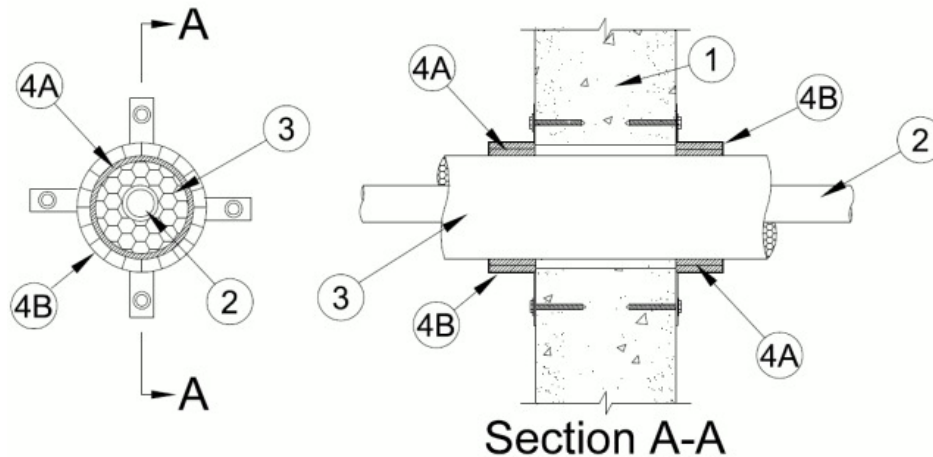


F Rating — 2 Hr  
 T Rating — 2 Hr



**1. Wall Assembly** — Min 6 in. (152 mm) thick lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. Wall may also be constructed of any UL Classified **Concrete Blocks\***. Diameter of the opening shall be max 1/2 in. (13 mm) larger than outer diameter (OD) of insulated penetrant. Max diam of opening is 4-1/2 in. (165 mm).

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

**2. Through Penetrants** — One tube centered within opening. Tube to be rigidly supported on both sides of 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 1-1/8 in. (29 mm) to minimum 1/4 in. (6 mm) outer diameter (OD) having wall thickness ranging from 0.050 in. (1.3 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) 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 not exceed 3/8 in. (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. **Fill, Void or Cavity Material\* - Wrap Strip** — Two layers of nom 1/4 in. (6 mm) thick by 2 in. (51 mm) wide intumescent wrap strip wrapped around the outer circumference of the insulated pipe on each side of the wall. Wrap strip installed with butted seams and located such that edge of wrap strip is flush with the surface of wall. Wrap strip temporarily secured with tape or tie wire.

**RECTORSEAL** — [Metacaulk Wrap Strip](#), Biostop Wrap Strip or Flamesafe Wrap Strip

B. **Steel Collar** — A collar fabricated from coils of precut min 0.016 in. thick (0.41 mm) galv steel available from fill material manufacturer shall be installed to restrain wrap strip. Collar shall be nom 2 in. (51 mm) deep with 1 in. (25 mm) wide by 1-1/2 in. (38 mm) long anchor tabs located 4 in. (102 mm) on center for attachment to wall. In addition, collar provided with 1/2 in. (13 mm) wide by 3/4 in. (19 mm) long retainer tabs opposite the anchor tabs. Collar shall be wrapped over the wrap strip, overlapping min 1 in. (25 mm) and secured with two steel screws or stainless steel hose clamp. The retainer tabs are folded 90 deg towards the pipe to maintain the annular space around the pipe and to retain the wrap strip. Collars secured to wall at every anchor tab with 1/4 by 1-1/2 in. (6 mm by 38 mm) long steel expansion bolts or Tapcon concrete anchors in conjunction with 1/4 by 5/8 in. (6 by 16 mm) diam steel washers.

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