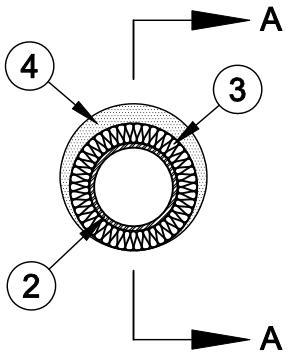
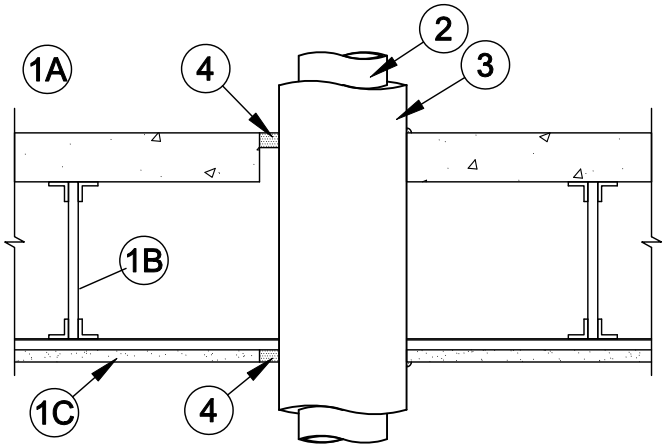
System No. F-E-5001

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) concrete over metal lath or steel deck as specified in the individual G500 Series Design. Diam of floor opening to be max 1 in. larger than OD of insulated metallic pipe.
   B. **Joists -** Steel joists or **Structural Steel Members*** as specified in the individual G500 Series Design.
   C. **Gypsum Board* -** Min 5/8 in. thick, screw-attached to furring channels as specified in the individual G500 Series Design. Diam of ceiling opening to be max 1 in. larger than OD of insulated metallic pipe.
2. **Through Penetrants -** One metallic pipe or tubing to be installed either concentrically or eccentrically within the opening. Penetrant to be located approx midway between joists and rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipe or tubing may be used:
   A. **Steel Pipe -** Nom 4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 4 in. diam (or smaller) cast or ductile iron pipe.
   C. **Copper Pipe or Tube -** Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe or Type L (or heavier) copper tube.
3. **Pipe Covering* -** One of the following types of pipe coverings may be used:
   A. **Pipe and Equipment Covering Materials* -** Max 1 in. thick hollow cylindrical heavy density (min 3.5 pcf) 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 butt tape supplied with the product. Annular space between the insulated through penetrant and the periphery of opening shall be min 0 in. (point contact) to max 1 in.

      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. **Pipe Covering Materials* -** Max 1 in. thick unfaced mineral fiber pipe insulation sized to the outside diam of pipe or tube. Pipe insulation secured with min No. 18 AWG steel wire spaced max 12 in. OC. Annular space between the insulated through penetrant and the periphery of opening shall be min 0 in.(point contact) to max 1 in.

      IIG MINWOOL L L C - High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT or High Temperature Pipe Insulation Thermaloc.

C. **Sheathing Material* -** Used in conjunction with Item 3B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3B) with the kraft side exposed. Longitudinal joints and transverse joints sealed with metal fasteners or butt tape.

See **Sheathing Materials** (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing 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.

D. **Tube Insulation - Plastics# -** Nom 1 in. thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. Annular between the insulated through penetrant and the periphery of opening space shall be min 0 in. (point contact) to max 1 in.

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

When Item 3A or 3B pipe covering is used, T Rating is 1 hr. When Item 3D pipe covering is used, T Rating is 3/4 hr.

4. **Fill, Void or Cavity Materials*-Sealant -** Min 3/4 in. thickness of fill material applied within the annulus, flush with top surface of floor. Min 5/8 in. thickness of fill material applied within the annulus, flush with bottom surface of ceiling. At point contact locations, min 1/4 in. diam bead of fill material applied at penetrant/concrete interface and penetrant/gypsum board interface.

SPECIFIED TECHNOLOGIES INC - SpecSeal LCI Sealant

*Bearing the UL Classification Mark

#Bearing the UL Recognized Component Mark