



UL INTERNATIONAL (UK) LTD  
Wonersh House, Building C,  
The Guildway,  
Old Portsmouth Road,  
Guildford. GU3 1LR.  
United Kingdom.



designated according to Article 29 of the Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment, [www.eota.eu](http://www.eota.eu))

## European Technical Assessment

**ETA 17/0391  
of 23/10/2017**

**Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: UL International (UK) Ltd**

**Trade name of the construction product**

Nullifire FP302 / Nullifire FP160

**Product family to which the construction product belongs**

Fire Stopping and Sealing Product:  
• Penetration Seals

**Manufacturer**

tremco-illbruck Ltd  
Coupland Rd  
Hindley Green  
Wigan  
WN2 4HT

**Manufacturing plant(s)**

A/018

**This European Technical Assessment contains**

30 pages including 1 Annex which forms an integral part of this assessment.

**This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of**

ETAG 026-2, edition 2011, used as European Assessment Document (EAD).

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

## **Table of Contents**

I.	SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT .....	3
1	Technical description of the product .....	3
2	Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD): ETAG 026-2. ....	3
3	Performance of the product and references to the methods used for its assessment .....	5
4	ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE (HEREINAFTER AVCP) SYSTEM APPLIED, WITH REFERENCE TO ITS LEGAL BASE .....	6
5	Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD .....	6
6	Issued on: .....	7
ANNEX A – Resistance to Fire Classification – Nullifire FP302 / Nullifire FP160 .....		8
A.1	Flexible and Rigid wall constructions with wall thickness of minimum 130 mm .....	8
A.1.1	Rectangular plastic pipe seal in 2x 50 mm thick Nullifire FB750 .....	8
A.2	Flexible and Rigid wall constructions with wall thickness of minimum 130 mm .....	9
A.2.1	Rectangular plastic pipe seal .....	9
A.3	Flexible and Rigid wall constructions with wall thickness of minimum 130 mm .....	10
A.3.1	Plastic and metal pipe seal .....	10
A.4	Flexible and Rigid wall constructions with wall thickness of minimum 130 mm .....	11
A.4.1	Plastic pipe penetration seal with 1x 50 mm thick Nullifire FB750 in lined aperture .....	11
A.5	Flexible and Rigid wall constructions with wall thickness of minimum 130 mm .....	13
A.5.1	Pipe penetration seal with 2 x 50 mm thick Nullifire FB750 .....	13
A.6	Flexible and Rigid wall constructions with wall thickness of minimum 130 mm .....	15
A.6.1	Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, pattress fixed .....	15
A.7	Flexible and Rigid wall constructions with wall thickness of minimum 100 mm .....	16
A.7.1	Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, pattress fixed .....	16
A.8	Flexible and Rigid wall constructions with wall thickness of minimum 100 mm .....	18
A.8.1	Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, back to back .....	18
A.9	Flexible and Rigid wall constructions with wall thickness of minimum 100 mm .....	20
A.9.1	Pipe penetration seal with 1 x 50 mm thick Nullifire FB750 .....	20
A.10	Rigid floor constructions with floor thickness of minimum 150 mm .....	21
A.10.1	Pipe penetration seal with 2 x 50 mm thick Nullifire FB750 flush to the top face and Nullifire FP302 with combustible pipes .....	21
A.11	Rigid floor constructions with floor thickness of minimum 150 mm .....	26
A.11.1	Conduit penetration seal with 1 x 50 mm thick Nullifire FB750 pattress fixed .....	26
A.12	Rigid floor constructions with floor thickness of minimum 150 mm .....	27
A.12.1	Pipe penetration seal with 1 x 50 mm thick Nullifire FB750 pattress fixed .....	27
A.13	Rigid floor constructions with floor thickness of minimum 150 mm .....	28
A.13.1	Cable penetration seal with 2 x 50 mm thick Nullifire FB750 .....	28
A.14	Rigid floor constructions with wall thickness of minimum 150 mm .....	29
A.14.1	Plastic and metal pipe seal .....	29
A.15	Rigid floor constructions with wall thickness of minimum 150 mm .....	30
A.15.1	Metal pipe seal .....	30

## **SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT**

### **1 Technical description of the product**

- 1) Nullifire FP302 is a pipe wrap of intumescent material used to reinstate the fire resistance performance of wall and floor constructions where they have been provided with apertures for the penetration pipes.
- 2) Nullifire FP160 is a preformed tube, containing an Nullifire FP302 pipe wrap, used to reinstate the fire resistance performance of wall and floor constructions, including when installed within Nullifire FB750 board seals, where they have been provided with apertures for the penetration pipes.
- 3) The Nullifire FP302 is supplied in a continuous roll and cut to size, as required for the application, before being inserted into the aperture in the wall or floor around the pipe.
- 4) The Nullifire FP160 is supplied presized and is wrapped around the pipe and closed before being inserted into the aperture in the wall or floor around the pipe or may be preinstalled into the wall and floor and the pipe fitted later.
- 5) Firetherm Intumescent and Insulation Supplied Ltd have submitted a written declaration that Nullifire FP302 /Nullifire FP160 does not contain substances which have to be 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.

### **2 Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD): ETAG 026-2.**

Detailed information and data is given in Annex A.

- 1) The intended use of Nullifire FP302 /Nullifire FP160 is to reinstate the fire resistance performance of flexible wall, rigid wall and floor constructions where they are penetrated by various cables and metallic pipes.
- 2) The specific elements of construction that the system Nullifire FP302 /Nullifire FP160 may be used to provide a penetration seal in, are as follows:
  - a. Flexible walls: The wall must have a minimum thickness of 100 mm and comprise steel studs lined on both faces with minimum 2 layers of 12.5 mm thick boards.
  - b. Rigid walls: The wall must have a minimum thickness of 100 mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650 kg/m<sup>3</sup>.
  - c. 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<sup>3</sup>.

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

- 3) The System Nullifire FP302 /Nullifire FP160 may be used to provide a penetration seal with cables, plastic pipes and metallic pipes (for details see Annex A).
- 4) Services in floors shall be supported at 200mm and 450mm from the top face. Services in walls shall be supported at 200mm and 450mm from both faces of the wall.
- 5) The provisions made in this European Technical Assessment are based on an assumed working life of the Nullifire FP302 /Nullifire FP160 of 10 years, provided that the conditions laid down in the product datasheet 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.
- 6) Type Z<sub>1</sub>: intended for use at internal conditions with high humidity, excluding temperatures below 0°C

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

Product-type: Pipe closure device		Intended use: Penetration Seal
Basic requirement for construction work	Essential characteristic	Performance
	Mechanical resistance and stability	
-	None	Not relevant
Safety in case of fire		
EN 13501-1	Reaction to fire	Class E
EN 13501-2	Resistance to fire	Annex A
Hygiene, health and environment		
EN 1026:2000	Air permeability (material property)	No performance determined
ETAG 026-2, Annex C	Water permeability (material property)	No performance determined
Declaration of manufacturer	Release of dangerous substances	Use categories: IA3, S/W3 Declaration of manufacturer
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
Protection against noise		
EN 10140-2/ EN ISO 717-1	Airborne sound insulation	No performance determined
Energy economy and heat retention		
EN 12664, EN 12667 or EN 12939	Thermal properties	No performance determined
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined
General aspects relating to fitness for use		
EN 13162 or EN 14303, EN ISO 1519	Durability and serviceability	Z <sub>1</sub>

**4 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE (HEREINAFTER AVCP) SYSTEM APPLIED, WITH REFERENCE TO ITS LEGAL BASE**

According to the decision 1999/454/EC – Commission Decision of date 22nd June 1999 on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, published in the Official Journal of the European Union (OJEU) L178/52 of 14/07/1999, see <http://eur-lex.europa.eu/JOIndex.do> of the European Commission<sup>1</sup>, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table(s) applies (apply).

Product(s)	Intended use(s)	Level(s) or class(es)	System(s)
Fire stopping and Fire Sealing Products	For fire compartmentation and/or fire protection or fire performance	Any	1

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

Tasks of the manufacturer:

Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this European technical Assessment.

The manufacturer may only use initial / raw / constituent materials stated in the technical documentation of this European Technical Assessment.

The factory production control shall be in accordance with the Control Plan of 27<sup>th</sup> April 2017 relating to the European technical assessment ETA 17/0391 issued on 23/10/2017 which is part of the technical documentation of this European technical assessment. The "Control Plan" is laid down in the context of the factory production control system operated by the manufacturer and deposited at UL International (UK) Ltd.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

---

<sup>1</sup> Official Journal of the European Communities L178/52 of 14/7/1999

Other tasks of the manufacturer

Additional information

The manufacturer shall provide a technical data sheet and an installation instruction with the following minimum information:

(a) Technical data sheet:

- Field of application:
- Building elements for which the penetration seal is suitable, type and properties of the building elements like minimum thickness, density, and - in case of lightweight constructions – the construction requirements.
- Limits in size, minimum thickness etc. of the penetration seal
- Construction of the penetration seal including the necessary components and additional products (e.g. backfilling material) with clear indication whether they are generic or specific.
- Services which the penetration seal is suitable, type and properties of the services like material, diameter, thickness etc. in case of pipes including insulation materials; necessary/allowed supports/fixings (e.g. cable trays)

(b) Installation instruction:

- Steps to be followed
- Procedure in case of retrofitting
- Stipulations on maintenance, repair and replacement

**6 Issued on:**

**23<sup>rd</sup> October 2017**

Report by:



C. Johnson  
Staff Engineer  
Building and Life Safety Technologies

Reviewed by:



C. W. Miles  
Business Manager – Europe & Latin America  
Building and Life Safety Technologies

**For and on behalf of UL International (UK) Ltd.**

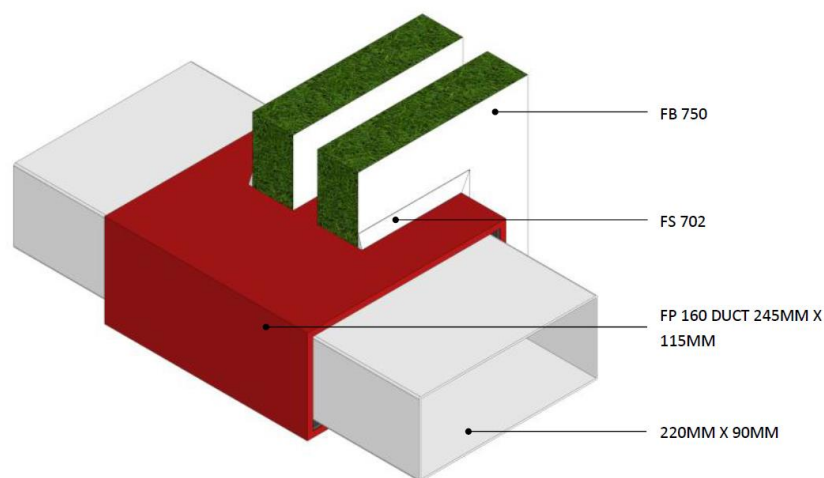
## ANNEX A – Resistance to Fire Classification – Nullifire FP302 / Nullifire FP160

### A.1 Flexible and Rigid wall constructions with wall thickness of minimum 130 mm

#### A.1.1 Rectangular plastic pipe seal in 2x 50 mm thick Nullifire FB750

**Penetration Seal:** Pipes and cables penetrating through a flexible (lined aperture) or rigid wall construction. 2 x 50 mm Nullifire FB750 installed with a 30 mm air gap, centrally within the wall. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal size of 1200mm wide by 1800mm high.

Construction details:



#### A.1.1.1 Double side penetration seal

Services	Seal specification	Classification
Rectangular PVC pipe, 220 x 90 mm / 2 mm wall	Firetherm Nullifire FP160 Duct 0.7mm thick steel - 245mm wide x 115mm high x 250mm deep with 62mm protruding from each face and containing 2No. layers 4mm thick x 250mm wide intumescent, fitted on both faces	EI 120 U/U

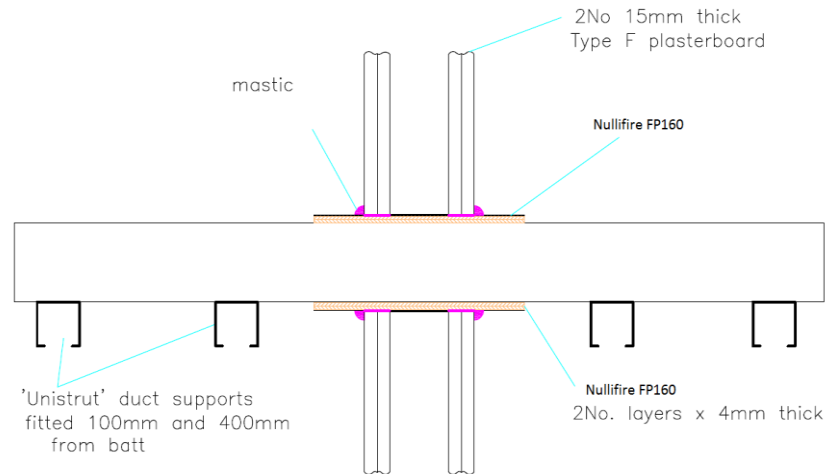


## A.2 Flexible and Rigid wall constructions with wall thickness of minimum 130 mm

### A.2.1 Rectangular plastic pipe seal

**Penetration Seal:** Pipes penetrating through a flexible or rigid wall construction. Nullifire FS702 is applied to seal around the services on both faces at the interface between seal and supporting construction.

Construction details:



#### A.2.1.1 Double side penetration seal

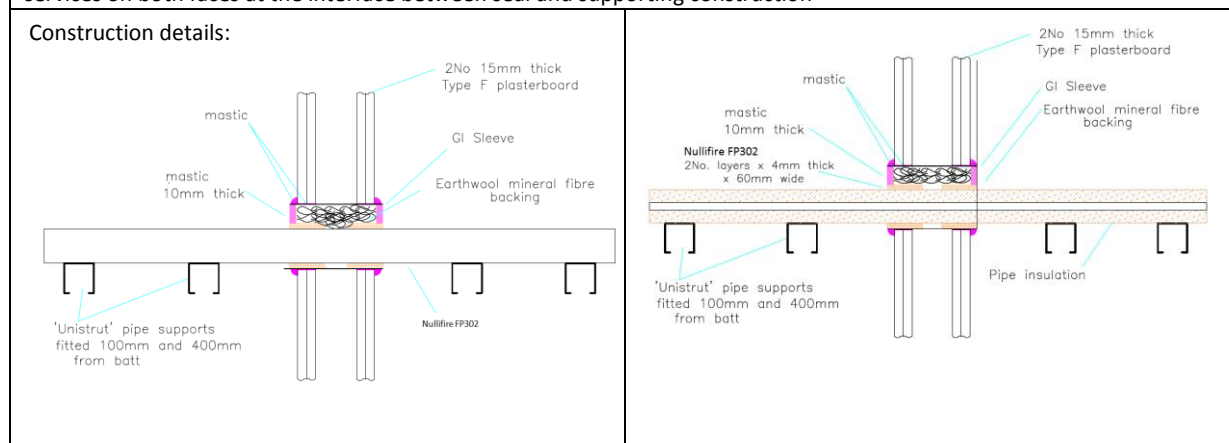
Services	Seal specification	Classification
Rectangular uPVC* pipe, 220 x 90 mm / 2 mm wall	Firetherm Nullifire FP160 Duct 0.7mm thick steel - 245mm wide x 115mm high x 250mm deep with 62mm protruding from each face and containing 2No. layers 4mm thick x 250mm wide intumescent, fitted on both faces	EI 120 U/U

\* PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

### A.3 Flexible and Rigid wall constructions with wall thickness of minimum 130 mm

#### A.3.1 Plastic and metal pipe seal

**Penetration Seal:** Pipes penetrating through a flexible or rigid wall construction and wrapped with Nullifire FP302. Oversize (up to 50 mm annular space) steel sleeve installed into the opening with annular space filled to full depth with stone wool insulation min 64 kg/m<sup>3</sup> capped with 3 mm of FS702 sealant. Nullifire FS702 is applied to seal around the services on both faces at the interface between seal and supporting construction



##### A.3.1.1 Double side penetration seal

Services	Seal specification	Classification
uPVC* pipe up to 55 mm diameter / 3.7 mm wall thickness	1 x layer Nullifire FP302 – 4 mm thick by 60 mm wide to both faces	EI 120 U/C
uPVC* pipe up to 160 mm diameter / 11.8 mm wall thickness	2 x layer Nullifire FP302 – 4 mm thick by 60 mm wide to both faces	
Copper or steel pipe 15 mm diameter / 0.7 mm wall thickness, insulated with 50 mm glass wool insulation CS	2 x layer Nullifire FP302 – 4 mm thick by 60 mm wide to both faces	EI 120 C/U

\* PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

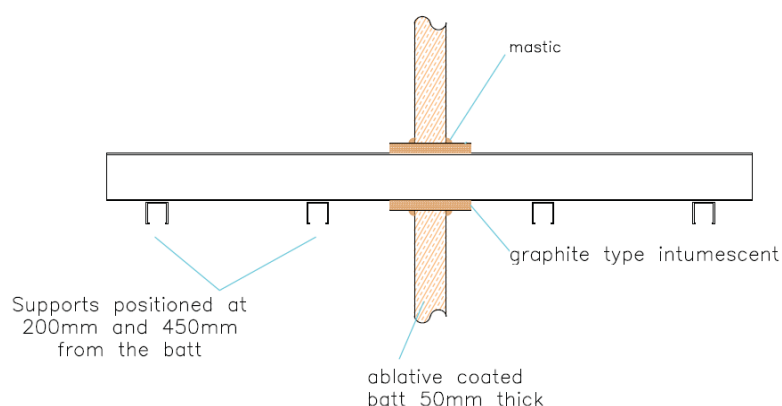
LI = local Interrupted, CI – Continuous Interrupted, LS – Local Sustained, CS – Continuous Sustained

## A.4 Flexible and Rigid wall constructions with wall thickness of minimum 130 mm

### A.4.1 Plastic pipe penetration seal with 1x 50 mm thick Nullifire FB750 in lined aperture

**Penetration Seal:** Pipes penetrating through a flexible or rigid wall construction. 1 x 50 mm Nullifire FB750 installed centrally. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal size of 1800 high x 1200 mm wide.

Construction details:



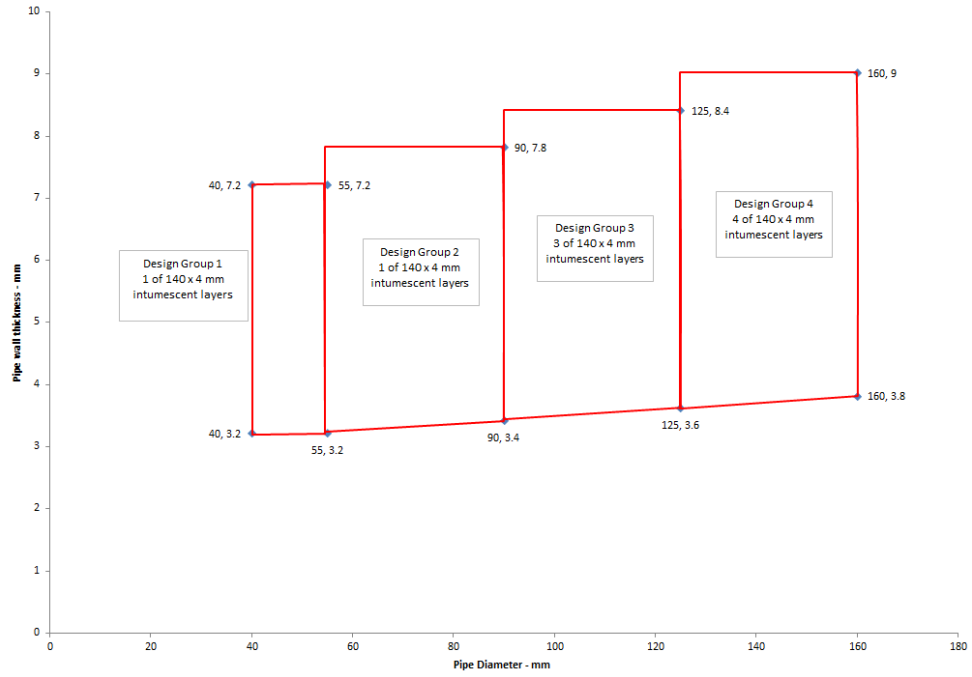
#### A.4.1.1 Single layer penetration seals

Services	Seal specification	Classification
PVC-U* pipes up to 160 mm diameter / 3.8-9.0 mm wall	Nullifire FP160 150 mm long / 4 of 140 x 4 mm intumescent layers	EI 60 U/C
PE <sup>§</sup> pipes up to 160 mm diameter / 6.4-15.0 mm wall		
PVC-U* pipes up to 55 mm diameter / 3.2-7.2 mm wall	Nullifire FP160 150 mm long / 1 of 140 x 4 mm intumescent layers	
PE <sup>§</sup> pipes up to 55 mm diameter / 3.2-7.6 mm wall		
PVC-U* pipes up to 90 mm diameter / 3.4-7.8 mm wall	Nullifire FP160 150 mm long / 2 of 140 x 4 mm intumescent layers	
PE <sup>§</sup> pipes up to 90 mm diameter / 4.3-10.0 mm wall		
PVC-U* pipes up to 125 mm diameter / 3.6-8.4 mm wall	Nullifire FP160 150 mm long / 3 of 140 x 4 mm intumescent layers	
PE <sup>§</sup> pipes up to 125 mm diameter / 5.4-12.5 mm wall		

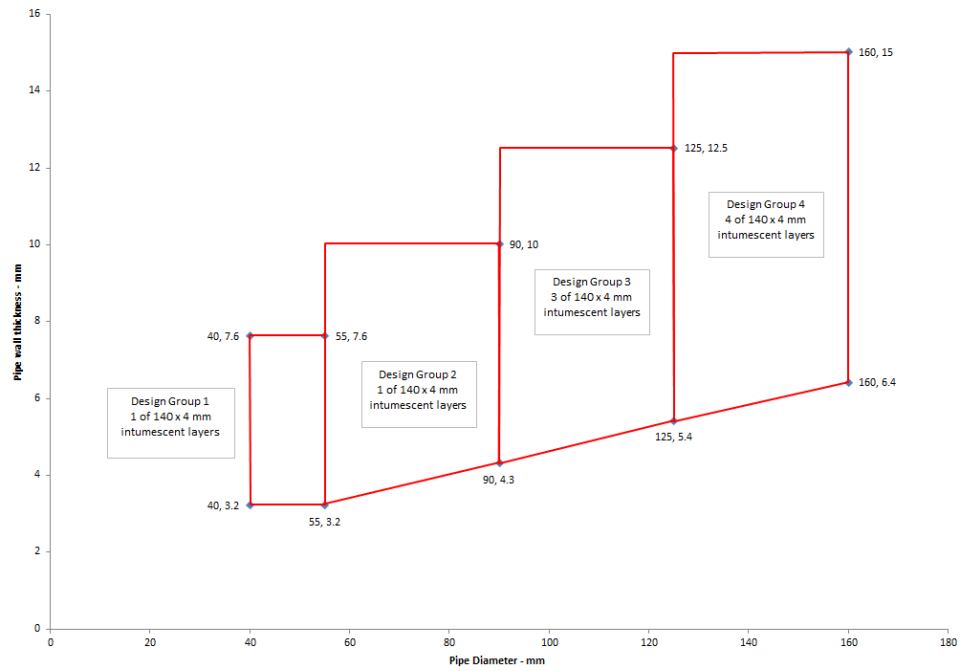
\* PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

§ PE pipe according to EN 1519-1, EN 12201-2 and EN 1266-1, ABS pipe according to EN 1455-1 and SAN+PVC pipe according to EN 1565-1

### PVC-U pipes - EI 60 U/C



### PE pipes - EI 60 U/C

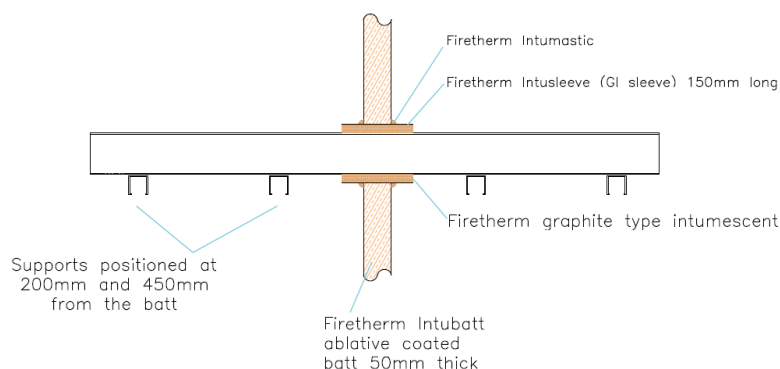


## A.5 Flexible and Rigid wall constructions with wall thickness of minimum 130 mm

### A.5.1 Pipe penetration seal with 2 x 50 mm thick Nullifire FB750

**Penetration Seal:** Cables penetrating through a flexible or rigid wall construction. 2 x 50 mm Nullifire FB750 with no air gap, centrally within the wall. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal size of 1200mm wide by 1800mm high.

Construction details:

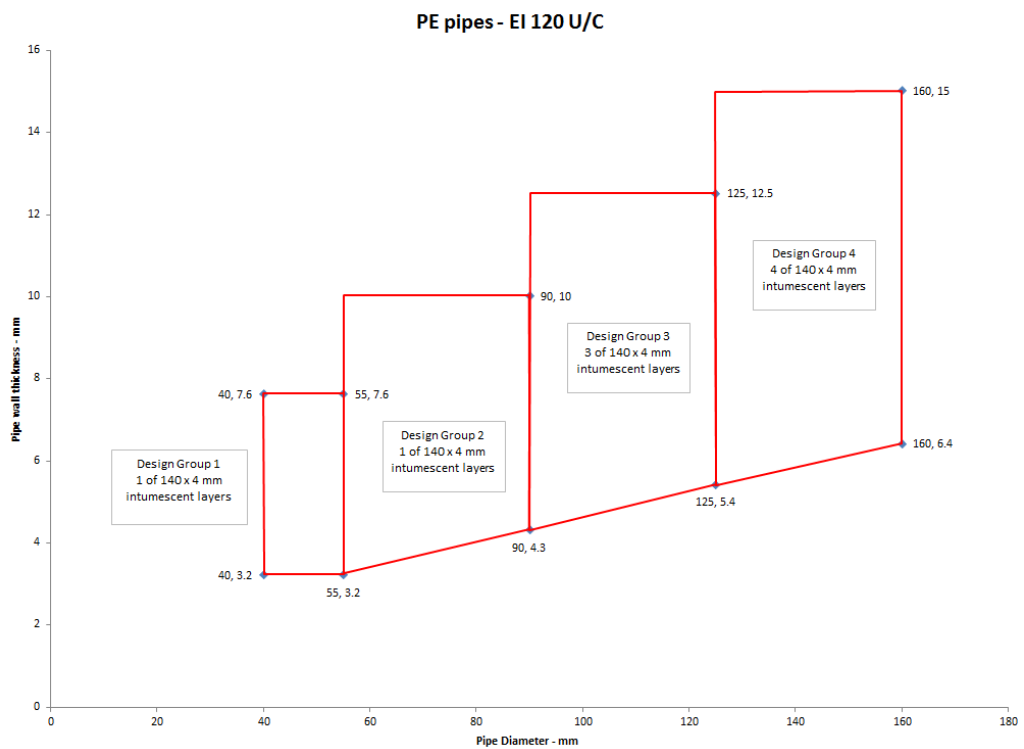
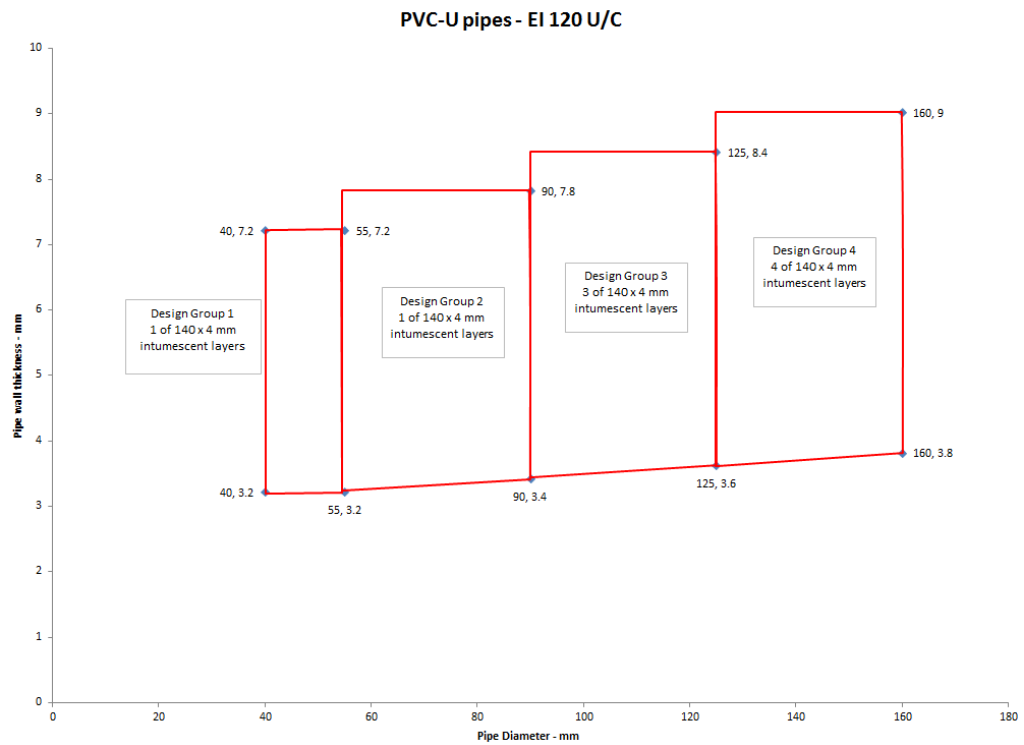


#### A.5.1.1 Double layer penetration seal with pipes

Services	Seal specification	Classification
PVC-U* pipes up to 160 mm diameter / 3.8-9.0 mm wall	Nullifire FP160 150 mm long / 4 of 140 x 4 mm intumescent layers	EI 120 U/C
PE <sup>§</sup> pipes up to 160 mm diameter / 6.4-15.0 mm wall		
PVC-U* pipes up to 55 mm diameter / 3.2-7.2 mm wall	Nullifire FP160 150 mm long / 1 of 140 x 4 mm intumescent layers	
PE <sup>§</sup> pipes up to 55 mm diameter / 3.2-7.6 mm wall		
PVC-U* pipes up to 90 mm diameter / 3.4-7.8 mm wall	Nullifire FP160 150 mm long / 2 of 140 x 4 mm intumescent layers	
PE <sup>§</sup> pipes up to 90 mm diameter / 4.3-10.0 mm wall		
PVC-U* pipes up to 125 mm diameter / 3.6-8.4 mm wall	Nullifire FP160 150 mm long / 3 of 140 x 4 mm intumescent layers	
PE <sup>§</sup> pipes up to 125 mm diameter / 5.4-12.5 mm wall		

\* PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

§ PE pipe according to EN 1519-1, EN 12201-2 and EN 1266-1, ABS pipe according to EN 1455-1 and SAN+PVC pipe according to EN 1565-1

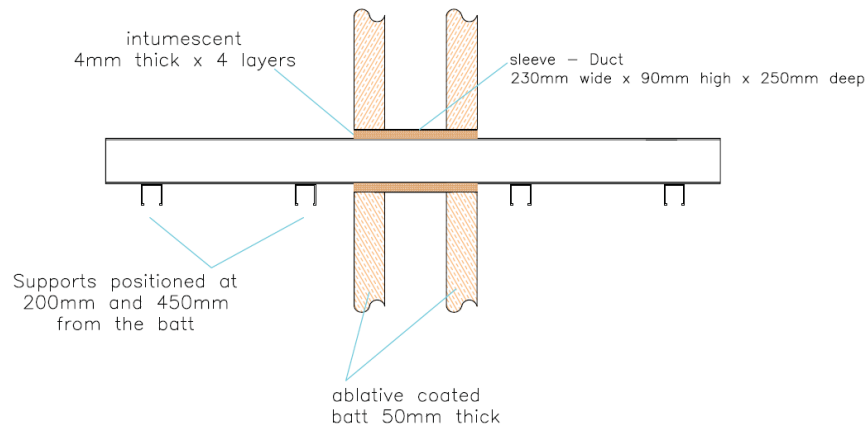


## A.6 Flexible and Rigid wall constructions with wall thickness of minimum 130 mm

### A.6.1 Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, pattress fixed

**Penetration Seal:** Cables penetrating through a flexible or rigid wall construction. 2 x 50 mm Nullifire FB750 pattress fixed (130 mm air gap) and overlapped onto the wall by 100 mm all around. The batts are fixed with 75 mm long screws, with 'penny' washers at 300 mm centres and Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal size of 1200mm wide by 1800mm high.

Construction details:



#### A.6.1.1 Double layer pattress penetration seal with cables

Services	Additional seal components	Classification
PVC-U* square pipe 204 mm wide by 60 mm high / 1.5 mm wall	Nullifire FP160 250 mm long x 230 mm wide x 90 mm high / 4 of 250 x 4 mm intumescent layers	<b>EI 120 U/C</b>

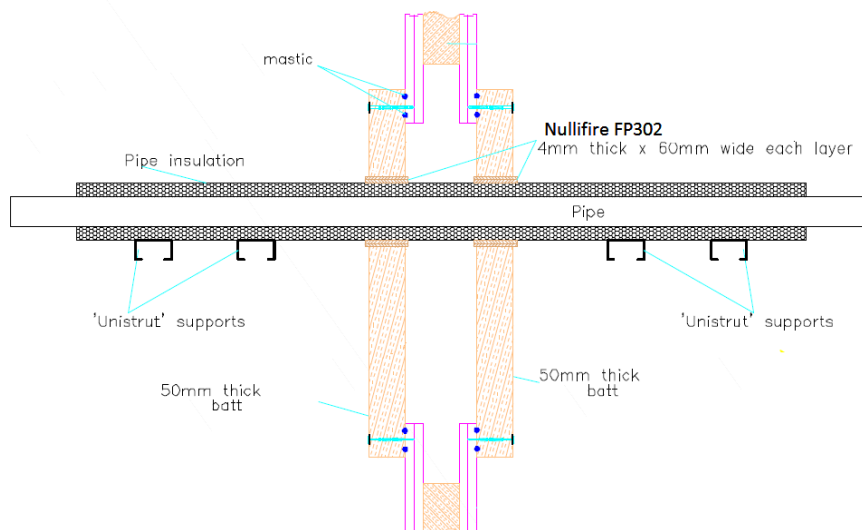
\* PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

## A.7 Flexible and Rigid wall constructions with wall thickness of minimum 100 mm

### A.7.1 Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, pattress fixed

**Penetration Seal:** Cables penetrating through a flexible or rigid wall construction. 2 x 50 mm Nullifire FB750 pattress fixed (130 mm air gap) and overlapped onto the wall by 100 mm all around. The batts are fixed with 75 mm long screws, with 'penny' washers at 300 mm centres and Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal size of 1200mm wide by 1800mm high. Minimum separation between pipes of 95mm and 100 mm to the edges of the seal.

Construction details:



#### A.7.1.1 Double layer pattress penetration seal with pipes

Services	Seal specification	Classification
PVC-U <sup>#</sup> pipe, up to 40mm diameter / 1.9-3.0 mm wall, insulated with 19mm Kaiflex ST - CS	2 x layers of 60 x 4 mm Nullifire FP302 to both faces	EI 90 U/C
PE <sup>§</sup> pipe, up to 40mm diameter / 2.4-3.7 mm wall, insulated with 19mm Kaiflex ST - CS		
PP <sup>@</sup> pipe, up to 40mm diameter / 1.8-5.5 mm wall, insulated with 19mm Kaiflex ST - CS		
PE <sup>§</sup> pipe, up to 110mm diameter / 3.4 mm wall	3 x layers of 60 x 4 mm Nullifire FP302 to both faces	
PVC-U <sup>#</sup> pipe, up to 110mm diameter / 3.2-4.2 mm wall		
PP <sup>@</sup> pipe, up to 110mm diameter / 3.4 mm wall		
PVC-U <sup>#</sup> pipe, up to 36mm diameter / 1.8 mm wall	1 x layers of 60 x 4 mm Nullifire FP302 to both faces	

<sup>#</sup> PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

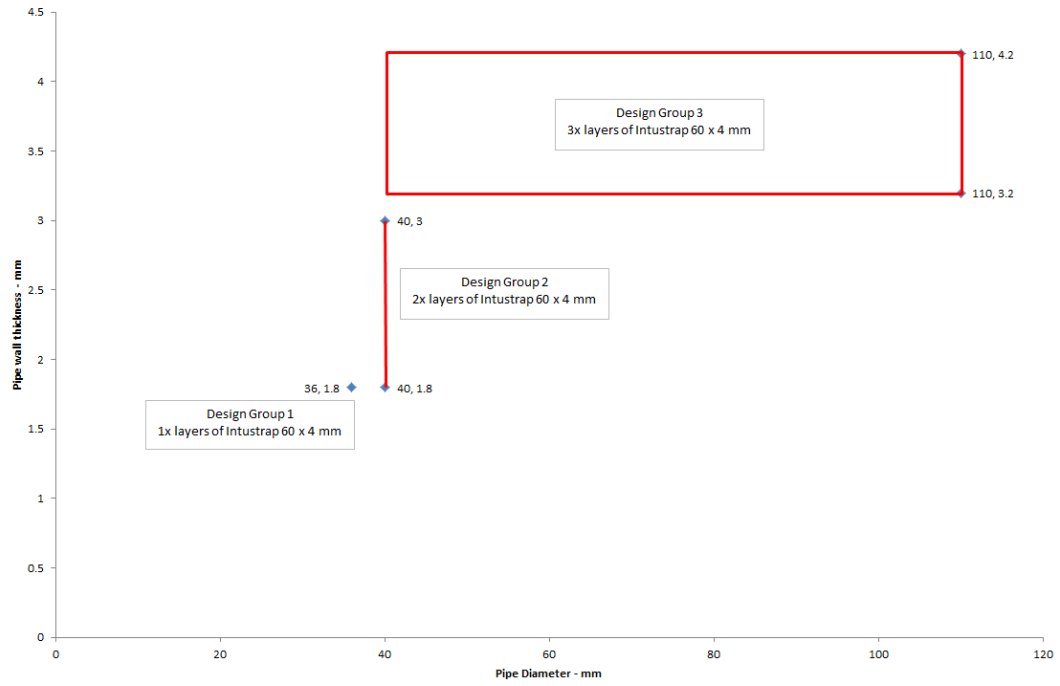
<sup>§</sup> EN12201 DIN 8074/8075

<sup>@</sup> ISO 15494 DIN 8077/8078

LI = local Interrupted, CI – Continuous Interrupted, LS – Local Sustained, CS – Continuous Sustained



PVC-U pipes - EI 90 U/C

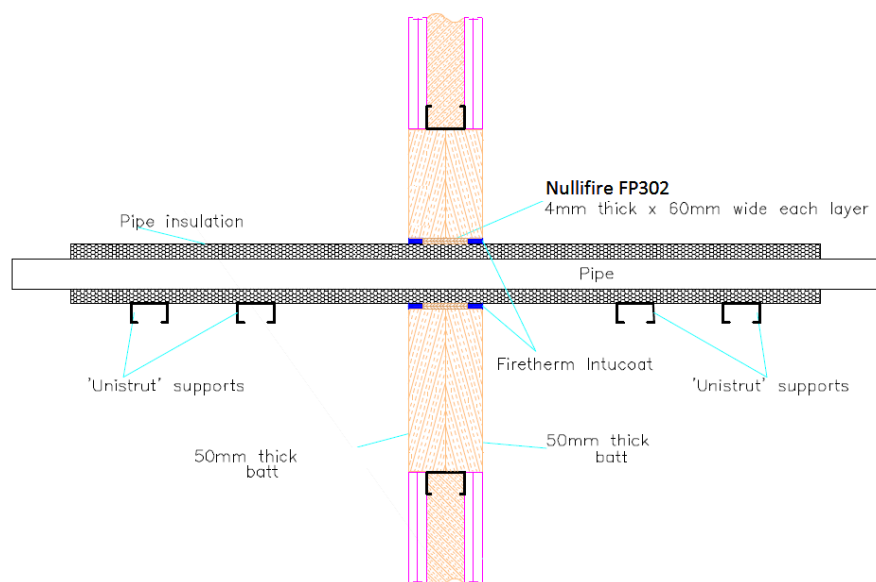


## A.8 Flexible and Rigid wall constructions with wall thickness of minimum 100 mm

### A.8.1 Pipe penetration seal with 2 x 50 mm thick Nullifire FB750, back to back

**Penetration Seal:** Pipes penetrating through a flexible or rigid wall construction. 2 x 50 mm Nullifire FB750 installed back to back. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal size of 1200mm wide by 1800mm high. Minimum separation between pipes of 65mm and 100 mm to the edges of the seal.

Construction details:



#### A.8.1.1 Back to back penetration seal with pipes

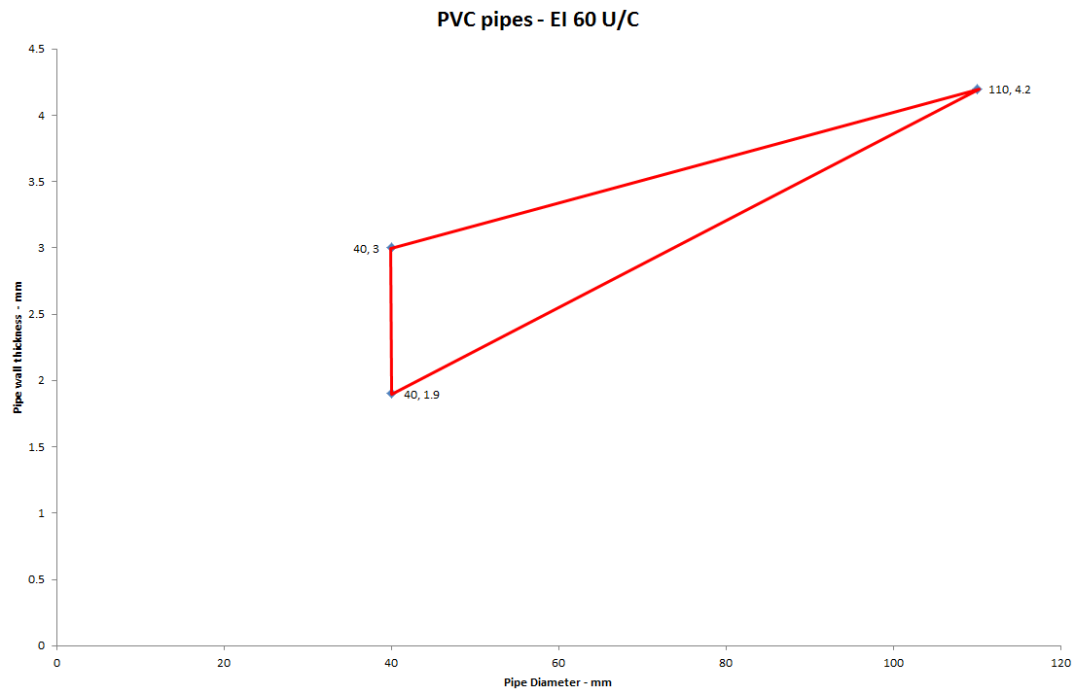
Services	Additional seal components	Classification
PVC-U <sup>#</sup> pipe, up to 40mm diameter / 1.9-3.0 mm wall, insulated with 19mm Kaiflex ST - CS	2 x layers of 60 x 4 mm Nullifire FP302 central plus 8mm wide x 20mm deep Intucoat flush to both faces	EI 60 U/C
PE <sup>§</sup> pipe, up to 40mm diameter / 2.4-3.7 mm wall, insulated with 19mm Kaiflex ST - CS		
PP <sup>@</sup> pipe, up to 40mm diameter / 1.8-5.5 mm wall, insulated with 19mm Kaiflex ST - CS		
PVC-U <sup>#</sup> pipe, up to 110mm diameter / 4.2 mm wall	3 x layers of 60 x 4 mm Nullifire FP302 central plus 12mm wide x 20mm deep Intucoat flush to both faces	EI 90 U/C
PE <sup>§</sup> pipe, up to 110mm diameter / 3.4 mm wall		
PVC-U <sup>#</sup> pipe, up to 110mm diameter / 4.2 mm wall		
PP <sup>@</sup> pipe, up to 110mm diameter / 3.4 mm wall		

<sup>#</sup> PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

<sup>§</sup> EN12201 DIN 8074/8075

<sup>@</sup> ISO 15494 DIN 8077/8078

LI = local Interrupted, CI – Continuous Interrupted, LS – Local Sustained, CS – Continuous Sustained

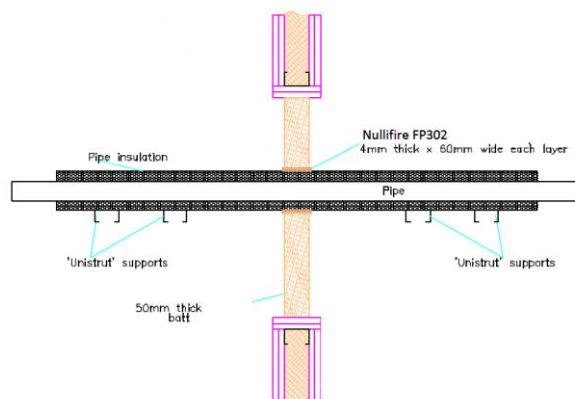
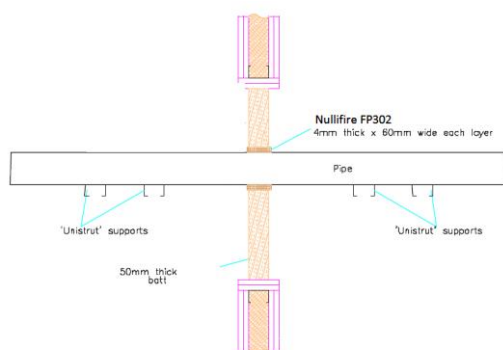


## A.9 Flexible and Rigid wall constructions with wall thickness of minimum 100 mm

### A.9.1 Pipe penetration seal with 1 x 50 mm thick Nullifire FB750

**Penetration Seal:** Pipes penetrating through a flexible or rigid wall construction. 1 x 50 mm Nullifire FB750 installed centrally into lined aperture. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum seal size of 1200mm wide by 1800mm high. Minimum separation between pipes of 100 mm and 58 mm to the edges of the seal.

Construction details:



#### A.9.1.1 Single layer penetration seal with pipes

Services	Seal specification	Classification
PVC-U <sup>#</sup> pipe, up to 40mm diameter / 1.9-3.0 mm wall, insulated with 19mm Kaiflex ST - CS	2 x layers of 60 x 4 mm Nullifire FP302 central	<b>E 60 U/C</b> <b>EI 45 U/C</b>
PE <sup>§</sup> pipe, up to 40mm diameter / 2.4-3.7 mm wall, insulated with 19mm Kaiflex ST - CS		
PP <sup>@</sup> pipe, up to 40mm diameter / 1.8-5.5 mm wall, insulated with 19mm Kaiflex ST - CS		
PE <sup>§</sup> pipe, up to 110mm diameter / 3.5 mm wall	3 x layers of 60 x 4 mm Nullifire FP302 central	<b>E 90 U/C</b> <b>EI 45 U/C</b>

<sup>#</sup> PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

<sup>§</sup> EN12201 DIN 8074/8075

<sup>@</sup> ISO 15494 DIN 8077/8078

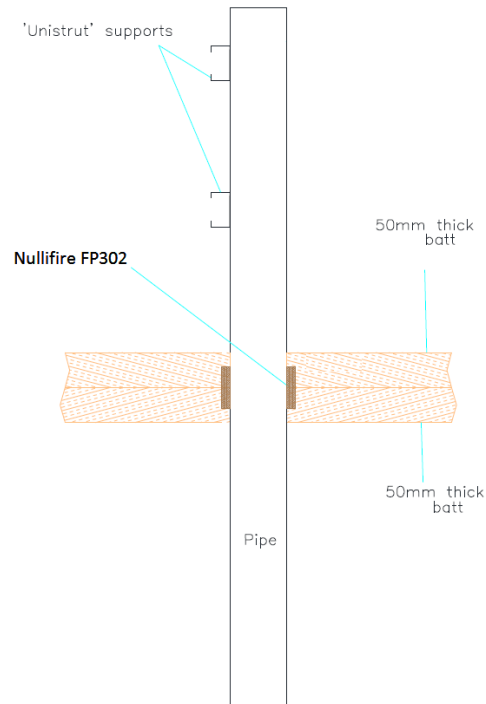
LI = local Interrupted, CI – Continuous Interrupted, LS – Local Sustained, CS – Continuous Sustained

## A.10 Rigid floor constructions with floor thickness of minimum 150 mm

### A.10.1 Pipe penetration seal with 2 x 50 mm thick Nullifire FB750 flush to the top face and Nullifire FP302 with combustible pipes

**Penetration Seal:** Pipes penetrating through a rigid floor construction. 2 x 50 mm Nullifire FB750 flush to the top face. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Boards are held together with 100mm long pigtail screws, 28 off per sq metre. Maximum batt seal opening size of 600 x 600 mm.

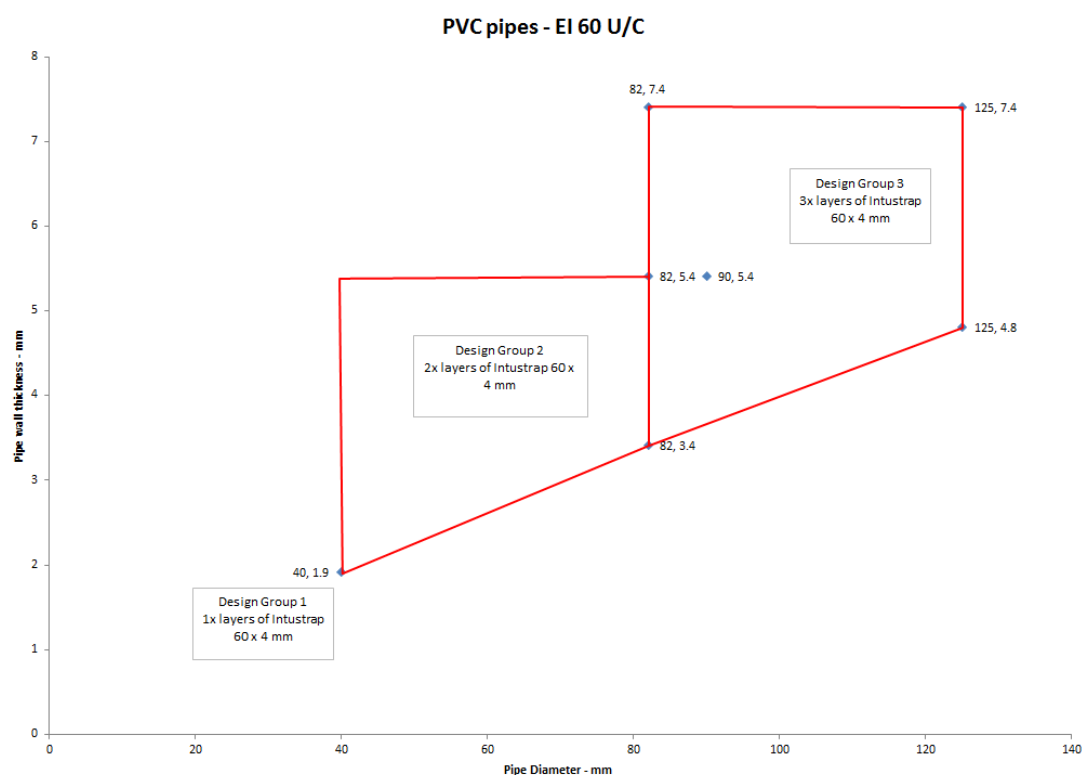
Construction details:



### A.10.1.1 Single layer penetration seal with cables

Services	Additional seal component	Classification
PVC <sup>#</sup> pipe, up to 40 mm diameter / 1.9 mm wall thickness	1x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	<b>EI 60 U/C</b>
PVC <sup>#</sup> pipe, up to 82 mm diameter / 3.4-5.4 mm wall thickness	2x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	
PVC <sup>#</sup> pipe, up to 90 mm diameter / 5.4 mm wall thickness	2x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	
PVC <sup>#</sup> pipe, up to 125 mm diameter / 4.8 - 7.4 mm wall thickness	3x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	

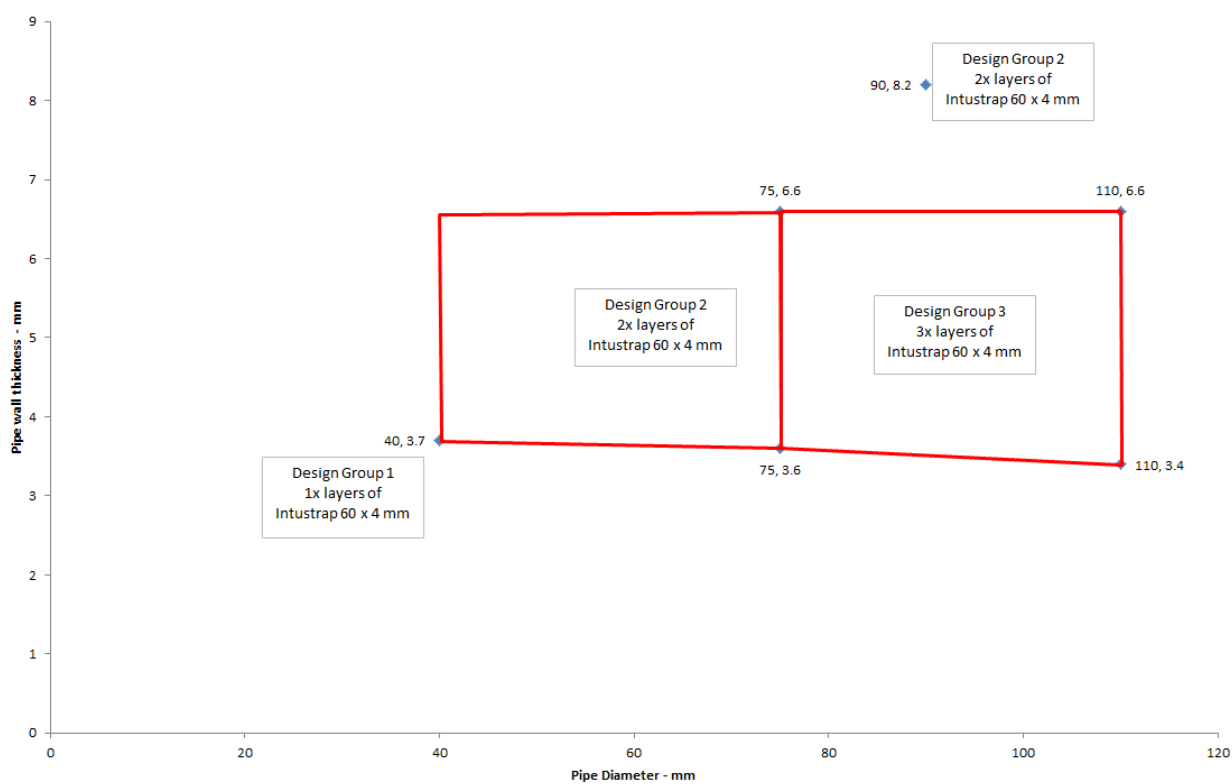
<sup>#</sup> EN1452-2



Services	Additional seal component	Classification
PE <sup>S</sup> pipe, up to 40 mm diameter / 3.7 mm wall thickness	1x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	EI 60 U/C
PE <sup>S</sup> pipe, up to 75 mm diameter / 3.6-6.6 mm wall thickness	2x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	
PE <sup>S</sup> pipe, up to 90 mm diameter / 8.2 mm wall thickness	2x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	
PE <sup>S</sup> pipe, up to 110 mm diameter / 3.4 – 6.6 mm wall thickness	3x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	

<sup>S</sup> EN12201 DIN 8074/8075

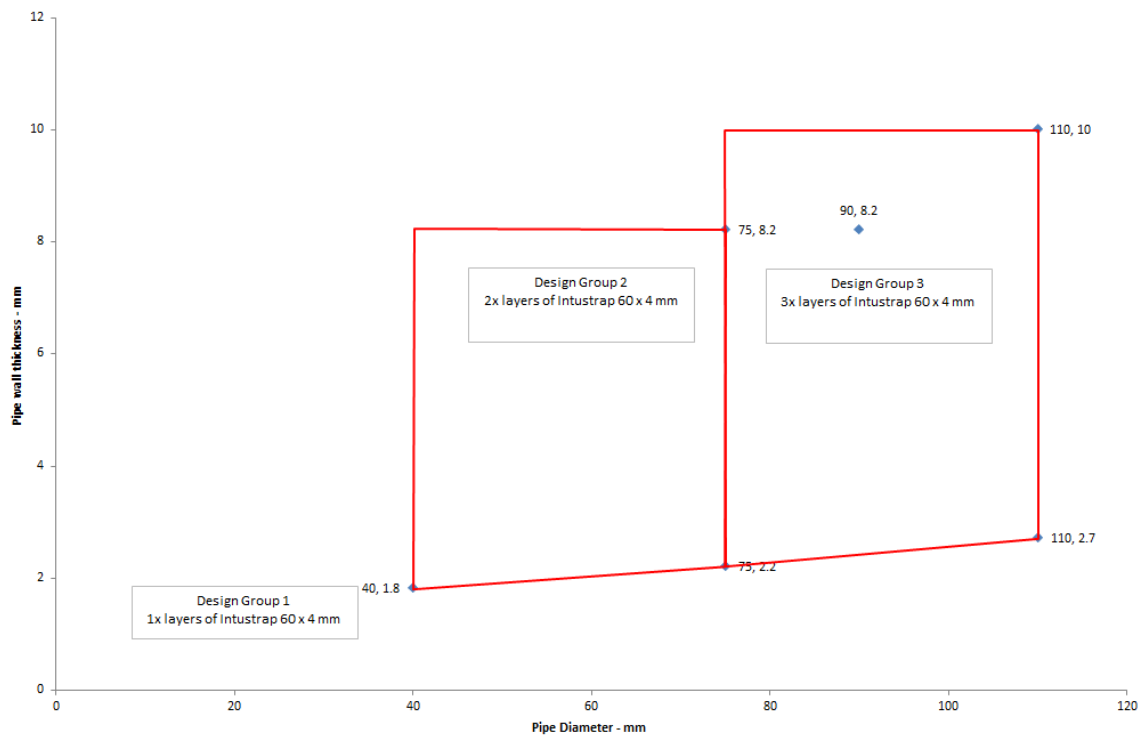
### PE pipes - EI 60 U/C



Services	Additional seal component	Classification
PP <sup>®</sup> pipe, up to 40 mm diameter / 1.8 mm wall thickness	1x layers of Nullfire FP302 60 x 4 mm installed at mid-depth	EI 60 U/C
PP <sup>®</sup> pipe, up to 75 mm diameter / 2.2- 8.2 mm wall thickness	2x layers of Nullfire FP302 60 x 4 mm installed at mid-depth	
PP <sup>®</sup> pipe, up to 90 mm diameter / 8.2 mm wall thickness	2x layers of Nullfire FP302 60 x 4 mm installed at mid-depth	
PP <sup>®</sup> pipe, up to 110 mm diameter / 2.7-10 mm wall thickness	3x layers of Nullfire FP302 60 x 4 mm installed at mid-depth	

® ISO 15494 DIN 8077/8078

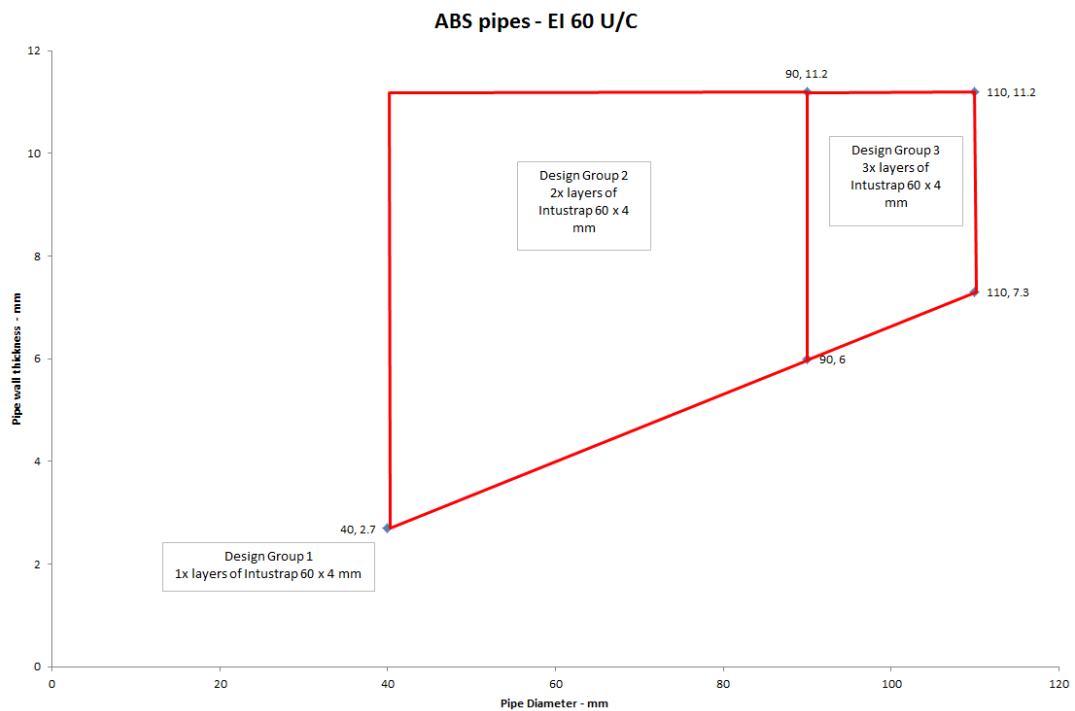
PP pipes - EI 60 U/C





Services	Additional seal component	Classification
ABS* pipe, up to 40 mm diameter / 2.7 mm wall thickness	1x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	<b>EI 60 U/C</b>
ABS* pipe, up to 90 mm diameter / 6.0 - 11.2 mm wall thickness	2x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	
ABS* pipe, up to 115 mm diameter / 7.3 - 11.2 mm wall thickness	3x layers of Nullifire FP302 60 x 4 mm installed at mid-depth	

\* BS 5391-1:2006

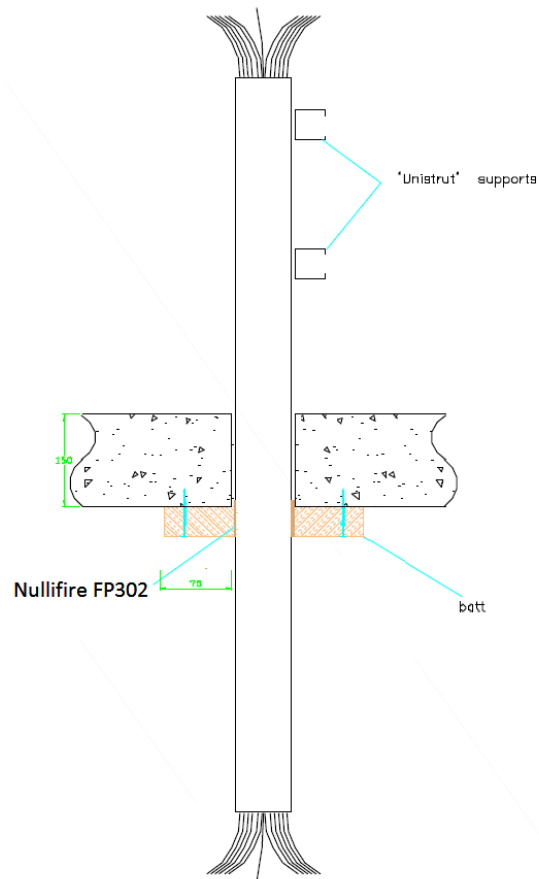


## A.11 Rigid floor constructions with floor thickness of minimum 150 mm

### A.11.1 Conduit penetration seal with 1 x 50 mm thick Nullifire FB750 pattress fixed

**Penetration Seal:** Cables and pipes penetrating through a rigid floor construction. 1 x 50 mm Nullifire FB750 pattress fixed to the soffit with 4 x 80mm long wood screws (1No per corner) and a minimum 75 mm overlap all around. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal opening size of 70 mm diameter

Construction details:



#### A.11.1.1 Single layer penetration seal with cables

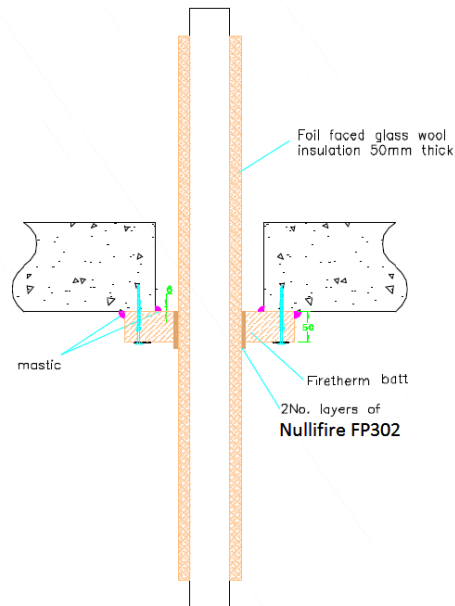
Services	Seal specification	Classification
Min. 1150 mm long HDPE conduit Ø55mm x 3.2mm wall thickness, containing 8No twin and earth cables	Nullifire FP302 60 mm wide x 4 mm thick recessed into batt and overlapping into floor	EI 240 U/U

## A.12 Rigid floor constructions with floor thickness of minimum 150 mm

### A.12.1 Pipe penetration seal with 1 x 50 mm thick Nullifire FB750 pattress fixed

**Penetration Seal:** Metal pipes penetrating through a rigid floor construction. 1 x 50 mm Nullifire FB750 pattress fixed to the soffit with 80mm long steel screws (200 mm centres) and a minimum 75 mm overlap all around. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal opening size of 50 mm diameter and floor opening of 400 x 400 mm.

Construction details:



#### A.12.1.1 Single layer penetration seal with cables

Services	Additional seal components	Classification
Steel pipe 220 mm diameter / 6.0-14.2 mm wall, insulated with Foil faced glass wool insulation 50mm thick CS	2No. layers 4 x 60 mm Nullifire FP302	<b>E 90 C/U</b> <b>EI 45 C/U</b>

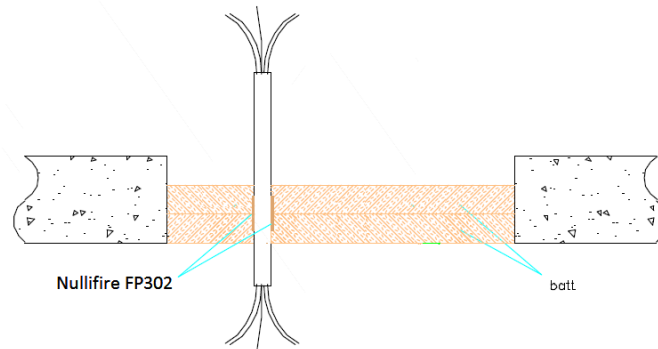
CS = Continuous Sustained

## A.13 Rigid floor constructions with floor thickness of minimum 150 mm

### A.13.1 Cable penetration seal with 2 x 50 mm thick Nullifire FB750

**Penetration Seal:** Cable or timber penetrating through a rigid floor construction. 2 x 50 mm Nullifire FB750 pattress flush with the soffit. Nullifire FS702 is applied to seal around the services insulation and on both faces at the interface between seal and supporting construction. Maximum batt seal size of 400 x 400 mm.

Construction details:



#### A.13.1.1 Single layer penetration seal with cables

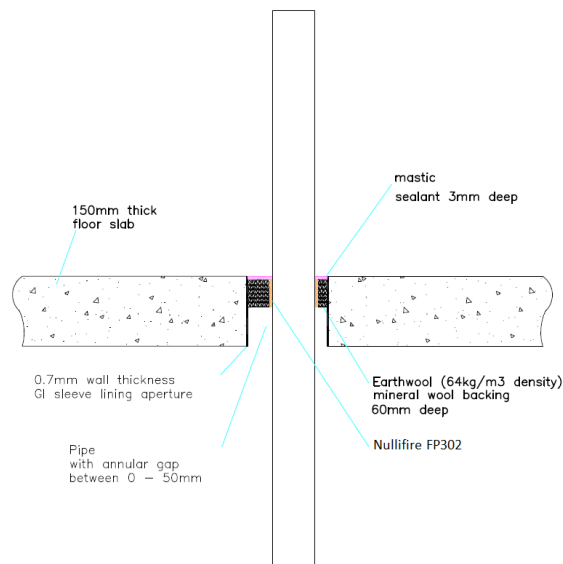
Services	Seal specification	Classification
ABS Ø55mm x 3.2mm wall thickness x 300mm long conduit containing 10 no. fire alarm cables and 5No. twin and earth cables	Nullifire FP302 1No. layer 60mm wide x 4mm thick at mid-depth	<b>E 120 U/U</b> <b>EI 60 U/U</b>

## A.14 Rigid floor constructions with wall thickness of minimum 150 mm

### A.14.1 Plastic and metal pipe seal

**Penetration Seal:** Pipes penetrating through a rigid floor construction and wrapped with Nullifire FP302. Oversize (up to 50 mm annular space) steel sleeve installed into the opening with annular space filled to 60 mm depth with stone wool insulation min 64 kg/m<sup>3</sup> capped with 3 mm of FS702 sealant.

Construction details:



#### A.14.1.1 Double side penetration seal

Services	Seal specification	Classification
uPVC* pipe up to 50 mm diameter / 2.4 mm wall thickness	1 x layer Nullifire FP302 – 4 mm thick by 60 mm wide to both faces	EI 120 U/C
uPVC* pipe up to 160 mm diameter / 3.0 mm wall thickness	4 x layer Nullifire FP302 – 4 mm thick by 60 mm wide to both faces	
Copper or steel pipe 15 mm diameter / 0.8 mm wall thickness, insulated with 50 mm glass wool insulation CS	2 x layer Nullifire FP302 – 4 mm thick by 60 mm wide to both faces	EI 120 C/U

\* PVC-U pipe according to EN 1329-1, EN 1452-2 and EN 1453-1

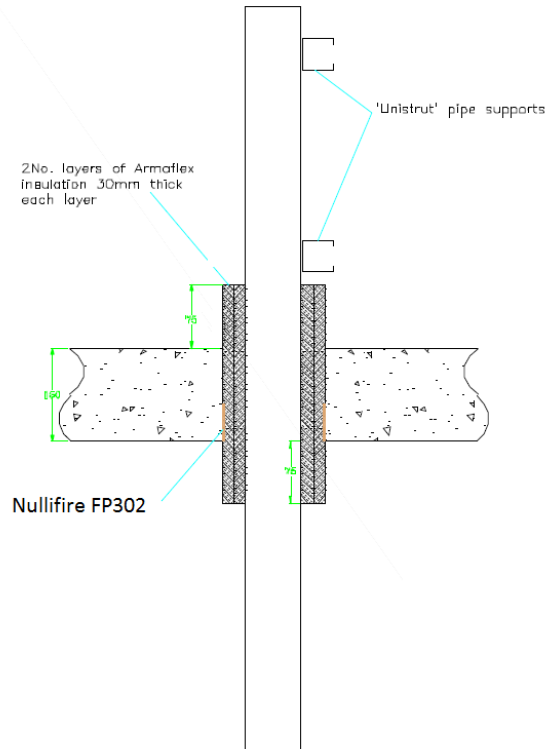
LI = local Interrupted, CI – Continuous Interrupted, LS – Local Sustained, CS – Continuous Sustained

## A.15 Rigid floor constructions with wall thickness of minimum 150 mm

### A.15.1 Metal pipe seal

**Penetration Seal:** Pipes penetrating through a rigid floor construction and wrapped with Nullifire FP302. Oversize.

Construction details:



#### A.15.1.1 Double side penetration seal

Services	Seal specification	Classification
Steel pipe 160 mm diameter / 6.9 mm wall thickness, insulated with 2 layers of 30 mm Armaflex nitrile insulation LS extending 75 mm from both faces of the floor	1 x layer Nullifire FP302 – 4 mm thick by 60 mm wide to both faces	E 60 C/U, EI 30 C/U

LI = local Interrupted, CI – Continuous Interrupted, LS – Local Sustained, CS – Continuous Sustained