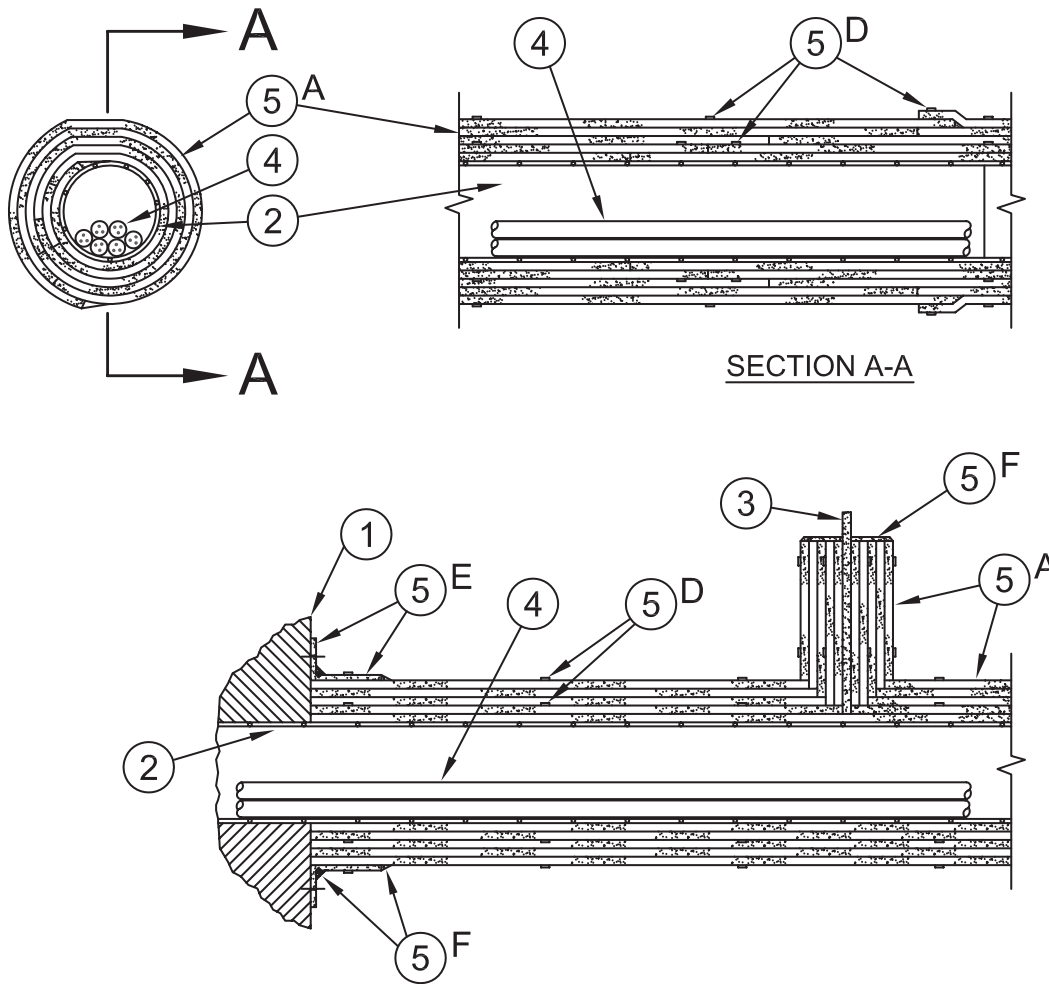


System No. 7
 September 17, 2012
 Fire Ratings – 1 and 3 Hr (See Item 5)



1. **Wall or Floor Assembly** – Concrete or masonry wall or concrete floor having a fire rating equal to or greater than the fire rating of the electrical circuit protective system. Opening in wall or floor through which conduit passes is to be sized to closely follow the contour of the conduit. Through opening in wall or floor to be firestopped prior to installation of the electrical circuit protective system using a compatible firestop system. The perimeter of the firestopped through opening shall be within the outer bounds of the electrical circuit protective system. See **Through Penetration Firestop Systems** (Guide XHEZ) for presently Classified firestop systems.
2. **Steel Conduit** – Nominal 2 in. (51 mm) diameter (or larger) Trade Size rigid steel conduit. Conduit shall be installed as a complete system in accordance with all provisions of the current National Electrical Code.
3. **Conduit Supports** – Conduit system shall be supported by welded hangers formed of min 0.093 in. (2.4 mm) thick (12 ga) painted or galvanized steel channels, 1-5/8 in. (41 mm) wide by min 1-5/8 in. (41 mm) deep with the flange edges hemmed for stiffness. As an alternate, conduits may be supported by steel pipe hangers in conjunction with min 3/8 in. (10 mm) diameter threaded steel rod.
4. **Cables** – Min No. 16 AWG jacketed multi-conductor cables and/or min 250 kcmil jacketed single-conductor copper power cables. Cable insulation to be cross-linked polyethylene. Cable jacket to be cross-linked polyethylene or polyvinyl chloride. When fillers are used in cable construction, fillers to be hemp, polyvinyl chloride or cross-linked polyethylene. Cables to be installed in accordance with all provisions of the current National Electrical Code.
5. **Electrical Circuit Protective System** – The electrical circuit protective system consists of a mat wrap, foil tape, stainless steel banding straps, intumescent sheet and caulk. The system shall be installed in accordance with the detailed installation instruction manual supplied by the manufacturer of the **Electrical Circuit Protective Materials***. The details of the electrical circuit protective system are summarized below:

Flexible Wraps

Endothermic Mat

Electrical Circuit Protection

7

System No. 7 *continued*

- A. **Electrical Circuit Protective Materials* – Mat Wrap** – Nominal 0.4 in. (10 mm) thick flexible sheet material supplied in 24 in. (610 mm) wide rolls. Each layer of mat wrap installed by cutting to size and wrapping around the conduit and itself such that a minimum 2 in. (51 mm) overlap is present along the longitudinal seam. With the exception of the final layer of mat wrap, adjacent lengths of mat wrap in each layer to be installed with tightly-butted end seams. Successive layers of mat wrap installed in same manner with butted end seams offset minimum 2 in. (51 mm) from butted end seams of preceding layer. For final layer of mat wrap, adjacent lengths of mat wrap to overlap the preceding length a minimum of 2 in. (51 mm). All seams in each layer of mat wrap to be sealed with foil tape (Item 5B). Mat wrap layers secured in place with stainless steel banding straps (Item 5D). The hourly fire rating of the electrical circuit protective system is dependent upon the nom diameter of the conduit system and the number of mat wrap layers installed, as shown in the following table:

Nom Conduit Diam In. (mm)	Min Layers Required	Hr Fire Rating
2 - 4-1/2 (51 - 114)	3	1
5 - 6 (127 - 152)	2	1
2 - 6 (51 - 152)	5	3

3M COMPANY – Types E-5A-4, E-54A, E-54C

- B. **Foil Tape** – (Not Shown) – 4 in. (102 mm) wide min 3 mil (0.08 mm) thick pressure-sensitive aluminum foil tape or min 3 mil (0.08 mm) thick stainless steel foil tape, supplied in rolls. Used to secure seams of mat wrap (Item 5A).
- C. **Stainless Steel Mesh** – (Not Shown) – Woven stainless steel wire mesh, supplied in 42 in. (1.1 m) wide rolls. Stainless steel mesh tightly wrapped around outermost layer of mat wrap and secured in place with steel banding straps (Item 5D) spaced maximum 8 in. (203 mm) OC. Stainless steel mesh not required for 3 Hr rated system.
- D. **Steel Banding Straps** – Min 5/8 in. (16 mm) wide by 0.020 in. (0.51 mm) thick stainless steel straps used in conjunction with stainless steel crimp clips. Banding straps spaced max 8 in. (203 mm) OC to secure stainless steel mesh and final mat wrap layers. For 3 Hr rated system, steel banding straps required to be installed after second mat wrap layer in addition to steel banding straps securing fifth mat wrap layer. Steel banding straps to be installed 1 in. (25 mm) from each side of final layer mat seams.
- E. **Electrical Circuit Protective Materials* – Intumescent Sheet** – Rigid aluminum foil faced sheets with galvanized sheet steel backer. Nom 4 in. (102 mm) wide piece of sheet formed into collar around mat wrapped conduit with seam butted and with steel backer exposed (foil facing against mat wrap). Collar butted against wall or floor surface and secured to mat wrapped conduit with stainless steel banding strap (Item 5D). A two-piece plate cut from intumescent sheet to be installed on wall or floor surface around intumescent sheet collar. Plate pieces cut to tightly follow the contours of the intumescent sheet collar with seams between pieces tightly butted. Plate to lap min 2 in. (51 mm) on the wall or floor surface with the steel backer exposed (foil face against wall or floor surface). Plate secured to wall or floor surface with steel anchor bolts, or equivalent, in conjunction with min 1-1/4 in. (32 mm) diameter steel fender washers. Anchor bolts located max 2 in. (51 mm) from both sides of butted seams and spaced max 4 in. (102 mm) O.C. around perimeter of plate, 1 in. (25 mm) in from plate edges. When butted seams of two-piece plate are not completely backed by concrete, seams to be covered with minimum 2 in. (51 mm) wide strips of minimum 0.016 in. (0.41 mm) thick steel secured with steel screws or rivets spaced maximum 2 in. (51 mm) OC on both sides of seam.

3M COMPANY – Type CS-195+

- F. **Electrical Circuit Protective Materials* – Caulk** – Thick bead of caulk to be applied around the base of the intumescent sheet collar (Item 5E) at its interface with the intumescent sheet plate. Thick bead of caulk applied around entire perimeter of mat wrap at interface with intumescent sheet collar. Top edges of mat wrap layers on conduit support covered with minimum 1/8 in. (3.2 mm) thickness of caulk.

3M COMPANY – CP 25WB+

*Bearing the UL Classification Mark

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