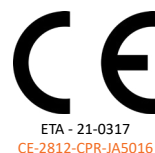


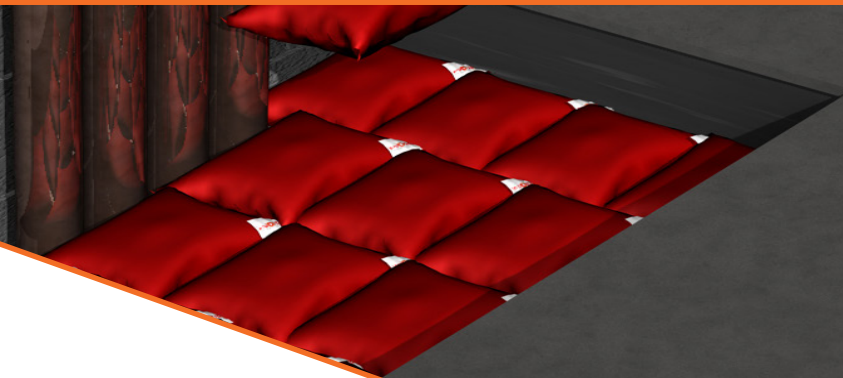
Technical Data Sheet

Astro X Series Pillow

UIC of product-type: XSPIL

Revision 7 - 16th July 2021





ETA - 21-0317		
> Technical Data	General Product Description	> Page 1
> Technical Data	Intended Use	> Page 1
> Technical Data	Use Category	> Page 1
> Technical Data	Reaction To Fire	> Page 1
> Technical Data	Resistance To Fire	> Page 1
> Technical Data	Air Permeability	> Page 2
> Technical Data	Dangerous Substances, Airborne Sound Insulation & Durability And Serviceability	> Page 2-3
> Technical Data	Astro X Series Fire Pillows Fire Resistant Cable & Cable Tray Penetration Seal Through Rigid Wall Horizontal Orientation	> Page 4
> Technical Data	Astro X Series Fire Pillows Fire Resistant Cable & Cable Tray Penetration Seal Through Rigid Wall Horizontal Orientation	> Page 5
> Technical Data	Astro X Series Fire Pillows In Fire Resistant Cable & Cable Tray Penetration Seal With Partial Additional Pillows Through Rigid Wall Horizontal Orientation	> Page 6
> Technical Data	Astro X Series Fire Pillows In Fire Resistant Plastic Tube Penetration Seal Through Rigid Wall Horizontal Orientation	> Page 7
> Technical Data	Astro X Series Fire Pillows In Fire Resistant Loose Cables Penetration Seal Through Rigid Wall Horizontal Orientation	> Page 8
> Technical Data	Astro X Series Fire Pillows In Fire Resistant Un-Insulated Metallic Pipe Penetration Seal Through Rigid Wall Horizontal Orientation	> Page 9
> Technical Data	Astro X Series Fire Pillows In Fire Resistant Metallic Pipe Penetration Seal With TDW Through Rigid Wall Horizontal Orientation	> Page 10
> Technical Data	Astro X Series Fire Pillows In Fire Resistant Metallic Pipe Penetration Seal With Additional Pillows Through Rigid Wall Horizontal Orientation	> Page 11
> Technical Data	Astro X Series Fire Pillows in fire resistant insulated with armaflex metallic pipe penetration seal with astro TDW through rigid wall horizontal orientation	> Page 12
CF 615		
> Technical Data	Astro Pillows & Astro X Series Pillows	> Page 13-14
> Technical Data	Astro Pillows - BS 476: Part 20: 1987 Approval Matrix	> Page 15
> Technical Data	Astro X Series Pillows - BS EN 1366: 2009 Approval Matrix	> Page 16
> Technical Data	Typical Vertical Section Showing the Use Of Astro X Series Fire Pillows With Cable Trunking System In A Wall	> Page 17
> Technical Data	Typical Vertical Section Showing the Use Of Astro X Series Fire Pillows With Cable Trunking System In A Wall	> Page 18
> Technical Data	Typical Horizontal Detail For Astro X Series Fire Pillows	> Page 19
> Technical Data	Air Permeability Test - En 1026	> Page 20
> Technical Data	Acoustic Isolation Test - En10140	> Page 21-22
> Technical Data	Typical Vertical Section Showing The Use Of Astro X Series Fire Pillows In A Block Or Partition	> Page 23

General Product Description

Astro X series Pillow are a compressible combination of reactive and non-reactive components, encased in a thin woven glass fibre casing used to reinstate the fire resistance performance of wall construction where they have been provided with apertures for the penetration of single or multiple services.

Astro X series Pillow is a dry system and does not require the use of any sealant or sealing products.

Astro X series Pillow are supplied in three different sizes referenced Large (330mm x 200mm x 45mm), Medium (330 x 200mm x 25mm) and small (330mm x 50mm x 20mm), a mixture of which may be utilized to obtain a tight compression.

Intended Use

The intended use of Astro X series Pillow is to reinstate the fire resistance performance of rigid wall construction where they are penetrated by various cables and metallic pipes.

Rigid Walls:

The wall must have a minimum thickness of 150mm and comprise concrete, aerated concrete or masonry, with a minimum density of 650kg/m³.

The supporting construction must be classified in accordance with EN 13501-2 for the required fire resistance period. The Astro X series Pillow may be used to provide a penetration seal with pipes and cables.

The total amount of cross sections of services (including insulation) should not exceed 60% of the penetration area.

The system Astro X series Pillow may be used to seal apertures in the separation element up to 1100mm wide by 1100mm high dependant on the configuration. The minimum permitted separation between adjacent seals/apertures is 200mm.

Pipes must be installed singular, cables require no minimum separation.

Services in walls shall be supported at maximum 250mm from the face of the separating element.

The provisions made in this European Technical Assessment are based on an assumed working life of the Astro X series Pillow of 10 years, provided that the conditions laid down in sections 4.2/5.1/5.2 for the packaging/transport/installation/use/repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

Use Category

Type Z1: Intended for use in internal conditions with humidity equal to or higher than 85% RH excluding temperatures below 0°C, without exposure to rain or UV.

Reaction to Fire

System Astro X series Pillow is classified 'F' in accordance with EN 13501-1.

Resistance to Fire

System Astro X Series Pillow has been tested in accordance with BS EN 1366-3: 2009 based upon the test results and the field of direct application specified within EN 1366-3: 2009, the system Astro X series Pillow has been classified in accordance with EN 13501-2, as given in Annex C:

****Please note this document contains both European technical data and Certifire data. For specific details to Certifire data please refer to pages 13-19 or separate Certifire certificate download.****

****Where relevant Non combustible fixings are to be used in line with test data to secure the product to the relevant substrate. Please contact us for further details.****

Air Permeability

System Astro X series Pillow has been tested in accordance with BS EN 1314-1 to provide the following results:

Product tested		Astro X series Pillow		
	Results under positive chamber pressure		Results under negative chamber pressure	
Pressure (Pa)	Leakage (m3/m2/h)	Leakage (m3/m2/h)	Leakage (m3/h)	Leakage (m3/m2/h)
50	2.5	13.9	31.	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

Dangerous Substances

Astroflame Fireseals Ltd persented a declaration that Astro X series Pillow does not contain any substance of high concern with regards to REACH Regulations and are compliant with the requirements reference to <http://ec.europa.eu/emerprise/construction/cpd-ds/index.cfm>

Confirmation has further been declared that all dangerous chemical substances $\geq 1.0\%$ w/w as well as all toxic, carcinogenic, toxic for reproduction and mutagenic chemical substances $\geq 0.1\%$ w/w (Status: 29. adaption - 2004/73/EG - of the EU directive 67/548/ EEC - classification, packaging and labelling of dangerous substances) are stated in the Astro Intu Mastic 300 safety data sheets in the Astro Intu Mastic 300 safety data sheets (according to 91/155/EEC including amendments) and have been considered for the classification of the products according to the directive 1999/45/EG (classification of preparations, including amendments).

All dangerous chemical substances are below the classification limits of 67/548/EEC.

In addition to the specific clauses relating to dangerous substances contained in the European Technical Approval, 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 Regulations, these requirements need also to be complied with, when and where they apply.

Airborne Sound Insulation

The results of the test provided the following single number rating:

Rw (C;Ctr)=33(0;-2)

Durability and Serviceability

Astro X series Pillow has been tested in accordance with EOTA Technical Report - TR024 - Edition November 2006, for the type Z1 use category specified in ETAG 026-3 (used as European Assessment Document, EAD), and the results of the tests have demonstrated suitability for penetration seals intended for use in internal conditions with humidity equal to or higher than 85% RH excluding temperatures below 0oC, without exposure to rain or UV.

Durability and serviceability

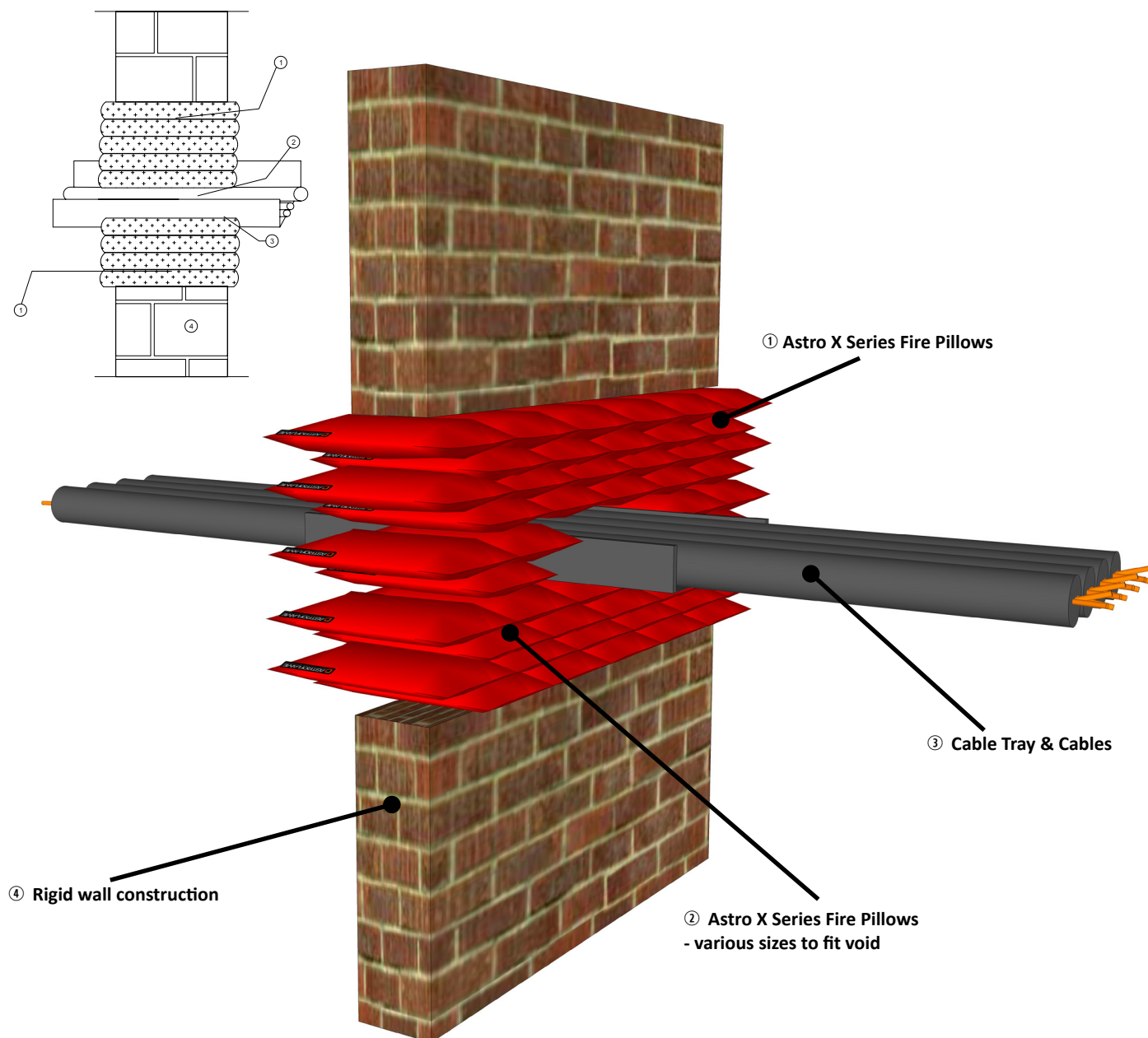
The principle of the durability is to select suitable physico-chemical or technological properties of the product and to check whether these properties have changed during exposure of the product to defined exposure conditions. The product shall be tested according to the following procedures:

Property	Test Method
Bag	
Apperance	EOTA ETAG No 026: Part 2: Clause B.12
Tear Strength of Fabric	EN ISO 13934-1
Tear Strength of Seams	EN ISO 13935-1 or EN ISO 13935-2
Filling material	
Expansion ratio	EOTA TR 024, clause 3.1.11

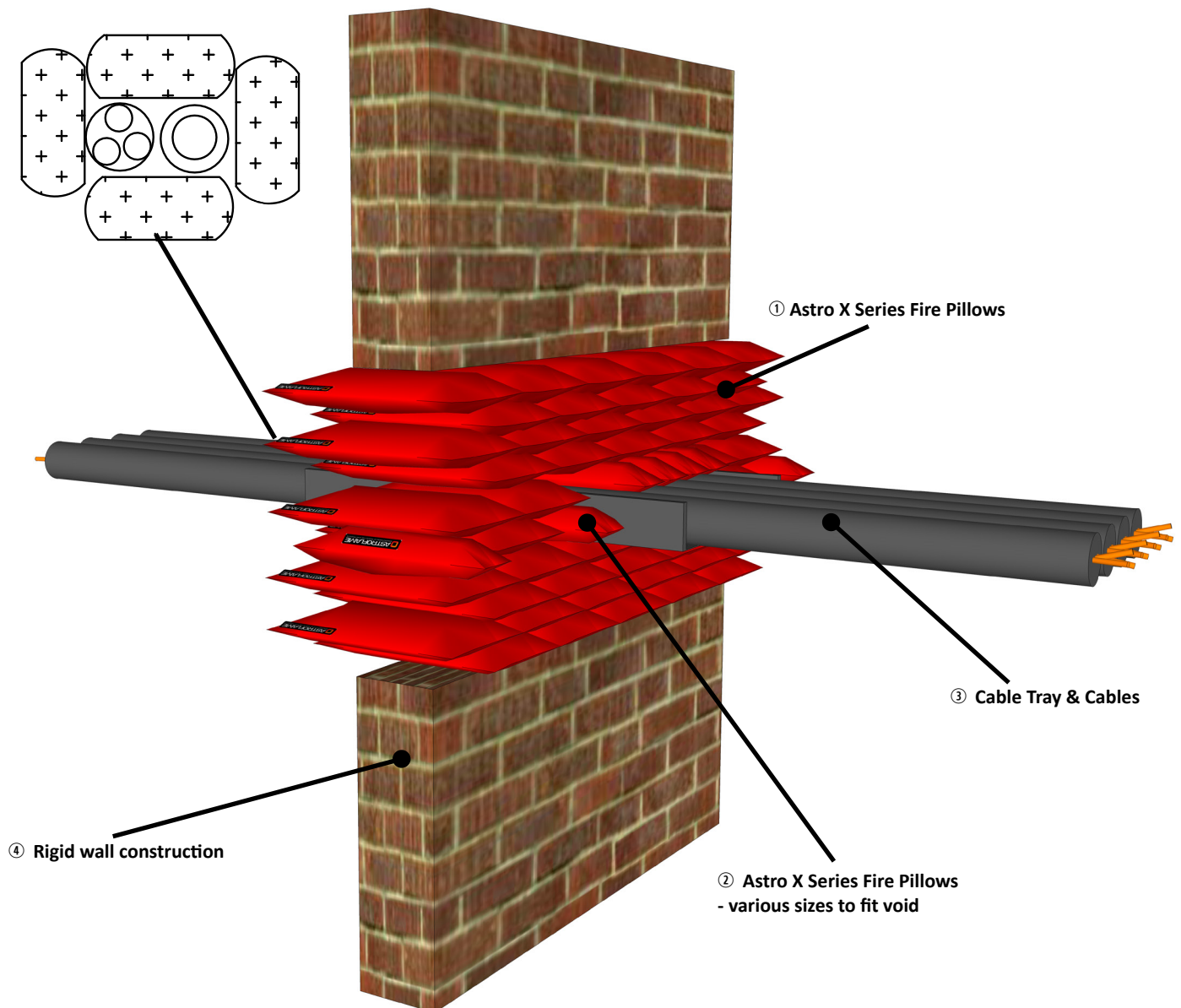
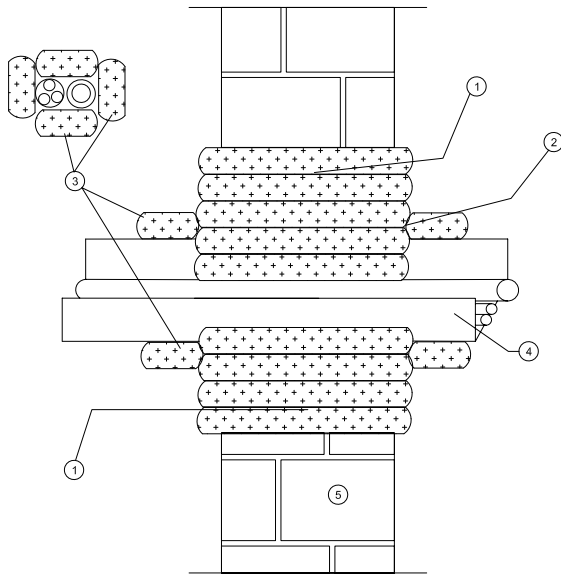
Astro X series Pillow Penetration Seals 300 mm deep, in Rigid Walls 150mm thick (min.)	
Services	Classification
Telecom cables up to 21mm Ø (single or bundles up 100mm Ø)	EI 120
Electrical cables up to 21mm Ø	EI 120
Electrical cables up to 50mm Ø	E 120, EI 90
Electrical cables up to 80mm Ø	E 120, EI 90
Unsheathed wires up to 24mm Ø	EI 120
Steel or Copper conduits and tubes up to 16mm Ø	EI 120
Plastic (any) conduits and tubes up to 16mm Ø	EI 120
Cables trays or ladders up to 300mm wide	E 120, EI 60

DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016

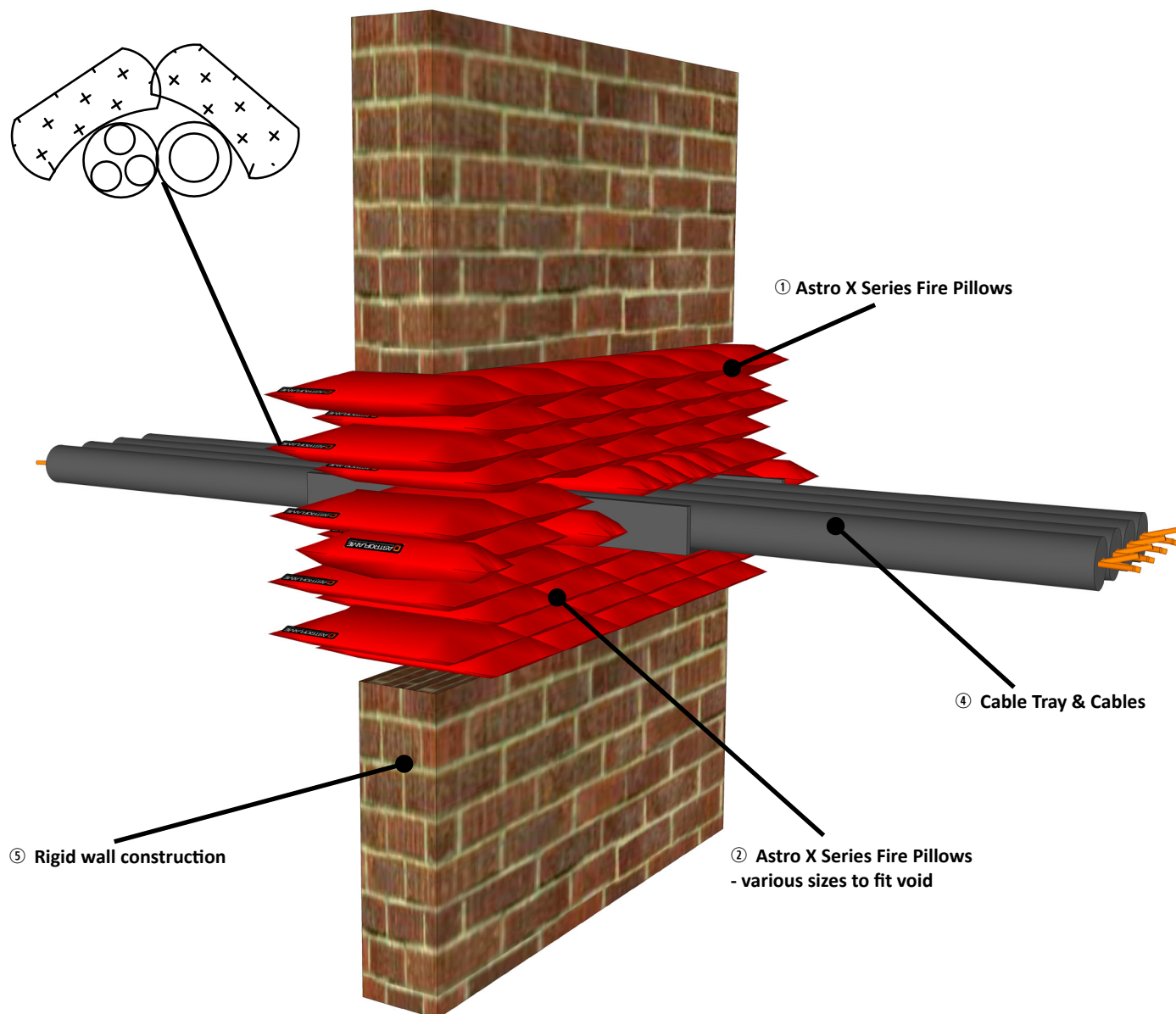
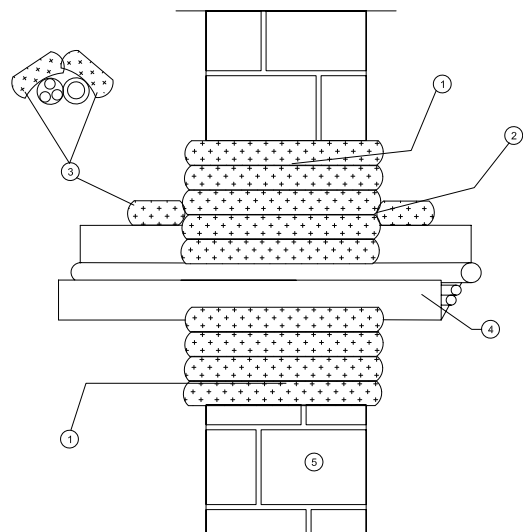
ASTRO X SERIES FIRE PILLOWS FIRE RESISTANT CABLE & CABLE TRAY PENETRATION SEAL THROUGH RIGID WALL HORIZONTAL ORIENTATION



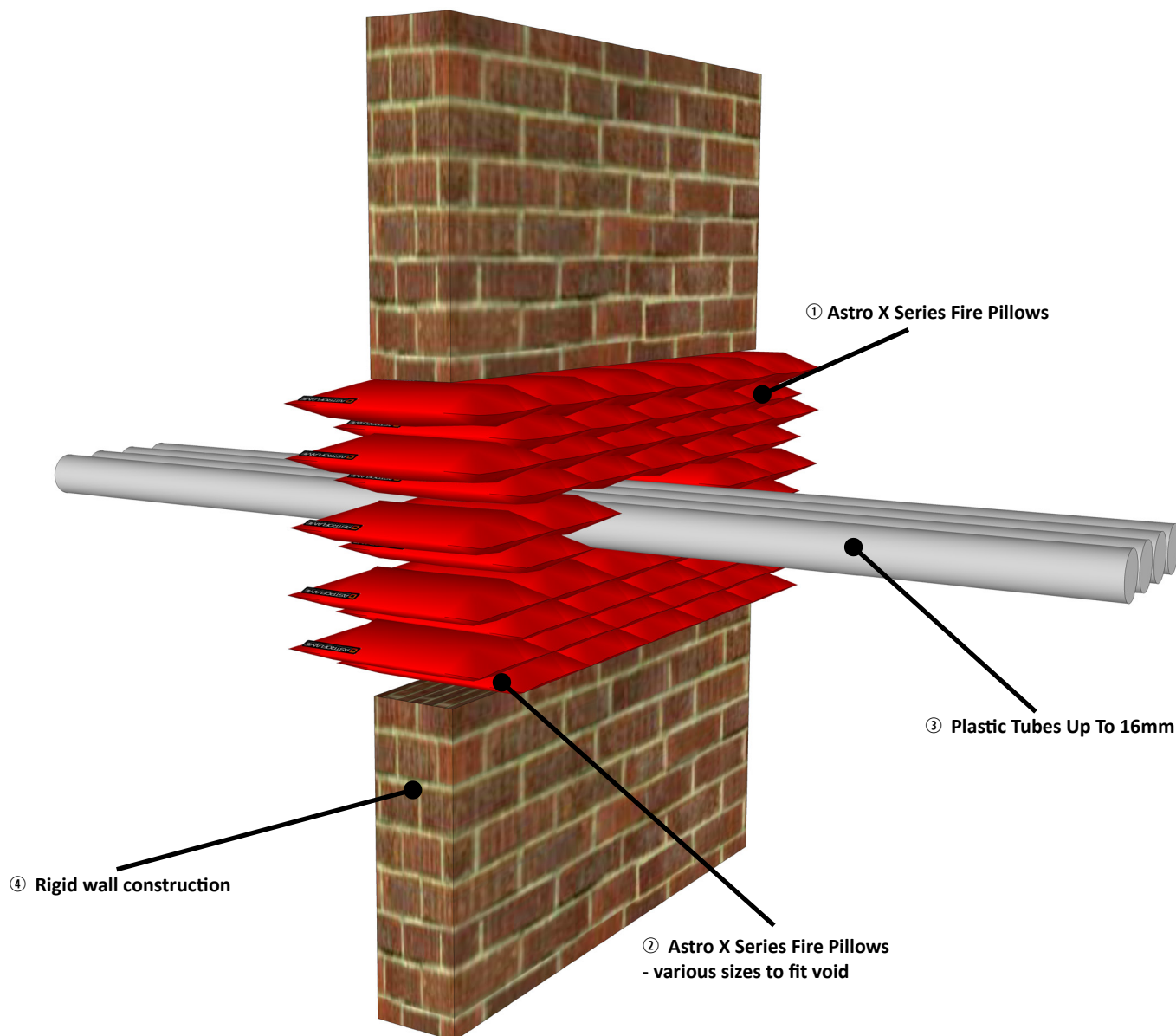
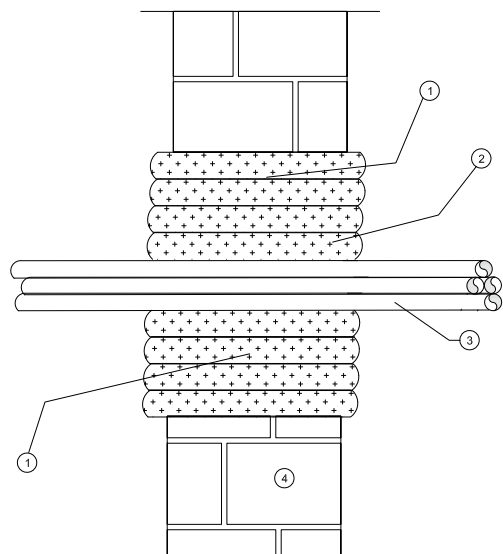
DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016
ASTRO X SERIES FIRE PILLOWS FIRE RESISTANT CABLE & CABLE TRAY PENETRATION SEAL WITH
ADDITIONAL PILLOWS THROUGH RIGID WALL HORIZONTAL ORIENTATION



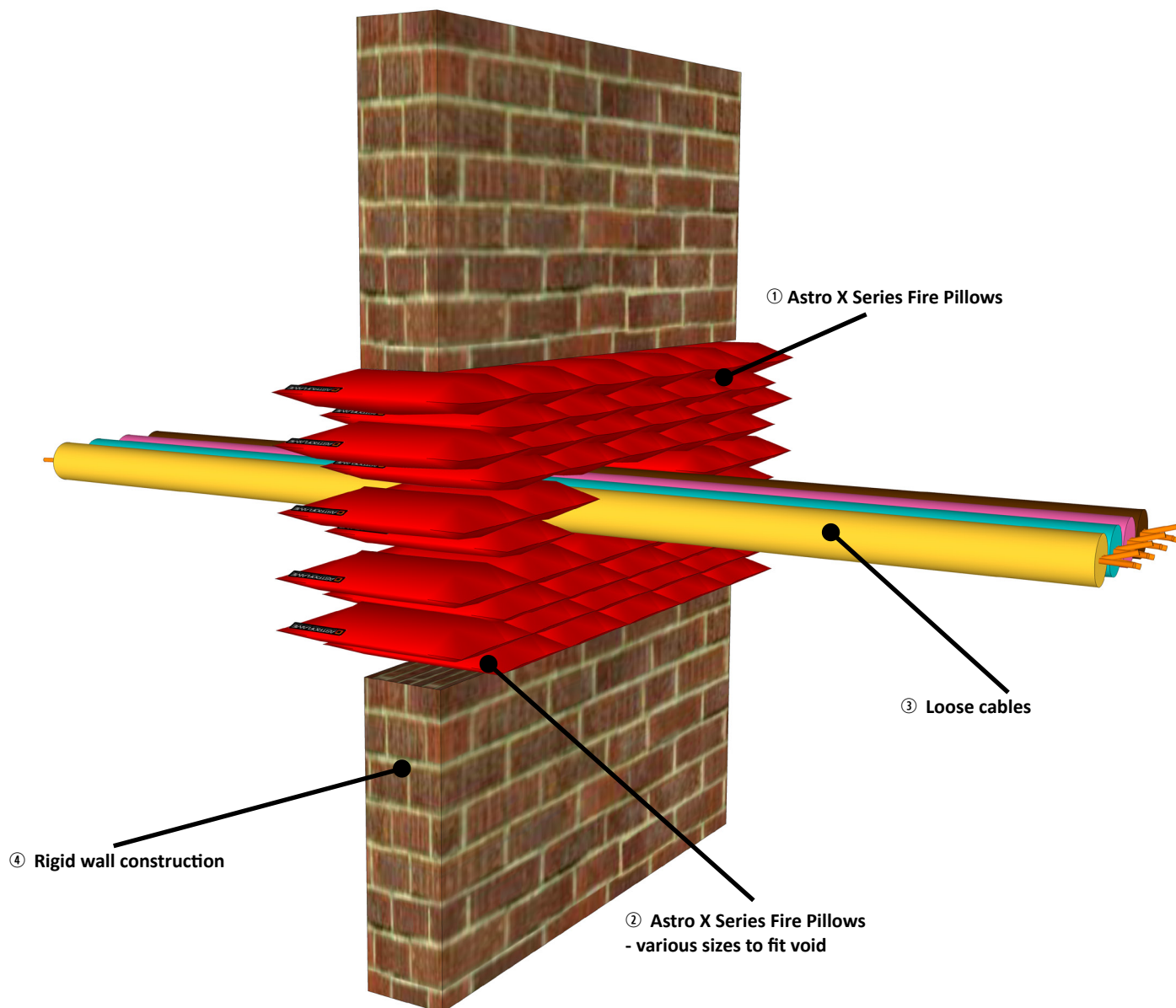
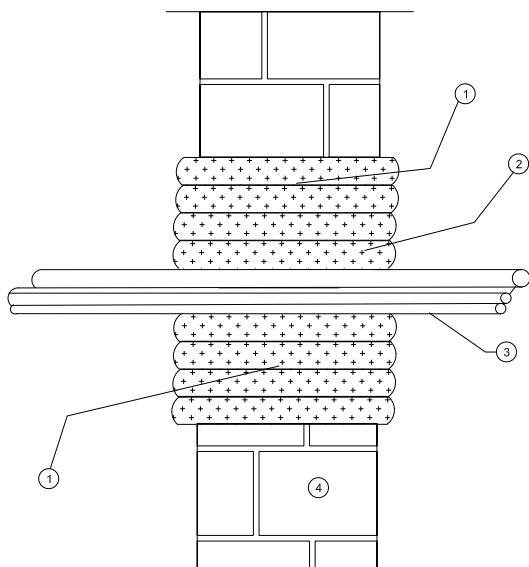
DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016
ASTRO X SERIES FIRE PILLOWS IN FIRE RESISTANT CABLE & CABLE TRAY PENETRATION SEAL WITH PARTIAL ADDITIONAL PILLOWS THROUGH RIGID WALL HORIZONTAL ORIENTATION



DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016
ASTRO X SERIES FIRE PILLOWS IN FIRE RESISTANT PLASTIC TUBE PENETRATION SEAL THROUGH
RIGID WALL HORIZONTAL ORIENTATION



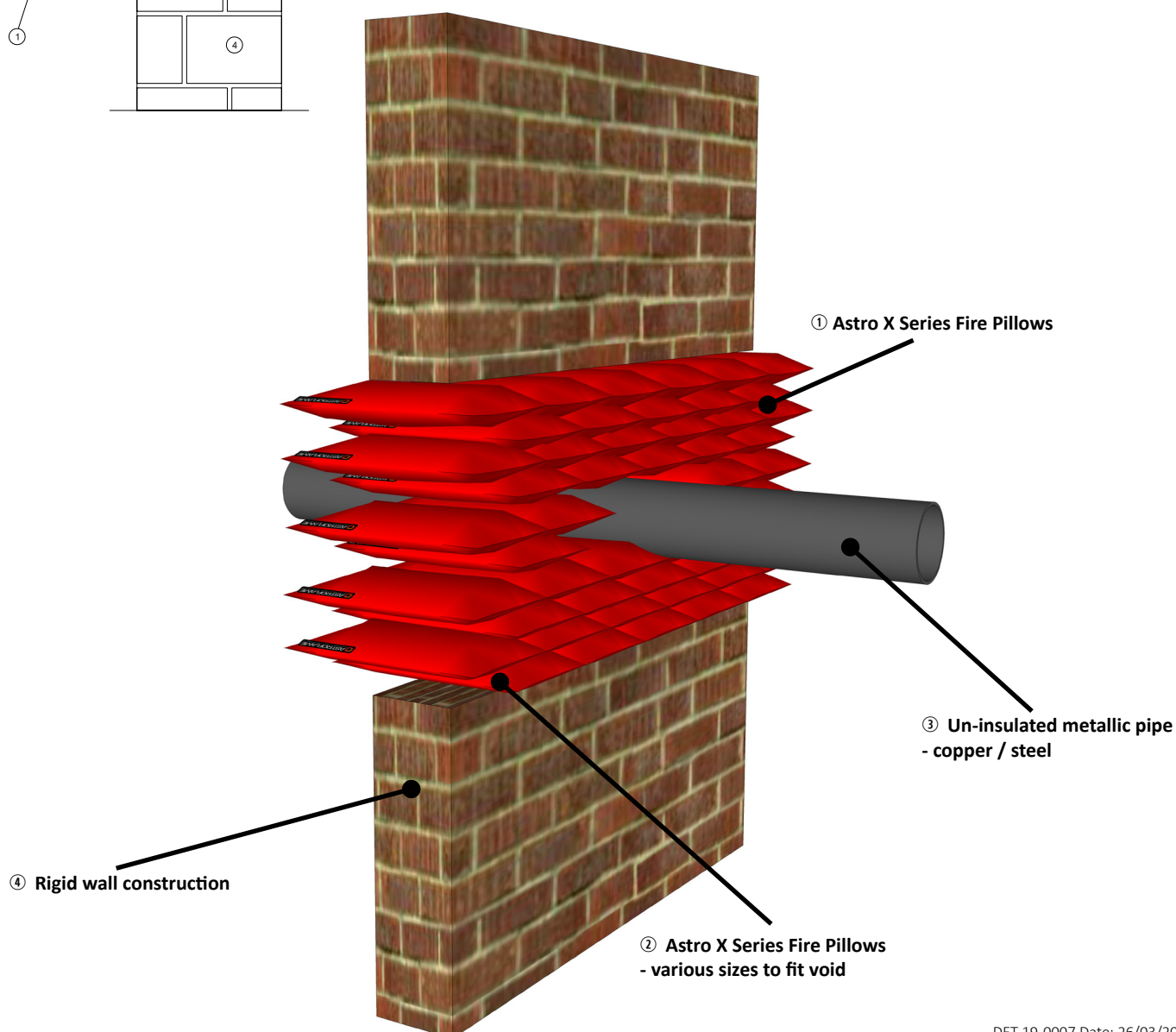
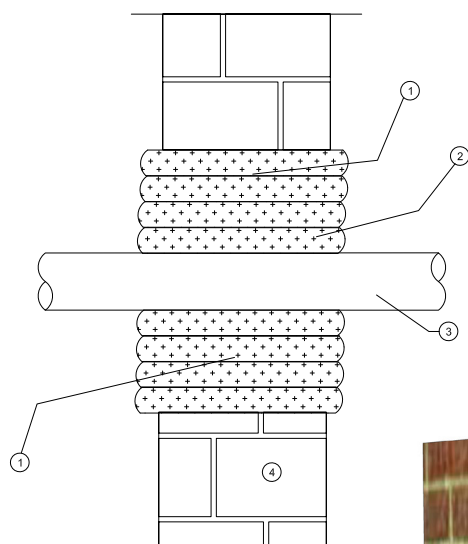
DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016
ASTRO X SERIES FIRE PILLOWS IN FIRE RESISTANT LOOSE CABLES PENETRATION SEAL THROUGH RIGID WALL HORIZONTAL ORIENTATION



Astro X series Pillow Penetrations Seals 300mm deep, in Rigid Walls 150mm thick (min).	
Services	Classification
165mm Ø x 5.6-14.2mm thick mild steel pipe	E 120 C/U

DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016

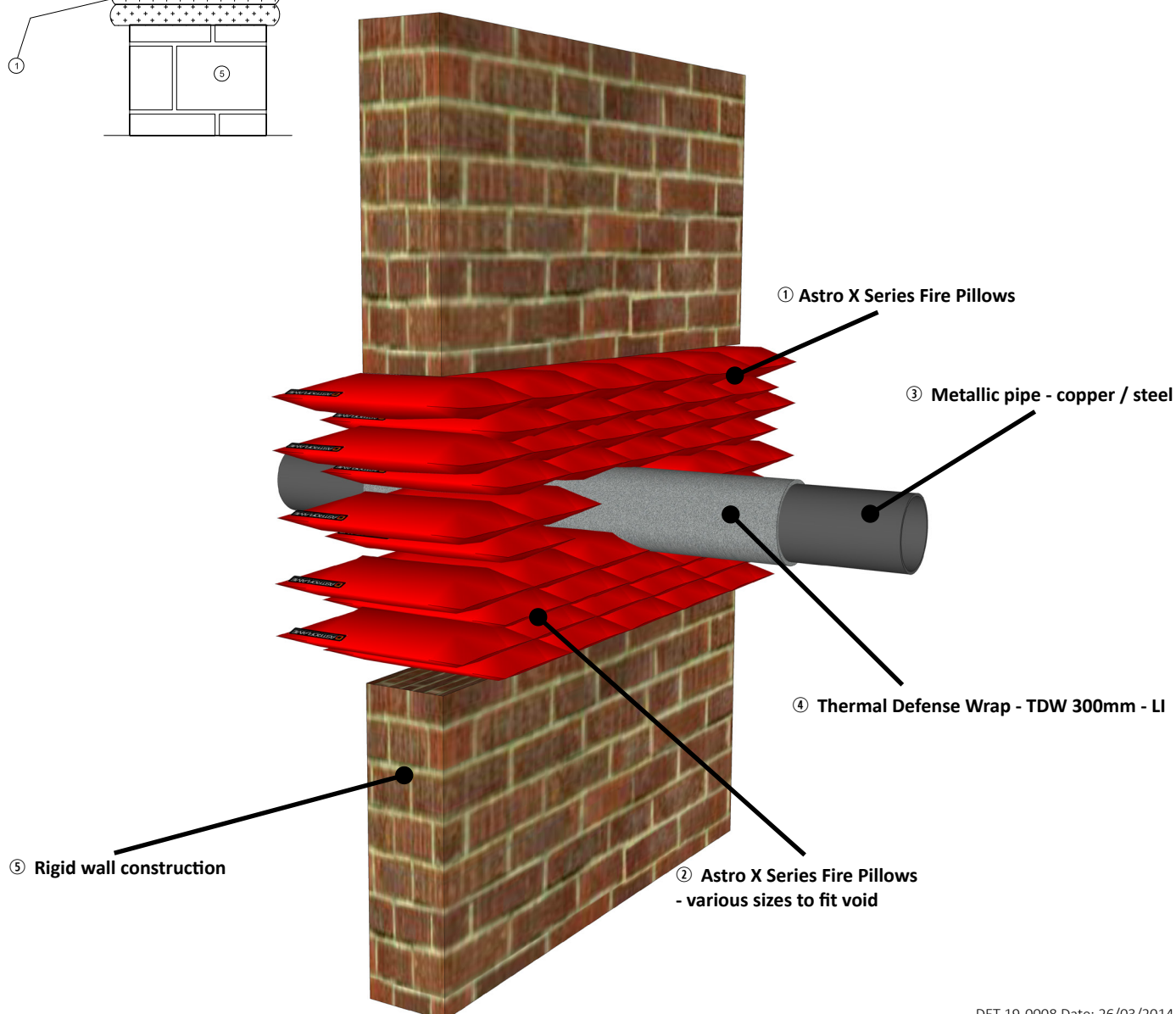
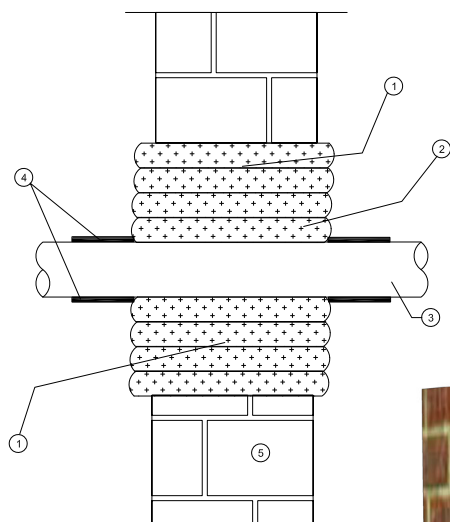
ASTRO X SERIES FIRE PILLOWS IN FIRE RESISTANT UN-INSULATED METALLIC PIPE PENETRATION SEAL THROUGH RIGID WALL HORIZONTAL ORIENTATION



Astro X series Pillow Fire Penetration Seals 300mm deep, in Rigid Walls 150mm thick (min).	
Services	Classification
48mm Ø x 3.5-14.2mm thick steel pipe with 300mm Local Interrupted (LI) Ast-roflame Thermal Defense Wrap 7mm Thick	EI 120 C/U
113mm Ø x 3.5-14.2mm thick steel pipe with 300mm Local Interrupted (LI) Ast-roflame Thermal Defense Wrap 10mm thick	EI 120 C/U

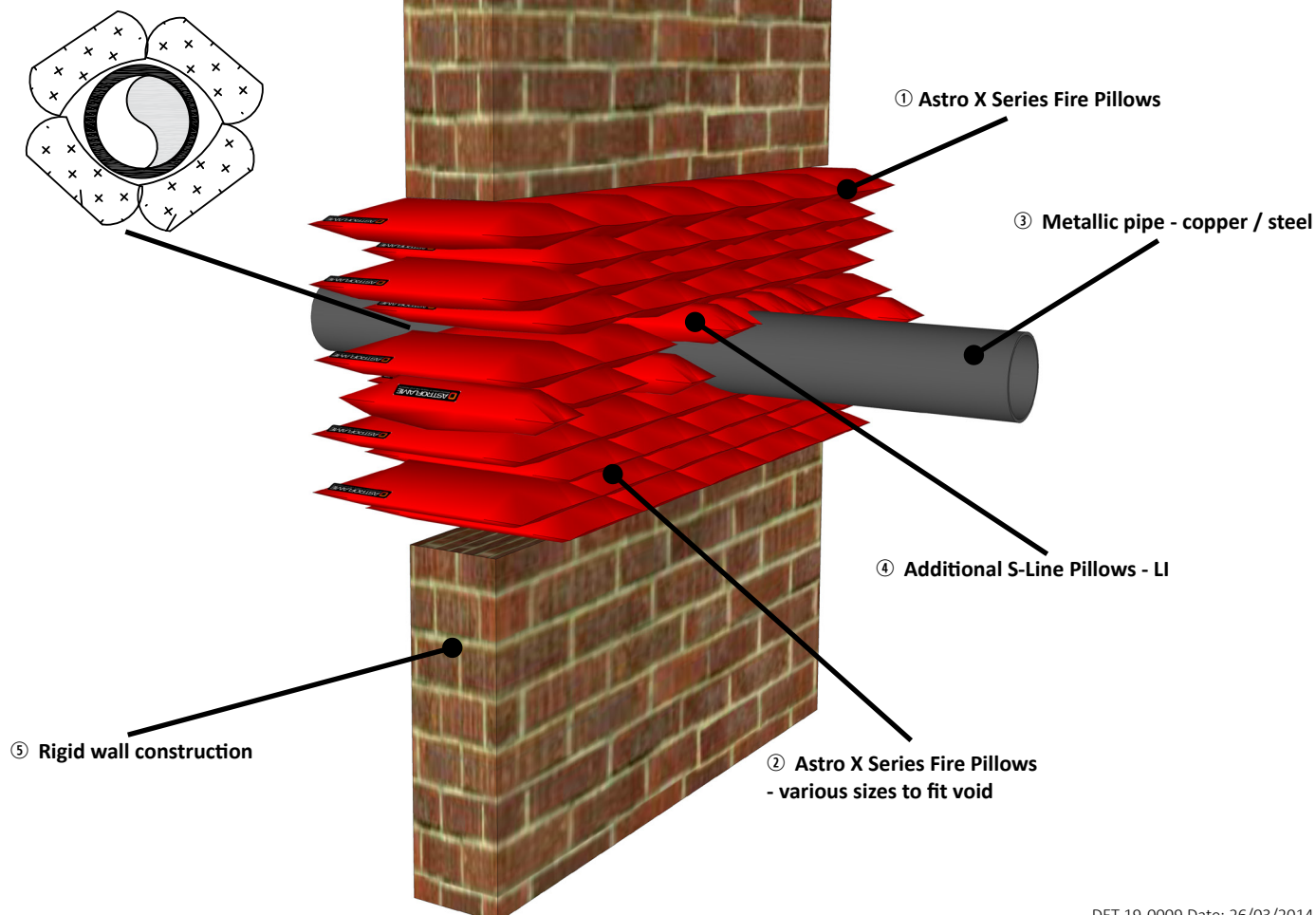
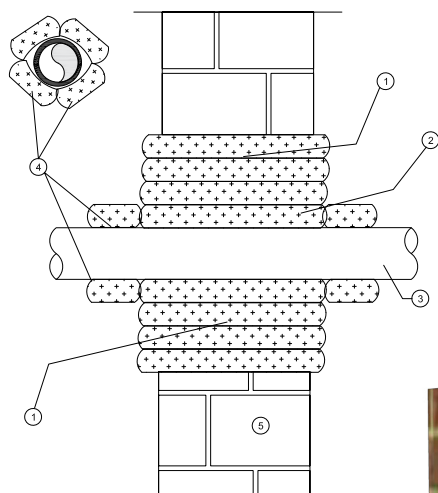
DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016

ASTRO X SERIES FIRE PILLOWS IN FIRE RESISTANT METALLIC PIPE PENETRATION SEAL WITH TDW THROUGH RIGID WALL HORIZONTAL ORIENTATION



Astro X series Pillow Fire Pillow Penetration Seals 300mm deep, in Rigid Walls 150mm thick (min).	
Services	Classification
108mm Ø x 1.5-14.2mm thick copper pipe	E 120 C/U, EI 90 C/U

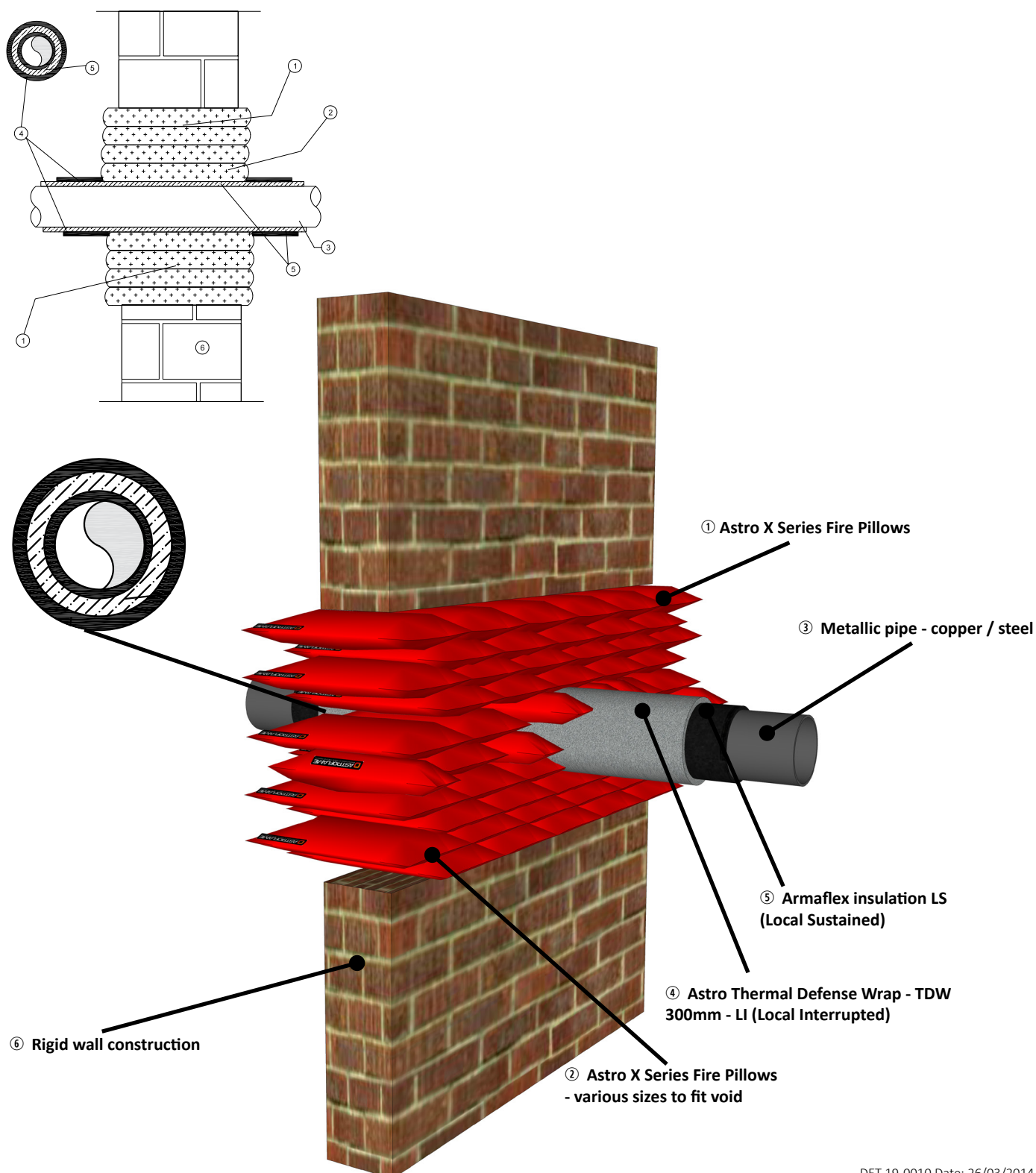
DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016
ASTRO X SERIES FIRE PILLOWS IN FIRE RESISTANT METALLIC PIPE PENETRATION SEAL WITH
ADDITIONAL PILLOWS THROUGH RIGID WALL HORIZONTAL ORIENTATION



Astro X series Pillow Penetration Seals 300mm Deep, in Rigid Walls 150mm thick (min).	
Services	Classification
54mm $\varnothing$ x 1.0-14.2mm thick copper pipe with 2 layers of insulation	EI 120

DESIGN TO ETA 14-0046 & CE-2812-CPR-JA5016

ASTRO X SERIES FIRE PILLOWS IN FIRE RESISTANT INSULATED WITH ARMAFLEX METALLIC PIPE PENETRATION SEAL WITH ASTRO TDW THROUGH RIGID WALL HORIZONTAL ORIENTATION



certifire

CERTIFICATE OF APPROVAL

No CF 615

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

ASTROFLAME (FIRESEALS) LIMITED

Unit 8, The I.O Centre, Stephenson Road, Segensworth, Fareham,
Hampshire, PO15 5RU
Tel: 01329 844 500

Have been assessed against the requirements of the Technical Schedule(s) denoted below and are approved for use
subject to the conditions appended hereto:

CERTIFIED PRODUCT
ASTRO PILLOWS & ASTRO X
SERIES PILLOWS

TECHNICAL SCHEDULE
TS 03 Penetration Sealing
Systems



'Certifire certification and any product label is only applicable to the specific scope and field of application as defined within the current and valid Certifire certificate number CF615. Any additional details, amendments or additions to the product, or any use outside the scope or field of application, outside of that stated within certificate number CF615 has not been reviewed or approved by Warringtonfire'.

Astro Pillows & Astro X Series Pillows

1. This approval relates to the use of the ASTRO PILLOWS & ASTRO X SERIES PILLOWS for the fire protection where services are penetrating walls and floors. The detailed scope is given in the Approval Matrix included in this Certificate. This shows the thickness and acceptable services for ASTRO PILLOWS & ASTRO X SERIES PILLOWS required to provide fire resistance periods in accordance with BS 476: Part 20: 1987 and ASTRO X SERIES PILLOWS required to provide fire resistance periods in accordance with EN 1366-3: 2009 (as indicated in the Matrix of Approval) of up to 120 minutes for differing services and wall/floor constructions. The scope of certification complies with guidelines stated in the ASFP Red Book: 3rd Edition for 3rd party certification schemes.

2. This certification is designed to demonstrate compliance of the product or system specifically with Approved Document B (England and Wales), Section 2 of the Technical Standards (Scotland), Technical Booklet E (N. Ireland). If compliance is required to other regulatory or guidance documents there may be additional considerations or conflict to be taken into account.'

3. The product is approved on the basis of:

- i.) Initial type testing
- ii.) Audit testing at the frequency specified in TS03
- iii.) A design appraisal against TS03
- iv.) Inspection and surveillance of factory production control

4. The concrete floors and/or masonry or concrete walls shall be at least as thick as the sealing system as shown in the Approval matrix and have at least the same fire rating as that required for the penetration seal.

5. The services which may be fitted through the seals are cables ladders of various sizes and communication cables.

6. The approval relates to ongoing production. Product and/or its immediate packaging is identified with the manufacturers' name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.

Further Information

Further information regarding the details contained in this data sheet may be obtained from
ASTROFLAME (FIRESEALS) LIMITED (Tel: 01329 844500)

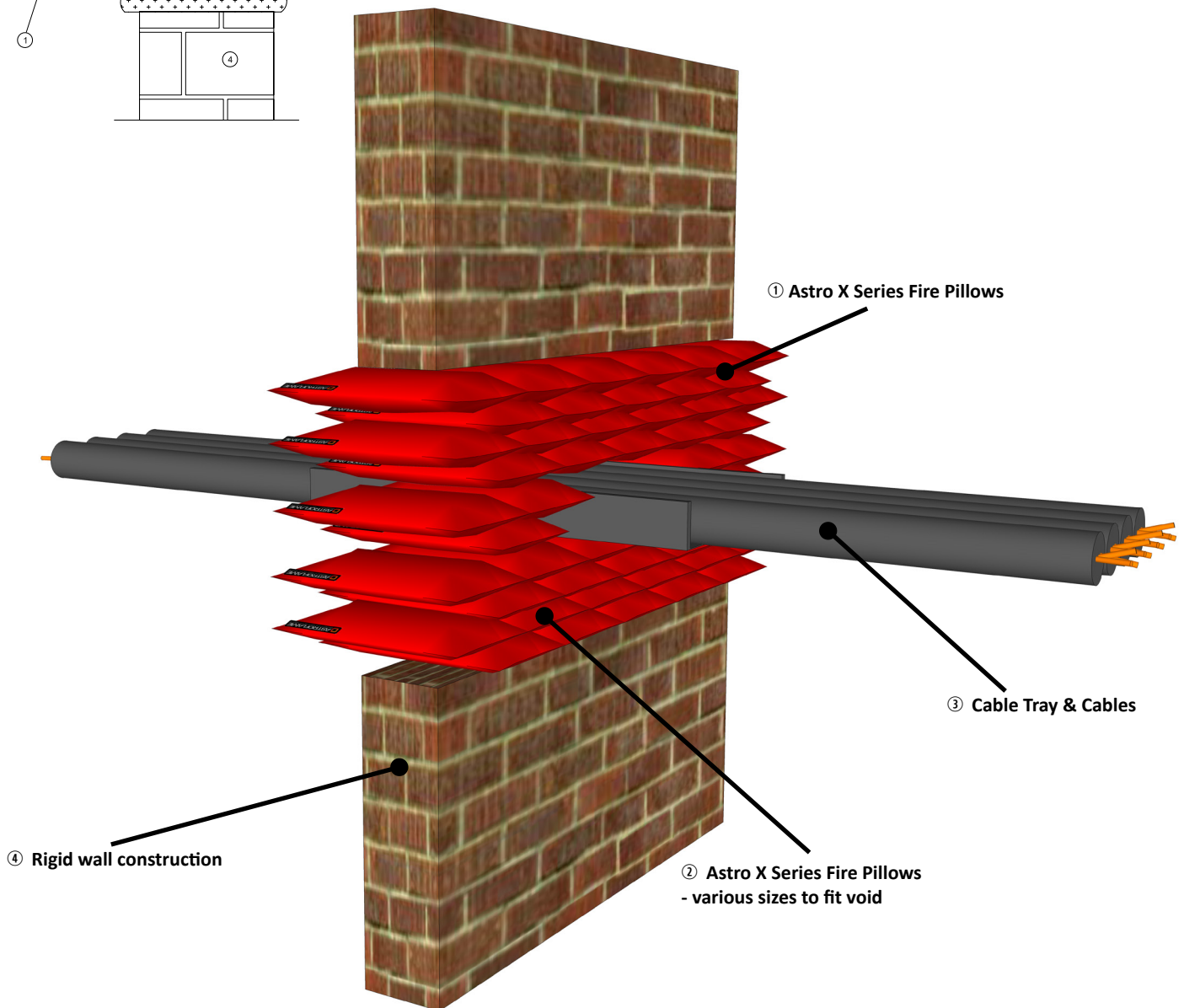
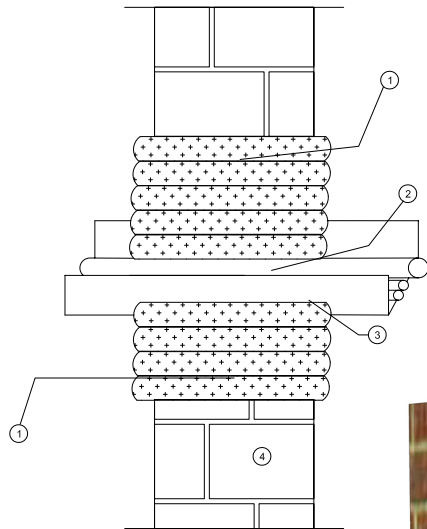
Astro Pillows - BS 476: Part 20: 1987 Approval Matrix

Product Name:	Astro Pillow					
Coating / WFT:	Not applicable					
Density:	Not applicable					
Orientation	Services	Integrity/ Insulation	Required Pillows Thickness For Fire Resistance Perios (minimum)			
			30 mins	60 mins	90 mins	120 mins
Floor	No	Int. & Ins.	150mm	150mm	200mm	200mm
	Yes	Int. & Ins.	150mm	200mm	250mm	300mm
	Yes	Int. only	150mm	150mm	200mm	200mm
Wall	No	Int. & Ins.	150mm	180mm	250mm	300mm
	Yes	Int. & Ins.	150mm	200mm	250mm	300mm
	Yes	Int. only	180mm	180mm	250mm	300mm
Penetrating Services:	Cable ladders and communication cables.					
Maximum aperture:	1000mm by 1000mm					
Wall/floor thickness:	The floors and walls shall be a minimum of 100mm thick for periods of up to 60 minuets fire resistance and 150mm (floor) and 200mm (wall) thick for periods of 90 minutes and 120 minutes fire resistance. The minimum density for the concrete of the floor or wall is 780kg/m ³ and for walls made of concrete blocks is 600kg/m ³ .					
Application Technique:	Floors: Steel mesh (50mm square with 5mm wire) is mechanically fixed either to the soffit of the floor or within the reveal of the aperture via vertical returns at the edges of the mesh. The fire pillows are tightly packed into the opening and around the services. Walls: The fire pillows are tightly packed into the opening and around the services (no mesh is required).					
Services Coat-Back:	Not required				U Value:	Not Known
Service Support Requirements:	Services should be rigidly supported via steel angles, hangars or channels, not further than 500mm from the surface of the sealing system on both faces.					
Air Permeability EN1026	Pressure (pa)	Positive pressure (m ³ /h/m ²)	Negative pressure (m ³ /h/m ²)	Weather Capability:	Not evaluated by this approval	
	50	13.9	17.2			
	100	22.8	31.1			
Acoustic Rating: BS EN ISO 10140-2:2010	$R_w(C;C_{tr}) : 33(0;2)$ dB $D_{new}(C;C_{tr}) : 38(-2;-7)$ dB			Movement Capability:	Not evaluated by this approval	

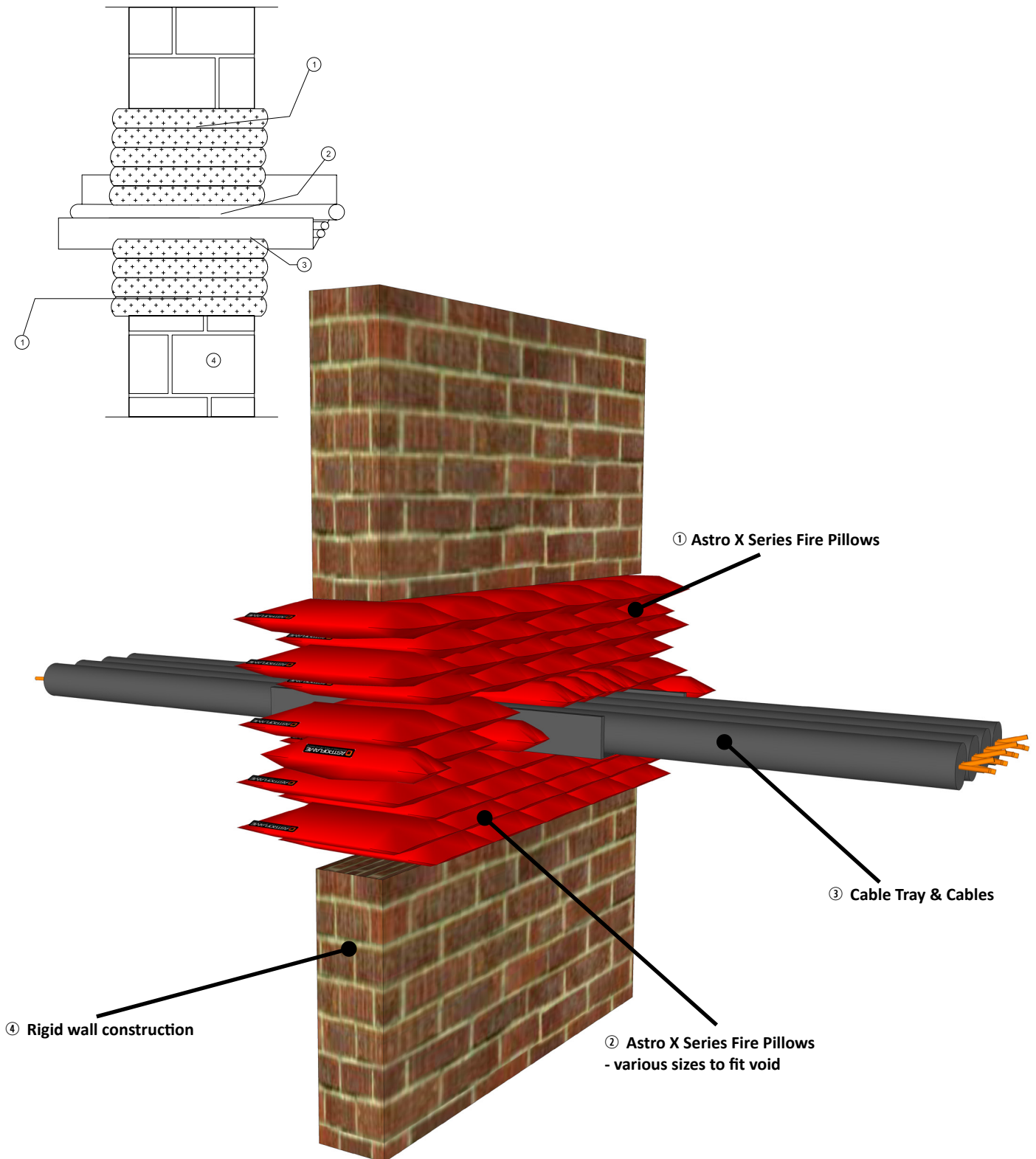
Astro X Series Pillows - BS EN 1366: 2009 Approval Matrix

Product Name:	Astro X series Pillow			
Element of construction	Services	Additional requirements	Integrity	Insulation
Masonry/ concrete wall min 150mm thick	Telecom cables up to 21mm Ø (single or bundles up to 100m Ø)	None	120 minutes	120 minutes
	Electrical cables up to 21mm Ø	None	120 minutes	120 minutes
	Electrical cables up to 50mm Ø	Cables lagged*	120 minutes	90 minutes
	Electrical cables up to 80mm Ø	Cables lagged*	120 minutes	90 minutes
	Unsheathed wires up to 24mm Ø	Cables lagged*	120 minutes	120 minutes
	Steel or Copper conduits and tubes up to 16mm Ø	None	120 minutes	120 minutes
	Plastic (any) conduits and tubes up to 16mm Ø	None	120 minutes	120 minutes
	Cable tray/ladder up to 300mm wide	None	120 minutes	60 minutes
	Cable tray up to 500mm wide	None	120 minutes	90 minutes
	54mm Ø x 1.0mm thick copper pipe with 15mm Armaflex insulation	Pipe lagged***	120 minutes	120 minutes
	108mm Ø x 1.5mm thick copper pipe	Pipe lagged*	120 minutes	90 minutes
	48mm Ø x 3.5mm thick mild steel pipe	Pipe lagged**	120 minutes	120 minutes
	113mm Ø x 4.5mm thick copper pipe	Pipe lagged***	120 minutes	120 minutes
	165mm Ø x 5.6mm thick mild steel pipe	None	120 minutes	-
*Lagging:	To be formed from 2 or more pillows stitched together around the service to a minimum length of 300mm on both sides of the wall/main seal.			
**Lagging:	To be formed from Thermal Defense Wrap 1 to a minimum length of 300mm on both sides of the wall/main seal.			
***Lagging:	To be formed from Thermal Defense Wrap 2 to a minimum length of 300mm on both sides of the wall/main seal.			
Maximum aperture:	1100mm by 1100mm			
Walls:	The walls shall be a minimum of 150mm thick and have a minimum density of 760kg/m³. The wall shall be classified to EN 13501-2 for at least the required performance period.			
Application Technique:	The fire pillows inserted lengthways to achieve a 300mm deep seal and tightly packed into the opening and around the services. Smaller pillows are used as appropriate to fill smaller gaps.			
Services Coat-Back:	Not required	U Value:	Not Known	
Service Support Requirements:	Services should be rigidly supported via steel angles/hangers/channels, not further than 250mm from the surface of the sealing system, on both faces.			

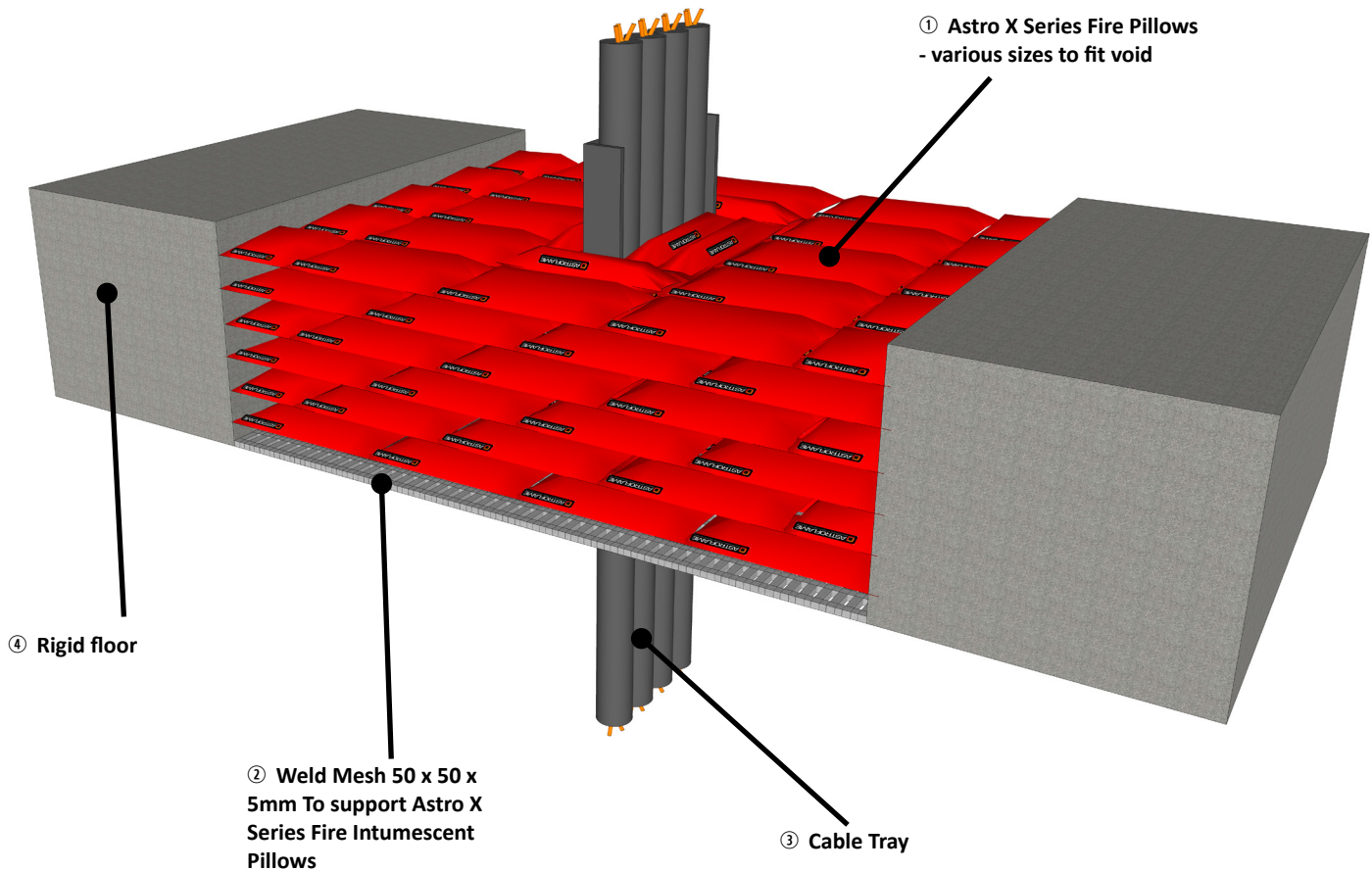
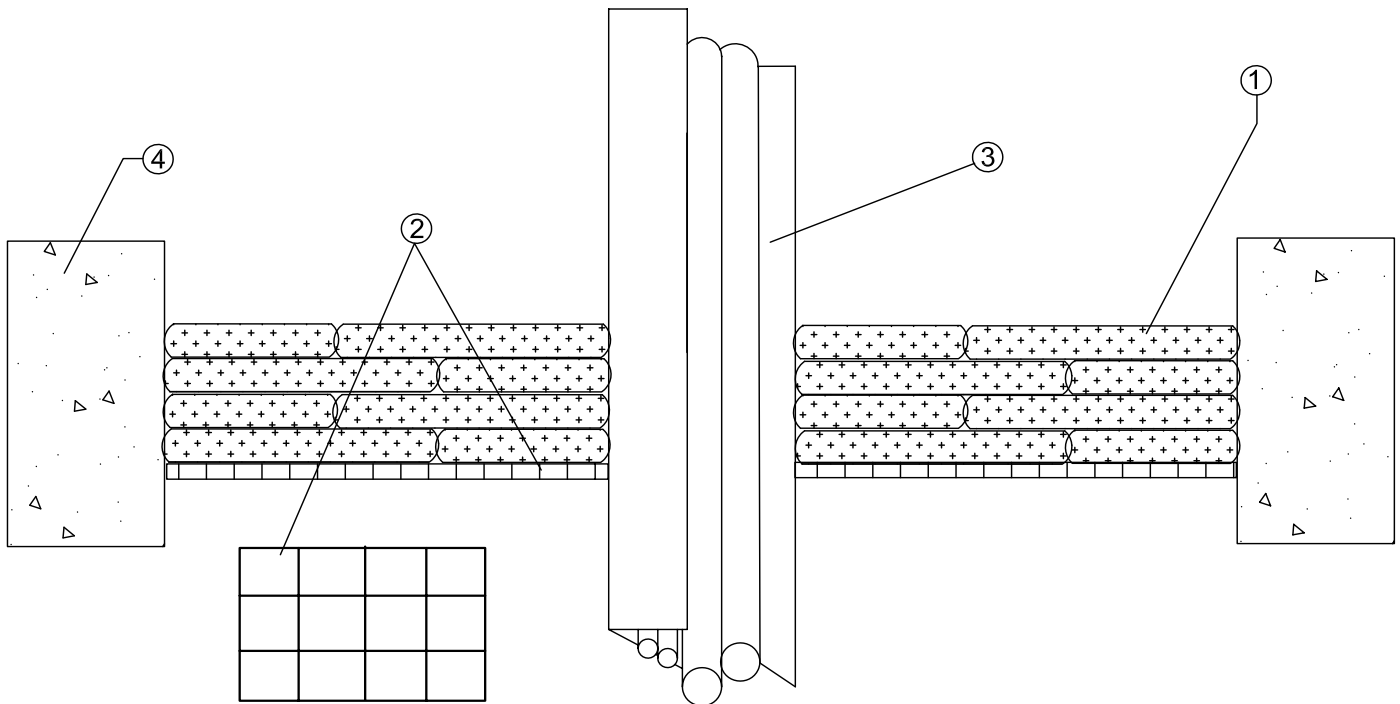
TYPICAL VERTICAL SECTION SHOWING THE USE OF ASTRO X SERIES FIRE PILLOWS WITH CABLE TRUNKING SYSTEM IN A WALL



TYPICAL VERTICAL SECTION SHOWING THE USE OF ASTRO X SERIES FIRE PILLOWS WITH CABLE TRUNKING SYSTEM IN A WALL



TYPICAL HORIZONTAL DETAIL FOR ASTRO X SERIES FIRE PILLOWS



Air Permeability Test - EN 1026

BM TRADA

Results of Test: Chilt/P12083/09/AR1

Astroflame (Fireseals) Limited

Intumescent House
Unit 8, The IO Centre
Stephenson Road
Segensworth, Fareham
PO15 5RU

This document confirms that performance testing was conducted on 13 September 2012. Testing was conducted the principles of the following standard:-

- BS EN 1026: 2000 Windows and doors - Air permeability - Test method.

The following results were achieved

Product tested			Astro X-Series Pillows	
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

The results relate only to the specimen tested, as detailed in the technical specification Chilt/P12083/tec9/AR1



Paul Andrews – Head of Section



Vincent Kerrigan - Technical Manager
Date: 31 October 2013

BM TRADA

Chiltern House, Stocking Lane, Hughenden Valley, High Wycombe, HP14 4ND, United Kingdom

Tel: 01494 569800 Fax: 01494 564895

Web: www.bmtradagroup.com

Email: testing@bmtrada.com

This document is confidential and remains the property of Chiltern International Fire Ltd, trading as BM TRADA

Acoustic Isolation Test - EN10140

BM TRADA

Laboratory measurement to
BS EN ISO 10140-2 - Airborne Sound Insulation of
Building Elements



Test Specimen Name: Astro X-Series Pillows
Client: Astroflame (Fireseals) Limited
Test Specimen Installed By: BM TRADA
Area of Specimen (S): 1.00 m²
Temperature in Test Rooms: 19.2 °C
Static Pressure: 10006.0 Pa
Humidity in Test Rooms: 44.0 %
Test Specimen Description: 500mm x 2000mm aperture filled with 114 No. Astro X-Series Pillows. See Appendix 3 for specimen details.

Ref. No.: MTZ/F12009/01/F/Rev1/AR1p018
Date of Test: 04/04/2012
Source Room Volume: 82.00 m³
Receive Room Volume: 70.00 m³

f, Hz	R, dB
50*	37.7
63*	34.4
80*	31.6
100	34.3
125	38.6
160	38.7
200	36.0
250	40.2
315	44.2
400	42.0
500	42.4
600	41.3
800	41.4
1000	42.0
1250	42.9
1600	44.3
2000	44.0
2500	44.6
3150	42.8
4000	46.7
5000	46.1
AAD	-27.3

Frequency range for rating in accordance with ISO 717-1



— Rating Curve (ISO 717-1) — Sound Reduction Index, R, in dB

$D_{n,w} = 43$ dB
 $D_{n,w} + C = 43$ dB
 $D_{n,w} + C_{tr} = 42$ dB

$C_{(50-3150)} = 0$ dB $C_{tr(50-3150)} = -2$ dB
 $C_{(50-5000)} = 0$ dB $C_{tr(50-5000)} = -2$ dB
 $C_{(100-5000)} = 0$ dB $C_{tr(100-5000)} = -1$ dB

Martin Durham

Martin Durham
Technical Officer

* Indicates that the frequency is outside of our UKAS accreditation and is for information only

The legal validity of this report can only be claimed on presentation of the complete report

Report for: Astroflame (Fireseals) Limited
Report Ref: Chilt/Z: 12009/01/F/Rev1/AR1

Page 11 of 12

Acoustic Isolation Test - EN10140

BM TRADA

Laboratory measurement to
BS EN ISO 10140-2 - Airborne Sound Insulation of
Building Elements



Test Specimen Name: Astro X-Series Pillows
Client: Astroflame (Fireseals) Limited

Ref. No.: MTZ/F12009/01/F/Rev1/AR1p018
Date of Test: 04/04/2012

Test Specimen Installed By: BM TRADA

Area of Specimen (S): 1.00 m²

Source Room Volume: 82.00 m³

Temperature in Test Rooms: 19.2 °C

Receive Room Volume: 70.00 m³

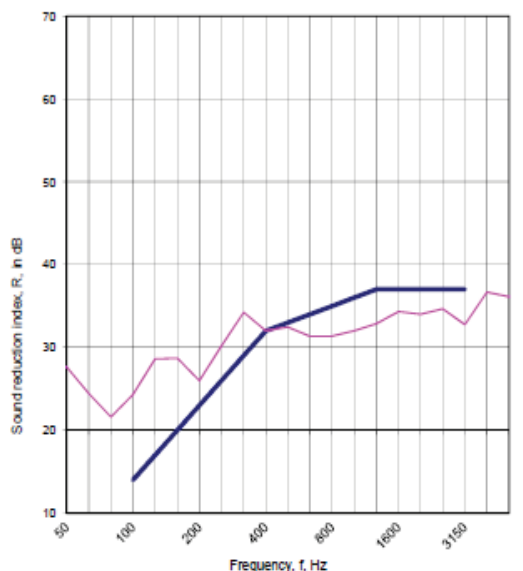
Static Pressure: 10006.0 Pa

Humidity in Test Rooms: 44.0 %

Test Specimen Description: 500mm x 2000mm aperture filled with 114 No. Astro X-Series Pillows. See Appendix 3 for specimen details.

f, Hz	R, dB
50*	27.7
63*	24.4
80*	21.6
100	24.3
125	28.6
160	28.7
200	26.0
250	30.2
315	34.2
400	32.0
500	32.4
600	31.3
800	31.4
1000	32.0
1250	32.9
1600	34.3
2000	34.0
2500	34.6
3150	32.8
4000	36.7
5000	36.1
AAD	-27.3

Frequency range for rating in accordance with ISO 717-1



— Rating Curve (ISO 717-1) — Sound Reduction Index, R, in dB

$R_w = 33$ dB
 $R_w + C = 33$ dB
 $R_w + C_{tr} = 32$ dB

$C_{(50-3150)} = 0$ dB $C_{tr(50-3150)} = -2$ dB
 $C_{(50-5000)} = 0$ dB $C_{tr(50-5000)} = -2$ dB
 $C_{(100-5000)} = 0$ dB $C_{tr(100-5000)} = -1$ dB

[Signature]

* indicates that the frequency is outside of our UKAS accreditation and is for information only

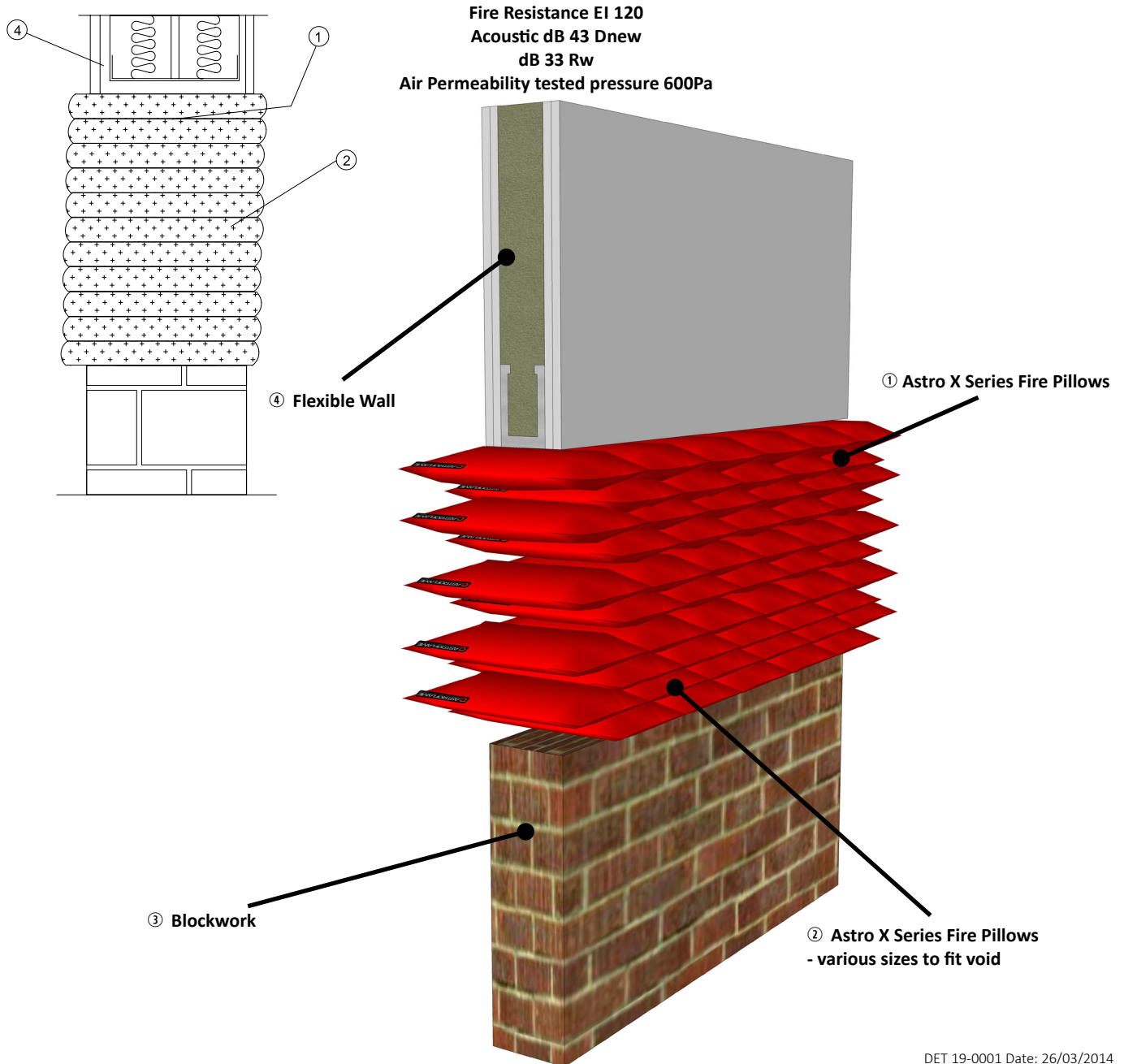
The legal validity of this report can only be claimed on presentation of the complete report

Report for: Astroflame (Fireseals) Limited
Report Ref: Chilt/Z: 12009/01/F/Rev1/AR1

Page 9 of 12

AIR PERMEABILITY & ACOUSTIC ISOLATION TEST - EN10140

TYPICAL VERTICAL SECTION SHOWING THE USE OF ASTRO X SERIES FIRE PILLOWS IN A BLOCK OR PARTITION



DET 19-0001 Date: 26/03/2014

Installation

We have technical representatives who provide assistance in the selection and specification of the products on this site and should be consulted for exact installation and product suitability. Ensure an early engagement with ourselves, designers, main contractor and specialist installers before any installation. Other trades and/or manufacturers may need to be consulted.

Maintenance

All interested parties, designer, specifier, main contractor and specialist installers should provide access to allow the fire stopping seals to be regularly inspected and maintained, as well as records kept of such maintenance at minimum periods of 12 months, as required by the Regulatory Reform Order, and repaired if necessary. Reference should be made to ASFP TGD 17 – Code of Practice for the Installation and Inspection of Fire Stopping.

Competency

It is vital that those entrusted to design or install a fire stopping product have the necessary levels of competence to undertake the task professionally and thoroughly. The level of competency required will be commensurate with the expected complexity of the building. All designers must eliminate, reduce or control foreseeable risks that may arise during installation, construction or maintenance when preparing or modifying designs. Clients should ensure that the principal designer and principal contractor carry out their duties under CDM regulations. The ASFP foundation course in passive fire protection provides essential knowledge as part of demonstrating competency and understanding in this key fire protection specialism.

Additional Notes

Please refer to the ETA/Certifire/UL-EU sheet for fields of application for this product. For further information on installation requirements please refer to the manufacturer of the services and the wall/floor specification to ensure the compatibility of this product.

As part of our policy of ongoing improvements, we reserve the right to modify, alter or change product specifications without giving notice. Product illustrations are representations only. All information contained in this document is provided for guidance only, and as ASTROFLAME (FIRE SEALS) LTD has no control over the specific application or installation methods of the products, or of the prevailing site conditions, no warranties expressed or implied are intended to be given as to the actual performance of the products mentioned or referred to, and no liability whatsoever will be accepted for any loss, damage or injury arising from the use of the information given of products mentioned or referred to herein.

The above information to the best of our knowledge is true and accurate and based upon current test data and is supplied for your guidance only. Customers should satisfy themselves to the suitability of the product based on the products limitation of applications and that the product is fit for purpose for their intended use and no guarantee is given or implied since the conditions of actual use are beyond our control. ASTROFLAME (FIRE SEALS) LTD, disclaim any liability for loss, damage or other expense arising from the use of information, data or products mentioned or referred to and reserve the right to change any details or specifications without notice.