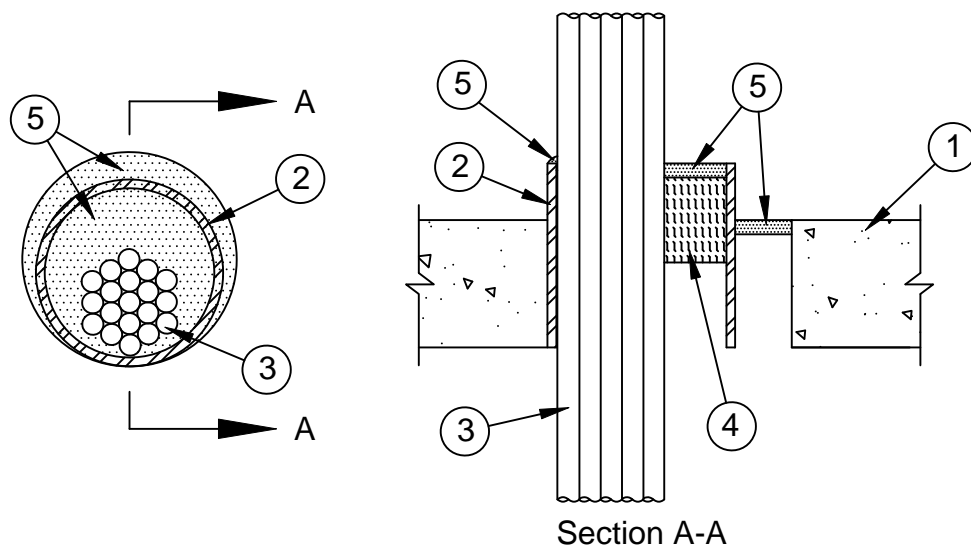


System No. C-AJ-3154



ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 2, 3 and 4 Hr (See Item 5)	F Ratings - 2, 3 and 4 Hr (See Item 5)
T Ratings - 0, 1/2 and 2-3/4 Hr (See Item 5)	FT Ratings - 0, 1/2 and 2-3/4 Hr (See Item 5)
	FH Ratings - 2, 3 and 4 Hr (See Item 5)
	FTH Ratings - 0, 1/2 and 2-3/4 Hr (See Item 5)



1. **Floor or Wall Assembly** - Min 2-1/2 in. (64 mm) or 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified **Concrete blocks***. Floor may also be constructed of any UL Classified hollow-core **Precast Concrete Units***. Max diam of opening is 10 in. (254 mm).
See **Concrete Blocks (CAZT)** and **Precast Concrete Units (CFTV)** categories in the Fire Resistance Directory for names of manufacturers.
2. **Sleeve** - (Optional) - Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe sleeve, nom 6 in. (152 mm) diam (or smaller) No. 26 ga (0.022 in. or 0.56 mm thick) sheet steel sleeve with square anchor flange spot welded to sleeve at approx mid-height or nom 6 in. (152 mm) diam (or smaller) Schedule 40 polyvinyl chloride (PVC) pipe sleeve cast or grouted into floor or wall flush with floor or wall surfaces. Steel pipe sleeve may be installed to project a max of 6 in. (152 mm) beyond the floor or wall surfaces. Steel sleeve to be supported on top side of floor and both sides of wall when not cast or grouted into floor. The annular space between sleeve and periphery of opening shall be min 0 in. (0 mm, point contact) to max 3-3/8 in. (86 mm).
3. **Cables** - Aggregate cross-sectional area of cables in sleeve to be max 45 percent of the cross-sectional area of the sleeve. See Item 5 for specific cable fill requirements. Tight bundle of cables to be installed in the steel sleeve. The annular space within the firestop system shall be a min of 0 in. (point contact) to a max of 2 in. (51 mm). In 4 hr fire rated assemblies, the annular space within the firestop system shall be a min of 1/4 in. (6 mm) to a max of 1 in. (25 mm). Cables to be rigidly supported on both sides of the floor or wall assembly. Any combination of the following types and sizes of cables may be used:
 - A. Max 400 pair No. 24 AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.
 - B. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
 - C. Max 3/C No. 2/0 AWG (or smaller) copper conductor PVC jacketed aluminum clad or steel clad TECK 90 cable.
 - D. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
 - E. Max 1/C 1000 kcmil (or smaller) copper conductor power cable with XLPE or PVC insulation and XLPE or PVC jacket.



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F. Max RG59/U (or smaller) coaxial cable with fluorinated ethylene or plenum-rated insulation and jacketing.

G. Max 62.5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.

H. Max 4 pair No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.

- 3A. **Through Penetrating Product*** - (Not Shown) - Max 4/C No. 2/0 AWG (or smaller) steel or aluminum Armored Cable+ or Metal Clad Cable+ with copper or aluminum conductors. Diam of cable bundle (Item 3) including armored cable not to exceed 4 in. Through penetrating product to be rigidly supported on both sides of a floor or wall assembly.

AFC CABLE SYSTEMS INC

4. **Packing Material** - Min 2, 3 or 4 in. (51, 76 or 102 mm) thickness of min 4 pcf (64 kg/m³) density mineral-wool batt insulation tightly packed into opening as a permanent form for 2, 3 or 4 hr fire rated assemblies, respectively. Packing material to be recessed from top edge of sleeve or from top surface of concrete in cast concrete floor assemblies to accommodate the required thickness of fill material. Packing material to be recessed from both edges of sleeve or from both surfaces of assembly in walls and in floor constructed with hollow-core precast concrete units to accommodate the required thickness of fill material. When the annular space between the sleeve and the periphery of the opening exceeds 2 in. (51 mm), mineral-wool batt insulation tightly packed to a 3 in. depth and recessed from the top surface of the floor or both surfaces of the wall in order to accommodate the required thickness of sealant (Item 5, not shown). Otherwise, packing material is optional in annular space between the sleeve and the periphery of the opening.
5. **Fill, Void or Cavity Material* - Sealant or Putty** - Min 1/2 in. (13 mm) thickness of sealant applied within the annulus between steel sleeve and periphery of the opening, flush with the top surface of the floor or both surfaces of the wall. Min 1/2 in. (13 mm) diam bead of sealant shall be applied at point contact locations between sleeve and concrete interface on top surface of floor or both surfaces of the wall. Min 1/2 in. (13 mm) thickness of fill material applied within the annulus for 2 and 3 hr F Ratings. Min 3/4 in. (19 mm) thickness of fill material applied with the annulus for 4 hr F Rating. In floors, fill material to be installed flush with top edge of sleeve or top surface of floor. In walls and in floor constructed of hollow-core precast concrete units, fill material to be installed flush with both ends of sleeve or both surfaces of assembly. F and T Ratings of firestop system are dependent upon the through opening size, thickness of concrete, sleeve type and percent cable fill, as shown in the following table:

Max Opening Diam	Min Concrete Thickness	Optional Sleeve Type	Cable Type	Percent Cable Fill	F Rating	T Rating
6 in. (152mm)	2-1/2 in. (64mm)	PVC	A to H, 3A	37	2 hr	0 hr
6 in. (152mm)	2-1/2 in. (64mm)	PVC	H	45	2 hr	0 hr
6 in. (152mm)	2-1/2 in. (64mm)	Steel	A to H, 3A	37	2 hr	0 hr
6 in. (152mm)	2-1/2 in. (64mm)	Steel	H	45	2 hr	0 hr
6 in. (152mm)	4-1/2 in. (114mm)	Steel	A to H, 3A	34	3 hr	1/2 hr
6 in. (152mm)	4-1/2 in. (114mm)	Steel	H	45	3 hr	1/2 hr
2 in. (52mm)	4-1/2 in. (114mm)	Steel	H	40	3 hr	2-3/4 hr
2 in. (52mm)	4-1/2 in. (114mm)	Steel	H	40	4 hr	2-3/4 hr

SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant. When min floor or wall thickness is 4-1/2 in. (114 mm), SpecSeal Putty may be used.

* 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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