

UL-EU CERTIFICATE

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UL-EU-00642-EN

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29-09-2014

Issue No.
4

Re-Issue date
30-09-2024

Expiry date
29-09-2034



4705

Certificate Holder:
FSi Limited

Address:
Westminster Industrial Estate
Tamworth Road
Measham
DE12 7DS
United Kingdom

Product:
Flexi Coat

Places of production:
A/008 & S/001

Standard:
EAD 350454-00-1104, September 2017 / EAD 350141-00-1106,
September 2017 / EN 13501-2

Authorised Signatory:

A blue ink signature of Chris Johnson.

Chris Johnson

Issued by UL International (UK) Ltd

This is to certify that representative samples of the Certified Product listed above have been investigated by Underwriters Laboratories to the Standard(s) indicated on this Certificate, in accordance with the UL Global Services Agreement and the UL-EU Mark Service Terms and Conditions ("Agreement"). The Certificate Holder is entitled to use the UL-EU Mark for the Certified Product listed on the certificate and manufactured at the production site(s) listed, in accordance with the terms of the Agreement. Only those products bearing the UL-EU Mark for Europe should be considered as being covered by UL's UL-EU Mark Service. This Certificate shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.



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This certificate relates to the use of Flexi Coat coating/sealant for fire stopping where there are joints in or between floors and walls and for perimeter joint/cavity barrier seals between floor end and curtain walling and where essential services penetrate wall and floors. The detailed scope is given in pages 3 to 32 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 240 minutes (E 240/ EI 180).

The product is certificated on the basis of:

- i) ETA 20/1030 & ETA 20/1010
- ii) EC Certificate of Constancy of Performance 2531-CPR-CX010248
- iii) Inspection and surveillance of factory production control by UL
- iv) Fire resistance test data in accordance with 1366-4: 2006
- v) Fire resistance test data in accordance with 1364-4: 2014
- vi) Classification in accordance with EN 13501-2
- vii) Durability and Serviceability as defined in EAD 350141-00-1106

The movement capability of Flexi Coat joint seals is restricted to $\leq 12.5\%$ (lateral movement)

The durability class of Flexi Coat is Z₁ - intended for use at internal conditions with high humidity, excluding temperatures below 0°C



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Product-type: Coating		Intended use: Linear Joint & Gap Seal / Penetration Seal
Basic requirement for construction work	Basic Requirement	Basic requirement for construction work
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	No performance determined
EN 13501-2	Resistance to fire	See pages 6 - 32
BWR 3 Hygiene, health and environment		
Declaration of manufacturer & EN 16516	Content, emission and/or release of dangerous substances	Declaration of manufacturer
EN 1026:2000	Air permeability (material property)	See page 4
EAD 350141-00-1106, Annex C & EN 12390-8	Water permeability (material property)	See page 4
BWR 4 Safety in use		
EOTA TR 001:2003	Mechanical resistance and stability	No performance determined
EOTA TR 001:2003	Resistance to impact/movement	No performance determined
EOTA TR 001:2003 ISO 11600 & EAD 350141-00-1106, Clause 2.2.13	Adhesion	No performance determined
EAD 350141-00-1106, Clause 2.2.12	Durability	Z ₁
EAD 350141-00-1106, Clause 2.2.13	Movement capacity	No performance determined
EAD 350141-00-1106, Clause 2.2.14	Cycling of perimeter seals for curtain walls	No performance determined
EAD 350141-00-1106, Clause 2.2.15	Compression set	No performance determined
EAD 350141-00-1106, Clause 2.2.16	Linear expansion on setting	No performance determined
BWR 5 Protection against noise		
EN 10140-1,2,4,5/ EN ISO 717-1	Airborne sound insulation	R _w (C;Ctr)= 30 (-2;-8) dB*
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667, EN 12939, EN ISO 8990, EN ISO 6946, EN ISO 10456	Thermal properties	No performance determined
EN ISO 12572, EN 12086, EN ISO 10456	Water vapour permeability	No performance determined



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Flexi Coat: Air Permeability according to BS EN 1314-1				
Pressure (Pa)	Results under positive chamber pressure		Results under negative chamber pressure	
	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)	Leakage (m ³ /h)	Leakage (m ³ /m ² /h)
50	0.1	0.1	1.0	1.4
100	0.3	0.4	1.1	1.5
150	0.6	0.8	1.5	2.1
200	0.8	1.1	0.9	1.3
250	1.1	1.5	1.3	1.8
300	1.2	1.7	1.7	2.4
450	2.4	3.3	3.5	4.9
600	4.5	6.3	5.3	7.4

Flexi Coat: Analytical VOC Results				
Solid content % mass	Water content, % mass	Exempt compounds, % mass	VOC less water less exempt compounds, g/l	VOC limit g/l
66.2	7.7*	0***	380	750*

* VOC limit for other sealants

** Given by client

*** No information about exempt compounds. Set to zero.

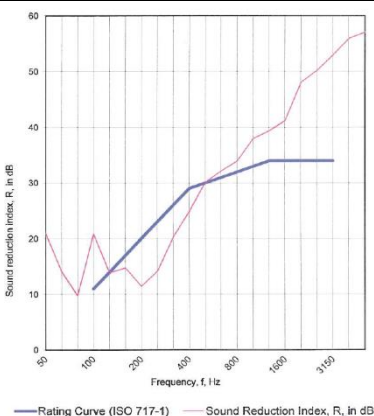
Flexi Coat: Water Permeability according to BS EN 1027*		
Pressure (Pa)	Duration	Observations
50	15 minutes	No Leakage Observed
100	5 minutes	No Leakage Observed
150	5 minutes	No Leakage Observed
200	5 minutes	No Leakage Observed
250	5 minutes	No Leakage Observed
300	5 minutes	No Leakage Observed
450	3 minutes 50 seconds	At a total duration of 43 minutes 50 seconds the right hand edge of the sample joint to subframe separated and began to allow water leakage off the sample

* Exposure from coated side



Solutions

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Flexi Coat: Acoustic performance according to BS EN ISO 10140-2:2010		
Configuration	$R_w(C; C_{tr})$ Specimen only, 1m ²	D_{new} Partition & Specimen, 14.2m ²
Flexi Coat on source room side of wall, 1mm deep x 500mm wide x 2000mm high, with 100mm deep Stonewool (80kg/m ³)	30 (-2; -8)	40 (2; -8)
		



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Flexi Coat: Linear Gaps in Concrete Floors						
Substrate	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)
AAC or Concrete	150	200	Top of floor	1 (DFT)	Stone Mineral Wool* Compressed by 20%	100
Classification		E 240 – H – X - F -W 10 to W 200 EI 180 – H – X - F -W 10 to W 200				

* 80 kg/m³

Flexi Coat: Linear Gaps in Masonry/Concrete Walls						
Substrate	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)
AAC or Concrete	150	150	Unexposed face	1 (DFT)	Stone Mineral Wool* Compressed by 20%	100
Classification		E 240 – V– X - F -W 10 to W 150 EI 180 – V – X - F -W 10 to W 150				

* 80 kg/m³



Solutions

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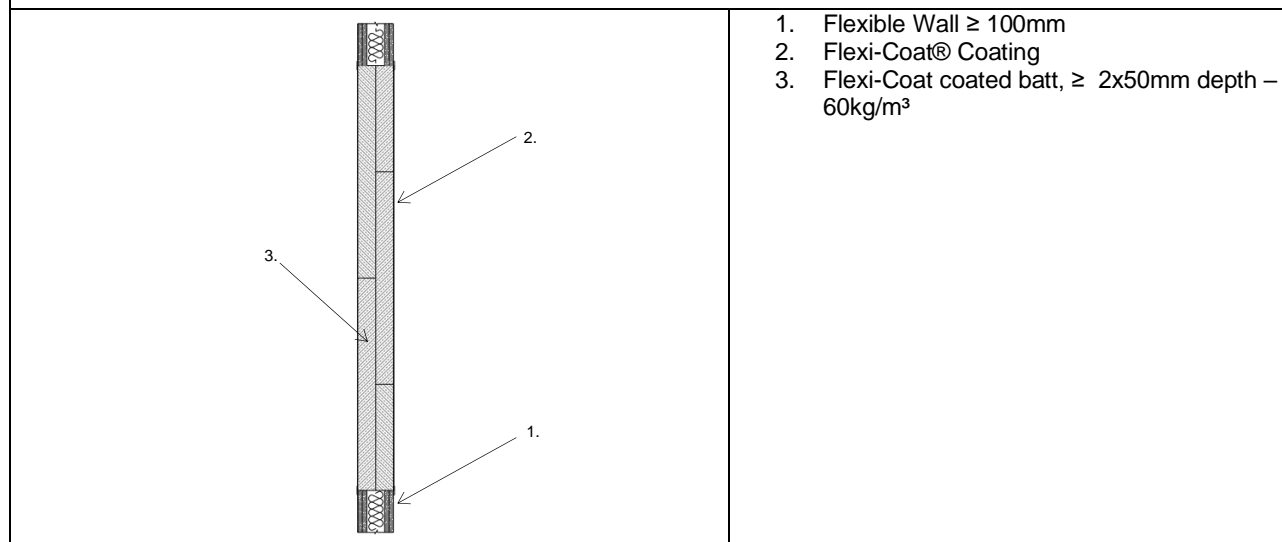
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Flexible or Rigid wall constructions with wall thickness of minimum 100 mm

Blank Seal Opening

Penetration Seal: Flexible or Rigid Walls $\geq 100\text{mm}$. Blank Seal Opening of Double 50 mm Flexi-Coat coated batt with staggered joints (min. 300mm)

Construction details:

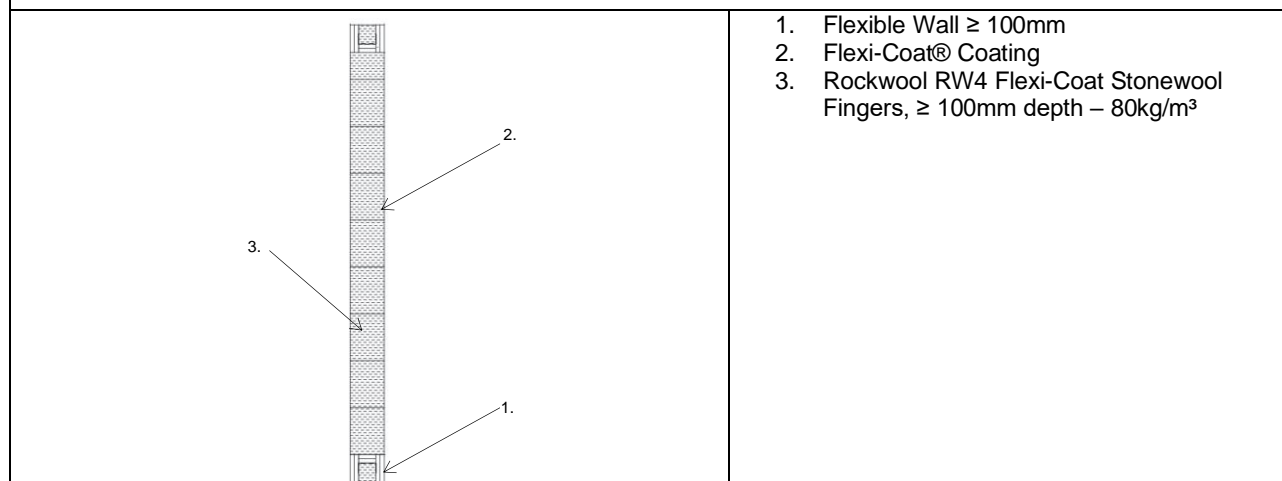


1. Flexible Wall $\geq 100\text{mm}$
2. Flexi-Coat® Coating
3. Flexi-Coat coated batt, $\geq 2 \times 50\text{mm}$ depth – 60kg/m^3

Penetration Service	Maximum Seal Size (mm)	Coating Thickness (mm)	Classification
Blank Seal Opening	730 x 1200	$\geq 1\text{mm DFT}$	EI 120

Penetration Seal: Flexible or Rigid Walls $\geq 100\text{mm}$ - Lined. Blank Seal Opening of Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints and both faces sealed with brush applied Flex-Coat ablative coating and minimum 20 mm coating overlap onto the surface of the wall.

Construction details:



1. Flexible Wall $\geq 100\text{mm}$
2. Flexi-Coat® Coating
3. Rockwool RW4 Flexi-Coat Stonewool Fingers, $\geq 100\text{mm}$ depth – 80kg/m^3

Penetration Service	Maximum Seal Size (mm)	Coating Thickness (mm)	Classification
Blank Seal Opening	1200x 1200	$\geq 1\text{mm DFT}$	E 120, EI 90



Solutions

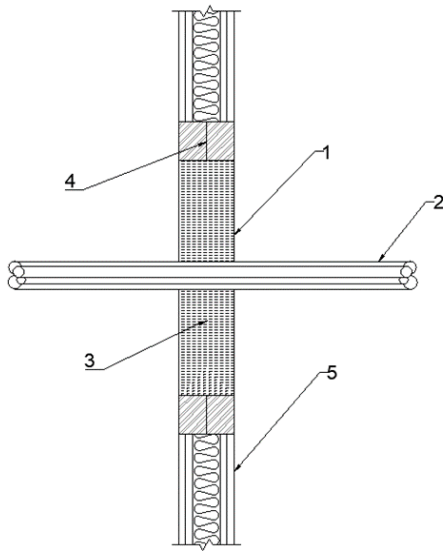
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Cables and Cable Trays

Penetration Seal: Flexible or Rigid Walls $\geq 100\text{mm}$ - Lined. Opening to be reduced by 200mm around the perimeter with 2 x 50mm layers of Stopseal batt and then the remaining aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flexi-Coat ablative coating ($\geq 1\text{mm}$ DFT) and minimum 20 mm coating overlap onto the surface of the wall. All services and service supports must be wrapped on both faces of the seal with min. 200mm long, 400mm thick stonewool insulation 42 kg/m³. Insulation to be retained by 2 x steel tie wraps per side.

Construction details:



1. Flexi-Coat® Coating
2. Cables and Cable Trays
3. Rockwool RW4 Stone wool Flexi-Coat Fingers, $\geq 100\text{mm}$ depth – 80kg/m³
4. Stopseal Batt® 2 x 50mm installed to 200mm of aperture perimeter
5. Flexible Wall $\geq 100\text{mm}$

Penetration Service	Maximum Seal Size (mm)	Classification
Electrical cables $\leq 21\text{ mm } \varnothing$	1200 x 1200	E 90, EI 60
Electrical cables $\leq 50\text{ mm } \varnothing$		
Electrical cables $\leq 80\text{ mm } \varnothing$		
Telecom cables $\leq 21\text{ mm } \varnothing$ (single or in bundles up to 100 mm \varnothing)		
Up to 16mm Copper Conduit		
Up to 16mm PVC Conduit		
Cable Trays and Ladders		



Solutions

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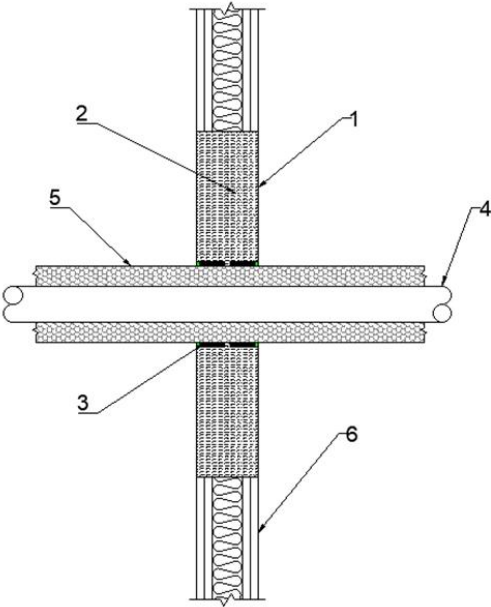
Cable Trunking

Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Flexible Wall ≥ 100mm3. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³4. FSi S-Line Pillows®5. L/I–350mm Long, 50mm thick Stone Wool (or Stopseal Batt) to both sides of the seal 80kg/m³6. Steel Trunking
Penetration Service	Maximum Seal Size (mm)	Classification
Max. 155 x 155mm Cable Trunking, empty or supporting a 100mm diameter cable bunch of up to 21mm diameter telecoms cables. Trunking infilled with 300mm long S-Line Fire Pillows and with 350 mm long, 50mm Stone wool insulation 80kg/m³	1200 x 1200	EI 60



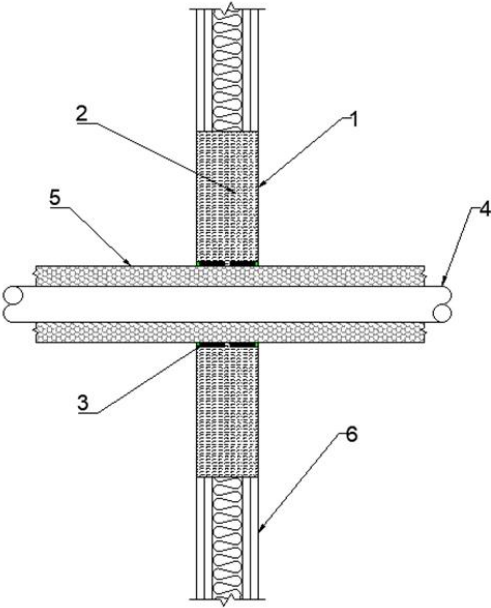
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Insulated Metallic Pipes

Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool RW4 Stone woolFlexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. 2 Layers Pipebloc EL® Wraps4. Copper Service5. Phenolic/Elastomeric Insulation over full length of the pipe6. Flexible Wall ≥ 100mm
Penetration Service	Maximum Seal Size (mm)	Classification
76 mm Ø Steel/Copper Pipe with 1.5-14.2 mm wall thickness and C/S – Armacell Armaflex Insulation - 40mm thick	1200 x 1200	E 120, EI 90 C/C
76 mm Ø Steel/Copper Pipe with 1.5-14.2 mm wall thickness and C/S – Kingspan Kooltherm Phenolic Insulation - 40mm thick		EI 90 C/C



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Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. 2 Layers Pipebloc EL® Wraps4. Steel/Copper Service5. Phenolic Insulation6. Flexible Wall ≥ 100mm
Penetration Service	Maximum Seal Size (mm)	Classification
54mmØ Steel/Copper Pipe 1.2-14.2mm Wall Thickness with C/S Kingspan Kooltherm Phenolic Insulation 25-40mm thick	1200 x 1200	EI 60 C/U
54mmØ Steel Pipe 3.1-14.2mm Wall Thickness with C/S Kingspan Kooltherm Phenolic Insulation 40mm thick		EI 90 C/U



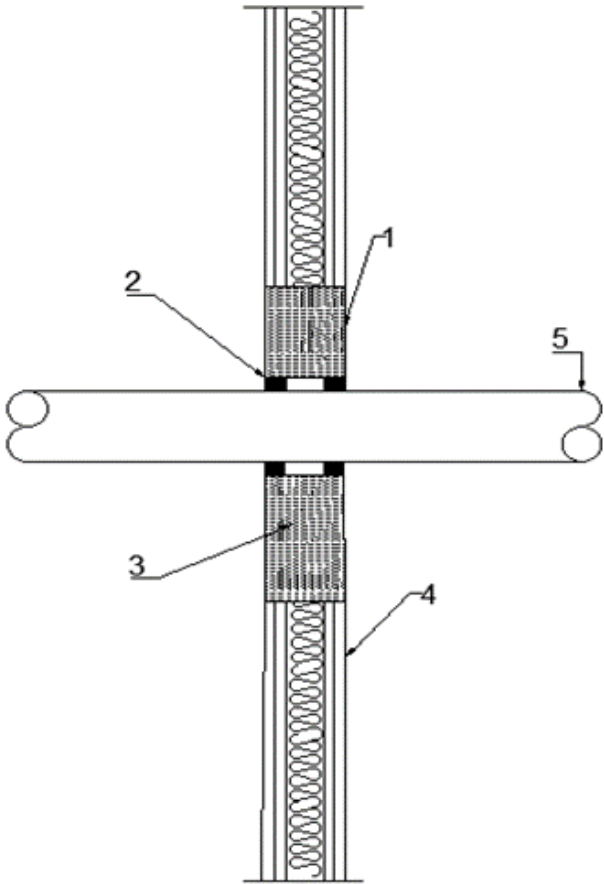
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CPVC Penetration

Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.			
Construction details:			
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. FSi Pyropro - HPE®3. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³4. Flexible Wall ≥ 100mm5. CPVC Service	
Penetration Service	Maximum Seal Size (mm)	Depth/Annular (mm)	Classification
CPVC Sprinkler Service 26mm-89mm 2.5-6.8mm wall thickness	400 x 400	25mm Depth, 20mm Annular	EI 120 C/C



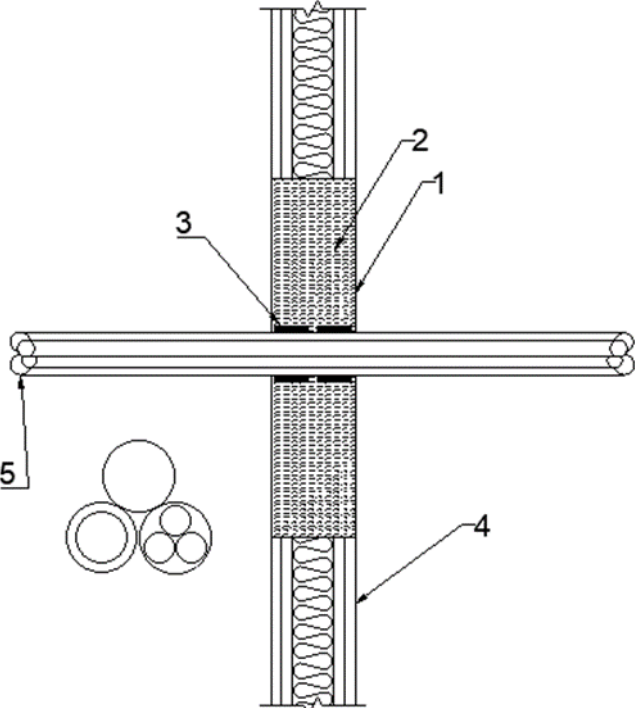
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Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.			
Construction details:			
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. FSi Pyropro - HPE®3. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³4. Flexible Wall ≥ 100mm5. CPVC Service	
Penetration Service	Maximum Seal Size (mm)	Depth/Annular (mm)	Classification
CPVC Sprinkler Service 26mm-89mm 2.5-6.8mm wall thickness	1200 x 1200	25mm Depth, 20mm Annular	E 120, EI 90 C/C



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Conduits

Penetration Seal: Flexible or Rigid Walls $\geq 100\text{mm}$ - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating ($\geq 1\text{mm}$ DFT) and minimum 20 mm coating overlap onto the surface of the wall.			
Construction details:			
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, $\geq 100\text{mm}$ depth – 80kg/m^33. Pipebloc EL Wraps4. Flexible Wall $\geq 100\text{mm}$5. Plastic Conduits	
Penetration Service	Layer of Wraps	Maximum Seal Size (mm)	Classification
3 no. 32mm PP Conduits, Supporting small cables up to 21mm	2	1200 x 1200	E 90, EI 60



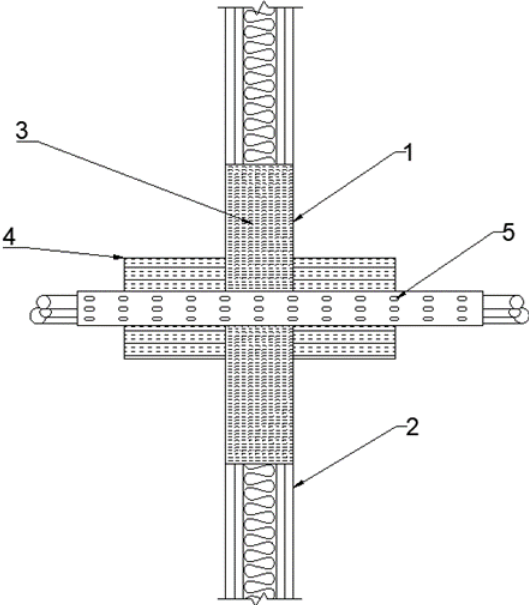
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Cable Trays

Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Flexible Wall ≥ 100mm3. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³4. L/I – 300mm long, 40mm deep 60kg/m³ Stone wool5. Cable tray
Penetration Service	Maximum Seal Size (mm)	Classification
150mm wide, 25mm high perforated steel cable tray supporting small cables up to 21mm	400 x 400	EI 120



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Penetration Seal: Flexible or Rigid Walls $\geq 100\text{mm}$ - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating ($\geq 1\text{mm}$ DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Flexible Wall $\geq 100\text{mm}$3. Rockwool RW4 Stone wool Flexi-Coat Fingers, $\geq 100\text{mm}$ depth – 80kg/m^34. L/I – 300mm long, 40mm deep 60kg/m^3 Stone wool5. Cable tray
Penetration Service	Maximum Seal Size (mm)	Classification
150mm wide, 25mm high perforated steel cable tray supporting small cables up to 21mm	1200 x 1200	E 120, EI 90



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Plastic Pipes

Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. Pipebloc EL Wraps® and Pyrocoustic Sealant ®4. Flexible Wall ≥ 100mm5. Plastic Pipes
Penetration Service	Maximum Seal Size (mm)	Classification
PVC-U, PVC-C – See Graph 1 for scope	1200 x 1200	EI 90 C/C
PP – See Graph 2 for scope		EI 120 EI 90 C/C
PE, ABS, SAN-PVC – See Graph 3 for scope		



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Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.			
Construction details:			
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. HPE Sealant4. Flexible Wall ≥ 100mm5. Plastic Pipes	
Penetration Service	Maximum Seal Size (mm)	Depth/Annular (mm)	Classification
uPVC Pipe 40-200mm, 1.9-8mm wall thickness See Graph 4 for scope	1200 x 1200	25mm Depth, 20mm Annular	EI 60 - U/C



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Insulated Metallic Pipes

Penetration Seal: Flexible or Rigid Walls $\geq 100\text{mm}$ - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating ($\geq 1\text{mm}$ DFT) and minimum 20 mm coating overlap onto the surface of the wall.

Construction details:

		<ol style="list-style-type: none"> 1. Flexi-Coat® Coating 2. Rockwool RW4 Stone wool Flexi-Coat Fingers, $\geq 100\text{mm}$ depth – 80kg/m^3 3. L/I – 400mm long or CS Stone wool 4. Copper pipe 5. Flexible wall $\geq 100\text{mm}$
Penetration Service	Maximum Seal Size (mm)	Classification
Steel/Copper Pipe 42-159mm, 1.8-14.2mm Wall Thickness, 60mm Thick 80kg/m^3 Stone wool, L/I 400 mm	1200 x 1200	E 120, EI45 C/C
Steel Pipe 42-150mm, 2.4-14.2mm Wall Thickness, 50mm Thick 80kg/m^3 Foil Faced Stone wool, C/S		E 120, EI60 C/U
Steel/Copper Pipe 42-54mm, 1.5-14.2mm Wall Thickness, 25-50mm Thick 80kg/m^3 Foil Faced Stone wool, C/S		E 90, EI60 C/U

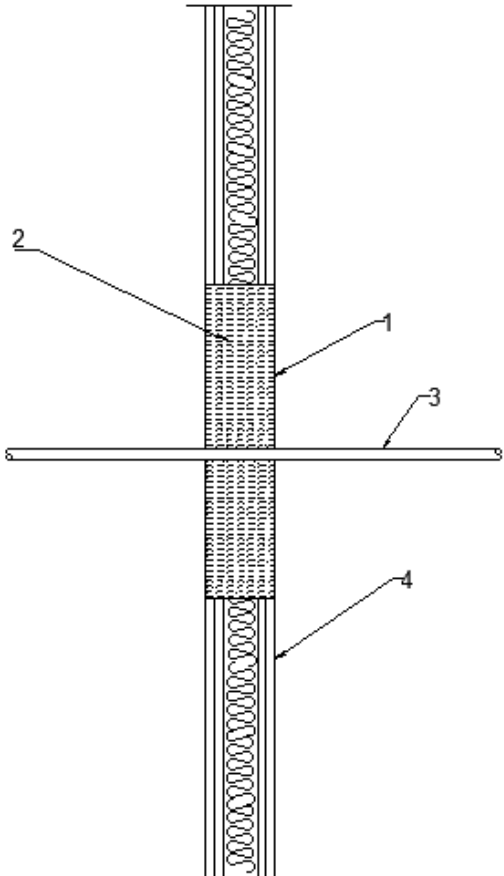


Solutions

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Single cables

Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ul style="list-style-type: none">1. Flexi-Coat® coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. Single Cables4. Flexible Wall ≥ 100mm
Penetration Service	Maximum Opening size (mm)	Classification
Single Cable up to 21mm - E-YY-J 1x95RM or E-YY-O 1x95RM NYY-J 1x95RM or NYY-O 1x95RM VV 1x95 TT 1x95 RM 0,6/1 kV	110 x 110	EI 120



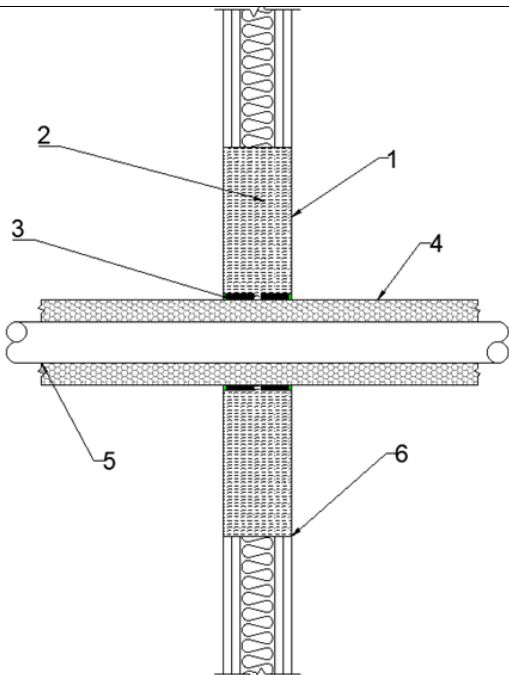
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Penetration Seal: Flexible or Rigid Walls $\geq 100\text{mm}$ - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating ($\geq 1\text{mm}$ DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, $\geq 100\text{mm}$ depth – 80kg/m^33. Single Cables4. Flexible Wall $\geq 100\text{mm}$
Penetration Service	Maximum Opening size (mm)	Classification
Single Cable up to 21mm - E-YY-J 1x95RM or E-YY-O 1x95RM NYY-J 1x95RM or NYY-O 1x95RM VV 1x95 TT 1x95 RM 0,6/1 kV	1200 x 1200	E 120, EI 90



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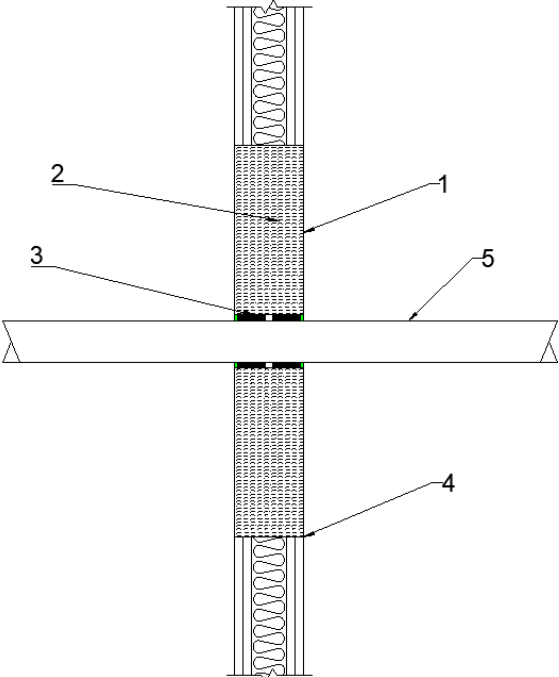
Insulated Copper Pipe

Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. 3x Layers Pipebloc EL Wraps®4. C/S 35mm Kingspan Kooltherm Insulation over full length of the pipe.5. Copper Pipe6. Flexible Wall ≥ 100mm
Penetration Service	Maximum Opening size (mm)	Classification
Steel/Copper Pipe 54mm, 1.2-14.2mm Wall thickness, L/S 35mm Phenolic Insulation	1200 x 1200	E 120, EI 90 – C/U, C/C



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PVC Duct

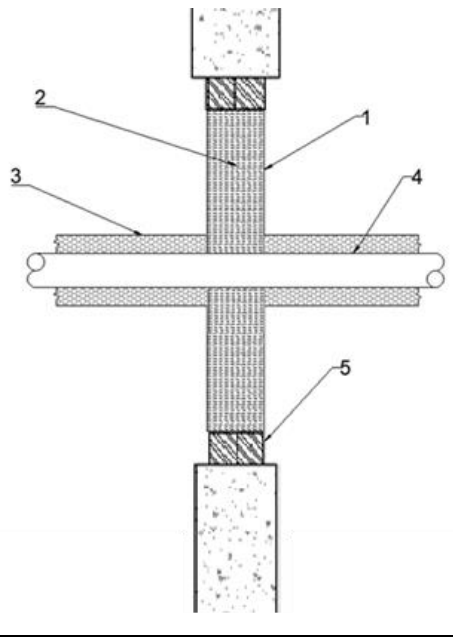
Penetration Seal: Flexible or Rigid Walls ≥100mm - Lined. Aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. 3 layers Pipebloc EL Wraps®4. PVC vent duct5. Flexible Wall ≥ 100mm
Penetration Service	Maximum Opening size (mm)	Classification
PVC Vent Duct 220 x 90mm	1200 x 1200	E 120, EI 90 - C/C



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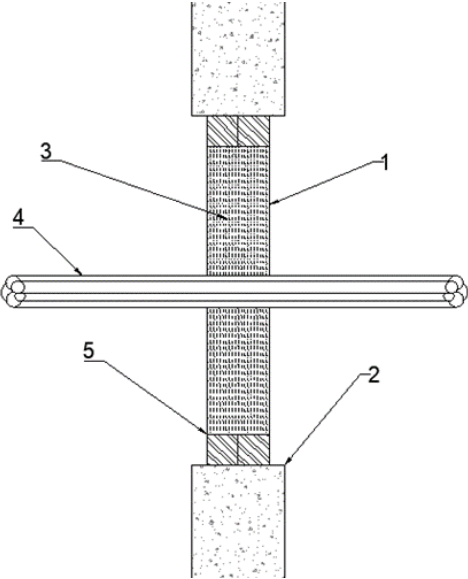
Rigid Walls

Metallic Penetration

Penetration Seal: Rigid Walls ≥150mm. Opening to be reduced by 200mm around the perimeter with 2 x 50mm layers of Stopseal batt and then the remaining aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flexi-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³3. Stone wool pipe insulation LI 200 mm long and 40 mm thick – 45kg/m³4. Steel/Copper Pipe5. Stopseal Batt® installed to 100mm of aperture perimeter
Penetration Service	Maximum Seal Size (mm)	Classification
Steel Pipe 200mm, 5mm Wall Thickness	1200 x 1200	E 90, EI 30 – C/U
Steel/Copper Pipe 40mm, 1.5-14.2mm Wall Thickness		E 120, EI 60 – C/U
Steel/Copper Pipe 159mm, 2-14.2mm Wall Thickness		E 120, EI 20 – C/U

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Cables, trays and Conduits

Penetration Seal: Rigid Walls ≥150mm. Opening to be reduced by 200mm around the perimeter with 2 x 50mm layers of Stopseal batt and then the remaining aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flexi-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall. All services and service supports must be wrapped on both faces of the seal with min. 200mm long, 400mm thick stonewool insulation 45 kg/m³. Insulation to be retained by 2 x steel tie wraps per side.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rigid Wall ≥ 150mm3. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³4. Cables and Cable Trays5. Stopseal Batt® 2 x 50mm installed to 200mm of aperture perimeter
Penetration Service	Maximum Seal Size (mm)	Classification
Electrical cables ≤ 21 mm Ø	1200 x 1200	EI 60
Electrical cables ≤ 50 mm Ø		
Electrical cables ≤ 80 mm Ø		
Telecom cables ≤ 21 mm Ø (single or in bundles up to 100 mm Ø)		
Up to 16mm Copper Conduit		
Up to 16mm PVC Conduit		
Steel Cable Trays and Ladders		



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Combustible Pipes

Penetration Seal: Rigid Walls ≥150mm. Opening to be reduced by 200mm around the perimeter with 2 x 50mm layers of Stopseal batt and then the remaining aperture infilled with Flexi-Coat Fingers 150 mm width, stacked horizontally into a lined opening with 20% vertical compression. All joints sealed with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.		
Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Rigid Wall ≥ 150mm3. Rockwool RW4 Stone wool Flexi-Coat Fingers, ≥ 100mm depth – 80kg/m³4. Plastic Pipes5. Stopseal Batt® 2 x 50mm installed to 200mm of aperture perimeter6. Pipebloc EL Wraps® and Pyrocoustic Sealant ®
Penetration Service	Maximum Seal Size (mm)	Classification
PVC-U, PVC-C – See Graph 1 for scope	400 x 400	EI 120 C/C
PP - See Graph 2 for scope		
PP, ABS, SAN-PVC – See Graph 3 for scope		



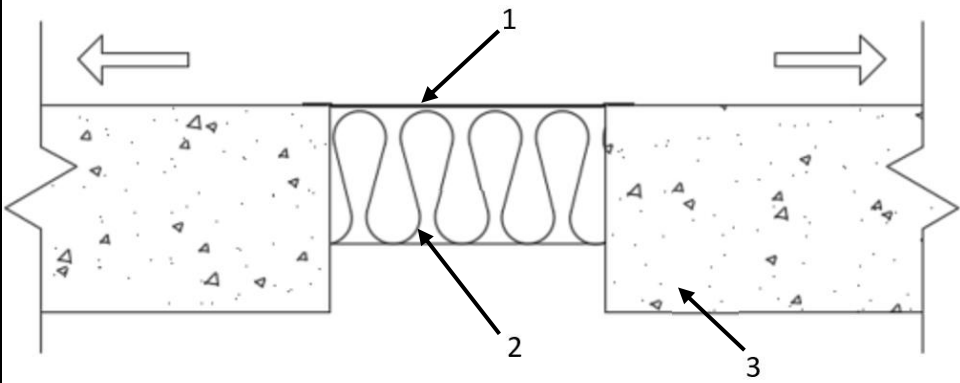
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Rigid Floors Minimum Thickness 150mm

Single sided linear joint seal in floor from top side:

Joint Seal: Rigid Floors ≥150mm, min. 650 kg/m³ density concrete. Flexi-Board is required to be installed flush to the top face with 20% compression and sealed on the top face with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the floor.

Construction details:

			<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Flexi-Board Stone wool, ≥ 100mm depth – 80kg/m³3. Rigid floor ≥150mm
Coating	Backing	Classification	
≥ 1mm DFT * - 20mm overlap onto substrate	Flexi-Board Stone wool, ≥ 100mm depth – 80kg/m³	EI 120 – H – M25 - F -W 10 to W 200	

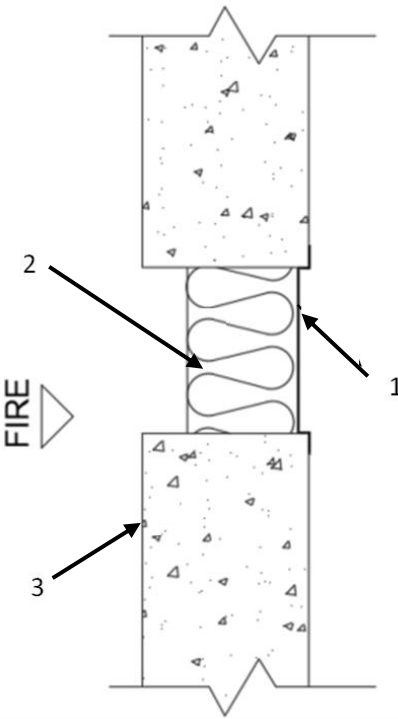
* Dry film thickness



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Single sided linear movement joint in wall from non-exposed side

Joint Seal: Rigid Walls ≥150mm, min. 650 kg/m³ density concrete/masonry. Flexi-Batt P100 is required to be installed 10 mm from flush to the non-fire/unexposed face with 20% compression and sealed on this face with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall.

Construction details:		
		<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Flexi-Batt P100 Stone wool, ≥ 100mm depth – 80kg/m³3. Rigid wall ≥150mm
Coating	Backing	Classification
≥ 1mm DFT * - 20mm overlap onto substrate	Flexi-Batt P100 Stone wool, ≥ 100mm depth – 80kg/m³	E 240 – V – M25 - F -W 10 to W 150 EI 180 – V – M25 - F -W 10 to W 150

* Dry film thickness

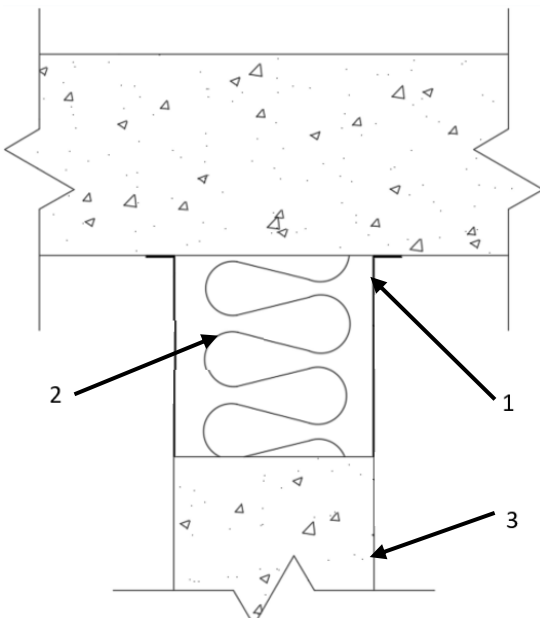


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Head of wall joint

Joint Seal: Rigid Wall & Floor ≥150mm, min. 650 kg/m³ density concrete/masonry. Flexi-Board is required to be installed flush to the to both faces with 20% compression and sealed on both faces with brush applied Flex-Coat ablative coating (≥1mm DFT) and minimum 20 mm coating overlap onto the surface of the wall and floor.

Construction details:

			<ol style="list-style-type: none">1. Flexi-Coat® Coating2. Flexi-Board Stone wool, ≥ 100mm depth – 80kg/m³3. Rigid wall ≥150mm			
Coating	Backing	Classification				
≥ 1mm DFT * - 20mm overlap onto substrate	Flexi-Board Stone wool, ≥ 100mm depth – 80kg/m ³	EI 120 – T – M 25 - F -W 10 to W 200				

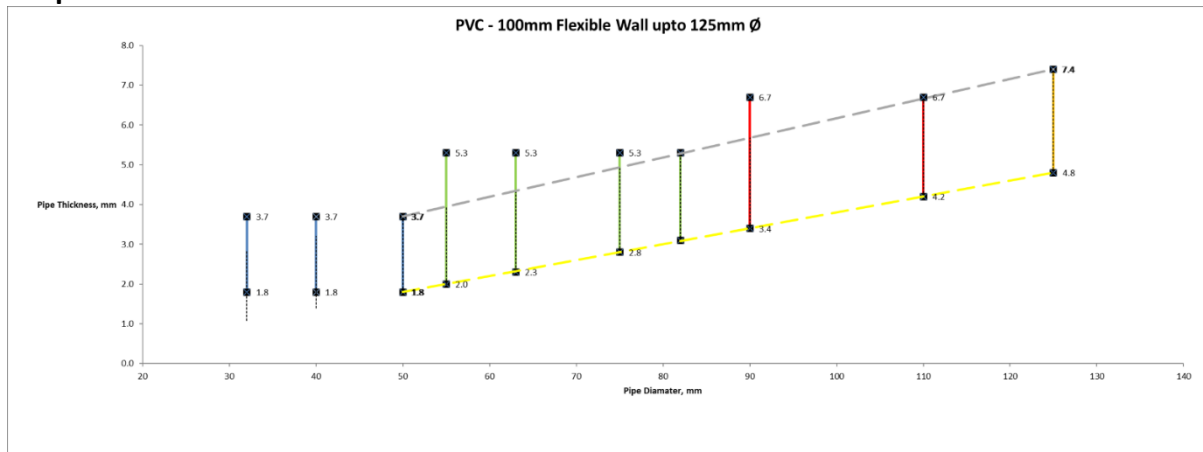
* Dry film thickness



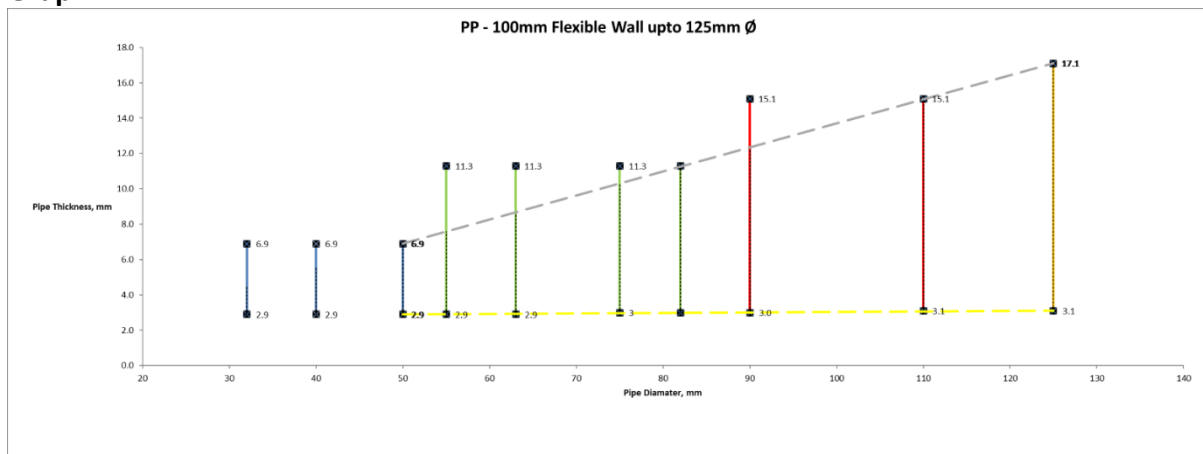
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Plastic pipe graphs

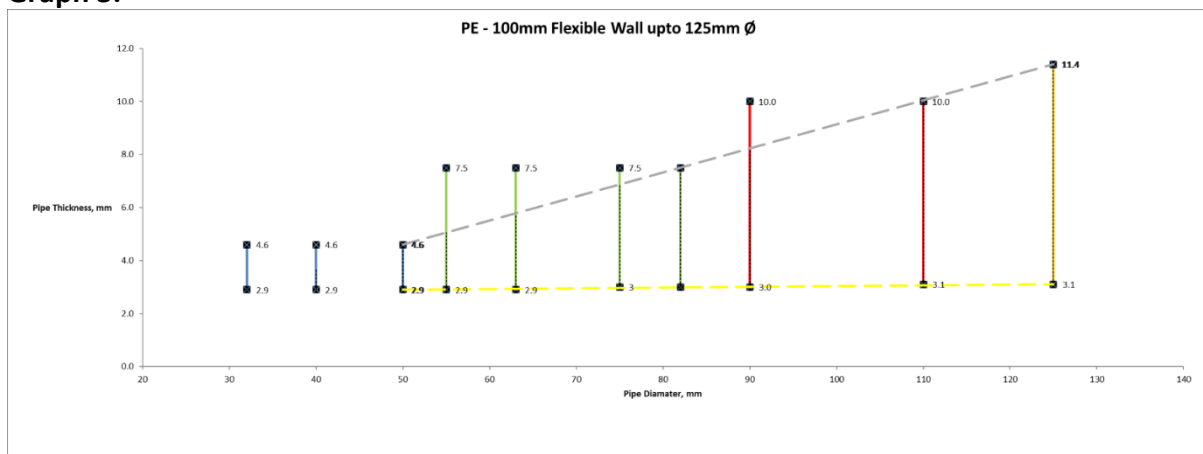
Graph 1:



Graph 2:



Graph 3:

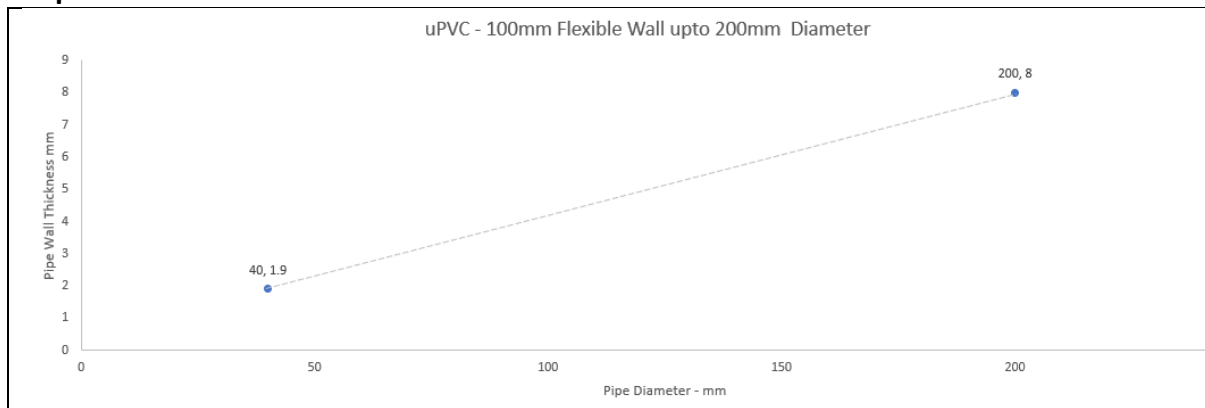


Solutions

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Graph 4:



Application Layers of Wraps

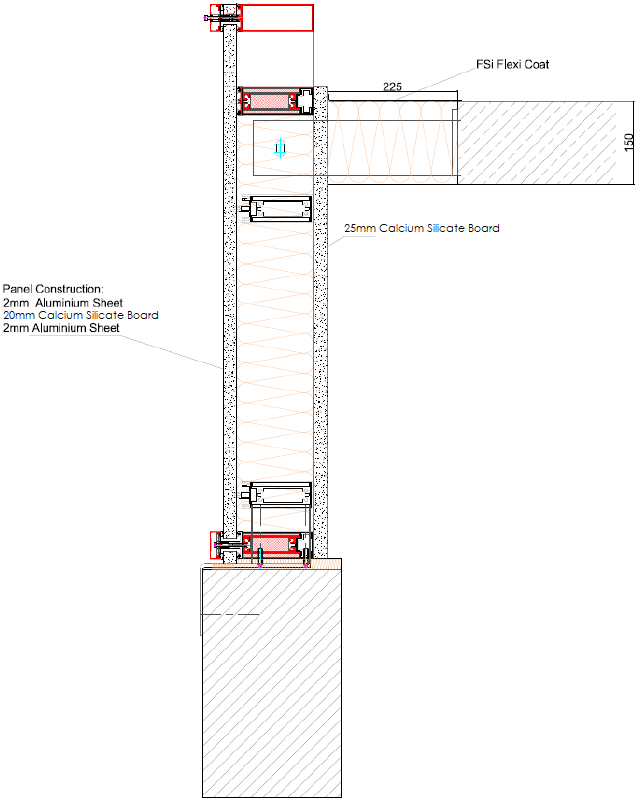
Pipebloc EL applied both sides of wall/floor	
For use with plastic pipes	
Pipe Ø (mm)	Layers of Pipebloc EL
40	2
55	2
63	2
75	2
82	2
90	3
110	3
125	4
140	4
160	4
200	5



Solutions

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Flexi Coat: Perimeter Joint Seal/Cavity Barriers Between Floor End and Curtain Walling								
Construction details:								
								
Substrate	Minimum Substrate Thickness (mm)	Maximum Gap Size (mm)	Seal Position	Minimum Seal Depth (mm)	Backing Material	Minimum Backing Depth (mm)	Fire Resistance (mins.)	
							E	EI
AAC or Concrete/ Curtain Wall#	150	225	Top of backing material. Overlapping floor and curtain wall at minimum 15 mm	1 (DFT)	Stone Mineral Wool* Compressed by 20%	100	120	120

* 80 kg/m3
#Curtain wall comprising an aluminium profile system of mullions and transoms, with 1 x 25 mm thick layer of Calcium silicate board mounted on the inside of the spandrel panel system and a stonewool based core within the spandrel panel.



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