UL-EU CERTIFICATE

Certificate No.
UL-EU-00640-EN

Issue date
2014-09-25

Issue No.
5

Re-Issue date
2026-01-26

Expiry date
2034-09-29

This is to acknowledge that:
FSi Limited

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

Has had the product:
S-Line Pillows

evaluated and meets the requirements of the standards:

EAD 350454-00-1104, September 2017 / EN 13501-2

Places of production:
A/008 & X/001

Authorised Signatory:

Chris Johnson
Issued by UL International (UK) Ltd

UKAS PRODUCT CERTIFICATION
4705

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shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.

UL Solutions
Form-ULID-006104 V10.0

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Appendix UL-EU CERTIFICATE UL-EU-00640-EN

This certificate relates to the use of S-Line Pillows for fire stopping where services pass through rigid floors, flexible walls and rigid walls. The detailed scope is given in pages 5 to 13 of this Certificate. This shows the thickness and acceptable dimensions, substrates, services and orientations required to provide fire resistance periods of up to 120 minutes.

The product is certificated on the basis of:

i) ETA 20/1031
ii) EC – CERTIFICATE OF CONSTANCY OF PERFORMANCE 2812 – CPR – JA5008
iii) Inspection and surveillance of factory production control by UL
iv) Fire resistance test data in accordance with EN 1366-3: 2009.
v) Classification in accordance with EN 13501-2
vi) Durability and Serviceability as defined in EAD 350454-00-1104

The durability class of S-Line Pillows is Z_1 - intended for use at internal conditions with high humidity, excluding temperatures below 0°C

According to EN 1366-3: 2021+A1: 2024, Clause H.4.1.8.6.2, the following end uses are envisaged* based upon the tested pipe end configuration:

Pipe material	Tested pipe end	Envisaged use scenario
Metal	C/U or C/C	Closed pipe systems (e.g. systems under pressure)
	U/U, U/C or C/U	Ventilated pipe systems (e.g. sewage pipes) and for closed pipe systems
Plastic	U/U or C/U	Ventilated pipe systems and for closed pipe systems
	U/U	Ventilated pipe systems, for rainwater systems and for closed pipe systems

* In the case where a national prescription is in conflict with the content of the table above, the national prescriptions prevail.

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Product-type: Pillow	Intended use: Penetration Seal	
Assessment method	Essential characteristic	Product Performance
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Class F
EN 13501-2	Resistance to fire	See pages 5 - 13
BWR 3 Hygiene, health and environment		
EN 1026	Air permeability	See page 4
EAD 350454-00-1104, Annex C	Water permeability	No performance determined
Declaration of manufacturer & EN 16516	Content, emission and/or release of dangerous substances	Use categories: IA2 Declaration of manufacturer
Declaration of manufacturer & EN 16516	Content, emission and/or release of dangerous substances	Declaration of manufacturer
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	Adhesion	No performance determined
EAD 350454-00-1104, Clause 2.2.9	Durability	Z_1
BWR 5 Protection against noise		
EN 10140-1,2,4,5/ EN ISO 717-1	Airborne sound insulation	Rw(C;Ctr)= 33 (0;-2) dB*
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667, EN 12939, EN ISO 8990, EN ISO 6946, EN ISO 14683, EN ISO 10211, EN ISO 10456	Thermal properties	No performance determined
EN ISO 12572, EN 12086, EN ISO 10456	Water vapour permeability	No performance determined
* As given in ETA, see page 5 for additional ratings		

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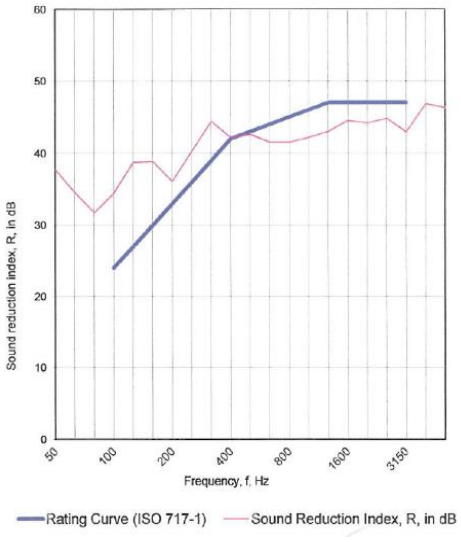
S-Line Pillows: Air Permeability according to BS EN 1314-1				
Pressure (Pa)	**Results under positive chamber pressure**		**Results under negative chamber pressure**	
	Leakage (m^3/h)	**Leakage ($m^3/m^2/ h$)**	**Leakage (m^3/h)**	**Leakage ($m^3/m^2/ h$)**
50	2.5	13.9	3.1	17.2
100	4.1	22.8	5.6	31.1
150	5.8	32.2	7.4	41.1
200	7.2	40.0	8.9	49.4
250	8.7	48.3	10.3	57.2
300	9.8	54.4	11.1	61.7
450	13.4	74.4	15.3	85.0
600	17.5	97.2	18.6	103.3

S-Line Pillows: Acoustic performance according to BS EN ISO 10140-2:2010		
Configuration	**$R_w(C; C_{tr})$ Specimen only, $1m^2$**	**D_{new} Partition & Specimen**
500mm wide x 2000mm high, aperture filled with 114 No. S-Line Pillows	33 (0; -2) 	43 (0; -2)

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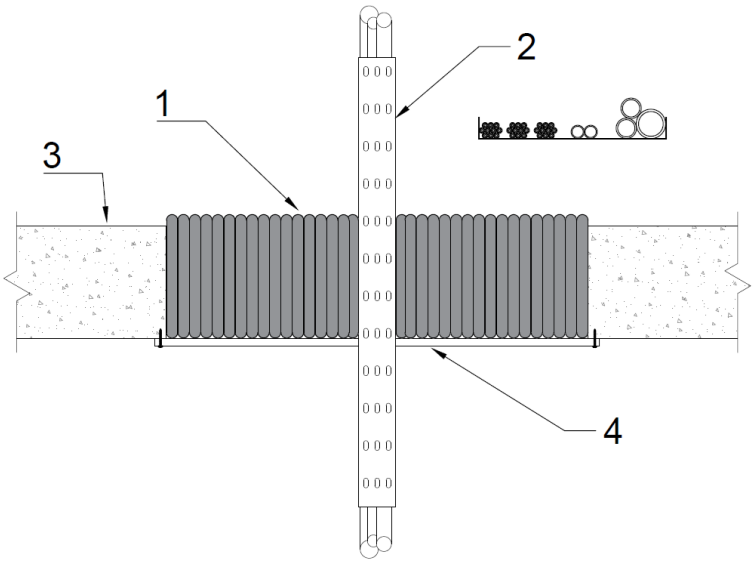
Cables/Cable trays and Conduits

Rigid floors minimum thickness 150 mm, with pillows of 330 x 200 x 45 & 330 mm x 50 mm x 20 mm sizes.

Single layer comprising both sizes of the pillow used to seal aperture around the cable services.

Pillows supported on a steel mesh, fitted across aperture at the exposed face and screw fixed to concrete floor.

All services are required to be supported at a minimum distance of 265 mm from the unexposed face of the floor.



Key

1. FSi S-Line Pillows
2. Cable Trays/ Cable ladders/ Conduits
3. Rigid floor ≥150mm
4. Wire mesh support

Penetration Service	Substrate	Maximum Aperture Size (mm)	Minimum Seal Depth (mm)	Installation	Classification
Telecom cables ≤ 21 mm Ø (single or in bundles up to 100 mm Ø)	Concrete floor	750 x 750	330	Flushed to the soffit Supported from underneath by steel wire mesh	E 120
Electrical cables ≤ 21 mm Ø					E 120
Electrical cables ≤ 50 mm Ø					E 120
Electrical cables ≤ 80 mm Ø					E 90
Unsheathed wires ≤ 24 mm Ø					E 120
Plastic conduits and tubes ≤ 16 mm Ø					E 120
Steel, copper conduits and tubes ≤ 16 mm Ø					E 120
Cable ladders ≤ 300 mm wide					E 120/EI 60
Cable trays ≤ 500 mm wide					E 120

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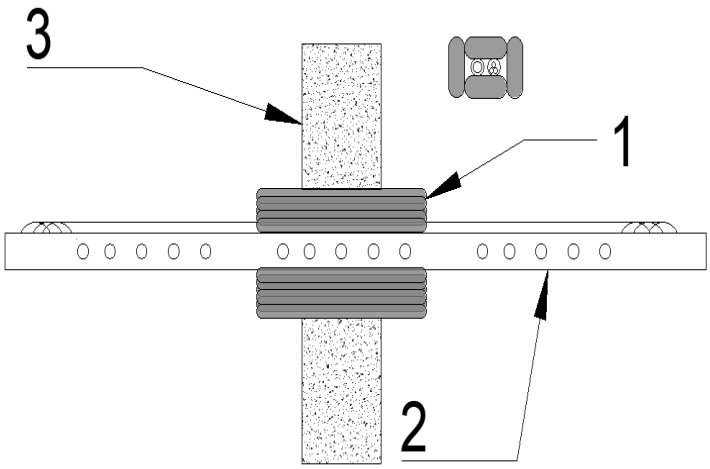
Cables/Cable trays and Conduits

Rigid walls minimum thickness 150 mm, with pillows of 330 x 200 x 45, 330 x 200 x 25 & 330 mm x 50 mm x 20 mm sizes.

Rigid wall with a minimum thickness of 150 mm where the pillows are tightly packed into the aperture around the service penetration and positioned centrally in the aperture.

All services are required to be supported at a minimum distance of 250 mm from both faces of the wall.



Key

1. FSi S-Line Pillows
2. Cable Trays/Cables/Conduits
3. Rigid Wall ≥150mm

Penetration Service	Maximum Void Size (mm)	Minimum Seal Depth (mm)	Installation	Classification
Telecom cables ≤ 21 mm Ø (single or in bundles up to 100 mm Ø)	1100 x 1100	330*	Central	EI 120
Electrical cables ≤ 21 mm Ø				EI 120
Electrical cables ≤ 80 mm Ø				E 120/EI 60
Unsheathed wires ≤ 24 mm Ø				EI 120
Electrical cables ≤ 50 mm Ø				E 120/EI 90
Plastic conduits and tubes ≤ 16 mm Ø				EI 120
Steel, copper conduits and tubes ≤ 16 mm Ø				E 120/EI 90
Cable trays or ladders				E 120/EI 60
Cable trays				E 120/EI 90

* With equal projection to both faces

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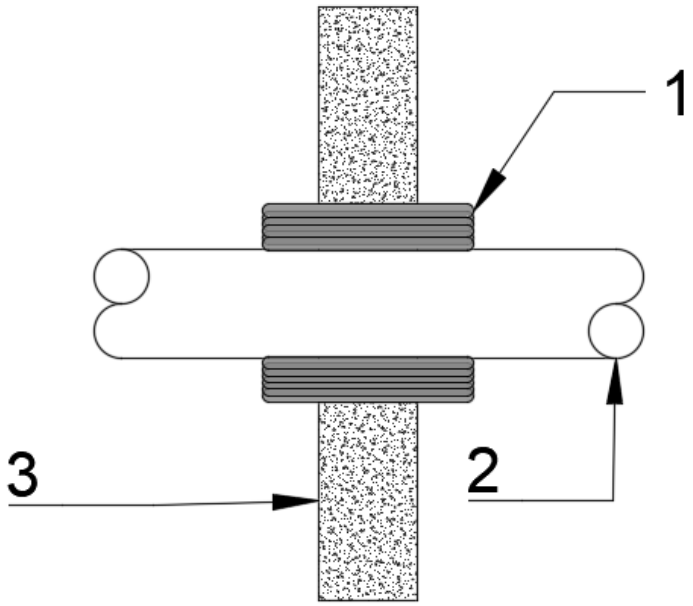
Uninsulated steel pipes

Rigid wall with a minimum thickness of 150 mm where the pillows are tightly packed into the aperture around the service penetration and positioned centrally in the aperture.

All services are required to be supported with a pipe support system at a minimum distance of 250 mm from both faces of the wall.



Key

1. FSi S-Line Pillows
2. Steel Pipe Penetration
3. Rigid Wall ≥150mm

Penetration Service	Substrate	Maximum Aperture Size (mm)	Minimum Seal Depth (mm)	Seal Positioning	Classification
Up to 165 mm Ø by 5.6-14.2mm WT mild steel pipe	Masonry Concrete Wall	1100 x 1100	330*	Central*	**E 120 C/U**

* With equal projection to both faces

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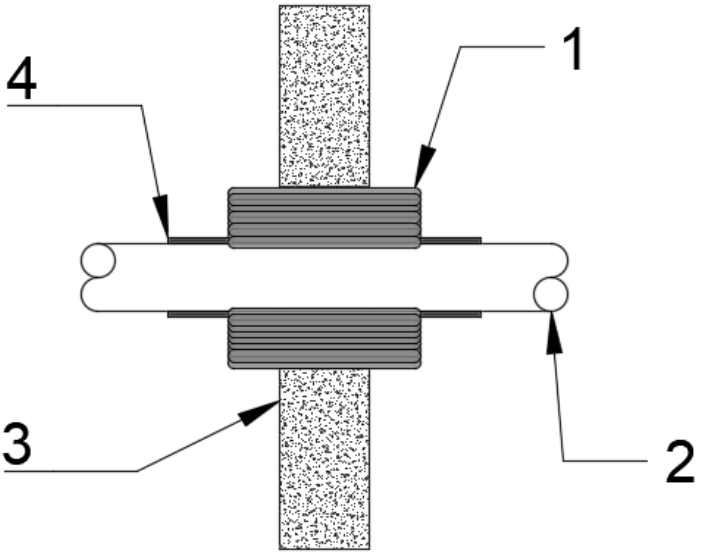
Uninsulated steel pipes

Rigid wall with a minimum thickness of 150 mm where the pillows are tightly packed into the aperture around the service penetration and positioned centrally in the aperture.

All services are supported with a pipe support system at a minimum distance of 250 mm from both faces of the wall.

Mild steel pipes wrapped with Thermal Defense wrap (TDW), 300mm long to both sides of the wall.



Key

1. FSi S-Line Pillows
2. Steel Penetration
3. Rigid Wall ≥150mm
4. Thermal Defense Wrap (TDW)

Penetration Service	Substrate	Maximum Aperture Size (mm)	Seal Positioning	Minimum Seal Depth (mm)	Additional seal	Classification
48 mm Ø by 3.5-14.2mm WT Steel pipe (7 mm TDW)	Masonry Concrete Wall	1100 x 1100	Central	330*	7 mm thick TDW, fitted to each side of the pillow seal extending 300 mm each side	**EI 120 C/U**
113 mm Ø by 4.5-14.2mm WT mild steel pipe (10mm TDW)					10 mm thick TDW, fitted to each side of the pillow seal extending 300 mm each side	

* With equal projection to both faces.

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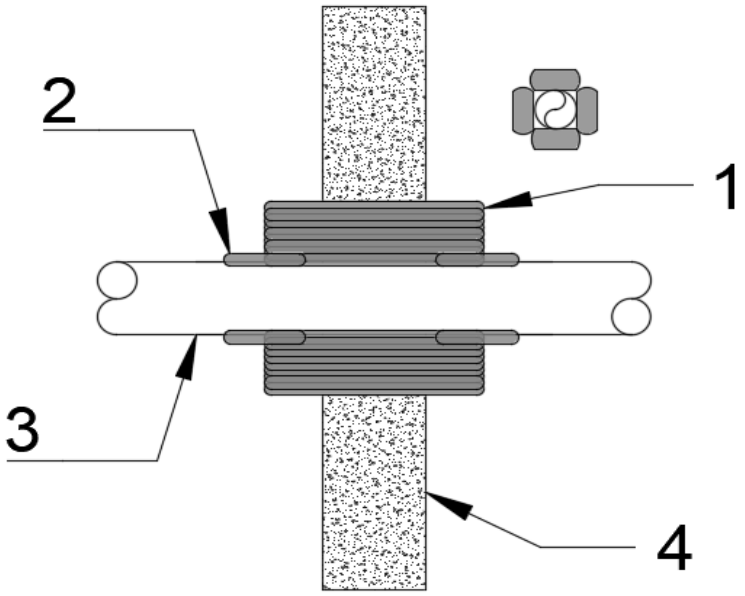
Uninsulated copper pipes

Rigid wall with a minimum thickness of 150 mm, where the pillows are tightly packed into the aperture around the service penetration and positioned centrally in the aperture.

All services are supported with a pipe support system at a minimum distance of 250 mm from both faces of the wall.

Copper pipes wrapped with S-Line Fire Pillows extending 330 mm on both faces of the wall/seal.

Additional 3. No. pillows (330 x 50 x 20mm) of protection around the pipe.



Key

1. FSi S-Line Pillows
2. 300 mm Length Of Extra FSi S-Line Pillows. Various Sizes To Fit Void.
3. Copper Pipe
4. Rigid Wall ≥150mm

Penetration Service	Substrate	Maximum Aperture Size (mm)	Seal Positioning	Minimum Seal Depth (mm)	Additional seal	Classification
108 mm Ø by 1.5 - 14.2mm WT copper and steel pipe	Masonry Concrete Wall	1100 x 1100	Central	330*	300 mm S-Line Pillows protection around the pipe on each face	**E 120/EI 90 C/U**

* With equal projection to both faces

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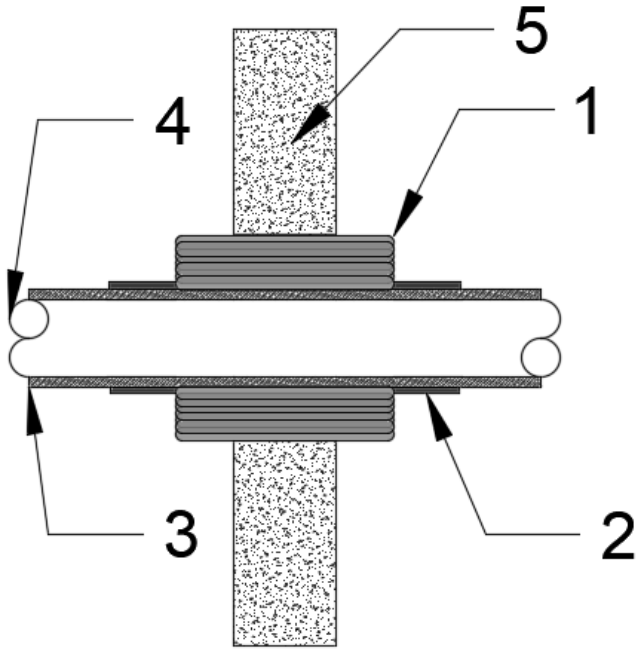
Insulated Steel and Copper Pipes

Rigid wall with a minimum thickness of 150 mm, where the pillows are tightly packed into the aperture around the service penetration and positioned centrally in the aperture.

All services are supported with a pipe support system at a minimum distance of 250 mm from both faces of the wall.

Armacell AF insulation pipe lagging, Local Sustained (LS), extending at least 400 mm to each face and placed previous to application of TDW layer.

250 mm Thermal Defense Wrap fitted around the insulation layer.



Key

1. FSi S-Line Pillows
2. Thermal Defense Wraps (TDW)
3. Armaflex Insulation
4. Copper Pipe
5. Rigid Wall ≥ 150 mm

Penetration Service	Substrate	Maximum Aperture Size (mm)	Seal Positioning	Minimum Seal Depth (mm)	Additional seal	Classification
54 mm Ø by 1.0 - 14.2 mm thick copper pipe with 15 mm thick Elastomeric Insulation	Masonry Concrete	1100 x 1100	Central	330*	1x layer of 10 mm thick TDW, fitted around the Armaflex insulation layer and extending 250 mm each side	**EI 120 C/U**

* With equal projection to both faces

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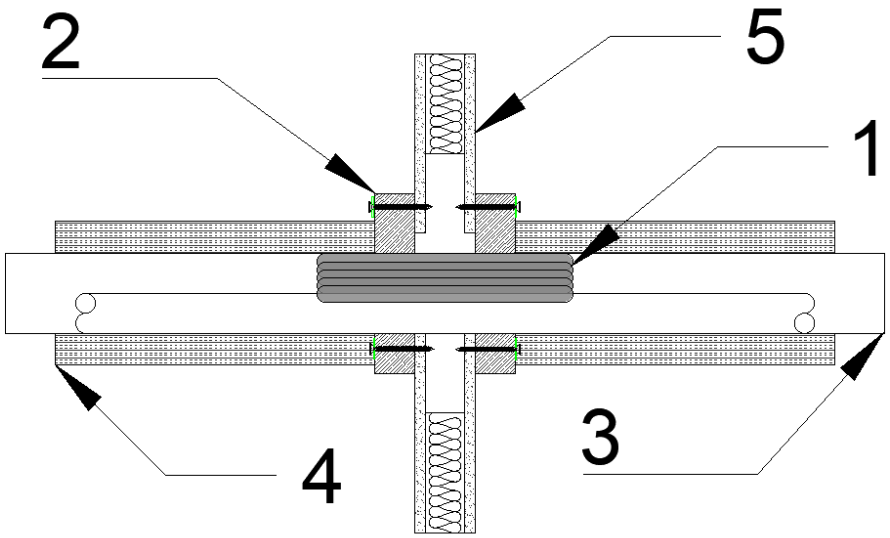
Cables

Flexible wall minimum 75 mm thick and min. 1 no. layer of 12.5 mm gypsum board to both faces, 50 mm Stopseal Batt pattress fixed to both faces of the wall with minimum 50 mm overlap to all edges. Cable trunking to be sealed internally with pillows tightly fitted around the electric cables in the section of cable trunking that is within the depth of the partition and positioned centrally in the aperture.

All services are supported with a pipe support system at a minimum distance of 420 mm from both faces of the partition wall.



Key

1. FSi S-Line Pillows
2. Pattress Fitted Stopseal Batt
3. Insulated Metal Trunking
4. Stone Wool Insulation
5. Flexible Wall ≥75mm

Penetration Service	Insulation wrap	Maximum Aperture Size (mm)	Seal Positioning	Minimum Seal Depth (mm)	Classification
50mm x 50mm insulated galvanized steel cable trunking	Rock fibre LI insulation RWA45 40 mm thick and 45 kg/m^3 density wrapped around trunking for 400 mm from fire batt at each face	70 x 70	Central	170 mm (batt) / 330 mm (pillow)	**EI 60 U/U**
Cables 1xA1					
Cables 1xA2					
Cables 1xA3					
150mm x 150mm insulated galvanized steel cable trunking		170 x 170		270 mm (batt) / 330 mm (pillow)	
Cables 1xB					
Cables 1xC1					
Cables 1xG1					
Cables 1xG2					

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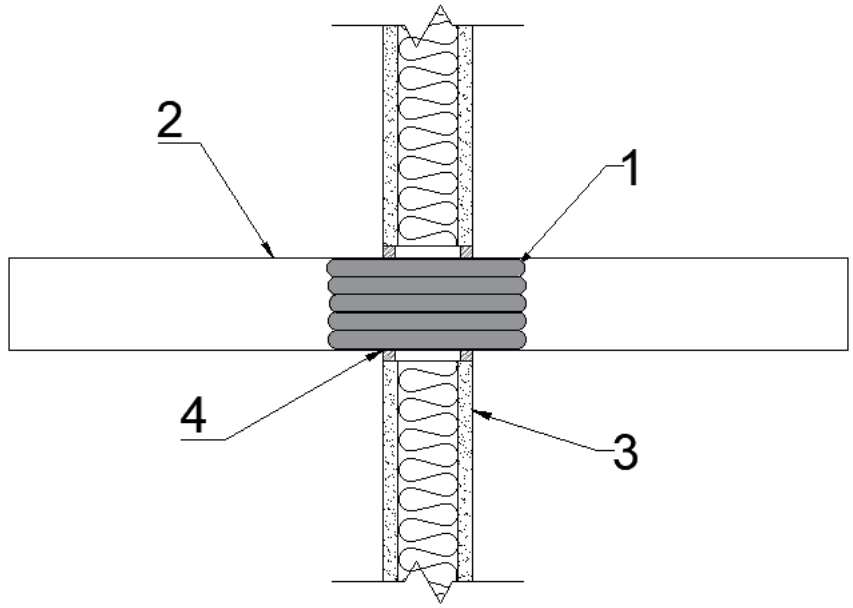
Cables

Flexible wall minimum 75 mm thick and min. 1 no. layer of 12.5 mm gypsum board to both faces where the pillows were tightly fitted around the electric cables in the section of cable trunking that is within the depth of the partition and positioned centrally in the aperture.

All services are required to be supported at a minimum distance of 420 mm from the unexposed face of the partition wall.



Key

1. FSi S-Line Pillows
2. Steel Trunking
3. Flexible Wall ≥75mm
4. Pyrocoustic Sealant

Penetration Service	Maximum Void Size (mm)	Seal Positioning	Minimum Seal Depth (mm)	Classification
50mm x 50mm steel cable trunking, S-Line Pillow tightly fitted around the cables in the section of trunking within the depth of the partition	70 x 70	Central	10 mm of Pyrocoustic Sealant. S-Line Pillows 330 x 50 x 20 mm (l x w x h) as main seal.	**E 60/EI 30 U/U**
Cables 1xA1				
Cables 1xA2				
Cables 1xA3				
150mm x 150mm steel cable trunking, S-Line Pillow tightly fitted around the cables in the section of trunking within the depth of the partition.	170 x 170			**E 60/EI 15 U/U**
Cables 1xB				
Cables 1xC1				
Cables 1xG1				
Cables 1xG2				

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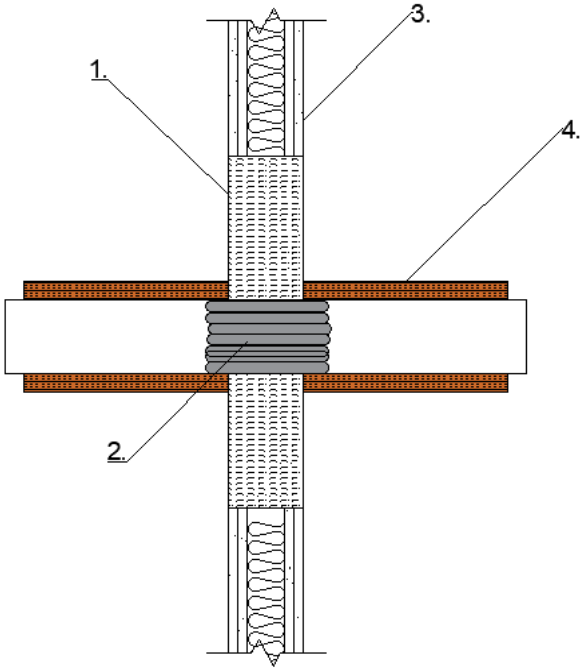
Cables

Flexible wall minimum 100 mm thick and min. 2 no. of layer of 12.5mm gypsum board to both faces where the pillows were tightly fitted around the cable trunking, laid in one layer inside service in line with partition, and positioned centrally in the aperture.

All services are required to be supported at a minimum distance of 400 mm from both faces of the partition wall.



Key

1. Mineral Wool With FSi Flexi Coat
2. FSi S-Line Pillows
3. Flexible Walls
4. 50mm Thick Stone Wool Insulation (350mm Length)

Penetration Service	Insulation wrap	Maximum Void Size (mm)	Seal Positioning	Seal Depth	Classification
100mm x 100mm insulated galvanized steel cable trunking 100mm x 100mm insulated galvanized steel cable trunking Carrying up to 100mm diameter bundle of telecoms cables, max 21mm diameter	Stone mineral wool LI insulation 50 mm thick and 80 kg/m^3 density wrapped around trunking for 350mm to both faces	400 x 400	0 mm to Edge. FSi Flexi Coat applied to nominal 0.9 mm DFT over RW4 100 mm thick and 80 kg/m^3 density stone wool slab	100 mm depth of S-Line Pillows 330 x 50 x 20 mm (l x w x h)	**EI 60 U/U**

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The UL-EU Marks, displayed below represent the enhanced and alternate version of the product marking. Either Mark can be used. These Marks shall appear on certified products only. Minimum size is not specified, as long as the Mark is legible. The following is suggested.

*Note: E12345 is an example of the UL file number.

The minimum height of the registered trademark symbol ® shall be 1 mm. When the overall diameter of the UL-EU Mark is less than 9.5 mm, the trademark symbol may be omitted if it is not legible to the naked eye.

The UL-EU Mark may appear on a label, nameplate, or may be cast, stamped or molded into the product. When appearing on a label or nameplate, the Manufacturer's name or trademark along with a model number and UL File number are also required on that same label or nameplate. If cast, stamped or molded, the Manufacturer's name or trademark and model number shall also appear elsewhere on the product.

All content shall be in accordance with the details provided on this UL-EU Certificate.

PROCUREMENT

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