

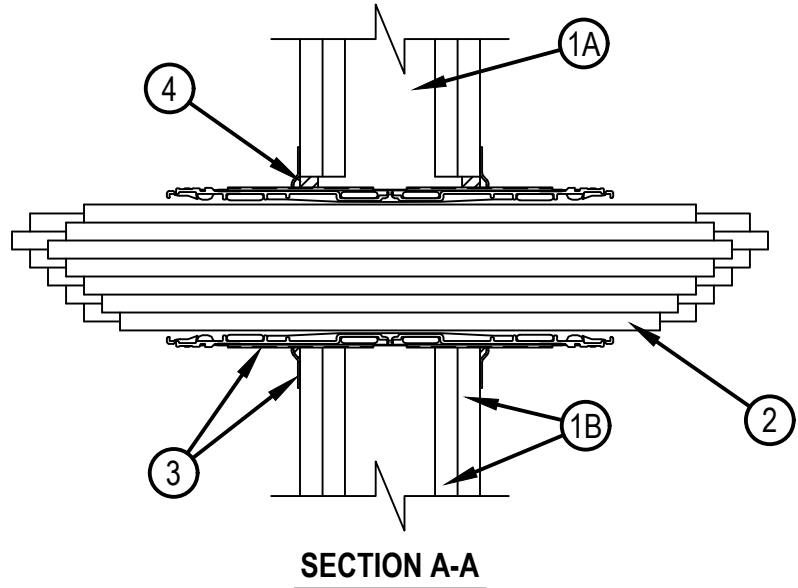
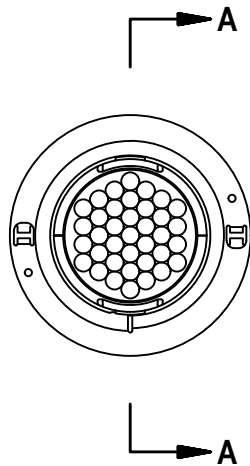


Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-3334

WL 3334

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1, 2, 3 and 4 Hr (See Item 1)	F Ratings - 1, 2, 3 and 4 Hr (See Item 1 and Table 2)
T Ratings - 0, 1/2, 1, 1-1/2, 2 Hr (See Items 2 and 3)	FT Ratings - 0, 1/2, 1-1/2, and 2 Hr (See Items 2 and 3)
L Rating (Without Movement) At Ambient - See Item 2 and Table 2	FH Ratings - 1, 2, 3 and 4 Hr (See Item 1 and Table 2)
L Ratings (Without Movement) At 400 F - See Item 2 and Table 2	FTH Ratings - 0, 1/2, 1, 1-1/2, and 2Hr (See Items 2 and 3)
M Rating (Movement) - See Item 1A and Table 2	L Rating At Ambient (Without Movement) - See Item 2
	L Ratings At 204°C (Without Movement) - See Item 2



1. Wall Assembly — The 1, 2, 3 or 4 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described within the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall incorporate the following construction features:

 - A. Studs — Wall framing shall consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC for 1 and 2 hr wall assemblies. Steel Studs to be 3-5/8 in. (92 mm) for 3 and 4 hr wall assemblies. Steel studs to be min 3-1/2 in. (89 mm) wide when 3/4 in. (19 mm) thick gypsum board is used (see Item 1B). For M Rating, studs shall be min 3-5/8 in. (92 mm) wide.
 - B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Alternately, for 1 and 2 hr rated walls only, min one layer of nom 3/4 in. (19 mm) thick gypsum board on each side of wall as specified in the individual Wall and Partition Design may be used. Opening in gypsum board to be max 2-1/2 in. (64 mm) diam for 2" device and max 4-1/2 in. (114 mm) diam for 4" device.

The hourly F and FH Ratings of the firestop system are dependent upon the hourly rating of the wall in which it is installed.
2. Cables — Within the loading area for each firestop device, the cables may represent a 0 to 100 percent visual fill. Cables to be tightly bundled within the device and rigidly supported on both sides of wall assembly. Any combination of the following types of cables may be used:

 - A. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
 - B. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
 - C. Max 4/0 AWG Type RHH ground cable.
 - D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
 - E. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
 - F. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).



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G. Max 20/C No. 22 AWG shielded printer cable with PVC jacket.

H. Through-Penetrating Product* - Two copper conductors No. 18 AWG (or smaller) Power or Non Power Limited Fire Alarm Cable with or without a jacket under a metal armor.

AFC CABLE SYSTEMS INC

I. Max. 1/4 in. (6 mm) diameter S-Video Cable consisting of 2 max 24 AWG 75 ohm coax or twisted pair cable with PE insulation and PVC jacket .

J. Max 3/C No 12 AWG MC Cable.

K. Through Penetrating Product* — Any cables, Armored Cable+ or Metal Clad Cable+ currently Classified under the Through Penetrating Product category. See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.

When the hourly rating of the wall assembly is 1 hr, the T, FT and FTH Ratings are 0 hr. When the hourly rating of the wall assembly is 2 hr, the T, FT and FTH Ratings are 1 hr except that, when Item 2J or 2K is used, the T, FT and FTH Ratings are 1/2 hr . When the hourly rating of the wall assembly is 3 or 4 hr, the T, FT and FTH Ratings are 1-1/2 and 2 hr, respectively.

L Ratings apply only when device flanges are used. L Ratings vary depending on whether the gasketing material (see Item 3) or the sealant (Item 4) is used. See Table 1 below for L Ratings.

Max Cable Fill	Cable Type	L Rating, CFM/Sq Ft (L/s/m ²)				L Rating, CFM (L/s)			
		Ambient		400°F (204°C)		Ambient		400°F (204°C)	
		Sealant	Gasket	Sealant	Gasket	Sealant	Gasket	Sealant	Gasket
0%	—	Less than 1 (Less than 5.1)	1.0 (5.1)	Less than 1 (Less than 5.1)	2.7 (13.7)	Less than 1	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)
100%	Item 2D only	4.9 (24.9)	4.9 (24.9)	1.3 (6.6)	3.5 (17.8)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)
100%	Any cables (Item 2) in any combination	9.2 (46.7)	9.2 (46.7)	9.6 (48.8)	11.8 (59.9)	1.2 (0.6)	1.2 (0.6)	1.3 (0.6)	1.6 (0.8)

3. Firestop Device* — Firestop device consists of a corrugated steel tube with an inner plastic housing, intumescent material rings, twisted inner fabric smoke seal, flanges and gasketing material (not shown). Firestop device to be installed in accordance with the accompanying installation instructions. As an option, the inner fabric seal may remain open except that, to attain the L Rating, the inner fabric seal shall be twisted to completely close off the opening within device. Device slid into wall such that ends project an equal distance from the approximate centerline of the wall assembly. The annular space between the device and the periphery of the opening shall be min 0 in. (point contact). Device provided with flanges that are spun clockwise onto device threads, over gasketing material butting tightly to both sides of wall. As an alternate to gasket material, sealant (Item 4) may be used. Device flanges are optional, except that when 3/4 in. (19 mm) gypsum board (see Item 1B) is used, device flanges shall be used and for 3 and 4 hr fire rating, device flanges shall be used. When the device flanges are not used, the T, FT and FTH Ratings for the firestop system are 0 hr. Device flanges are required for M Rating.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 653 and CP 653 BA 2" Speed Sleeve, CP 653 and CP 653 BA 4" Speed Sleeve, CFS-SL GA L Speed Sleeves, CP 653 4" BA ILS and CFS-SL GA L ILS Speed Sleeve

The CFS-SL GA L and CFS-SL GA L ILS Speed Sleeves shall only be used in wall thickness of 8 in. (203 mm) or greater.

4. Fill, Void or Cavity Material* - Sealant — As an alternate to gasket material (see Item 3), min 1/2 in. (13 mm) thickness of fill material applied within the annulus between firestop device and wall, flush with both surfaces of wall, and an additional 1/4 in. (6 mm) bead applied around periphery of device. When device flanges are used, gypsum drywall compound may be used in place of the fill material. Sealant is required when device flanges are not used (see Item 3).

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant, or CP 606 Sealant

The M Rating for the firestop system is dependent on the variables as noted in Table 2 below.



Hilti Firestop Systems

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Movement Direction	Penetrant Item	Nominal Penetrant Diameter	Device Size	Movement	Sealant Depth	F and FH Ratings hr	L Rating
Y	2D	Max. 1 in. (25 mm) bundle	2"	100%**	N/A	1	N/A
Z	2D	Max. 1 in. (25 mm) bundle	2"	3.21 in.	N/A	1	N/A

** Percentage movement based on the minimum distance between penetrant OD and device ID.

* 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



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