

## System No. F-A-1093

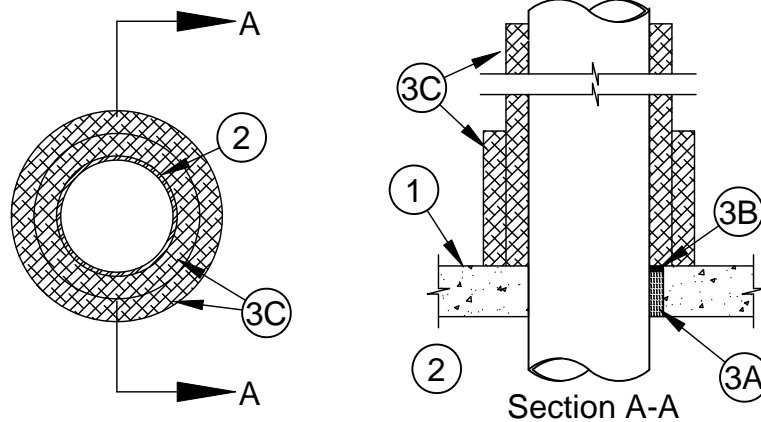
F Rating - 2 Hr

T Ratings - 1-1/2, 1-3/4 and 2 Hr (See Item 2)

L Rating at Ambient - 1 CFM/sq ft

L Rating at 400°F - Less than 1 CFM/sq ft

W Rating - Class 1 (See Item 3B)



- 1. Floor Assembly** - Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. As an alternate, any min 2 hr fire rated D700, D800 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory having a min 2-1/2 in. (64 mm) thickness of lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete topping over the steel deck may be used. Floor may also be constructed of any min 6 in. (152 mm) thick hollow core UL Classified **Precast Concrete Units\***. Max diam of opening 12 in. (324 mm). Max diam of opening in floor constructed of hollow-core precast concrete units is 7 in. (178 mm).  
See **Precast Concrete Units** (CFTV) category in Fire Resistance Directory for names of manufacturers.
- 2. Through-Penetrant** - One metallic pipe, conduit or tubing installed concentrically or eccentrically within opening. Annular space between penetrant and periphery of opening shall be min of 0 in. (0 mm, point contact) to max 2 in. (51 mm). Penetrant to be rigidly supported on both sides of floor assembly. The following types and sizes of penetrants may be used:
  - A. Steel Pipe** - Nom 10 in. (254 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - B. Iron Pipe** - Nom 10 in. (254 mm) diam (or smaller) cast or ductile iron pipe.
  - C. Copper Tubing** - Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
  - D. Copper Pipe** - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.
  - E. Conduit** - Nom 6 in. (152 mm) diam (or smaller) steel conduit, nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT), or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.

**The T Rating is 2 Hr when Item 2A, 2B or 2E is used or when max 2 in. (51 mm) diam copper tubing (Item 2C) or copper pipe (Item 2D) is used. The T Rating is 1-1/2 hr when copper tubing or copper pipe (Item 2C or 2D) larger than nom 2 in. (51 mm) diam is used in floors having a min concrete thickness which is less than 4-1/2 in. (114 mm). The T Rating is 1-3/4 Hr when copper tubing or copper pipe (Item 2C or 2D) larger than nom 2 in. (51 mm) diam is used in floors having a min 4-1/2 in. (114 mm) concrete thickness.**
- 3. Firestop System** - The details of the firestop system shall be as follows:
  - A. Packing Material** - Min 4 pcf (64 kg/m<sup>3</sup>) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to extend through entire thickness of concrete floor except for recess at top surface of floor to accommodate the required thickness of fill material.
  - B. Fill, Void or Cavity Materials\* - Sealant or Putty** - Min 1/2 in. (13 mm) thickness of caulk or putty applied within the annulus, flush with top surface of floor. At point contact, apply min 1/4 in. (6 mm) bead at penetrant/concrete interface on top surface of floor.  
**SPECIFIED TECHNOLOGIES INC** - SpecSeal 100, 101, 102, 105, 120 or 129 Sealant, SpecSeal LCI Sealant, SpecSeal LC150 Sealant, SpecSeal LE600 Sealant, SpecSeal Putty, Pensil 300 Sealant or SpecSeal Series SIL300 Sealant for floors or walls and Pensil 300 SL Sealant or SpecSeal Series SIL300SL Sealant for floors only.  
**W Rating applies only when Pensil 300, SpecSeal Series SIL300, Pensil 300 S/L or SpecSeal Series SIL300SL Sealants are used with solid penetrant (not flexible steel conduit).**
  - C. Duct Wrap Material\*** - Min 1-1/2 in. (38 mm) thick duct wrap tightly wrapped around penetrant to extend 36 in. (914 mm) above floor. An additional layer of min 1-1/2 in. (38 mm) thick duct wrap tightly wrapped around the first layer of duct wrap to extend 12 in. (305 mm) (914 mm) above floor. All longitudinal seams of both layers of duct wrap are sealed with foil tape.  
**THERMAL CERAMICS INC** - FireMaster® Duct Wrap 2x2, FireMaster Duct Wrap 2x2+, FireMaster FastWrap XL, or Pyroscat Duct Wrap XL.

\*Bearing the UL Classification Mark



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F-A-1093  
PAGE 1 OF 1