UL-EU CERTIFICATE

Certificate No.
UL-EU-01306-EN

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15-10-2024

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1

Re-Issue date
-

Expiry date
14-10-2034

UKAS PRODUCT CERTIFICATION
4705

Certificate Holder:
Greentech Thermal Insulation Products Mfg Co LLC

Address:
PO Box 3350
New Industrial Area
Umm AL Quwain
United Arab Emirates

Product:
HEATSHIELD FS50

Places of production:
T/001, U/001

Standard:
EAD 350454-00-1104, September 2017

Authorised Signatory:

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shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.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 HEATSHIELD FS50, a flexible intumescent wrap strip used to form penetration seals where combustible pipes and combustible conduits penetrate walls and floors. The detailed scope is given in pages 4 to 11 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 120 minutes (EI 120).

The product is certificated on the basis of:

i) Inspection and surveillance of factory production control by UL
ii) Fire resistance test data in accordance with EN 1366-3:2021
iii) Classification in accordance with EN 13501-2:2016
iv) Durability and Serviceability as defined in EAD 350454-00-1104, September 2017

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I. SPECIFIC PARTS OF THE UL-EU CERTIFICATION

1 Technical description of the product

1) HEATSHIELD FS50 is a flexible intumescent wrap strip used to form penetration seals where combustible pipes and combustible conduits penetrate walls and floors.

2) The HEATSHIELD FS50 is supplied in 5 meter and 10 meter rolls with a thickness of 2 mm and a width of 50 mm.

3) The additional component HEATSHIELD S500 is a fire-resistant sealant to be used as smoke seal in HEATSHIELD FS50 system which is supplied in liquid form contained within 300 ml cartridges and 600 ml foil packs.

4) The applicant has submitted a written declaration that the product and/or constituents of the product contains no substances which have been classified as dangerous according to Directive 67/548/EEC and Regulation (EC) No. 1272/2008 and listed in the 'indicative list on dangerous substances' of the EGDS – taking into account the installation conditions of the construction product and the release scenarios resulting from there.

   In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

5) The use category of HEATSHIELD FS50 in relation to BWR 3 (Hygiene, health and environment) is IA1, S/W2.

2 Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD): EAD 350454-00-1104: 2017

Detailed information and data is given in Annex A.

The intended use of system HEATSHIELD FS50 is to reinstate the fire resistance performance of flexible wall, rigid wall and floor constructions, where they are penetrated by services.

1) The specific elements of construction that the system HEATSHIELD FS50 may be used to provide a penetration seal in, are as follows:

Flexible walls:	The wall must have a minimum thickness of 135 mm and comprise steel or timber studs* lined on both faces with minimum 2 layers of 15 mm thick boards. The insulation of the flexible wall shall be nominal 60 mm thick with a density of 100 kg/m^3. Flexible wall solutions may also be used in rigid walls, with a minimum density of 350 kg/m^3.
Rigid walls:	The wall must have a minimum thickness of 125 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 450 kg/m^3.
Rigid floors:	The floor must have a minimum thickness of 150 mm and comprise aerated concrete or concrete with a minimum density of 650 kg/m^3.

* no part of the penetration seal may be closer than 100 mm to a stud, the cavity must be closed between the penetration seal and the stud, and minimum 100 mm of insulation of class A1 or A2 according to EN 13501-1 must be provided within the cavity between the penetration seal and the stud.

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period.

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2) The system HEATSHIELD FS50 may be used to provide a penetration seal for specific services in specific supporting constructions and substrates (for details see Annex A).

3) HEATSHIELD FS50 wrapstrip to be wrapped tightly around the pipe or conduit until the correct number of layers have been achieved. Cut the FS50 wrap strip accordingly and fasten using self-adhesive tape flush to both surfaces of wall or bottom surface of floor.

4) When HEATSHIELD S500 is used the sealant is applied around the service or services as a bead at interface of penetrant and both surfaces of wall or top surface of floor. The bead of HEATSHIELD S500 sealant is then adhered to substrate and penetrant by forming a concave shaped seam.

5) The first support (service support construction) for plastic pipes and conduits in flexible and rigid walls has to be at maximum 450 mm (measured from the surface of the separating element). In rigid floors the first support has to be at maximum 250 mm from top surface of floor.

6) Where PVC pipes are mentioned in Annex A, this includes PVC-U pipes according to EN 1329-1, EN 1453-1, EN ISO 15493 and EN ISO 1452-2 and PVC-C according to EN 1566-1, EN ISO 15493 and EN ISO 15877-2. Where PVC conduits are mentioned in Annex A, this includes PVC-U rigid conduits according to EN 61386-1 and EN 61386-21. Where ABS pipes are mentioned in Annex A, this includes ABS pipes according to EN 1455-1.

7) The designation U/U, C/U, U/C or C/C indicates whether or not the product under test are capped during the fire test.
The first letter refers to the situation in the furnace and the second to the situation outside the furnace (see table).

Test condition	**Configuration**	
	Inside the furnace	Outside the furnace
U/U	Uncapped	Uncapped
C/U	Capped	Uncapped
U/C	Uncapped	Capped
C/C	Capped	Capped

The tests carried out with uncapped ends (U/U) correspond to the most unfavorable situation, since the fire can spread more easily because the two ends are open.
The results of these tests may therefore be applied in all situations (U/U, C/U, U/C and C/C).
The C/U tests may be used in the following situations: C/U, U/C and C/C. The U/C tests may in turn be used for situations U/C and C/C, while the C/C tests may only be used in the C/C situation.

8) The provisions made in this European Technical Assessment are based on an assumed working life of the HEATSHIELD FS50 of 10 years, provided that the conditions laid down in the manufacturers datasheet and instructions for the packaging/transport/storage/installation/ use/repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

9) Type Z_1: intended for uses in internal conditions with humidity equal to or higher than 85% RH excluding temperatures below 0°C, without exposure to rain or UV. Since the requirements for Type Z_1 are met, also the requirements for Type Z_2 are fulfilled.

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3 Performance of the product and references to the methods used for its assessment

Product-type: Wrapstrip/Pipe closure	Intended use: Penetration Seal	
Basic requirement for construction work	Basic Requirement	Performance
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	Class E
EN 13501-2	Resistance to fire	Annex A
BWR 3 Hygiene, health and environment		
EN 1026	Air permeability	No performance determined
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: IA1, S/W2 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*	No performance determined
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

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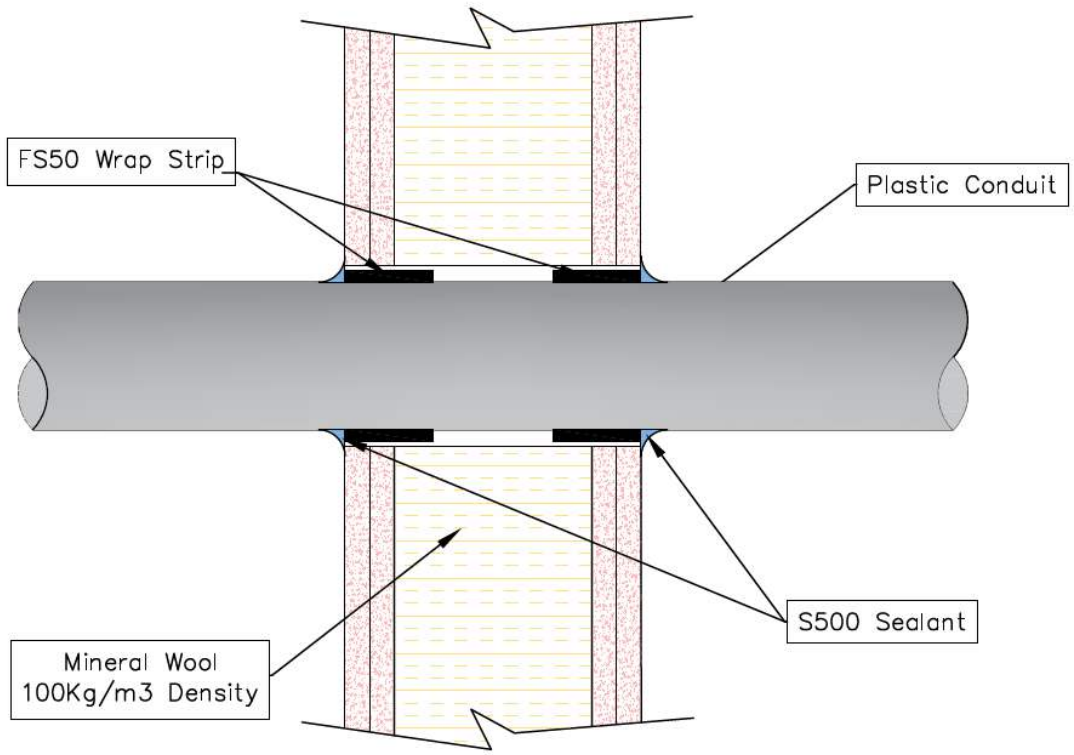
ANNEX A – Resistance to Fire Classification – HEATSHIELD FS50

A.1 Flexible or rigid wall constructions with wall thickness of minimum 135 mm

A.1.1 Penetration seals for plastic conduits, in drywalls and concrete/masonry walls

Penetration Seal: Combustible conduits centered within the aperture and sealed with HEATSHIELD FS50. Bead of HEATSHIELD S500 sealant (10 mm x 10 mm) to be applied around penetrant on both sides of wall. Minimum separation between penetration seals of 100 mm.

Construction details:



A.1.1.1

Services	Opening size [mm]	HEATSHIELD FS50 Configuration	Annular space	Classification
PVC conduit, Diameter ≤ 32 mm, wall thickness 2.5 mm	Ø ≤ 44	1 layer	Maximum 4 mm between FS50 wrap strip and supporting construction.	**E 120-C/C** **EI 120-C/C**

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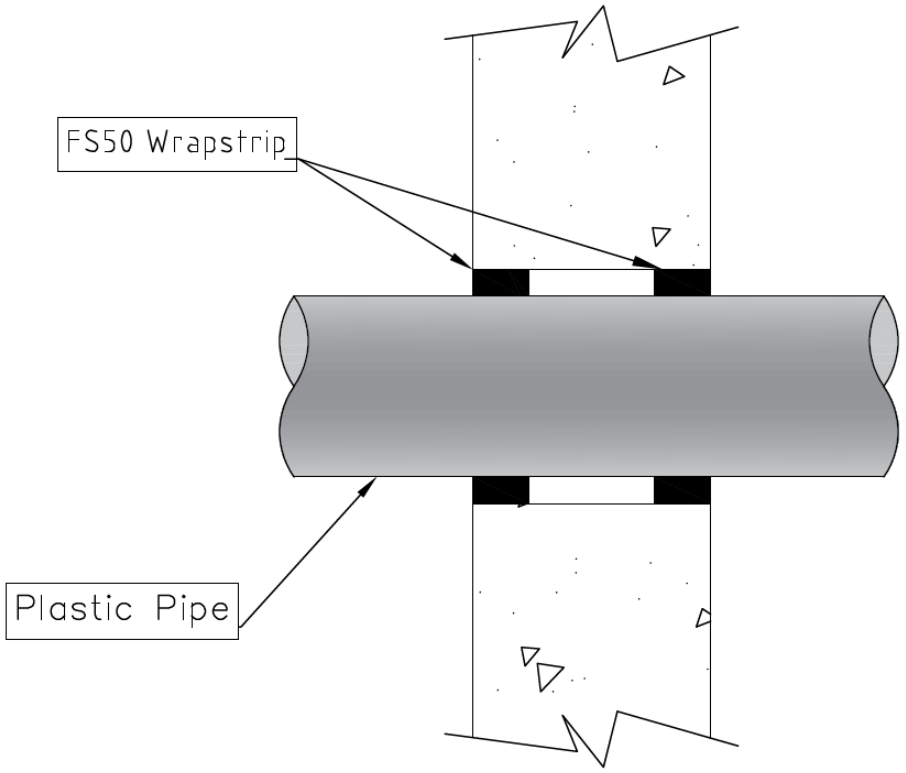
A.2 Rigid walls constructions with wall thickness of minimum 125 mm

A.2.1 Penetration seals for plastic pipes, in concrete/masonry walls

Penetration Seal: Combustible pipes centered within the aperture and sealed with HEATSHIELD FS50. Minimum separation between penetration seals of 100 mm.

Construction details:



A.2.1.1

Services	Opening size [mm]	HEATSHIELD FS50 Configuration	Annular space	Classification
PVC pipe, Diameter ≤ 110 mm, wall thickness 4.2 mm	Ø ≤ 132	Min. 4 layers	Max. 3 mm between FS50 wrap strip and supporting construction.	**E 120-C/C** **EI 120-C/C**
PVC pipe, Diameter ≤ 160 mm, wall thickness 6.2 mm	Ø ≤ 180	Min. 5 layers	N/A	**E 120-C/C** **EI 120-C/C**

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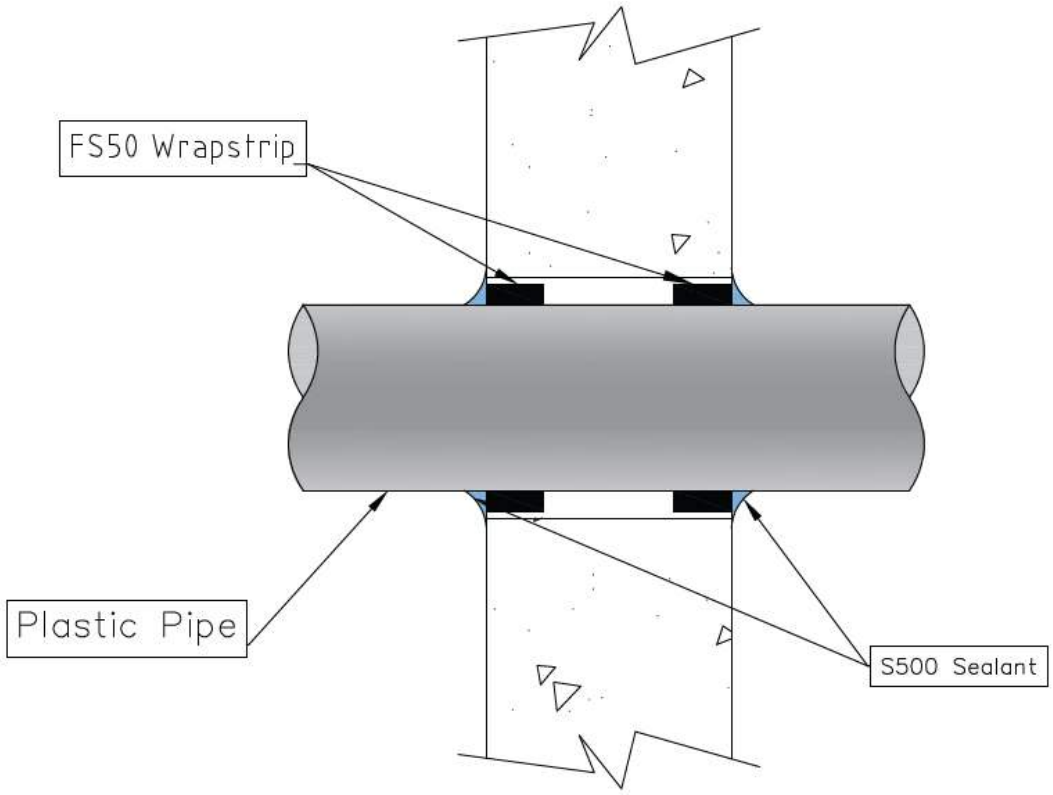
A.2.2 Penetration seals for plastic pipes, in concrete/masonry walls

Penetration Seal: Combustible pipes centered within the aperture and sealed with HEATSHIELD FS50. Bead of HEATSHIELD S500 sealant (10 mm x 10 mm) to be applied around penetrant on both sides of wall. Minimum separation between penetration seals of 100 mm.

Construction details:



A.2.2.1

Services	Opening size [mm]	HEATSHIELD FS50 Configuration	Annular space	Classification
PVC pipe, Diameter ≤ 50 mm, wall thickness 2.4 mm	Ø ≤ 63	Min. 2 layers	Max. 3 mm between FS50 wrap strip and supporting construction.	**E 120-C/C** **EI 120-C/C**
ABS pipe, Diameter ≤ 36 mm, wall thickness 2.2 mm	Ø ≤ 50	Min. 2 layers		**E 120-C/C** **EI 120-C/C**

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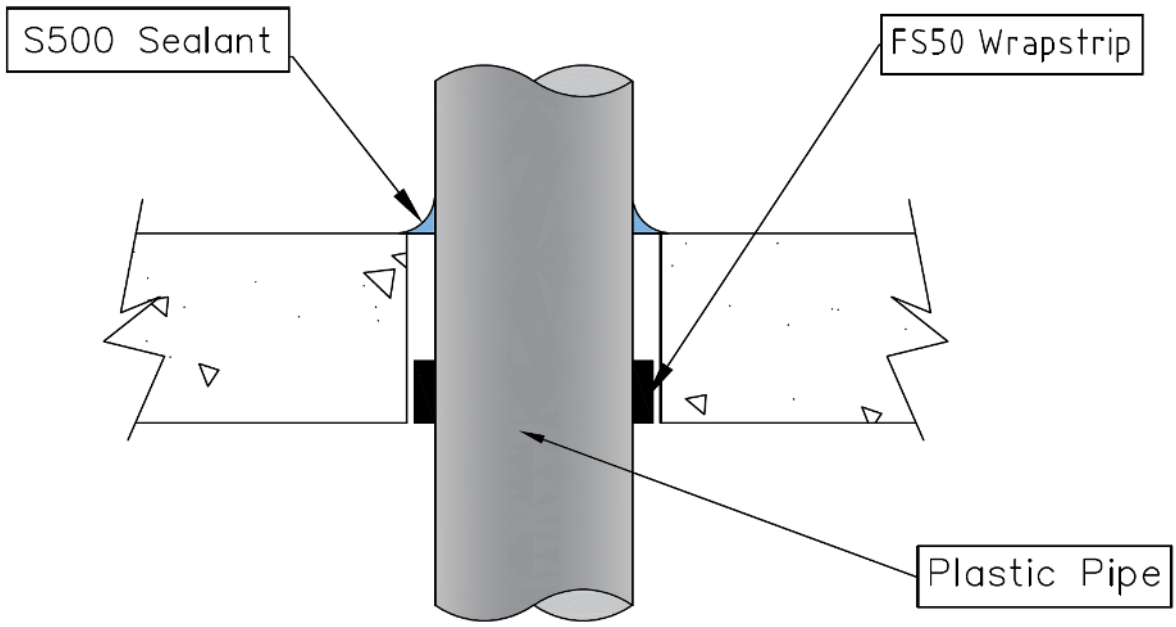
A.3 Rigid floor constructions with floor thickness of minimum 150 mm

A.3.1 Penetration seals for plastic pipes, in concrete floors with HEATSHIELD S500 sealant

Penetration Seal: Combustible pipes centered within the aperture and sealed with HEATSHIELD FS50 flush to bottom side of the floor. Bead of HEATSHIELD S500 sealant (10 mm x 10 mm) to be applied around penetrant on top side of floor. Minimum separation between penetration seals of 100 mm.

Construction details:



A.3.1.1

Services	Opening size [mm]	HEATSHIELD FS50 Configuration	Annular space	Classification
PVC pipe, Diameter ≤ 50 mm, wall thickness 2.4 mm	Ø ≤ 63	Min. 2 layers	Max. 3 mm between FS50 wrap strip and supporting construction.	**E 120-C/C** **EI 120-C/C**
PVC pipe, Diameter ≤ 110 mm, wall thickness 4.2 mm PVC pipe	Ø ≤ 132	Min. 4 layers		**E 120-C/C** **EI 120-C/C**
PVC conduit, Diameter ≤ 32 mm, wall thickness 2.5 mm	Ø ≤ 44	Min. 2 layers		**E 120-C/C** **EI 120-C/C**

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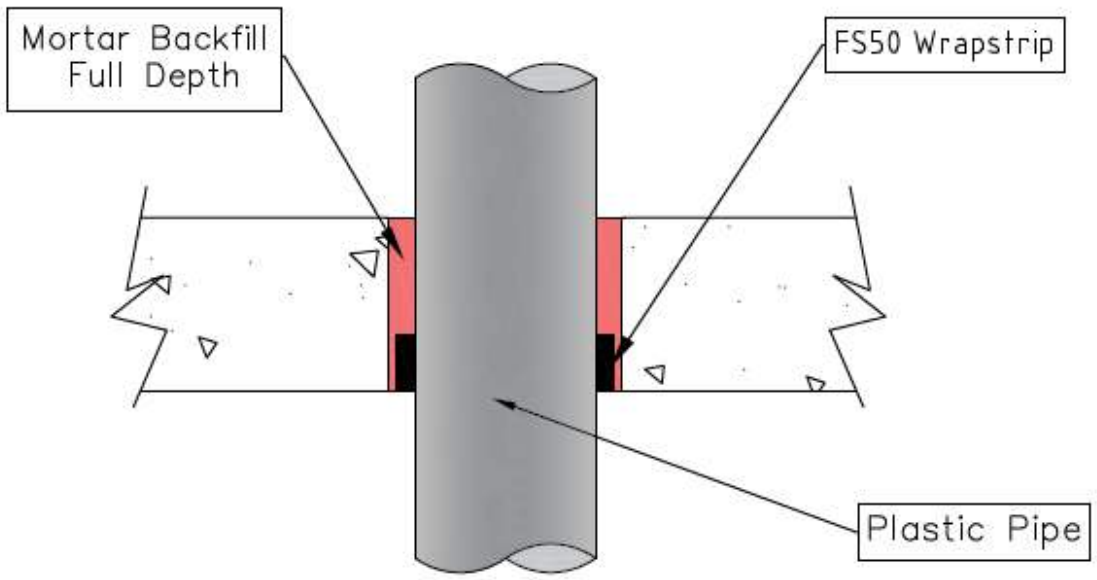
A.3.2 Penetration seals with mortar backfill

Penetration Seal: Combustible pipes centered within the opening and sealed with HEATSHIELD FS50 to bottom side of the floor. Gap around penetrant and FS50 wrap strip sealed with mortar to full depth of floor. Minimum separation between penetration seals of 100 mm.

Construction details:



A.3.2.1

Services	Opening size [mm]	HEATSHIELD FS50 Configuration	Annular space	Classification
PVC pipe, Diameter ≤ 160 mm, wall thickness 6.2 mm	Ø ≤ 202	Min. 5 layers	Max. 21 mm between pipe and aperture	**E 90-C/C** **EI 90-C/C**

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