



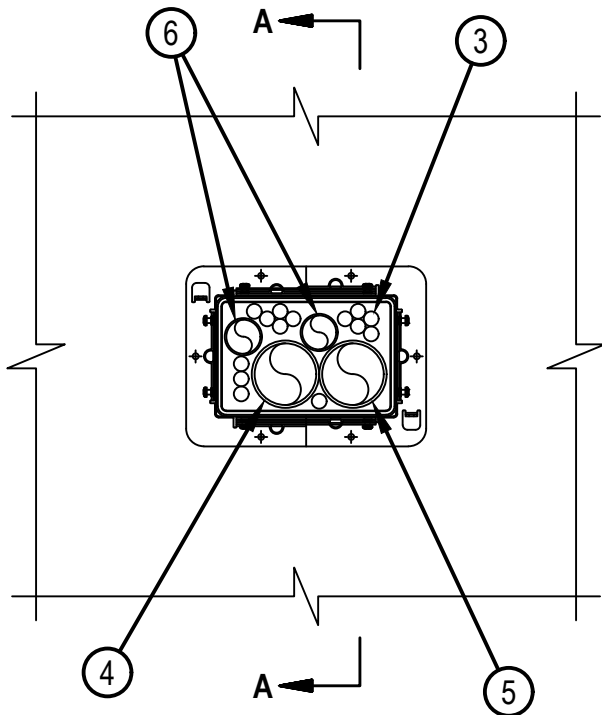
Classified by
Underwriters Laboratories, Inc.
to UL 1479 and CAN/ULC-S115

System No. W-L-8143

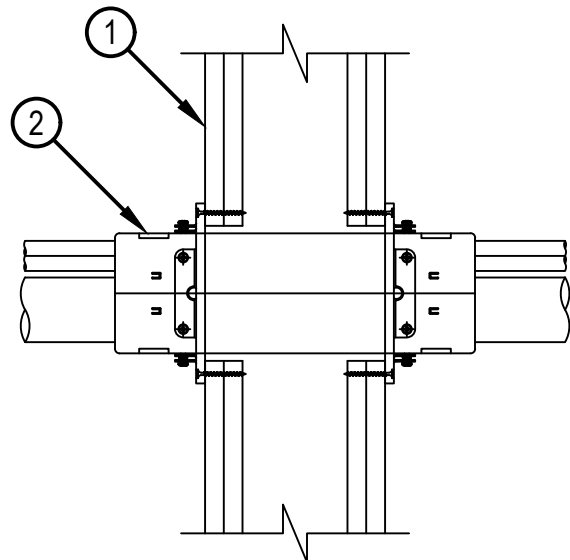
WL 8143

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

FRONT VIEW



SECTION A-A



1. Wall Assembly — The 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 F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly in which is installed. The T, FT, FTH Ratings of the firestop system are dependent upon the hourly rating of the wall in which it is installed and the type of penetrants used. For 1 Hr fire rated walls, the T, FT, FTH Ratings of the firestop system are 0 Hr. For 2 hr fire rated walls, the T, FT, FTH Ratings of the firestop system are dependent upon the type of penetrant used as shown in Item Nos. 2, 3 and 3A.



Hilti Firestop Systems

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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. Single mode fiber optic cable with PVC jacket having a max diam of 13/64 in. (5 mm).
If any of the above cables other than Item 2A (100 pair cable) are used, the T Rating is 1-1/2 hr. If the 100 pair cable (Item 2A) is used, the T Rating is 1 hr. For openings with cables in 1 hr fire rated walls, the hourly T, FT, FTH Ratings are 0 hr.
3. Metallic Penetrants — (Optional) One or more metallic pipe/tube to be installed in opening and rigidly supported on both sides of the wall assembly. Metallic penetrants may be bundled together with the other cables (Item 2) and the nonmetallic penetrants (Item 3A). The following types and sizes of metallic through penetrants may be used:
- A. Steel Pipe — Nom 2 in. (51 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. Iron Pipe — Nom 2 in. (51 mm) diam (or smaller) cast or ductile iron pipe.
 - C. Conduit — Nom 2 in. (51 mm) diam (or smaller) steel conduit, nom 2 in. (51 mm) diam (or smaller) steel electrical metallic tubing (EMT), or nom 3/4 in. (25 mm) diam (or smaller) flexible steel conduit.
For openings with metallic penetrants in 2 hr fire rated walls, the hourly T, FT, FTH Ratings are 1 hr. For openings with metallic penetrants in 1 hr fire rated walls, the hourly T, FT, FTH Ratings 0 hr.
- 3A. Nonmetallic Penetrants —(Optional)— One or more nonmetallic penetrants to be installed within the firestop system and rigidly supported on both sides of the wall. The nonmetallic penetrants may be tightly bundled with the cables (Item 2) and the metallic penetrants. The following types and sizes of through penetrants may be used:
- 3A1. Nom 2 in. (51 mm) diam (or smaller) ENT formed from PVC.
 - 3A2. Nom 3/4 in. (51 mm) diam (or smaller) ENT formed from PVC.
 - 3A3. Nom 2 in. (51 mm) diam (or smaller) ENT formed from high density polyethylene (HDPE).
 - 3A4. Nom 1/2 in. (12.7 mm) diam (or smaller) Dura-Line microduct.
For openings with nonmetallic penetrants in 2 hr fire rated walls, the hourly T, FT, FTH Ratings are 1-1/2 hr. For openings with nonmetallic penetrants in 1 hr fire rated walls, the hourly T, FT, FTH Ratings 0 hr.
4. 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 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.
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

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

