



SAVING LIVES THROUGH INNOVATION AND EDUCATION

**Firestop Application Handbook
5th Edition**



HILTI HASSLE-FREE SERVICES

Create Unique Values.

We measure our success in yours. Our comprehensive range of hassle-free services are designed to enhance your project delivery capabilities at every phase, so you remain competitive and ahead.



PLANNING & SPECIFYING

Engineering Service

supports hassle-free project planning.

E-service

places technical information at your fingertips.

Firestop Seminar

provide basic understanding in firestop application

BIM/CAD

technical drawings and standard BIM/CAD templates

Installation training.

INSTALLATION PHASE

Error-free and Green Installation Practice

enhances productivity and enables safe anchor and firestop installation.

Cordless Practice

elevates safety and productivity.

Direct Customer Relationship

helps you to deliver projects on-time.

Tool Lifetime Services

lowers your total cost of ownership for a lifetime.

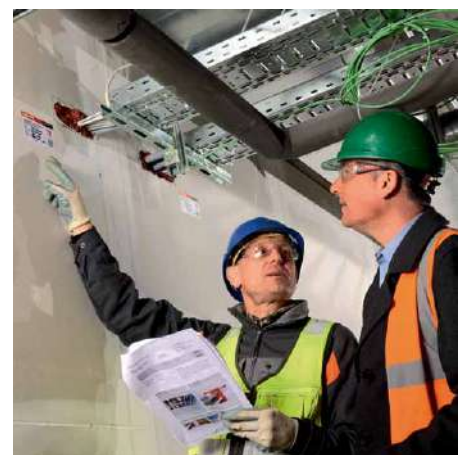
POST INSTALLATION CONSULTATION

Engineering Service

supports project approval at your job site or office.

Documentation Management Software

increase the efficiency to document, manage and report compliance at every penetrations throughout your building.



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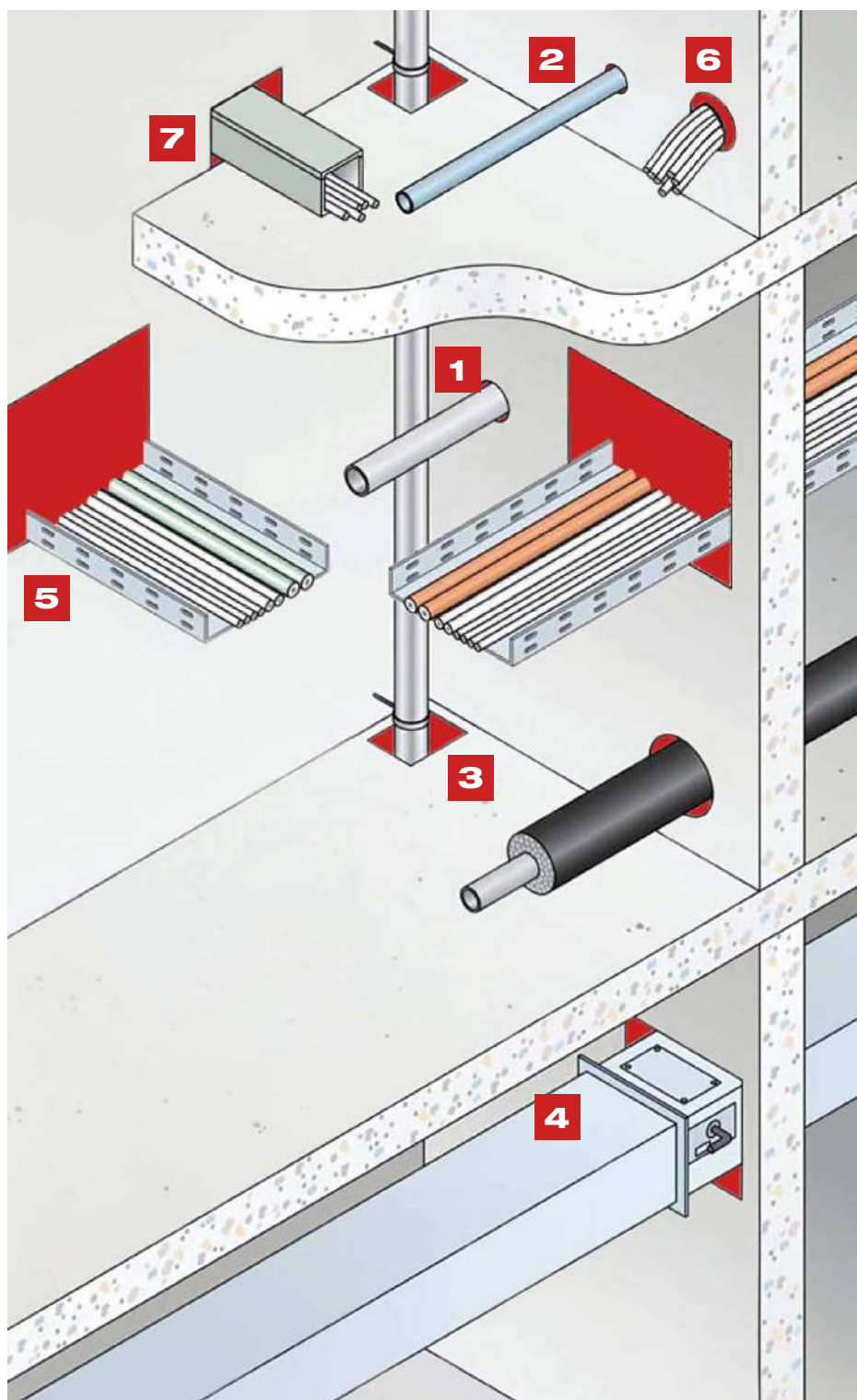
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IS FIRESTOPPING STILL TOO HOT FOR YOU TO HANDLE?

Hilti firestop systems provide simple and reliable solutions.

Hilti firestop systems make the sealing of openings for pipes and cable trays in fire compartment walls, floors and ceilings easier than ever before. Tested, approved and highly reliable, Hilti firestop products are tailored exactly to the needs of the electrical and mechanical trades.

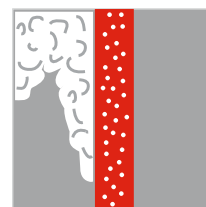
Fire risk overview - electrical & mechanical



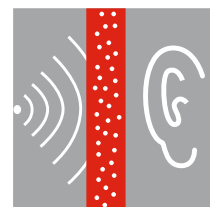
- 1** Metal pipe penetration (P.9 - 10)
- 2** Plastic pipe penetration (P.11 - 12)
- 3** Insulated pipe penetration (P.13 - 17)
- 4** Air duct damper penetration (P.18 - 19)
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- 8** Busbar penetration (P.27)
- 9** Multiple penetration (P.28)
- 10** Sunken plumbing pipe penetration (P.29)

More than just passive fire prevention

Hilti firestop products are tested to provide you with more than firestopping. The following symbols help you identify the additional features that Hilti brings to the product.



Smoke / Gas Tightness



Acoustic Insulation

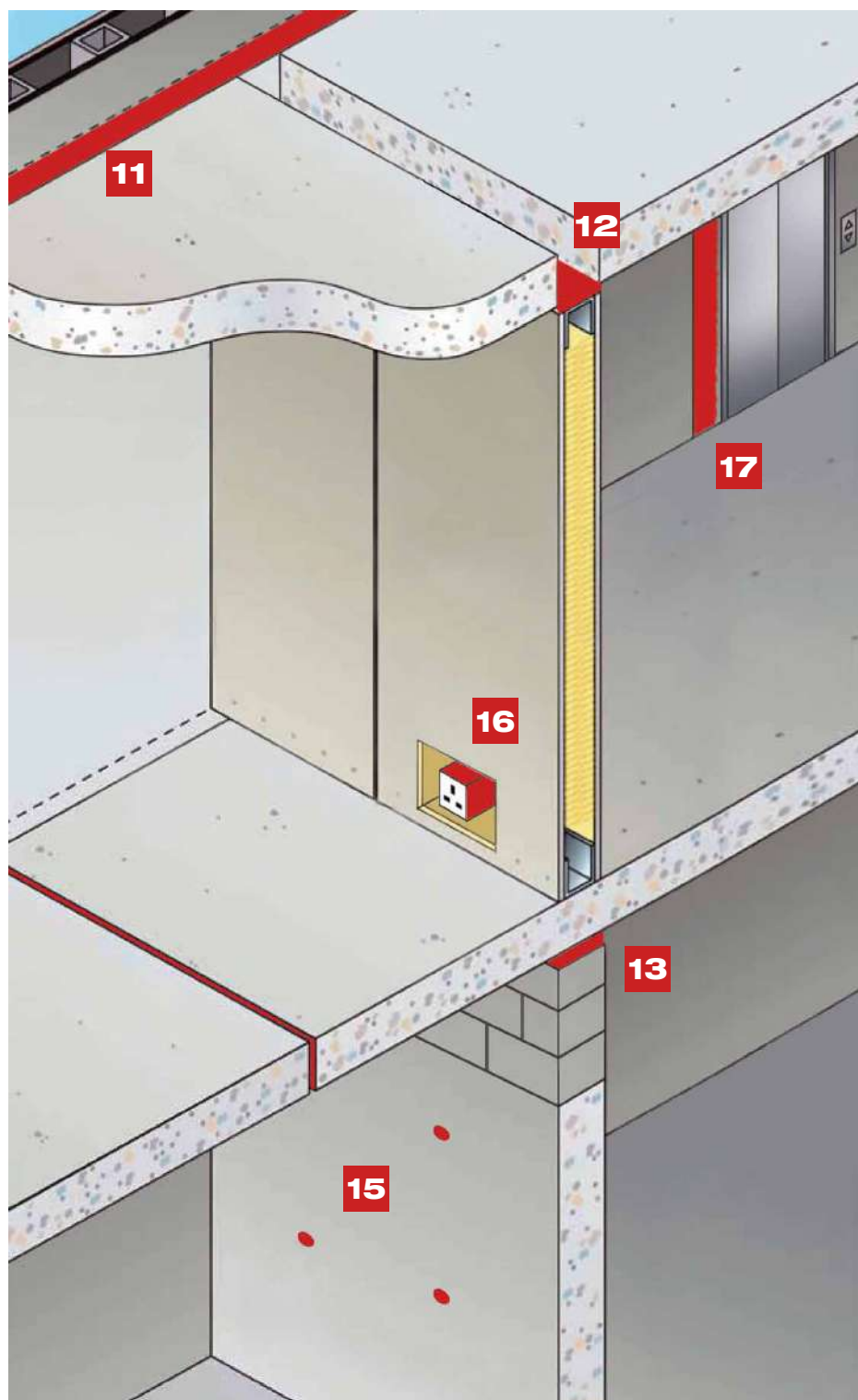


Water Tightness



Resistance to Aging*
(*see remark on Page 66)

Fire risk overview - architectural & internal finish



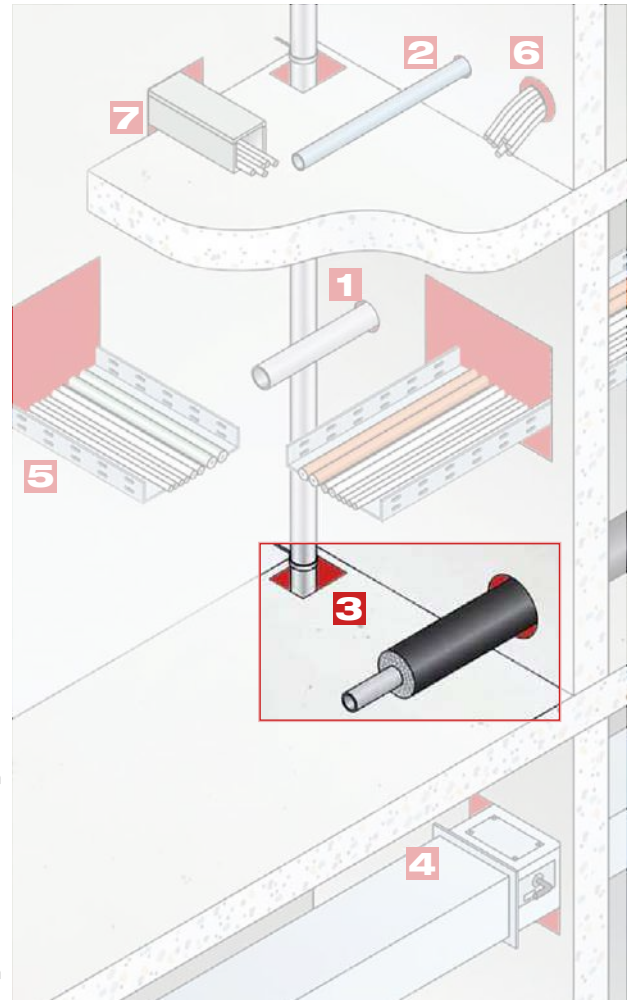
- 11** Curtain wall joint (P.30 - 31)
- 12** Drywall top of wall joint (P.32)
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4 EASY STEPS TO COMPLETE FIRESTOP DESIGN & SUBMISSION

Step 1

Find the relevant number for your application(s)

Fire risk overview - electrical & mechanical



- 1 Metal pipe penetration (P.9 - 10)
- 2 Plastic pipe penetration (P.11 - 12)
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- 4 Air duct damper penetration (P.18 - 19)
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- 8 Busbar penetration (P.27)
- 9 Multiple penetration (P.28)
- 10 Sunken plumbing pipe penetration (P.29)

Step 2

Select the right application details

Turn to the page(s) with the application number on the side

3 **MULTIPLE REFRIGERANT PIPES PENETRATION DETAIL (4 OF 4)**

FIRE RESISTANCE RATING: UP TO 120/120
 PRODUCT USED: CP-S-FX FLEXIBLE FIRESTOP FOAM
 CP-S-FX FLEXIBLE FIRESTOP MORTAR
 CP-S-FX FLEXIBLE FIRESTOP MORTAR
 ETA 1500/10

REFERENCE: Q

1. SUBSTRATE TYPES: FLEXIBLE WALL, MASONRY WALL AND CONCRETE WALL
 2. OPTIONAL: METAL SLEEVE (CIRCULAR / RECTANGULAR)
 3. PENETRATING ITEM: CONDENSED PIPE WITH ARMAFLEX INSULATION LAYER
 4. CP-S-FX BANDAGE (AT BOTH SIDES OF FIRE RATED WALL OR FLOOR, UNLESS SPECIFIED) CONTINUOUSLY WRAPPED AROUND THE OTHER GROUNDPERIENCE OF THE INSULATION LAYER.
 5. FOR ANNUAL GAP, IN FLEXIBLE AND RIGID WALL, CP-S-FX FLEXIBLE FIRESTOP FOAM OR CP-S-FX FIRESTOP MORTAR SHOULD BE USED
 6. INSULATION LAYER SHOULD BE ARMAFLEX OR EQUIVALENT

FOR FLEXIBLE / RIGID WALL: ≥ 100mm

	Pipe diameter (mm)	Insulation thickness (mm)	Layer(s) of bandage	F&D
Copper	80	40	2	~120/120
Copper	88.9	50	1	~120/120
Al composite	75	40.5	2	~120/120
Al-SS	110	42.5	2	~120/120

NOTES:
 1. PIPE DIAMETER, INSULATION LAYER THICKNESS AND THE ASSOCIATED NO. OF BANDAGE LAYERS CAN BE CHECKED IN ABOVE TABLE. FOR OTHER SIZES, PLEASE CONTACT HILTI ONLINE ENGINEER FOR TEST REPORT SUPPORT.
 2. MINIMUM SEPARATION (S1 AND S2) BETWEEN PIPES COULD BE ZERO.

ALL CONSTRUCTION DETAILS MUST BE SUBMITTED AND APPROVED BY THE REFERENCED ARCHITECTS ENGINEERS FOR THE PROJECT. FOR ANY DETAIL BEYOND THE SCOPE OF HILTI, PLEASE CONTACT HILTI ONLINE ENGINEER FOR TEST REPORT SUPPORT.

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 HILTI Firestop Systems
 Technical Advisory Services Hotline: 852-241118
 1ST JAN. 2017

4 OF 4
 NOT TO SCALE
 (H-K-1004-1)

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In case your application is not covered, please contact Hilti Fire Protection Specialist at (852) 8228 8118 for advice.

Check the details against site situation

- 1** Floor/wall thickness **2** Opening size **3** Penetrating items

Step
3

MULTIPLE REFRIGERANT PIPES PENETRATION DETAIL (4 OF 4)

B FIRE RESISTANCE RATING : UP TO -/120/120
PRODUCT USED : CFS-B BANDAGE
CFS-F FX FLEXIBLE FIRESTOP FOAM
CP636 FIRESTOP MORTAR

A BS 476-20
EN 1366-3

C REFERENCE: ETA 10/0210

D FRONT VIEW

D WALL CASE

1. SUBSTRATE TYPES: FLEXIBLE WALL, MASONRY WALL AND CONCRETE WALL
2. OPTIONAL : METAL SLEEVE (CIRCULAR / RECTANGULAR)
3. PENETRATING ITEM:
COPPER PIPE WITH ARMAFLEX INSULATION LAYER.
4. **CFS-B BANDAGE** (AT BOTH SIDES OF FIRE RATED WALL OR FLOOR, UNLESS SPECIFIED) CONTINUOUSLY WRAPPED AROUND THE OTHER CIRCUMFERENCE OF THE INSULATION LAYER.
5. FOR ANNULAR GAP, IN FLEXIBLE AND RIGID WALL, **CFS-F FX FLEXIBLE FIRESTOP FOAM** OR **CP 636 FIRESTOP MORTAR** SHOULD BE USED
6. INSULATION LAYER SHOULD BE ARMAFLEX OR EQUIVALENT
FOR FLEXIBLE / RIGID WALL $\geq 100\text{mm}$

	Pipe diameter (mm)	Insulation thickness (mm)	Layer(s) of bandage	F.R.R
Copper	88.9	80	2	-/120/120
Copper	88.9	30	1	-/120/120
Al composite	75	40.5	2	-/90/90
PE-HD	110	42.5	2	-/120/120

NOTES :
1. PIPE DIAMETER, INSULATION LAYER THICKNESS AND THE ASSOCIATED NO. OF BANDAGE LAYERS CAN BE CHECKED IN ABOVE TABLE. FOR OTHER SIZES, PLEASE CONTACT HILTI ONLINE ENGINEER FOR TEST REPORT SUPPORT.
2. MINIMUM SEPARATION (S1 AND S2) BETWEEN PIPES COULD BE ZERO.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.

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E Eng No.
EM-INP04-1

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A According to which standard

B FRR & involved products

C Fire test reports referred

D Seal-up details & special notes

E Hilti application details no.

ETA 10/0210

Refer these 2 sets of number in
your shop drawing details

EM-INP04-1

Prepare for submission

- 1** Submission folder (product catalogue, test reports, country of origin, MSDS, job ref.)
- 2** Supplementary test reports (if any)
- 3** Product samples

Hilti Fire Protection
Specialist can help you
prepare the full proposal,
please call 8228-8118

Step
4

DRAWING SUMMARY

Category

Electrical & Mechanical

Application	
1	Metal Pipe Penetration 1
1	Metal Pipe Penetration 2
2	Plastic Pipe Penetration 1
2	Plastic Pipe Penetration 2
3	Insulated Pipe Penetration 1
3	Insulated Pipe Penetration 2
3	Insulated Pipe Penetration 3
3	Insulated Pipe Penetration 4
3	Insulated Pipe Penetration 5
4	Air Duct Penetration 1
4	Air Duct Penetration 2
5	Cable Tray Penetration 1
6	Cable Tray Penetration 2
6	Cable / Cable Bundle Penetration 1
7	Cable / Cable Bundle Penetration 2
7	Cable / Cable Bundle Penetration 3
7	Cable / Cable Bundle Penetration 4
7	Trunking Penetration
8	Busbar Penetration
9	Multiple Penetration
10	Sunken Plumbing Pipe Through Ducting Room Penetration
11	Curtain Wall Joint Application 1
11	Curtain Wall Joint Application 2
12	Drywall Joint Application
13	Top of Wall Joint Application 1
13	Top of Wall Joint Application 2
14	Precast Facade Joint Application
15	Wall Tie Hole Application 1
15	Wall Tie Hole Application 2
15	Wall Tie Hole Application 3
16	Electrical Switch / Socket Box Application 1
16	Electrical Switch / Socket Box Application 2
17	Lift Door Frame / Switch Control Application
18	Timber / Steel Door Frame Joint Application

Architectural & Internal Finish

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	Up to -/240/12	EM-MTP02	Page 10
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	Up to -/240/240	EM-PLP02	Page 12
	Up to -/240/240	EM-INP01	Page 13
	Up to -/240/240	EM-INP02	Page 14
	Up to -/120/120	EM-INP03	Page 15
	Up to -/120/120	EM-INP04-1	Page 16
	Up to -/120/120	EM-INP04-2	Page 17
	Up to -/125/122	EM-ADT01	Page 18
	Up to -/255/-	EM-ADT02	Page 19
	Up to -/240/86	EM-CBT01	Page 20
	Up to -/240/-	EM-CBT02	Page 21
	Up to -/240/240	EM-CBB01	Page 22
	Up to -/120/120	EM-CBB02	Page 23
	Up to -/151/151	EM-CBB03	Page 24
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	Up to -/242/242	AI-TOW01	Page 33
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	N/A	AI-WTH03	Page 38
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	Up to -/66/66	AI-SKB02	Page 40
	Up to -/120/120	AI-LDF01	Page 41
	Up to -/240/120	AI-TDF01	Page 42

APPLICATION DRAWINGS

Leading-edge Technology.
Outstanding Service.



METAL PIPE PENETRATION DETAIL (1 OF 2)

FIRE RESISTANCE RATING : UP TO -/240/36

PRODUCT USED :

CP606 FLEXIBLE FIRESTOP SEALANT

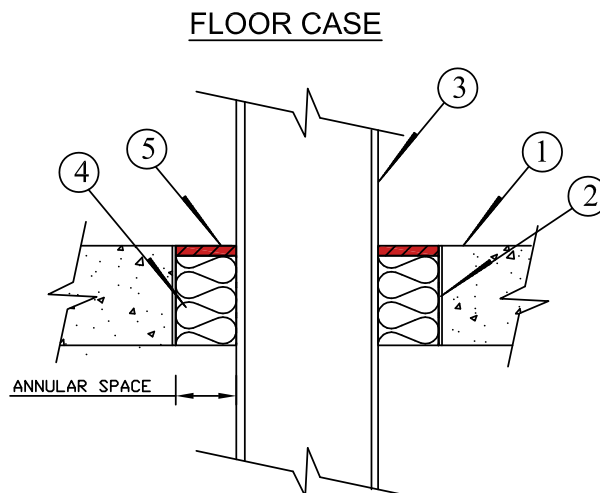
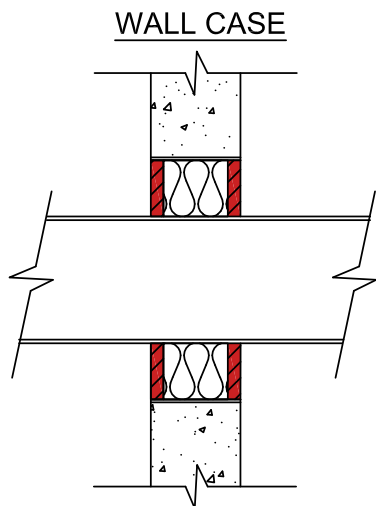
REFERENCE:

WARRES No. 101295/A & WFR No. C102207

WFR No. 125356

BS 476-20

EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY:
 - A. CONCRETE WALL OR FIRE-RATED BLOCKWALL.
 - B. CONCRETE FLOOR.
2. OPTIONAL : METAL SLEEVE.
3. PENETRATING ITEM (SEE NOTES 3):

	Steel Pipe	Cast / D.I. Pipe	Copper Pipe
Depth of CP606 FLEXIBLE FIRESTOP SEALANT (mm)	15	15	20
Max. Pipe Size (mm)	600	600	50

4. MINIMUM 70mm THICKNESS MINERAL WOOL (MINIMUM 140kg/m³ DENSITY) TIGHTLY PACKED AND FULLY FILLED ACROSS THE ANNULAR SPACE.
5. **CP606 FLEXIBLE FIRESTOP SEALANT**

NOTES :

1. MAXIMUM ANNULAR SPACE = 30mm (40mm FOR COPPER PIPE)
2. MINIMUM 15mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT** IS REQUIRED ON BOTH SIDES OF A WALL ASSEMBLY. (20mm FOR COPPER PIPE)
3. MINIMUM DIAMETER OF THE COPPER PIPE CAN BE INCREASED TO 200mm IF THE F.R.R. IS REDUCED TO -/120/12.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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Sheet 1 OF 2
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Drawing No.
EM-MTP01

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METAL PIPE PENETRATION DETAIL (2 OF 2)

FIRE RESISTANCE RATING : UP TO -/240/12

PRODUCT USED :

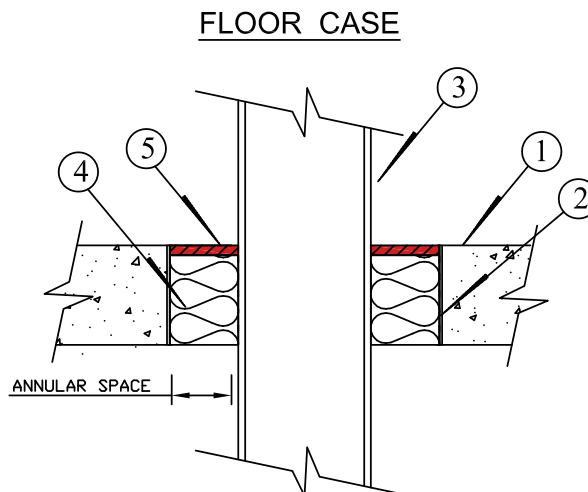
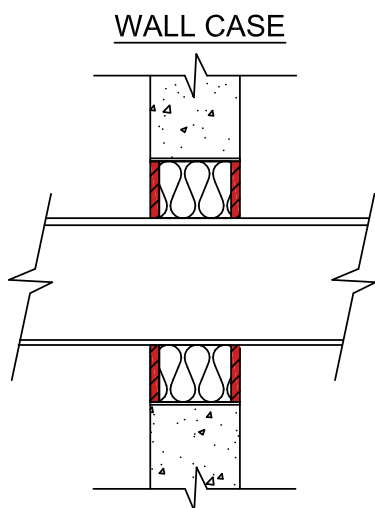
CP601S ELASTIC FIRESTOP SEALANT

REFERENCE:

WARRES No. 101295/A

WARRES No. C102207

BS 476-20
EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY:
 - A. CONCRETE WALL OR FIRE-RATED BLOCKWALL.
 - B. CONCRETE FLOOR.
2. OPTIONAL : METAL SLEEVE.
3. PENETRATING ITEM. (SEE NOTES 4)

	Steel Pipe	Cast / D.I. Pipe	Copper Pipe
Depth of CP601S ELASTIC FIRESTOP SEALANT (mm)	20	20	20
Max. Pipe Size (mm)	200	200	50

4. MINERAL WOOL THICKNESS OF MINIMUM 60 mm FOR WALL AND MINIMUM 100mm FOR FLOOR (MINIMUM 100kg/m³ DENSITY) TIGHTLY PACKED AND FULLY FILLED ACROSS THE ANNULAR SPACE.

5. CP601S ELASTIC FIRESTOP SEALANT

NOTES :

1. MAXIMUM ANNULAR SPACE = 40mm.
2. FOR WALL PENETRATION, THE F.R.R. IS REDUCED TO -/157/12.
3. MAXIMUM DIAMETER OF THE COPPER PIPE CAN BE INCREASED TO 200mm IF THE F.R.R. IS REDUCED TO -/120/12.
4. THE HARDNESS OF CP601S ELASTIC FIRESTOP SEALANT IS UP TO MIN. 30 SHORE A INDEX. (TEST REPORT IS AVAILABLE UPON REQUEST)
5. THE MOVEMENT CAPACITY OF CP601S ELASTIC FIRESTOP SEALANT CAN ACCOMMODATE UP TO +/- 25%. (TEST REPORT IS AVAILABLE UPON REQUEST)

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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Drawing No.
EM-MTP02

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PLASTIC PIPE PENETRATION DETAIL (1 OF 2)

FIRE RESISTANCE RATING : UP TO -/245/245

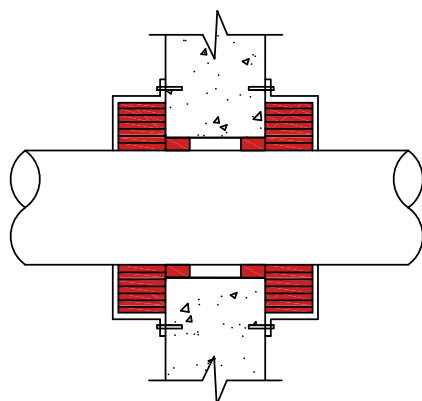
PRODUCT USED : CP643 N / CP644 FIRESTOP COLLAR

REFERENCE: WARRES No. 128947/A & 131014/A & WF No. 179096

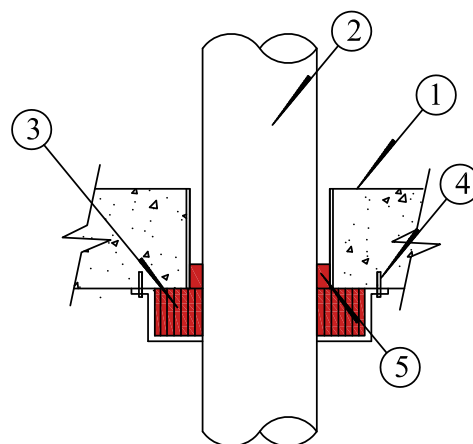
WARRES No. 131014/B & 128947/B & WF No. 163047

BS 476-20
EN 1366-3

WALL CASE



FLOOR CASE



1. CONCRETE FLOOR OR WALL ASSEMBLY:
- LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL
2. MAX. 260mm OUTER-DIAMETER PLASTIC PIPE. (SEE TABLE BELOW).
3. **CP643 N / CP644 FIRESTOP COLLAR** WITH ANCHOR HOOK.
4. SLEEVE ANCHOR HSA-R M6.
5. **HILTI CP606 FLEXIBLE FIRESTOP SEALANT**. (SEE NOTES 2)

PIPE O.D. (mm)	PRODUCT	NO. OF HOOKS
20 - 51	CP643-50/1.5"	2
52 - 64	CP643-63/2"	2
65 - 78	CP643-75/2.5"	3
79 - 91	CP643-90/3"	3
92 - 115	CP643-110/4"	3
116 - 125	CP643-125/5"	4
126 - 170	CP643-160/6"	4
171 - 180	CP644-180/7"	8
181 - 210	CP644-200/8"	8
211 - 240	CP644-225/9"	10
241 - 260	CP644-250/10"	12

NOTES :

1. **CP643 N / CP644 FIRESTOP COLLAR** IS REQUIRED ON BOTH SIDES OF A WALL CASE.
2. FOR SMOKE-SEAL PERFORMANCE, THE GAP BETWEEN THE OPENING AND THE PLASTIC PIPE TO BE SEALED UP BY 5~10mm **CP606 FLEXIBLE FIRESTOP SEALANT**.
3. FOR OUTDOOR OR WET AREA (MAX. 6" SIZE), A2 (304) STAINLESS STEEL VERSION OF **CP643 N FIRESTOP COLLAR** AND HLC-R 8x40/12 (M6) ANCHOR IS RECOMMENDED.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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PLASTIC PIPE PENETRATION DETAIL (2 OF 2)

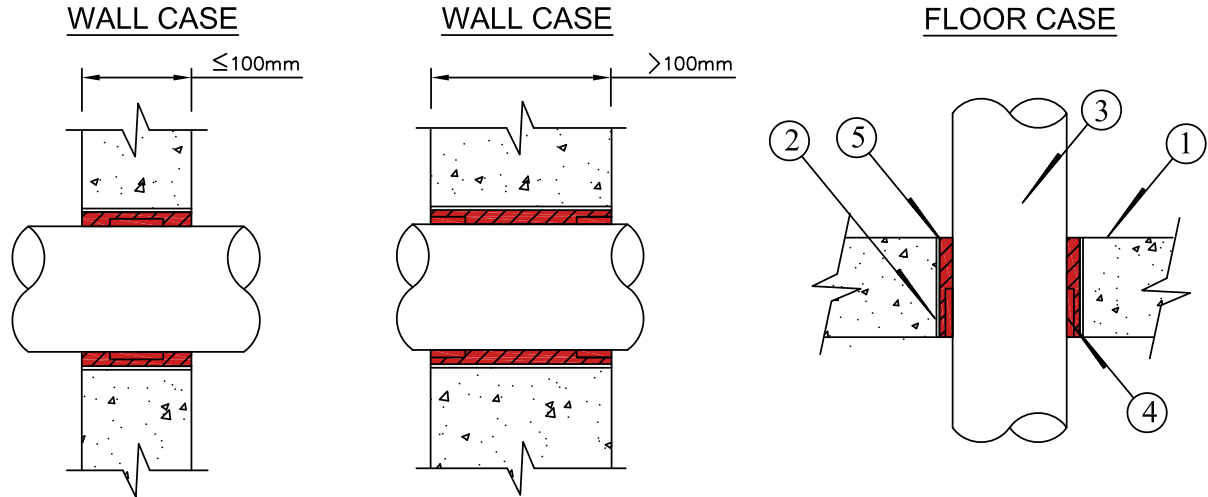
FIRE RATED PERIOD : -/240/240 (SEE NOTES 3)

PRODUCT USED : CP648-E INTUMESCENT PIPE WRAP

CP606 FLEXIBLE FIRESTOP SEALANT

REFERENCE: WARRES No. C132995 ISSUE 2 & WF No. 148482/B ISSUE 2

BS 476-20
EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY:
 - A. CONCRETE WALL OR BLOCK WALL.
 - B. CONCRETE FLOOR.
2. OPTIONAL : METAL SLEEVE (CIRCULAR / RECTANGULAR)
3. PENETRATING ITEM TO BE ONE OR SEVERAL OF THE FOLLOWING:
 - PLASTIC PIPE (MAX 160mm O.D. EACH)
4. **CP648-E INTUMESCENT PIPE WRAP** CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE INSULATION. (SEE NOTES 4)
 - FOR O.D. $\leq 75\text{mm}$, --- 4.5mm THK CP648-E x 1 LAYER ;
 - FOR $75\text{mm} < \text{O.D.} \leq 125\text{mm}$, --- 4.5mm THK CP648-E x 2 LAYERS ;
 - FOR $125\text{mm} < \text{O.D.} \leq 160\text{mm}$, --- 4.5mm THK CP648-E x 3 LAYERS
5. FOR ANNULAR SPACE $\leq 30\text{mm}$, FILL THE VOID UP BY MINERAL WOOL WITH **CP606 FLEXIBLE FIRESTOP SEALANT** ON BOTH SIDES OF THE FLOOR/WALL ASSEMBLY. OTHERWISE, VOIDS TO BE FILLED BY **CP636 FIRESTOP MORTAR**. (SEE NOTES 2)

NOTES :

1. **CP648-E INTUMESCENT PIPE WRAP** IS FLUSH TO THE UNDERSIDE OF THE FLOOR ASSEMBLY.
2. FOR THE PURPOSE OF SMOKE-SEAL AND SURFACE FINISH, NOMINAL THICKNESS OF 5~10mm **CP606 FLEXIBLE FIRESTOP SEALANT** SHOULD BE APPLIED.
3. ALL CASES HAVE -/240/240 F.R.R. EXCEPT FOR PIPE WITH O.D. BETWEEN 125mm AND 160mm (FLOOR CASE), WHICH HAVE -/121/121 F.R.R. ONLY.
4. PRE-CUT VERSION **CP648-S FIRESTOP SINGLE WRAP** ALSO AVAILABLE FOR CHOICE.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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Drawing No.
EM-PLP02

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INSULATED PVC PIPE PENETRATION DETAIL (1 OF 5)

FIRE RATED PERIOD: UP TO -/240/240

PRODUCT USED:

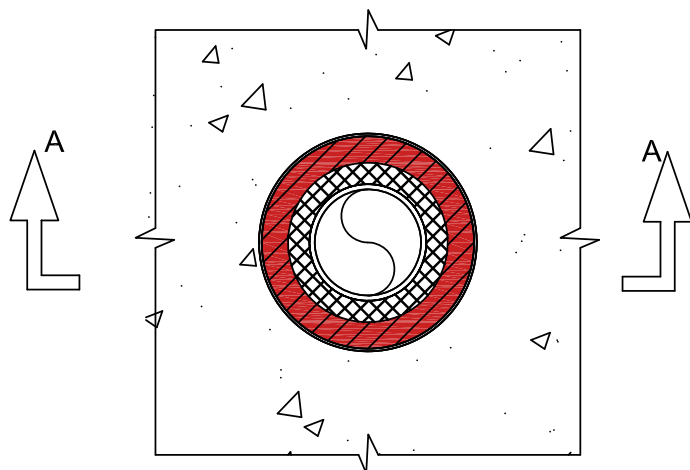
CP648-E INTUMESCENT PIPE WRAP
CP606 FLEXIBLE FIRESTOP SEALANT

BS 476-20
EN 1366-3

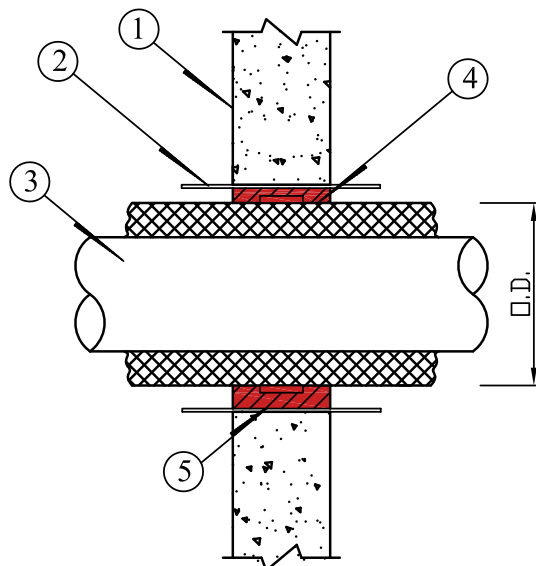
REFERENCE:

WARRES No. C132995 ISSUE 2 & WF No. 148482/B ISSUE 2
ASSESSMENT REPORT R09J19

SIDE VIEW



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY:

- A. CONCRETE WALL OR BLOCK WALL ($\leq 100\text{mm}$).
- B. CONCRETE FLOOR ($\leq 150\text{mm}$).

2. OPTIONAL : METAL SLEEVE (CIRCULAR / RECTANGULAR)

3. PENETRATING ITEM TO BE ONE OR SEVERAL OF THE FOLLOWING:

- PVC PIPE WITH ELASTOMERIC INSULATION (MAX 90mm O.D. EACH)

4. CP648-E INTUMESCENT PIPE WRAP CONTINUOUSLY

WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE INSULATION. (SEE NOTES 5)

FOR O.D. $\leq 75\text{mm}$, --4.5mm THK CP648-E X 1 LAYER;

FOR $75\text{mm} < \text{O.D.} \leq 90\text{mm}$, --4.5mm THK CP648-E X 2 LAYERS;

5. FOR ANNULAR SPACE $\leq 30\text{mm}$, FILL THE VOID UP BY MINERAL WOOL WITH CP606 FLEXIBLE FIRESTOP SEALANT ON BOTH SIDES OF THE FLOOR/WALL ASSEMBLY.

OTHERWISE, VOIDS TO BE FILLED BY CP636 FIRESTOP MORTAR. (SEE NOTES 2)

NOTES :

1. PRACTICAL EXAMPLE FOR ELASTOMERIC INSULATION IS ARMAFLEX INSULATION OR EQUIVALENT.
2. FOR THE PURPOSE OF SMOKE-SEAL AND SURFACE FINISH, NOMINAL THICKNESS OF 5~10mm **CP606 FIRESTOP SEALANT** SHOULD BE APPLIED.
3. **CP648-E FIRESTOP WRAP** IS PLACED WITHIN THE FLOOR APERTURE AND FLUSH WITH THE UNDERSIDE OF THE FLOOR ASSEMBLY.
4. ALL CASES HAVE -/240/240 F.R.R. EXCEPT FOR PIPE WITH O.D. BETWEEN 125mm AND 160mm (FLOOR CASE), WHICH HAVE -/121/121 F.R.R. ONLY.
5. PRE-CUT VERSION **CP648-S FIRESTOP SINGLE WRAP** ALSO AVAILABLE FOR CHOICE.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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INSULATED COPPER PIPE PENETRATION DETAIL (2 OF 5)

FIRE RESISTANCE RATING: UP TO -/240/240

PRODUCT USED:

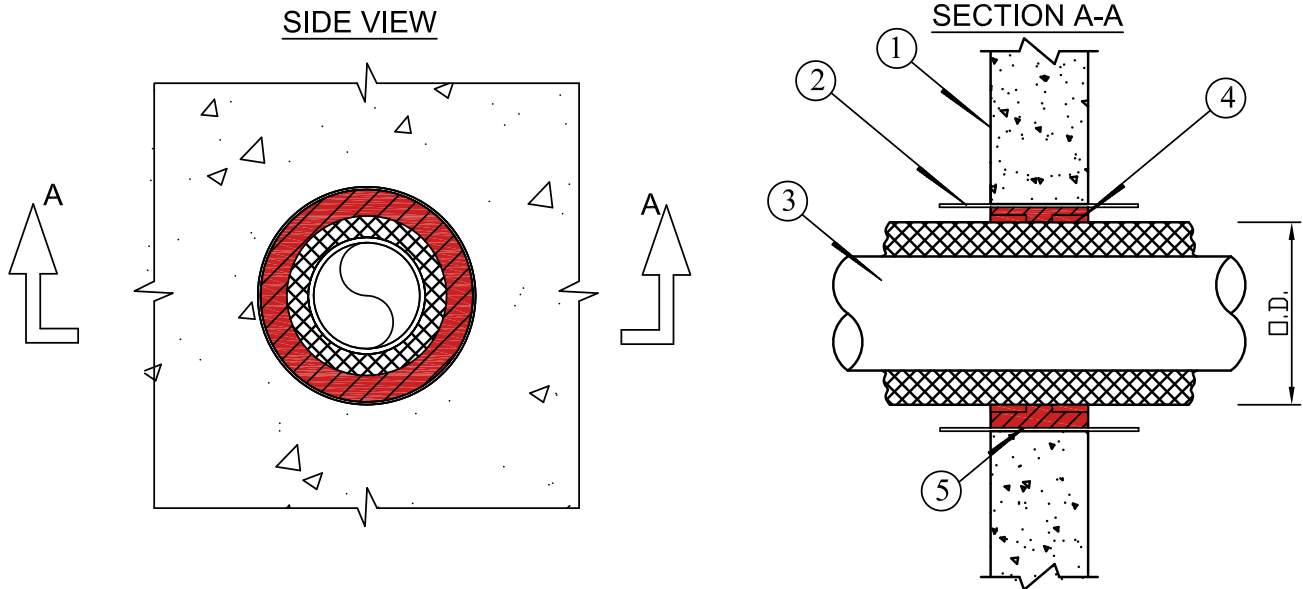
CP648-E INTUMESCENT PIPE WRAP

CP606 FLEXIBLE FIRESTOP SEALANT

REFERENCE:

WARRES No. C132995 ISSUE 2 & WF No. 148482/B ISSUE 2
ASSESSMENT REPORT R09J19

BS 476-20
EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY:
 - A. CONCRETE WALL OR BLOCK WALL ($\leq 100\text{mm}$).
 - B. CONCRETE FLOOR ($\leq 150\text{mm}$).
2. OPTIONAL : METAL SLEEVE (CIRCULAR / RECTANGULAR)
3. PENETRATING ITEM TO BE ONE OR SEVERAL OF THE FOLLOWING:
 - COPPER PIPE WITH ELASTOMERIC INSULATION (MAX 75mm O.D. EACH)
4. **CP648-E INTUMESCENT PIPE WRAP** (4.5mm THICKNESS x 1 LAYER)
CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE INSULATION. (SEE NOTES 4)
5. FOR ANNULAR SPACE $\leq 30\text{mm}$, FILL THE VOID UP BY MINERAL WOOL WITH **CP606 FLEXIBLE FIRESTOP SEALANT** ON BOTH SIDES OF THE FLOOR/WALL ASSEMBLY. OTHERWISE, VOIDS TO BE FILLED BY **CP636 FIRESTOP MORTAR**. (SEE NOTES 2)

NOTES :

1. PRACTICAL EXAMPLE FOR ELASTOMERIC INSULATION IS ARMAFLEX INSULATION OR EQUIVALENT.
2. FOR THE PURPOSE OF SMOKE-SEAL AND SURFACE FINISH, NOMINAL THICKNESS OF 5~10mm **CP606 FIRESTOP SEALANT** SHOULD BE APPLIED.
3. **CP648-E FIRESTOP WRAP** ARE REQUIRED ON BOTH SIDES OF THE WALL/FLOOR ASSEMBLY.
4. PRE-CUT VERSION **CP648-S FIRESTOP SINGLE WRAP** ALSO AVAILABLE FOR CHOICE.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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EM-INP02

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CHILLED WATER/HOT WATER PIPE PENETRATION DETAIL(3 OF 5)

FIRE RESISTANCE RATING : UP TO -/120/120

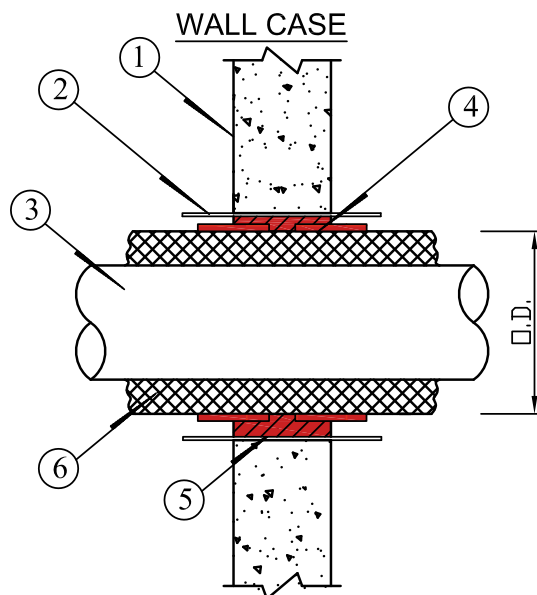
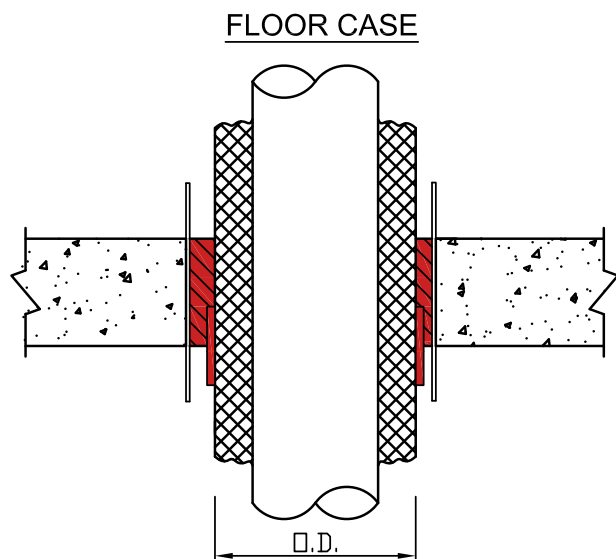
PRODUCT USED : CFS-B BANDAGE

CP606 FLEXIBLE FIRESTOP SEALANT

REFERENCE: ETA 10/02012 & RED_R15K33-1A

BS 476-20

EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY:

A. CONCRETE WALL OR BLOCK WALL.

B. CONCRETE FLOOR.

2. OPTIONAL : METAL SLEEVE (CIRCULAR / RECTANGULAR)

3. PENETRATING ITEM TO BE ONE OR SEVERAL OF THE FOLLOWING:

FOR FLEXIBLE / RIGID WALL $\geq 100\text{mm}$

	Pipe diameter (mm)	Insulation thickness (mm)	Layer(s) of bandage	F.R.R
STEEL	250	65	2	-/120/-
STEEL	50	65	1	-/120/-

FOR RIGID FLOOR $\geq 150\text{mm}$

	Pipe diameter (mm)	Insulation thickness (mm)	Layer(s) of bandage	F.R.R
STEEL	400	75	3	-/120/-
STEEL	159	45	2*	-/180/180

*install on both sides of the floor

4. **CFS-B BANDAGE** (2mm THICKNESS x 2 LAYERS) CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE INSULATION. FOR -/60/-, USE 1 LAYER OF BANDAGE.

5. FOR ANNULAR SPACE $\leq 30\text{mm}$, FILL THE VOID UP BY MINERAL WOOL WITH **CP606 FLEXIBLE FIRESTOP SEALANT** ON BOTH SIDES OF THE FLOOR/WALL ASSEMBLY. OTHERWISE, VOIDS TO BE FILLED BY CEMENT MORTAR. (SEE NOTES 2)

6. INSULATION MATERIAL CAN BE ARMAFLEX OR PHENOLIC FOAM

NOTES :

1. PRACTICAL EXAMPLE FOR ELASTOMERIC INSULATION IS ARMAFLEX INSULATION OR EQUIVALENT.

2. FOR THE PURPOSE OF SMOKE-SEAL AND SURFACE FINISH, NOMINAL THICKNESS OF 5~10mm **CP606 FIRESTOP SEALANT** SHOULD BE APPLIED.

3. **CFS-B BANDAGE** ARE REQUIRED ON BOTH SIDES OF THE WALL ASSEMBLY AND THE BOTTOM SIDE OF THE FLOOR ASSEMBLY.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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MULTIPLE REFRIGERANT PIPES PENETRATION DETAIL (4 OF 5)

FIRE RESISTANCE RATING : UP TO -/120/120

PRODUCT USED :

CFS-B BANDAGE

CFS-F FX FLEXIBLE FIRESTOP FOAM

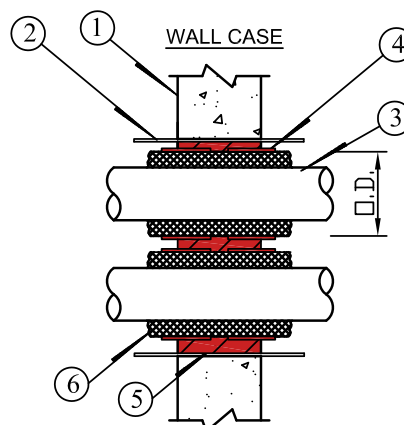
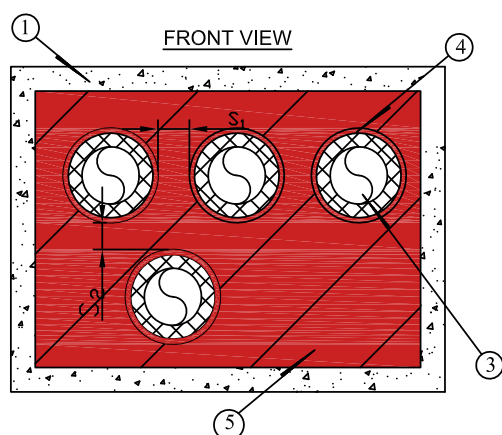
CP636 FIRESTOP MORTAR

REFERENCE:

ETA 10/0210 & R16H32-1A

BS 476-20

EN 1366-3



1. SUBSTRATE TYPES: FLEXIBLE WALL, MASONRY WALL AND CONCRETE WALL
2. OPTIONAL : METAL SLEEVE (CIRCULAR / RECTANGULAR)
3. PENETRATING ITEM:
COPPER PIPE WITH ARMAFLEX INSULATION LAYER.
4. **CFS-B BANDAGE** (AT BOTH SIDES OF FIRE RATED WALL OR FLOOR, UNLESS SPECIFIED) CONTINUOUSLY WRAPPED AROUND THE OTHER CIRCUMFERENCE OF THE INSULATION LAYER.
5. FOR ANNULAR GAP, IN FLEXIBLE AND RIGID WALL, **CFS-F FX FLEXIBLE FIRESTOP FOAM OR CP 636 FIRESTOP MORTAR** SHOULD BE USED
6. INSULATION LAYER SHOULD BE ARMAFLEX OR EQUIVALENT

FOR FLEXIBLE / RIGID WALL $\geq 100\text{mm}$

	Pipe diameter (mm)	Insulation thickness (mm)	Layer(s) of bandage	F.R.R
Copper	88.9	80	2	-/120/120
Copper	88.9	30	1	-/120/120
Al composite	75	40.5	2	-/90/90
PE-HD	110	42.5	2	-/120/120

NOTES :

1. PIPE DIAMETER, INSULATION LAYER THICKNESS AND THE ASSOCIATED NO. OF BANDAGE LAYERS CAN BE CHECKED IN ABOVE TABLE. FOR OTHER SIZES, PLEASE CONTACT HILTI ONLINE ENGINEER FOR TEST REPORT SUPPORT.
2. MINIMUM SEPARATION (S1 AND S2) BETWEEN PIPES COULD BE ZERO.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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EM-INP04-1

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MULTIPLE REFRIGERANT PIPES PENETRATION DETAIL (5 OF 5)

FIRE RESISTANCE RATING : UP TO -/120/120

PRODUCT USED :

CFS-B BANDAGE

CFS-F FX FLEXIBLE FIRESTOP FOAM

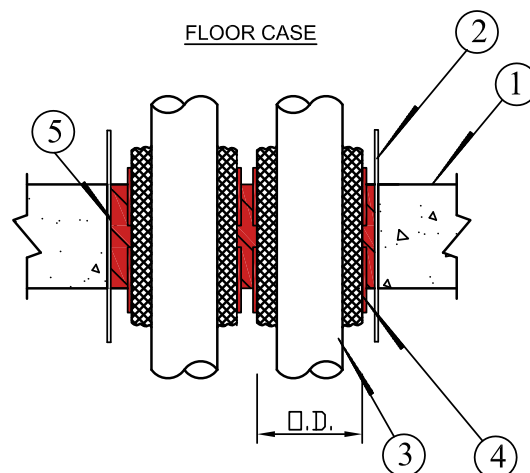
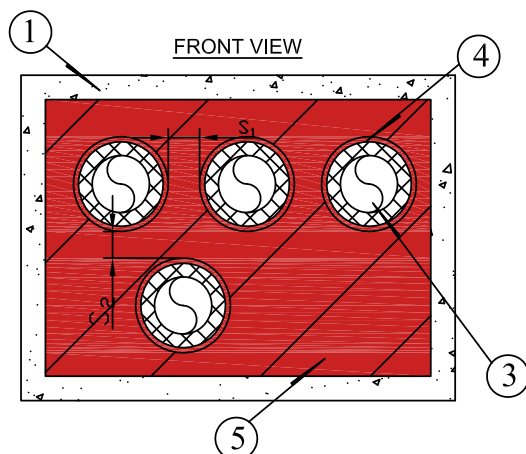
CP636 FIRESTOP MORTAR

ETA 10/0212 & R16H32-1A

BS 476-20

EN 1366-3

REFERENCE:



1. SUBSTRATE TYPES: CONCRETE FLOOR.
2. OPTIONAL : METAL SLEEVE (CIRCULAR / RECTANGULAR)
3. PENETRATING ITEM:
 - A. PIPES INCLUDE STEEL PIPE, COPPER PIPE, ALUMINUM COMPOSITE PIPES AND PE-HD PIPES.
 - B. INSULATION MATERIALS INCLUDES ARMAFLEX, PHENOLIC FOAM AND MINERAL WOOL.
4. **CFS-B BANDAGE** (AT BOTH SIDES OF FIRE RATED WALL OR FLOOR, UNLESS SPECIFIED) CONTINUOUSLY WRAPPED AROUND THE OTHER CIRCUMFERENCE OF THE INSULATION LAYER.
5. FOR ANNULAR GAP, IN RIGID WALLS AND FLOORS, **CP636 FIRESTOP MORTAR** IS USED FOR GAPS FROM 3-50mm.

FOR RIGID FLOOR $\geq 150\text{mm}$

	Pipe diameter (mm)	Insulation thickness (mm)	Layer(s) of bandage	F.R.R
Copper	54	40	1	-/120/120
Copper	88.9	100	2	-/120/120
Al composite	63	39	2	-/120/120
PE-HD	110	42.5	2	-/180/180

^ floor underside only * additional insulation protection need

NOTES :

1. PIPE DIAMETER, INSULATION LAYER THICKNESS AND THE ASSOCIATED NO. OF BANDAGE LAYERS CAN BE CHECKED IN ABOVE TABLE. FOR OTHER SIZES, PLEASE CONTACT HILTI ONLINE ENGINEER FOR TEST REPORT SUPPORT.
2. MINIMUM SEPARATION (S1 AND S2) BETWEEN PIPES COULD BE ZERO.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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Drawing No.
EM-INP04-2

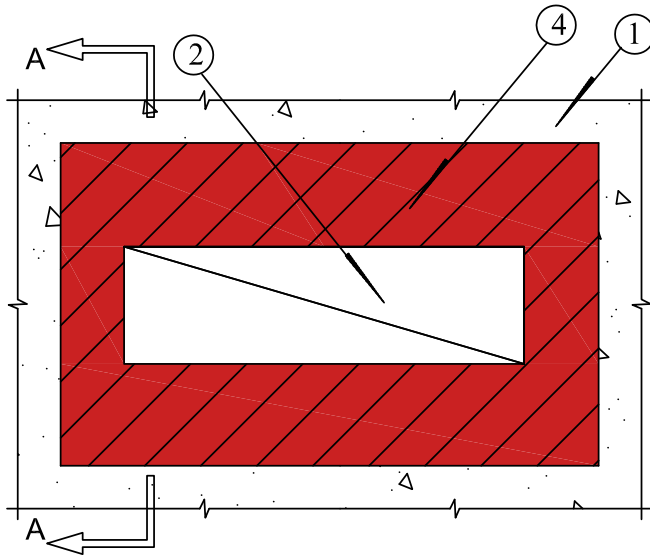
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DAMPER PENETRATION DETAIL (1 OF 2)

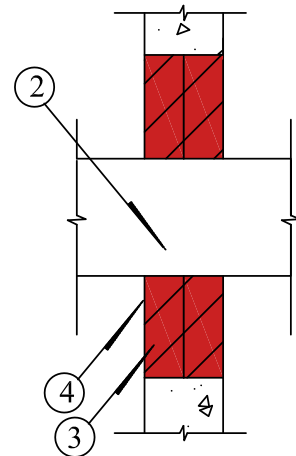
FIRE RESISTANCE RATING: UP TO -/125/122
 PRODUCT USED: CP 670 FIRE SAFETY COATING
 CP 606 FLEXIBLE FIRESTOP SEALANT
 REFERENCE: WFRC No. C129497

BS 476-20
 EN 1366-3

SIDE VIEW / TOP VIEW



SECTION A-A
 (WALL)



1. CONCRETE FLOOR OR WALL ASSEMBLY (120/120/120 F.R.R.):
 A. CONCRETE WALL OR FIRE-RATED BLOCKWALL
 B. CONCRETE FLOOR
2. METAL AIR DUCT
3. DOUBLE LAYERED (50mm THK EACH) MINERAL WOOL BOARD (MIN. 160kg/m³ DENSITY)
4. MINIMUM 0.7mm (DRY) THICK **CP670 FIRE SAFETY COATING** APPLIED ON BOTH SIDES OF THE MINERAL WOOL BOARD.

NOTES :

1. MAXIMUM SIZE OF OPENING (WALL) = 1200mm x 1200mm. (OR EQUIVALENT AREA)
2. GAPS BETWEEN MINERAL WOOL BOARD AND CONCRETE SURFACE / METAL SLEEVES TO BE FULLY FILLED BY **CP 606 FLEXIBLE FIRESTOP SEALANT**.
3. THE JUNCTION BETWEEN THE APERTURE IN THE COATED BOARD AND THE AIRDUCT TO BE SEALED WITH **CP 606 FLEXIBLE FIRESTOP SEALANT**.
4. FOR FLOOR APPLICATION OF SPAN OVER 2m, INTERMEDIATE SUPPORT(S) UNDER CP670 AT MAXIMUM INTERVAL OF 2m SHOULD BE PROVIDED BY CONTRACTOR.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
 FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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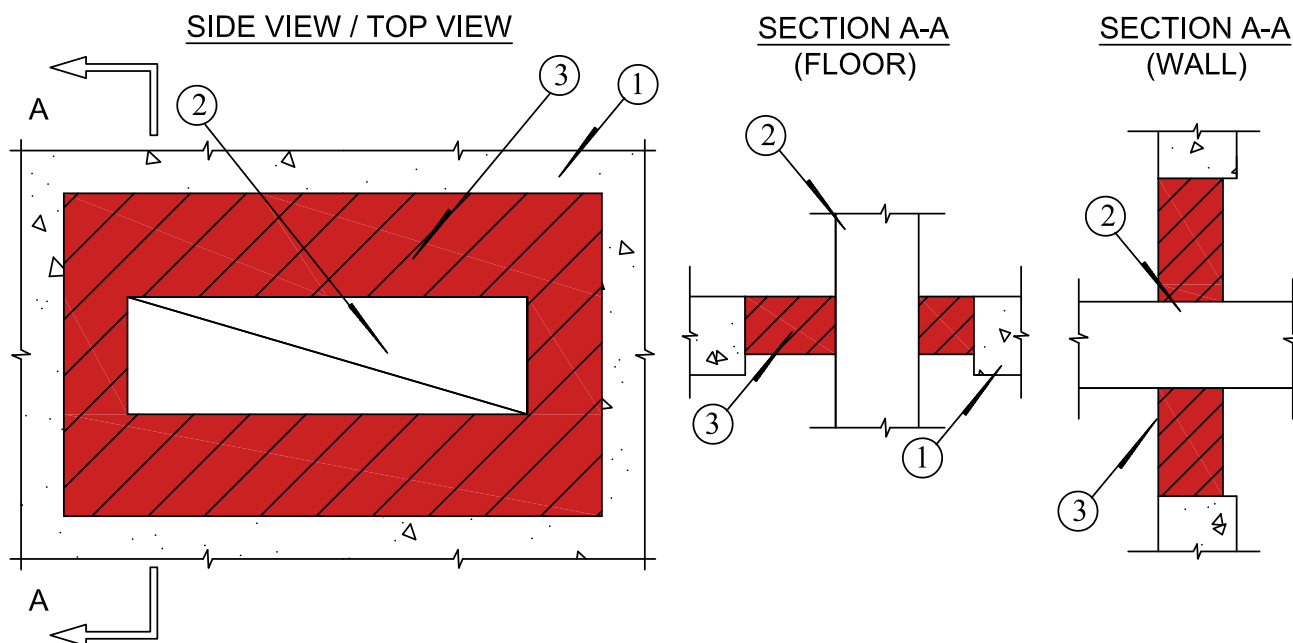
Drawing No.
 EM-ADT01

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DAMPER PENETRATION DETAIL (2 OF 2)

FIRE RESISTANCE RATING: UP TO -/255/-
 PRODUCT USED: CP 636 FIRESTOP MORTAR
 REFERENCE: BRE No. TE200637 & No. TE200638

BS 476-20
 EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY (240/240/204 F.R.R.):
 A. CONCRETE WALL OR FIRE-RATED BLOCKWALL (MIN. 150mm THICKNESS).
 B. CONCRETE FLOOR (MIN. 150mm THICKNESS).
2. OVERALL 550mm x 570mm METAL AIRDUCT. (OR EQUIVALENT AREA - SEE NOTES 2)
3. MINIMUM 90mm THICK **CP636 FIRESTOP MORTAR** FULLY FILLED ACROSS THE ANNULAR SPACE BETWEEN THE AIRDUCT AND THE CONCRETE WALL/FLOOR.

NOTES :

1. MAXIMUM SIZE OF OPENING (WALL) = 700mm x 700mm. (OR EQUIVALENT AREA)
 (FLOOR) = 800mm x 800mm. (OR EQUIVALENT AREA)
2. FOR FLOOR APPLICATION, THE NOMINAL SIZE OF AIRDUCT CAN BE 650mm x 670mm OR EQUIVALENT AREA.
3. FORMWORK CAN BE ANY RIGID SHEET MATERIAL CUT TO FIT THE CONTOUR OF THE AIRDUCT AND PREVENT LEAKAGE OF **CP636 FIRESTOP MORTAR** DURING INSTALLATION.
4. THE INTERNAL OF THE AIRDUCT IS FIRE-PROTECTED BY FIRE SHUTTER OR DAMPER INDEPENDENTLY.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
 FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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 EM-ADT02

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CABLE TRAY PENETRATION DETAIL (1 OF 2)

FIRE RESISTANCE RATING : UP TO -/240/86 (SEE NOTES 2)

PRODUCT USED :

CP636 FIRESTOP MORTAR

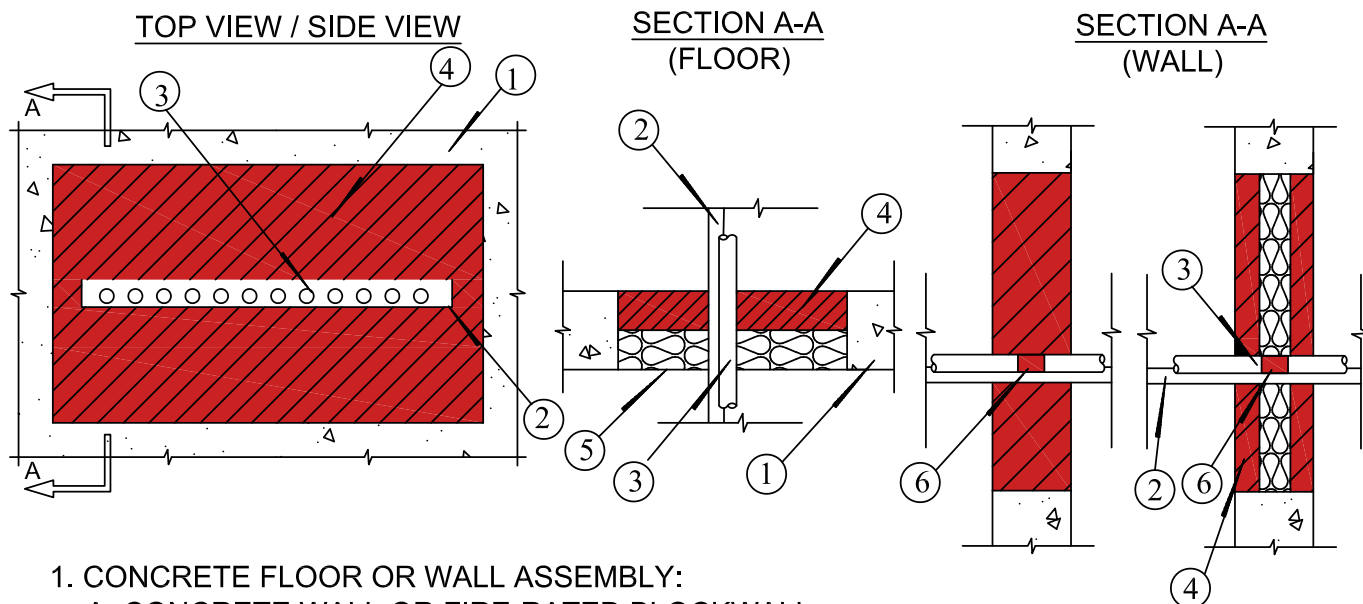
CP611A INTUMESCENT FIRESTOP MASTIC

REFERENCE:

WARRES No. 62305/A -/B -/C & No. 101728 & No. 62320

RED_R13C05

BS 476-20
EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY:
A. CONCRETE WALL OR FIRE-RATED BLOCKWALL.
B. CONCRETE FLOOR.
2. METAL CABLE TRAY(S).
3. ELECTRIC CABLE(S).
4. SEE TABLE BELOW FOR SIZE OF OPENING AND APPLICATION THICKNESS OF MINERAL WOOL AND CP636 FIRESTOP MORTAR.
5. MINERAL WOOL. (MIN 160kg/m³ DENSITY)
6. CP611A INTUMESCENT FIRESTOP MASTIC

	MAX. SIZE OF OPENING FOR F.R.R. -/120/-	MAX. SIZE OF OPENING FOR F.R.R. -/240/-
WALL CASE	1200mm x 2000mm. (MIN. WALL THICKNESS = 150mm) FULL FILLED OR AT LEAST 150mm WITH CP636 FIRESTOP MORTAR	600mm x 600mm. (MIN. WALL THICKNESS = 120mm) USE 50mm THICK MINERAL WOOL (MIN. 160kg/m ³ DENSITY AS BACKING MATERIAL AND FILL WITH 35mm THICK CP636 FIRESTOP MORTAR ON BOTH SIDES OF THE MINERAL WOOL OR FULLY FILLED OR AT LEAST WITH 100mm CP636 FIRESTOP MORTAR AND COAT WITH 0.5mm THICK CP611A INTUMESCENT FIRESTOP MASTIC AROUND THE CABLE OVER A DISTANCE OF 30mm LENGTH AT THE MIDDLE OF THE PENETRATION
FLOOR CASE	1000mm x 600mm. (MIN. FLOOR THICKNESS = 150mm) FILLED WITH 150mm CP636 FIRESTOP MORTAR	600mm x 600mm. USE CP636 FIRESTOP MORTAR WITH 75mm THICK MINERAL WOOL OF 50mm AND 160kg/m ³ DENSITY AS BACKING FORMWORK

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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CABLE TRAY PENETRATION DETAIL (2 OF 2)

FIRE RESISTANCE RATING: UP TO -/240/-

PRODUCT USED:

CP 670 FIRE SAFETY COATING

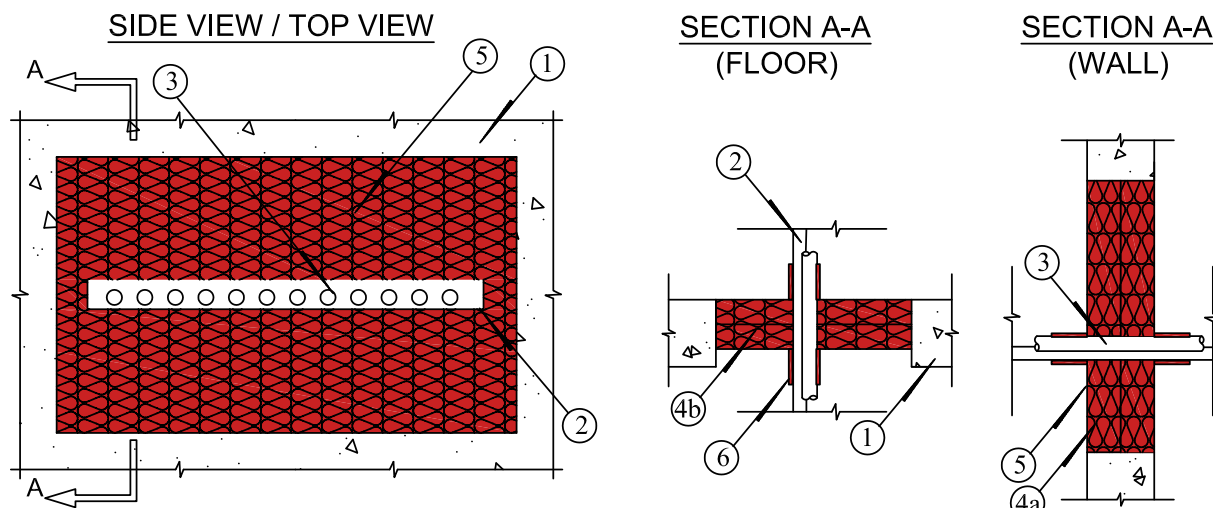
CP 606 FLEXIBLE FIRESTOP SEALANT

REFERENCE:

WFRC No. C128593 & WF No. 175555 (ISSUE 2) &

RED_R10C05 & PAVUS_No. Pr-03-02.086 & WFRC No. 140440

BS 476-20
EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY:
A. CONCRETE WALL OR FIRE-RATED BLOCKWALL.
B. CONCRETE FLOOR.
2. METAL CABLE TRAY(S).
3. ELECTRIC CABLE(S).
4. DOUBLE LAYERED (50mm THICKNESS EACH) MINERAL WOOL BOARD (MIN. 160kg/m³ DENSITY)
5. MIN. 0.7mm (DRY) THICKNESS **CP670 FIRE SAFETY COATING** APPLIED ON BOTH SIDES OF THE MINERAL WOOL BOARD.
6. MIN. 150mm COAT BACK OF **CP670 FIRE SAFETY COATING** APPLIED ON BOTH SIDES OF THE CABLE AND CABLE TRAY PENETRATION.
7. FOR FLOOR APPLICATION OF SPAN OVER 2m, INTERMEDIATE SUPPORT(S) UNDER **CP670 FIRE SAFETY COATING** AT MAXIMUM INTERVAL OF 2m SHOULD BE PROVIDED BY CONTRACTOR.

	MAX. SIZE OF OPENING FOR F.R.R. -/120/-	MAX. SIZE OF OPENING FOR F.R.R. -/240/-
WALL CASE	1000mm x 2000mm. (OR EQUIVALENT AREA) 2 LAYERED MINERAL WOOL BOARD (160kg/m ³ DENSITY) REQUIRED	600mm x 1200mm. (OR EQUIVALENT AREA) 2 LAYERED MINERAL WOOL BOARD REQUIRED
FLOOR CASE	1000mm x 2000mm. (OR EQUIVALENT AREA) 2 LAYERED MINERAL WOOL BOARD REQUIRED FOR APPLICATION OF SPAN OVER 2m, INTERMEDIATE SUPPORT(S) UNDER CP670 AT MAXIMUM INTERVAL OF 2m SHOULD BE PROVIDED BY CONTRACTOR.	

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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Drawing No.
EM-CBT02

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CABLE / CABLE BUNDLE PENETRATION DETAIL (1 OF 4)

FIRE RESISTANCE RATING: UP TO -/240/240

PRODUCT USED:

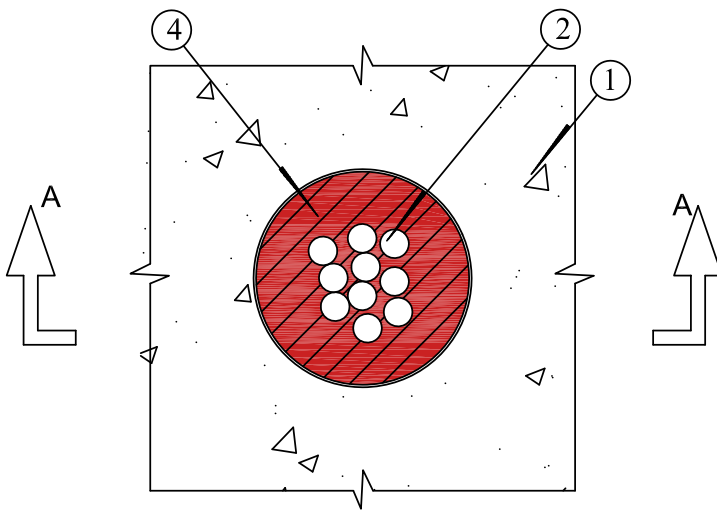
CP611A INTUMESCENT FIRESTOP MASTIC

REFERENCE:

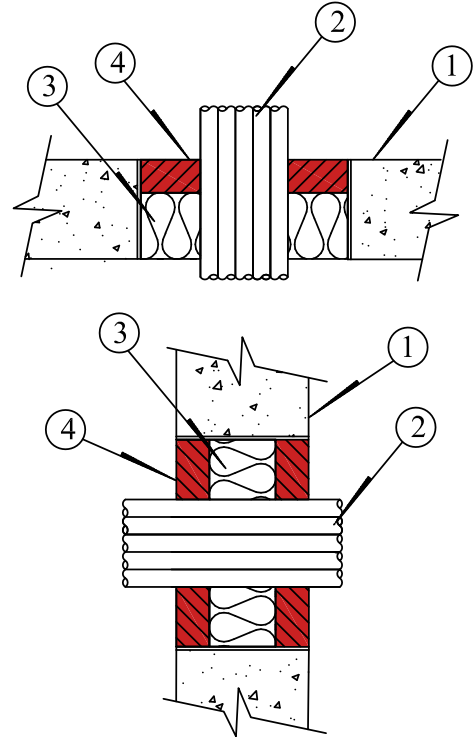
WARRES No. 101728, No. 57312/A & WFRC No. C119076

BS 476-20
EN 1366-3

ELEVATION



SECTION A-A



1. CONCRETE FLOOR OR WALL ASSEMBLY:
A. CONCRETE WALL OR FIRE-RATED BLOCKWALL.
B. CONCRETE FLOOR.
2. CABLE / CABLE BUNDLE. (SEE NOTES 2)
3. MINERAL WOOL (MINIMUM 60kg/m³) TIGHTLY PACKED AS BACKING MATERIAL.
4. (FLOOR) MINIMUM 40mm THICKNESS **CP611A INTUMESCENT FIRESTOP MASTIC**.
(WALL) MINIMUM 30mm THICKNESS **CP611A INTUMESCENT FIRESTOP MASTIC**
APPLIED ON BOTH SIDES OF A WALL ASSEMBLY.

NOTES :

1. MAXIMUM DIAMETER OF OPENING = 67mm (WALL)
= 160mm (FLOOR)
2. CABLES TO FILL MAXIMUM 60% OF CROSS-SECTIONAL AREA OF OPENING.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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CABLE / uPVC PENETRATION DETAIL - DRY WALL(2 OF 4)

FIRE RESISTANCE RATING: UP TO -/120/120

PRODUCT USED:

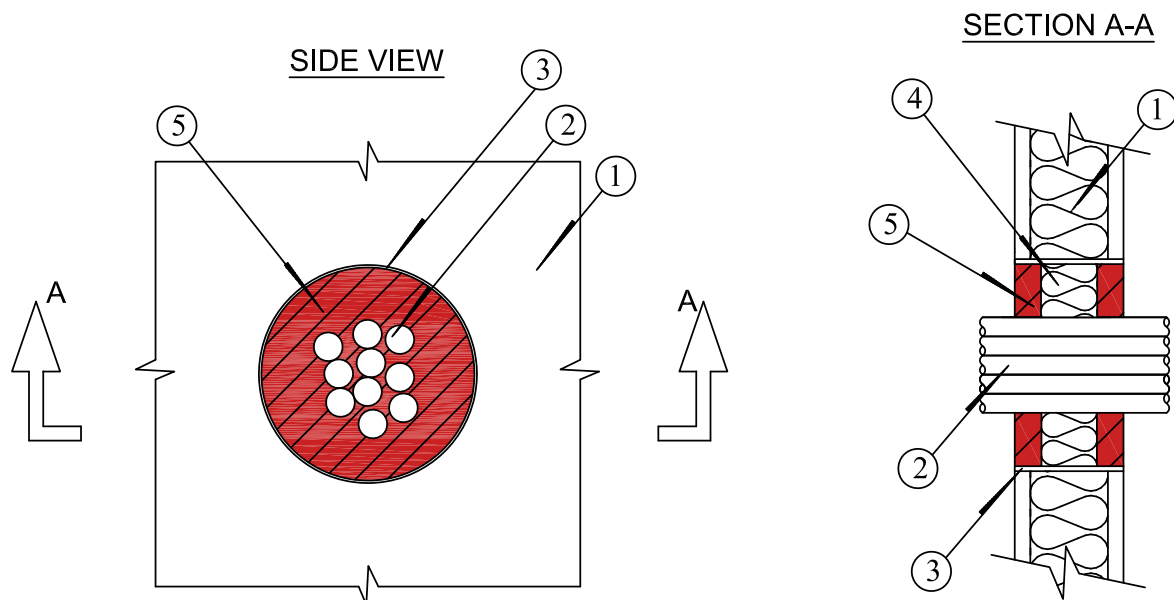
CFS-IS INTUMESCENT FIRESTOP MASTIC

REFERENCE:

ETA 10/0406

BS 476-20

EN 1366-3



1. DRYWALL ASSEMBLY.
2. CABLE / uPVC. (SEE NOTES 2).
3. METAL SLEEVE (OPTIONAL).
4. MINERAL WOOL (MINIMUM 60kg/m³) TIGHTLY PACKED AS BACKING MATERIAL ≥50mm.
5. (WITH MINERAL WOOL) MINIMUM 30mm THICKNESS **CFS-IS INTUMESCENT FIRESTOP MASTIC** APPLIED ON BOTH SIDES OF A WALL ASSEMBLY.

NOTES :

1. MAXIMUM DIAMETER OF OPENING = 150mm .
2. MAXIMUM DIAMETER OF TIE CABLE BUNDLES = 100mm.
3. MAXIMUM DIAMETER OF PLASTIC CONDUITS = 32mm.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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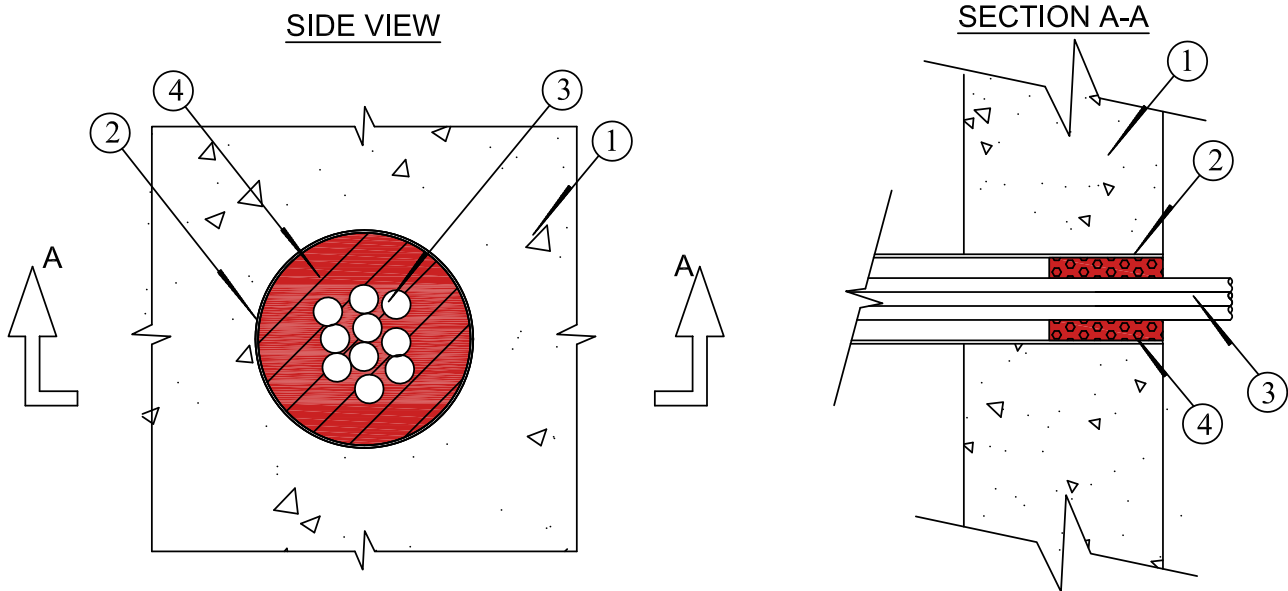
Drawing No.
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UNDERGROUND CABLE DUCT PENETRATION DETAIL (3 OF 4)

FIRE RESISTANCE RATING: UP TO -/151/151
 PRODUCT USED: CP620 EXPANDING FIRESTOP FOAM
 REFERENCE: CC 205445C

BS 476-20
 EN 1366-3



1. CONCRETE WALL ASSEMBLY (-/120/- F.R.R.):
 - CONCRETE WALL.
2. UNDERGROUND CABLE DUCT.
3. CABLE / CABLE BUNDLE(S). (SEE NOTES 2)
4. MINIMUM 145mm THICKNESS **CP620 EXPANDING FIRESTOP FOAM** TO BE PLACED INSIDE THE CABLE DUCT AND FLUSH WITH EITHER SIDE OF THE WALL ASSEMBLY.

NOTES :

1. MAXIMUM DIAMETER OF OPENING = 440mm.
2. CABLES TO FILL MAXIMUM 60% OF CROSS-SECTIONAL AREA OF OPENING.
3. FUNCTIONS OF THE DUCT SEALING:
 - FOR DUCT ENTRIES TO BUILDINGS TO FORM GAS, WATER AND FIRE BARRIER.
 - FOR DUCT ENTRIES TO MANHOLES/DRAWPITS TO FORM GAS AND WATER BARRIER.
 - FOR ATC PITS, EMERGENCY TELEPHONE PIT AND ROAD LIGHTING PLINTH TO PREVENT GAS INGRESS.
4. GAS TIGHTNESS TEST & WATER TIGHTNESS TEST REPORTS ARE AVAILABLE ON SEPARATE SUBMISSION UPON REQUEST.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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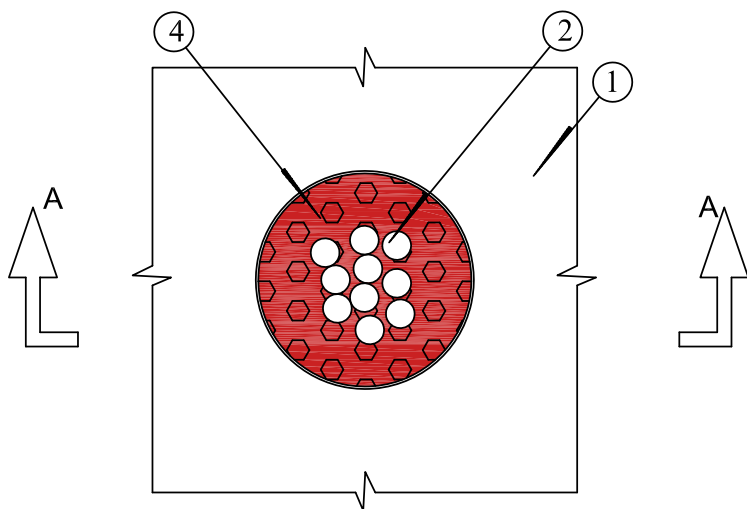
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CABLE / uPVC PENETRATION DETAIL (4 OF 4)

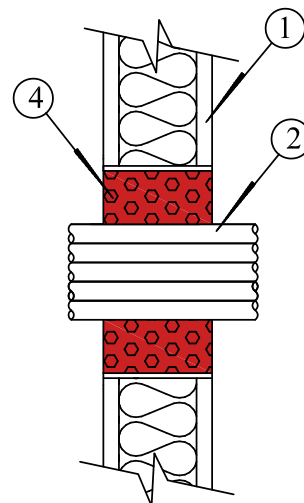
FIRE RESISTANCE RATING: UP TO -/120/120
 PRODUCT USED: CP620 FIRESTOP FOAM
 REFERENCE: BRE TE203650

BS 476-20
 EN 1366-3

ELEVATION



SECTION A-A



1. DRYWALL ASSEMBLY.
2. CABLE / uPVC. (SEE NOTES 2)
3. METAL SLEEVE (OPTIONAL)
4. MINIMUM 145mm THICK **CP620 FIRESTOP FOAM**

NOTES :

1. MAXIMUM DIAMETER OF WALL OPENING = 400mm x 400mm
2. CABLES TO FILL MAXIMUM 60% OF CROSS-SECTIONAL AREA OF OPENING.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
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TRUNKING PENETRATION DETAILS

FIRE RESISTANCE RATING: UP TO -/120/120

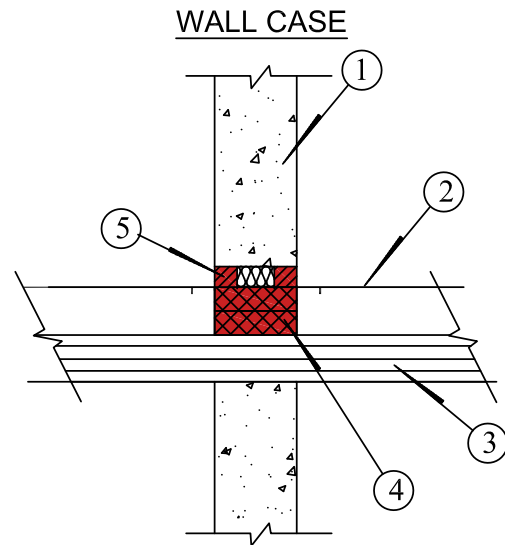
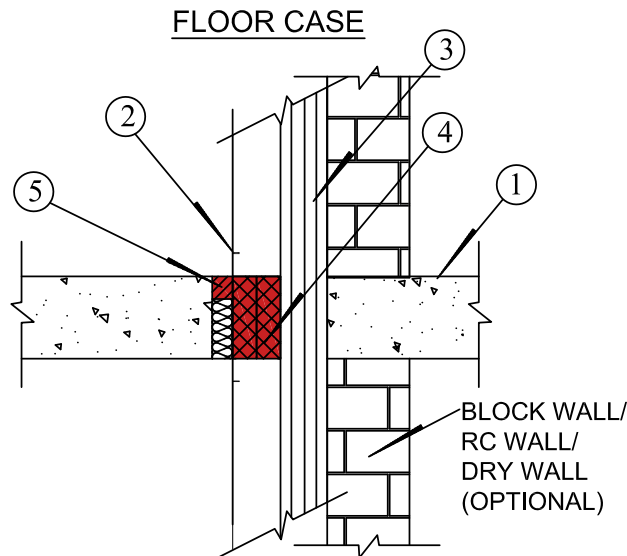
PRODUCT USED:

CFS-BL INTUMESCENT FIRESTOP BRICK,
CFS-F FX FLEXIBLE FIRESTOP FOAM,
CP606 FLEXIBLE FIRESTOP SEALANT,
CP670 FIRE SAFETY COATING

REFERENCE:

WFRC No. C102134, C102135 & WARRES 69754/C
ETA 10/0109

BS 476-20
EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY.
2. NOMINAL 200mm X 200mm METAL TRUNKING.
3. AGGREGATE CROSS-SECTIONAL AREA OF CABLE INSIDE TRUNKING TO BE **MAXIMUM 60% OF THE CROSS-SECTIONAL AREA OF THE TRUNKING.**
4. **CFS-BL INTUMESCENT FIRESTOP BLOCK OR CFS-F FX FLEXIBLE FIRESTOP FOAM** INSTALLED WITH 200mm (100 mm FOR FOAM) DIMENSION PROJECTING THROUGH OPENING, FLUSH WITH THE TOP SURFACE OF FLOOR OR EITHER SURFACE OF WALL. BLOCKS OR FOAM TO COMPLETELY FILL THE REMAINING AREA OF THE TRUNKING.
5. FOR ANNULAR SPACE $\leq 30\text{mm}$, FILL THE VOID UP BY MINERAL WOOL WITH MINIMUM 15mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT** ON THE TOP SIDE OF THE FLOOR ASSEMBLY. OTHERWISE, VOIDS TO BE FILLED UP BY **CP670 FIRE SAFETY COATING** (SEE NOTES 1).

NOTES :

1. MINIMUM 15mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT** ON BOTH SIDES OF THE WALL ASSEMBLY.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
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BUS BAR PENETRATION DETAIL

FIRE RESISTANCE RATING: UP TO -/240/23

EN 60439-2

PRODUCT USED:

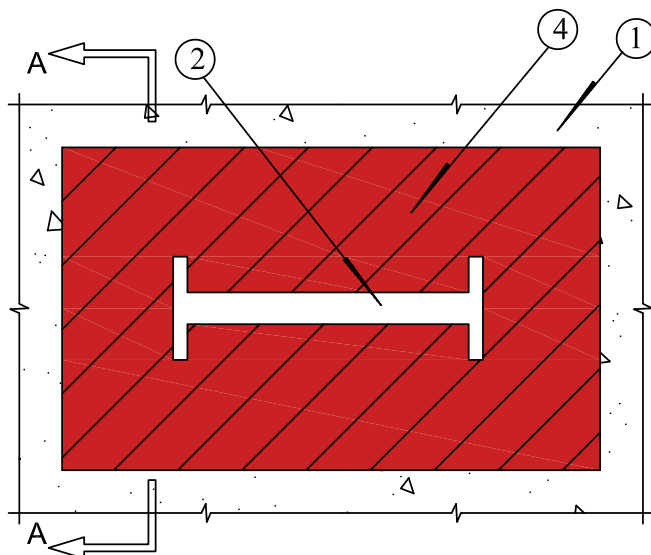
CP 670 FIRE SAFETY COATING

CP 606 FLEXIBLE FIRESTOP SEALANT

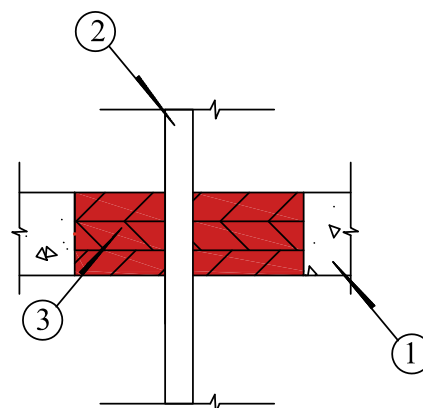
REFERENCE:

BRE NO. 239979A

SIDE VIEW / TOP VIEW



SECTION A-A
(FLOOR)



1. CONCRETE FLOOR OR WALL ASSEMBLY:
A. CONCRETE WALL OR FIRE-RATED BLOCKWALL.
B. CONCRETE FLOOR.
2. BUS BAR
3. 3 LAYERS MINERAL WOOL BOARD (50mm EACH) COATED WITH 1mm CP670 FIRE SAFETY COATING
4. MINIMUM 0.7mm (DRY) THICK **CP670 FIRE SAFETY COATING** APPLIED ON BOTH SIDES OF THE MINERAL WOOL BOARD.

NOTES :

1. MAXIMUM SIZE OF OPENING = 390mm x 390mm. (OR EQUIVALENT AREA)
2. GAPS BETWEEN MINERAL WOOL BOARD AND CONCRETE SURFACE /METAL SLEEVES TO BE FULLY FILLED BY **CP 606 FLEXIBLE FIRESTOP SEALANT**.
3. THE JUNCTION BETWEEN THE APERTURE IN THE COATED BOARD AND THE AIRDUCT TO BE SEALED WITH **CP 606 FLEXIBLE FIRESTOP SEALANT**.
4. FOR FLOOR APPLICATION OF SPAN OVER 2m, INTERMEDIATE SUPPORT(S) UNDER CP670 AT MAXIMUM INTERVAL OF 2m SHOULD BE PROVIDED BY CONTRACTOR.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
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MULTIPLE PENETRATION APPLICATION DETAIL

FIRE RESISTANCE RATING: UP TO -/264/209

PRODUCT USED:

CP 670 FIRE SAFETY COATING

CP 606 FLEXIBLE FIRESTOP SEALANT

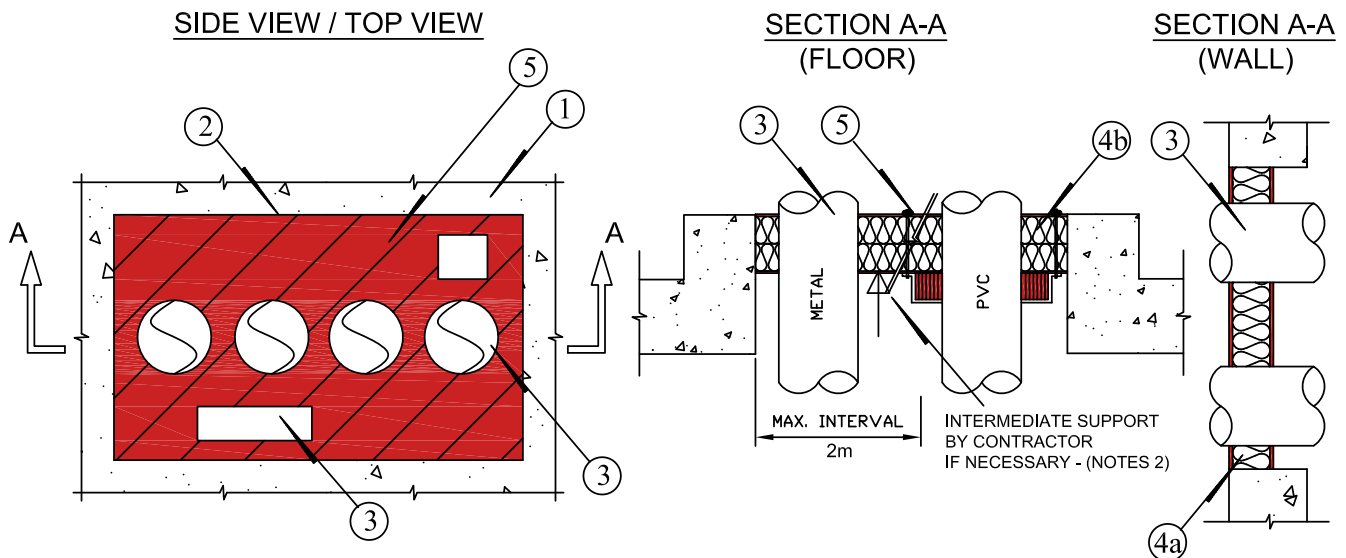
REFERENCE:

WFRC No. C128593, C130025, C129497

WF No. 175555 (ISSUE 2) & RED_R10C06

PAVUS No. PR-03--2.086

BS 476-20
EN 1366-3



1. CONCRETE FLOOR OR WALL ASSEMBLY (240/240/240 F.R.R.):
A. CONCRETE WALL OR FIRE-RATED BLOCKWALL (MIN. 100mm THICKNESS).
B. CONCRETE FLOOR (MIN. 150mm THICKNESS).
2. MARKING OUT OPENING ZONE. (SEE NOTES 1)
3. PENETRATING ITEM(S) TO BE ONE OR SEVERAL OF THE FOLLOWING:
- COPPER PIPES, STEEL PIPES, STEEL TRUNKING, CABLE TRAYS & PVC-U PIPES
4. (a) SINGLE LAYERED (50mm THICKNESS) MINERAL WOOL BOARD (MIN. 160kg/m³ DENSITY)
(b) DOUBLE LAYERED (50mm THICKNESS EACH) MINERAL WOOL BOARD (MIN. 160kg/m³ DENSITY)
5. MINIMUM 0.7mm (DRY) THICKNESS **CP670 FIRE SAFETY COATING** APPLIED ON BOTH SIDES OF THE MINERAL WOOL BOARD.

NOTES :

1. MAXIMUM SIZE OF OPENING (WALL) = 2400mm x 5000mm. (OR EQUIVALENT AREA)
(FLOOR) = 1300mm x 5000mm. (OR EQUIVALENT AREA)
2. FOR FLOOR APPLICATION OF SPAN OVER 2m, INTERMEDIATE SUPPORT(S) UNDER **CP670 FIRE SAFETY COATING** AT MAXIMUM INTERVAL OF 2m SHOULD BE PROVIDED BY CONTRACTOR.
3. GAPS BETWEEN MINERAL WOOL BOARD AND CONCRETE/METAL SLEEVES TO BE FULLY FILLED BY **CP 606 FLEXIBLE FIRESTOP SEALANT**.
4. FIRESTOP JOINTS INSIDE THE METAL SLEEVES TO BE CONSIDERED SEPERATELY.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
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SUNKEN PLUMBING PIPE THROUGH DUCTING ROOM

FIRE RESISTANCE RATING : UP TO -/120/-

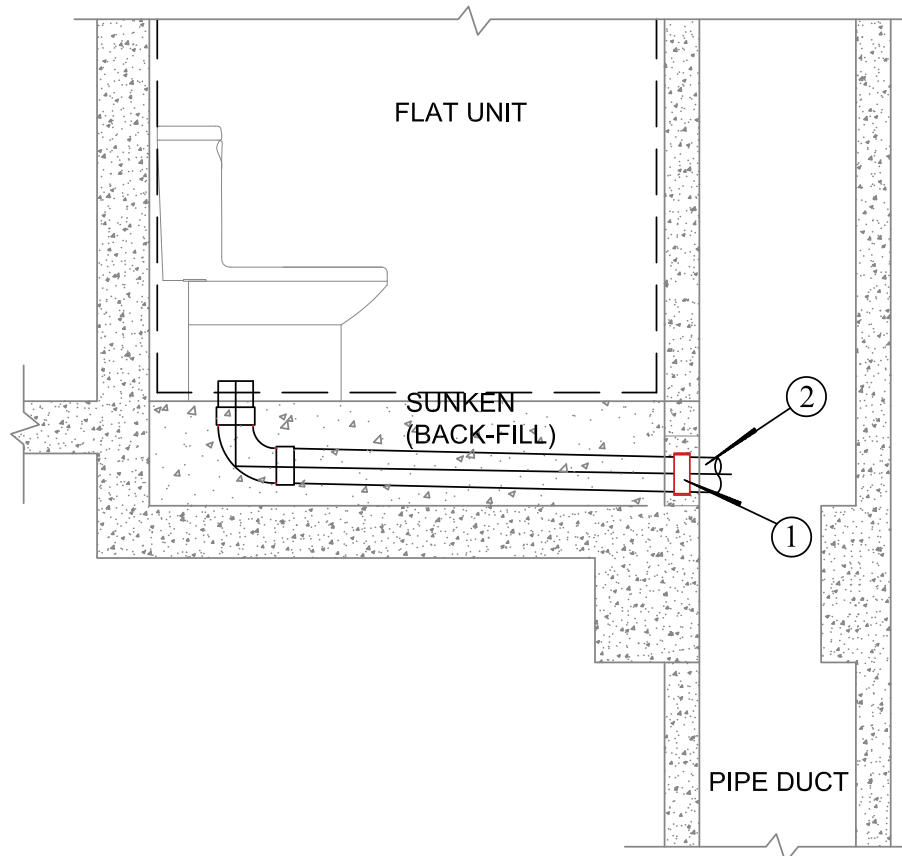
PRODUCT USED :

CP648-E INTUMESCENT PIPE WRAP

REFERENCE:

R16F36-1A

BS 476-20



1. **CP648-E INTUMESCENT PIPE WRAP**
2. PENETRATING ITEM (SEE NOTES)

NOTES :

1. FOR UPVC PIPE WITH 100mm DIAMETER, TWO LAYERS OF **CP648-E** ARE USED.
2. FOR UPVC PIPE WITH 50mm DIAMETER, ONE LAYERS OF **CP648-E** IS USED.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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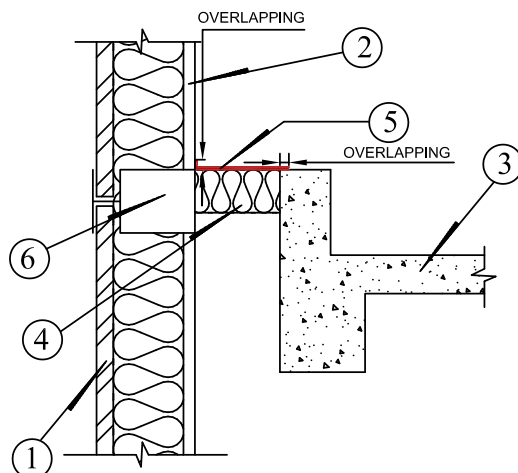
HORIZONTAL CURTAIN WALL JOINT DETAIL

FIRE RESISTANCE PERIOD: UP TO -/165/144

PRODUCT USED: CFS-SP WB FIRESTOP JOINT SPRAY

REFERENCE: EFECTIS No. 08-E-294 Indice A, RED_R16G23-1A, RED_R16E18-1A

EN 1364-3
EN 1364-4
EN12101-1



1. SPANDREL GLASS AND ALUMINUM MULLION CURTAIN WALL ASSEMBLY (NON FIRE-RATED).
2. BACK PANEL
3. CONCRETE FLOOR / GYPSUM BOARD ASSEMBLY.
4. MINERAL WOOL
 - A. FOR FRR -/120/120, MIN. 135mm THICKNESS MINERAL WOOL (MIN. 60kg/m³ DENSITY) FRICTION FIT TO THE JOINT WITH 25% COMPRESSION, FLUSH WITH THE TOP SURFACE OF CONCRETE EDGE.
 - B. FOR FRR -/120/60, MIN. 100mm THICKNESS MINERAL WOOL (MIN. 60kg/m³ DENSITY) FRICTION FIT TO THE JOINT WITH 25% COMPRESSION, FLUSH WITH THE TOP SURFACE OF CONCRETE EDGE.
5. MINIMUM 3mm (WET) THICKNESS **CFS-SP WB FIRESTOP JOINT SPRAY** TO COMPLETELY COVER MINERAL WOOL AND OVERLAPPING MINIMUM 15mm ONTO CONCRETE FLOOR AND CURTAIN WALL.
6. TRANSOM

NOTES :

1. MAXIMUM WIDTH OF JOINT = 200mm.
2. THIS FIRESTOP SYSTEM FORMS A CONTINUOUSLY SEALED AIR-TIGHT (SMOKE-SEAL) BARRIER BETWEEN THE BUILDING STRUCTURE AND THE FACADE TO SEPARATE ADJACENT FLOORS COMPARTMENTS.
3. THE MINERAL WOOL IS INSTALLED WITH COMPRESSION IN THE WAY THAT IT SHALL REMAIN EFFECTIVE THROUGHOUT ALL BUILDING MOVEMENTS AND MOVEMENTS IN EVENT OF A FIRE.
4. (OPTIONAL) ADDITIONAL SUPPORT UNDERNEATH THE MINERAL WOOL BY L-CLIP OR CONTINUOUS METAL TRAY TO BE DESIGNED SEPARATELY BY CONTRACTORS.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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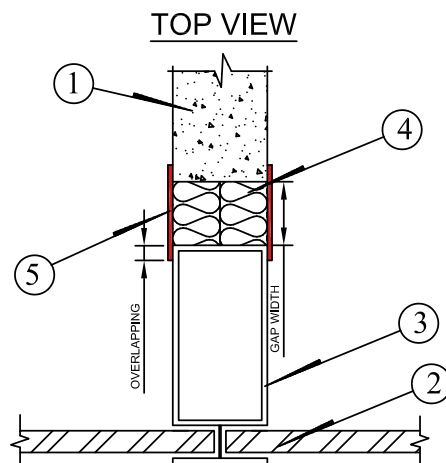
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VERTICAL CURTAIN WALL JOINT DETAIL

FIRE RESISTANCE PERIOD: UP TO -/120/120
PRODUCT USED: CFS-SP WB FIRESTOP JOINT SPRAY
REFERENCE: RED_R16J25-1A & RED_R16G23_1A

EN 1364-3
EN12101-1



1. BLOCK / CONCRETE WALL
2. GLASS / PANEL / STONE
3. METAL MULLION
4. MINERAL WOOL.
5. MINIMUM 3mm (WET) THICKNESS **CFS-SP WB FIRESTOP JOINT SPRAY** TO COMPLETELY COVER MINERAL WOOL AND OVERLAPPING MINIMUM 15mm ONTO CONCRETE WALL AND METAL MULLION.

NOTES :

1. MAXIMUM GAP WIDTH = 150mm.
2. THIS FIRESTOP SYSTEM FORMS A CONTINUOUSLY SEALED AIR-TIGHT (SMOKE-SEAL) BARRIER BETWEEN THE BUILDING STRUCTURE AND THE FACADE TO SEPARATE ADJACENT ROOM COMPARTMENTS.
3. THE MINERAL WOOL IS INSTALLED WITH COMPRESSION IN THE WAY THAT IT SHALL REMAIN EFFECTIVE THROUGHOUT ALL BUILDING MOVEMENTS AND MOVEMENTS IN EVENT OF A FIRE.

FRR -/120/60	FRR -/120/120
WALL THICKNESS \geq 100mm, MIN. 60kg/m ³ DENSITY	WALL THICKNESS \geq 120mm, MIN. 80kg/m ³ DENSITY
	120mm > WALL THICKNESS \geq 100mm, MIN. 100kg/m ³ DENSITY

* NOMINAL DENSITY COULD BE ACHIEVED BY LOWER DENSITY WITH COMPRESSION

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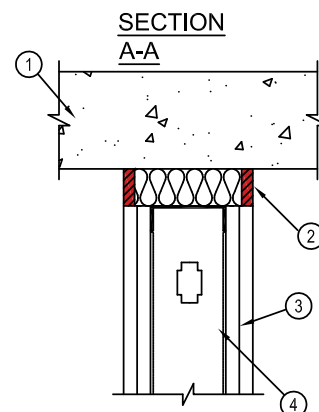
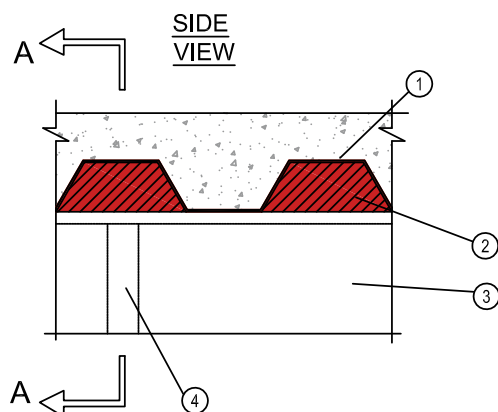
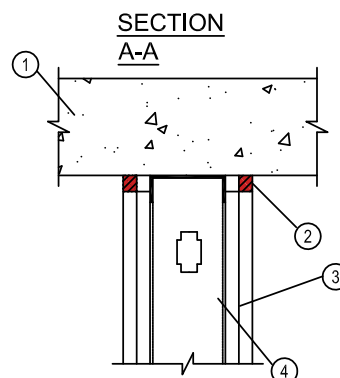
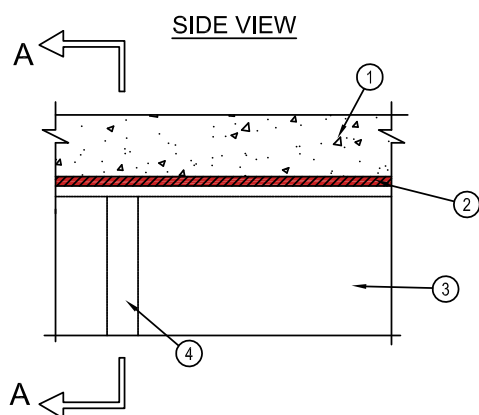
DRYWALL JOINT APPLICATION DETAIL

FIRE RESISTANCE RATING: UP TO -/136/136

PRODUCT USED: CP606 FLEXIBLE FIRESTOP SEALANT

REFERENCE: WARRES No. 71151A

BS 476-20
EN1366-4



1. CONCRETE FLOOR ASSEMBLY (120/120/120 F.R.R.)
2. MINIMUM 10mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT**, WITH 100 kg/m³ DENSITY MINERAL WOOL AS BACKING MATERIAL.
3. GYPSUM BOARD WALL OF DRYWALL ASSEMBLY (-/120/120 F.R.R.)
4. CEILING RUNNER AND STEEL STUDS FASTENED TO UNDERSIDE OF CONCRETE FLOOR.

NOTES :

1. MAXIMUM WIDTH PF JOINT (COMPOSITE SLAB CASE) = 65mm.
2. FIRE-RATING OF THE SYSTEM IS ONLY AS GOOD AS PERFORMANCE OF DRYWALL ASSEMBLY UNDER FIRE CONDITIONS.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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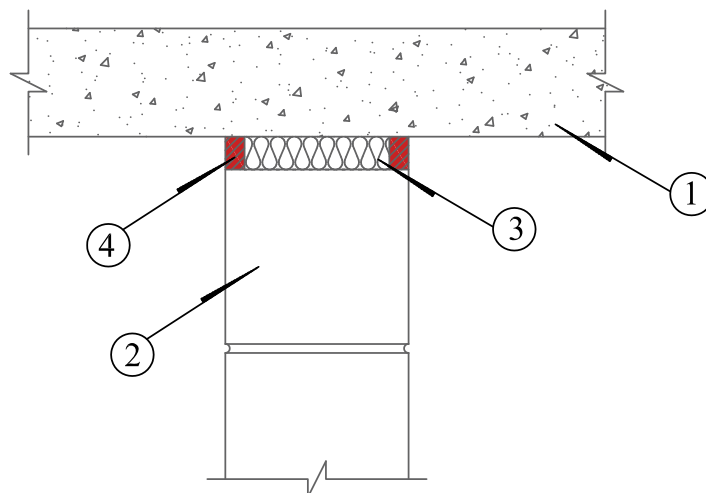
TOP OF WALL JOINT APPLICATION DETAIL (1 OF 2)

FIRE RESISTANCE RATING : UP TO -/242/242

PRODUCT USED : CP601S ELASTIC FIRESTOP SEALANT

REFERENCE TEST REPORTS: WFR No. 143653 & WFR No. 71151/B
WFR No. 168400 & RED_R15H05

BS 476-20
EN1366-4



1. CONCRETE FLOOR ASSEMBLY (240/240/240 F.R.R.)
2. CONCRETE WALL OR FIRE-RATED BLOCK WALL (240/240/240 F.R.R.)
3. MIN. 100kg/m³ DENSITY MINERAL WOOL FULLY FILLED ACROSS AS BACKING.
4. (JOINT WIDTH ≤ 15mm) MIN. 6mm DEPTH **CP601S ELASTIC FIRESTOP SEALANT**, FLUSH WITH BOTH SIDES OF THE WALL SURFACE.
(JOINT WIDTH ≤ 100mm) MIN. 15MM DEPTH **CP601S ELASTIC FIRESTOP SEALANT**, FLUSH WITH BOTH SIDES OF THE WALL SURFACE.

NOTES:

1. MAXIMUM JOINT WIDTH = 100mm.
2. THIS SYSTEM IS APPLICABLE TO BOTH INDOOR OR OUTDOOR APPLICATION.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
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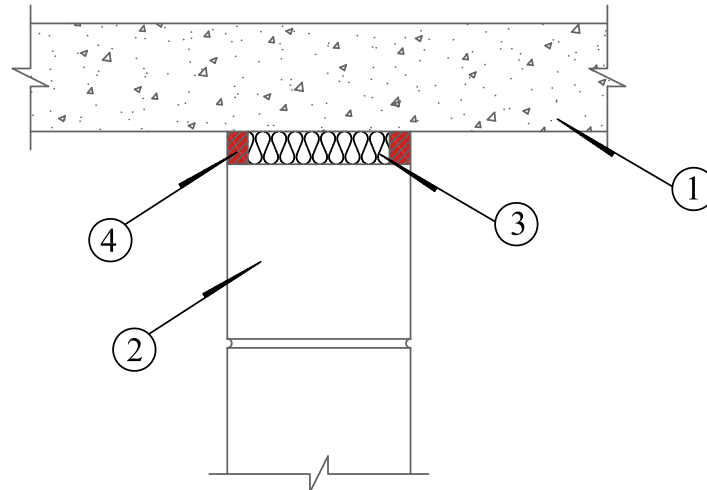
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TOP OF WALL JOINT APPLICATION DETAIL (2 OF 2)

FIRE RESISTANCE RATING: UP TO -/242/242
 PRODUCT USED: CP606 FLEXIBLE FIRESTOP SEALANT
 REFERENCE: WARRES No. 69754/C & WFRS No. 141323
 WFRS No. 168400

BS 476-20
 EN1366-4



1. CONCRETE FLOOR ASSEMBLY (240/240/240 F.R.R.)
2. CONCRETE WALL OR FIRE-RATED BLOCK WALL (240/240/240 F.R.R.)
3. MIN. 100kg/m³ DENSITY MINERAL WOOL FULLY FILLED ACROSS AS BACKING. SEE NOTES 2 BELOW FOR DIFFERENT BACKING MATERIAL.
4. (JOINT WIDTH ≤ 15mm) MIN. 6mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT**, FLUSH WITH BOTH SIDES OF THE WALL SURFACE.
 (JOINT WIDTH ≤ 30mm) MIN. 15mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT**, FLUSH WITH BOTH SIDES OF THE WALL SURFACE.

NOTES:

1. MAXIMUM JOINT WIDTH = 30mm.
2. INTEGRITY & INSULATION PERFORMANCE SUMMARIZED AS BELOW:

JOINT WIDTH	SEALANT DEPTH	BACKING MATERIAL	INTEGRITY	INSULATION
≤15mm	6mm	MINERAL WOOL	240	240
≤30mm	15mm	MINERAL WOOL	240	180
≤15mm	6mm	CF 125-50 FOAM	120	60
≤30mm	15mm	CF 125-50 FOAM	240	120
≤15mm	6mm	RE ROD	120	60
≤30mm	15mm	RE ROD	240	120

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



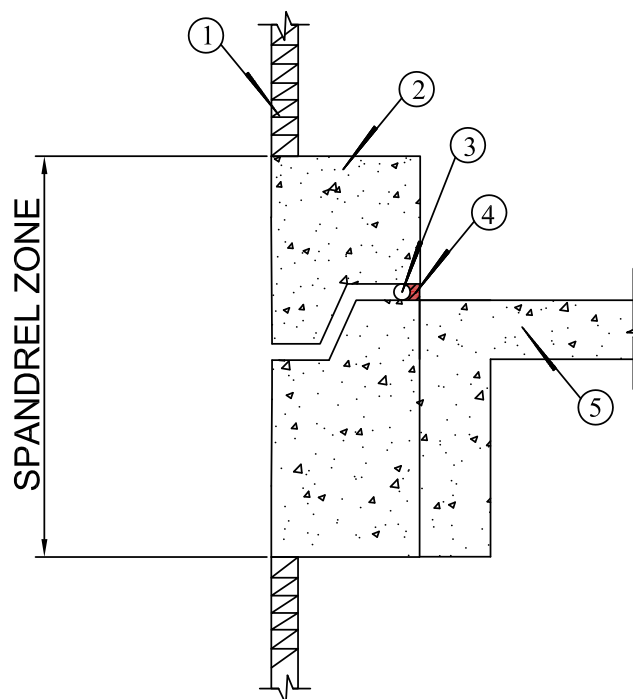
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 AI-TOW02

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FIRE RESISTANCE RATING: UP TO -/240/240
PRODUCT USED: CP601S FLEXIBLE FIRESTOP SEALANT
REFERENCE: WIRC No. 143653 & RED R15C39-1A

BS 476-20
EN 1366-4

1. BAY WINDOW
2. PRECAST CONCRETE FACADE (MIN. GRADE 45)
3. POLYETHYLENE (PE) BACKING ROD
4. MINIMUM 15mm DEPTH **CP601S ELASTIC FIRESTOP SEALANT**
5. SLAB

1. MAXIMUM JOINT WIDTH = 30mm.
2. THIS SYSTEM IS DESIGNED FOR BOTH INTERNAL AND EXTERNAL USE.
3. CAN ONLY BE APPLIED ON ONE SIDE OF THE WALL.
4. MOVEMENT CAPACITY OF 25%



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8228-8118

Sheet	1 OF 1
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Date	1ST JAN, 2017

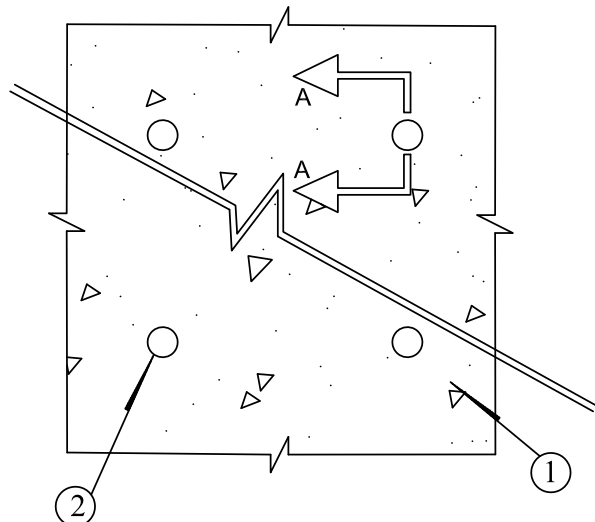
Drawing No.
AI-PFJ01

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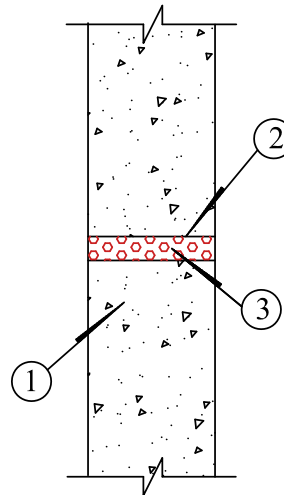
WALL TIE HOLE APPLICATION DETAIL (1 OF 3)

FIRE RESISTANCE RATING: UP TO -/150/137
 PRODUCT USED: CF 125-50 FOAM
 REFERENCE: WFRS No. C125357

BS 476-20
 EN 1366-4



ELEVATION



SECTION A-A

1. CONCRETE WALL ASSEMBLY (-/120/- F.R.R). SEE NOTES 3 BELOW.
2. WALL TIE HOLE.
3. MINIMUM 100mm DEPTH **CF 125-50 FOAM** FULLY FILLED ACROSS THE WALL TIE HOLE.

NOTES :

1. MAXIMUM DIAMETER OF WALL TIE HOLE = 25mm.
2. PLASTIC TUBE INSIDE THE WALL TIE HOLE SHOULD BE REMOVED PRIOR TO THE APPLICATION OF FOAM.
3. FOR 120/120/120 F.R.R. MINIMUM WALL THICKNESS ACCORDING TO "CODE OF PRACTICE FOR FIRE RESISTING CONSTRUCTION 1996" (TABLE A):
 - WITH NOT LESS THAN 1% VERTICAL REINFORCEMENT: 100mm
 - WITH LESS THAN 1% VERTICAL REINFORCEMENT: 160mm

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
 FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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Sheet 1 OF 3
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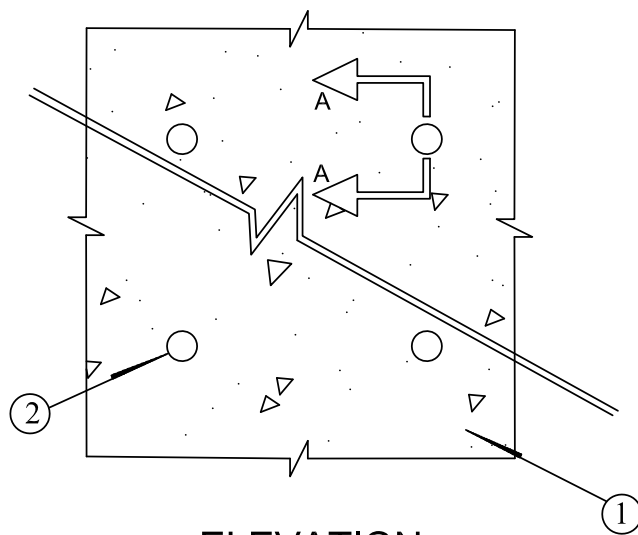
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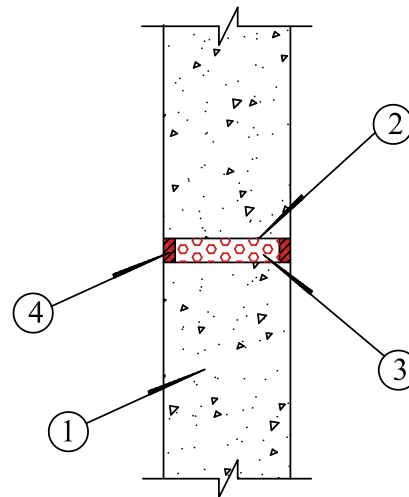
WALL TIE HOLE APPLICATION DETAIL (2 OF 3)

FIRE RESISTANCE RATING: UP TO -/240/240
PRODUCT USED: CP606 FIRESTOP SEALANT, CF 125-50 FOAM
REFERENCE: WFRC No. 141323

BS 476-20
EN 1366-4



ELEVATION



SECTION A-A

1. CONCRETE WALL ASSEMBLY (MIN. 150mm THICKNESS) (240/240/240 F.R.R). SEE NOTES 4 BELOW.
2. WALL TIE HOLE.
3. CF 125-50 FOAM FULLY FILLED ACROSS THE WALL TIE HOLE.
4. MINIMUM 15mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT**, FLUSH WITH THE CONCRETE WALL SURFACE.

NOTES :

1. MAXIMUM DIAMETER OF WALL TIE HOLE = 30mm.
2. MINIMUM 15mm DEPTH CP606 FLEIBLE FIRESTOP SEALANT IS REQUIRED ON BOTH SIDES OF THE WALL TIE HOLE.
3. PLASTIC TUBE INSIDE THE WALL TIE HOLE SHOULD BE REMOVED PRIOR TO THE APPLICATION OF FOAM.
4. FOR -/240/- F.R.R. MINIMUM WALL THICKNESS ACCORDING TO "CODE OF PRACTICE FOR FIRE RESISTING CONSTRUCTION 1996" (TABLE A):
 - WITH NOT LESS THAN 1% VERTICAL REINFORCEMENT: 180mm
 - WITH LESS THAN 1% VERTICAL REINFORCEMENT: 240mm

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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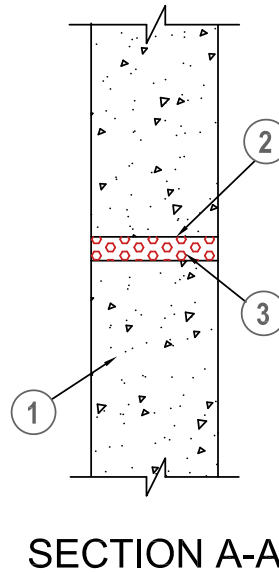
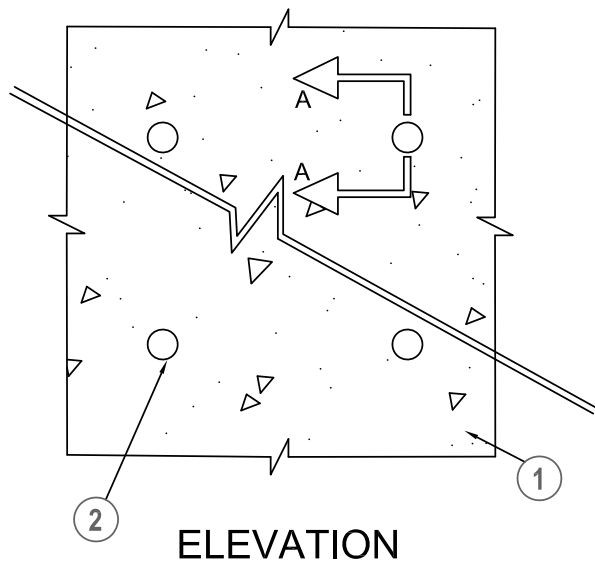
Sheet 2 OF 3
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Drawing No.
AI-WTH02

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WALL TIE HOLE APPLICATION DETAIL (3 OF 3)

FIRE RESISTANCE RATING : (NON FIRE-RATED)
 PRODUCT USED : CF-F 750 FOAM



1. CONCRETE WALL ASSEMBLY (NOMINAL 100mm THICKNESS)
2. WALL TIE HOLE.
3. 100mm DEPTH **CF-F 750 FOAM** FULLY FILLED ACROSS THE WALL TIE HOLE.

NOTES :

1. NOMINAL DIAMETER OF WALL TIE HOLE = 25 - 30mm.
2. WALL THICKNESS AND DIAMETER OF WALL TIE HOLE VARIES DEPENDS ON PROJECT.
3. THIS IS A NON FIRE-RATED DETAIL. FOR FIRE-RATED WALL TIE HOLE SEALING, PLEASE REFER TO AI-WTH01 & AI-WTH02 PLASTIC TUBE INSIDE THE WALL TIE HOLE SHOULD BE REMOVED PRIOR TO THE APPLICATION OF FOAM.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
 FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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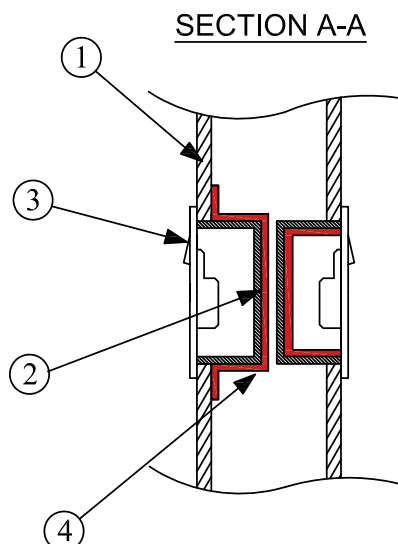
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ELECTRICAL SWITCH / SOCKET BOX DETAIL (1 OF 2)

FIRE RESISTANCE RATING: UP TO -/120/120
PRODUCT USED: CP617 INTUMESCENT ACOUSTIC PUTTY PAD
REFERENCE: WF No. 167801 (ISSUE 4)

EN 1364-1



1. GYPSUM BOARD OR DRYWALL ASSEMBLY.
2. SINGLE OR MULTIPLE OF SWITCH BOX / SOCKET BOX (PLASTIC OR METALLIC).
3. SWITCH / SOCKET FRONT COVER.
4. MINIMUM 3mm **CP617 INTUMESCENT ACOUSTIC PUTTY PAD** TO BE INSTALLED TO COMPLETELY COVER THE EXTERIOR SURFACES OF THE OUTLET BOX AND OVERLAPPING SLIGHTLY TO THE INNER SURFACE OF THE DRYWALL

NOTES :

1. MINIMUM 5mm OVERLAPPING WIDTH FOR CONNECTIONS BETWEEN TWO SEPERATE **CP617 PUTTY PADS**. (IF ANY)
2. RESHAPE **CP617 PUTTY PAD** TO APPROXIMATELY FIT AROUND CONDUIT OR CABLES.
3. CONFIGURATION OF OUTLET BOXES CAN BE: BACK-TO-BACK (ON BOTH SIDES OF THE DRYWALL), STAGGERED OR TO ONE FACE OF THE WALL ONLY.
4. THE LOCATION OF THE OUTLET BOXES CAN BE AT ANY HEIGHT BETWEEN FLOOR AND CEILING LEVEL WITHIN THE WALL CONSTRUCTION.
5. FOR INSTALLATION OF **CP617 PUTTY PAD** PRIOR TO THE FRONT PANEL, LEAVE A BUILT UP LAP ALONG THE EDGE OF OUTLET BOX THAT WILL CREATE A SEAL WHEN THE GYPSUM BOARD IS INSTALLED.
6. FIRE-RATING OF THE SYSTEM IS ONLY AS GOOD AS PERFORMANCE OF DRYWALL ASSEMBLY UNDER FIRE CONDITIONS.
7. ACOUSTIC INSULATION UP TO 64dB - TEST REPORT AVAILABLE UPON REQUEST.
8. FOR BACK TO BACK CASE, MIN. SEPARATION BETWEEN **CP617 PUTTY PAD** = 0mm

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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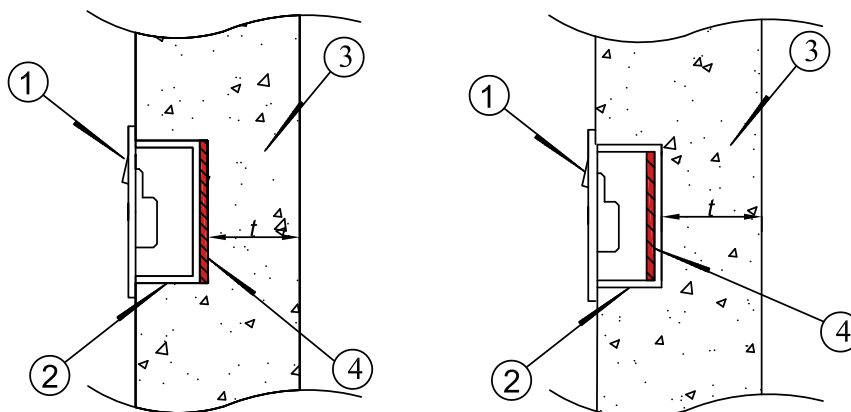
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AI-SKB01

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ELECTRICAL SWITCH / SOCKET BOX DETAIL (2 OF 2)

FIRE RATED PERIOD: UP TO -/66/66
 PRODUCT USED: CP617 INTUMESCENT ACOUSTIC PUTTY PAD
 REFERENCE: RED_No. R13H16_T

BS 476-20



1. SWITCH / SOCKET FRONT COVER
2. SINGLE OR MULTIPLE SWITCH BOX / SOCKET BOX
3. BLOCK WALL / CONCRETE WALL
4. **CP617 INTUMESCENT ACOUSTIC PUTTY PAD**

COP FS 2011 (TABLE E2)

CONSTRUCTION AND MATERIALS	MINIMUM THICKNESS IN MM (EXCLUDING PLASTER) FOR FRR OF		
	240 mins	120 mins	60 mins
REINFORCED CONCRETE: CONTAINING NOT LESS THAN 1 PER CENT OF VERTICAL REINFORCEMENT	180	100	75

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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 AI-SKB02

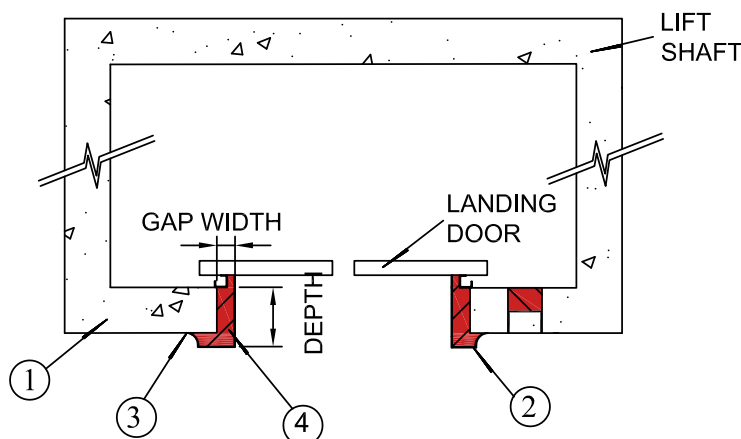
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LIFT DOOR FRAME/SWITCH CONTROL APPLICATION DETAIL

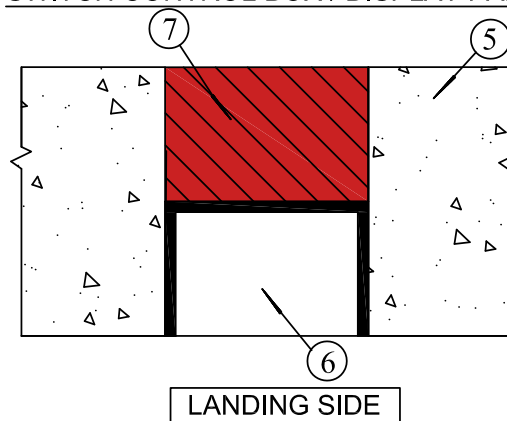
FIRE RESISTANCE RATING: UP TO -/120/120
PRODUCT USED: CP636 FIRESTOP MORTAR
CP670 FIRE SAFETY COATING
REFERENCE: WFRC No. 149581 & WFRC No. C128593

BS 476-20 & 22
EN1366-3

LIFT DOOR FRAME



SWITCH CONTROL BOX / DISPLAY PANEL



LIFT DOOR FRAME

1. CONCRETE WALL ASSEMBLY (120/120/120 F.R.R)
- CONCRETE WALL OR FIRE-RATED BLOCKWALL
2. LIFT DOOR STEEL ARCHITRAVE/TRIM.
3. JOINT SEALANT (SEE NOTE 2).
4. MINIMUM 40mm DEPTH **CP636 FIRESTOP MORTAR** TO BE FULLY FILLED INTO THE GAP BETWEEN THE CONCRETE WALL AND THE STEEL ARCHITRAVE/TRIM. (SEE NOTES 1)

NOTES :

1. MAXIMUM JOINT WIDTH = 200 mm.
2. **CP606 FLEXIBLE FIRESTOP SEALANT** IS RECOMMENDED AS THE JOINT SEALANT.

SWITCH CONTROL BOX / DISPLAY PANEL

5. CONCRETE WALL ASSEMBLY (120/120/120 F.R.R.)
- CONCRETE WALL OR FIRE RATED BLOCKWALL
6. SWITCH CONTROL BOX / DISPLAY PANEL INSTALLED IN THE RESERVED OPENING(S) AND LOCATED ON THE LANDING SIDE OF THE LIFT SHAFT WALL
7. (a) **CP636 FIRESTOP MORTAR**. FOR F.R.R. -/120/120, MINIMUM 100mm DEPTH TO BE FULLY FILLED AT THE BACK OF THE SWITCH CONTROL BOX / DISPLAY PANEL
(b) **CP670 FIRE SAFETY COATING**. FOR F.R.R. -/120/120, MINIMUM 50mm DEPTH TO BE FULLY FILLED AT THE BACK OF THE SWITCH CONTROL BOX / DISPLAY PANEL.

NOTES :

1. NOMINAL OPENING SIZE = 150 mm x 250mm. (OR EQUIVALENT AREA)

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT.
FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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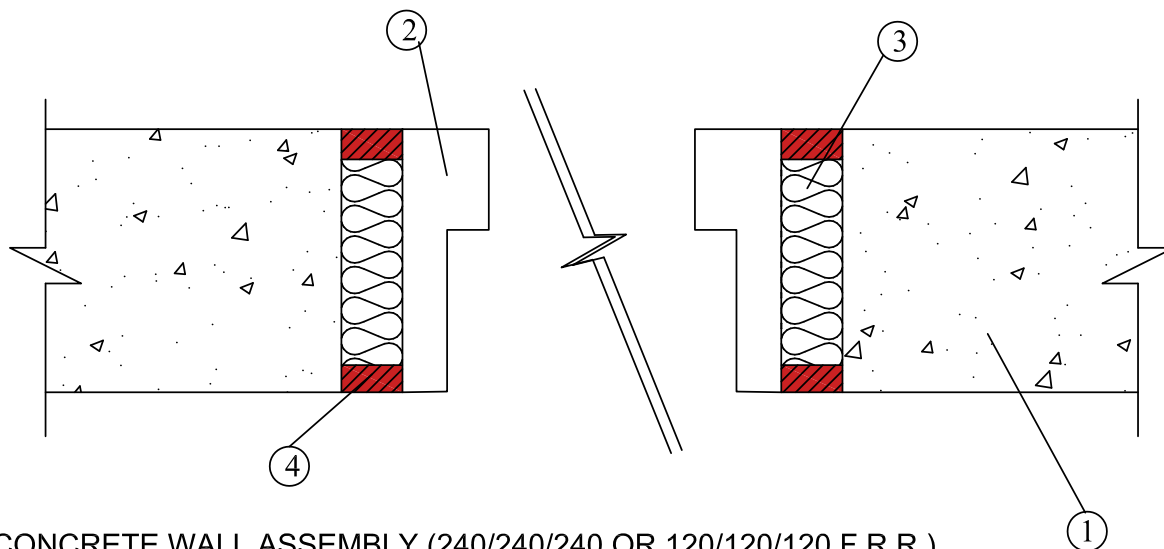
Drawing No.
AI-LDF01

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TIMBER / STEEL DOOR FRAME DETAIL

FIRE RESISTANCE RATING: UP TO -/240/120
 PRODUCT USED: CP606 FLEXIBLE FIRESTOP SEALANT
 REFERENCE: WFRC No. C114417 & WFRC No. C114599
 WFRC No. 141323 & R16E13-1A

BS 476-22
 EN 1634-1



1. CONCRETE WALL ASSEMBLY (240/240/240 OR 120/120/120 F.R.R.)
2. TIMBER / STEEL DOOR FRAME (SEE NOTES 2).
3. BACKING MATERIAL INSIDE THE JOINT CAN EITHER BE:
 - A) POLYETHYLENE (PE) BACKING ROD FIT THROUGH THE WIDTH OF THE JOINT
 - B) MINERAL WOOL (MIN 140kg/m³ DENSITY & 65mm)
 - C) **CF-F 750 FILLING FOAM**
4. MIN. 15mm DEPTH **CP606 FLEXIBLE FIRESTOP SEALANT**, FLUSH WITH BOTH SIDES OF THE WALL SURFACE.

NOTES:

1. MAXIMUM JOINT WIDTH = 30mm.
2. FIRE PERFORMANCE OF THE DOOR AND DOOR FRAME TO BE CONSIDERED SEPARATELY BY CONTRACTOR.

ALL CONFIGURATIONS SHOWN MUST BE SUBMITTED AND APPROVED BY THE SPECIFYING ARCHITECTS OR ENGINEERS FOR THE PROJECT. FOR ANY DETAILS BEYOND THE SCOPE AS ABOVE, PLEASE CONTACT HILTI ENGINEERING SERVICE FOR ADVICES.



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Drawing No.
 AI-TDF01

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PRODUCT INFORMATION

Leading-edge Technology.
Outstanding Service.



Flexible firestop sealant CP 606



Applications

- Sealing rigid or low-movement ceiling/wall joints, widths from 6 to 30 mm
- Sealing cable tray penetrations
- Sealing metal pipe penetrations
- For use in various base materials such as masonry, concrete, drywall and metal

Advantages

- Paintable
- Easy to clean up with water
- Smoke, fume and water resistant



Smoke



Water Tight



Acoustic



Seismic



Low VOC

Technical data

Chemical basis	Water-based acrylic dispersion
Base materials	Concrete, Masonry, Drywall, Steel
Movement¹⁾	±12.5% (ISO 11600)
Approx. tack-free time (ventilated at 77°F, 80% rel. humidity)	20 min
Approx. curing time²⁾	3 mm/3 days
Average volume shrinkage	22.2 %
Application temperature range	5 - 40 °C
Temperature resistance range	-30 - 80 °C
Storage and transportation temperature range	5 - 25 °C
Shelf life³⁾	24 Months

¹⁾ according to HTC 1250

²⁾ at 75°F/24°C, 50% relative humidity

³⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture



Consumption Guide

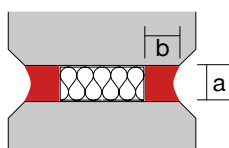
Cartridge volume = 310 ml (CP 606)

a = Joint width in mm

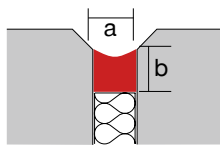
b = Sealant depth in mm

Linear metre per cartridge = $\frac{\text{Cartridge volume in ml}}{a \times b}$

e.g. a floor 20 mm wide with product depth of 10 mm; with 310 ml cartridge:
Therefore linear metres per cartridge = $310 / (20 \times 10) = 1.55$ metre per cartridge for one side of the floor



Wall

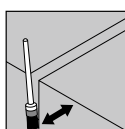


Floor

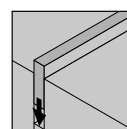
Joint width (mm)	0-15	16-20	21-30
Sealant depth (mm)	6	10	15

Application Procedure

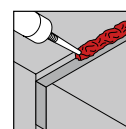
Joint installation



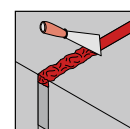
1. Clean opening



2. Insert backing material

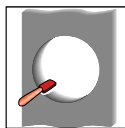


3. Apply CP 606



4. Smooth CP 606

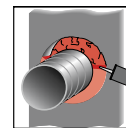
Pipe installation (non-combustible pipes only)



1. Clean opening



2. Insert backing material



3. Apply CP 606



4. Smooth CP 606

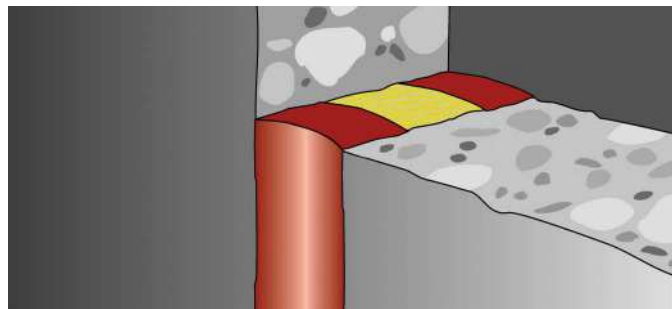
Info | Shop



Ordering designation	Colour	Volume per unit	Packaging	Sales pack quantity	Item number
CP 606 310ml INT grey	Grey	310 ml	Cartridge	1 pc	209630
CP 606 580ml INT grey	Grey	580 ml	Foil pack	1 pc	209633
CP 606 310ml white	White	310 ml	Cartridge	1 pc	209625
CP 606 580ml white	White	580 ml	Foil pack	1 pc	209632

Relevant application page number 9, 11-15, 18, 21, 26-28, 32, 34, 37, 42

Elastomeric silicone sealant CP 601S



Applications

- Expansion or stretched connection joints in fire compartment walls and floors
- Uninsulated metal pipes in penetrations through fire compartment walls and floors
- Acoustic insulation of pipes
- Suitable for outdoor use
- For use on concrete and masonry (indoors/outdoors)

Advantages

- Weather and UV-resistant
- Excellent movement capability
- Smoke, gas and water-resistant



Smoke



Water
Tight



Acoustic



Siesmic



Low VOC

Technical data

Chemical basis	Neutral elastic silicone
Base materials	Masonry, Metal, Concrete, Glass
Movement¹⁾	± 25% (ISO 11600)
Approx. tack-free time (ventilated at 77°F, 80% rel. humidity)	15 min
Approx. curing time²⁾	2 mm/3 days
Average volume shrinkage	5 %
Application temperature range	5 - 40 °C
Temperature resistance range	-40 - 160 °C
Storage and transportation temperature range	5 - 25 °C
Shelf life³⁾	12 Months

¹⁾ according to HTC 1250

²⁾ at 75°F/24°C, 50% relative humidity

³⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture



Consumption Guide

Cartridge volume = 310 ml (CP 601S)

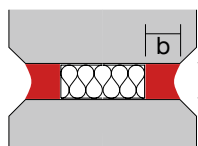
a = Joint width in mm

b = Sealant depth in mm

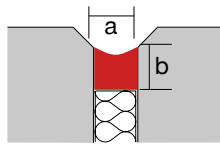
Linear metre per cartridge = $\frac{\text{Cartridge volume in ml}}{a \times b}$

e.g. a floor 50 mm wide with product depth of 15 mm; with 310 ml cartridge:

Therefore linear metres per cartridge = $310 / (50 \times 15) = 0.41$ metre per cartridge for one side of the floor



Wall

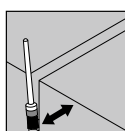


Floor

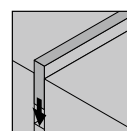
Joint width (mm)	0-15	16-100
Sealant depth (mm)	6	15

Application Procedure

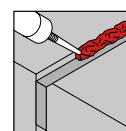
Joint installation



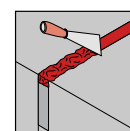
1. Clean opening



2. Insert backing material

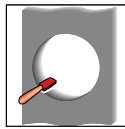


3. Apply CP 601S

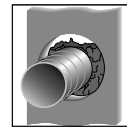


4. Smooth CP 601S

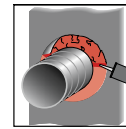
Pipe installation (non-combustible pipes only)



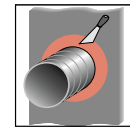
1. Clean opening



2. Insert backing material



3. Apply CP 601S



4. Smooth CP 601S

Info | Shop



Ordering designation	Colour	Volume per unit	Packaging	Sales pack quantity	Item number
CP 601S 310ML grey	Grey	310 ml	Cartridge	1 pc	310635
CP 601S 600ML grey	Grey	600 ml	Foil pack	1 pc	312111 ¹⁾
CP 601S 310ML white	White	310 ml	Cartridge	1 pc	310633 ¹⁾
CP 601S 600ML white	White	600 ml	Foil pack	1 pc	310637

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

High performance intumescent firestop sealant FS-ONE MAX



Applications

- For effectively sealing most common through penetrations in a variety of base materials
- Copper and EMT pipes
- Insulated steel and copper pipes
- Single cables and cable bundles
- Closed or vented plastic pipes
- HVAC penetrations

Advantages

- One product for most firestop applications
- Cost-effective solution
- Easy to work with and fast cleanup



Technical data

Chemical basis	Water-based acrylic dispersion
Base materials	Concrete, Concrete block, Metal, Wood, Gypsum
Expansion ratio (unrestricted, up to)	1:5
Approx. curing time¹⁾	4 mm/3 days
Average volume shrinkage	19.4 %
Application temperature range	5 - 40 °C
Temperature resistance range	-20 - 100 °C
Storage and transportation temperature range	5 - 25 °C
Shelf life²⁾	18 Months

¹⁾ at 75°F/24°C, 50% relative humidity

²⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture



Consumption Guide

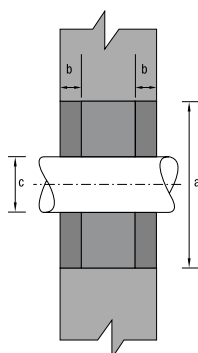
Cartridge size = 310 ml (FS-ONE)

Sealing volume in wall application
(installation on both sides) $V_s = \frac{\pi}{4} \times (a^2 - c^2) \times 2b$

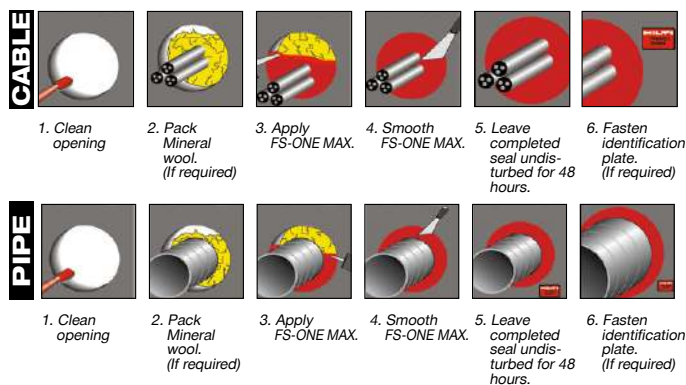
Sealing volume in floor application
(installation on one side only) $V_s = \frac{\pi}{4} \times (a^2 - c^2) \times b$

a = hole diameter in cm
b = installation depth in cm (see approvals)
c = outside diameter of pipe or bunched cable diameter in cm

No. of cartridges needed,
 $n = \frac{V_s}{\text{cartridge volume in ml}}$



Application Procedure



Info | Shop



Ordering designation	Colour	Volume per unit	Packaging	Sales pack quantity	Item number
FS-ONE MAX 10.1OZ CART	Red	300 ml	Cartridge	1 pc	2101534

Firestop intumescent sealant CP 611A



Applications

- Single cables and cable bundles
- Plastic pipes up to 50 mm (2") diameter without additional collar
- Sealing penetrations previously sealed with firestop mortar, after installing additional cables
- Small openings

Advantages

- Paintable
- Fast, easy application and cleaning up
- Particularly suitable for laying new cables
- Silicone-free
- Easy to clean with water



Smoke



Water
Tight



Acoustic



Seismic



Consumption Guide

Cartridge size = 310 ml (CP 611A)

Sealing volume in wall application
(installation on both sides)

$$V_s = \frac{\pi}{4} \times (a^2 - c^2) \times 2b$$

Sealing volume in floor application
(installation on one side only)

$$V_s = \frac{\pi}{4} \times (a^2 - c^2) \times b$$

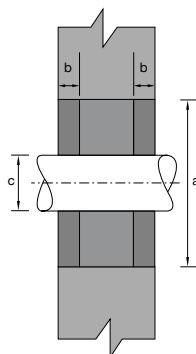
a = hole diameter in cm

b = installation depth in cm (see approvals)

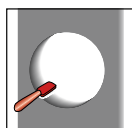
c = outside diameter of pipe or bunched cable diameter in cm

No. of cartridges needed,

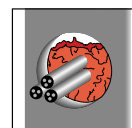
$$n = \frac{V_s}{310 \text{ (ml)}}$$



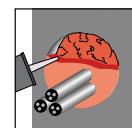
Application Procedure



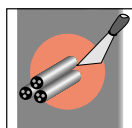
1. Clean opening



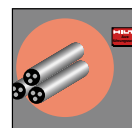
2. Depending on
required integrity,
pack in mineral
wool or foam



3. Apply CP 611A



4. Smooth CP 611A



5. Fasten installation
plate in place (if
required)

Info | Shop



Ordering designation	Colour	Volume per unit	Packaging	Sales pack quantity	Item number
CP 611A INT	Anthracite	310 ml	Cartridge	1 pc	220351

Please visit Hilti website for the latest item numbers and related products

Firestop joint spray CFS-SP WB



Applications

- Sealing openings between the top of walls and concrete or metal floors / ceilings
- Sealing building perimeter gaps between floor slabs or vertical wall and exterior curtain wall facades

Advantages

- Water-based, low VOC, contains no halogens
- High degree of elasticity - movement capability of up to 50%
- Excellent sprayability and low slump characteristics
- Fast, efficient sealing of wide, difficult-to-access joints



Smoke



Water
Tight



Acoustic



Seismic



Low VOC

Technical data

Chemical basis	Water-based acrylic dispersion
Base materials	Concrete, Masonry, Gypsum, Steel, Aluminium, Glass
Movement¹⁾	Up to 50 %
Approx. tack-free time (ventilated at 77°F, 80% rel. humidity)	180 min
Approx. curing time²⁾	3 mm/day
Average volume shrinkage	51.1 %
Application temperature range	4 - 40 °C
Temperature resistance range	-40 - 80 °C
Storage and transportation temperature range	4 - 25 °C
Shelf life³⁾	12 Months

¹⁾ according to HTC 1250

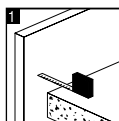
²⁾ at 75°F/24°C, 50% relative humidity

³⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture

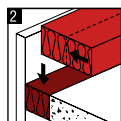
Consumption Guide (based on 3mm wet thickness)

Joint width (mm)	With overlap 15 mm either side (mm)	Metres per 19 litres pail (meters)
25	55	115
50	80	79
100	130	48
150	180	35
200	230	27

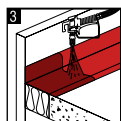
Application Procedure



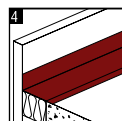
1. Clean opening



2. Pack in mineral wool



3. Apply CFS-SP WB by paint brush or spray



4. Allow CFS-SP WB to cure

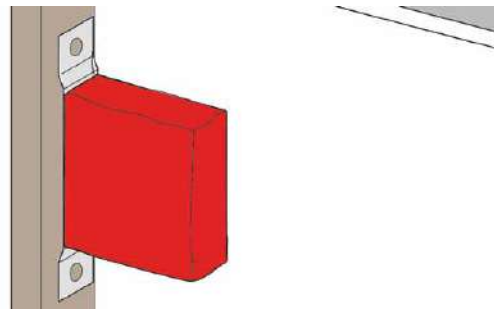


Info | Shop



Ordering designation	Colour	Volume per unit	Packaging	Sales pack quantity	Item number
CFS-SP WB red	Red	19000 ml	Bucket	1 pc	430815

Firestop putty pad CP 617



Applications

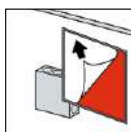
- Can be used for commercial and residential applications
- Acoustically rated drywall - sound transmission classification 59 according to ASTM E90-97 (based on specific construction)
- General gypsum wall assemblies with wood or metal studs

Advantages

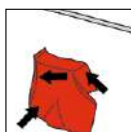
- Excellent adhesion to gypsum, metal and plastic
- No oil migration, putty remains flexible over time
- Pad can be moulded by hand without leaving residue on the hands
- Quick and simple to install
- Not electrically conductive



Application Procedure



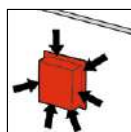
1. Remove label from one side of CP 617



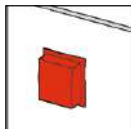
2. Adhere CP 617 to application



3. Reshape CP 617 fit around box



4. Press CP 617 to all sides of application



5. Remove other side of label

Technical data

Colour	Red
Electrical resistance data	Non-conductive
Acoustic insulation	Yes
Intumescent	Yes
Application temperature range	0 - 40 °C
Temperature resistance range	-20 - 60 °C
Storage and transportation temperature range	-5 - 40 °C
Acoustic index (Tested to DIN EN20140)	64 dB



Info | Shop



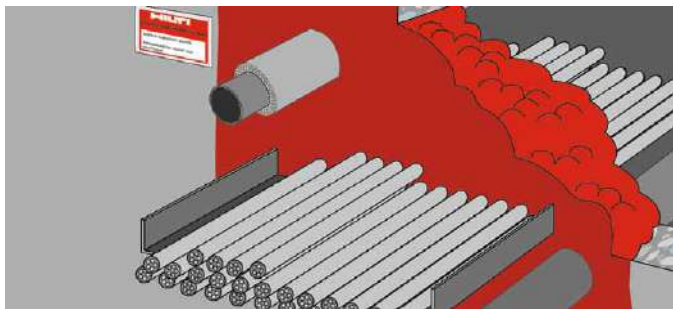
Ordering designation	Package contents	Sales pack quantity	Item number
CP 617 6"x7"	1x Firestop putty pad CP 617 6"x7"	20 pc	309760
CP 617 L 7"x7"	1x Firestop putty pad CP 617L 7"x7"	20 pc	333583 ¹⁾
CP 617 XL 9"x9"	1x Firestop putty pad CP 617XL 9"x9"	20 pc	373387

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Relevant application page number 39-40

Firestop foam CP 620



Applications

- Concrete, drywall and masonry
- Multiple and mixed penetrations
- Single cables, cable bundles and cable trays
- Metal pipes
- Suitable for irregular and difficult-to-reach openings

Advantages

- Innovative firestopping solution for complex and difficult-to-reach applications
- Virtually impervious to smoke
- Excellent water and vapour resistance
- Single-sided installation possible
- Easy to use in openings where access is poor



Smoke



Water
Tight



Acoustic



Seismic



Low VOC



Technical data

Chemical basis	Two-component polyurethane foam
Colour	Red
Base materials	Concrete, Masonry, Drywall
Volume per unit	300 ml
Foam yield (up to)	1.9 l
Approx. cut time (at 23°C / 50% rel. humidity)	2 min
Application temperature range	0 - 40 °C
Temperature resistance range	-30 - 100 °C
Storage and transportation temperature range	5 - 25 °C
Shelf life¹⁾	9 Months

¹⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture

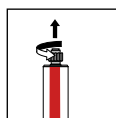


Consumption Guide

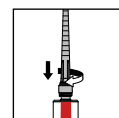
Foam installation thickness: 145
No. of CP 620 cartridges

size of opening (mm x mm)	Cable loading (as % of opening size)			
	0%	10%	30%	60%
50 x 100	1	1	1	1
100 x 100	1	1	1	1
100 x 150	2	2	1	1
100 x 200	2	2	2	1
100 x 250	3	2	2	1
100 x 300	3	3	2	1
200 x 200	4	3	3	2
200 x 225	4	4	3	2
200 x 250	5	4	3	2
200 x 300	5	5	4	2
200 x 350	6	6	4	3
200 x 400	7	6	5	3
300 x 300	8	7	6	3
300 x 330	8	8	6	4
300 x 400	10	9	7	4
400 x 400	13	12	10	6
400 x 500	17	15	12	7

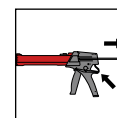
Application Procedure



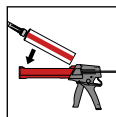
1. Hold the cartridge with the nozzle pointing upwards and unscrew the cap. Do not point towards people.



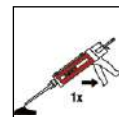
2. Fit the mixer and screw securely.



3. Release the dispenser and pull back the piston rod.



4. Insert the cartridge in the dispenser.



5. Discard the unevenly mixed initial quantity



6. Apply CP 620, building up a seal by working from the back towards the front.



7. Attach the installation plate (if required).

Info | Shop



Ordering designation	Volume per unit	Package contents	Sales pack quantity	Item number
CP 620	300 ml	1x Firestop foam CP 620 EN/DE/FR/IT/NL/TH	1 pc	2025083

Please visit Hilti website for the latest item numbers and related products

Firestop foam CFS-F FX



Applications

- Mechanical: Non-combustible (metal) pipes with mineral wool / non-flammable insulation, small combustible (plastic) pipes No smoke/gastight additional sealing and no backing material required
- Electrical: Single cables, cable bundles and cable tray

Advantages

- 3-phase technology with optimum application characteristics (easily-shapeable foam)
- Easily applied using a Hilti cordless electric dispenser
- Neat and tidy application
- Very quick and easy to install and provides a reliable firestop seal with only one product
- Maintenance and retrofitting of cables is very easy
- Reliable sound insulation properties, due to the flexible foam structure



Smoke



Acoustic



Seismic



Low VOC

Consumption Guide

Wall thickness: 150

Surface area of seal (m ²)	Opening diameter of seal (mm)	Opening size of seal (mm x mm)	Volume (litre), no cable load
0.01	ø 120	100 x 100	1.50
0.02	ø 160	100 x 200	3.00
0.03	ø 200	100 x 300	4.50
0.04	ø 220	200 x 200	6.00
0.05	ø 250	200 x 250	7.50
0.06	ø 280	200 x 300	9.00
0.07	ø 300	200 x 350	10.50
0.08	ø 320	200 x 400	12.00
0.09	ø 340	300 x 300	13.50
0.1	ø 350	300 x 330	14.85
0.16	--	400 x 400	24.00

No. of CFS-F FX foil packs

Wall thickness: 150

Surface area of seal (m ²)	Cable loading (as % of opening size)			
	0%	10%	30%	60%
0.01	<1	<1	<1	0.5
0.02	<2	<2	1.5	<1
0.03	<3	<2.5	<2	<1.5
0.04	3.5	<3.5	2.5	1.5
0.05	<4.5	<4	3.0	<2
0.06	5.5	<5	<4	<2.5
0.07	6.0	<5.5	<4.5	<2.5
0.08	<7	<6.5	<5	<3
0.09	<8	<7	<5.5	<3.5
0.1	8.5	7.5	6.0	3.5
0.16	<13.5	<12.5	<9.5	<5.5

Ordering designation	Volume per unit	Package contents	Sales pack quantity	Item number
CFS-F FX	325 ml	1x Firestop foam CFS-F FX -CE	1 pc	429802 ¹⁾

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Technical data

Chemical basis	Two-component polyurethane foam
Colour	Red
Base materials	Concrete, Masonry, Drywall
Volume per unit	325 ml
Foam yield (up to)	2.1 l
Approx. cut time (at 23°C / 50% rel. humidity)	10 min
Application temperature range	10 - 35 °C
Temperature resistance range	-30 - 60 °C
Storage and transportation temperature range	5 - 25 °C
Shelf life ¹⁾	9 Months

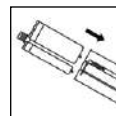
¹⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture



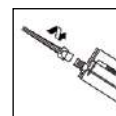
Application Procedure



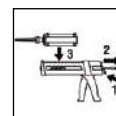
1. Clean the opening to be sealed



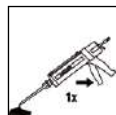
2. Slide the foil pack into the holder



3. Screw the mixing nozzle all the way onto the foil pack and tighten it securely



4. Insert the holder containing the foil pack into the dispenser



5. Discard the unevenly mixed initial quantity



6. Apply the firestop foam in the opening to be sealed



7. Shaped or smoothed by hand (if necessary) after 5mins (approx.) and can be cut after 10mins (approx.)

Info | Shop



Firestop block CFS-BL

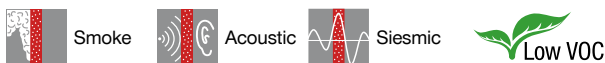


Applications

- Temporary or permanent sealing around cables, cable bundles and cable trays in wall and floor openings
- Cables, cable bundles and cable trays

Advantages

- Easy to install, no electric tools required
- Economical installation as the block is pre-cured and ready-to-use
- Painting of cables with firestop coating is not required
- Installation of cables with zero separation to the edge of the penetration is possible
- Best solution for repenetration



Technical data

Chemical basis	PU
Dimensions (LxWxH)	200 x 130 x 50 mm
Expansion temperature (ap-prox.)	200 °C
Expansion ratio (unrestricted, up to)	1:3
Reaction to fire class (EN 13501-1)	E
Application temperature range	5 - 40 °C
Colour	Red
Storage and transportation temperature range	-5 - 40 °C

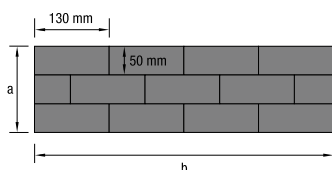


Consumption Guide

Brick dimension 200 x 130 x 50 mm

a = opening width in cm

b = opening length in cm



Opening with 30% cross sectional area of services multiply the results by 0.7

Opening with 50% cross sectional area of services, multiply the results by 0.5

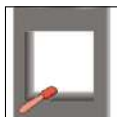
Header orientation

Blank opening = $\frac{a \times b}{65}$

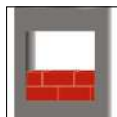
e.g. 1 metre by 1 metre opening

Number of bricks required = $\frac{100 \times 100}{65} = 154$ bricks

Application Procedure



1. Clean opening



2a. Build up blocks



2b. Cut blocks to size for penetration in place



3. Build up blocks



4. Fill gaps with FS-ONE MAX3 / CP 611A

Info | Shop



Ordering designation	Package contents	Sales pack quantity	Item number
CFS-BL	1x Firestop block CFS-BL	1 pc	2062863

Firestop mortar CP 636



Applications

- Permanent firestopping of cables, cable trays, and non-combustible pipes in medium to large wall and floor openings
- Single, multiple and mixed penetrations
- Medium to large multiple penetrations in concrete and masonry in combination with other products
- Lift door frame

Advantages

- Excellent application characteristics



Acoustic



Siesmic



Low VOC

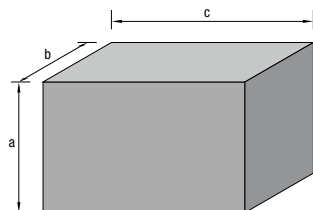
Consumption Guide

20 kg bags yield 22.2 litres

a = opening depth in cm

b = opening length in cm

c = opening width in cm



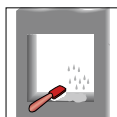
Blank Opening

$$\text{Number of bags required} = \frac{a \times b \times c}{22,000}$$

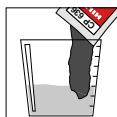
e.g. 100 mm thick floor with 1 metre x 1 metre opening:

$$\text{Therefore number of bags required} = \frac{10 \times 100 \times 100}{22,000} = 5 \text{ bags}$$

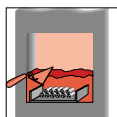
Application Procedure



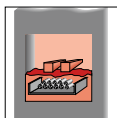
1. Clean opening, moisten surfaces



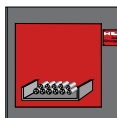
2. Mix CP 636 mortar with 3:1 ratio (by adding mortar to water)



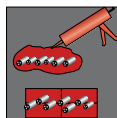
3. Put mortar into place



4. Optional: add CP 651 for future cable changes



5. Fasten installation plate in place (if required)



6. Re-installation: lay cables and close remaining opening

Technical data

Base materials	Concrete, Masonry
Approx. mix ratio	2.5:1 (mortar to water by weight)
Working time (approx.)	45 min
Cured density - min.	700 kg/m ³
Max. compressive strength after 28 days	2.9 N/mm ²
Application temperature range	5 - 80 °C
Temperature resistance range	-10 - 80 °C
Storage and transportation temperature range	5 - 30 °C
Shelf life ¹⁾	12 Months
Colour	Grey

¹⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture

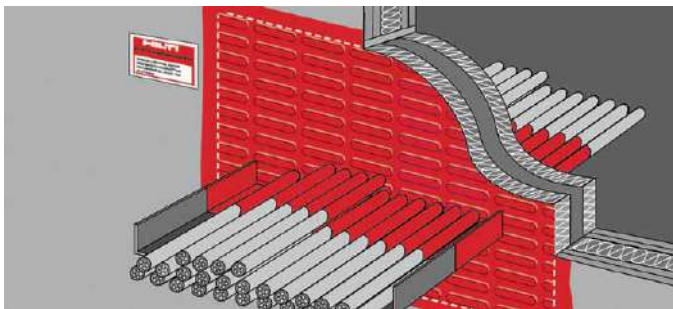


Info | Shop



Ordering designation	Weight	Sales pack quantity	Item number
CP 636 20KG	20 kg	1 pc	334897

Firestop board, coating CP 670



Applications

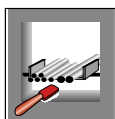
- Permanent firestopping of blank openings, cables, cable trays, non-combustible and combustible pipes in medium to large wall and floor openings
- Ideal for large openings

Advantages

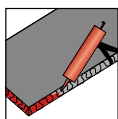
- Solvent- and silicone-free
- Fully functional immediately after installation
- Smoke tight



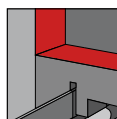
Application Procedure



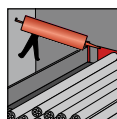
1. Clean the opening



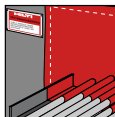
2. Coat cut edges with CP 606



3. Fit CP 670



4. Fill gaps with CP 606



5. Fasten installation (if required)

Technical data

Base materials	Drywall, Concrete, Masonry
Approx. density	1470 kg/m ³
Application temperature range	5 - 40 °C
Temperature resistance range	-40 - 100 °C
Storage and transportation temperature range	5 - 30 °C
Shelf life ¹⁾	15 Months
Colour	White

¹⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture

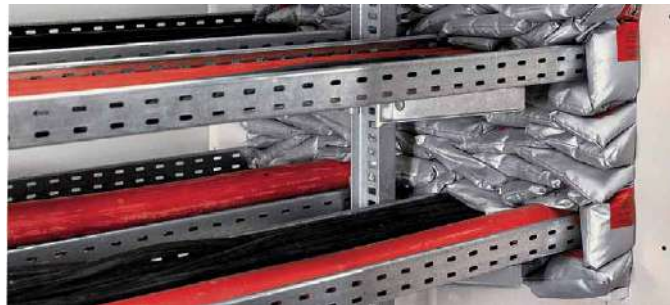


Info | Shop



Ordering designation	Weight	Sales pack quantity	Item number
ROCK WOOL 1.2X0.6-50/D160	-	5 pc	3435517
CP 670 6kg	6 kg	1 pc	376023

Firestop cushion CP 651N



Applications

- Temporary sealing of openings in floors and walls through the construction phase

Advantages

- Quick and easy installation
- No special tools required
- Very economical in use thanks to optimized cushion dimensions
- Re-usable and thus economical
- Fully functional immediately after installation
- Tear-resistant and dust-free installation

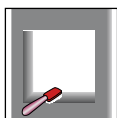


Acoustic

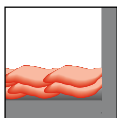
Technical data

Base materials	Drywall, Concrete, Masonry
Approx. density	350 kg/m ³
Application temperature range	-30 - 35 °C
Temperature resistance range	-40 - 120 °C
Storage and transportation temperature range	-30 - 40 °C
Colour	White

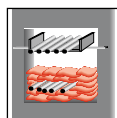
Application Procedure



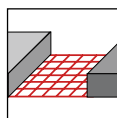
1. Clean opening



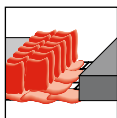
2. Cushion arrangement without cables in wall



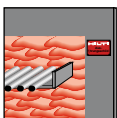
3. Cushion arrangement with cables in wall



4. Fasten wire mesh in place when closing floor openings with cushions



5. Cushion arrangement in floor



6. Fasten installation plate in place (if required)



Info | Shop



Ordering designation	Dimensions (LxWxH)	Sales pack quantity	Item number
CP 651N-S	300 x 40 x 30 mm	30 pc	382624 ¹⁾
CP 651N-M	300 x 80 x 30 mm	15 pc	382625 ¹⁾
CP 651N-L	300 x 170 x 30 mm	6 pc	382626 ¹⁾

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Firestop bandage CFS-B



Applications

- Firestopping around insulated (hot/cold) non-flammable pipes
- Pipe materials: copper, steel and other metals with heat conductivity lower than that of copper (e.g. cast iron, stainless steel etc.)
- Various insulation materials
- Suitable for use in openings in concrete, masonry block or drywall

Advantages

- Highly versatile - one product for a variety of insulation materials, pipe materials and pipe diameters
- Quick and easy to install - no drilling or additional tools needed
- No need to interrupt the pipe insulation material within the wall/floor penetration
- Minimal thickness for easy installation in narrow gaps
- Good elasticity for optimum flexibility
- Very good acoustic insulation properties



Smoke



Siesmic



Low VOC

Application table

CFS-B (Firestop Bandage - 2 mm thick)

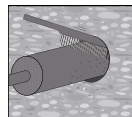
Pipe diameter (mm)	Insulation Thickness (mm)	No. Layers	Reference Wrap length (mm)	Application with a 10 m roll (No.)	Recommended drill hole X (mm)
25	40	2	720	14	121
32	40	2	770	13	128
40	40	2	820	12	136
50	40	2	880	11	146
65	50	2	1100	9	181
80	50	2	1190	8	196
100	50	2	1320	8	216
125	50	2	1480	7	241
150	50	2	1630	6	266
200	50	3	2920	3	319
250	50	3	3390	3	369
300	65	3	4150	2	449
400	65	3	5090	2	549
400	75	3	5280	1.9	569

Technical data

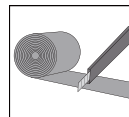
Base materials	Concrete, Masonry, Drywall
Expansion temperature (approx.)	210 °C
Expansion ratio (unrestricted, up to)	1:14
Storage and transportation temperature range	-5 - 50 °C
Length	10 m
Colour	Grey
Thickness	2 mm
Weight	20 kg



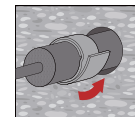
Application Procedure



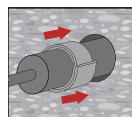
1. Clean the opening. The material around the opening must be dry, in sound condition and free from dust or grease.



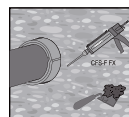
2. Cut Hilti Firestop Bandage CFS-B to fit the outside diameter of the insulation. Ensure 2 layers and an overlap.



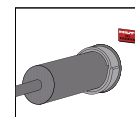
3. Wrap Hilti Firestop Bandage CFS-B around the insulation. Secure the bandage with steel bands or wire (≥ 0.7 mm).



4. Install Hilti Firestop Bandage CFS-B on both sides of the opening to a depth of 62.5 mm (see marking on bandage).



5. Close the remaining gap with the recommended gap filler. Refer to each base material for the correct filler.



6. If it is necessary, an additional insulation over the bandage has to be installed. Mount the installation identification plate beside the correctly sealed opening, if required.

Info | Shop



Ordering designation

CFS-B

Sales pack quantity

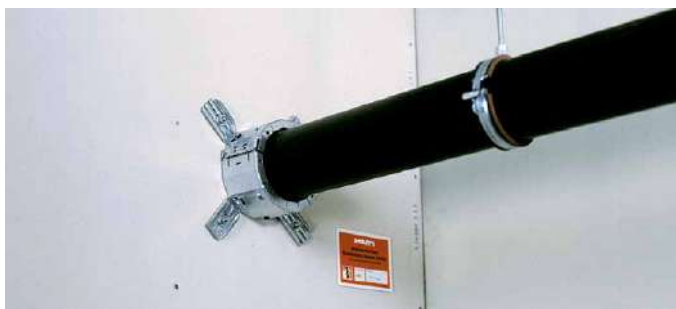
1 pc

Item number

429557

Relevant application page number 15-17

Firestop collar CP 643 N



Applications

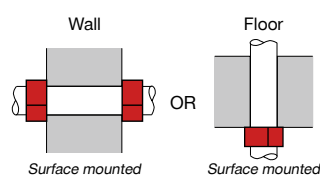
- Plastic pipes with diameters from 32 - 160 mm
- Suitable for PVC, PE and HDPE pipes
- For use in walls and floors
- Waste water pipes, fresh water pipes, drinking water pipes

Advantages

- Latch mechanism for quick and easy closure
- Allows correct installation where space is tight
- Flexible tab positioning for convenient fastening
- Ready-to-use product



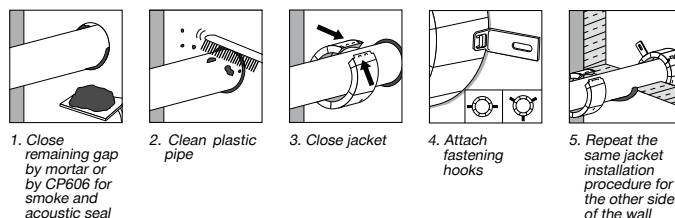
Fixing Method



Technical data

Base materials	Concrete, Drywall, Masonry
Expansion temperature (approx.)	250 °C
Expansion ratio (unrestricted, up to)	1:17
Storage and transportation temperature range	-5 - 50 °C

Application Procedure



Info | Shop



Ordering designation	Pipe diameter - range	Outside diameter	Package contents	Sales pack quantity	Item number
CP643 1.5"/50 N (A2 SS) + HSA-R M6 5/-/-	32 - 51 mm	62 mm	2x Std stud anchor HSA-R M6x50 5/-/-, 1x Firestop Jacket CP 643-50/1.5" N (A2 S.S)	1 pc	3503533
CP643 2"/63 N (A2 SS) + HSA-R M6 5/-/-	52 - 64 mm	82 mm	2x Std stud anchor HSA-R M6x50 5/-/-, 1x Firestop jacket CP 643-63/2" N (A2 S.S)	1 pc	3503534
CP643 2.5"/75 N (A2 SS) + HSA-R M6 5/-/-	65 - 78 mm	102 mm	3x Std stud anchor HSA-R M6x50 5/-/-, 1x Firestop jacket CP 643-72/2.5" N (A2 S.S)	1 pc	3503535
CP643 3"/90 N (A2 SS) + HSA-R M6 5/-/-	79 - 91 mm	116 mm	3x Std stud anchor HSA-R M6x50 5/-/-, 1x Firestop jacket CP 643-90/3" N (A2 S.S)	1 pc	3503536
CP643 4"/110 N (A2 SS) + HSA-R M6 5/-/-	92 - 115 mm	146 mm	3x Std stud anchor HSA-R M6x50 5/-/-, 1x Firestop jacket CP 643-110/4" N (A2 S.S)	1 pc	3503538
CP643 5"/125 N (A2 SS) + HSA-R M6 5/-/-	116 - 125 mm	166 mm	4x Std stud anchor HSA-R M6x50 5/-/-, 1x Firestop jacket CP 643-125/5" N (A2 S.S)	1 pc	3503539
CP643 6"/160 N (A2 SS) + HSA-R M6 5/-/-	126 - 170 mm	236 mm	4x Std stud anchor HSA-R M6x50 5/-/-, 1x Firestop jacket CP 643-160/6" N (A2 S.S)	1 pc	3503540

Ordering designation	Pipe diameter - range	Outside diameter	Sales pack quantity	Item number
Firestop Jacket CP 643-50/1.5" N (A2 S.S)	32 - 51 mm	62 mm	1 pc	3447172
Firestop jacket CP 643-63/2" N (A2 S.S)	52 - 64 mm	82 mm	1 pc	3447193
Firestop jacket CP 643-72/2.5" N (A2 S.S)	65 - 78 mm	102 mm	1 pc	3447194
Firestop jacket CP 643-90/3" N (A2 S.S)	79 - 91 mm	116 mm	1 pc	3447195
Firestop jacket CP 643-110/4" N (A2 S.S)	92 - 115 mm	146 mm	1 pc	3447196
Firestop jacket CP 643-125/5" N (A2 S.S)	116 - 125 mm	166 mm	1 pc	3447197
Firestop jacket CP 643-160/6" N (A2 S.S)	126 - 170 mm	236 mm	1 pc	3447198
CP 643-50/1.5" N	32 - 51 mm	67 mm	1 pc	304325
CP 643-63/2" N	52 - 64 mm	82 mm	1 pc	304326
CP 643-75/2.5" N	65 - 78 mm	102 mm	1 pc	304327
CP 643-90/3" N	79 - 91 mm	116 mm	1 pc	304328
CP 643-110/4" N	92 - 115 mm	146 mm	1 pc	304329
CP 643-125/5" N	116 - 125 mm	166 mm	1 pc	304330 ¹⁾
CP 643-160/6" N	126 - 170 mm	236 mm	1 pc	304331 ¹⁾

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Firestop collar endless CFS-C EL



Applications

- Suitable for use on shaft walls, coated board, drywall, aerated concrete, masonry and concrete
- Zero distance required to CFS-B firestop bandage, CFS-C EL firestop endless collar and Conlit
- Approved for use with PVC, PP, PE and a wide array of standard acoustic pipes
- Configurations tested include pipe elbows, inclined pipes and pipes with limited clearance to the wall
- Acoustic pipes tested with insulation and sound decoupling

Advantages

- Flexible solution for waste water, roof drainage and pneumatic pipes
- Problem solver for non-standard applications
- Endless solution: one product for all applications
- Well-suited to complex pipe configurations
- Easy installation

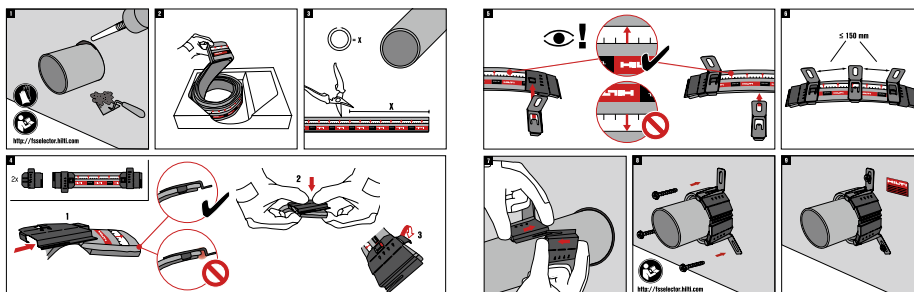


Technical data

Base materials	Drywall, Aerated concrete, Concrete, Masonry
Expansion temperature (approx.)	210 °C
Expansion ratio (unrestricted, up to)	1:19
Storage and transportation temperature range	-30 - 50 °C
Length	3 m



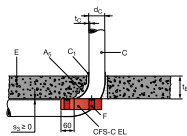
Application Procedure



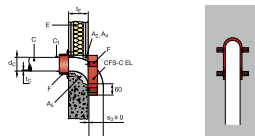
Fixing Method

Elbow configuration:

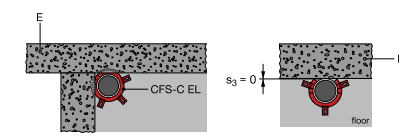
For rigid floors:



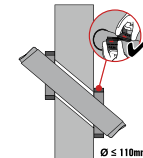
For Flexible and rigid walls:



Pipe at wall or corner:



Inclined pipe:

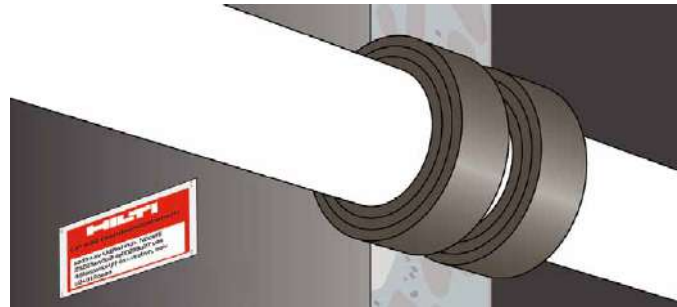


Info | Shop



Ordering designation	Pipe diameter - range	Package contents	Sales pack quantity	Item number
CFS-C EL	16 - 160 mm	1x Firestop bandage CFS-C EL, 18x Closure plate CFS-C EL, 22x Hook CFS-C EL short	1 pc	2075120

Firestop wrap strip CP 648-E



Applications

- Combustible pipe penetrations

Advantages

- Quick and easy closure without tools
- Easy to cut
- Fast installation
- Highest flexibility



Acoustic



Sismic



Low VOC

Application table

CP 648-E (Firestop Endless Wrap - 4.5 mm thick)

Pipe dimension (mm)	No. layers	Reference wrap length (cm) ^{^^}	Applications with a 10 m roll (No.)	Recommended drill hole X (mm)
20	1	7	142	37 [^]
50	1	17	58	67 [^]
63	1	21	47	77 [^]
75	1	25	40	92 [^]
90	2	64	15	112 [^]
110	2	75.5	13	132 [^]
125	2	85.5	11	152 [^]
160	3	166	6	202 [^]

[^] or bigger ^{^^} The wrap length should

Technical data

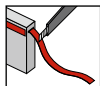
Base materials	Concrete, Drywall, Masonry
Expansion temperature (approx.)	210 °C
Expansion ratio (unrestricted, up to)	1:19
Storage and transportation temperature range	-5 - 50 °C
Length	10 m
Colour	Grey, printed foil
Dimensions (LxWxH)	10000 x 45 x 5 mm
Height	5 mm



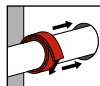
Application Procedure



1. Clean the plastic pipe.



2. Cut CP 648-E to the correct length (see measurement table on product packaging for help).

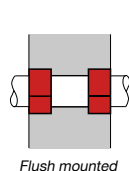


3. Wrap the CP 648-E around the pipe, fasten it with adhesive tape and push it into the annular space.



4. Close remaining gap to ensure smoke and gas tight seal. Fasten installation plate if required.

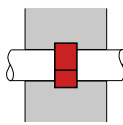
Fixing Method



Flush mounted

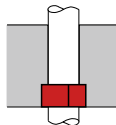
Wall

OR



Flush mounted

Floor



Flush mounted

Info | Shop



Ordering designation

CP 648-E-W45/1.8"

Sales pack quantity

1 pc

Item number

304310

Firestop sleeve CFS-SL



Applications

- Sealing penetrations for single cables and cable bundles
- Suitable for small to medium-sized circular openings in walls and ceilings
- For use on concrete, masonry and drywall

Advantages

- Easy to install and to inspect
- Fully functional immediately after installation
- Robust
- Optimum smoke-proofing performance
- Easy subsequent installation of additional cables
- Fire resistance rating of up to 2 hours



Technical data

Basic materials	Concrete, Masonry, Drywall
Expansion temperature (approx.)	210 °C
Intumescent	Yes
Storage and transportation temperature range	-5 - 50 °C
Application temperature range	-5 - 50 °C
Temperature resistance range	-30 - 100 °C
Approvals	ETA-11/0153
Fire rating	See Approvals
Reusable (and removable)	Easy
Acoustics performance	Test report available
Annular clearance max.	7 mm
Annular clearance min.	0 mm



Info | Shop



Ordering designation
CFS-SL M

Sales pack quantity
1 pc

Item number
2019718

Firestop cable coating CP 678



Applications

- Protection of cables and bunched cables on cable trays in indoor installations
- Meets IEC 60332-3-22 Category A standard for reduced spread of flame
- Factory Mutual Approved (fire retardant coating of electrical cables)
- For use in power plants, telecommunications complexes, industrial plants, petrochemical plants, paper mills, factories and production facilities
- Easy to apply using a paint brush or airless spray gun

Advantages

- Intumescent
- Water soluble, odourless and solvent free
- Free of fibres and asbestos
- No derating effects on cables
- Rapid drying, remains flexible when dry
- Compatible with the sheathing of electrical cables



Siesmic



Low VOC

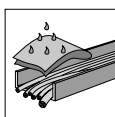
Consumption Guide

Test Standard	Dry film thickness	Wet film thickness	Approx. Requirement
IEC 60332-3	1.0 mm coating	1.4 mm coating	1.8 kg/m ² (1.4 liters/m ²)
Factory Mutual Approval	1.6 mm coating	2.2 mm coating	2.86 kg/m ² (2.2 liters/m ²)

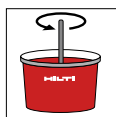
Note (a): Each 20 kilogram container of CP 678 contains approximately 15.4 liters.

Note (b): For cable trays or cable bundles with large cables, allow approx. 10% wastage for application by brush or roller.
For cable trays or cable bundles with small cables, allow approx. 20% wastage for application by brush or roller.

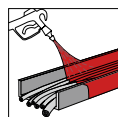
Application Procedure



Clean cables



Mix coating



Apply coating

www.hilti.group

Technical data

Chemical basis	Acrylate
Weight	20 kg
Application temperature range	5 - 40 °C
Temperature resistance range	-30 - 80 °C
Storage and transportation temperature range	5 - 30 °C
Shelf life ¹⁾	18 Months
Colour	White

¹⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture

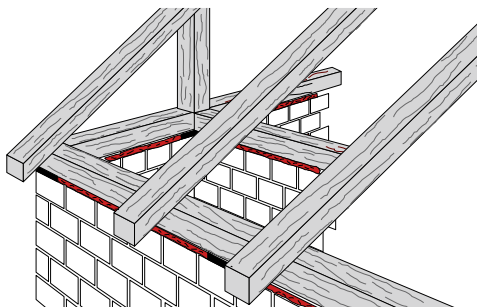


Info | Shop



Ordering designation	Weight	Package contents	Sales pack quantity	Item number
CP 678 20KG	20 kg	1x Firestop cable coating CP 678	1 pc	334892

Dispenser foam CF125-50

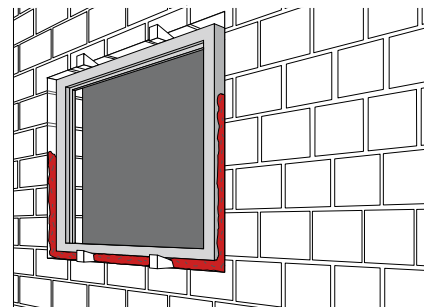


Applications

- Insulating gaps around window frames, cooling equipment and pipes, heating pipes, baths, wood floors, air-conditioning equipment, air ducts

Advantages

- High yield
- Stop-and-go controlled dispensing
- Economical in use



Technical data

Chemical basis	Polyurethane
Content per can/cartridge	750 ml
Foam yield (up to)	50 l
Approx. tack-free time (at 23°C / 50% rel. humidity)	10 min
Approx. cut time (at 23°C / 50% rel. humidity)	20 min
Min. time before loadbearing	Approx. 3-5 h
Temperature resistance range	-30 - 80 °C
Storage and transportation temperature range	5 - 25 °C
Thermal conductivity (λ approx. value)	0.04 W/mK
Shelf life¹⁾	12 Months

¹⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture



Info | Shop



Ordering designation
CF 125-50 750ML

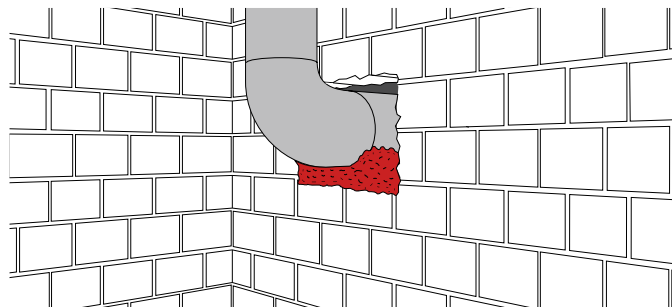
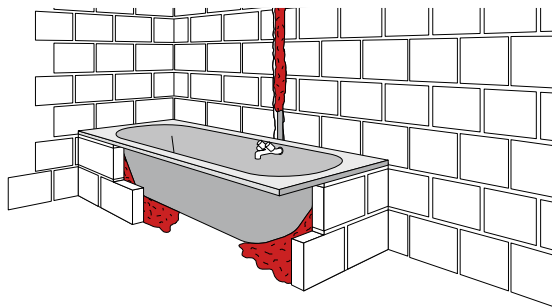
Sales pack quantity
1 pc

Item number
259628

Please visit Hilti website for the latest item numbers and related products

Relevant application page number 36, 37

Filling foam CF-F 750



Applications

- Gaps and cracks
- Drywall voids
- Electrical voids
- Backfilling for sealants
- Holes left by concrete forms
- Mechanical gaps

Advantages

- Easy to use - finger dispensing
- High adhesive strength
- Restricts air infiltration
- High yield

Technical data

Chemical basis	Polyurethane
Content per can/cartridge	750 ml
Foam yield (up to)	34 l
Approx. cut time (at 23°C / 50% rel. humidity)	30 min
Min. time before loadbearing	Approx. 3-5 h
Temperature resistance range	-40 - 80 °C
Storage and transportation temperature range	5 - 25 °C
Thermal conductivity (λ approx. value)	0.04 W/mK
Shelf life ¹⁾	12 Months

¹⁾ at 77°F/25°C and 50% relative humidity; from date of manufacture



Info | Shop



Ordering designation

CF-F 750

Sales pack quantity

1 pc

Item number

369811

Please visit Hilti website for the latest item numbers and related products

CP PRODUCTS TESTED FOR

At least 13 other types of test have been carried out covering properties such as water tightness, chemical compatability, explosion resistance, radiation resistance, mould resistance, electrical resistance, etc.























CP 606	Low VOC	Fire	Smoke /Gas Tightness	Water Tightness	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 601S	Low VOC	Fire	Smoke /Gas Tightness	Water Tightness	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
FS-One Max	Low VOC	Fire	Smoke /Gas Tightness	Water Tightness	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 611A	Low VOC	Fire	Smoke /Gas Tightness	Water Tightness	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CFS-SP WB	Low VOC	Fire	Smoke /Gas Tightness	Water Tightness	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 617	Low VOC	Fire			Acoustic Insulation			PLANNED
CP 620	Low VOC	Fire	Smoke /Gas Tightness	Water Tightness	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CFS-F FX	Low VOC	Fire	Smoke /Gas Tightness		Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CFS-BL	Low VOC	Fire	Smoke /Gas Tightness		Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 636	Low VOC	Fire			Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 670	Low VOC	Fire	Smoke /Gas Tightness	Water Tightness	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 651 N		Fire	WITH SEALANT		Acoustic Insulation		30 ans	Resistance to Aging*
CFS-B	Low VOC	Fire	WITH SEALANT	WITH SEALANT	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 643 N	Low VOC	Fire	WITH SEALANT	WITH SEALANT	NOT APPLICABLE	Siesmic	30 ans	Resistance to Aging*
CFS-C EL	Low VOC	Fire	WITH SEALANT	WITH SEALANT	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 648-E	Low VOC	Fire	WITH SEALANT	WITH SEALANT	Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CFS-SL	Low VOC	Fire			Acoustic Insulation	Siesmic	30 ans	Resistance to Aging*
CP 678	Low VOC	Fire				Siesmic		PLANNED

*Fire resistance test reports / approvals / certificates normally do not contain any information on the service life of a firestop product / assembly. By carrying out own additional ageing tests which simulate extreme temperature / humidity conditions, Hilti provides its customers with a very high level information on product reliability and service life expectancy of the Hilti firestop systems. On the basis of the ageing cycles obtained in these test procedures as well as of experience gained in the field of concrete construction, it can be assumed that Hilti firestop systems have a service life (ageing resistance) of approximately 30 years from manufacturing date.

Please note that this expected long-term ageing resistance of Hilti firestop systems, which is given on the basis of the above-mentioned tests, depends on a number of factors on which Hilti basically has no influence (e.g. environmental factors such as extreme environmental conditions, e.g. chemicals, etc.) and, therefore, are subject to the following conditions which must be strictly observed by the user with regard to the respective Hilti firestop system:

- Strict adherence to the Hilti's operating, setting, installing and other technical instructions;
- Rigorous compliance with all other conditions set in the respective specifications during the lifetime of the Hilti firestop systems, in particular with regard to regular control and maintenance as well as to foreseeable use under normal climatic condition in the respective field of application.

PRODUCTS APPROVALS AND TESTING

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CP 606	British Standard BS 476-20	BS EN 1366-3			45
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FS-One Max	British Standard BS 476-20				47
CP 611A	British Standard BS 476-20	BS EN 1366-3			48
CFS-SP WB		BS EN 1364-4 BS EN 1364-3			49
CP 617	British Standard BS 476-20	BS EN 1364-1			50
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CFS-SL	British Standard BS 476-20	BS EN 1366-3			61
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ENGINEERING SERVICE

How to firestop the large opening with complicated building service pipes, ducts and cables?



Bus bar, Armored cable, trunking through floor slab in EL room



Multiple layers of cable tray and trunking through fire rated wall

How to avoid the incorrect firestopping installation?

insulated pipe with firestop sealant, Probably not test approved!



Plastic pipe with firestop sealant, Probably not test approved!



Firestop mortar, too thin to provide adequate FRR rating! Probably not comply with manufacturer's report/certificate

PROPOSAL FOR PARTICULAR SITE SITUATION



INSTALLATION DEMONSTRATION



CHECKING / LABELING



**We
help
you...**

- ... to specify the correct firestopping systems to avoid wrong application
- ... to approve firestopping system to cope with complicated as-built situation
- ... to check the firestopping installation to meet standard.



Important notice

1. Construction materials and conditions vary on different sites. If it is suspected that the base material has insufficient strength to achieve a suitable fastening, contact the Firestop Technical Team.

2. The information and recommendations given herein are believed to be correct at the time of writing. The data has been obtained from tests under laboratory or other controlled conditions and it is the users responsibility to use the data given in the light of conditions on site and taking into account the intended use of the products concerned.

Whilst Hilti can give general guidance and advice, the nature of Hilti products means that the ultimate responsibility for selecting the right product for particular applications must lie with the customer.

3. All products must be used, handled and applied in accordance with all current instructions for use published by Hilti.

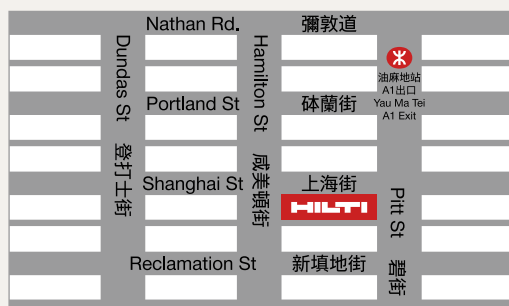
4. All products are supplied, and advice given, subject to Hilti's terms of business.

5. Hilti's policy is one of continuous development. We therefore reserve the right to alter specifications etc. without notice.

Right of technical and programme changes reserved S.E.& O; no liability accepted for printing errors or other deficiencies; earlier sales catalogues are thus rendered non valid.

Hilti = registered trademark of Hilti Corp. Schaan

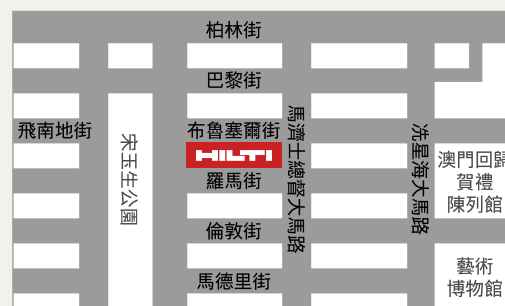
Mongkok Hilti Centre



G/F 403 Shanghai Street, Yau Ma Tei,
Kowloon, Hong Kong

(Drop-off services of Repair tools available)

Macau Hilti Centre



Rua De Bruxelas, S/N Edificio,
Kin Heng Long, Loja, W-R/C, Macau



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