

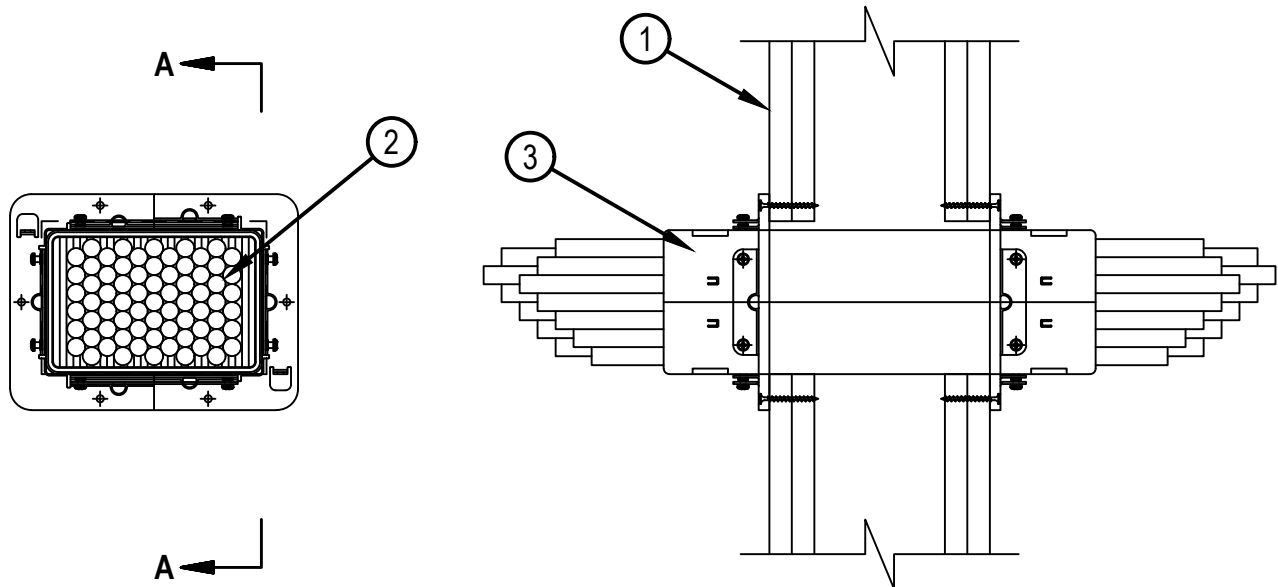


Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-3482

WL 3482

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings – 1 and 2 Hr	F Ratings – 1 and 2 Hr
T Ratings - 0, 1/2, 1 Hr	FT Ratings - 0, 1/2, 1 Hr
L Rating at Ambient – Less than 1 to 3 CFM/Device (See Item 3)	FH Ratings – 1 and 2 Hr
L Rating at 400 F – Less than 1 to 2 CFM/Device (See Item 3)	FTH Ratings - 0, 1/2, 1 Hr
M Rating (Movement) — See Item 3	L Rating at Ambient – Less than 0.47 to 1.4 L/s/Device (See Item 3)
	L Rating at 400 F – Less than 0.47 to 0.94 L/s/Device (See Item 3)



SECTION A-A

1. Wall Assembly — The 1 or 2 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 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC for 1 and 2 hr wall assemblies.
 - 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 6-1/4 in. (159 mm) x 4-1/4 in. (108 mm).
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. 23 AWG Cat 7 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).
 - G. Max 20/C No. 22 AWG shielded printer cable with PVC jacket.
 - H. 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.
 - I. 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
 - 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.
 - L. Single mode fiber optic cable with PVC jacket having a max diam of 13/64 in. (5 mm).
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 2K is used, the T, FT and FTH Ratings are 1/2 hr.
3. Firestop Device* — Firestop devices each consist of a rectangular outer steel sleeve formed with two half housings, connected and secured together, and installed in accordance with the accompanying installation instructions. Devices 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) to max 1/4 in. (6.4 mm). Device is installed with gaskets and flanges installed on both sides of wall and secured by means of two nom 1-1/2 in. (38 mm) long steel screws per accompanying installation instructions.

Device	Max Cable Fill	Cable Type	L-Rating (CFM)	
			Ambient	400°F
CFS-MSL S	0%	-	Less than 1	Less than 1
CFS-MSL S	1-25%	2B, 2D, 2E, 2G, 2H, 2L	1.1	1.45
CFS-MSL S	26-50%	2B, 2D, 2E, 2G, 2H, 2L	1.1	Less than 1
CFS-MSL S	51-75%	2B, 2D, 2E, 2G, 2H, 2L	1.8	Less than 1
CFS-MSL S	76-100%	2D, 2E, 2G, 2H, 2L	1.8	1.2
CFS-MSL M	0%	-	1.1	Less than 1
CFS-MSL M	1-25%	2B, 2D, 2E, 2G, 2H, 2L	1.8	Less than 1
CFS-MSL M	26-50%	2B, 2D, 2E, 2G, 2H, 2L	1.9	Less than 1
CFS-MSL M	51-75%	2B, 2D, 2E, 2G, 2H, 2L	1.9	Less than 1
CFS-MSL M	76-100%	2B, 2D, 2E, 2G, 2H, 2L	2.2	1.1
CFS-MSL L	0%	2B, 2D, 2E, 2G, 2H, 2L	1.2	Less than 1
CFS-MSL L	1-25%	2B, 2D, 2E, 2G, 2H, 2L	1.8	1.11
CFS-MSL L	26-50%	2B, 2D, 2E, 2G, 2H, 2L	2.2	.0
CFS-MSL L	51-75%	2B, 2D, 2E, 2G, 2H, 2L	2.6	1.4
CFS-MSL L	76-100%	2B, 2D, 2E, 2G, 2H, 2L	3.0	1.6

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-MSL L 6" x 4", CFS-MSL M 3" x 4", CFS-MSL S 3" x 2" Modular Sleeve, CFS-MSL P S 3" x 2", CFS-MSL P M 3" x 4", CFS-MSL P L 6" x 4" Modular Sleeve Plates

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

Table 2

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

** Percentage movement based on the minimum distance between outer diam of penetrant and inside dimensions of the firestop device.

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