Firestop Submittal Package

Project:

Date:

Submitted by:

This submittal is auto-generated based on user-selected inputs.
Therefore, Hilti makes no representation as to the suitability of these systems for their intended use.

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Penetration Firestopping Schedule

System	Penetration Type	Barrier Construction	Description	F Rating	T-Rating	Product	Page #
C-AJ-7051	Duct	Concrete Floor; Concrete Wall	Max. 30" x 30" sheet metal duct (w/o damper) (AS=1/4" to 1-3/4")	1 Hour; 2 Hours; 3 Hours	1 Hour	CFS-S SIL GG; CFS-S SIL SL; CP 606; FS-ONE MAX	6
C-AJ-7084	Duct	Concrete Floor; Concrete Wall	Max. 20" spiral wound duct (min 24 ga) or Max. 12" sheet metal duct (min 28 ga) (AS=0" to 1-1/2")	1 Hour; 2 Hours	0 Hour	CFS-S SIL GG; CFS-S SIL SL; CP 606; FS-ONE MAX	7
C-AJ-7145	Duct	Concrete Floor; Concrete Wall	Max. 60" x 36" sheet metal duct with 2" glass fiber duct insulation compressed through opening (AS varies)	1 Hour; 2 Hours	1 Hour	FS-ONE MAX	8
TP-CS-S SA LIGHT	Cable Tray; Cable/Cable Bundle; Duct; Electrical Box; Electrical Busway; HVAC Line Set; Mechanical Support Members; Metallic Pipe/Conduit/Tube; Non-Metallic Pipe/Conduit/Tube; NonMetallic Pipe/Conduit/Tube; Wall	-	Through penetration details for non fire-rated smoke partitions with CS-S SA LIGHT Smoke & Acoustic Sealant	0 Hour	Other	CS-S SA Light	9
W-L-7042	Duct	Gypsum Wall	Max. 20" spiral wound duct w/o damper, or 12" sheet metal duct	1 Hour; 2 Hours	0 Hour	CP 606; FS-ONE MAX	20

System	Penetration Type	Barrier Construction	Description	F Rating	T-Rating	Product	Page #
W-L-7059	Duct	Gypsum Wall	Max. 24" x 12" sheet metal duct w/o damper with max. 1 ¢" thickness foil scrim glass fiber duct insulation	1 Hour; 2 Hours	0 Hour	FS-ONE MAX	22
W-L-7096	Duct	Gypsum Wall	Max. 13" x 12" sheet metal duct w/o damper (no angles)	1 Hour	0 Hour	FS-ONE MAX	23
W-L-7153	Duct	Gypsum Wall	Max. 20" spiral wound duct or 12" sheet metal duct (w/o damper) with 1-1/2" glass fiber duct insulation (AS=1/4" to 1")	1 Hour; 2 Hours	0 Hour	FS-ONE MAX	24
W-L-7155	Duct	Gypsum Wall	Max. 100" x 100" sheet metal duct (w/o damper) (AS=0" to 2")	1 Hour; 2 Hours	0 Hour	CFS-S SIL GG; CP 606; FS-ONE MAX	25
W-L-7156	Duct	Gypsum Wall	Max. 100" x 100" sheet metal duct (w/o damper) with 1-1/2" or 2" thick glass fiber duct insulation (insulation split for angles) (AS=1/2" to 2")	1 Hour; 2 Hours	Other	FS-ONE MAX	27

Table Of Contents

Disclaimer : Safety Data Sheets (SDS) are important for compliance and safety.
It is the user's responsibility to ensure all required documents are part of the final submittal package.

Approvals

UL/cUL SYSTEM NO. C-AJ-7051

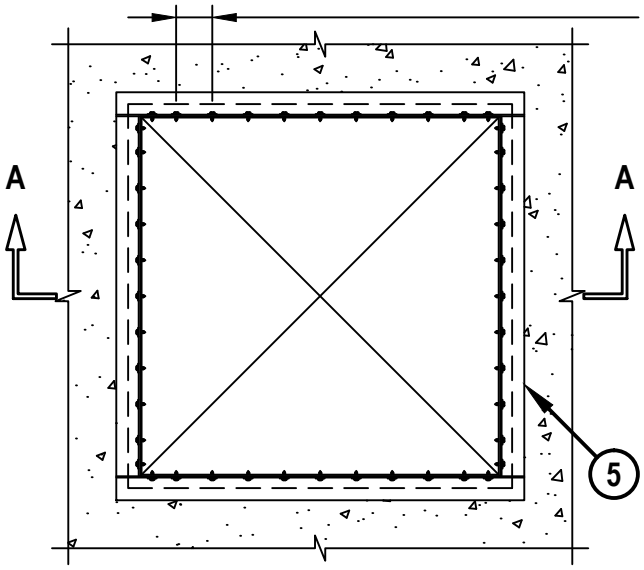
METAL DUCT (WITHOUT DAMPER) THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

F-RATING = 3-HR.
T-RATING = 1-HR.

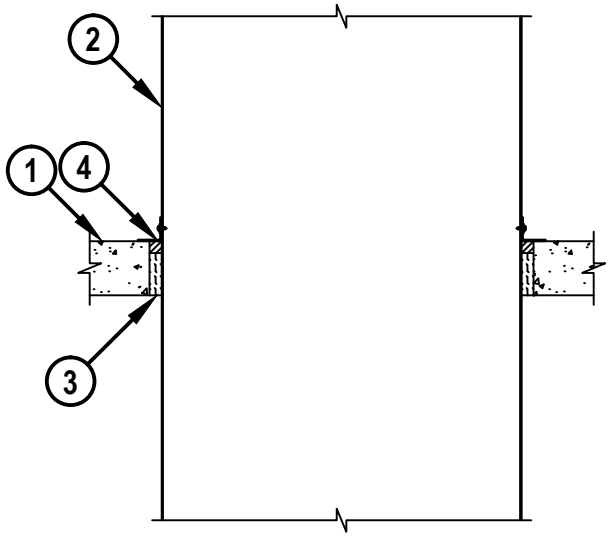
CAJ7051f.021218

TOP VIEW

MAX. 3" C/C SPACING
(SEE NOTE NO. 4 BELOW)



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR FIRE-RATING) :
   - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 4-1/2" THICK).
   - B. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 5-1/2" THICK).
   - C. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. STEEL DUCT TO CONSIST OF ONE OF THE FOLLOWING (NOTE : NOT FOR USE IN DUCT SYSTEMS CONTAINING A DAMPER) :
   - A. MAXIMUM 30" x 30" RECTANGULAR STEEL DUCT (MIN. 24 GA.).
   - B. MAXIMUM 30" x 30" RECTANGULAR STEEL DUCT (MIN. 24 GA.) WITH BW11 COATING MATERIAL (FLAMEBAR BW11 FIRE RATED DUCTWORK BY FIRESPRAY INTERNATIONAL, LTD.).
3. MINIMUM 3-1/2" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
4. MINIMUM 1" DEPTH HILTI CP 606 FLEXIBLE FIRESTOP SEALANT OR HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.
5. SEE NOTE NO. 4 BELOW.

NOTES :
1. MAXIMUM AREA OF OPENING = 1024 SQUARE INCHES WITH A MAXIMUM DIMENSION OF 32".
2. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 1-3/4".
3. MINIMUM 1" DEPTH HILTI CP 606/FS-ONE MAX FIRESTOP SEALANT AND STEEL ANGLES ARE REQUIRED ON BOTH SIDES OF A WALL ASSEMBLY.
4. AFTER SEALING SPACE BETWEEN DUCT AND CONCRETE FLOOR/WALL ASSEMBLY WITH HILTI FIRESTOP SEALANT, FASTEN STEEL ANGLE (L2 x 2 x MIN. 16 GA.) TO DUCT WITH NO. 8 (OR LARGER) STEEL SHEET METAL SCREWS. ANGLE DOES NOT HAVE TO BE FASTENED TO CONCRETE FLOOR/WALL ASSEMBLY.

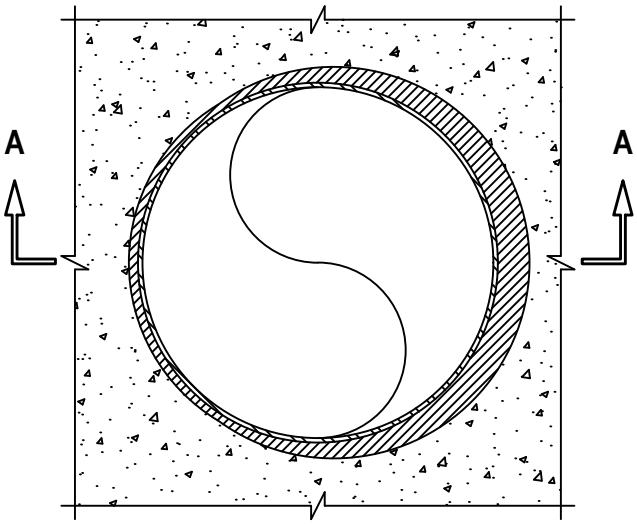
UL/cUL SYSTEM NO. C-AJ-7084

ROUND SHEET METAL DUCT THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL ASSEMBLY

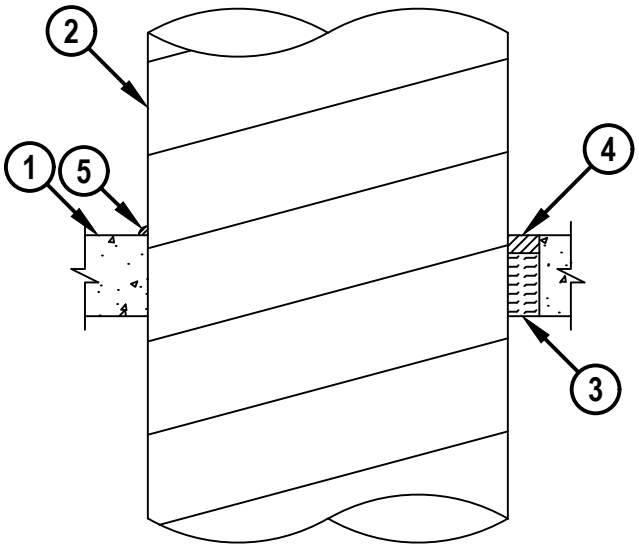
CAJ7084e.052421

F-RATING = 2-HR.
T-RATING = 0-HR.

TOP VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (2-HR. FIRE-RATING) :
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
   B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 20" NOMINAL DIAMETER GALVANIZED SPIRAL WOUND SHEET METAL DUCT (MIN. 24 GA.).
   B. MAXIMUM 12" NOMINAL DIAMETER GALVANIZED SHEET METAL DUCT (MINIMUM 28 GA.).
3. MINIMUM 3-1/2" THICKNESS MINERAL WOOL (MINIMUM 4 PCF DENSITY) TIGHTLY PACKED.
4. MINIMUM 1" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT, HILTI CP 601S ELASTOMERIC FIRESTOP SEALANT, HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, HILTI CFS-S SIL SL FIRESTOP SILICONE SEALANT, OR HILTI CP 604 SELF-LEVELING FIRESTOP SEALANT.
5. MINIMUM 1/2" BEAD HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT, HILTI CP 601S ELASTOMERIC FIRESTOP SEALANT, OR HILTI CP 606 FLEXIBLE FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 21-3/4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".
3. MINIMUM 1" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT, HILTI CP 601S ELASTOMERIC FIRESTOP SEALANT, OR HILTI CP 606 FLEXIBLE FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF A WALL ASSEMBLY.

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Sheet	1 of 1
Scale	3/32" = 1"
Date	May 24, 2021

Drawing No.
CAJ 7084e

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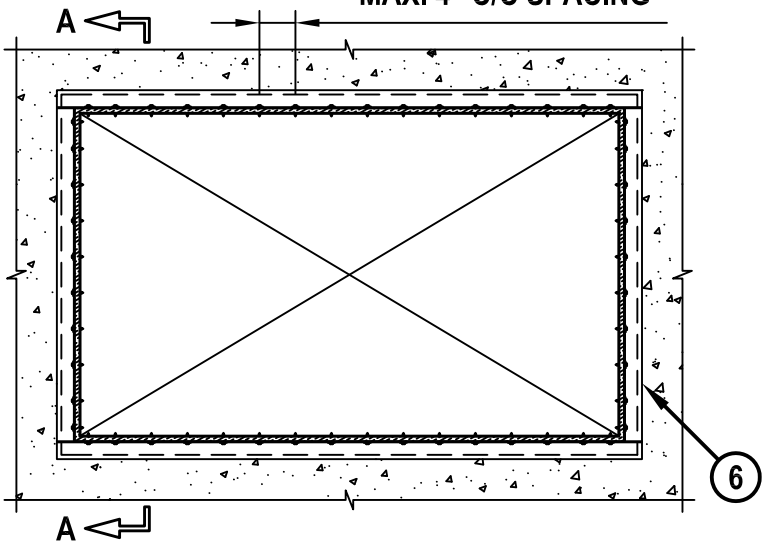
UL/cUL SYSTEM NO. C-AJ-7145

INSULATED DUCT THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL

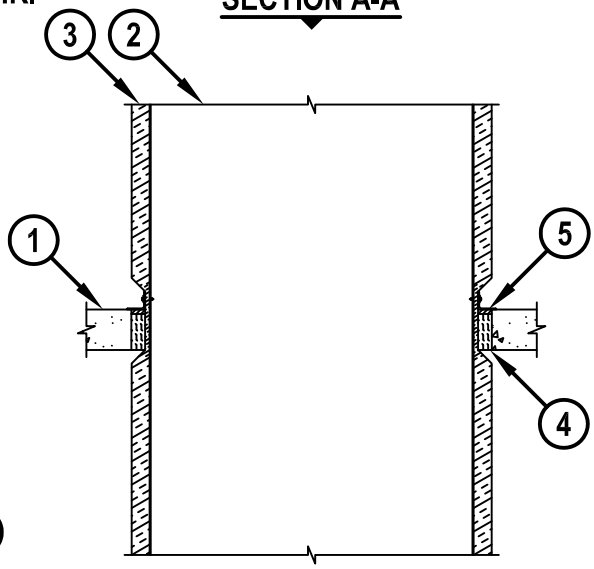
F-RATING = 2-HR.
T-RATING = 1 3/4-HR.

CAJ7145b.010615

TOP VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY (2-HR. FIRE-RATING) :
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
   B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. MAXIMUM 60" x 36" RECTANGULAR SHEET METAL DUCT (CONFORMING WITH SMACNA REQUIREMENTS).
3. NOMINAL 2" THICK GLASS-FIBER DUCT INSULATION (MIN. 3/4" PCF DENSITY) WITH FOIL-SCRIM-KRAFT FACING.
4. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED AND RECESSED TO ACCOMMODATE SEALANT (SEE NOTE NO. 2 BELOW).
5. MINIMUM 1/2" DEPTH HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT.
6. STEEL RETAINING ANGLE (SEE NOTE NO. 6 BELOW).

NOTES : 1. MAXIMUM AREA OF OPENING = 17.8 SQ. FT., WITH A MAXIMUM DIMENSION OF 64".
2. DUCT INSULATION TO BE COMPRESSED THROUGH THE ASSEMBLY SUCH THAT THE MAXIMUM OVERALL THICKNESS IS 1/2".
3. THE ANNULAR SPACE BETWEEN STEEL DUCT AND EDGES OF OPENING SHALL BE MINIMUM 2" TO MAXIMUM 6" WHEN MAXIMUM DUCT DIMENSION IS 28". OTHERWISE, MAXIMUM ANNULAR SPACE IS 2-1/2".
4. NOMINAL ANNULAR SPACE BETWEEN INSULATED DUCT AND PERIPHERY OF OPENING TO BE MINIMUM 0" TO MAXIMUM 1/2" PRIOR TO INSTALLATION OF MINERAL WOOL. WHEN MAXIMUM DUCT DIMENSION IS 28", MAXIMUM ANNULAR SPACE BETWEEN INSULATED DUCT AND PERIPHERY IS 4" PRIOR TO INSTALLATION OF MINERAL WOOL.
5. MINIMUM 1/2" DEPTH HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT AND STEEL ANGLES ARE REQUIRED ON BOTH SIDES OF A WALL.
6. AFTER SEALING SPACE BETWEEN INSULATED DUCT AND CONCRETE FLOOR/WALL WITH HILTI FS-ONE MAX OR FS-ONE, FASTEN STEEL ANGLE (L2 x 2 x MIN. 16 GA.) TO DUCT WITH NO. 10 (OR LARGER) STEEL SHEET METAL SCREWS SPACED 1" FROM EACH END AND MAXIMUM 4" C/C.

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Sheet	1 of 1
Scale	1/16" = 1"
Date	Jan. 06, 2015

Drawing No.
CAJ 7145b

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THROUGH PENETRATION DETAILS FOR NON FIRE-RATED SMOKE PARTITIONS (EXAMPLES)

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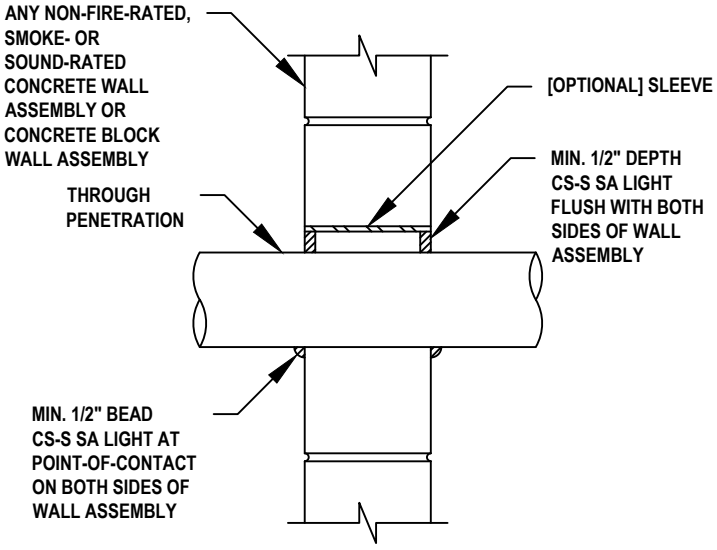
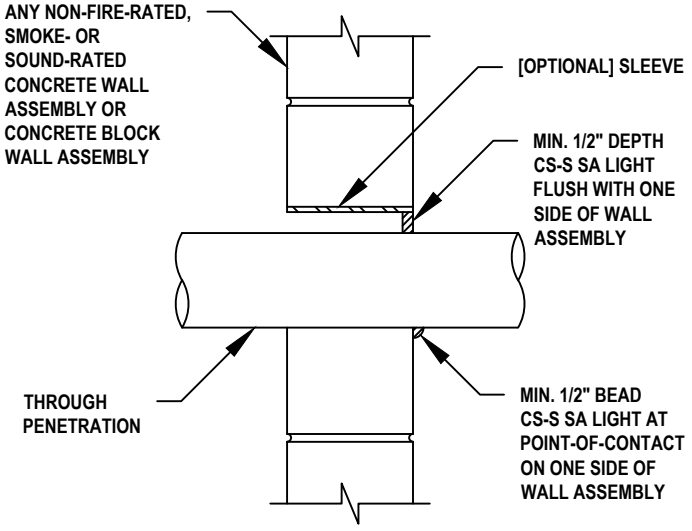
TP-SALIGHT-1a.030221

TWO-SIDED APPLICATIONS (INDIVIDUAL PENETRATIONS)



ONE-SIDED APPLICATIONS (INDIVIDUAL PENETRATIONS)



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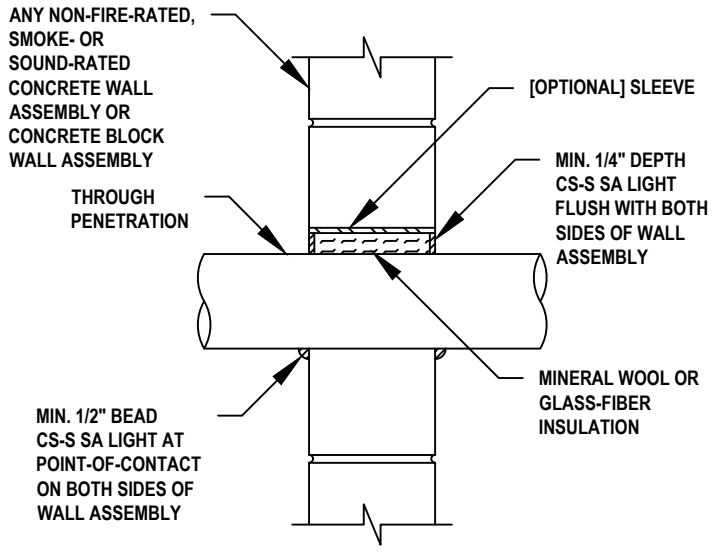

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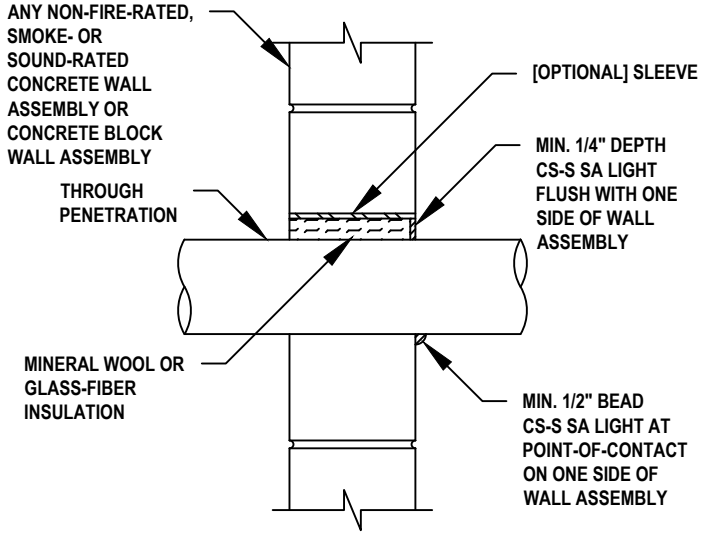

NOTES :

- HILTI CS-S SA LIGHT SMOKE AND ACOUSTIC LIGHTWEIGHT SEALANT MAY BE INSTALLED WHERE IT IS NECESSARY TO RESTRICT SMOKE MIGRATION THROUGH NON FIRE-RATED ASSEMBLIES.
- NOT FOR FIRE-RATED ASSEMBLIES.
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- FOR BITUMINOUS COATED CAST IRON PIPE COMPATIBILITY REACH OUT TO HILTI TECHNICAL SUPPORT FOR DETAILS.
- REFER TO PRODUCT LITERATURE FOR COMPLETE DETAILS ON INSTALLATION, SUITABLE APPLICATIONS, AND LIMITATIONS.
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- THESE DETAILS REPRESENT GENERAL INSTALLATION GUIDELINES TO SATISFY SMOKE PARTITION SEALING REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (2009, 2012, 2015, 2018, 2021, OR 2024). OBTAIN AUTHORITY HAVING JURISDICTION APPROVAL PRIOR TO INSTALLATION.

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Sheet	1 of 2
Scale	7/64" = 1"
Date	Jan. 29, 2024

Drawing No.
TP-SALIGHT 1b

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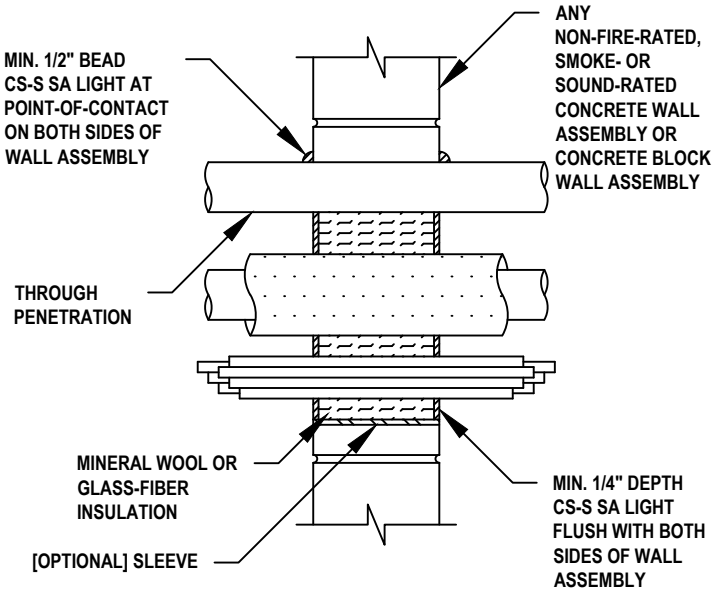
THROUGH PENETRATION DETAILS FOR NON FIRE-RATED SMOKE PARTITIONS (EXAMPLES)

TP-SALIGHT-1a.030221

TWO-SIDED APPLICATIONS (MULTIPLE PENETRATIONS)



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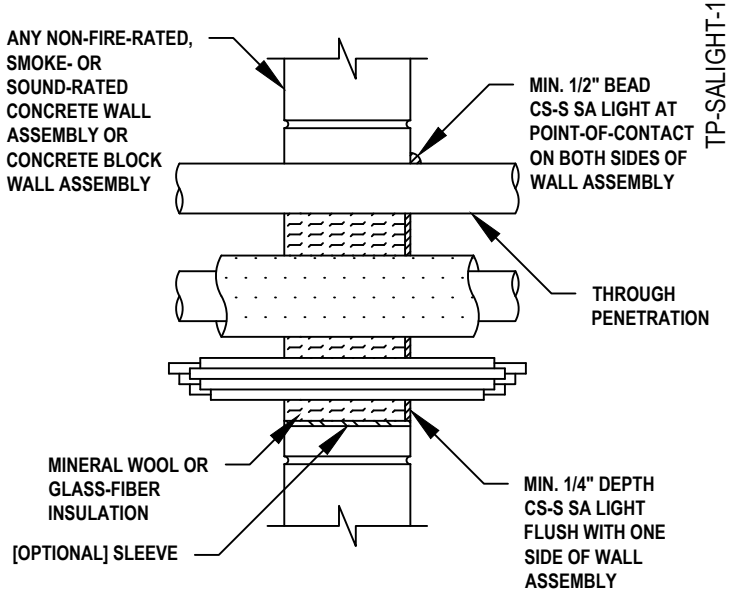

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THROUGH PENETRATION DETAILS FOR NON FIRE-RATED SMOKE PARTITIONS (EXAMPLES)

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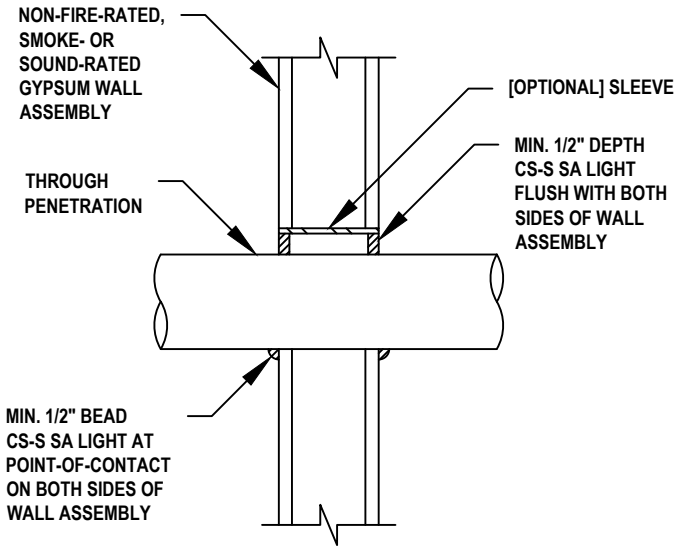
TWO-SIDED APPLICATIONS (INDIVIDUAL PENETRATIONS)



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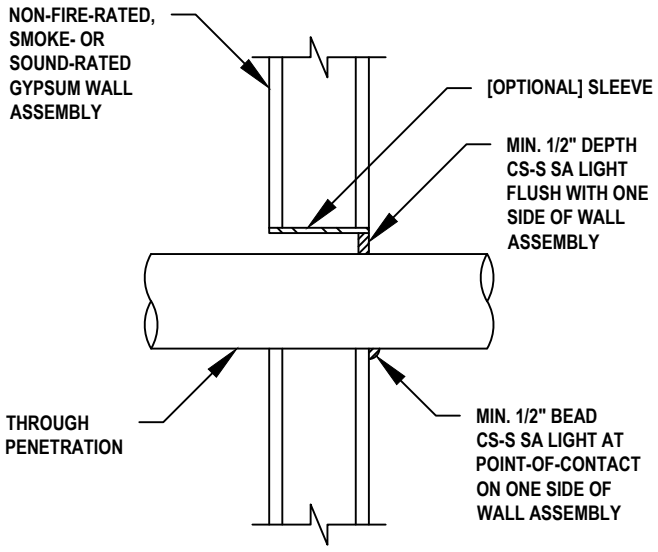

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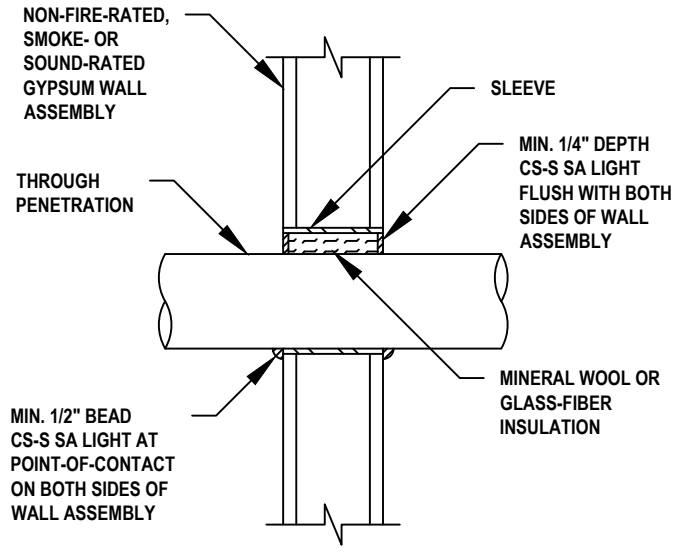

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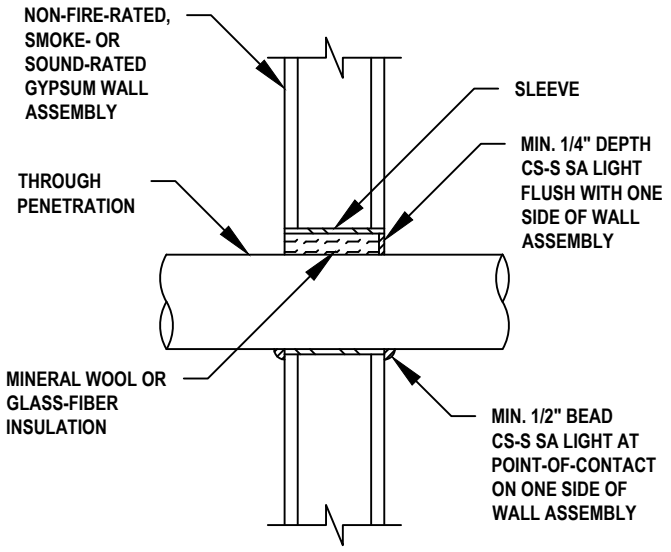

NOTES :

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- NOT FOR FIRE-RATED ASSEMBLIES.
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- FOR BITUMINOUS COATED CAST IRON PIPE COMPATIBILITY REACH OUT TO HILTI TECHNICAL SUPPORT FOR DETAILS.
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Sheet	1 of 2
Scale	7/64" = 1"
Date	Jan. 29, 2024

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THROUGH PENETRATION DETAILS FOR NON FIRE-RATED SMOKE PARTITIONS (EXAMPLES)

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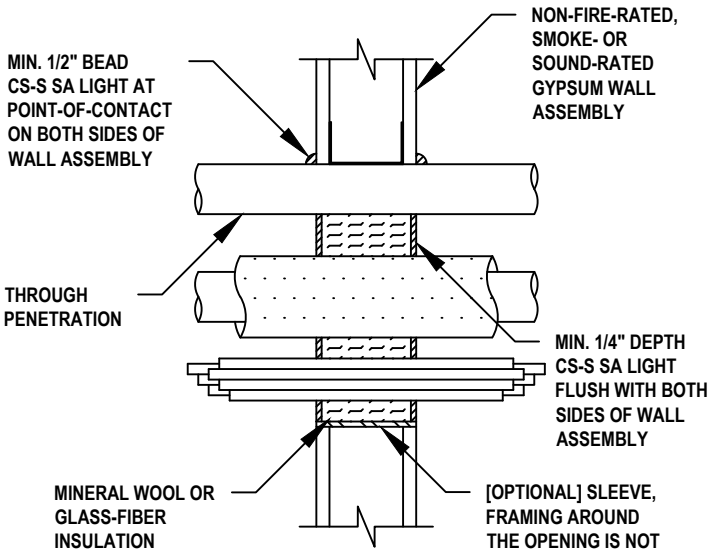
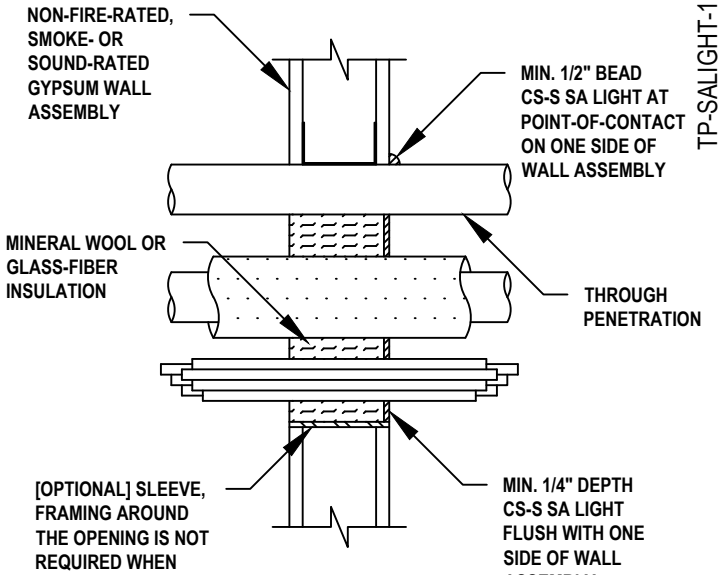
TWO-SIDED APPLICATIONS (MULTIPLE PENETRATIONS)



ONE-SIDED APPLICATIONS (MULTIPLE PENETRATIONS)



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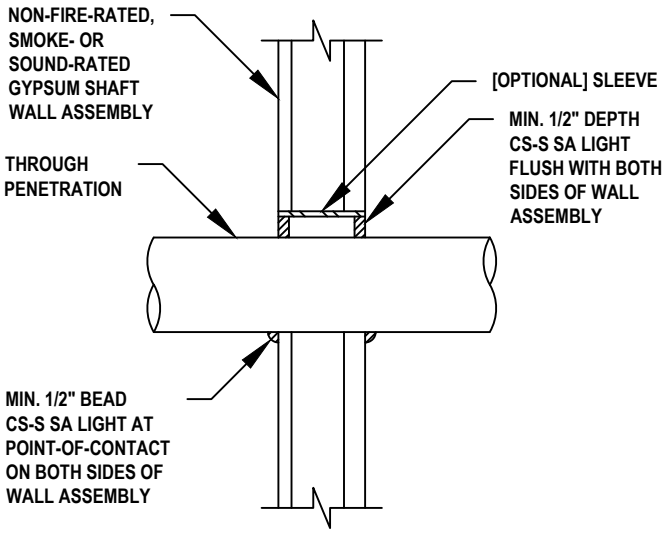
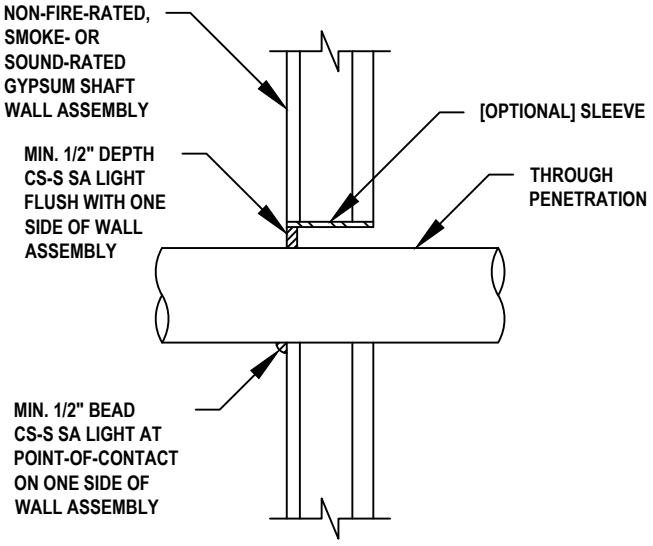
TWO-SIDED (PHASED) APPLICATIONS (INDIVIDUAL PENETRATIONS)



ONE-SIDED APPLICATIONS (INDIVIDUAL PENETRATIONS)



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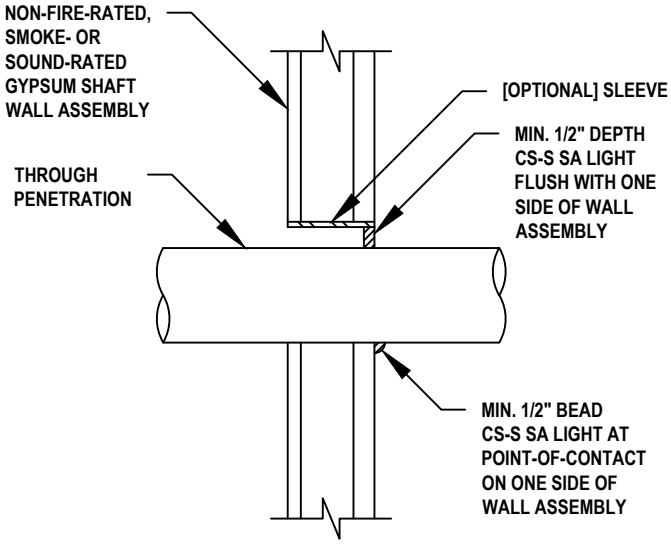

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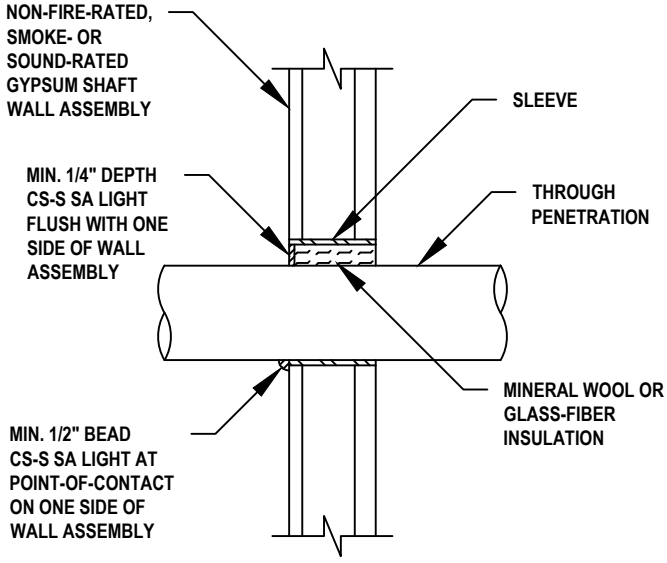

NOTES :

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Sheet	1 of 2
Scale	7/64" = 1"
Date	Jan. 29, 2024

Drawing No.
TP-SALIGHT 3a

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THROUGH PENETRATION DETAILS FOR NON FIRE-RATED SMOKE PARTITIONS (EXAMPLES)

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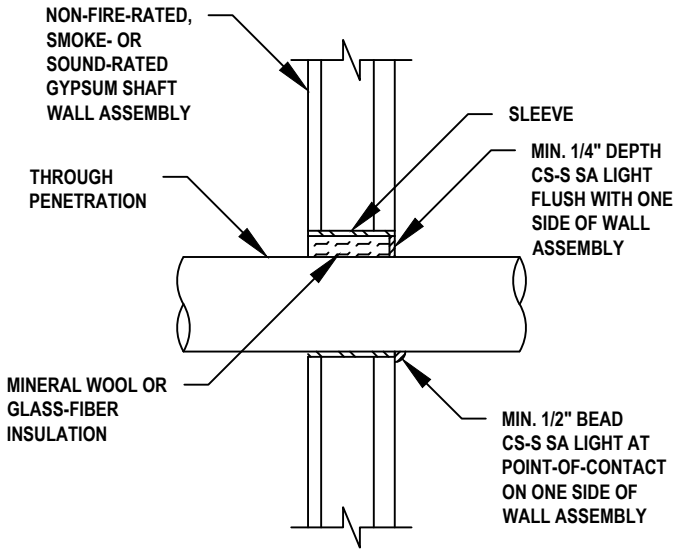
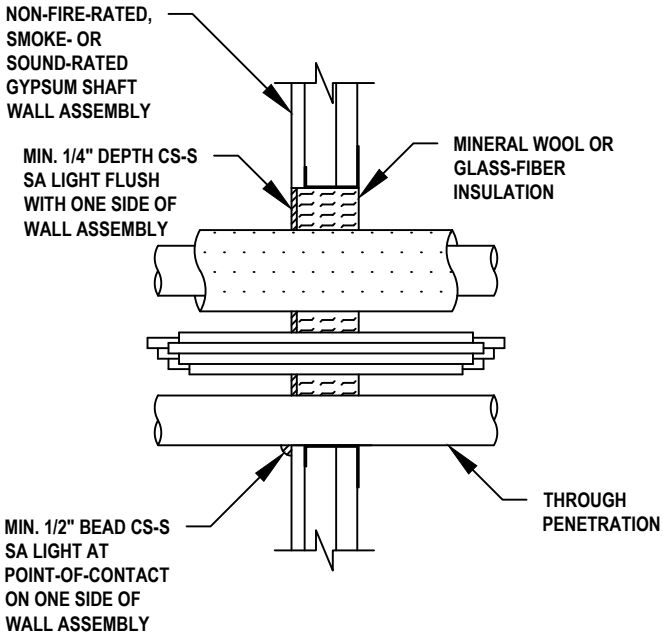
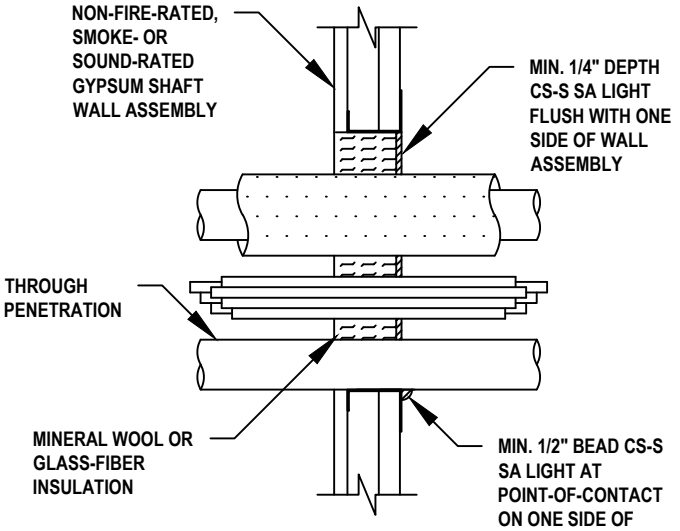
ONE-SIDED APPLICATIONS (INDIVIDUAL PENETRATIONS)



ONE-SIDED APPLICATIONS (MULTIPLE PENETRATIONS)



ONE-SIDED APPLICATIONS (MULTIPLE PENETRATIONS)



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Sheet	2 of 2
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Drawing No.
TP-SALIGHT 3a

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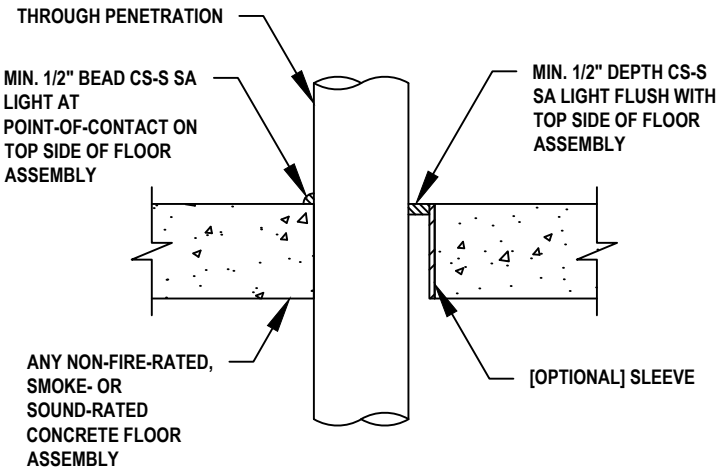
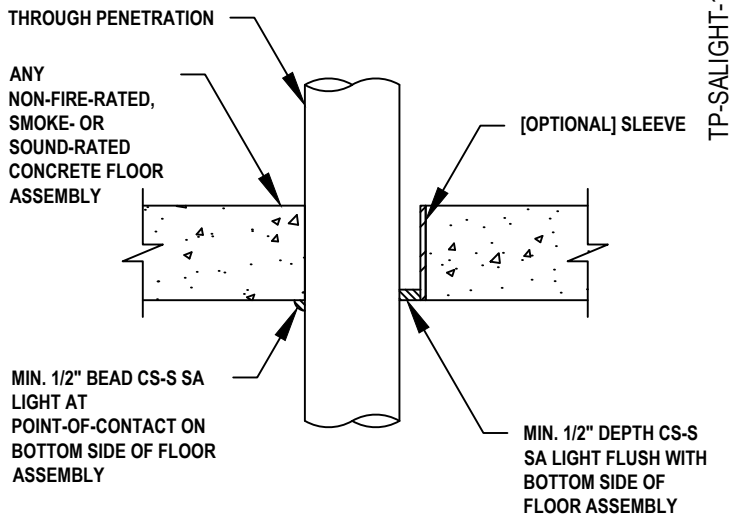
TOP-SIDE APPLICATIONS (INDIVIDUAL PENETRATIONS)



BOTTOM-SIDE APPLICATIONS (INDIVIDUAL PENETRATIONS)



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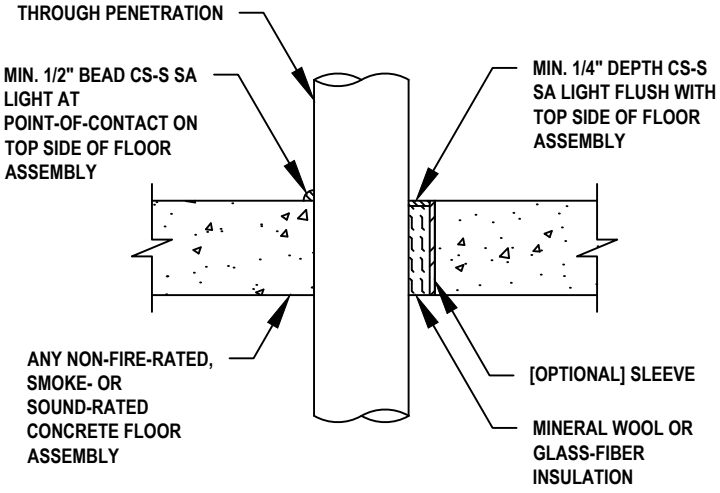
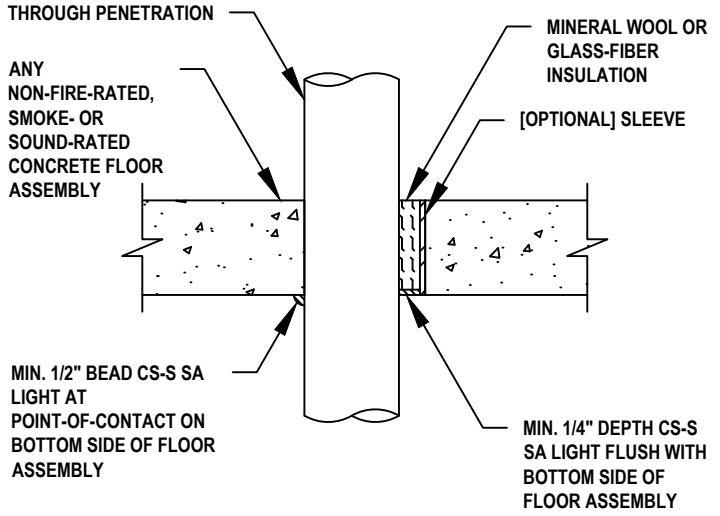


BOTTOM-SIDE APPLICATIONS (INDIVIDUAL PENETRATIONS)



NOTES :

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Sheet	1 of 2
Scale	7/64" = 1"
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Drawing No.
TP-SALIGHT 4a

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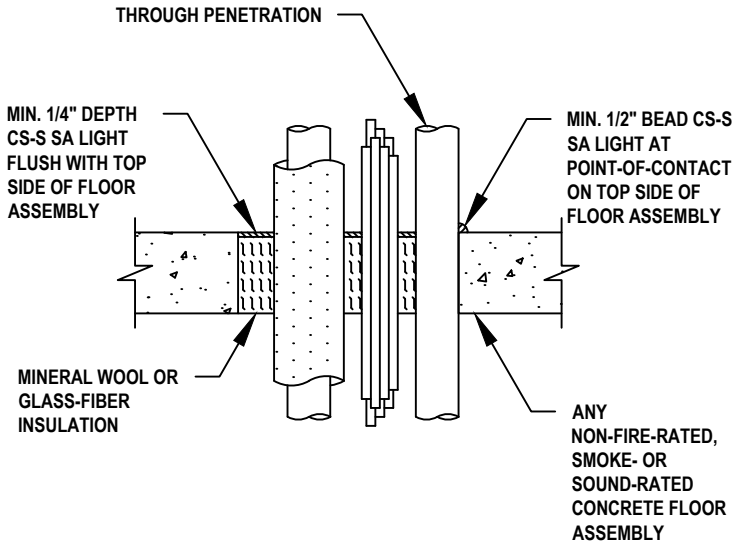
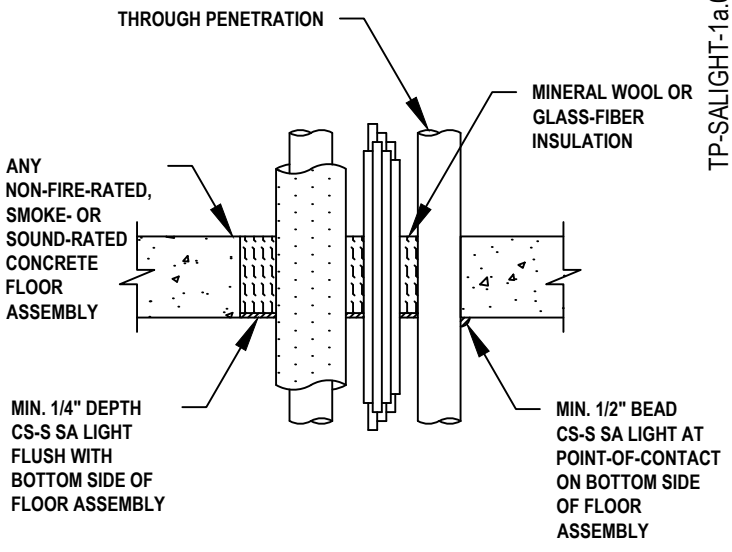
TOP-SIDE APPLICATIONS (MULTIPLE PENETRATIONS)



BOTTOM-SIDE APPLICATIONS (MULTIPLE PENETRATIONS)



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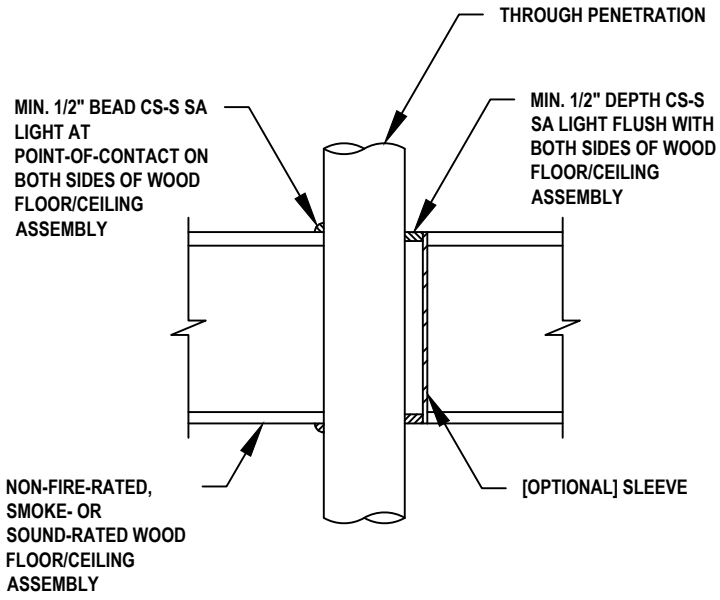
TWO-SIDED APPLICATIONS (INDIVIDUAL PENETRATIONS)



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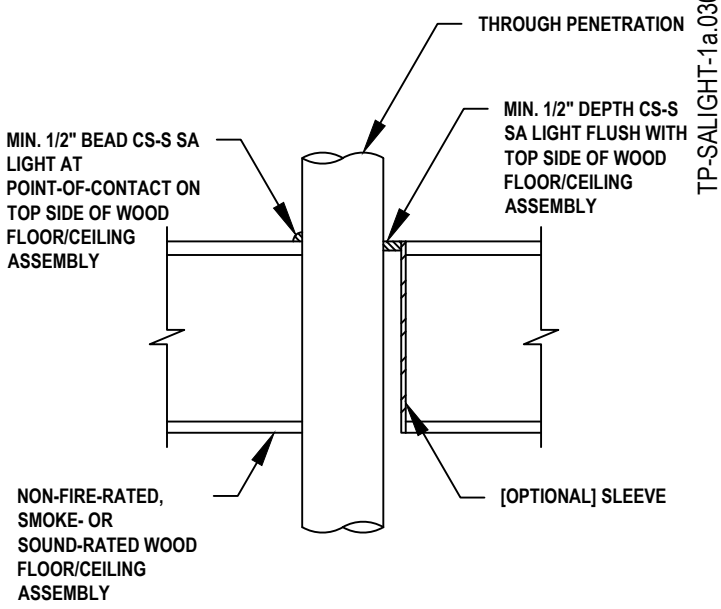

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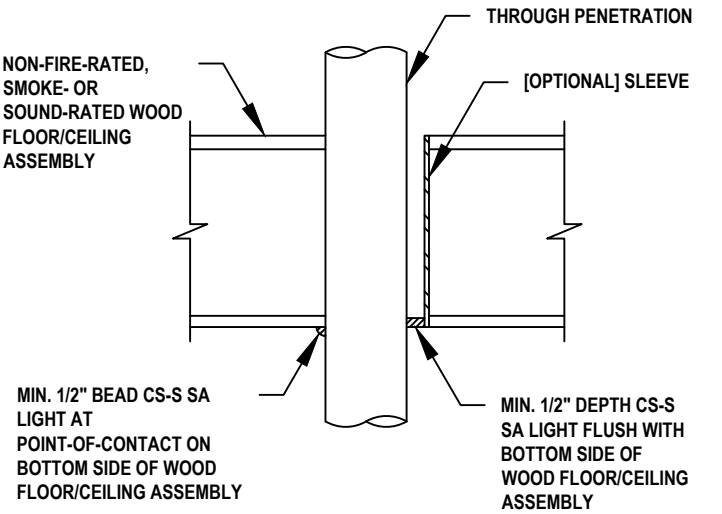

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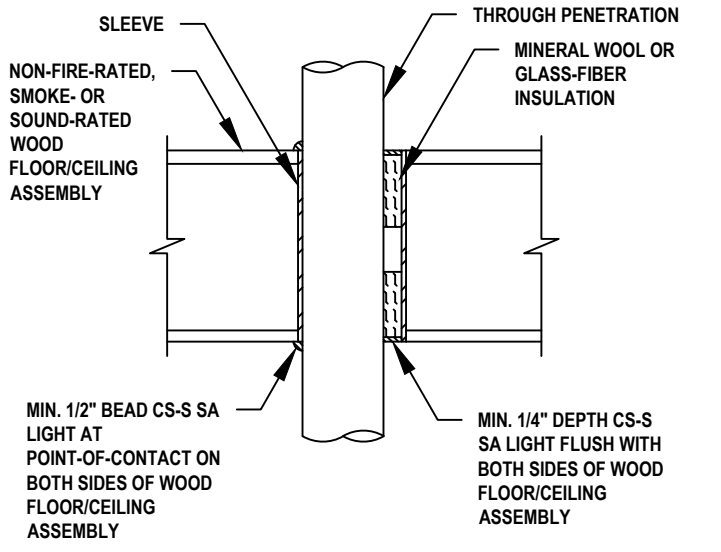

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Sheet	1 of 3
Scale	7/64" = 1"
Date	Jan. 29, 2024

Drawing No.
TP-SALIGHT 5a

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THROUGH PENETRATION DETAILS FOR NON FIRE-RATED SMOKE PARTITIONS (EXAMPLES)

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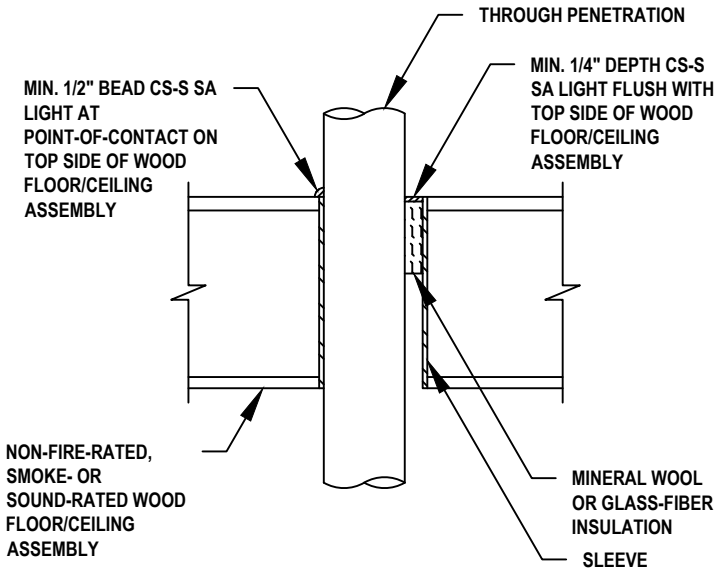
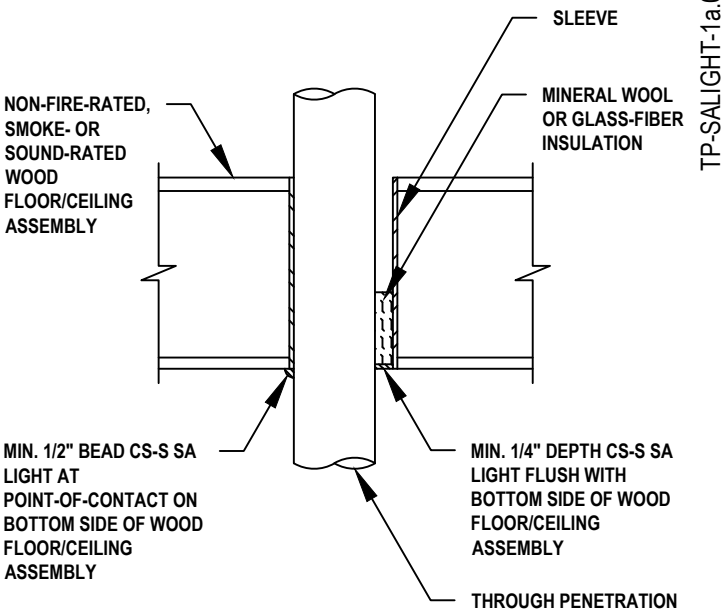
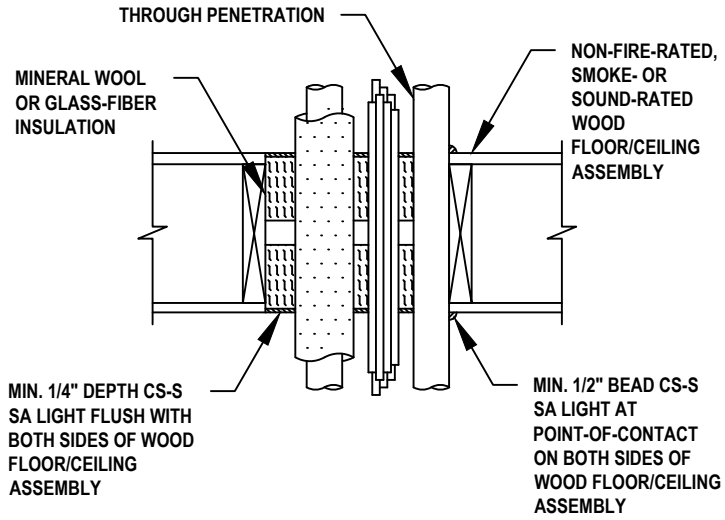


BOTTOM-SIDE APPLICATIONS (INDIVIDUAL PENETRATIONS)



TWO-SIDED APPLICATIONS (MULTIPLE PENETRATIONS)



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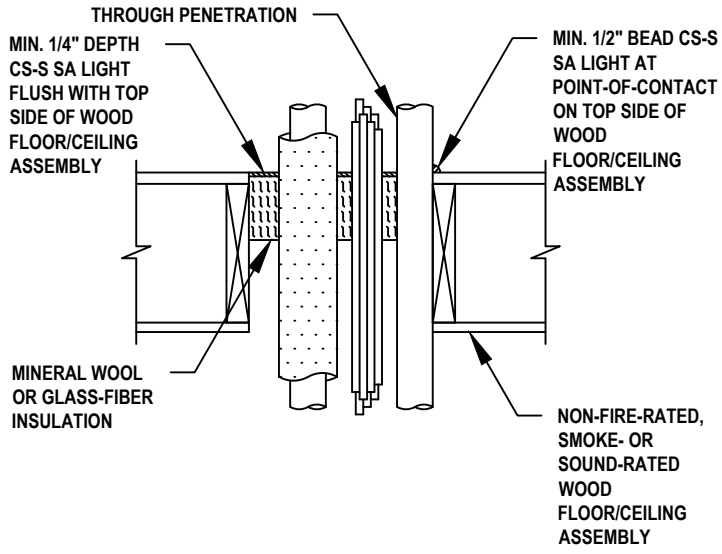

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Sheet	2 of 3
Scale	7/64" = 1"
Date	Jan. 29, 2024

Drawing No.
TP-SALIGHT 5a

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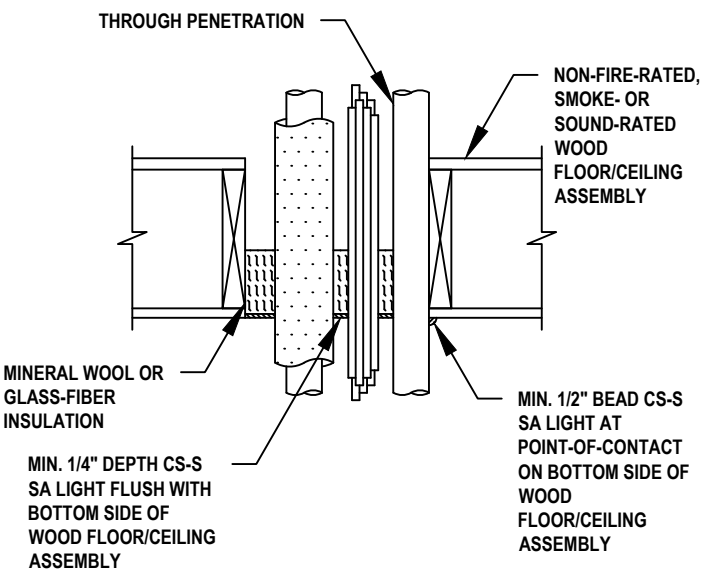
BOTTOM-SIDE APPLICATIONS (MULTIPLE PENETRATIONS)



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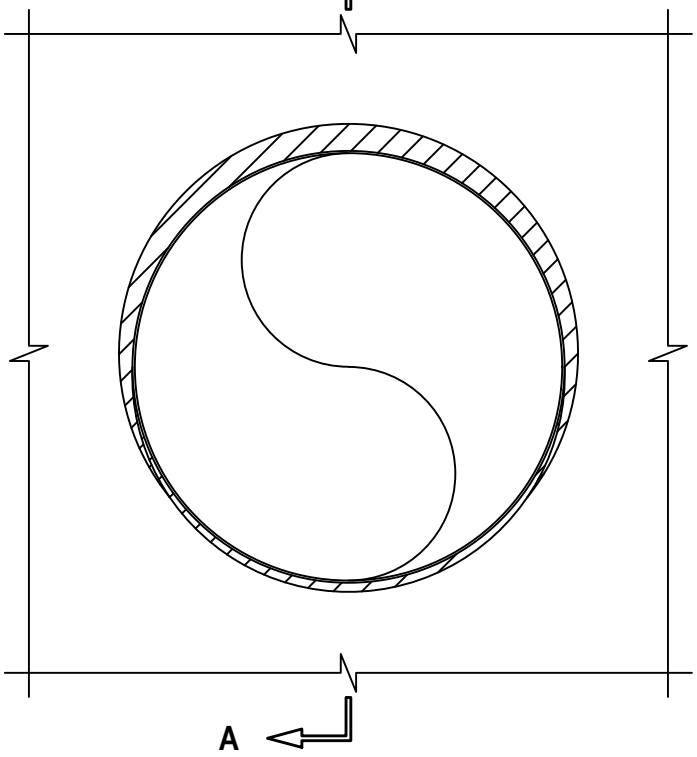
UL/cUL SYSTEM NO. W-L-7042

METAL DUCT (WITHOUT DAMPER) THROUGH GYPSUM WALL ASSEMBLY

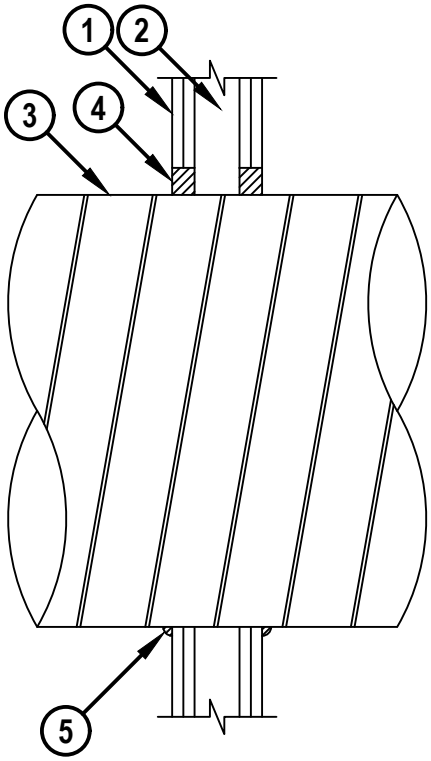
F-RATING = 1-HR. OR 2-HR.
T-RATING = 0-HR.

WL7042j.052424

FRONT VIEW



SECTION A-A



Hilti Firestop Systems	HILTI, Inc. Plano, Texas USA (800) 879-8000	*Sheet* **1 of 2** *Scale* **3/32" = 1"** *Date* **May 24, 2024**	*Drawing No.* **WL 7042j**

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UL/cUL SYSTEM NO. W-L-7042

METAL DUCT (WITHOUT DAMPER) THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 0-HR.

WL7042j.052424

1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300, U400, V400, OR W400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER AND SPACED 16" OC. STEEL STUDS TO BE MINIMUM 2-1/2" WIDE AND SPACED 24" OC.
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 24" NOMINAL DIAMETER SPIRAL WOUND SHEET METAL DUCT (MIN. 28 GA.).
   B. MAXIMUM 12" NOMINAL DIAMETER SHEET METAL DUCT (MIN. 28 GAUGE).
4. HILTI FIRESTOP SEALANT APPLIED PER TABLE BELOW.
5. MINIMUM 1/2" BEAD HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, OR HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT APPLIED AT POINT OF CONTACT.

F-RATING, HR.	SEALANT TYPE	SEALANT THICKNESS, IN.
1 OR 2	FS-ONE MAX	5/8
1	CFS-S SIL GG OR CP 606	5/8
2	CFS-S SIL GG OR CP 606	1-1/4

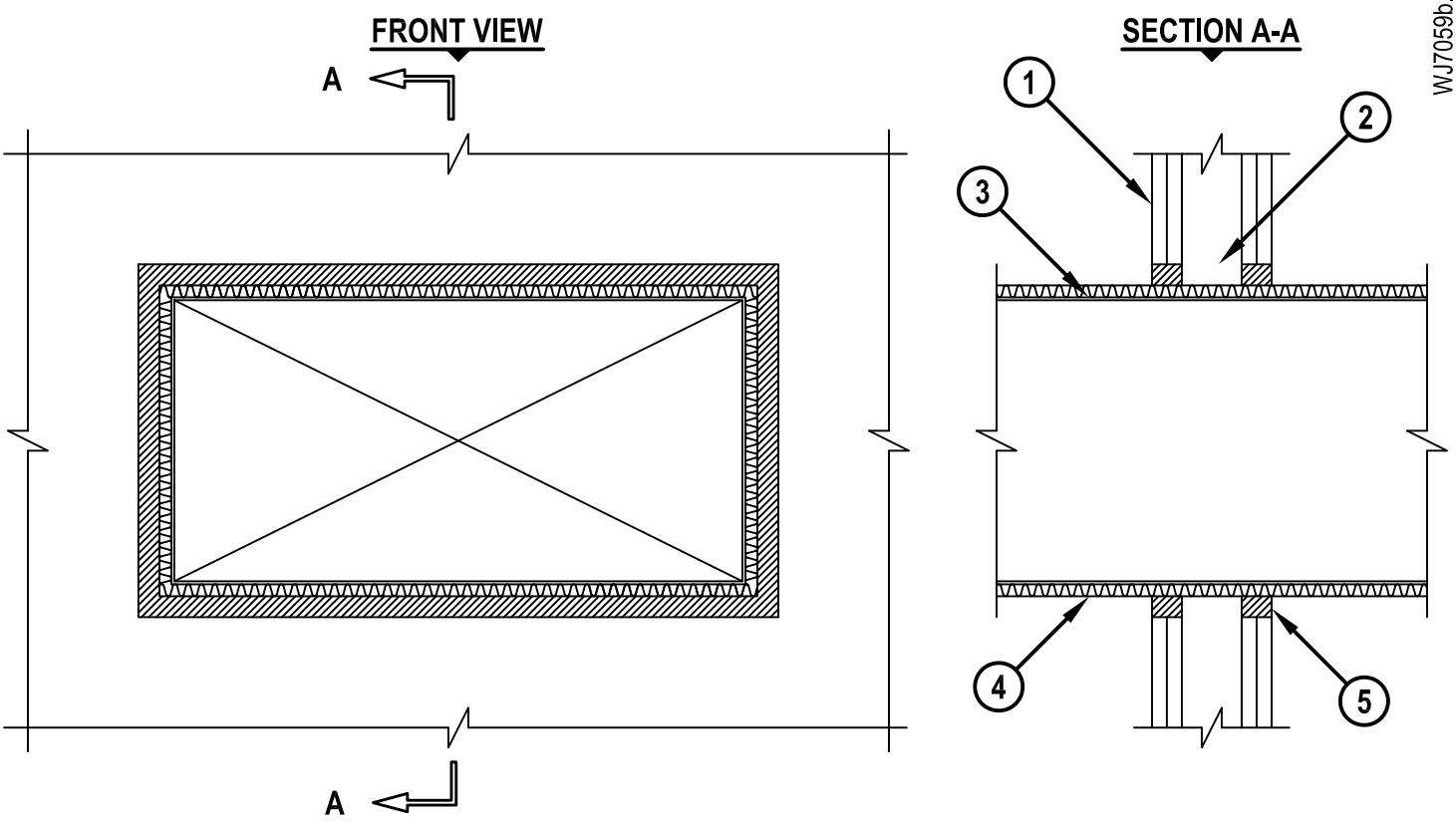
NOTES : 1. MAXIMUM DIAMETER OF OPENING FOR STEEL STUD WALLS = 25-1/2".
2. MAXIMUM DIAMETER OF OPENING FOR WOOD STUD WALLS = 14-1/2".
3. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".

UL/cUL SYSTEM NO. W-L-7059

INSULATED METAL DUCT (WITHOUT DAMPER) THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 1/2-HR. OR 3/4-HR.

WJ7059b.011415



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. [NOT SHOWN] STEEL STUDS TO BE MINIMUM 2-1/2" WIDE. OPENING TO BE "FRAMED OUT" ON ALL SIDES OF OPENING WITH LIGHTGAGE METAL STUD MATERIAL.
3. MAXIMUM 24" x 12" RECTANGULAR SHEET METAL DUCT (MINIMUM 24 GA.). (NOTE : NOT FOR USE IN DUCT SYSTEMS CONTAINING A FIRE DAMPER)
4. MAXIMUM 1-1/2" THICKNESS GLASS FIBER DUCT INSULATION (MIN. 3/4 PCF DENSITY) WITH FOIL-SCRIM-KRAFT FACING. (SEE NOTE NO. 2 BELOW).
5. HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT :
   A. MINIMUM 5/8" DEPTH OF SEALANT FOR A 1-HR. FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH OF SEALANT FOR A 2-HR. FIRE-RATING.

NOTES : 1. MAX. AREA OF OPENING = 395 SQ. IN. WITH A MAX. DIM. OF 26-3/4".
2. INSULATION SHOULD BE COMPRESSED 50% SUCH THAT THE ANNULAR SPACE = MIN. 1/4", MAX. 1".

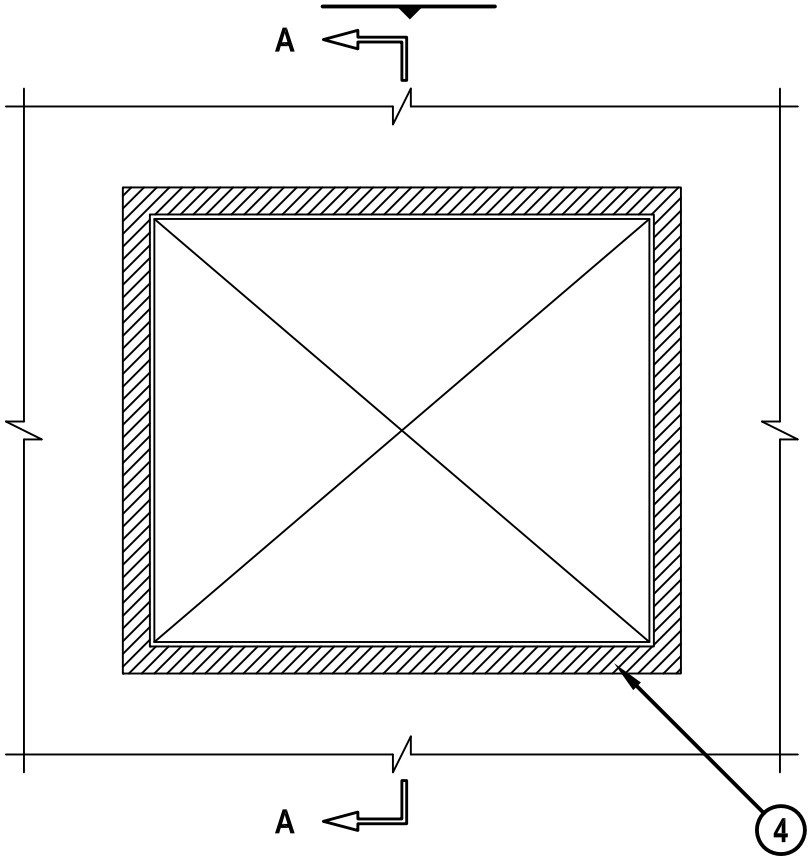
UL/cUL SYSTEM NO. W-L-7096

SHEET-METAL DUCT THROUGH GYPSUM WALL ASSEMBLY

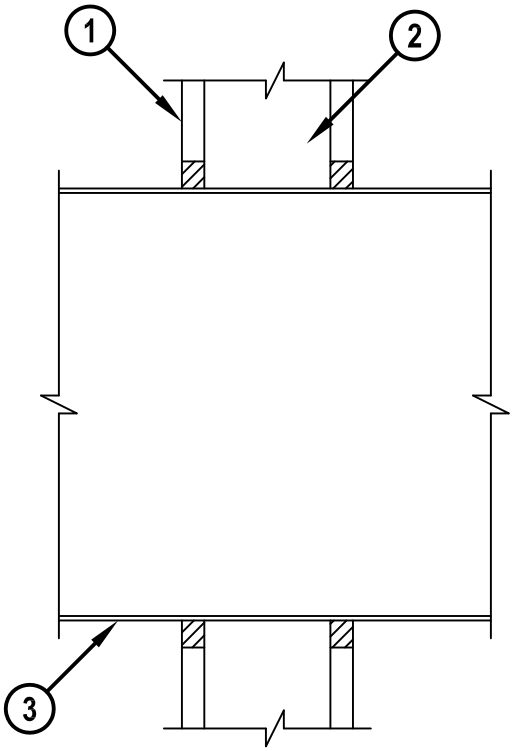
F-RATING = 1-HR.
T-RATING = 0-HR.

WL7096b.011415

FRONT VIEW



SECTION A-A



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300 OR U400 SERIES) (1-HR. FIRE-RATING).
2. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER. STEEL STUDS TO BE MINIMUM 3-1/2" WIDE.
3. RECTANGULAR SHEET METAL DUCT (MAXIMUM SIZE : 14" x 12", MINIMUM 24 GA. THICKNESS). (*NOTE : NOT FOR USE IN DUCT SYSTEMS CONTAINING A FIRE DAMPER*).
4. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT.

NOTES : 1. MAXIMUM AREA OF OPENING = 202 SQ. IN. WITH A MAXIMUM DIMENSION OF 15-1/4".
2. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 3/4".

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Sheet	1 of 1
Scale	3/16" = 1"
Date	Jan. 14, 2015

Drawing No.
WL 7096b

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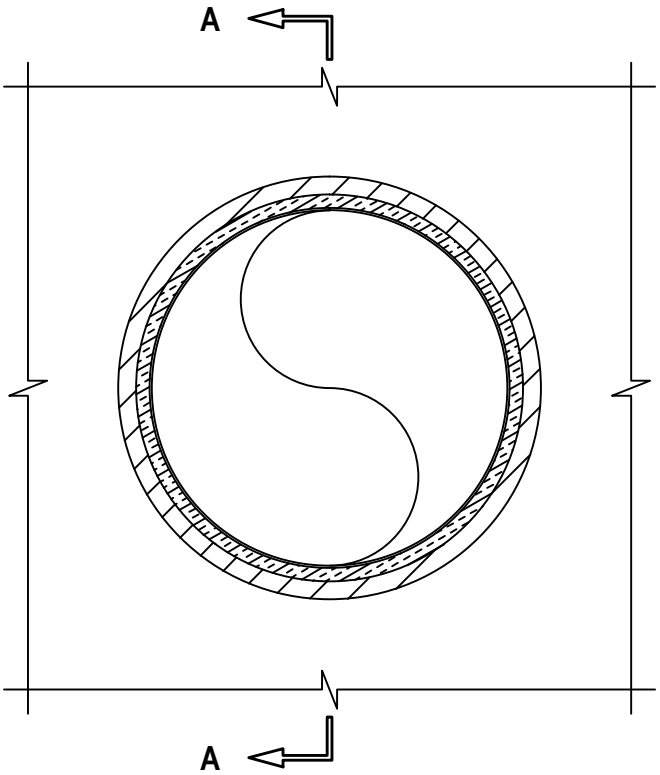
UL/cUL SYSTEM NO. W-L-7153

INSULATED DUCT THROUGH GYPSUM WALL ASSEMBLY

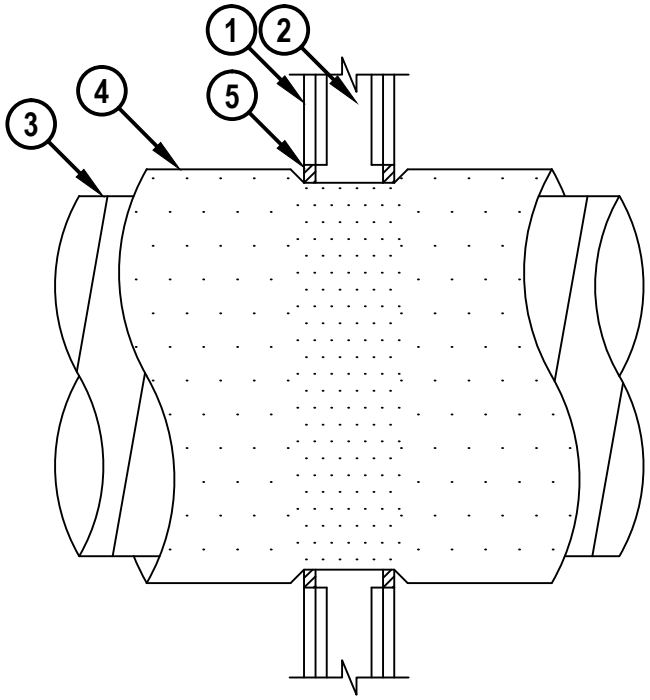
F-RATING = 1-HR. OR 2-HR.
T-RATING = 1/2-HR.

WL7153c.020218

FRONT VIEW



SECTION A-A



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400 OR V400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. [NOT SHOWN] STEEL STUDS TO BE MINIMUM 2-1/2" WIDE.
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   - A. MAXIMUM 20" NOMINAL DIAMETER SPIRAL WOUND SHEET METAL DUCT (MIN. 24 GA.).
   - B. MAXIMUM 12" NOMINAL DIAMETER SHEET METAL DUCT (MIN. 28 GA.).
4. NOMINAL 1-1/2" OR 2" THICK GLASS-FIBER DUCT INSULATION (MIN. 3/4 PCF DENSITY) WITH FOIL-SCRIM-KRAFT FACING (SEE NOTE NO. 2 BELOW).
5. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 24".
2. INSULATION SHOULD BE COMPRESSED 50% SUCH THAT THE ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 1-1/2".

Hilti Firestop Systems	HILTI, Inc. Plano, Texas USA (800) 879-8000	Sheet: 1 of 1 Scale: 3/32" = 1" Date: Feb. 02, 2018	Drawing No. WL 7153c

Saving Lives through Innovation and Education

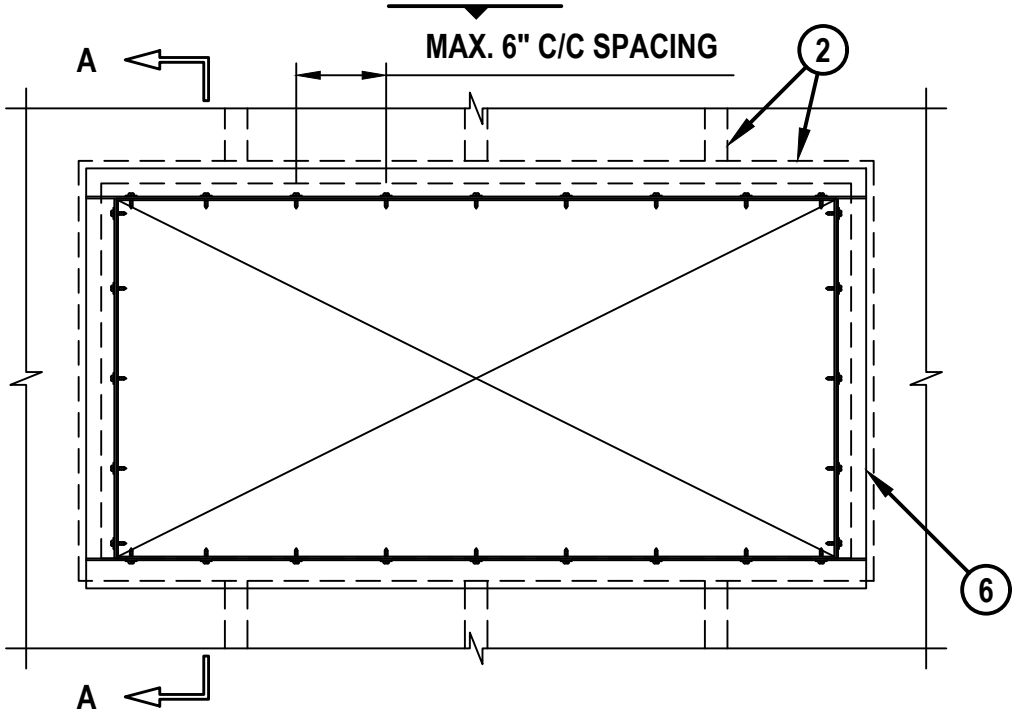
UL/cUL SYSTEM NO. W-L-7155

SHEET METAL DUCT THROUGH GYPSUM WALL ASSEMBLY

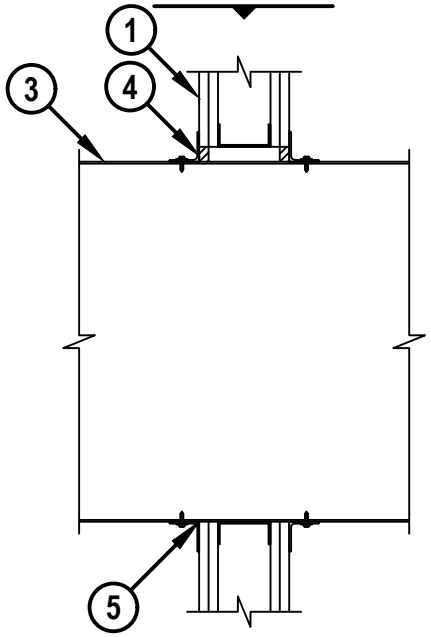
F-RATING = 1-HR. OR 2-HR.
T-RATING = 0-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM / SQ FT
L-RATING AT 400°F = LESS THAN 1 CFM / SQ FT

WL7155f.013018

FRONT VIEW



SECTION A-A



Hilti Firestop Systems	HILTI, Inc. Plano, Texas USA (800) 879-8000	Sheet: 1 of 2 Scale: 5/64" = 1" Date: Jan. 30, 2018	Drawing No. WL 7155f

Saving Lives through Innovation and Education

UL/cUL SYSTEM NO. W-L-7155

SHEET METAL DUCT THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 0-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM / SQ FT
L-RATING AT 400°F = LESS THAN 1 CFM / SQ FT

WL7155f.013018

1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400 OR V400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. STEEL STUDS TO BE MINIMUM 3-1/2" WIDE. OPENING TO BE FRAMED OUT WITH STUD MATERIAL.
3. PENETRATING ITEM TO CONSIST OF ONE OF THE FOLLOWING :
   A. MAXIMUM 100" x 100" RECTANGULAR SHEET METAL DUCT (CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH SMACNA CONSTRUCTION STANDARDS).
   B. MAXIMUM 40" x 40" RECTANGULAR SHEET METAL DUCT (CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH SMACNA CONSTRUCTION STANDARDS) WITH BW11 COATING MATERIAL (FLAMEBAR BW11 FIRE RATED DUCTWORK BY FIRESPRAY INTERNATIONAL, LTD.).
4. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, OR HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT.
5. [NOT SHOWN] MINIMUM 1/4" BEAD HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, OR HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT APPLIED AT POINT OF CONTACT, PRIOR TO ATTACHMENT OF STEEL ANGLE.
6. STEEL RETAINING ANGLE (SEE NOTE NO. 3 AND TABLE BELOW).

MAXIMUM DUCT DIMENSION	DUCT THICKNESS	ANNULAR SPACE MIN. - MAX.	MINERAL WOOL REQUIRED	RETAINING ANGLE REQUIRED
24 IN.	24 GA. (OR HEAVIER)	1/2" - 1"	MINIMUM 3-3/4" THICKNESS FOR 1-HR. MINIMUM 5" THICKNESS FOR 2-HR.	NO

NOTES : 1. MAXIMUM SIZE OF OPENING = 104" x 102".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2".
3. AFTER SEALING SPACE BETWEEN DUCT AND GYPSUM WALL ASSEMBLY WITH HILTI FIRESTOP SEALANT, FASTEN STEEL ANGLE (MIN. 18 GA. FOR DUCTS 48" x 24" OR SMALLER, OTHERWISE MIN. 16 GA.) TO DUCT WITH MINIMUM NO. 10 SHEET METAL SCREWS (SPACED MAXIMUM 1" FROM EACH END OF STEEL DUCT AND SPACED MAXIMUM 6" C/C). STEEL ANGLE TO OVERLAP DUCT BY MINIMUM 2" AND GYPSUM WALL ASSEMBLY BY MINIMUM 1". ANGLE DOES NOT HAVE TO BE FASTENED TO GYPSUM WALL ASSEMBLY.
4. [OPTIONAL] POLYETHYLENE BACKER ROD, MINERAL WOOL, OR GLASS-FIBER BATT INSULATION MAY BE USED AS BACKING MATERIAL FOR FIRESTOP SEALANT (EXCEPT WHERE REQUIRED IN TABLE ABOVE).

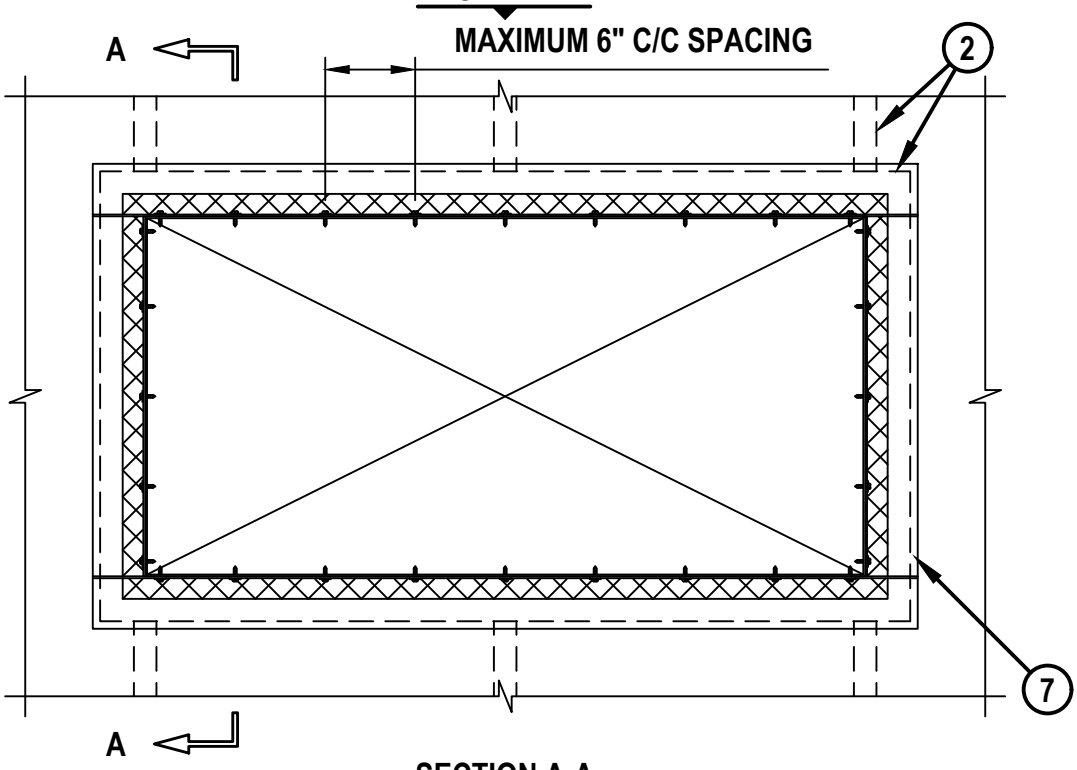
UL/cUL SYSTEM NO. W-L-7156

INSULATED SHEET METAL DUCT THROUGH GYPSUM WALL ASSEMBLY

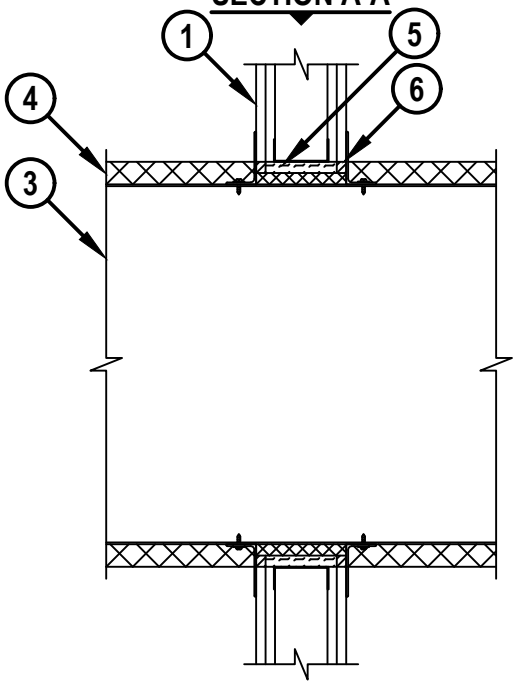
F-RATING = 1-HR. OR 2-HR.
T-RATING = 0-HR., 1-HR. OR 2-HR.

WL7156f.091918

FRONT VIEW



SECTION A-A



Hilti Firestop Systems	HILTI, Inc. Tulsa, Oklahoma USA (800) 879-8000	Sheet: 1 of 2 Scale: 5/64" = 1" Date: Sep. 19, 2018	Drawing No. WL 7156f

Saving Lives through Innovation and Education

UL/cUL SYSTEM NO. W-L-7156

INSULATED SHEET METAL DUCT THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.
T-RATING = 0-HR., 1-HR. OR 2-HR.

WL7156f.091918

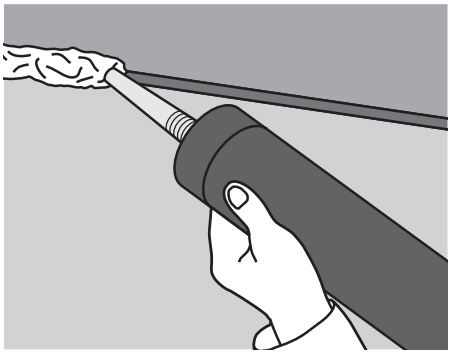
1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300, U400 OR V400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER. STEEL STUDS TO BE MINIMUM 3-1/2" WIDE. OPENING TO BE FRAMED OUT WITH STUD MATERIAL.
3. MAXIMUM 100" x 100" RECTANGULAR SHEET METAL DUCT (CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH SMACNA CONSTRUCTION STANDARDS).
4. NOMINAL 1-1/2" OR 2" THICKNESS GLASS-FIBER DUCT INSULATION (MIN. 3/4 PCF) WITH FOIL-SCRIM-KRAFT FACING. INSULATION TO BE SPLIT TO ALLOW STEEL ANGLE TO BE FASTENED DIRECTLY TO DUCT (SEE NOTE NO. 3 BELOW).
5. MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED AND RECESSED TO ACCOMMODATE SEALANT. MINIMUM 3-5/8" OR 4-7/8" THICKNESS REQUIRED FOR 1-HR. OR 2-HR, RESPECTIVELY.
6. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT.
7. STEEL RETAINING ANGLE (SEE TABLE NOTE NO. 4 BELOW).

MAXIMUM DUCT DIMENSION	DUCT THICKNESS	MAX. INSULATION THICKNESS (ITEM 4)	ANNULAR SPACE (MIN. - MAX.)	PACKING MATERIAL (ITEM 5) REQUIRED	ANGLE (ITEM 7 REQUIRED)	T-RATING
24 IN. **	24 GA. (OR HEAVIER)	1-1/2"	1/4" TO 1"	NO	NO	0
25" BY 45"	24 GA. (OR HEAVIER)	2"	1/4" TO 3-1/2"	YES	NO	1 OR 2 (SAME AS WALL RATING

NOTE ** INDICATES THAT WHEN MAX. 1-1/2" THICK INSULATION IS USED, STEEL ANGLES ARE OPTIONAL ON THOSE SIDES OF THE DUCT THAT DO NOT EXCEED THE DIMENSION SPECIFIED.

NOTES :
1. MAXIMUM SIZE OF OPENING [FOR WOOD STUDS] = 14-1/2" x 14-1/2".
2. MAXIMUM SIZE OF OPENING [FOR STEEL STUDS] = 105-1/2" x 104".
3. INSULATION TO BE COMPRESSED MINIMUM 50% SUCH THAT THE ANNULAR SPACE = MIN. 1/2", MAX. 3-1/2".
4. AFTER SEALING SPACE BETWEEN DUCT AND GYPSUM WALL ASSEMBLY WITH HILTI FIRESTOP SEALANT, FASTEN STEEL ANGLE (MIN. 16 GA.) TO DUCT WITH MINIMUM NO. 10 SHEET METAL SCREWS (SPACED MAXIMUM 1" FROM EACH END OF STEEL DUCT AND SPACED MAXIMUM 6" C/C). STEEL ANGLE TO OVERLAP DUCT BY MINIMUM 2" AND GYPSUM WALL ASSEMBLY BY MINIMUM 1". WHEN DUCT DIMENSION DOES NOT EXCEED 48" AND DUCT AREA DOES NOT EXCEED 1300 SQ. IN., ANGLES MAY BE MIN. 18 GA. ANGLE DOES NOT HAVE TO BE FASTENED TO GYPSUM WALL ASSEMBLY.

LIGHTWEIGHT SMOKE AND ACOUSTIC SEALANT CS-S SA LIGHT



Applications

- Sealing construction joints and through-penetration openings in non fire-rated acoustical assemblies and smoke partitions (not for use in fire-rated applications)

Advantages

- Best in class dispensing and tooling
- Lightweight product promotes a faster installation
- Lubrizol CPVC compatible (FBC™ System Compatible)
- Low VOC's
- Made in USA
- Paintable

Not for use

- In areas immersed in water
- For bituminous coated cast iron pipe compatibility reach out to Hilti, Inc. for details.

Tested/evaluated in accordance with

- ASTM E 90
- ASTM C 834
- ASTM E 84
- ASTM C 919
- ASTM G 21
- ASTM D217
- ISO 11600

Installation instructions

- See Hilti literature or third-party listings for complete application and installation details

Restricts smoke migration

Excellent sound insulation characteristics with application based testing in accordance with ASTM E 90.

FBC SYSTEM COMPATIBLE

FBC™ System Compatible indicates that this product has been tested, and is monitored on an ongoing basis, to assure its chemical compatibility with FlowGuard Gold®, BlazeMaster® and Corzan® piping systems and products made with TempRite® Technology." "The FBC System Compatible Logo, FBC™, FlowGuard Gold®, BlazeMaster®, Corzan®, and TempRite® are trademarks of Lubrizol Advanced Materials, Inc. or its affiliates.

Technical Data

Color	white
Chemical basis	acrylic
Storage and transport temperature range	40°F to 95°F (5°C to 35°C)
Curing time (73°F / 50% relative humidity)	approx. 3 mm / 3 days
Skin-forming time (73°F / 50% relative humidity)	approx. 25 min
Application temperature range	35°F to 104°F (1.7°C to 40°C)
Shelf life	24 months from date of manufacture
Sound transmission classification (ASTM E 90)	STC 65 (per tested construction type)
Movement capability (ISO 11600)	approx. 12.5%
Mold and mildew (ASTM G 21)	mold resistant
Surface burning characteristics (ASTM E 84-19b)	Flame spread: 0 Smoke development: 0
CAN/ULC S102	Flame spread: 10 Smoke developed 47
ASTM C834	Type OP, Grade -18°C
Air leakage (UL 2079 L-Rating)	L-Rating at Ambient = Less than 1 CFM / Lin Ft. L-Rating at 400°F = Less than 1 CFM / Lin Ft.

Order designation	Sales pack quantity	Item number
CS-S SA Light 20 oz foil	20	2305383
CS-S SA Light 5 gal pail	1	2305384

BUY AMERICA ACT COMPLIANT

Specified Divisions

- Division 7 07 90 00 Joint Protection
- Division 7 07 95 00 Expansion Control
- Division 9 09 20 00 Plaster and Gypsum Board
- Division 9 09 80 00 Acoustical Treatment

CS-S SA LIGHT

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 12/10/2024 Issue date: 12/10/2024 Supersedes: 1/10/2022 Version: 1.2

SECTION 1: Identification

1.1. Identification

Product form	Mixture
Product name	CS-S SA LIGHT
Product code	BU Fire Protection

1.2. Recommended use and restrictions on use

Recommended use	Smoke and acoustic lightweight sealant

1.3. Supplier

Supplier

Hilti, Inc.
Legacy Tower, Suite 1000
7250 Dallas Parkway
US TX 75024 Plano
USA
T +1 9724035800
1-800-879-8000 toll free, F +1 918 254 0522
us-sales@hilti.com

Department issuing data specification sheet

Hilti AG
Feldkircherstraße 100
FL 9494 Schaan
Liechtenstein
T +423 234 2111
product.compliance-fire.protection@hilti.com

1.4. Emergency telephone number

Emergency number	Emergency CONTACT (24-Hour-Number) GBK/Infotrac ID 101022 (USA domestic) 1 800 535 5053 or international (001) 352 323 3500

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labelling

No labelling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Titanium dioxide	CAS-No.: 13463-67-7	< 1	Carc. 2, H351

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.

First-aid measures after eye contact: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Potential adverse human health effects and symptoms: Based on available data, the classification criteria are not met.

Symptoms/effects: Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation: Dust of the product, if present, may cause respiratory irritation after excessive inhalation exposure. Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.

Symptoms/effects after skin contact: None under normal conditions. Dust may cause irritation in skin folds or by contact in combination with tight clothing.

Symptoms/effects after eye contact: None under normal conditions. Dust from this product may cause eye irritation.

Symptoms/effects after ingestion: None under normal conditions.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard: No fire hazard.

Explosion hazard: No direct explosion hazard.

Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

6.1.1. For non-emergency personnel

Protective equipment	Wear recommended personal protective equipment.
Emergency procedures	Ventilate spillage area. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	Ventilate area. Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	Using a clean shovel, put the material in a dry container and cover without compressing it.
Methods for cleaning up	Mechanically recover the product. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling	Ensure good ventilation of the work station. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.
Hygiene measures	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	Keep in a cool, well-ventilated place away from heat.
Storage conditions	Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Packaging materials	Store always product in container of same material as original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

CS-S SA LIGHT
No additional information available

Titanium dioxide (13463-67-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Titanium dioxide
ACGIH OEL TWA	0.2 mg/m³ (Nanoscale particles. R - Repirable particulate matter) 2.5 mg/m³ (Finescale particles. R - Repirable particulate matter)
Remark (ACGIH)	TLV® Basis: LRT irr; pneumoconiosis. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
Local name	Titanium dioxide (Total dust)
OSHA PEL TWA	15 mg/m³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles.

Hand protection:

Wear suitable gloves tested to EN374. Suitable for short-term work or as a splash guard:
Nitrile rubber gloves (> 0.1 mm). In case of permanent product contact:

Type	Material	Permeation	Thickness (mm)	Penetration
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	>0,4mm	

Eye protection:

Chemical goggles or safety glasses. Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

No respiratory protection needed under normal use conditions. Ensure good ventilation of the work station. If the occupational exposure limit is exceeded: Wear appropriate mask

Personal protective equipment symbol(s):

Other information:

Do not eat, drink or smoke during use. The product has a pasty consistency. Exposure limit values for respirable dusts are not relevant for this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Pasty.
Colour	white
Odour	characteristic
Odour threshold	No data available
pH	7.5 – 9.5
Melting point	No data available
Freezing point	Not applicable
Boiling point	100 °C
Flash point	Not applicable
Relative evaporation rate (butylacetate=1)	No data available
Relative evaporation rate (ether=1)	< 1
Flammability (solid, gas)	Non flammable.
Vapour pressure	No data available
Relative vapour density at 20°C	No data available
Relative density	0.71 – 0.91
Solubility	No data available
Partition coefficient n-octanol/water (Log Pow)	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
Viscosity, kinematic	Not applicable
Viscosity, dynamic	200000 – 400000 cP
Explosive limits	Not applicable
Explosive properties	No data available
Oxidising properties	No data available

9.2. Other information

VOC content ≈ 19 g/l

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified

Titanium dioxide (13463-67-7)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 oral	5000 mg/kg
LC50 Inhalation - Rat	> 5.09 mg/l (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male, Experimental value, Inhalation (dust), 14 day(s))

Skin corrosion/irritation	Not classified pH: 7.5 – 9.5
Serious eye damage/irritation	Not classified pH: 7.5 – 9.5
Respiratory or skin sensitisation	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified

Titanium dioxide (13463-67-7)	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity	Not classified
STOT-single exposure	Not classified
STOT-repeated exposure	Not classified
Aspiration hazard	Not classified
Viscosity, kinematic	Not applicable
Potential adverse human health effects and symptoms	Based on available data, the classification criteria are not met.
Symptoms/effects	Not expected to present a significant hazard under anticipated conditions of normal use.
Symptoms/effects after inhalation	Dust of the product, if present, may cause respiratory irritation after excessive inhalation exposure. Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact	None under normal conditions. Dust may cause irritation in skin folds or by contact in combination with tight clothing.
Symptoms/effects after eye contact	None under normal conditions. Dust from this product may cause eye irritation.
Symptoms/effects after ingestion	None under normal conditions.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	Harmful to aquatic life with long lasting effects.

Titanium dioxide (13463-67-7)	
LC50 - Fish [1]	> 1000 mg/l (Pisces, Fresh water)
LC50 - Other aquatic organisms [1]	> 10000 mg/l
EC50 - Crustacea [1]	> 1000 mg/l (Invertebrata, Fresh water)
EC50 - Crustacea [2]	> 10000 mg/l

Titanium dioxide (13463-67-7)	
EC50 72h - Algae [1]	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)
ErC50 algae	61 mg/l (EPA 600/9-78-018, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)

12.2. Persistence and degradability

CS-S SA LIGHT	
Persistence and degradability	Not established.

Titanium dioxide (13463-67-7)	
Not rapidly degradable	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

12.3. Bioaccumulative potential

CS-S SA LIGHT	
Bioaccumulative potential	Not established.

Titanium dioxide (13463-67-7)	
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

Titanium dioxide (13463-67-7)	
Surface tension	No data available in the literature
Ecology - soil	Low potential for mobility in soil.

12.5. Other adverse effects

Other information: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional waste regulation: Disposal must be done according to official regulations.

Waste treatment methods: Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations: Disposal must be done according to official regulations.

Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.

Additional information: Do not re-use empty containers.

Ecological information: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

DOT	TDG	IMDG	IATA
14.1. UN number			
Not regulated for transport			
14.2. Proper Shipping Name			
Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)			
Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group			
Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards			
Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available			

14.6. Special precautions for user

DOT
Not regulated

TDG
Not regulated

IMDG
Not regulated

IATA
Not regulated

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

15.2. International regulations

Titanium dioxide (13463-67-7)

Listed on IARC (International Agency for Research on Cancer)

15.3. US State regulations

WARNING: This product can expose you to chemicals including Ethylene oxide, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

Revision date	12/10/2024
Data sources	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Other information	None.

Full text of H-statements	
H351	Suspected of causing cancer.

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail

Abbreviations and acronyms	
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Indication of changes:			
Section	**Changed item**	**Change**	**Comments**
			general update
8		Modified	

SDS_US_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

HIGH-PERFORMANCE INTUMESCENT FIRESTOP SEALANT FS-ONE MAX

Product description

- Intumescent (expands when exposed to fire) firestop sealant that helps protect combustible and non-combustible penetrations for up to 4 hours fire rating

Applications for use

- For effectively sealing most common through penetrations in a variety of base materials
- For use on concrete, masonry and drywall
- Mixed and multiple penetrations
- Metal pipe penetrations: copper, steel and EMT
- Insulated metal pipe penetrations: steel and copper
- Plastic pipe penetrations: closed or vented

Advantages

- US-produced: “Buy American” compliant
- One product for a variety of common through penetrations
- Cost-effective, easy-to-use solution
- Water-based and paintable
- Industry-leading VOC results
- Ethylene glycol-free

Installation instructions

- See Hilti literature or third-party listings for complete application and installation details

Technical Data*

Chemical basis	Water-based acrylic dispersion
Approx. Density	84.3 lb/ft^3
Color	Red
Approx. cure time[1)]	2mm / 3 days
Application temperature range[2)]	35°F to 104° (1.5C to 40°C)
Temperature resistance range	-4°F to 212°F (-20°C to 100°C)
Storage Temperature	35°F to 77F (1.5°C to 25°C)
Application temperature	35°F to 104° (1.5C to 40°C)
Tack free time	20mins (@ 73°F / 50% rel. humidity)
Shelf life	18 months
Temperature resistance range	-4°F to 212°F
Mold and mildew performance	Class 0 (ASTM G21-13)
Mold and mildew resistant	Yes
Expansion ratio (unrestricted, up to)	1:5
Paintable	Yes
Chemical resistance	Yes
Electrical resistance	Yes
FBC compatible (Lubrizol)	Yes
Intumescent	Yes
W-rating	Yes
M-rated	Yes
LEED VOC (input)	9 g/L
LEED V4 Compliant	Yes (CDPH v1.2-2017)
STC rating (ASTM E90)	62 (relates to specific construction)
Movement	±7.5%
Surface burning characteristics (ASTM E 84-14)	Flame Spread: 0 Smoke Development: 10
California State Fire Marshal approval	CSFM Listing 4485-1200:0108 for FS-ONE MAX Intumescent Firestop Sealant
Tested in accordance with	ASTM G21, ASTM E 90, CAN/ULC-S115, UL 1479, ASTM E 814 , ASTM E84

Order Information

Designation	Qty per package	Item number
FS-ONE MAX 10oz tube (1 case)	12x Firestop sealant FS-ONE MAX 10 oz cartridge	3530249
FS-ONE MAX 20oz foil (1 case)	25x Firestop sealant FS-ONE MAX 20 oz foil	3530250
FS-ONE MAX 10 oz cartridge	1x Firestop sealant FS-ONE MAX 10 oz cartridge	2101531
FS-ONE MAX 5 gallon pail	1x Firestop sealant FS-ONE MAX 5 gallon pail	2101533

FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
66Y7

Intertek

FM APPROVED

FBC SYSTEM COMPATIBLE
Visit fbcsystemcompatible.com.
FBC™ is a trademark of the Lubrizol Corporation.

Chemical resistant

Mold and mildew resistant

W rated SYSTEMS AVAILABLE

BUY AMERICA ACT COMPLIANT

Volume per unit:
- Caulk tube = 10.5 fl. oz (18.9in^3)
- Foil = 600ml (36.4in^3)
- Pail = 5gal (1,155in^3)

1) At 75°F (24°C) and 50% relative humidity

2) For ambient and surface temperatures between 10°F (-12°C) and 35°F (1.5°C), the following conditions must apply:
- Substrate surfaces are clean and dry (e.g. free of dust, rust, grease, oil, dew, frost, ice, moisture, etc);
- Product maintained above 50°F (10°C) for a minimum of 24 hours prior to application;
- Product will not cure at ambient temperatures below 32°F / 0°C

DBS • 03/25

FS-ONE MAX / CFS-FIL

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 10/30/2024 Issue date: 10/30/2024 Supersedes: 11/3/2022 Version: 1.7

SECTION 1: Identification

1.1. Identification

Product form	Mixture
Trade name	FS-ONE MAX / CFS-FIL
Product code	BU Fire Protection

1.2. Recommended use and restrictions on use

Use of the substance/mixture	Firestop intumescent sealant
Recommended use	Adhesives, sealants

1.3. Supplier

Supplier

Hilti, Inc.
Legacy Tower, Suite 1000
7250 Dallas Parkway
US TX 75024 Plano
USA
T +1 9724035800
1-800-879-8000 toll free, F +1 918 254 0522
us-sales@hilti.com

Department issuing data specification sheet

Hilti AG
Feldkircherstraße 100
FL 9494 Schaan
Liechtenstein
T +423 234 2111
product.compliance-fire.protection@hilti.com

1.4. Emergency telephone number

Emergency number	Emergency CONTACT (24-Hour-Number) GBK/Infotrac ID 101022 (USA domestic) 1 800 535 5053 or international (001) 352 323 3500

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labelling

No labelling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Quartz (SiO2)	CAS-No.: 14808-60-7	2.5 – 5	Carc. 1A, H350 STOT RE 1, H372

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: Get medical advice/attention if you feel unwell. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact: Wash skin with plenty of water. If skin irritation occurs: Get medical advice/attention. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.

First-aid measures after ingestion: Get medical advice/attention if you feel unwell. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects (acute and delayed)

Potential adverse human health effects and symptoms: Based on available data, the classification criteria are not met.

Symptoms/effects: Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray. Dry powder. Foam. Carbon dioxide. Sand.

Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire: Carbon dioxide. Carbon monoxide.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.

Protection during firefighting: Self-contained breathing apparatus. Complete protective clothing. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	For further information refer to section 8: "Exposure controls/personal protection". Equip cleanup crew with proper protection.
Emergency procedures	Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Mechanically recover the product. On land, sweep or shovel into suitable containers. Minimise generation of dust. Store away from other materials.

6.4. Reference to other sections

For further information refer to section 13. See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.
Hygiene measures	Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Keep cool. Store in a dry place. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Storage temperature	41 – 77 °F

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

FS-ONE MAX / CFS-FIL
No additional information available

Quartz (SiO2) (14808-60-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Silica crystaline - quartz
ACGIH OEL TWA	0.025 mg/m³ (R - Respirable particulate matter)
Remark (ACGIH)	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2023

Quartz (SiO2) (14808-60-7)	
USA - OSHA - Occupational Exposure Limits	
Local name	Silica, crystalline quartz, respirable dust
Remark (OSHA)	(3) See Table Z-3.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts

Additional information : The product has a pasty consistency. Exposure limit values for respirable dusts are not relevant for this product.

8.2. Appropriate engineering controls

No additional information available

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Protective clothing. Safety glasses. Gloves. Avoid all unnecessary exposure.

Hand protection:				
Wear suitable gloves tested to EN374. Suitable for short-term work or as a splash guard: Nitrile rubber gloves (> 0.1 mm). In case of permanent product contact:				
Type	**Material**	**Permeation**	**Thickness (mm)**	**Penetration**
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	>0,4	

Eye protection:
Chemical goggles or safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
No respiratory protection needed under normal use conditions

Personal protective equipment symbol(s):

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Pasty.
Colour	red
Odour	characteristic
Odour threshold	Not determined
pH	≈ 7.85
Melting point	Not applicable

Freezing point	No data available
Boiling point	No data available
Flash point	Not applicable
Relative evaporation rate (butylacetate=1)	No data available
Flammability (solid, gas)	Not applicable. Non flammable.
Vapour pressure	No data available
Relative vapour density at 20°C	No data available
Relative density	No data available
Density	≈ 1.35 g/cm³
Molecular mass	Not determined
Solubility	No data available
Partition coefficient n-octanol/water (Log Pow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive limits	No data available
Explosive properties	No data available
Oxidising properties	No data available

9.2. Other information

VOC content 9 g/l

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified
Skin corrosion/irritation	Not classified pH: ≈ 7.85
Serious eye damage/irritation	Not classified pH: ≈ 7.85
Respiratory or skin sensitisation	Not classified

Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified

Quartz (SiO2) (14808-60-7)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens

Reproductive toxicity	Not classified
STOT-single exposure	Not classified
STOT-repeated exposure	Not classified

Quartz (SiO2) (14808-60-7)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard	Not classified
Viscosity, kinematic	No data available
Potential adverse human health effects and symptoms	Based on available data, the classification criteria are not met.
Symptoms/effects	Not expected to present a significant hazard under anticipated conditions of normal use.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

FS-ONE MAX / CFS-FIL	
Persistence and degradability	Not established.

Quartz (SiO2) (14808-60-7)	
Not rapidly degradable	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

12.3. Bioaccumulative potential

FS-ONE MAX / CFS-FIL	
Bioaccumulative potential	Not established.

Quartz (SiO2) (14808-60-7)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

Quartz (SiO2) (14808-60-7)	
Surface tension	No data available in the literature
Ecology - soil	Low potential for mobility in soil.

12.5. Other adverse effects

Other information: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods: Dispose in a safe manner in accordance with local/national regulations.
Product/Packaging disposal recommendations: Dispose in a safe manner in accordance with local/national regulations.
Ecological information: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

DOT	TDG	IMDG	IATA
14.1. UN number			
Not regulated for transport			
14.2. Proper Shipping Name			
Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)			
Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group			
Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available			

14.6. Special precautions for user

DOT
No data available

TDG
No data available

IMDG
No data available

IATA
No data available

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

15.2. International regulations

Quartz (SiO2) (14808-60-7)

Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
Listed on Thailand Existing Chemicals Inventory (DIW)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

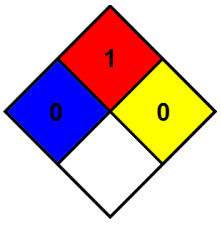
Revision date	10/30/2024
Data sources	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Other information	None.

Full text of H-statements	
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.

Abbreviations and acronyms	
CAS-No.	Chemical Abstract Service number
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration

Abbreviations and acronyms	
ED	Endocrine disrupting properties
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
IOELV	Indicative Occupational Exposure Limit Value
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
N.O.S.	Not Otherwise Specified
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class
VOC	Volatile Organic Compounds
SDS	Safety Data Sheet
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
PNEC	Predicted No-Effect Concentration
PBT	Persistent Bioaccumulative Toxic
OEL	Occupational Exposure Limit
OECD	Organisation for Economic Co-operation and Development
COD	Chemical oxygen demand (COD)
ThOD	Theoretical oxygen demand (ThOD)
TRGS	Technical Rules for Hazardous Substances
TLM	Median Tolerance Limit
STP	Sewage treatment plant

NFPA health hazard	0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard	1 - Materials that must be preheated before ignition can occur.
NFPA reactivity	0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating	
Health	0 Minimal Hazard - No significant risk to health
Flammability	0 Minimal Hazard - Materials that will not burn
Physical	0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.
Personal protection	B - Safety glasses, Gloves

Indication of changes:			
Section	**Changed item**	**Change**	**Comments**
			general update

SDS_US_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

THERMAFIBER® SAFING MINERAL WOOL INSULATION

Thermafiber® Safing mineral wool insulation products are designed to provide enhanced fire protection in perimeter fire containment systems tested to ASTM E2307, floor and wall penetrations, construction joints, and other firestopping applications. These products are non-combustible, moisture-resistant, non-corrosive, non-deteriorating, mildew-resistant and vermin-resistant. Thermafiber® Safing provides thermal insulation, fire containment, and enhanced acoustical performance in many different UL and Intertek (formerly OPL) listed fire containment assemblies of 1, 2, and 3-hr ratings.

Features

- Exceptional performance in Perimeter Fire Containment Systems as tested in full-scale ASTM E2307 systems
- Provides fire containment in rated assemblies
- Fire-resistant to temperatures above 2,000°F (1,093°C)
- Helps conserve energy, reduce greenhouse gas emissions
- Mold-resistant
- Enhances acoustical performance
- Minimum 70% recycled content[1]
- Contributes to credits in several green building programs, such as LEED® and Green Globes®

Physical Properties

PROPERTY	TEST METHOD	VALUE
Corrosion of Steel, Aluminum, and Copper	ASTM C665	Noncorrosive, Types I, II
Non-Combustibility	ASTM E136	Non-Combustible
Non-Combustibility	CAN/ULC S114	Complies
Water Vapor Permeance	ASTM E96	Unfaced, 50 perms as tested Foil-Faced, 0.02 perms as tested
Water Vapor Sorption	ASTM C1104	Sorption less than 1% by volume
Surface Burning Characteristics	ASTM E84	Unfaced, Flame Spread 0, Smoke Developed 0 Foil-Faced, Flame Spread 25, Smoke Developed 0
Surface Burning Characteristics	CAN/ULC S102	Unfaced, Flame Spread 0, Smoke Developed 0 Foil-Faced, Flame Spread 25, Smoke Developed 0
Perimeter Fire Containment Systems	ASTM E2307	Thermafiber® Safing insulation used in conjunction with Thermafiber® FireSpan® insulations in the Perimeter Fire Containment System Complies
Penetration Firestop Systems	ASTM E814 or UL 1479	Thermafiber® Safing insulation used in conjunction with an approved fill, void, or cavity material sealant or other approved material in through-penetration firestop systems Complies
Fire Resistance of Building Joint Systems	UL 2079	Thermafiber® Safing insulation used in conjunction with an approved fill, void, or cavity material in construction joint systems Complies
Fire Tests of Firestop Systems	CAN/ULC S115	Complies

Safing products are approved by New York City Board of Standards & Appeals – (under BSA 39-74-SM & accepted by MEA-209-82-M, Vol. 4).

Standards, Code Compliance

ASTM C612, Types IA, IB, II, III, IVA

Technical Data

TESTED TO ASTM C518

ACTUAL DENSITY	"K" @ 75° [24°C] BTU.IN/HR.SQ FT. °F	"R" VALUE PER INCH OF THICKNESS[2]
4.0 pcf	0.23	4.3
6.0 pcf	0.23	4.3

2 R = thickness divided by "k."

Perimeter Fire Containment Systems Per ASTM E2307

Safing insulation is a critical component of any perimeter fire containment system. Thermafiber, Inc. has performed decades of testing in all of the perimeter fire containment systems listed below.

- Aluminum Spandrel
- Steel Stud-Framed/Gypsum Sheathing
- Glass Spandrel
- Granite Spandrel
- Precast Concrete Spandrel
- Steel Back Pan

For more complete test information, see UL® and Intertek® (formerly OPL) Directories. For a full listing of fire containment systems, visit www.thermafiber.com.
UL Reference = TYPE SAF.

For additional job-specific details and accessory materials necessary to complete the Perimeter Fire Containment System, please refer to UL® and Intertek® design listings.[3,4]

See Owens Corning publication "Enclosure Solutions Perimeter Fire Containment System E2307 Perimeter Technical Bulletin" (Pub. No. 10020920) for more information.

See Owens Corning publication "Thermafiber® Perimeter Fire Containment System Guide" (Pub. No. 10022722) for more information.

3 UL Fire Rated Designs, UL 333 Pfingsten Road, Northbrook, IL 60062.
4 Intertek Laboratories Designs, Fire Resistance Directory, Intertek 16015 Shady Falls Rd. Elmendorf, TX 78112

Availability

PRODUCT	AVAILABLE THICKNESS	STANDARD DIMENSIONS[5,6]
Safing 4.0 pcf	1"–7" in ½" increments	24" x 48"
Safing 6.0 pcf	2", 3", 4", 6"	24" x 48"
Tolerances	+¼", -⅛"	Width: ±⅛", Length: ±½"

5 See our product guide for more details.
6 Custom sizes are available upon request.

Installation

All firestopping insulation should be installed per the tested and listed assembly requirements that most closely represent the project conditions.

- Perimeter Fire Containment Installation: Thermafiber® Safing insulation should be compression-fitted between the slab edge and the Thermafiber® FireSpan® curtain wall insulation, leaving no voids per the UL® or Intertek® design listing.
- Penetration Application: Thermafiber® Safing insulation should be cut slightly larger than the opening and compression-fitted into the opening, leaving no voids per the UL® or Intertek® design listing.
- Construction Joint Application: Thermafiber® Safing insulation should be compression-fitted into the joint opening, leaving no voids per the UL® or Intertek® design listing.

Product Options

- Safing 4.0, 2-inch or greater thickness, is available with a vapor-retarding foil-facing.
- Safing 6.0, 1.5-inch or greater thickness, is available with a vapor-retarding foil-facing.
- Recycled Content Options[1,7]:
  - Standard Fiber.....70%

Formaldehyde-free product available. See Owens Corning publication Thermafiber® Safing Formaldehyde-Free Mineral Wool Insulation Data Sheet (Pub. No. 10023216) for more information.

7 Recycled content options other than standard must be specified at time of order.

Thermafiber Insolutions®

Thermafiber Insolutions® offers industry-leading technical and engineering assistance to architects, specifiers, and contractors. These services include CAD drawings, engineering judgments, LEED® credit information, and product recommendations. Contact our technical services department at 1-888-834-2371 or email ThermafiberInsolutions@owenscorning.com.

Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation, and composite solutions, delivering a broad range of high-quality products and services. Owens Corning is committed to driving sustainability by delivering solutions, transforming markets, and enhancing lives. More information can be found at www.owenscorning.com.

Certifications and Sustainable Features

- [1]Verified by ICC-ES to contain a minimum of 70% recycled content. See ICC-ES Evaluation Report VAR-1025 at icc-es.org.
- Environmental Product Declaration (EPD) has been certified by UL Environment. For more information, visit ul.com/epd.
- Safing Products have a published Health Product Declaration (HPD).
- This product receives SAFETY Act designation by the U.S. Department of Homeland Security. For more information, visit safetyact.gov.

Made in the USA

Notes

For additional information, refer to the Safe Use Instruction Sheet (SUIS) found in the SDS Database via http://sds.owenscorning.com.

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Material Information Statement

Articles

According to Regulation (EC) 1907/2006, Article 32
Revision: 12.09.2023 Version: 27

1 Identification of the articles and of the company undertaking

1.1 Product identifier

Trade name:

- Bottom track seal CFS-BTS
- CFP-ES ENDO-SHIELD
- Firestop Bandage CFS-B / CFS-CB / CP 646
- Firestop Back Pan Strip CFS-BPS
- Firestop Block CFS-BL / CFS-BL P
- Firestop Board CP 675
- Firestop Boot CFS-BO
- Firestop Box Insert
- Firestop Cable Collar CFS-CC / CFS-RCC / CFS-RCC EXT
- Firestop Cable Module CFS-T
- Firestop Cast-in device and accessories CP 680 / CP 681 / CFS-CID / CFS-CID MD P/M/ CFS-CID MD HS GUI / CFS-CID MD PLT W2/W3 / CFS-CID MD HS / CFS-CID ARB TE-Y / CFS-CID ARB TE-C / CFS-CID U
- Firestop Coated Board CFS-CT B / CFS-CT HDB / CP670 / CP673 / CP676
- Firestop Collar CFS-C / CFS-C P
- Firestop Collar CP 643 / CP 644
- Firestop Composite Sheet CFS-COS
- Firestop Cord CFS-CO
- Firestop Cushion CP 651N
- Firestop Drop-In Device CFS-DID
- Firestop Edge of Slab QuickSeal CFS-EOS QS
- Firestop Endless Collar CFS-C EL
- Firestop Filler Module CFS-T FB
- Firestop Flex Seal CFS-FS
- Firestop Gangplate CFS-SL GP
- Firestop Module Box CFS-MB / CP 657
- Firestop Plug CFS-PL / CP 658
- Firestop Plug Seal CFS-T RR / CFS-T RRS
- Firestop Retrofit Sleeve CFS-SL RK
- Firestop Sleeve CP 645
- Firestop Sleeve Kit CFS-SL SK
- Firestop Modular Sleeves and accessories CFS-MSL / CFS-MSL GPP Pre-Installed Gang Plates / CFS-MSL FGR Floor Grids / CFS-MSL GCL (Ganging Clips) / CFS-MSL GPA Adjustable Gang Plates / CFS-MSL GPR Retrofit Gang Plates
- Firestop Speed Sleeve CFS-SL / CFS-SL GA / CP 653
- Firestop Top Track Seal CFS-TTS
- Firestop Top Track Seal CFS-TTS MD
- Firestop Top Track Cover CFS-TTS MD C
- Firestop Top Track Plug CFS-TTS MD P
- Firestop Top Track Seal CFS-TTS 212
- Firestop Top Track Seal CFS-TTS R
- Firestop Wedge Seal CFS-T WD120
- Firestop Wrap Strip CFS-W EL / SG / P / CP 648
- Foil Tapes CS-FT
- Intumescent façade cavity closer CP674
- Joint Sealing Tapes CS-JST
- Mineral Wool
- Mineral Wool Boards
- Multifunctional Tapes CS-MFT
- Pre-coated Mineral Wool Boards
- Smoke & Acoustic Track Seal CS-TTS SA
- Speed Plug CP 777
- Speed Strip CP 767

1.2 Application of the listed articles

Construction industry.

Refer to Hilti product literature, technical data sheets, 3rd party published listings and national approvals for specific application information. For more details, please contact your local Hilti organization through http://www.hilti.group

1.3 Manufacturer / Supplier

Hilti AG
Feldkircherstr. 100
FL-9494 Schaan
Liechtenstein

Customer Service
Phone +423 (0)844 84 84 85
Fax +423 (0)844 84 84 86

2 Other information

A Safety Data Sheet is not required due to the classification of these products as “articles” according to Regulation (EC) No. 1907/2006 of 18 December 2006 (EU) / 29CFR 1910.1200 (U.S.A.). Consequently, these products are exempted from CLP / OSHA Labeling and SDS requirements.

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Informing department:
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