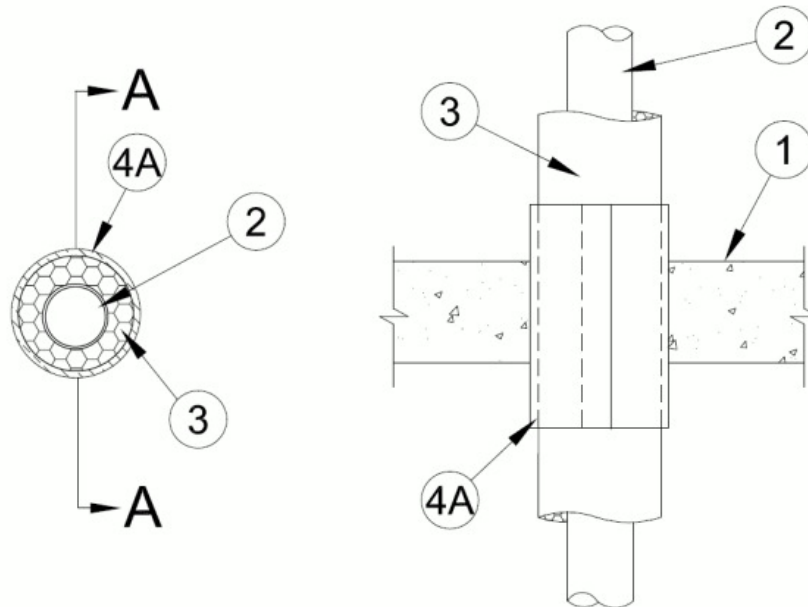


F Rating — 2 Hr  
 T Rating — 3/4 Hr



**Section A-A**

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/m<sup>3</sup>) concrete floor or 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 7 in. (178 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 2-1/8 in. (54 mm) to minimum 1/4 in. (6 mm) outer diameter (OD) having wall thickness ranging from 0.080 in. (2 mm) to 0.030 in. (0.8 mm) respectively.

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

A. **Tube Insulation-Plastics+** — Min 1/2 in. (13 mm) thick to max 1-1/2 in. (38 mm) 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. **Firestop Device** — Galv steel sleeve lined with an intumescent material and sized for the OD of the insulated penetrant. When outer diameter of insulated penetrant does not exceed 3-1/8 in. (79 mm), Intumescent Sleeve 234 shall be used. When OD of insulated penetrant exceeds 3-1/8 in. (79 mm), Intumescent Sleeve 68 shall be used. Device to be installed in accordance with the manufacturer's installation instructions along with the following. Device to be tightly wrapped around outer circumference of insulated through penetrant, installed through the annular space of the opening, and centered within the floor or wall opening.

**RECTORSEAL** — [Metacaulk Intumescent Sleeve](#), Biostop Intumescent Sleeve or FlameSafe® Intumescent Sleeve

B. **Fill, Void or Cavity Material\*** — (Optional. Not Shown) — When an annular space exists between the Intumescent Sleeve and the opening after it is installed tightly around the insulated penetrant, a min 1/2 in. (13 mm) thickness of fill material shall be applied within the annulus between firestop device sleeve and opening, flush with top surface of floor or both surfaces of wall.

---

**RECTORSEAL** — [Metacaulk 1000](#), [Biostop 150+](#), [Metacaulk 150+](#), [Metacaulk 350i](#), [Biostop 350i](#), [Biostop 500+](#), [Metacaulk](#) and [Biostop PuttySticks](#)

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

Reprinted from the Online Certifications Directory with permission from UL. ©UL LLC