



### System No. F-E-8004

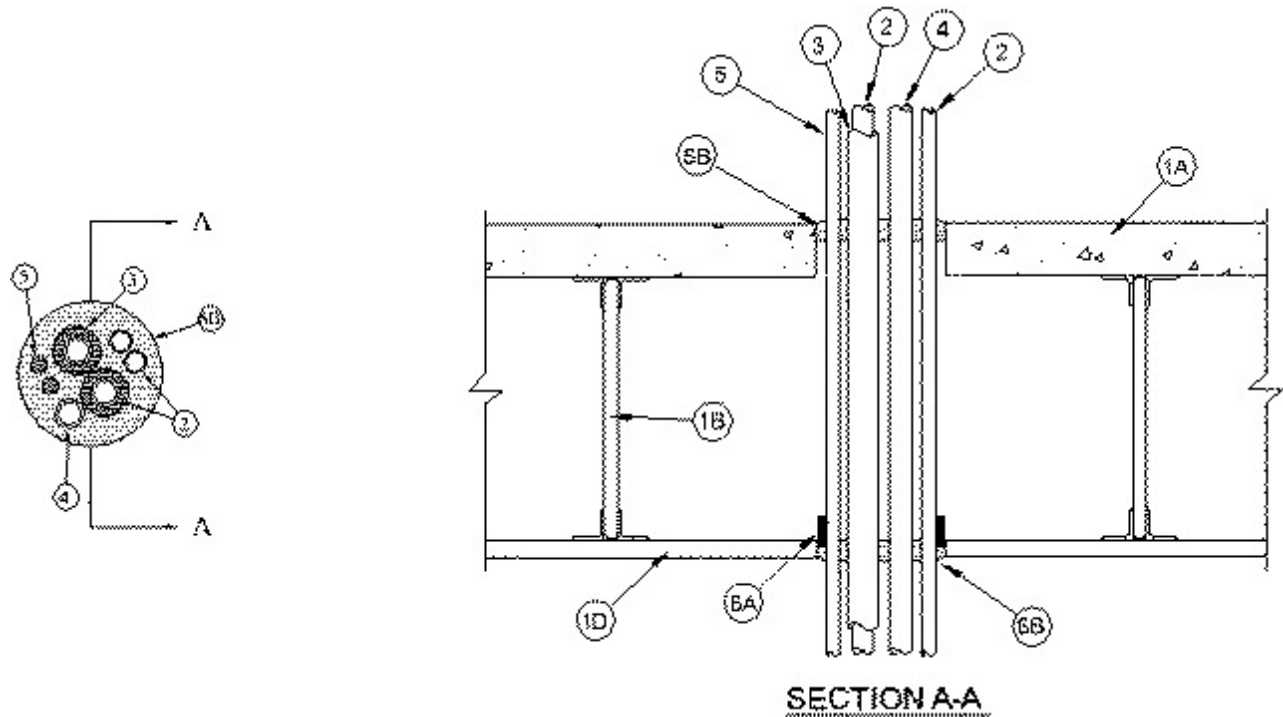
February 05, 2014

F Rating — 1 Hr

T Rating — 3/4 Hr

L Rating at Ambient - Less than 1 CFM/sq ft

L Rating at 400° F - Less than 1 CFM/sq ft



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 or 1600-2400 kg/m<sup>3</sup>) concrete over metal lath or steel deck as specified in the individual G500 Series Design. Max diam of floor opening is 4-1/2 in. (114 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 diam of ceiling is 4-1/2 in. (114 mm).

2. **Through Penetrants** — One or more metallic pipes, conduits or tubing to be installed within the firestop system. Pipes, conduits or tubing to be spaced a min 1/8 in. (3.2 mm) to a max 1/2 in. (13 mm) from the other penetrants (Item 3, 4 and 5). The space between the pipes, conduits or tubing and the periphery of the opening shall be a min 1/4 in. (6 mm) to a max 1/2 in. (13 mm). Pipes, conduits or tubing to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. **Steel Pipe** — Nom 3/4 in. (19 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Conduit** — Nom 3/4 in. (19 mm) diam (or smaller) steel electrical metallic tubing or galv steel conduit.

C. **Copper Tubing** — Nom 3/4 in. (19 mm) diam (or smaller) Type L (or heavier) copper tubing.

D. **Copper Pipe** — Nom 3/4 in. (19 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Tube Insulation-Plastics#** — Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. Tube insulation to be installed on a one or more of the metallic pipes or tubing. Insulated pipes or tubing shall be spaced a min 1/4 in. (6 mm) to a max 1/2 in. (13 mm) from the other through-penetrants (Items 2, 4, and 5). The space between insulated through penetrants and periphery of opening shall be a min 1/4 in. (6 mm) to a max 1/2 in. (13 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 and having a UL 94 Flammability Classification of 94-5VA may be used.

4. **Nonmetallic Through Penetrants** — One nonmetallic pipe or conduit to be installed within the firestop system. Pipe or conduit shall be spaced a min 1/8 in. (3.2 mm) to a max 1/2 in. (13 mm) from the other through penetrants (Item 2, 4 and 6). The annular space between pipe or conduit and the periphery of the opening shall be a min 1/4 in. (6 mm) to a max 1/2 in. (13 mm). Pipe or conduit to be rigidly supported on both sides of the floor-ceiling assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

A. **Polyvinyl Chloride (PVC) Pipe** — Nom 1-1/4 in. (32 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.

B. **Rigid Nonmetallic Conduit+** — Nom 1-1/4 in. (32 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA No. 70).

C. **Chlorinated Polyvinyl Chloride (CPVC) Pipe** — Nom 1-1/4 in. (32 mm) diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.

5. **Cables** — Two, 7/C No. 12 AWG (or smaller) cable with PVC - nylon insulation and PVC jacket materials. Cables to be spaced a min 1/8 in. (3.2 mm) to a max 1/2 in. (13 mm) from the other through-penetrants (Items 2, 3 and 4). The annular space between the cable and periphery of opening shall be a min 1/4 in. (6 mm) into a max 1/2 in. (13 mm). Cables to be rigidly supported on both sides of floor-ceiling assembly.

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

A. **Fill, Void or Cavity Materials\* — Wrap Strip** — Nom 1/4 in. (6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1 in. (25 mm) wide strips. Nom 1 in. (25 mm) wide strip tightly-wrapped around outer group of penetrants and at its egress from the bottom surface of ceiling or lower top plate of chase wall assembly with ends butted and held together with masking tape. The bottom edge of wrap strip shall be recessed a nom 3/8 in. (10 mm) from the bottom surface of ceiling.

**RECTORSEAL** — FlameSafe Wrap Strip, Metacaulk Wrap Strip or Biostop Wrap Strip

B. **Fill, Void or Cavity Material\* — Sealant** — Min 3/4 in. (19 mm) thickness of fill material applied within annulus, flush with top surface of floor. Min 3/8 in. (10 mm) thickness of fill material applied within annulus on bottom surface of ceiling. On both the top and bottom of the assembly, fill material forced into interstices within group of penetrating items to max extent possible. Additional fill material shall be installed such that a min 1/4 in. (6 mm) thick crown of fill material applied around the group of penetrants on both the top and bottom of the assembly.

**RECTORSEAL** — FlameSafe FS 1900, FS1901, FS1905, FS1929, Metacaulk 1000, Metacaulk 350i, Biostop 350i or 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.

+Bearing the UL Listing Mark

#Bearing the UL Recognized Component Mark