piping, including CSST, should not be installed within a chase or enclosure that houses a metallic chimney liner or appliance vent that protrudes through the roof. In the event such an installation is necessary and conforms to local building codes, the metallic chimney liner or vent must be bonded and grounded by a qualified electrical professional, and a separation distance, as specifically permitted by the applicable local building code between the CSST and the metallic chimney liner or vent, is required. Physical contact between CSST and the metallic chimney liner and/or vent is prohibited. If this physical separation cannot be specifically identified in the local building code and achieved or any local building code requirements cannot be met along the entire length, then rerouting of the CSST is required unless such installation is specifically permitted by the local building inspector.

  
The System is the Solution™

[www.gastite.com](http://www.gastite.com)

© 2010 Gastite Division  
INSPECTOR 11/21/08

