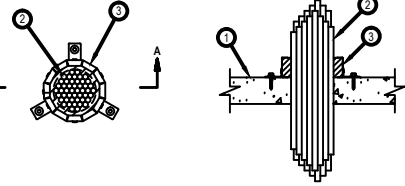




System No. C-AJ-3320

ANSI/UL1479 (ASTM E814)		CANULC S115	
F Rating - 2 Hr		F Rating - 2 Hr	
T Ratings - 1/4 and 3/4 Hr (See Items 2 and 3)	FT Ratings - 1/4 and 3/4 Hr (See Items 2 and 3)	FT Ratings - 0, 1 and 2 Hr (See Items 2 and 3)	
L Rating At Ambient - See Item 3		FH Rating - 2 Hr	
L Rating At 400F - See Item 3	FTH Ratings - 1/4 and 3/4 Hr (See Items 2 and 3)	FTH Ratings - 0, 1 and 2 Hr (See Items 2 and 3)	
		L Rating At Ambient - See Item 3	
		L Rating At 400F - See Item 3	



SECTION A-A

- Floor or Wall Assembly - Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. For blank openings (no Item 2 cables) with firestop device (Item 3) installed at top of floor, the minimum floor thickness shall be 4-1/2 in. (114 mm). When firestop device is installed at bottom of floor, the floor may also be constructed of any min 6 in. (152 mm) thick UL Classified hollow core Precast Concrete Units*. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 4 in. (102 mm).
 - * See Concrete Blocks (CAZT) and Precast Concrete Units (CFTV) categories in the Fire Resistance Directory for names of manufacturers.
- Sleeve - (Not Shown, Optional) - Nom 4 in. diam (or smaller) sleeve cast or grouted into floor or wall assembly, flush with both surfaces of floor or wall. The following types of sleeves may be used: Schedule 5 (or heavier) steel pipe, min 28 ga steel sleeve, or Schedule 40 solid or cellular core polyvinyl chloride (PVC).
 - 2. Cables - Cables may be installed within opening for a 0 to 100 percent visual fill. When PVC sleeve (Item 1A) is used, the aggregate cross-sectional area of cable in opening to be max 45 percent of the cross-sectional area of the opening. Cables to be tightly bundled and rigidly supported on both sides of floor or 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 7/8 No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
 - C. Max 40 AWG Type RH#1 ground cable.
 - D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
 - E. Max RG 6U 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 3/8 No 12 AWG MC Cable.
- For opening with cables, the hourly T, FT and FTH Ratings are 1/4 hr.
 - 3. Firestop Device* - Firestop device consisting of a steel collar with plug to be centered over opening and mounted to top or bottom surface of floor or both sides of wall. For openings with cables, plug within collar cut to fit tightly around the cable bundle. Collar secured to floor or wall using the anchor hooks provided with the collar. The anchor hooks are to be secured with min 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel expansion bolts or min 0.145 in. (3.7 mm) diam by 1-1/4 in. (32 mm) long powder actuated fasteners utilizing a min 9/16 in. (15 mm) diam by 1/16 in. (1.6 mm) thick steel washer. As alternates to the anchors specified above, Hilti 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long KWIK-CON in-concrete screw anchor, Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (45 mm) long KWIK-SOLT 3 steel expansion anchor or Hilti X-U 2/18 S15 powder actuated floor pin with integral nom 9/16 in. (15 mm) diam washer may be used. For blank openings (no cables), the hourly T, FT and FTH Ratings are 3/4 hr.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CFS-CC 4" Firestop Cable Collar

L Ratings apply to blank openings only per Table below.

Opening	CFM (per device)		CFM / Sq Ft Opening	
	Ambient	400F	Ambient	400F
Blank Opening Only (in Walls Only (no cables))	Less Than 1	Less Than 1	Less Than 1	4
Max 100% visual fill with Cat 5 and/or Cat 6 cables	Less Than 1	1.2	Less Than 1	13.0

- Fill, Void or Cavity Material* - (Optional, Not Shown) - Fill material applied to fill interstices between and around the cable bundle where cables exit each device.
 - HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, or CP 618 Putty.
- * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

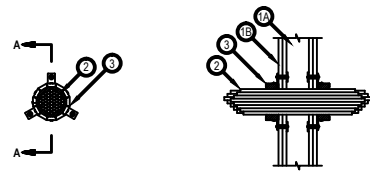


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System No. W-L-3396

ANSI/UL1479 (ASTM E814)		CANULC S115	
F Rating - 1 and 2 Hr (See Item 1)		F Rating - 1 and 2 Hr (See Item 1)	
T Ratings - 0, 1 and 2 Hr (See Items 2 and 3)	FT Ratings - 0, 1 and 2 Hr (See Items 2 and 3)	FT Ratings - 0, 1 and 2 Hr (See Items 2 and 3)	
L Rating At Ambient - See Item 3		FH Rating - 1 and 2 Hr (See Item 1)	
L Rating At 400F - See Item 3	FTH Ratings - 0, 1 and 2 Hr (See Items 2 and 3)	FTH Ratings - 0, 1 and 2 Hr (See Items 2 and 3)	
		L Rating At Ambient - See Item 3	
		L Rating At 400F - See Item 3	



SECTION A-A

- 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 U200, 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 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
 - B. Gypsum Board* - Nom 5/8 in. (16 mm) thick gypsum board as specified in the individual Wall and Partition Design. Opening in gypsum board to be max 4 in. (102 mm) diam.
- The hourly F and FTH Ratings of the firestop system are dependent upon the hourly rating of the wall in which it is installed.
 - 1A. Sleeve - (Not Shown, Optional) - Nom 4 in. (102 mm) diam (or smaller) sleeve friction fit into wall opening, flush with both wall surfaces. The following types of sleeves may be used: Schedule 5 (or heavier) steel pipe, min 28 ga steel sleeve, or Schedule 40 solid or cellular core polyvinyl chloride (PVC).
 - 2. Cables - Cables may be installed within opening for a 0 to 100 percent visual fill. When PVC sleeve (Item 1A) is used, the aggregate cross-sectional area of cable in opening to be max 45 percent of the cross-sectional area of the opening. Cables to be tightly bundled 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 7/8 No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
 - C. Max 40 AWG Type RH#1 ground cable.
 - D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
 - E. Max RG 6U 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 3/8 No 12 AWG MC Cable.
- For opening with cables, when the hourly rating of the wall assembly is 1 hr, the T, FT and FTH Ratings are 0 hr. For opening with cables, when the hourly rating of the wall assembly is 2 hr, the T, FT and FTH Ratings are 1 hr.
 - 3. Firestop Device* - Firestop device consisting of a steel collar with plug to be centered over opening and mounted to face of gypsum board on both sides of wall. Each flange of collar is secured to wall with No. 10 by 1-1/2 in. (38 mm) steel laminating screw and min 9/16 in. (15 mm) diam steel washer through pre-punched hole in flange. As an alternate, min 3/16 in. (4.8 mm) diam by 2-1/2 in. (64 mm) long steel toggle bolts in conjunction with min 9/16 in. (15 mm) diam steel washers may be used. For openings with cables, plug within collar cut to fit tightly around the cable bundle. For blank openings (no cables), the hourly F and FTH Ratings of the firestop system are equal to the hourly rating of the wall in which it is installed.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CFS-CC 4" Firestop Cable Collar

L Ratings apply to blank openings only per indicated in Table below.

Opening	CFM (per device)		CFM/Sq Ft Opening	
	Ambient	400F	Ambient	400F
Blank Opening Only (no cables)	Less Than 1	Less Than 1	Less Than 1	4
Max 100% visual fill with Cat 5 and/or Cat 6 cables	1.2	Less Than 1	13.2	8.9

- Fill, Void or Cavity Material* (Optional, Not Shown) - Fill material applied to fill interstices between and around the cable bundle at both sides of wall.
 - HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE Sealant or FS-ONE MAX Intumescent Sealant, CP 618 Putty

* 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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Notes:

- Refer to section 15084 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.
- Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
 - * Minimum and maximum annular space
 - * Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
- If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
- References:
 - * 2013 Fire Resistance Directory - Volume III or UL Products Certified for Canada (cUL) Directory
 - * All governing local, provincial or national building codes
 - * www.UL.com/database
 - * www.Intertek.com
- Firestop System installations must meet requirements of tested assemblies that provide the required assembly rating CAN/ULC-S115.
- All rated assemblies shall be prominently labeled with the following information:
 - * ATTENTION: Fire Rated Assembly
 - * ULC, cUL or Intertek #
 - * Product(s) used
 - * Hourly Rating (Assembly Rating)
 - * Installation Date
- For outlet boxes installed back to back through a fire separation boxes must be protected with Wall Opening Protective Materials, category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1)

<Notes to designer (delete this note after reading and replace with title block information)>
 1. Any modification to these details could result in an application/system not meeting the UL/cUL Classification or the intended temperature or fire ratings.
 2. Details shown are up to date as of February 2015.
 3. For additional information on the details, refer to the most current "Underwriter's Laboratories of Canada Fire Resistance Directory Volume III" or "Underwriter's Laboratories Products Certified for Canada (cUL) Directory."

JOB NUMBER: _____

DRAWN: _____

CHECKED: _____

ISSUE DATE: _____

REVISIONS: _____

TYPICAL FIRESTOP DETAILS

SHEET NAME: _____

SHEET NUMBER: _____