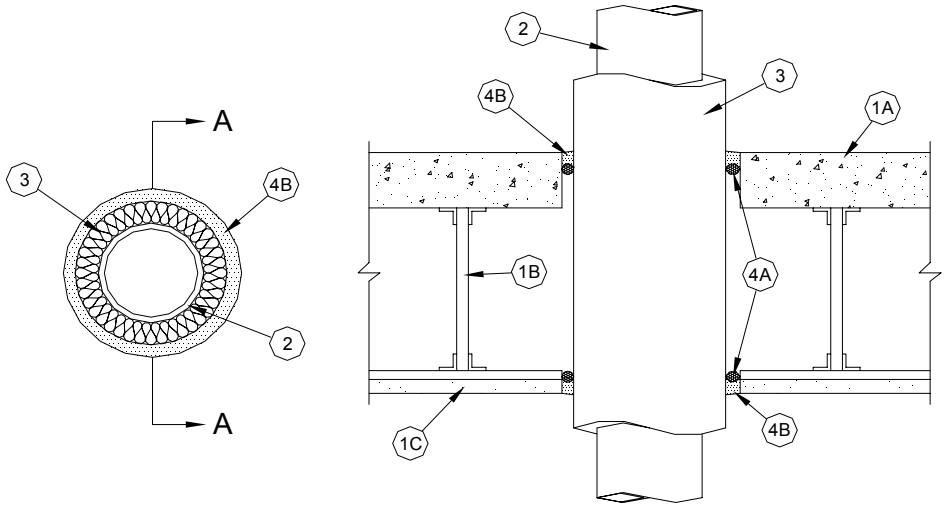
Through-penetration Firestop Systems
UL System No. F-E-5011
F Rating - 1 Hr
T Ratings - 3/4 and 1 Hr (See Item 3)



SECTION A-A

1. **Floor-Ceiling Assembly -** The 1 hr fire-rated concrete and steel joist Floor-Ceiling assembly shall be constructed of the materials and in the manner described in the individual G500 Series Design in the UL Fire Resistance Directory, as summarized below:
   A. **Concrete Floor -** Normal weight or lightweight (100-150 pcf (1601-2402 kg/m^3)) concrete over metal lath or steel deck as specified in the individual G500 Series Design. Max. dia. of floor opening is 7-5/8 in (194 mm).
   B. **Joists -** Steel joists or Structural Steel Members* as specified in the individual G500 Series Design.
   C. **Gypsum Board* -** Min. 5/8 in (16 mm). thick, screw-attached to furring channels as specified in the individual G500 Series Design. Max. dia. of ceiling opening is 7-5/8 in (194 mm).

2. **Through Penetrants -** One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. The space between pipes or tubing and periphery of opening shall be min 0 in. (point contact) to max 7/8 in (22 mm). Pipe or tubing to be rigidly supported on both sides of floor assembly. The following types and sizes of metallic pipes or tubing may be used:
   A. **Steel Pipe -** Nom. 4 in (102 mm) dia. (or smaller) Schedule 40 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom. 4 in (102 mm) dia. (or smaller) cast or ductile iron pipe.
   C. **Copper Tubing -** Nom. 2 in (51 mm) dia. (or smaller) Type L (or heavier) copper tubing.
   D. **Copper Pipe -** Nom. 2 in (51 mm) dia. (or smaller) Regular (or heavier) copper pipe.

3. **Pipe Coverings* -** One of the following pipe coverings should be used:
   A. **Pipe Covering* -** Nom. 1 in (25 mm). thick hollow cylindrical heavy density (min. 3.5 pcf (56 kg/m^3)) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. An annular space of min. 1/2 in. (13 mm) to a max. 5/8 in. (16 mm) is required within the firestop system.

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See **Pipe and Equipment Covering - Materials** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B. **Tube Insulation-Plastics+ -** Nom. 1/2 in. (13 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space shall be 5/16 in (8mm).

See **Plastics+** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

The T Ratings are 3/4 and 1 hr when installed with Items A and B, respectively.

4. **Firestop System -** The firestop system shall consist of the following:

A. **Packing Material -** (Optional) - Foam backer rod firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor and bottom surface of the ceiling as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Material* - (Caulk) -** Min. 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of the floor and bottom surface of the ceiling. Additional fill material to be installed such that a min. 1/16 in. (2 mm) crown is formed around the penetrating item and lapping 1/2 in. (13 mm) beyond the periphery of the opening.

A/D FIRE PROTECTION SYSTEMS INC - A/D FIREBARRIER Intumescent Sealant

*Bearing the UL Classification Mark