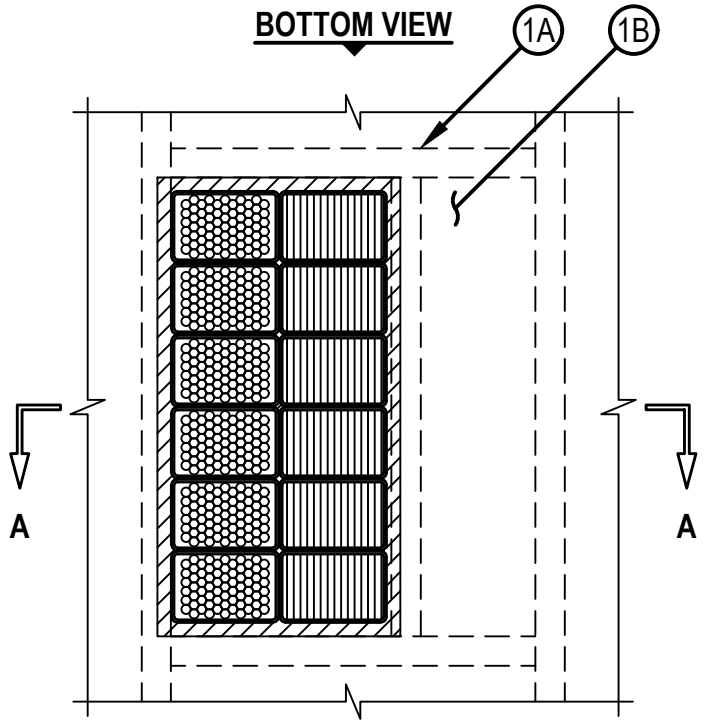
System No. W-L-3511

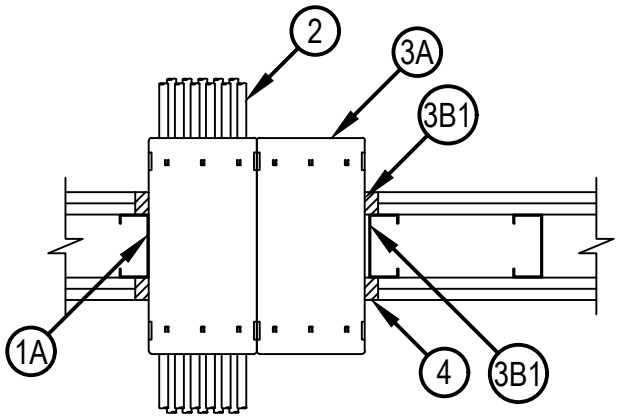
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

UL1479 (ASTM E814)	CAN/ULC S115
F Ratings – 1 Hr and 2 Hr	F Ratings – 1 Hr and 2 Hr
T Ratings – 0 Hr, 1/2 Hr, 3/4 Hr, 1 Hr (See Items 2)	FT Ratings -0 Hr, 1/2 Hr, 3/4 Hr, 1 Hr (See Items 2)
L Rating at Ambient – Less than 1 to 3 CFM/Device (See Item 3)	FH Ratings – 1 Hr and 2 Hr
L Rating at 400 °F – Less than 1 to 1.6 CFM/Device (See Item 3)	FTH Ratings – 0 Hr, 1/2 Hr, 3/4 Hr, 1 Hr (See Items 2)
	L Rating at Ambient – Less than 0.47 to 1.41 L/s/Device (See Item 3)
	L Rating at 204°C– Less than 0.47 to 0.76 L/s/Device (See Item 3)

BOTTOM VIEW



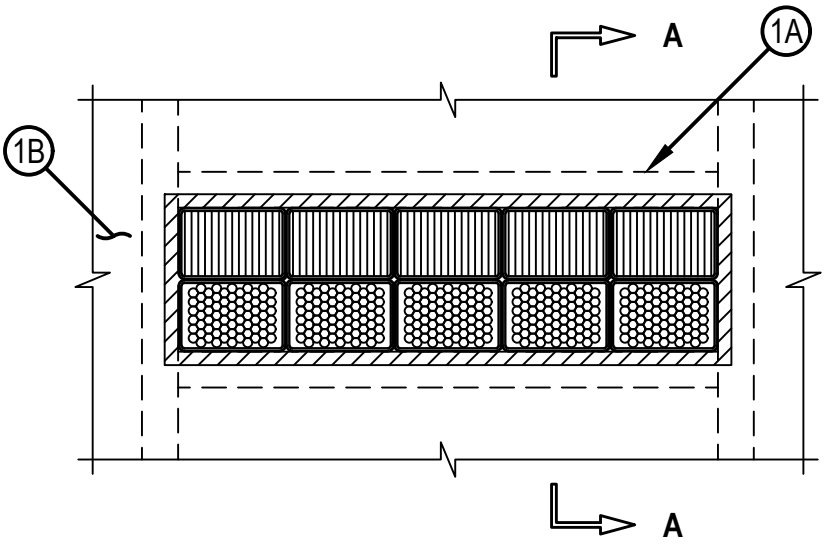
SECTION A-A



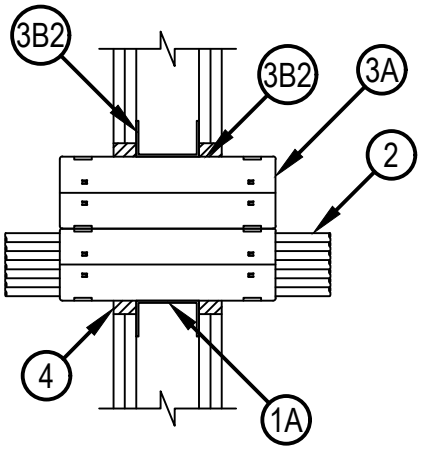
CONFIGURATION A

System No. W-L-3511

FRONT VIEW



SECTION A-A



CONFIGURATION B

System No. W-L-3511

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 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 steel channel studs. Steel studs to be min 3-5/8 in. (92 mm) wide or larger and spaced max 24 in. (610 mm) OC for 1 and 2 hr wall assemblies. Steel studs to completely frame out ganged firestop devices (Item 3B) and be secured to surrounding wall framing members. Stud framed opening may be maximum 1/4 in. (6 mm) larger than the height and width of the ganged firestop devices (Item 3).
   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. The max opening within the wall assembly is dependent upon the type of firestop configuration as shown in the table below:

Firestop Configuration	Max Dimension of Opening, in., (mm)
A	24-1/4 (610) tall by 13-1/4 (336.6) wide
B	9-1/4 (616) tall by 30-1/4 (764.4) wide

   Gypsum board to be cut and fit around installed ganged firestop devices & frame (Item 3) within wall, leaving an annular space of min 0 in. (point contact) to max 5/8 in. (16 mm) around the installed devices.

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 rigidly supported on both sides of wall assembly. Any combination of the following types of cables may be used:
   a) Max 200 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 Metal Clad (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.

The T, FT, and FTH Ratings of the firestop system are dependent upon the fire rating of the wall and cable type as shown in the table below:

Fire Rating of Wall, hr	Cable Types (Item 2)	T, FT, and FTH Ratings, hr
1	A through K	0
2	A through I	1
3	J, K	3/4

System No. W-L-3511

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

a) Firestop Device* — Firestop devices each consist of a rectangular outer steel sleeve formed with two half housings, connected and secured together. Multiple firestop devices connected together with ganging clips and secured to flange (Item 3A) with provided screws, in accordance with the accompanying installation instructions. Devices shall be installed into wall such that ends project an equal distance from the approximate centerline of the wall assembly. The annular space between the devices and the periphery of the opening shall be min 0 in. (point contact) to max 5/8 in. (16 mm) Number of devices for each configuration shall be restricted to the min and max height and width of the opening as shown in the following table:

Device Configuration	Min Height, in. (mm)	Max Height, in. (mm)	Min Width, in. (mm)	Max Width, in. (mm)
A	8 (203.2)	24 (609.6)	-	-
B	-	-	12 (304.8)	30 (762)

The L Ratings are dependent on the type and number of devices within the opening and the cable type and fill. A rating of less than one shall be considered as 1 CFM when more than one module is installed.

Device	Max Cable Fill	Cable Type	L-Rating (CFM)/Device	
			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	1.5
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	1.1
CFS-MSL L	26-50%	2B, 2D, 2E, 2G, 2H, 2L	2.2	1.0
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

b) Device Flange* The installation details of the device flange are dependent upon the device configuration as summarized below:

1. Configuration A:

(1) Accompanying gasket to be cut to fill any gaps between the stud framing and the ganged devices (Item 3A) prior to the installation of the flange. Gasket to be installed on both sides of framing members, flush with the edges of the stud, where the gypsum board will be installed. Gasket material is not required if stud framing is installed with continuous contact to the exterior of the ganged devices (Item 3A).

(2) The long dimension flange from the frame kit shall be cut to match the height of the ganged devices (Item 3A), butted tightly to the vertical dimensions of the ganged devices (Item 3A), and secured to stud framing members with min. 8 by 1/2 in. long steel screws through all pre-drilled holes in the flange. Smaller dimension of frame kit is to be omitted for this installation. Flange shall be installed on each side of the wall, prior to installation of gypsum board (Item 1B).

2. Configuration B:

(1) Accompanying gasket to be cut to fill any gaps between the stud framing and the ganged devices (Item 3A) prior to the flange being installed. Gasket to be installed on both sides of the framing members, flush with the edges of the stud material where gypsum board will be installed. Gasket material is not required if stud framing is installed with continuous contact to the exterior of the ganged devices (Item 3A).

(2) The long dimension flange from the frame kit shall be cut to match the width, or centered over the width, of the ganged devices (Item 3A), butted tightly to the horizontal dimensions of the ganged devices (Item 3A), and secured to stud framing members with min No. 8 by 1/2 in. (13 mm) long steel screws through all pre-drilled holes in the flange. Smaller dimension of frame kit is to be omitted for this installation. Flange shall be installed on each side of the wall, prior to installation of gypsum board (Item 1B).

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-MSL GPA 24 x 4", CFS-MSL GPA 24 x 8" GPA (Adjustable Gangplate)

4. Fill, Void or Cavity Material* - Sealant — Min 5/8 in. and 1-1/4 in. (16 mm and 32 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly for 1 and 2 hr rated walls, respectively. Fill material applied within the annulus between firestop device and wall, flush with both surfaces of wall. Min 1/8 in. (3.2 mm) bead of sealant shall be installed at point of contact locations. Gypsum joint compound may be used in place of the fill material.

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

* 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