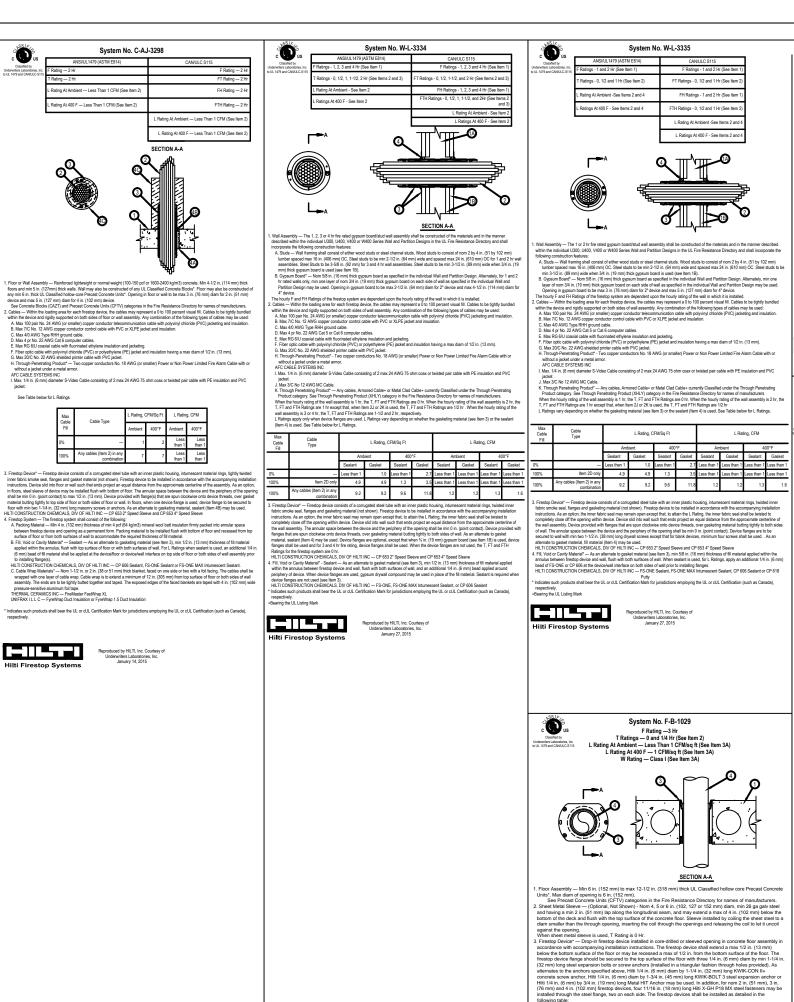


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Hilti Firestop Systems

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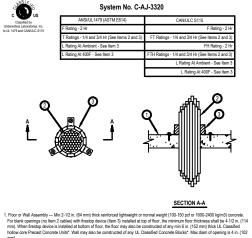
See Table below for L Ratings

System No. F-B-1029 (cont.) **D**us F Rating —3 Hr T Ratings — 0 and 1/4 Hr (See Item 2) L Rating At Ambient — Less Than 1 CFM/sq ft (See Item 3A) L Rating At 400 F — 1 CFM/sq ft (See Item 3A) W Rating — Class I (See Item 3A) nuriters Laboratories, Inc. 1479 and CANULI C-S115 Nom Diam of Through Penetrant, Min-Max Floor Thickness Firestop Notes: CES-DID 21 6 - 6-1/2 (152 - 16 6 - 6-1/2 (152 - 16 CES-DID 4 6 - 6-1/2 (152 - 16 CFS-DID 3" HC requirements. CFS-DID 4" H specification. CFS-DID 2" HC1 9-1/2 - 10-1/2 (241 - 26 2. Details show 9-1/2 - 10-1/2 (241 - 26 requirements of CES-DID 4" HC1 4 (102) 9-1/2 - 10-1/2 (241 - 267 11-1/2 - 12-1/2 (292 -CFS-DID 2" HC1: CFS-DID 3" HC12 CFS-DID 4" HC12 following: For pipe smaller than non Z in (S mm) diam, Adapter and Top Skall (Puper Verial (Verial (Verial))
 HLT I CONSTRUCTION CHEMICALS, DIV OF HLT I INC — CFS-DID 2\*C, CFS-DID 3\*C, CFS-D manufacturer's used: A. Stele Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) stele pipe. B. Iron Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ducilie iron pipe. C. Conduit — Nom 4 in. (102 mm) diam (or smaller) figit stele clonduit. D. Conduit — Nom 4 in. (102 mm) diam (or smaller) stele electrical metallic tubing. E. Copper Tubing — Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing F. Copper Pipe — Nom 4 in. (102 mm) diam (or smaller) Regular) or heavier copper pipe. Drawings shall Guidelines for per tubing. Judgments. 4. References: Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. Mey 18, 2011 lilti Firestop Systems assemblies that System No. F-A-1128 Ô. CAN/ULC-S11 ANSI/UL1479 (ASTM E814) All rated asse following inform ngs — 0 and 1/4 Hr (See Item 2) FH Ratings - 2 and 3 Hr (See Items 1 and 1 ating At 400 F — Less Than 1 CFM/sq ft (See It FTH Ratings - 0 and 1/4 Hr (See Iter Rating — Class 1 (See Item 3A) Rating At 400 E - Less Than 1 CEM/sg ft (See Ite boxes must be ு category CLIV Ø Resistance Dir 0 SECTION A-A Floor Assembly — Min 2-1/2 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete. When concrete thickness is min 4-1/2 in. (114 mm), the F and FH (100-100 pcb in 100 pc constructed of the materials and in the manner specified in the individual D700. D800 or D900 Series designs in the ULF irre Resistance Directory and as summarized below: A. Concrete — Min 2-12 in. (64 mm) to max 8 in. (203 mm) thick reinforced lightweight or normal weight (100-150 pdf or 1600-2400 kg/m) concrete, as measured our crest of fitude stelled dec. When concrete topping thickness is min 4-12 k. (114 mm), F and FH Ratings are 3 hr. B. Steel Floor and Form Units' — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Celling Design. 2. Metallic Slever — (Optional, NG Shown) – Non 4, 5 or 6 in. (102, 127 or 152 mm) diam Schedule 10 (or heavier) steel slever cast or grouted into floor assembly, fluth with floor surfaces. When metallic sleve's is used, the T, FT and FTH Ratings are 0 Hr. and ETH Raings are 0 Hr. III the III the III do assembly, liad with indication should be studied. With the III Raings are 0 Hr. IIII Raings are 0 Hr. III Ra Core Hole or Sleeve Diam, In. (mm) Nom Diam of Through Penetrant, In. (mm) Firestop Device CFS-DID 2"MD 2 (51) or smal CFS-DID CFS-DID 4"MD + For pipe smaller than nom 2 in. (51 mm) diam, Adapter and Top Seal Plug is required to be used. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-DID 2\*MD, CFS-DID 3\*MD, CFS-DID 4\*MD, CFS-DID FMD
 Sector 2 mic, di Se and supplied by device manufacturer. Module is threaded onto top of device. W Rating and L Rating apply only when water barrier module is used. HLIT ICONSTRUCTION CHEMICALS, DIV OF HLIT INC. — Water Barrier Module 4. Trough Penetratin — One metallic piec, conduit or thubing to be installed within the frestop device. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The following types of pipe, conduit or tubing may be used: seo: A. Steel Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe. A. Steel Pipe — Nom 6 in, (152 mm) dami (or smaller) Schedule 10 (or heaver) stee 6. Nom Pipe — Nom 6 in, (152 mm) dami (or smaller) schedule 10 or pipe. B. Nom Pipe — Nom 5 in, (152 mm) dami (or smaller) steel electrical metallic hilting D. Condut — Nom 4 in, (112 mm) diam (or smaller) steel electrical metallic hilting C. Copper Tubing – Nom 6 in, (152 mm) diam (or smaller) Regular) or heavier coppe rearing the UL Classification Mark



opper tubing

<ul> <li>Notes:</li> <li>1. Refer to section 15084 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.</li> <li>2. 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: <ul> <li>* Minimum and maximum annular space</li> <li>* 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.</li> </ul> </li> <li>3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.</li> <li>4. References: <ul> <li>* 2013 Fire Resistance Directory - Volume III or UL Products Certified for Canada (CUL) Directory</li> <li>* All governing local, provincial or national building codes</li> <li>* www.UL.com/database</li> <li>* www.Untertek.com</li> </ul> </li> <li>5. Firestop System installations must meet requirements of tested assemblies that provide the required assembly rating CANULC-S115.</li> <li>6. All rated assemblies shall be prominently labeled with the following information: <ul> <li>* ATTENTION: Fire Rated Assembly</li> <li>* UC, CUL or Intertek #</li> <li>* Product(s) used</li> <li>* Houry Rating (Assembly Rating)</li> <li>* Installation Date</li> </ul> </li> <li>7. For outlet boxes installed back to back through a fire spearation boxes must be protected with Wall Opening Protective Materials, category CLV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1)</li> </ul>	<ul> <li><notes (delete="" after="" and="" block="" designer="" information)="" note="" reading="" replace="" this="" title="" to="" with=""></notes></li> <li>1. Any modification to these details could result in an application/system not meeting the ULC/cUL Classification or the intended temperature or fire ratings.</li> <li>2. Details shown are up to date as of February 2015.</li> <li>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.</li> </ul>
	JOB NUMBER: DRAWN: CHECKED: ISSUE DATE: REVISIONS: TYPICAL FIRESTOP DETAILS SHEET NAME: SHEET NUMBER: E.2.3



mm), When finstip device is installed at bottom of too; the toor may also be constructed or any U. Les Aussance-bole was Prevail Contrase Units<sup>1</sup> Will may also be constructed of any U. Classified Contrase Block's Much and ordening at all n. (102 mm).
Cascente Block's (XC21) and Presat Concrete Units<sup>1</sup> Much and ordening at all n. (102 mm).
Cascente Block's (XC21) and Presat Concrete Units<sup>1</sup> Much and ordening at all n. (102 mm).
Cascente Block's (XC21) and Presat Concrete Units<sup>1</sup> Much and the ordening of the first maintenance.
A Steven – (Polis Stom, Option) – Non 4 n. dam or smaller) allers cascents of the first maintenance.
Cascente Block's (XC21) and Presat Concrete Units<sup>1</sup> Much and States of foor or wall. The following types of alleves may be used. Schedule's (or hearing's steel jppe, min 28 g steel alleve, or Schedule 40 solid or callular core spin/in and cables in preprint be min 4.5 percent steel jppe, min 28 g steel alleve, or Schedule 40 solid or callular core spin/in and cables in preprint be min 4.5 percent steel in the consection of the mostance.
Mark 70: No. 12.2 MVG Core conclustor control alle with PVC or XLPE jacket and insulation.
Mark 70: No. 12.2 MVG Core conclusted with molecular pHC or XLPE jacket and insulation.
Mark 70: No. 12.2 MVG Core conclusted with the callular and placking.
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Mark 70: No. 12.2 MVG Core conclusted with the context and the random ran

(no cables), the hourty 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.

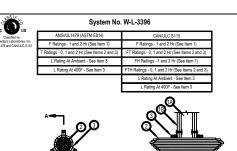
Opening	CFM (per device)		CFM / Sq Ft Opening	
	Ambient	400F	Ambient	400F
Blank Opening Only In Walls Only (no cables)	Less Than 1	Less Than 1	Less Than 1	4
Max 100% visual fill with Cat 5 and/or Cat 6 cables	Less Than 1	1.2	Less Than 1	13.0

Fill Void or Cavity Material" — (Optional, Not Shown) - Fill material applied to fill intersions between and around the cable bundle where cables and acid device.
 Intlin 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.







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

SECTION A-A

within the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Hre Heststance Lunccory and small incorputater are following contractions features: A. Studa – Wall faming shall consist of either wood studus for steel channel studs. Wood studs to consist of nom 2by 4 in, (51 by 102 mm) Lunder spaced must fin (406 mm) OC. Steel studs to be min 21/2. (81 mm) vide ad spaced max 24 in, (61 bm) QC. B. Organue Board" – Nom 59 in, (16 mm) thick ground bare as specified in the individual Valiand Partition Design. Opening in gyssum board to be max 4, (102 mm) diam. The hourly F and PH Ratings of the frestipo system are dependent upon the hourly rating of the wall in which it is installed. I. Steever – WK 500, Optional : And a r. (102 mm) diam (10 emails) sissee friction thin wall boards and trackes. The following types of silences may be used: Schedule 5 (or heavier) steel pipe, min 26 gas steel selexe, or Schedule 40 solid or cellular core polyvinyl rinderider UM.

14. Silvere — Met Sheven, Optional - Non 4 n. (102 mm) dami (or smaller) aleves frictoris fit not wall opening, tuba with both wall surfaces. The following types of aleves may be used. Standard Silver Navel's tell tell physical Silver Navel's Benergy Sheven Sheven and Sheven She

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F. Filer optic cable with polyring chorode (PVC) or polyrethyme (PE) jacket and neutation having a max dam of 12 in (13 mm).
C. Mara 20, No 12 AVA MIC Cable.
For opening with cables, then be having radii of the wail assembly is 11 m; the T, FT and FTH Ratings are 0. the For opening with cables, where the having radii of the wail assembly is 20. In the T, FT and FTH Ratings are 0. the For opening with cables, where the having radii of the wail assembly is 20. In the T, FT and FTH Ratings are 0. the foreign and monother to be of opposite the having for the maximum based on the having radii of the wail assembly is 20. In the T, FT and FTH Ratings are 0. The foreign gain monother to be of opposite the having foreign and the foreign gain cables, the having the monother opposite the having the maximum based on the first (15 mm) dam dete waither may be used. For oppings with tables, plug with cables, they wails in cables to the hourdy radii of the wail assembly as 20. In the T, FT and D (in the having and the first (15 mm) dam dete waither may be used. For oppings with tables, plug with cables of the tables, plug with cables of the set opping with tables, plug with cables of the tables, plug with cables of the tables, plug with cables of the tables of tables of the tables of tables of the tables of ta

Opening	CFM (per de	evice)	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

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), sene-tively

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<ul> <li>Notes:</li> <li>1. Refer to section 15084 of the specifications. For Quality Control requirements, refer to the Quality Control portion of the specification.</li> <li>2. 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: <ul> <li>Minimum and maximum annular space</li> <li>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.</li> </ul> </li> <li>3. 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.</li> <li>4. References: <ul> <li>2013 Fire Resistance Directory - Volume III or UL Products Certified for Canada (CUL) Directory</li> <li>All governing local, provincial or national building codes</li> <li>www. Intertek.com</li> </ul> </li> <li>5. Firestop System installations must meet requirements of tested assemblies that provide the required assembly rating CAN/ULC-S115.</li> <li>6. All rated assemblies shall be prominently labeled with the following information: <ul> <li>Art TextNTION: Fire Rated Assembly</li> <li>'ULC, cUL or Intertek #</li> <li>'Product(s) used</li> <li>Hourly Rating (Assembly Rating)</li> <li>'Installation Date</li> </ul> </li> <li>7. For outlet boxes installed back to back through a fire spearation boxes must be protected with Wall Opening Protective Materials, category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1)</li> </ul>	<ul> <li><notes (delete="" after="" and="" block="" designer="" information)="" note="" reading="" replace="" this="" title="" to="" with=""></notes></li> <li>1. Any modification to these details could result in an application/system not meeting the ULC/cUL Classification or the intended temperature or fire ratings.</li> <li>2. Details shown are up to date as of February 2015.</li> <li>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 of Canada (cUL) Directory.</li> </ul>
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