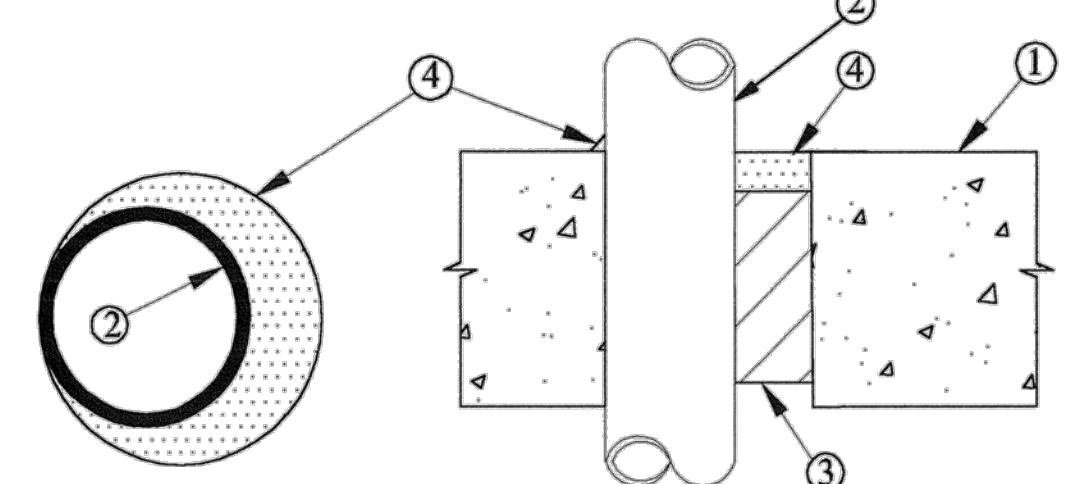
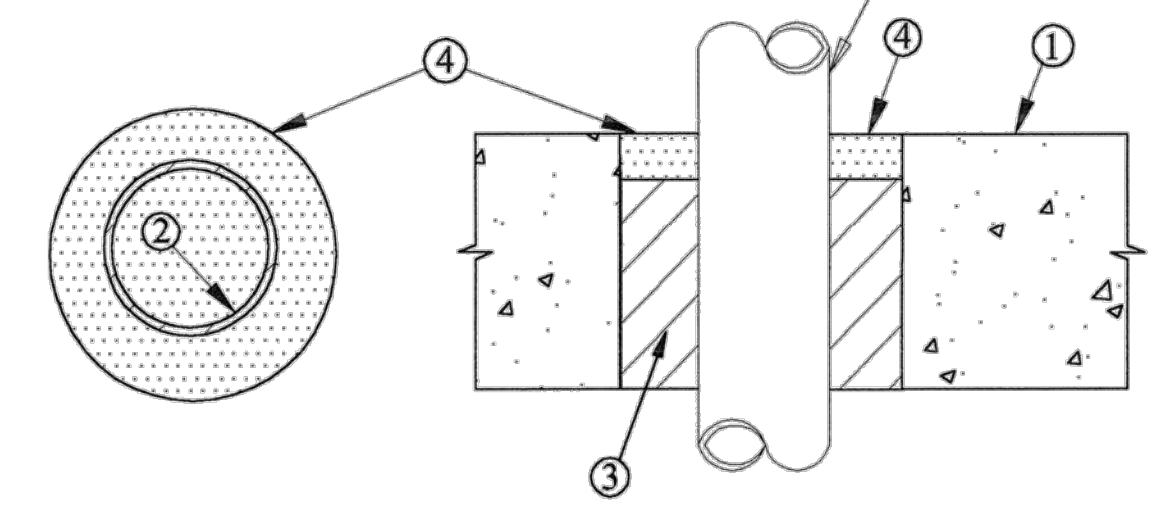


**Classified System**  
**CAJ 1205**  
 2 Hour Fire Rated Through Penetration Firestop for Single Metal Pipe through Concrete Floors or Block Walls using TREMstop Acrylic.  
 F-Rating = 2 Hr.  
 T-Rating = 0 Hr.  
 L-Rating at Ambient - Less Than 1 CFM/sq. ft.  
 L-Rating at 400 F - Less Than 1 CFM/sq. ft.



- ① Pre-Rated Concrete Floors or Block Walls = Min. 4-1/2" thickness. The annular space range shall be min. 0" to max. 7/8" for this firestop system.
- ② Metallic Pipe: > Steel Pipe - 12" diam. (or smaller) sch. 40 (or heavier) steel  
 > Conduit - Nom. 4" diam. (or smaller) steel conduit, or EMT.  
 > Copper Pipe - 3" diam. (or smaller) Regular (or heavier) copper.  
 > Cast Iron Pipe - 12" diam. (or smaller) cast or ductile iron.  
 > Copper Tubing - 3" diam. (or smaller) Type L (or heavier) copper.
- ③ Packing Material - Min. 4" thickness of mineral wool (min. 4.0 pcf) insulation, firmly packed into opening as a permanent form.
- ④ TREMstop Acrylic - Min. 1/2" sealant applied within annulus, and a minimum 1/4" sealant applied at point contact; at the floor surface for floors, or both surfaces for walls.

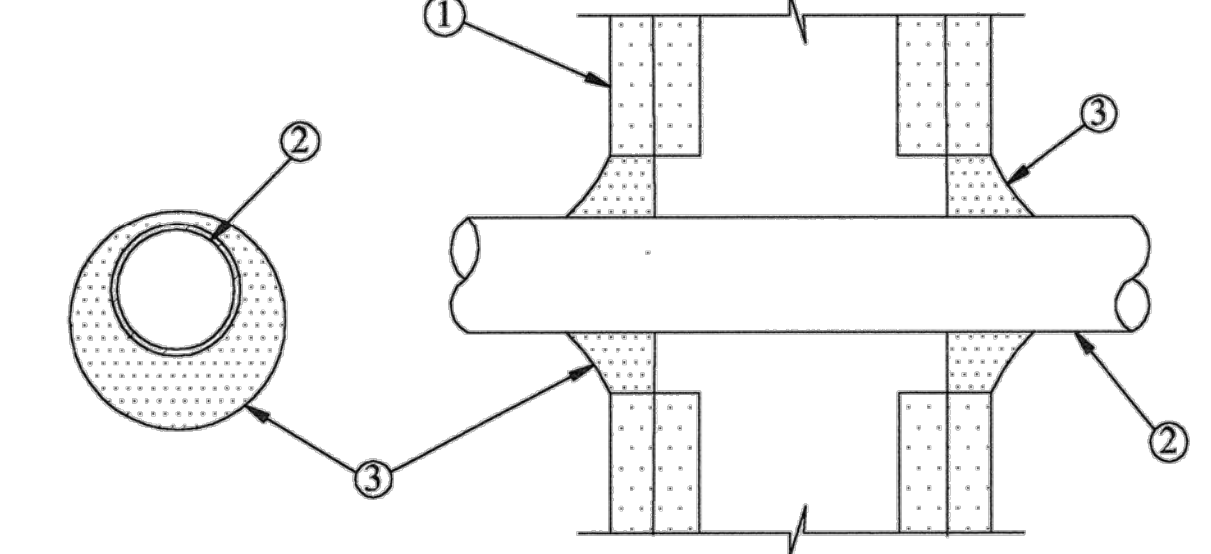
**Classified System**  
**CAJ 1302**  
 2 Hour Fire Rated Through Penetration Firestop for Single Metal Pipe through Concrete Floors or Walls using TREMstop IA.  
 F-Rating = 2 Hr.  
 T-Rating = 0 Hr.



- ① Pre-Rated Concrete Floors or Block Walls = Min. 4-1/2" thickness.
- ② Metallic Pipe: A) Steel Pipe - 8" diam. (or smaller) Sch. 10 (or heavier) steel pipe.  
 B) Iron Pipe - 8" diam. (or smaller) cast or ductile iron pipe.  
 C) Conduit - 4" diam. (or smaller) EMT or steel conduit.  
 D) Copper Tubing - 4" diam. (or smaller) Type L (or heavier) copper tubing.  
 E) Copper Pipe - 4" diam. (or smaller) Regular (or heavier) copper pipe.
- ③ Packing Material - See table below for mineral wool insulation (min. 4.0 pcf) requirements.
- ④ TREMstop IA - See table below for minimum thickness of sealant. Apply sealant flush with top of floor surface or with both sides of the wall assembly.

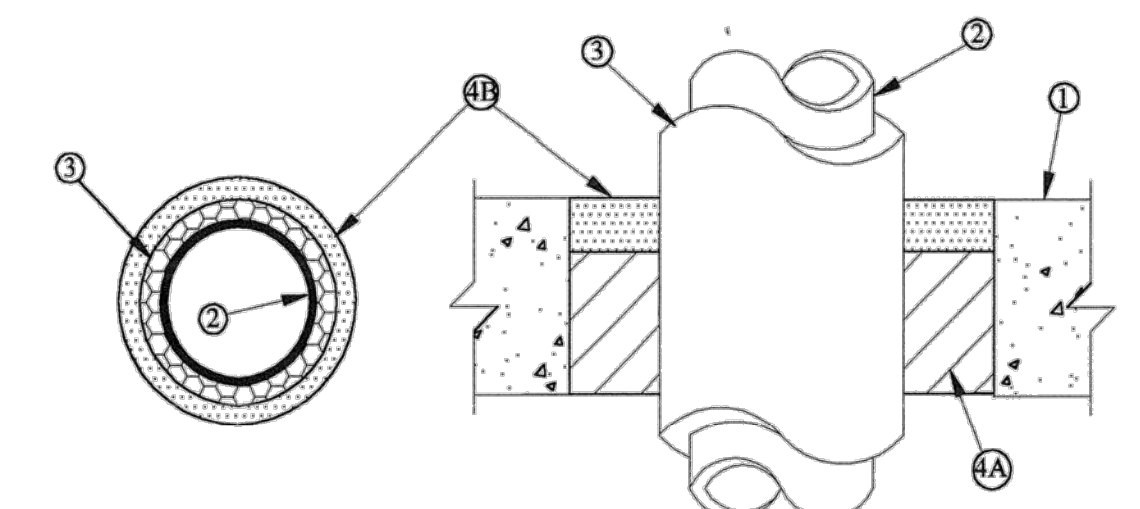
Annular Space Range, in.	Min. Packing Material Thickness, in.	Min. Thickness of Sealant, in.	F-Rating Hr.
1/2 to 1-3/8	0	1	2
1/2 to 1-3/8	4	1/2	2

**Classified System**  
**WL 1097**  
 1 or 2 Hour Fire Rated Through Penetration Firestop for Single Metal Pipe through Concrete Floors or Walls using FYRE-SHIELD.  
 F-Rating = 1 and 2 Hr.  
 T-Rating = 0 Hr.



- ① Pre-Rated Gypsum Wallboard/Stud Wall Assembly
- ② Metallic Pipe - A) Steel Pipe - 8" diam. (or smaller) Sch. 40 (or heavier) steel pipe.  
 B) Iron Pipe - 8" diam. (or smaller) cast or ductile iron pipe.  
 C) Conduit - 4" diam. (or smaller) EMT or rigid steel conduit.  
 D) Copper Tubing - 4" diam. (or smaller) Type L (or heavier) copper tubing.  
 E) Copper Pipe - 4" diam. (or smaller) Regular (or heavier) copper pipe.  
 The annular space shall be min. 1/4" to max. 5/8" within the firestop system.
- ③ FYRE-SHIELD - Min. 1/2" thickness of sealant applied within opening. Additional sealant to be installed such that a min. 1/4" crown is formed around the penetrating item.

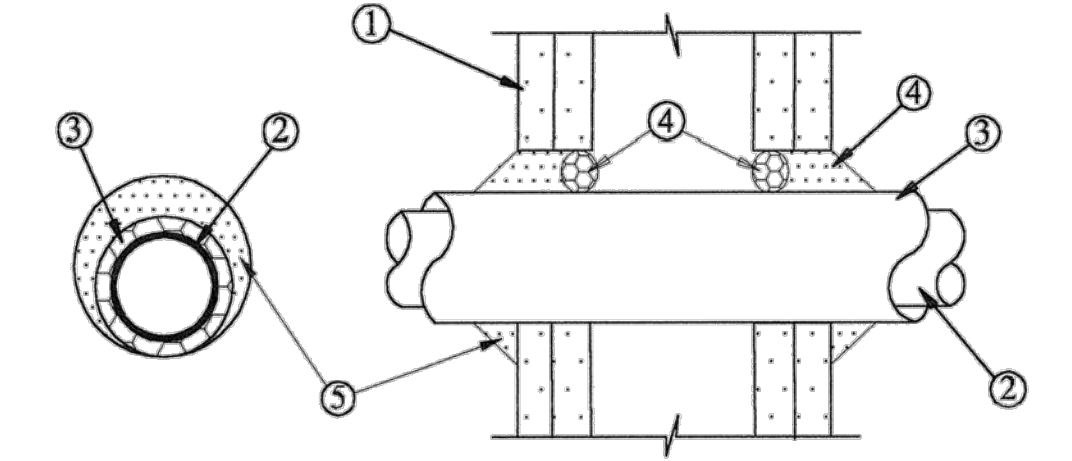
**Classified System**  
**CAJ 5121**  
 2 Hour Fire Rated Through Penetration Firestop for Insulated Metal Pipe through Concrete Floors or Walls using TREMstop IA.  
 F-Rating = 2 Hr.  
 T-Rating = 1/2 & 1 Hr.



- ① Pre-Rated Concrete Floor or Wall Assembly = Min. 4-1/2" thickness
- ② Metallic Pipe - A) Copper Tubing - Nom. 4" diam. (or smaller) Type L (or heavier) copper tubing.  
 B) Copper Pipe - Nom. 4" diam. (or smaller) Regular (or heavier) copper pipe.  
 C) Steel Pipe - Nom. 4" diam. (or smaller) Sch. 10 (or heavier) steel pipe.  
 D) Iron Pipe - Nom. 4" diam. (or smaller) cast iron pipe.  
 E) Conduit - Nom. 4" diam. (or smaller) EMT or steel conduit.
- ③ Pipe Covering - Fiberglass insulation, see table below for thickness and annular space.
- ④A Packing Material - Mineral wool insulation (min. 4.0 pcf) firmly packed into opening to the minimum required thickness in the table above.
- ④B TREMstop IA - Min. thickness of sealant as specified in table above, applied within opening flush with top surface of floor or both surfaces of wall.

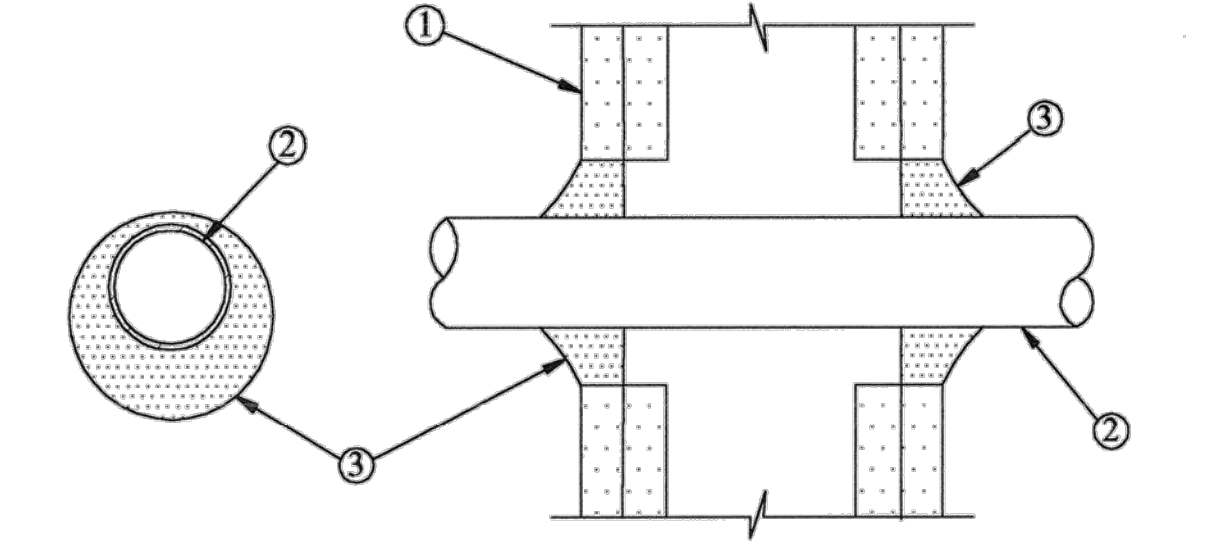
Max. Pipe Diam. in.	Pipe Covering Thickness in.	Annular Space in.	Packing Material Thickness in.	Min. Sealant Thickness in.	F-Rating Hr.	T-Rating Hr.
4	1	1/2 to 1	0	1	2	1/2
4	2	1/2 to 1-1/2	3-1/2	1	2	1

**Classified System**  
**WL 5081**  
 2 Hour Fire Rated Through Penetration Firestop for Insulated Metal Pipe through Gypsum Walls using TREMstop IA.  
 F-Rating = 2 Hr.  
 T-Rating = 1/2 Hr.



- ① Pre-Rated Gypsum Wallboard/Stud Wall Assembly
- ② Metallic Pipe - A) Steel Pipe - Nom. 4" diam. (or smaller) Sch. 10 (or heavier) steel pipe.  
 B) Iron Pipe - Nom. 4" diam. (or smaller) cast or ductile iron pipe.  
 C) Copper Tubing - Nom. 4" diam. (or smaller) Type L (or heavier) copper tubing.  
 D) Copper Pipe - Nom. 4" diam. (or smaller) Regular (or heavier) copper pipe.  
 E) Conduit - Nom. 4" diam. (or smaller) EMT or steel conduit.
- ③ Pipe Covering - Nom. 3/4" thick (or less) AB/PVC flexible foam insulation. The annular space shall be min. 0" to max. 3/8".
- ④ Packing Material (optional) - Foam backer rod firmly placed into opening as a permanent form.
- ⑤ TREMstop IA - Min. 1" thickness of sealant applied within annulus flush with both sides of wall assembly. At point contact a min. 5/8" bead of sealant shall be installed at the wallboard/insulation interface. A 5/8" crown of sealant shall be formed around the penetrating item.

**Classified System**  
**WL 2064**  
 1 or 2 Hour Fire Rated Through Penetration Firestop for Single Plastic Pipe through Gypsum Walls using TREMstop WBM.  
 F-Rating = 1 and 2 Hr.  
 T-Rating = 1 and 1-1/2 Hr.  
 3735 Green Rd.  
 Beachwood, OH, 44122  
 Drawing not to scale



- ① Pre-Rated Gypsum Wallboard/Stud Wall Assembly  
 The hourly T-Rating is 1-1/2 Hr when system is installed in a 2 Hr fire-rated wall.  
 The hourly T-Rating is 1 Hr when system is installed in a 1 Hr fire-rated wall.
- ② Plastic Pipe - Nom 2" diam. (or smaller) CPVC pipe for use in closed piping systems.  
 The annular space shall be min. 1/4" to max. 1-3/8" within the firestop system.
- ③ TREMstop WBM - Min. 1/2" thickness of sealant applied within opening. Additional sealant to be installed such that a min. 1/4" crown is formed around the penetrating item.

**FIRE STOPPING DETAILS**  
 N.T.S.

CERTIFICATE OF AUTHORIZATION #: 26074  
 P.E. #: 14170  
 12355 SW 129 CT, SUIT 4  
 MIAMI, FLORIDA 33186  
 PHONE: (305) 251-9177  
 FAX: (305) 251-8372  
**ALFREDO M. CARBONELL, P.E., INC.**

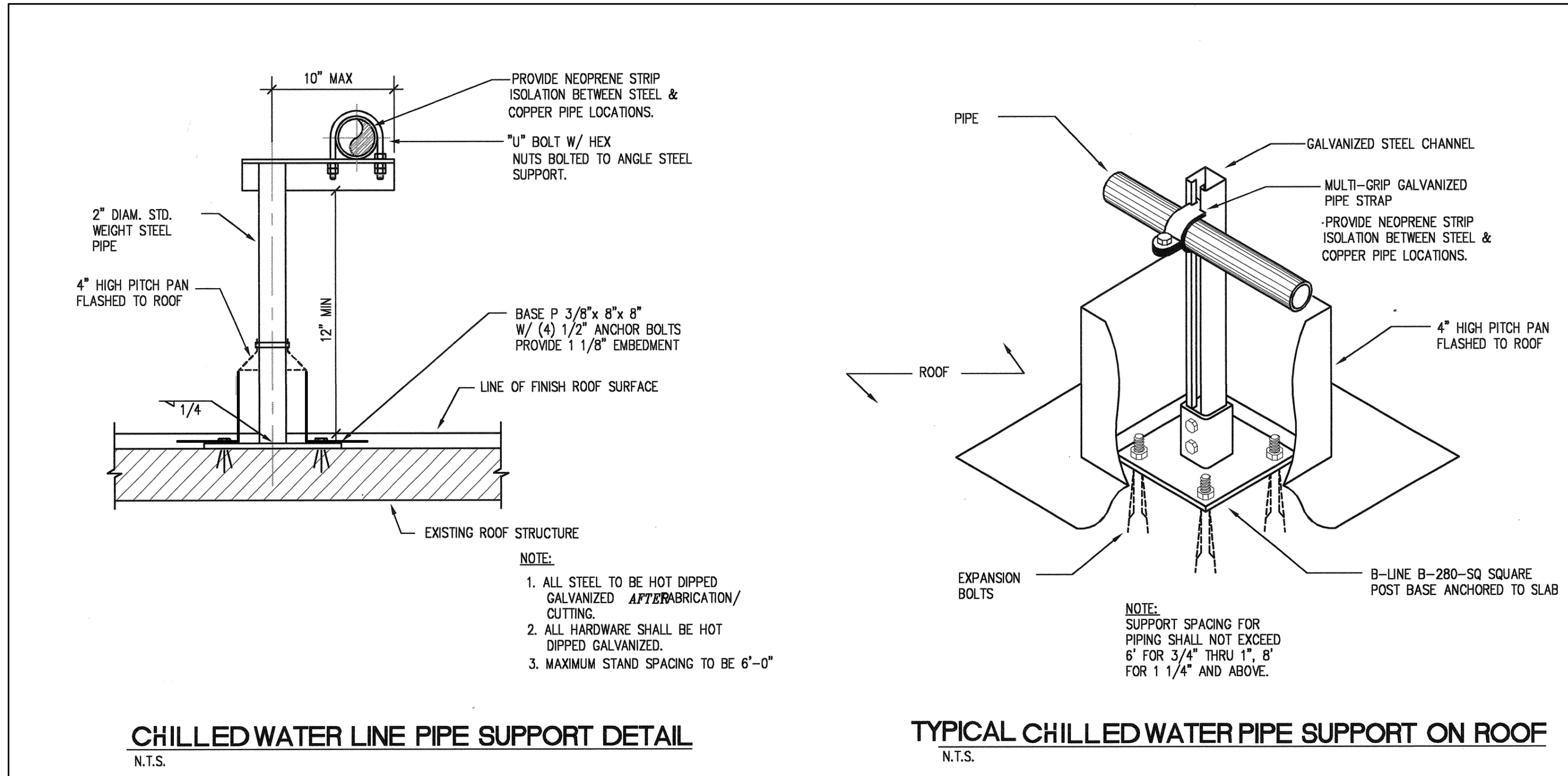
Reviews:


Client: **TOWN OF SURFSIDE**  
 Project: **TOWN HALL BUILDING NEW CHILLED WATER SYSTEM**  
 9293 HARDING AVE. SURFSIDE, FL 33154  
 PROPERTY FOLIO NUMBER:

Plan Description:  
**FIRE PENETRATION DETAILS**

FLA. REG. P.E. # 14170

Designed by: **ALFREDO M. CARBONELL**  
 Drawn by: **ERICK FLORIDO**  
 Revised & Stamped: **ALFREDO M. CARBONELL**  
 Date: **MAY. 25. 2014**  
 Scale:  
 Job #: **2014-05.25**



CERTIFICATE OF AUTHORIZATION #: 26074  
 P.E. #: 14170  
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Reviews:

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 PROPERTY FOLIO NUMBER:

Plan Description:  
 CHILLED WATER PIPES SUPPORT DETAILS

Seal:  
 FLA. REG. P.E. # 14170

Designed by: ALFREDO M. CARBONELL  
 Drawn by: ERICK FLORIDO  
 Revised & Stamped: ALFREDO M. CARBONELL  
 Date: MAY. 25 . 2014  
 Scale:  
 Job No.: 2014-05.25

Sheet:  
**P2**  
 2 of 2 Sheets