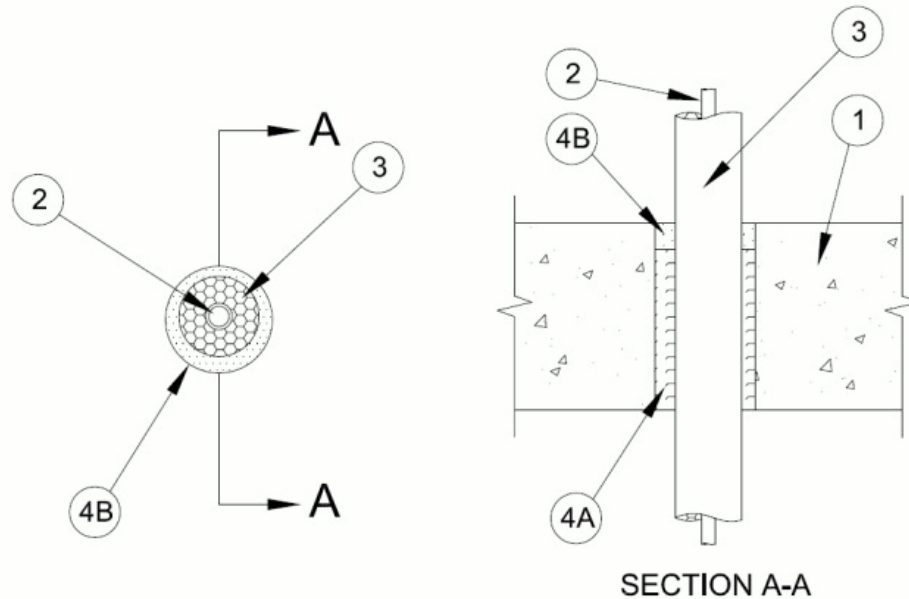


F Rating — 2 Hr
 T Rating — 2 Hr



1. **Floor or Wall Assembly** — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100~~150~~ pcf or 1600-2400 kg/m³) concrete floor or 5 in. (127 mm) thick reinforced lightweight or normal weight (100~~150~~ pcf or 1600-2400 kg/m³) concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Diameter of the opening shall be nom 3/4 in. (19 mm) larger than OD of insulated penetrant. Max diam of opening is 2 in. (51 mm).

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Through Penetrant** — One tube installed concentrically within opening. Tube to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic tubing may be used:

A. **Aluminum Tubing** — Reflok 6061-T4 ASTM B210 seamless aluminum tubing for use in closed (process or supply) piping systems. Tubing size shall be maximum 1/4 in. (6 mm) outer diameter (OD) having wall thickness of 0.030 in. (0.8 mm).

3. **Pipe Covering** — The following pipe covering shall be used with each Through Penetrant (Item 2).

A. **Tube Insulation-Plastics+** — Nom 1/2 in. (13 mm) thick Aerocel Ethylene Propylene Diene Terpolymer (EPDM) pipe insulation furnished in the form of tubing. The annular space between the insulated penetrant and the edge of the opening shall be 1/4 to 3/8 in. (6 to 9.5 mm).

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

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

A. **Packing Material** — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both sides of wall to accommodate the fill material (Item 4B).

B. **Fill, Void or Cavity Material*** — Min 1/2 in. (13 mm) thickness of fill material shall be applied within the annulus between penetrant and opening, flush with top surface of floor or both surfaces of wall.

RECTORSEAL — [Metacaulk 1000](#), [Metacaulk 350i](#), Biostop 350i, Biostop 500+

*,+ Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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