

# Technical Data Sheet

## Astro Intu Mastic (Linear Joint & Gap Seals)

### UIC of product-type: INTUM

Revision 16 - 16th October 2024



0843-UKTA-24/0037 | 24/0038  
0843-CPR-1385



CE-ETA - 20-1088/20-1089  
CE-2531-CPR-CXO10294



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Authorised and notified  
according to Article 29 of the  
Regulation (EU)  
No 305/2011 of the European  
Parliament and of the Council  
of 9 March 2011

MEMBER OF EOTA



## European Technical Assessment ETA-20/1089 of 2023/11/23

I General Part

**Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S**

**Trade name of the construction product:**

Astro Intu Mastic

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

Fire Stopping and Sealing Product:

- Linear Joint and Gap Seals

**Manufacturer:**

Astroflame (fireseals) Limited  
Unit 8 The IO Centre  
Stephenson Road  
Segensworth,  
Fareham  
Hampshire  
PO15 5RU

**Manufacturing plant:**

E055

**This European Technical Assessment contains:**

34 pages including 3 annexes which form an integral part of the document

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

EAD 350141-00-1106

**This version replaces:**

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**I. SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT**

**1 Technical description of the product**

- 1) Astro Intu Mastic is an acrylic based sealant used to form linear gap seals where gaps are presented in wall and floor constructions and linear joint seals where wall and floor constructions abut.
- 2) Astro Intu Mastic is supplied in liquid form contained within 310 ml & 380 ml cartridges, 600 ml foils or in 5, 10, 20 or 25 litre tubs. The sealant is gunned or trowelled into the aperture in or between the separating element/elements to a specified depth using various backing materials.
- 3) The applicant has submitted a written declaration that Astro Intu Mastic does not contain substances which have to be classified as dangerous according to article 59 (1, 10) of the Regulation (EC) No 1907/2006 (REACH).

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.

- 4) The use category of Astro Intu Mastic in relation to BWR 3 (Hygiene, health and environment) is IA2

**2 Specification of the intended uses of the product in accordance with the applicable European Assessment Document (Hereinafter EAD)**

Detailed information and data is given in Annex A.

- 1) The intended use of system Astro Intu Mastic is to reinstate the fire resistance performance of gaps in and joints in and between flexible and rigid wall constructions, gaps in and joints between rigid floor constructions.
- 2) The specific elements of construction that the system Astro Intu Mastic may be used to provide a gap or joint seal in, are as follows:
  - a. Flexible walls: The wall must have a minimum thickness of 75 mm and comprise steel studs or timber studs lined on both faces with minimum 1 layer of 12.5 mm thick boards.
  - b. Rigid walls: The wall must have a minimum thickness of 75 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 Astro Intu Mastic may be used to provide a linear joint or gap seal with specific supporting constructions and substrates (for details see Annex A).
- 4) The maximum permitted joint/gap width for system Astro Intu Mastic is 60 mm.
- 5) The maximum movement capability of system Astro Intu Mastic is  $\leq 7.5\%$  depending on the application and installation (for details see Annex A).
- 6) The provisions made in this European Technical Assessment are based on an assumed working life of the Astro Intu Mastic of 25 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 or the Technical Assessment Body, 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.
- 7) Type X: Intended for use in conditions exposed to weathering and all lower classes.

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

|  |  |
|--|--|
| Product-type: Intumescent sheet                          | Intended use: Penetration Seal                     |
| Essential characteristic                                 | Product performance                                |
| <b>BWR 2 Safety in case of fire</b>                      |  |
| Reaction to fire   | No performance assessed                            |
| Resistance to fire                                       | Annex A  |
| <b>BWR 3 Hygiene, health and environment</b>             |  |
| Content, emission and/or release of dangerous substances | Use categories: IA2<br>Declaration of manufacturer |
| Air permeability (material property)                     | Annex B  |
| Water permeability (material property)                   | No performance assessed                            |
| <b>BWR 4 Safety in use</b>                               |  |
| Mechanical resistance and stability                      | No performance assessed                            |
| Resistance to impact/movement                            | No performance assessed                            |
| Adhesion   | 7.5P   |
| Durability   | Type X   |
| Movement capacity  | Annex A  |
| Cycling of perimeter seals for curtain walls             | No performance assessed                            |
| Compression set  | No performance assessed                            |
| Linear expansion on setting                              | No performance assessed                            |
| <b>BWR 5 Protection against noise</b>                    |  |
| Airborne sound insulation                                | Annex C  |
| <b>BWR 6 Energy economy and heat retention</b>           |  |
| Thermal properties                                       | No performance assessed                            |
| Water vapour permeability                                | No performance assessed                            |

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

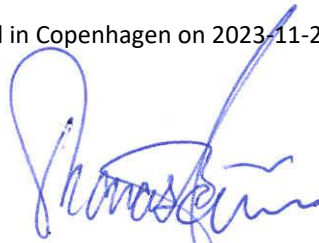
According to the decision 1999/454/EC – Commission Decision of date 22nd June 1999 on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, published in the Official Journal of the European Union (OJEU) L178/52 of 14/07/1999, (see <https://eur-lex.europa.eu/oj/direct-access.html>) 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**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark A/S prior to CE marking

Issued in Copenhagen on 2023-11-23 by



Thomas Bruun

Managing Director, ETA-Danmark

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

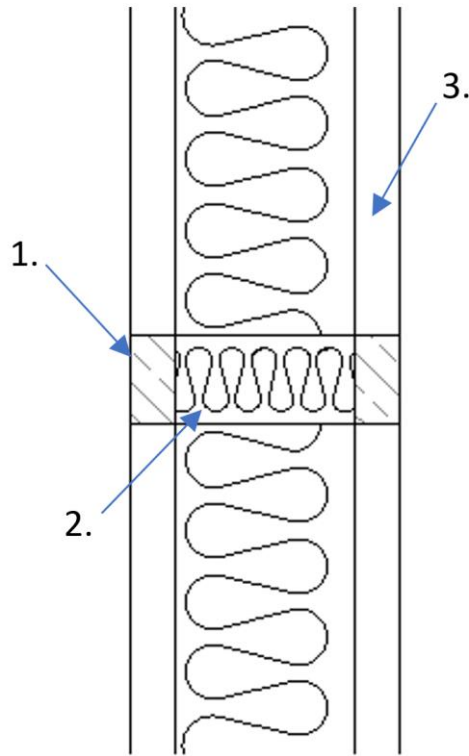
## ANNEX A – Resistance to Fire Classification – Astro Intu Mastic

### A.1 Flexible and rigid wall constructions with wall thickness of minimum 75 mm

#### A.1.1 Double sided linear joint seal

**Joint Seal:** Astro Intu Mastic sealant to both sides of the wall, backed with a 50 mm depth of stone wool or ceramic wool (45kg/m<sup>3</sup>), joint widths up to 25 mm.

Construction details:



Key:

1. Astro Intu Mastic Sealant
2. Backing Material
3. Flexible Wall

#### A.1.1.1

| Substrate           | Depth (mm) | Backing Material  | Classification                   |
|---------------------|------------|---|----------------------------------|
| Flexible / flexible | 12.5       | Stone wool or ceramic wool (50mm<br>45kg/m <sup>3</sup> ) | E 60 – V – X – F – W 00 to W 25  |
| Masonry / masonry   |            |   | EI 45 – V – X – F – W 00 to W 25 |

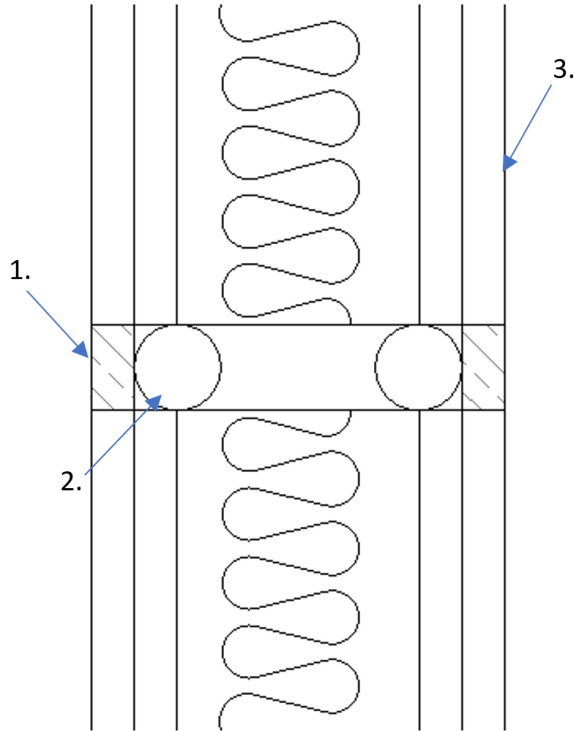


## A.2 Flexible and rigid wall constructions with wall thickness of minimum 120 mm

### A.2.1 Double sided linear joint seal

**Joint Seal:** Astro Intu Mastic sealant to both sides of the wall, backed with PE backing rod, glass wool, stone wool or ceramic wool, joint widths up to 20 mm.

Construction details:



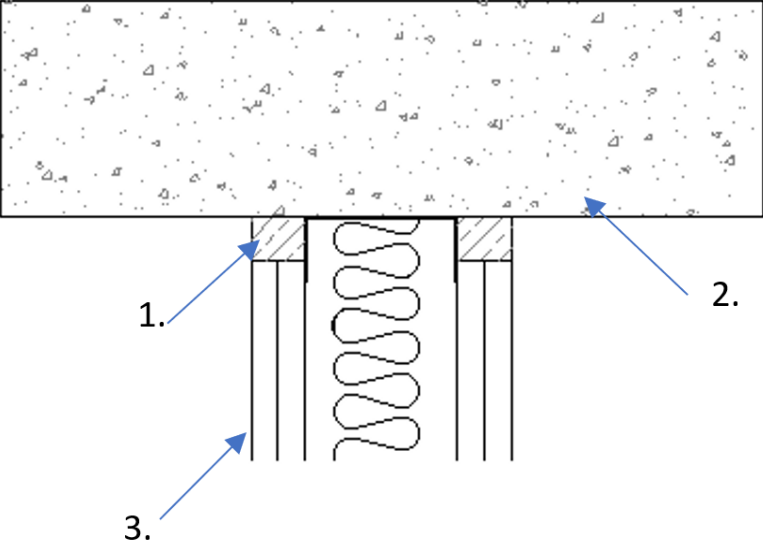
Key:

1. Astro Intu Mastic Sealant
2. Backing Material
3. Flexible Wall

#### A.2.1.1

| Substrate           | Depth (mm) | Backing Material                                       | Classification                           |
|---------------------|------------|--|--|
| Flexible / flexible | 12.5       | PE backing rod, glass wool, stone wool or ceramic wool | <b>EI 120 – V – X – F – W 00 to W 20</b> |
| Masonry / masonry   |            |  |  |

### A.2.2 Double sided head of wall joint seal

|   |   |
|---|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 20 mm.               |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Rigid Floor</u></li> <li>3. <u>Flexible Wall</u></li> </ol> |

#### A.2.2.1

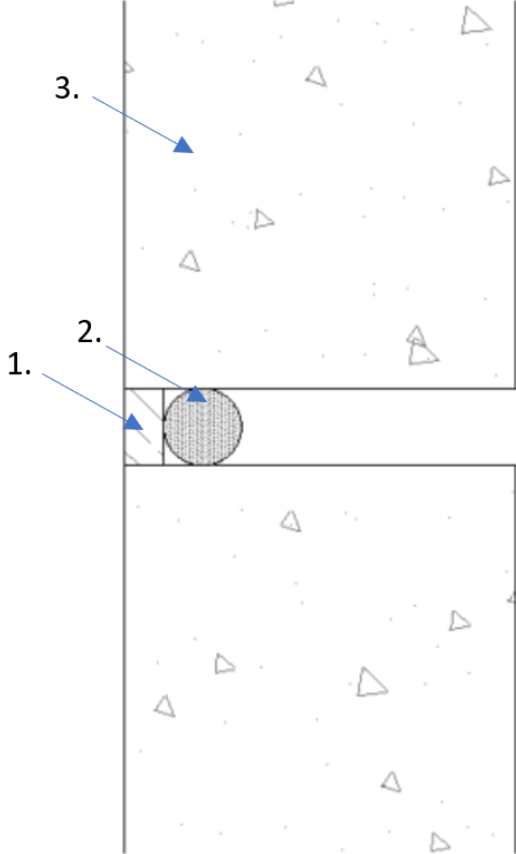
| Substrate           | Depth (mm) | Backing Material | Classification                           |
|---------------------|------------|------------------|--|
| Flexible / concrete | 25         | Steel head track | <b>EI 120 – T – X – F – W 00 to W 20</b> |
| Masonry / concrete  |            |                  |  |

### A.3 Rigid wall constructions with wall thickness of minimum 100 mm

#### A.3.1 Single sides linear joint seal

**Joint Seal:** Astro Intu Mastic sealant to either side of the wall, joint widths up to 50 mm.

Construction details:



Key:

1. Astro Intu Mastic Sealant Installed Either Side of Wall
2. Backing Material
3. Rigid Wall

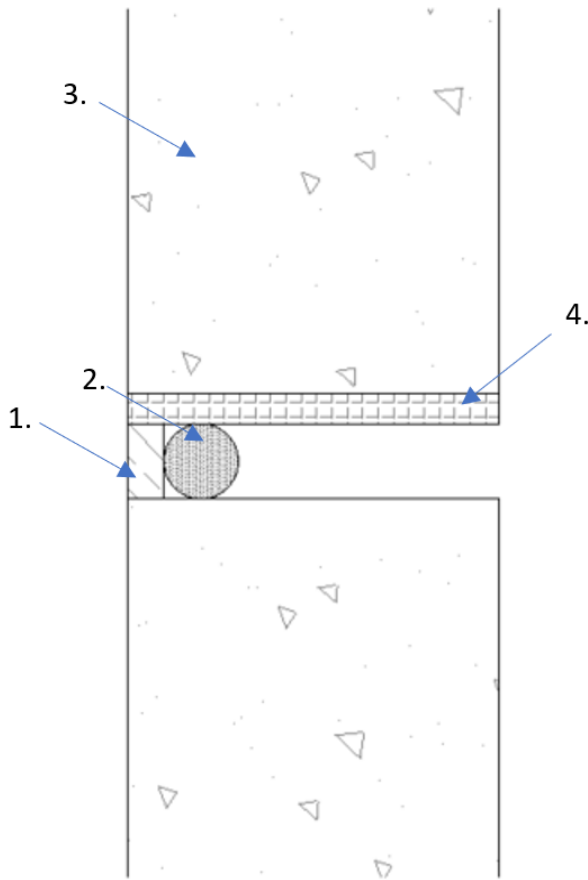
#### A.3.1.1

| Substrate          | Depth (mm)                        | Backing Material                                       | Classification   |
|--------------------|-----------------------------------|--|--|
| Concrete / masonry | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | E 120 – V – X – F – W 00 to W 50<br>EI 60 – V – X – F – W 00 to W 50 |
|                    | 2:1 ratio (width:depth) & Min. 10 |  | E 120 – V – X – F – W 00 to W 50<br>EI 45 – V – X – F – W 00 to W 50 |

#### A.3.2 Single sided linear joint seal with steel faced wall

**Joint Seal:** Astro Intu Mastic sealant to either side of the wall.

Construction details:



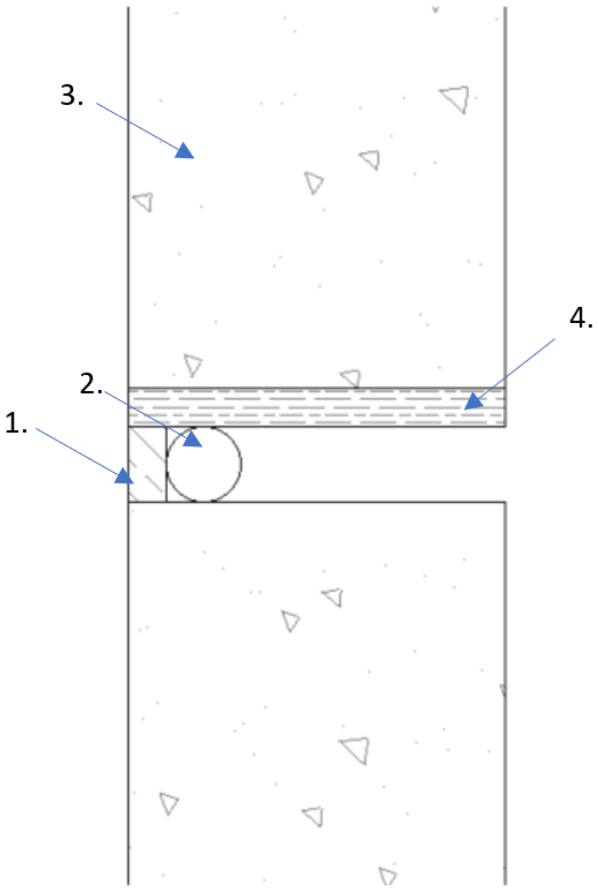
Key:

1. Astro Intu Mastic Sealant Installed Either Side of Wall
2. Backing Material
3. Rigid Wall
4. Steel

**A.3.2.1**

| Substrate                   | Depth (mm)                        | Backing Material                                       | Classification   |
|-----------------------------|-----------------------------------|--|--|
| Concrete or masonry / steel | 10                                | PE backing rod, glass wool, stone wool or ceramic wool | E 120 – V – X – F – W 00 to W 20<br>EI 20 – V – X – F – W 00 to W 20 |
|                             | 2:1 ratio (width:depth) & Min. 10 |  | E 45 – V – X – F – W 00 to W 50<br>EI 20 – V – X – F – W 00 to W 50  |

### A.3.3 Single sided linear joint seal with timber faced wall

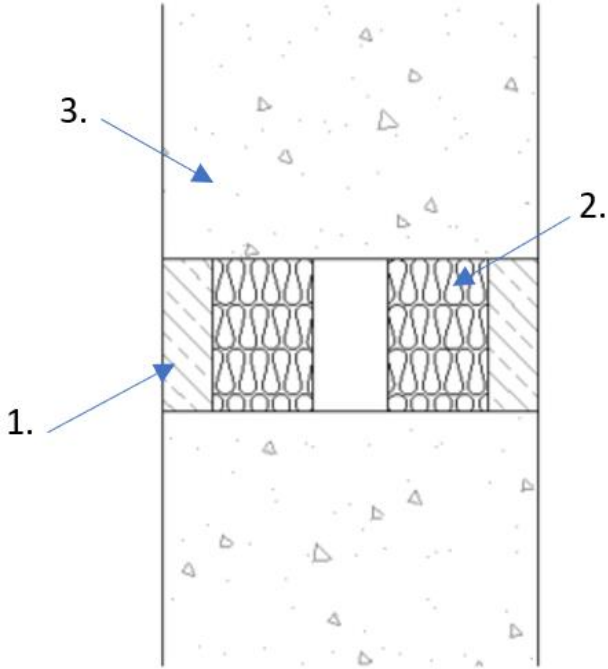
|   |   |
|---|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to either side of the wall, joint widths up to 50 mm.              |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant Installed Either Side of Wall</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Wall</u></li> <li>4. <u>Timber</u></li> </ol> |

#### A.3.3.1

| Substrate                    | Depth (mm)                        | Backing Material                                       | Classification  |
|------------------------------|-----------------------------------|--|---|
| Concrete or masonry / timber | 2:1 ratio (width:depth) & Min. 10 | PE backing rod, glass wool, stone wool or ceramic wool | E 30 – V – X – F – W 00 to W 50<br>EI 20 – V – X – F – W 00 to W 50 |
|                              | 25                                |  | EI 45 – V – X – F – W 00 to W 50                                    |

**A.4 Rigid wall constructions with wall thickness of minimum 150 mm**

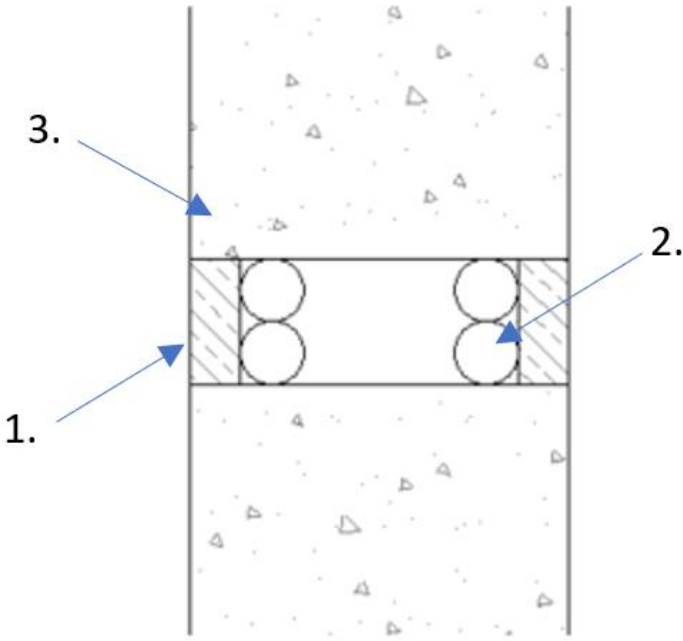
**A.4.1 Double sided linear joint seal**

|   |   |
|---|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 60 mm.               |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Wall</u></li> </ol> |

**A.4.1.1**

| Substrate          | Depth (mm) | Backing Material  | Classification                           |
|--------------------|------------|---|--|
| Concrete / masonry | 30         | Stone wool or ceramic wool<br>(≥40mm ≥45kg/m <sup>3</sup> ) | <b>EI 240 – V – X – F – W 00 to W 60</b> |

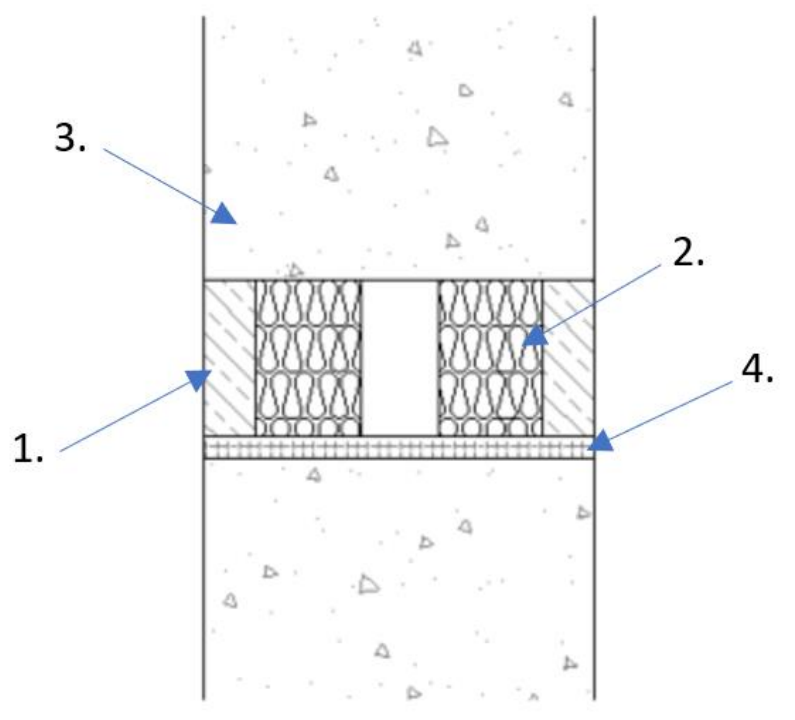
### A.4.2 Double sided linear joint seal

|  |   |
|--|---|
| <p><b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 50 mm.</p>       |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Wall</u></li> </ol> |

#### A.4.2.1

| Substrate          | Depth (mm) | Backing Material                                       | Classification                    |
|--------------------|------------|--|-----------------------------------|
| Concrete / masonry | 25         | PE backing rod, glass wool, stone wool or ceramic wool | EI 240 – V – X – F – W 00 to W 50 |

### A.4.3 Double sided linear joint seal with steel faced wall

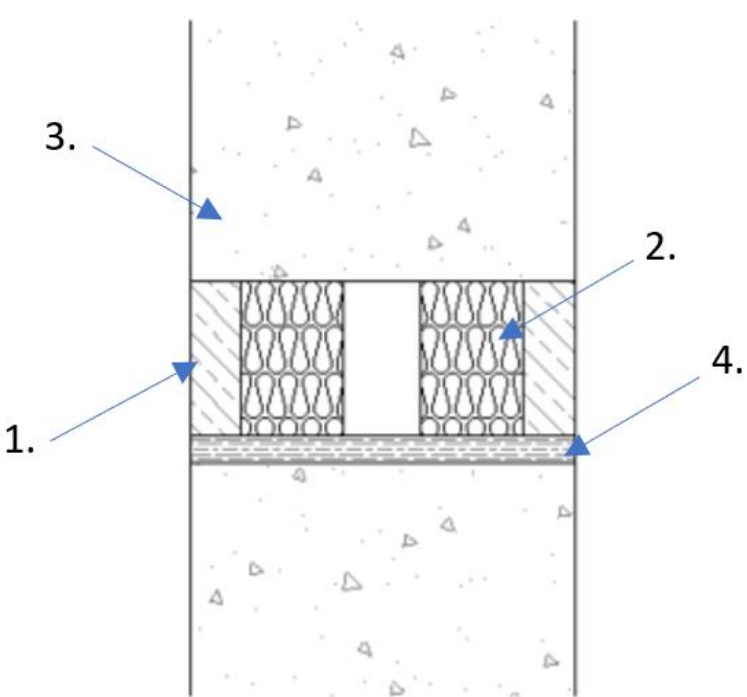
|  |  |
|--|--|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 60 mm.                |  |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Wall</u></li> <li>4. <u>Steel</u></li> </ol> |

#### A.4.3.1

| Substrate                   | Depth (mm) | Backing Material   | Classification   |
|-----------------------------|------------|--|--|
| Concrete or masonry / steel | 30         | Stone wool or ceramic wool (≥40mm ≥45kg/m <sup>3</sup> ) | E 240 – V – X – F – W 00 to W 60<br>EI 60 – V – X – F – W 00 to W 60 |



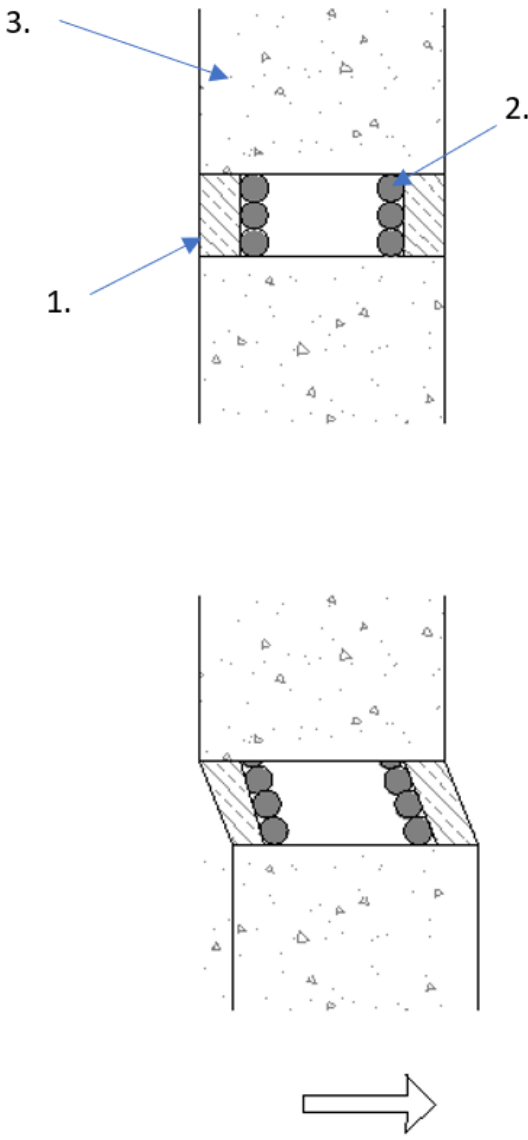
#### A.4.4 Double sided linear joint seal with timber faced wall

|  |   |
|--|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 60 mm.                |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Wall</u></li> <li>4. <u>Timber</u></li> </ol> |

##### A.4.4.1

| Substrate                    | Depth (mm) | Backing Material   | Classification                          |
|------------------------------|------------|--|---|
| Concrete or masonry / timber | 30         | Stone wool or ceramic wool ( $\geq 40\text{mm} \geq 45\text{kg/m}^3$ ) | <b>EI 60 – V – X – F – W 00 to W 60</b> |

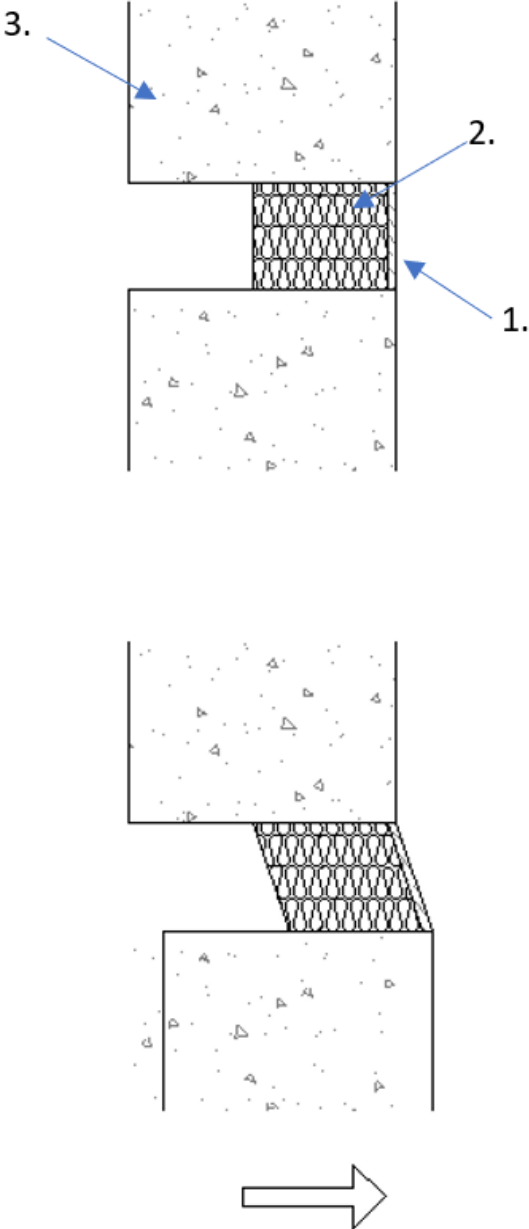
### A.4.5 Double sided linear joint seal with movement

|   |   |
|---|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 60 mm.               |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Wall</u></li> </ol> |

#### A.4.5.1

| Substrate          | Depth (mm) | Backing Material                                       | Classification  |
|--------------------|------------|--|---|
| Concrete / masonry | 20         | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – V – M 25 – F – W 00 to W 60<br>EI 120 – V – M 25 – F – W 00 to W 60 |

### A.4.6 Single sided linear joint seal with movement

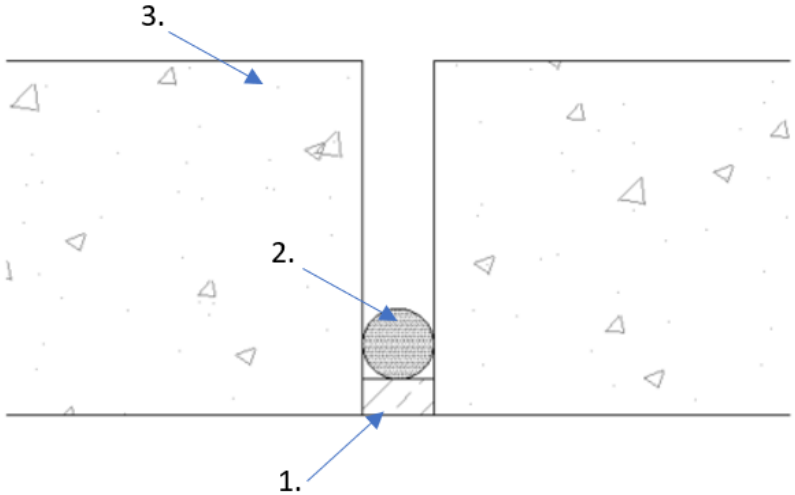
|   |   |
|---|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant either side of the wall, joint widths up to 60 mm.                 |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant Installed Either Side of Wall</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Wall</u></li> </ol> |

#### A.4.6.1

| Substrate          | Depth (mm) | Backing Material  | Classification  |
|--------------------|------------|---|---|
| Concrete / masonry | 5          | Stone wool or ceramic wool (≥75mm ≥60kg/m <sup>3</sup> , compressed to 60%) | E 240 – V – M 25 – F – W 00 to W 60<br>EI 120 – V – M 25 – F – W 00 to W 60 |

### A.5 Rigid floor constructions with floor depth of minimum 150 mm

#### A.5.1 Single sided linear joint seal in floor from underside

|  |  |
|--|--|
| <p><b>Joint Seal:</b> Astro Intu Mastic sealant flush to the underside of the floor, joint widths up to 50 mm.</p> |  |
| <p>Construction details:</p>     | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> </ol> |

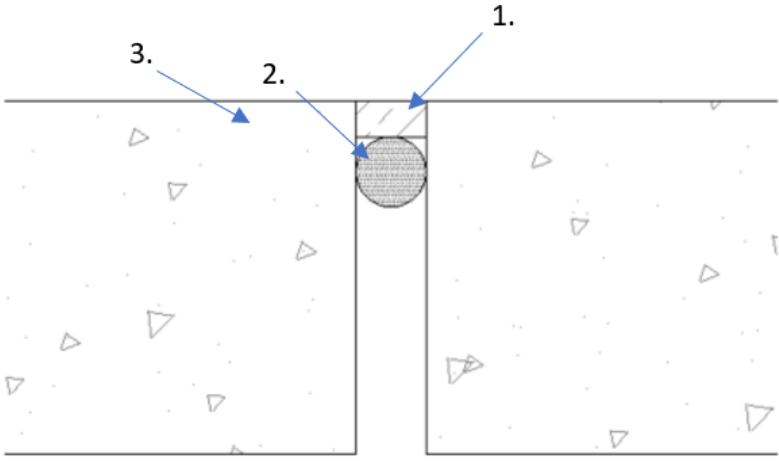
#### A.5.1.1

| Substrate          | Depth (mm)                        | Backing Material                                       | Classification   |
|--------------------|-----------------------------------|--|--|
| Concrete / masonry | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – H – X – F – W 00 to W 50<br>EI 90 – H – X – F – W 00 to W 50 |
|                    | 2:1 ratio (width:depth) & Min. 10 |  | E 240 – H – X – F – W 00 to W 50<br>EI 45 – H – X – F – W 00 to W 50 |

### A.5.2 Single sided linear joint seal in floor from top side

**Joint Seal:** Astro Intu Mastic sealant flush to the top side of the floor, joint widths up to 50 mm.

Construction details:



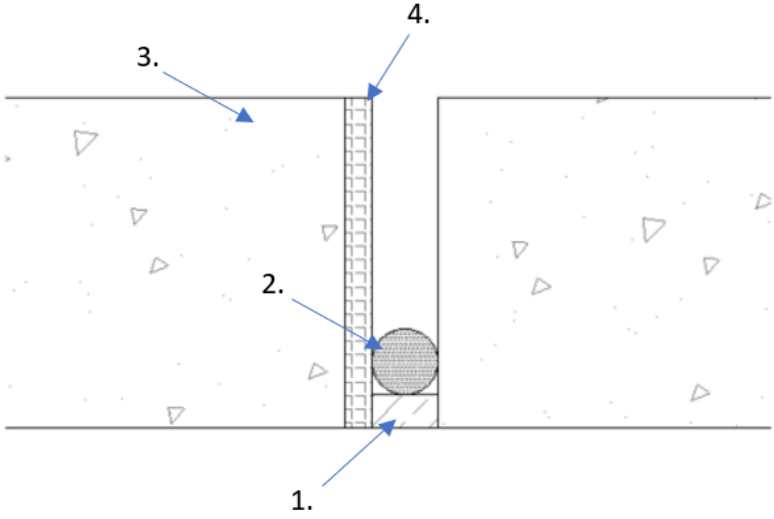
Key:

1. Astro Intu Mastic Sealant
2. Backing Material
3. Rigid Floor

#### A.5.2.1

| Substrate          | Depth (mm)                        | Backing Material                                       | Classification   |
|--------------------|-----------------------------------|--|--|
| Concrete / masonry | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – H – X – F – W 00 to W 50<br>EI 90 – H – X – F – W 00 to W 50 |
|                    | 2:1 ratio (width:depth) & Min. 10 |  | E 240 – H – X – F – W 00 to W 50<br>EI 45 – H – X – F – W 00 to W 50 |

### A.5.3 Single sided linear joint seal in steel faced floor from underside

|   |   |
|---|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant flush to the underside of the floor, joint widths up to 50 mm.     |   |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> <li>4. <u>Steel</u></li> </ol> |

#### A.5.3.1

| Substrate                   | Depth (mm)                        | Backing Material                                       | Classification   |
|-----------------------------|-----------------------------------|--|--|
| Concrete or masonry / steel | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – H – X – F – W 00 to W 50<br>EI 90 – H – X – F – W 00 to W 50 |
|                             | 2:1 ratio (width:depth) & Min. 10 |  | E 120 – H – X – F – W 00 to W 50<br>EI 30 – H – X – F – W 00 to W 50 |

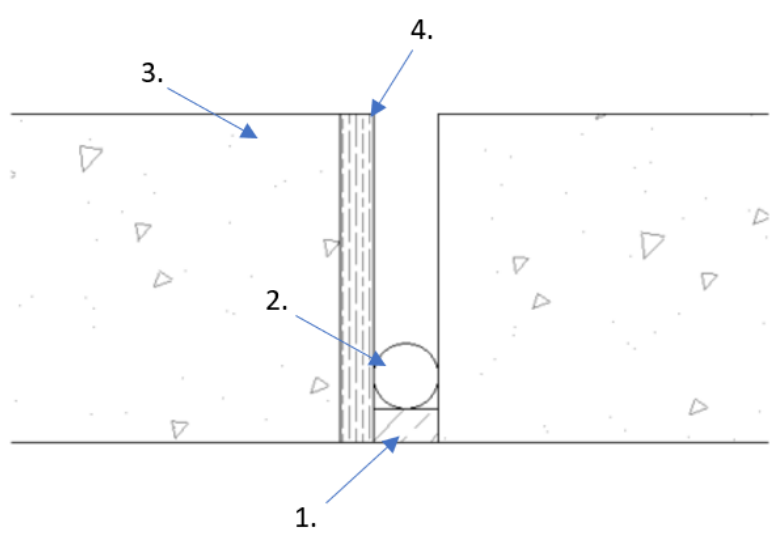
**A.5.4 Single sided linear joint seal in steel faced floor from top side**

|  |   |
|--|---|
| <b>Joint Seal:</b> Astro Intu Mastic sealant flush to the top side of the floor, joint widths up to 50 mm. |   |
| <p>Construction details:</p>   | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> <li>4. <u>Steel</u></li> </ol> |

**A.5.4.1**

| Substrate                   | Depth (mm)                        | Backing Material                                       | Classification   |
|-----------------------------|-----------------------------------|--|--|
| Concrete or masonry / steel | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – H – X – F – W 00 to W 50<br>EI 90 – H – X – F – W 00 to W 50 |
|                             | 2:1 ratio (width:depth) & Min. 10 |  | E 120 – H – X – F – W 00 to W 50<br>EI 30 – H – X – F – W 00 to W 50 |

### A.5.5 Single sided linear joint seal in timber faced floor from underside

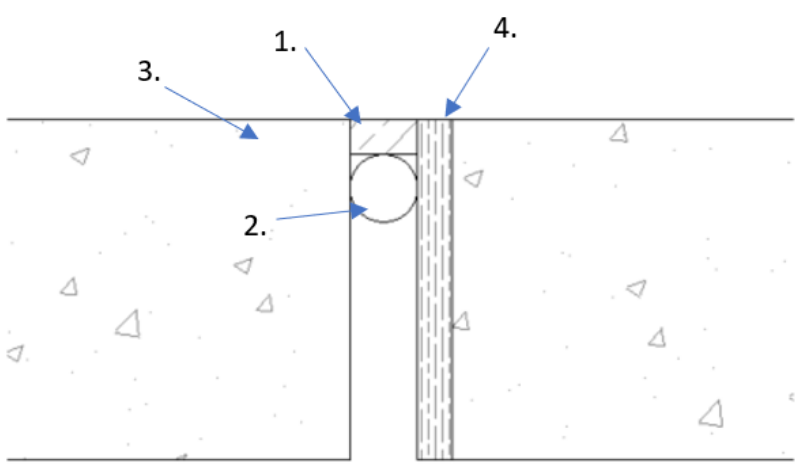
|   |  |
|---|--|
| <b>Joint Seal:</b> Astro Intu Mastic sealant flush to the underside of the floor, joint widths up to 50 mm.     |  |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> <li>4. <u>Timber</u></li> </ol> |

#### A.5.5.1

| Substrate                    | Depth (mm)                        | Backing Material                                       | Classification                          |
|------------------------------|-----------------------------------|--|---|
| Concrete or masonry / timber | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | <b>EI 45 – H – X – F – W 00 to W 50</b> |
|                              | 2:1 ratio (width:depth) & Min. 10 |  | <b>EI 30 – H – X – F – W 00 to W 50</b> |



**A.5.6 Single sided linear joint seal in timber faced floor from top side**

|   |  |
|---|--|
| <b>Joint Seal:</b> Astro Intu Mastic sealant flush to the top side of the floor, joint widths up to 50 mm.      |  |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> <li>4. <u>Timber</u></li> </ol> |

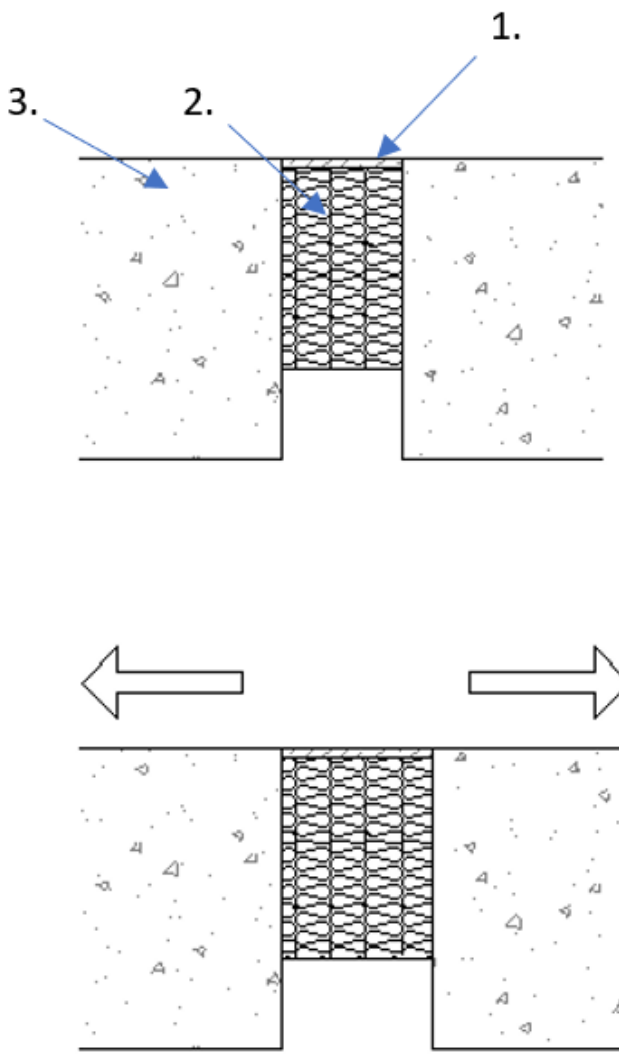
**A.5.6.1**

| Substrate                    | Depth (mm)                        | Backing Material                                       | Classification                          |
|------------------------------|-----------------------------------|--|---|
| Concrete or masonry / timber | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | <b>EI 45 – H – X – F – W 00 to W 50</b> |
|                              | 2:1 ratio (width:depth) & Min. 10 |  | <b>EI 30 – H – X – F – W 00 to W 50</b> |

**A.5.7 Single sided linear joint seal in floor from top side with movement**

**Joint Seal:** Astro Intu Mastic sealant flush to the top side of the floor, joint widths up to 60 mm.

Construction details:



Key:

1. Astro Intu Mastic Sealant
2. Backing Material
3. Rigid Floor

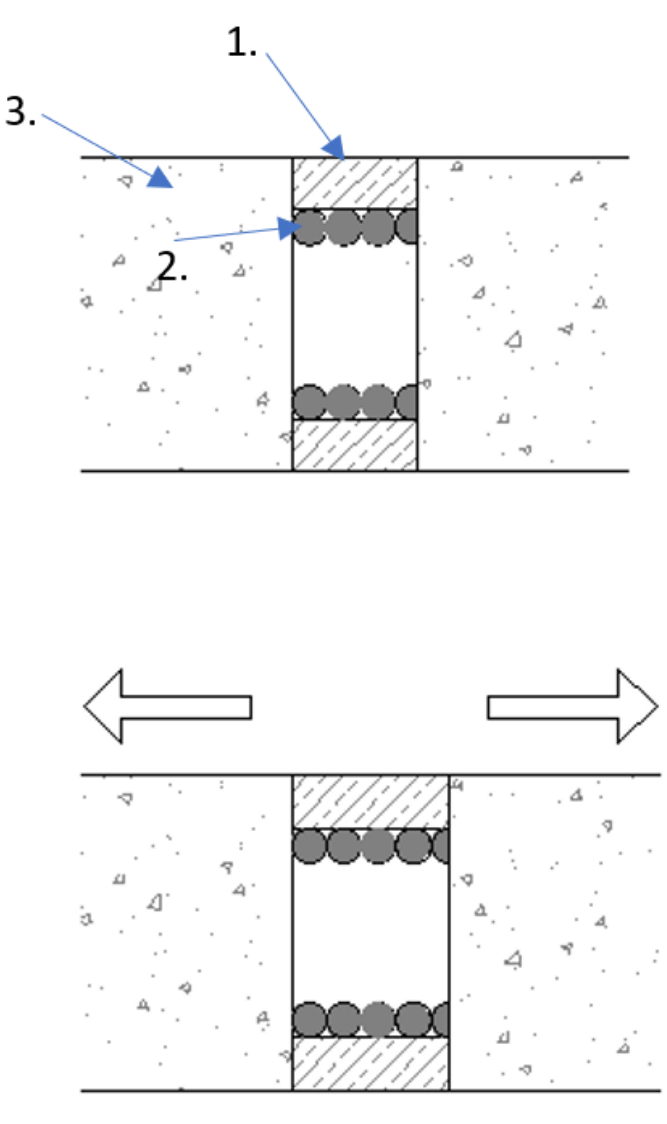
**A.5.7.1**

| Substrate          | Depth (mm) | Backing Material   | Classification                       |
|--------------------|------------|--|--------------------------------------|
| Concrete / masonry | 5          | Stone wool or ceramic wool (≥100mm ≥60kg/m <sup>3</sup> , compressed to 60%) | EI 240 – H – M 25 – F – W 00 to W 60 |

### A.5.8 Double sided linear joint seal in floor with movement

**Joint Seal:** Astro Intu Mastic sealant to both sides of the floor, joint widths up to 60 mm.

Construction details:



Key:

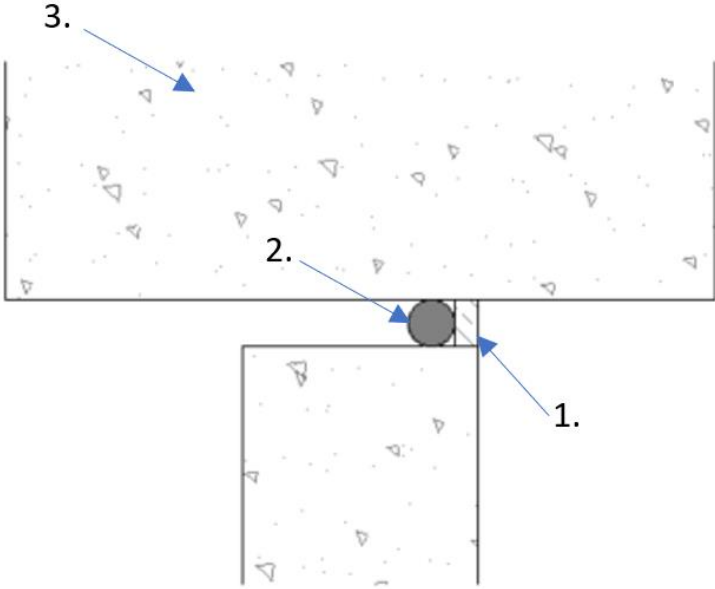
1. Astro Intu Mastic Sealant
2. Backing Material
3. Rigid Floor

#### A.5.8.1

| Substrate          | Depth (mm) | Backing Material                                       | Classification   |
|--------------------|------------|--|--|
| Concrete / masonry | 20         | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – H – M 17 – F – W 00 to W 60<br>EI 60 – H – M 17 – F – W 00 to W 60 |

## A.6 Head of wall with thickness of minimum 150 mm

### A.6.1 Single sided head of wall joint in floor

|   |  |
|---|--|
| <p><b>Joint Seal:</b> Astro Intu Mastic sealant to either side of the wall, joint widths up to 50 mm.</p>       |  |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant Installed Either Side of Wall</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> </ol> |

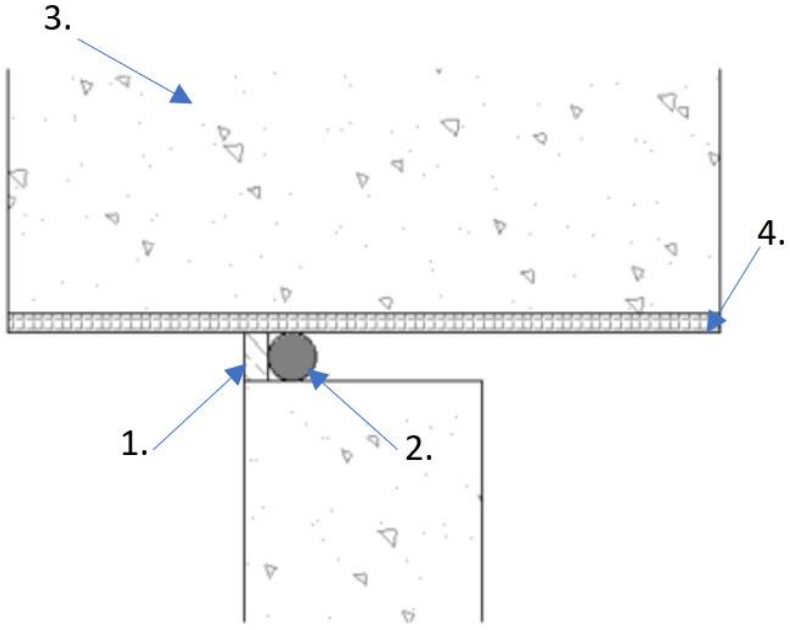
#### A.6.1.1

| Substrate          | Depth (mm)                        | Backing Material                                       | Classification   |
|--------------------|-----------------------------------|--|--|
| Concrete / masonry | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – T – X – F – W 00 to W 50<br>EI 90 – T – X – F – W 00 to W 50 |
|                    | 2:1 ratio (width:depth) & Min. 10 |  | E 240 – T – X – F – W 00 to W 50<br>EI 45 – T – X – F – W 00 to W 50 |

### A.6.2 Single sided head of wall joint with steel face

**Joint Seal:** Astro Intu Mastic sealant to either side of the wall, joint widths up to 50 mm.

Construction details:



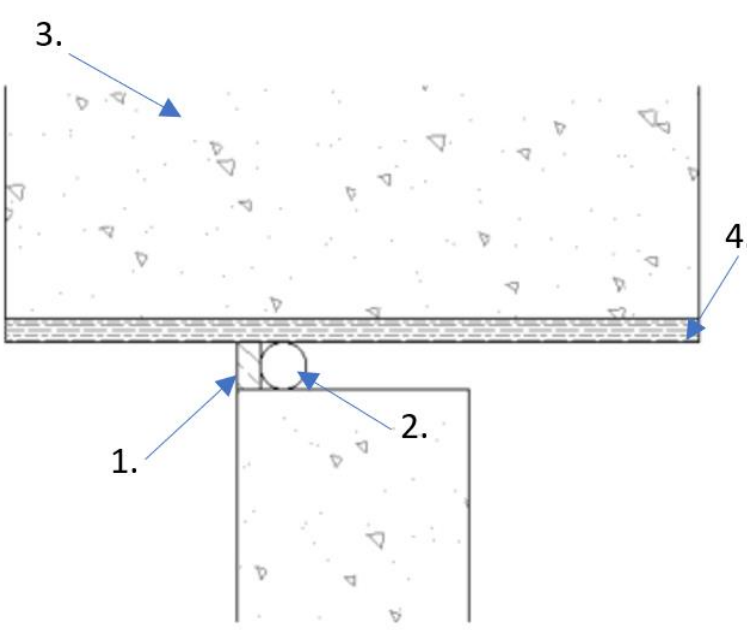
Key:

1. Astro Intu Mastic Sealant Installed Either Side of Wall
2. Backing Material
3. Rigid Floor
4. Steel

#### A.6.2.1

| Substrate                   | Depth (mm)                        | Backing Material                                       | Classification   |
|-----------------------------|-----------------------------------|--|--|
| Concrete or masonry / steel | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – T – X – F – W 00 to W 50<br>EI 90 – T – X – F – W 00 to W 50 |
|                             | 2:1 ratio (width:depth) & Min. 10 |  | E 240 – T – X – F – W 00 to W 50<br>EI 30 – T – X – F – W 00 to W 50 |

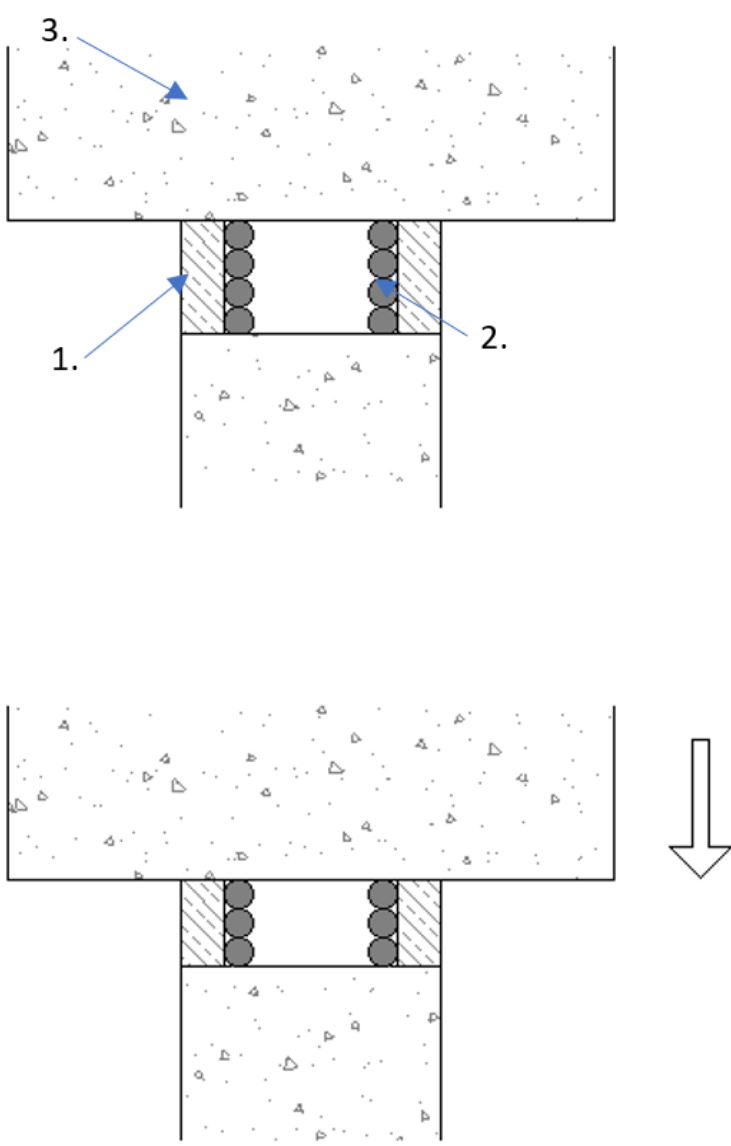
### A.6.3 Single sided head of wall joint with timber face

|   |  |
|---|--|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to either side of the wall, joint widths up to 50 mm.              |  |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant Installed Either Side of Wall</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> <li>4. <u>Timber</u></li> </ol> |

#### A.6.3.1

| Substrate                    | Depth (mm)                        | Backing Material                                       | Classification                   |
|------------------------------|-----------------------------------|--|----------------------------------|
| Concrete or masonry / timber | 25                                | PE backing rod, glass wool, stone wool or ceramic wool | EI 45 – T – X – F – W 00 to W 50 |
|                              | 2:1 ratio (width:depth) & Min. 10 |  | EI 30 – T – X – F – W 00 to W 50 |

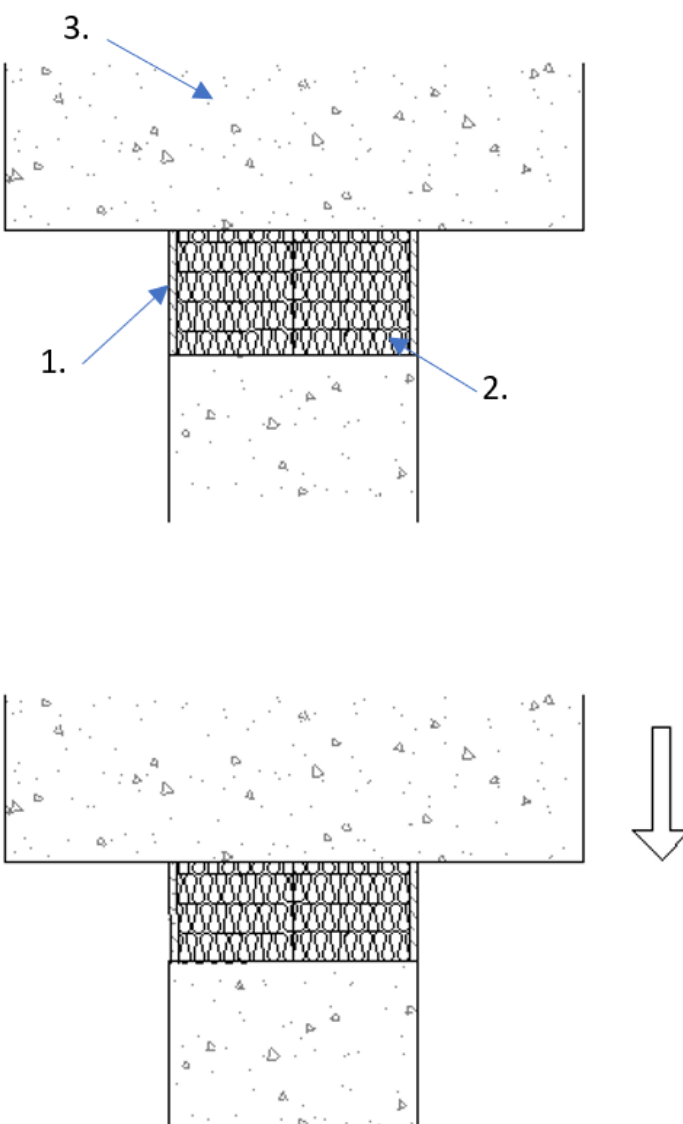
### A.6.4 Double sided head of wall joint with movement

|  |  |
|--|--|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 60 mm.                |  |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> </ol> |

#### A.6.4.1

| Substrate          | Depth (mm) | Backing Material                                       | Classification   |
|--------------------|------------|--|--|
| Concrete / masonry | 20         | PE backing rod, glass wool, stone wool or ceramic wool | E 240 – T – M 17 – F – W 00 to W 60<br>EI 60 – T – M 17 – F – W 00 to W 60 |

### A.6.5 Double sided head of wall joint with movement

|   |  |
|---|--|
| <b>Joint Seal:</b> Astro Intu Mastic sealant to both sides of the wall, joint widths up to 60 mm.               |  |
| <p>Construction details:</p>  | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Backing Material</u></li> <li>3. <u>Rigid Floor</u></li> </ol> |

#### A.6.5.1

| Substrate          | Depth (mm) | Backing Material   | Classification                       |
|--------------------|------------|--|--------------------------------------|
| Concrete / masonry | 5          | Stone wool or ceramic wool (≥70mm (x2) ≥60kg/m <sup>3</sup> , compressed to 60%) | EI 240 – T – M 25 – F – W 00 to W 60 |



## ANNEX B – Air Permeability - Astro Intu Mastic

| <b>Product tested</b>                          | <b>25 mm thick x 30 mm wide Astro Intu Mastic intumescent sealant</b> |                                  |  |
|--|---|----------------------------------|--|
|  | <b>Summary of testing procedure</b>                                   |                                  | <b>Result</b>                                  |
|  | <b>Pressure (Pa)</b>  | <b>Leakage (m<sup>3</sup>/h)</b> | <b>Leakage (m<sup>3</sup>/m<sup>2</sup>/h)</b> |
| <b>Results under negative chamber pressure</b> | 50  | 0.0                              | 0.0  |
|  | 100   | 0.0                              | 0.0  |
|  | 150   | 0.1                              | 2.8  |
|  | 200   | 0.1                              | 2.8  |
|  | 250   | 0.1                              | 2.8  |
|  | 300   | 0.0                              | 0.0  |
|  | 450   | 0.1                              | 2.8  |
|  | 600   | 0.1                              | 2.8  |
| <b>Results under positive chamber pressure</b> | 50  | 0.0                              | 0.0  |
|  | 100   | 0.0                              | 0.0  |
|  | 150   | 0.0                              | 0.0  |
|  | 200   | 0.0                              | 0.0  |
|  | 250   | 0.0                              | 0.0  |
|  | 300   | 0.0                              | 0.0  |
|  | 450   | 0.1                              | 2.8  |
|  | 600   | 0.1                              | 2.8  |

## ANNEX C – Airborne Sound Insulation - Astro Intu Mastic

### C.1 Astro Intu Mastic sealant at 15 mm deep in the following configuration

**Astro Intu Mastic SEALANT TESTED TO EN 10140-2:2010  
THROUGH A FLEXIBLE CONSTRUCTION**

| ACOUSTIC TEST RESULTS      |            |
|----------------------------|------------|
| Partition & Sealant Result | 63 Rw dB   |
| Sealant Result             | 51 Rw dB   |
| Sealant Result             | 61 Dnew dB |

The diagram illustrates a cross-section of a wall assembly. It consists of two vertical construction elements (3) with a hatched pattern, separated by a central cavity. This cavity is filled with stone wool (2) and has a 15mm deep sealant (1) applied to one side of the wall. A spring symbol is shown in the center of the wall assembly, indicating its flexible nature.

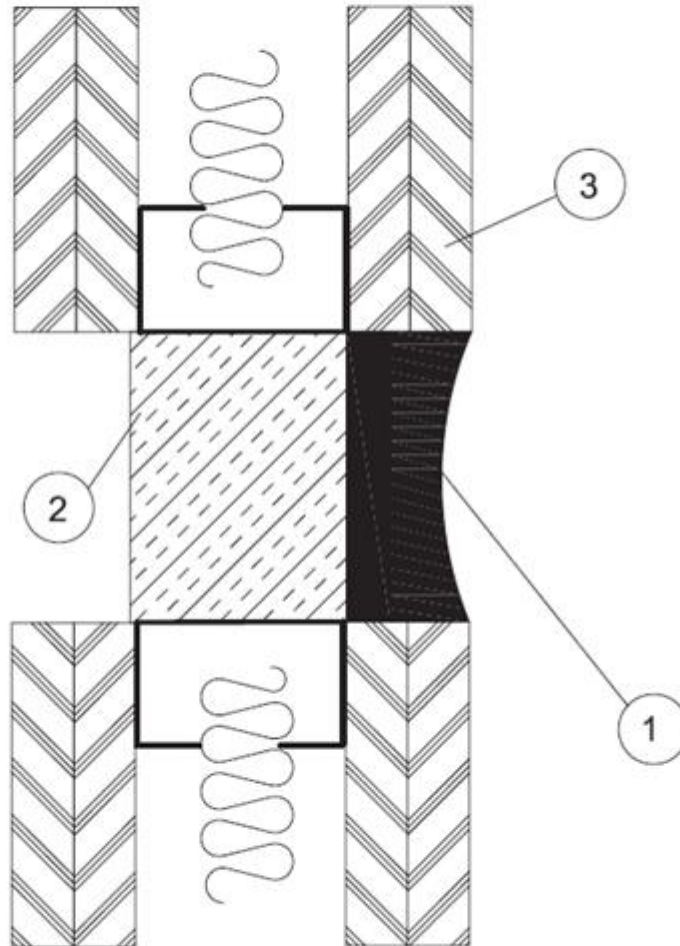
**1 - Astro Intu Mastic SEALANT TO ONE SIDE OF WALL 15mm DEPTH**  
**2 - 55mm DEPTH STONE WOOL 60kg DENSITY**  
**3 - CONSTRUCTING ELEMENT RATED TO 65 dB**

| BWR 5 Protection against noise |                           |                       |
|--------------------------------|---------------------------|-----------------------|
| Assessment method              | Essential characteristic  | Product performance   |
| EN 10140-1,2,4,5/ EN ISO 717-1 | Airborne sound insulation | Rw (C;Ctr)= 63(-1;-7) |

### C.2 Astro Intu Mastic sealant at 25 mm deep in the following configuration

**Astro Intu Mastic SEALANT TESTED TO EN 10140-2:2010  
THROUGH A FLEXIBLE CONSTRUCTION**

| ACOUSTIC TEST RESULTS      |            |
|----------------------------|------------|
| Partition & Sealant Result | 63 Rw dB   |
| Sealant Result             | 51 Rw dB   |
| Sealant Result             | 61 Dnew dB |



- 1 - Astro Intu Mastic SEALANT TO ONE SIDE OF WALL 25mm DEPTH**
- 2 - 55mm DEPTH STONE WOOL 60kg DENSITY**
- 3 - CONSTRUCTING ELEMENT RATED TO 65 dB**

| BWR 5 Protection against noise |                           |                       |
|--------------------------------|---------------------------|-----------------------|
| Assessment method              | Essential characteristic  | Product performance   |
| EN 10140-1,2,4,5/ EN ISO 717-1 | Airborne sound insulation | Rw (C;Ctr)= 63(-1;-7) |

# Technical Data Sheet

## Astro Intu Mastic (Penetration Seals)

### UIC of product-type: INTUM

Revision 16 - 16th October 2024



0843-UKTA-24/0037 | 24/0038  
0843-CPR-1385



CE-ETA - 20-1088/20-1089  
CE-2531-CPR-CXO10294



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Internet [www.etadanmark.dk](http://www.etadanmark.dk)

Authorised and notified according  
to Article 29 of the Regulation (EU)  
No 305/2011 of the European  
Parliament and of the Council of 9  
March 2011

MEMBER OF EOTA



## European Technical Assessment ETA-20/1088 of 2023/11/23

### I General Part

**Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S**

**Trade name of the construction product:**

Astro Intu Mastic

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

Fire Stopping and Sealing Product:  
• Penetration Seals

**Manufacturer:**

Astroflame (fireseals) Limited  
Unit 8 The IO Centre  
Stephenson Road  
Segensworth,  
Fareham  
Hampshire  
PO15 5RU

**Manufacturing plant:**

E055

**This European Technical Assessment contains:**

27 pages including 3 annexes which form an integral part of the document

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

EAD 350454-00-1104, September 2017.

**This version replaces:**

The ETA with the same number issued on 2020-12-09

**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 [except the confidential Annex(es) referred to above]. 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.**

**I. SPECIFIC PARTS OF THE EUROPEAN TECHNICAL ASSESSMENT**

**1 Technical description of the product**

- 1) Astro Intu Mastic is an acrylic based sealant used to form a penetration seal around insulated or uninsulated metallic pipes and electrical cables, to reinstate the fire resistance performance of wall and floor constructions where they have been provided with apertures for the penetration of services.
- 2) Astro Intu Mastic is supplied in liquid form contained within 310 ml & 380 ml cartridges, 600 ml foils or in 5, 10, 20 or 25 litre tubs. The sealant is gunned or trowelled into the aperture in or between the separating element/elements to a specified depth using various backing materials.
- 3) Certain seals require Astro Thermal defense wrap in addition, used to insulate the service. The Astro Thermal defense wrap is a 6 mm thick foil faced ceramic based insulation material, installed externally to the Astro Intu Mastic sealant as detailed in Annex A.
- 4) The applicant has submitted a written declaration that Astro Intu Mastic does not contain substances which have to be classified as dangerous according to article 59 (1, 10) of the Regulation (EC) No 1907/2006 (REACH).

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 Astro Intu Mastic in relation to BWR 3 (Hygiene, health and environment) is IA2

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

Detailed information and data is given in Annex A.

- 1) The intended use of system Astro Intu Mastic is to reinstate the fire resistance performance of flexible and rigid wall constructions and rigid floor constructions where they are penetrated by insulated or uninsulated metallic pipes and electrical cables.
- 2) The specific elements of construction that the system Astro Intu Mastic may be used to provide a penetration seal in, are as follows:
  - a. Flexible walls: The wall must have a minimum thickness of 75 mm and comprise steel studs or timber studs\* lined on both faces with minimum 1 layer of 12.5 mm thick boards.
  - b. Rigid walls: The wall must have a minimum thickness of 75 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>.

\* 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.

- 3) The System Astro Intu Mastic may be used to provide a penetration seal with specific single insulated metal pipes, uninsulated metal pipes and with specific electrical cables, single or in a bundle (for details see Annex A).
- 4) Apertures in the separating element shall be maximum  $\varnothing$  350 mm or 300 x 300 mm. The annular space/gap around the services shall be infilled with Astro Intu Mastic sealant and in some cases utilising various backing materials. For full details, see Annex A.
- 5) The provisions made in this European Technical Assessment are based on an assumed working life of the Astro Intu Mastic of 25 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 or the Technical Assessment Body, 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 X: Intended for use in conditions exposed to weathering and all lower classes.



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

|  |  |
|--|--|
| Product-type: Intumescent sheet                          | Intended use: Penetration Seal                     |
| Essential characteristic                                 | Product performance                                |
| <b>BWR 2 Safety in case of fire</b>                      |  |
| Reaction to fire   | No performance assessed                            |
| Resistance to fire                                       | Annex A  |
| <b>BWR 3 Hygiene, health and environment</b>             |  |
| Air permeability   | Annex B  |
| Water permeability                                       | No performance assessed                            |
| Content, emission and/or release of dangerous substances | Use categories: IA2<br>Declaration of manufacturer |
| <b>BWR 4 Safety in use</b>                               |  |
| Mechanical resistance and stability                      | No performance assessed                            |
| Resistance to impact/movement                            | No performance assessed                            |
| Adhesion   | No performance assessed                            |
| Durability   | Type X   |
| <b>BWR 5 Protection against noise</b>                    |  |
| Airborne sound insulation                                | Annex C  |
| <b>BWR 6 Energy economy and heat retention</b>           |  |
| Thermal properties                                       | No performance assessed                            |
| Water vapour permeability                                | No performance assessed                            |

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

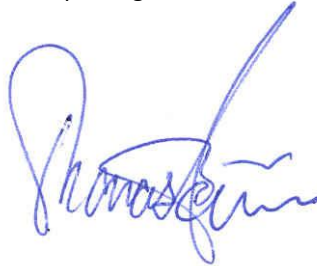
According to the decision 1999/454/EC – Commission Decision of date 22nd June 1999 on the procedure for attesting the conformity of construction products pursuant to Article 20(2) of Council Directive 89/106/EEC as regards fire stopping, fire sealing and fire protective products, published in the Official Journal of the European Union (OJEU) L178/52 of 14/07/1999, (see <https://eur-lex.europa.eu/oj/direct-access.html>) 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**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark A/S prior to CE marking

Issued in Copenhagen on 2023-11-23 by



Thomas Bruun  
Managing Director, ETA-Danmark

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

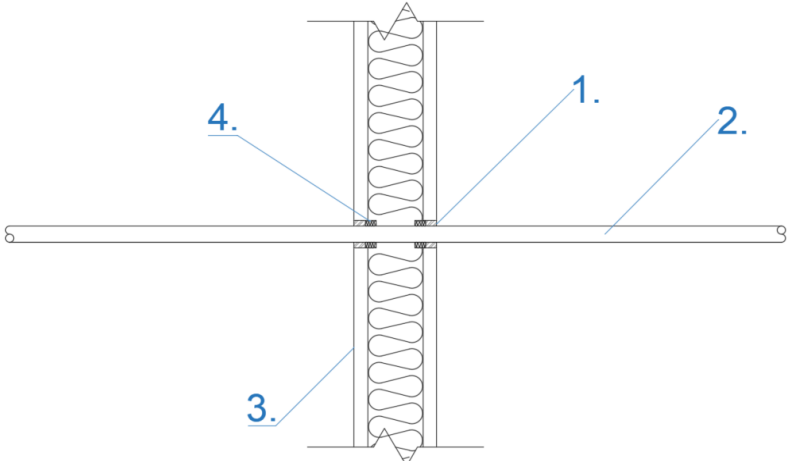
## ANNEX A – Resistance to Fire Classification – Astro Intu Mastic

### A.1 Flexible and rigid wall constructions with wall thickness of minimum 75 mm

#### A.1.1 Double sided penetration seal with cables

**Penetration Seal:** Cables (single) fitted centrally within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:



Key:

1. Astro Intu Mastic Sealant
2. Single Cable
3. Flexible Wall
4. Backing Material

#### A.1.1.1

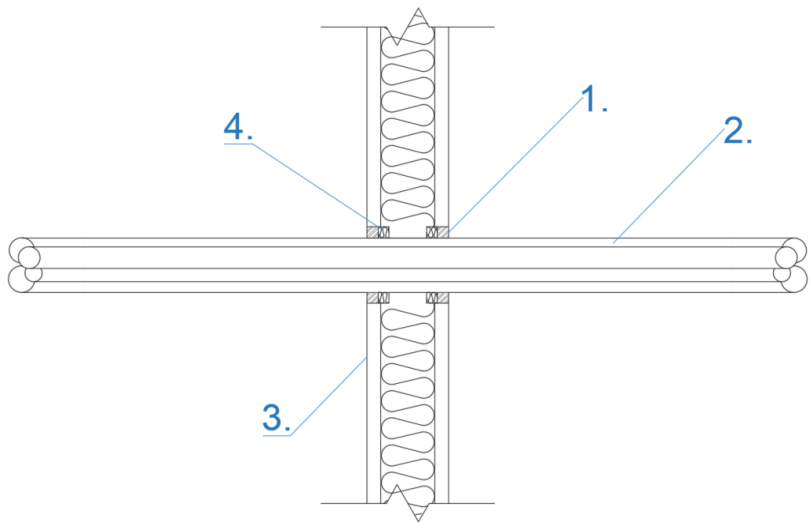
| Penetration Service | Depth (mm) | Maximum Aperture Size (mm) | Backing Material  | Classification |
|---------------------|------------|----------------------------|---|----------------|
| D1 cable*           | 10         | 100 Ø                      | PE backing rod, glass wool, stone wool or ceramic wool  | E 60, EI 45    |
| B cable*            | 12         | 25 Ø                       | Stone wool or ceramic wool (10 mm 45kg/m <sup>3</sup> ) | E 90, EI 60    |

\* As defined in EN 1366-3: 2009, Annex A

### A.1.2 Double sided penetration seal with cables bunches

**Penetration Seal:** Cables bunches fitted centrally within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:



Key:

1. Astro Intu Mastic Sealant
2. Single Bunch
3. Flexible Wall
4. Backing Material

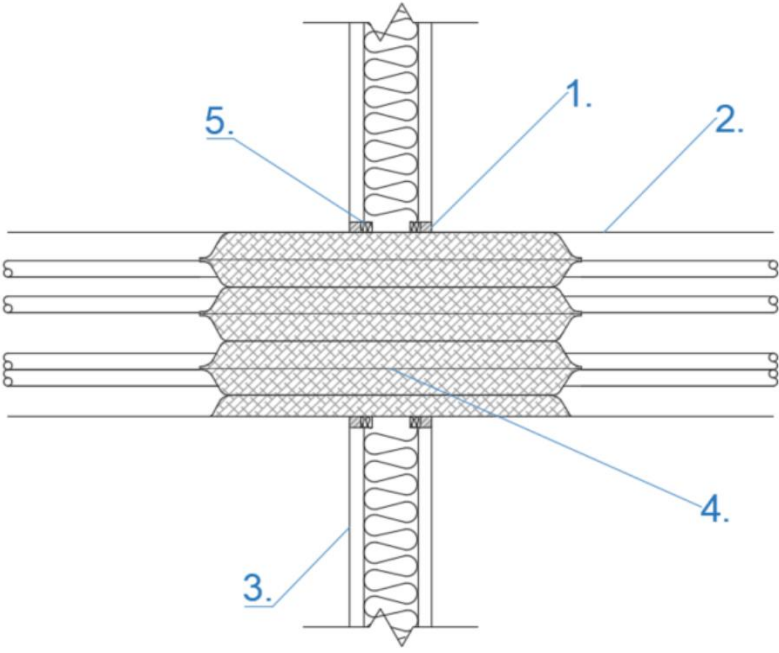
#### A.1.2.1

| Penetration Service   | Depth (mm) | Maximum Aperture Size (mm) | Backing Material                                       | Classification     |
|---|------------|----------------------------|--|--------------------|
| Telecoms cables $\leq 21$ mm $\varnothing$ in cable bunch $\leq 100$ mm $\varnothing$ | 10         | 120 $\varnothing$          | PE backing rod, glass wool, stone wool or ceramic wool | <b>E 60, EI 45</b> |

### A.1.3 Double sided penetration seal with cable trunking

**Penetration Seal:** Cables trunkings filled with cables penetrating through an aperture through a flexible or rigid wall construction. The aperture is filled with S-Line Pillows and sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:



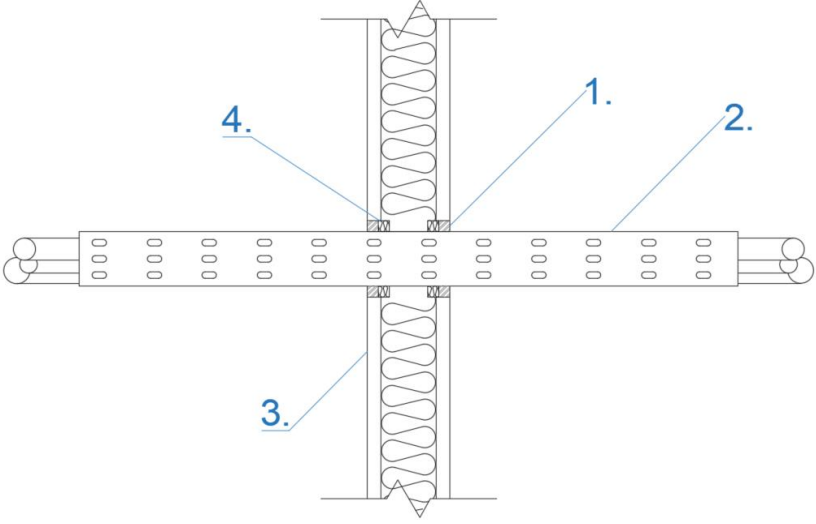
Key:

1. Astro Intu Mastic Sealant
2. Metal Trunking filled with cables
3. Flexible Wall
4. Astro X Series Pillows
5. Backing Material

#### A.1.3.1

| Penetration Service                  | Depth (mm) | Maximum Aperture Size (mm) | Backing Material                                       | Minimum Distance to Edge of Aperture (mm) | Classification |
|--------------------------------------|------------|----------------------------|--|---|----------------|
| Steel trunking up to 150 mm x 150 mm | 10         | 170 x 170                  | PE backing rod, glass wool, stone wool or ceramic wool | 0   | E 60, EI 20    |
| Steel trunking up to 50 mm x 50 mm   | 10         | 70 x 70                    | PE backing rod, glass wool, stone wool or ceramic wool | 0   | E 60, EI 45    |

#### A.1.4 Double sided penetration seal with cable trays

|  |  |
|--|--|
| <p><b>Penetration Seal:</b> Cables trays with cables penetrating through a flexible or rigid wall construction and sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).</p> |  |
| <p>Construction details:</p>   | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Cable Tray</u></li> <li>3. <u>Flexible Wall</u></li> <li>4. <u>Backing Material</u></li> </ol> |

##### A.1.4.1

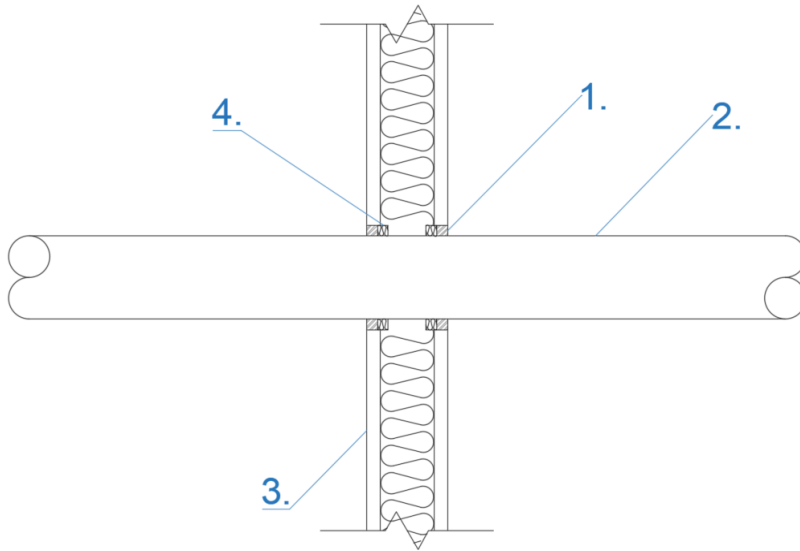
| Penetration Service  | Depth (mm) | Maximum Aperture Size (mm) | Backing Material                                       | Minimum Distance to Edge of Aperture (mm) | Classification     |
|--|------------|----------------------------|--|---|--------------------|
| Steel cable tray ≤450 mm wide loaded with cables ≤21 mm Ø + C1, C2, C3 cables*   | 10         | 470 x 100                  | PE backing rod, glass wool, stone wool or ceramic wool | 0   | <b>E 60, EI 20</b> |
| Steel cable tray ≤450 mm wide loaded with cables ≤21 mm Ø + C1, C2, C3 cables* with insulation ≤40 mm thick ≤45kg/m <sup>3</sup> , ≤400 mm either side of the wall (L/I) | 10         | 470 x 100                  | PE backing rod, glass wool, stone wool or ceramic wool | 0   | <b>EI 45</b>       |

\* As defined in EN 1366-3: 2009, Annex A

### A.1.5 Double side penetration seal with metallic pipes

**Penetration Seal:** Metallic pipes (single) fitted centrally within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:



Key:

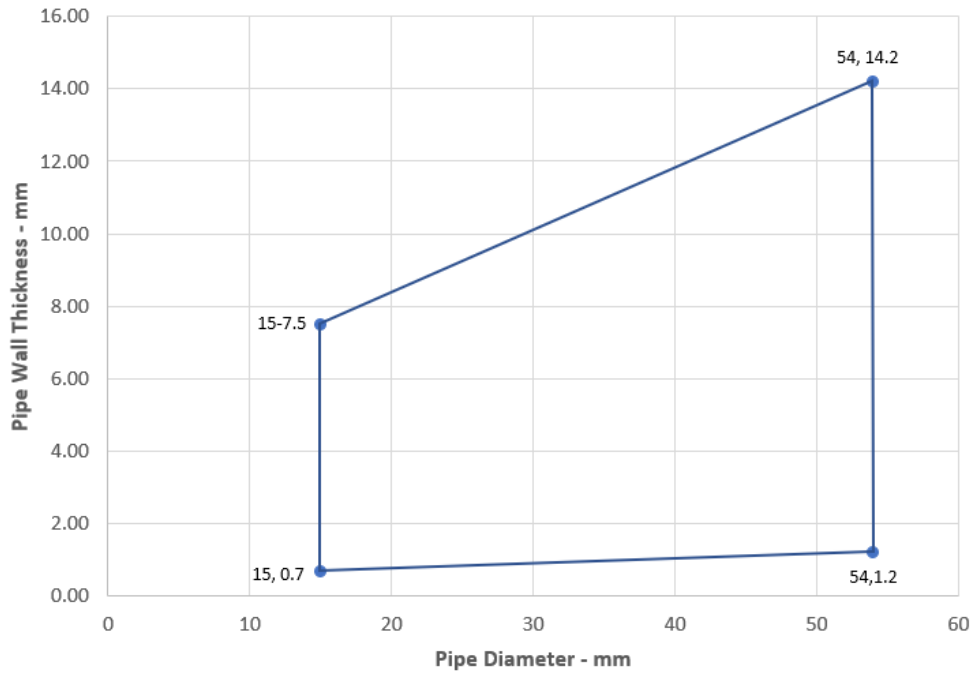
1. Astro Intu Mastic Sealant
2. Metal Pipe
3. Flexible Wall
4. Backing Material

#### A.1.5.1

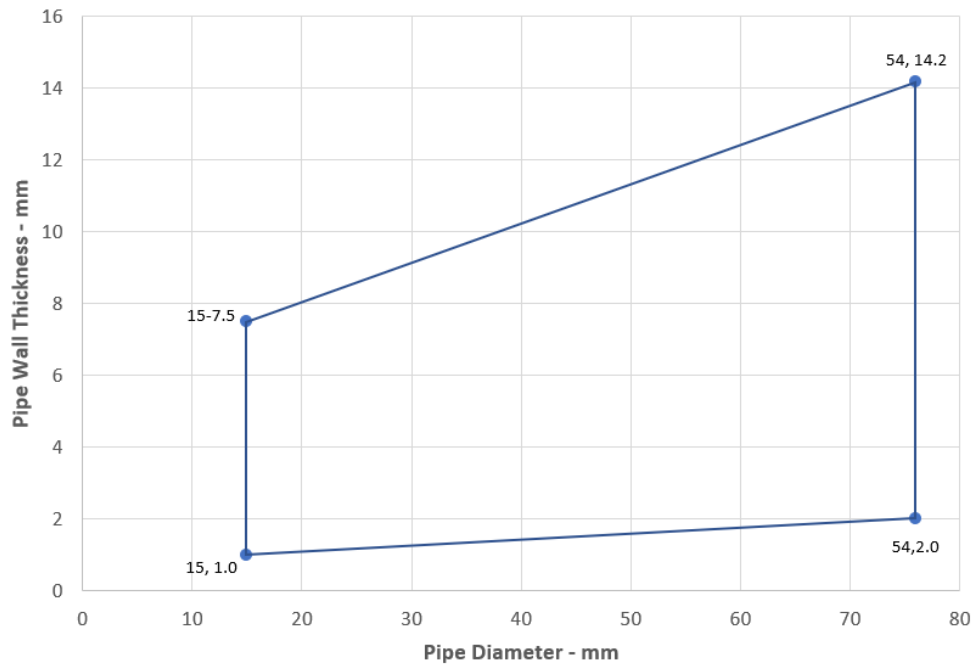
| Penetration Service  | Depth (mm) | Annular (mm)                       | Backing Material   | Classification                   |
|--|------------|------------------------------------|--|----------------------------------|
| Copper pipe ≤15 mm diameter/ 0.7-14.2 mm wall thickness  | 12         | 5-10                               | Stone wool or ceramic wool (≥10mm ≥45kg/m <sup>3</sup> ) | E 90 C/U, C/C,<br>EI 60 C/U, C/C |
| Copper or Steel pipe 15-54 mm diameter/ 1.2-14.2 mm wall thickness*  |            |                                    |  | E 90 C/U, C/C                    |
| Steel pipe 15 mm diameter/ 1-14.2 mm wall thickness  |            |                                    |  | EI 90 C/U, C/C                   |
| Steel pipe 15-76 mm diameter/ 2-14.2 mm wall thickness*  |            |                                    |  | E 90 C/U, C/C,<br>EI 20 C/U, C/C |
| Steel pipe 325 mm diameter/ 17.5 mm wall thickness, insulated with stone wool ≥40 mm thick, ≥45kg/m <sup>3</sup> (LI) min. 400 mm length to both faces | 10         | 25 (0 distance from aperture edge) | PE backing rod, glass wool, stone wool or ceramic wool   | E 60 C/U, C/C,<br>EI 30 C/U, C/C |

\* See below graphs for interpolated pipe sizes and permitted wall thicknesses

### Copper or Steel Pipes - C/U



### Steel Pipes - C/U

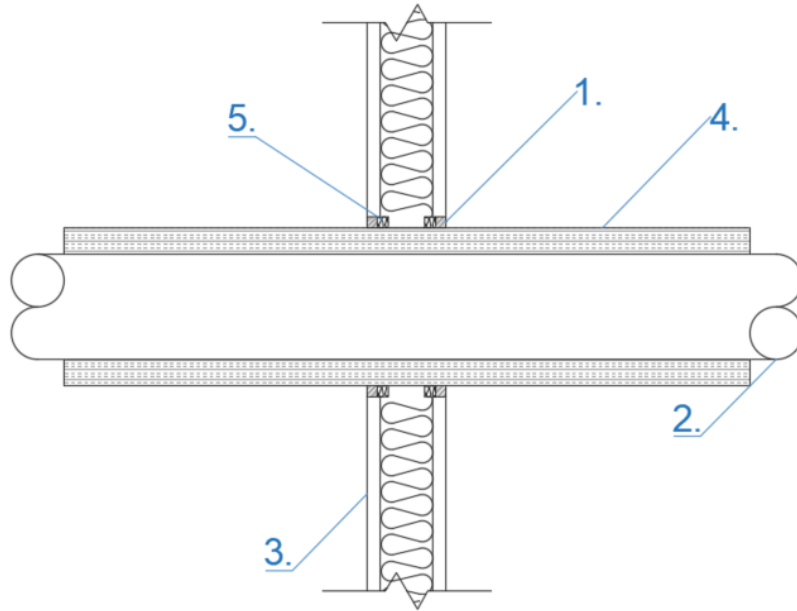




### A.1.6 Double side penetration seal with insulated metallic pipes

**Penetration Seal:** Insulated metallic pipes (single) fitted at any position within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:



Key:

1. Astro Intu Mastic Sealant
2. Metal Pipe
3. Flexible Wall
4. Stone Wool Insulation
5. Backing Material

#### A.1.6.1

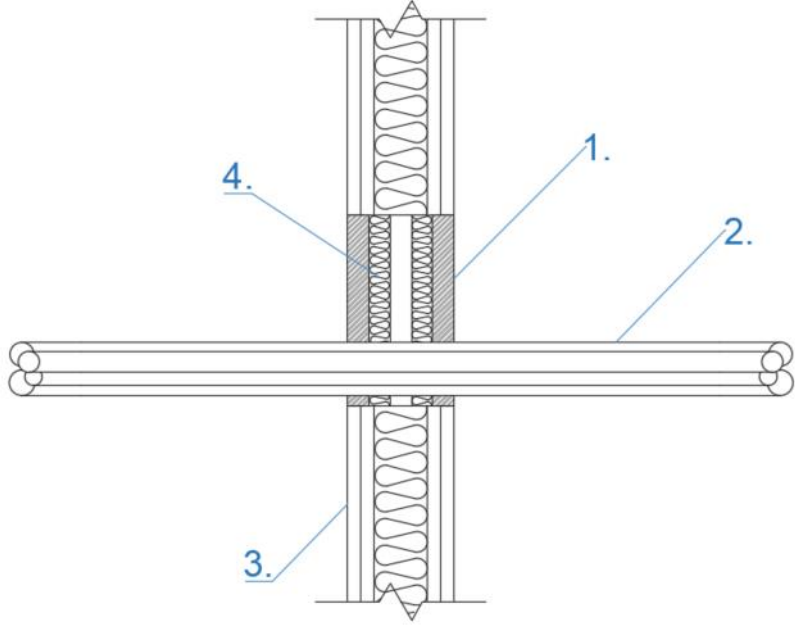
| Penetration Service  | Depth (mm) | Maximum Aperture Size (mm) | Backing Material   | Minimum Distance to Edge of Aperture (mm) | Classification                           |
|--|------------|----------------------------|--|---|--|
| Copper or steel pipe<br>159 mm diameter/ 2-<br>14.2 mm wall<br>thickness insulated<br>with stone wool $\geq 50$<br>mm thick, $\geq 90\text{kg/m}^3$<br>(C/S) | 10         | 10                         | PE backing rod, glass<br>wool, stone wool or<br>ceramic wool | 0   | <b>E 60 C/U, C/C,<br/>EI 45 C/U, C/C</b> |

**A.2 Flexible and rigid wall constructions with wall thickness of minimum 100 mm**

**A.2.1 Double sided penetration seal with cables and conduits**

**Penetration Seal:** Cables and conduits fitted within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with Stone wool or ceramic wool (20 mm 45kg/m<sup>3</sup>). Minimum separation between penetration seals 200 mm (a2).

Construction details:



Key:

1. Astro Intu Mastic Sealant
2. Cables
3. Flexible Wall
4. Backing Material

**A.2.1.1**

| Penetration Service            | Depth (mm) | Maximum Aperture Size (mm) | Backing Material  | Minimum Distance to Edge of Aperture (mm) | Classification |
|--------------------------------|------------|----------------------------|---|---|----------------|
| Cable bunch ≤100 mm Ø          | 20         | 180 x 180                  | Stone wool or ceramic wool (20 mm 45kg/m <sup>3</sup> ) | 10  | EI 120         |
| PVC conduits ≤16 mm Ø          |            |                            |   |   | EI 120         |
| Steel/Copper conduits ≤16 mm Ø |            |                            |   |   | E 120, EI 20   |
| Cables ≤50 mm Ø                |            |                            |   |   | E 90, EI 60    |
| Cables ≤21 mm Ø                |            |                            |   |   | EI 120         |

### A.2.2 Double sided penetration seal with metallic pipes

**Penetration Seal:** Metallic pipes (single) fitted centrally within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:

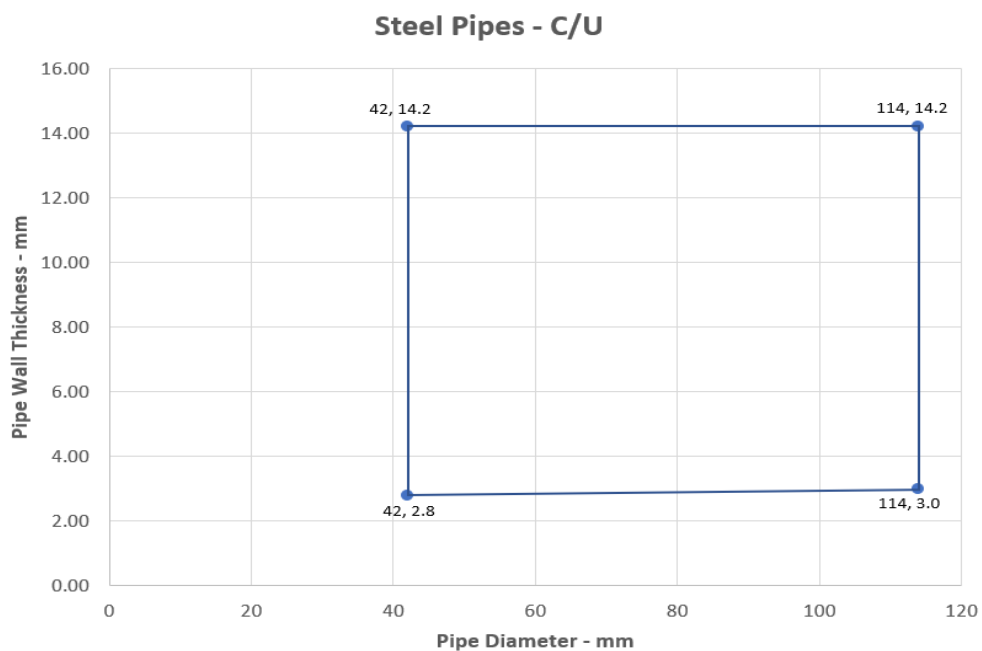
Key:

1. Astro Intu Mastic Sealant
2. Metal Pipe
3. Flexible Wall
4. Backing Material

#### A.2.2.1

| Penetration Service                                    | Depth (mm) | Annular (mm) | Backing Material                                       | Classification                    |
|--|------------|--------------|--|-----------------------------------|
| Steel pipe 42 mm diameter/ 2.8-14.2 mm wall thickness  | 25         | 10           | PE backing rod, glass wool, stone wool or ceramic wool | E 120 C/U, C/C,<br>EI 45 C/U, C/C |
| Steel pipe 42-114mm diameter/ 3-14.2mm wall thickness* |            |              |  | E 120 C/U, C/C,<br>EI 20 C/U, C/C |

\* See below graphs for interpolated pipe sizes and permitted wall thicknesses

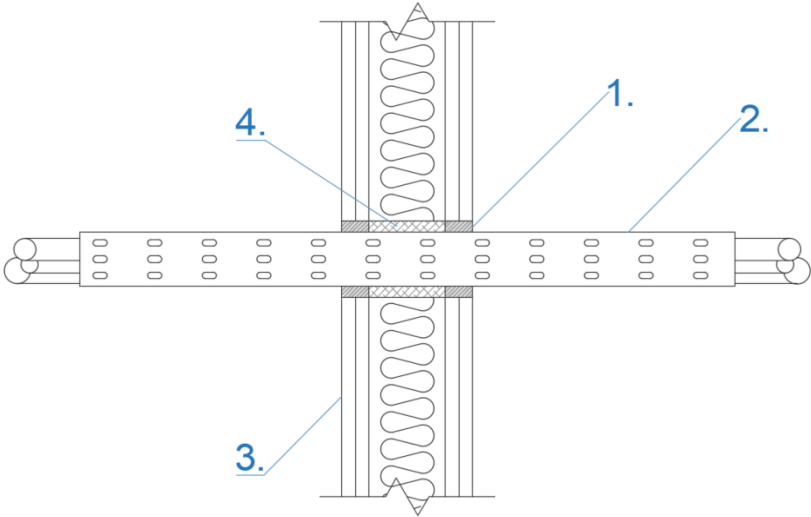


### A.3 Flexible and rigid wall constructions with wall thickness of minimum 120 mm

#### A.3.1 Double sided penetration seal with cable trays

**Penetration Seal:** Cables trays with cables penetrating through a flexible or rigid wall construction and sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:



Key:

1. Astro Intu Mastic Sealant
2. Cable Tray/Cables
3. Flexible Wall
4. Backing Material

##### A.3.1.1

| Penetration Service   | Depth (mm) | Maximum Aperture Size (mm) | Backing Material  | Minimum Distance to Edge of Aperture (mm) | Classification      |
|---|------------|----------------------------|---|---|---------------------|
| Steel cable tray $\leq 450$ mm wide loaded with cables $\leq 21$ mm $\varnothing$ | 25         | 490 x 100                  | Stone wool or ceramic wool ( $\geq 35$ mm $\geq 80$ kg/m <sup>3</sup> ) | 20  | <b>E 120, EI 90</b> |
| C1, C2, D1 and D2 Cables*   | 25         | 200 x 100                  | PE backing rod, glass wool, stone wool or ceramic wool                  | 20  | <b>E 90, EI 60</b>  |

\* As defined in EN 1366-3: 2009, Annex A

### A.3.2 Double sided penetration seal with metallic pipes

**Penetration Seal:** Metallic pipes (single) fitted centrally within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

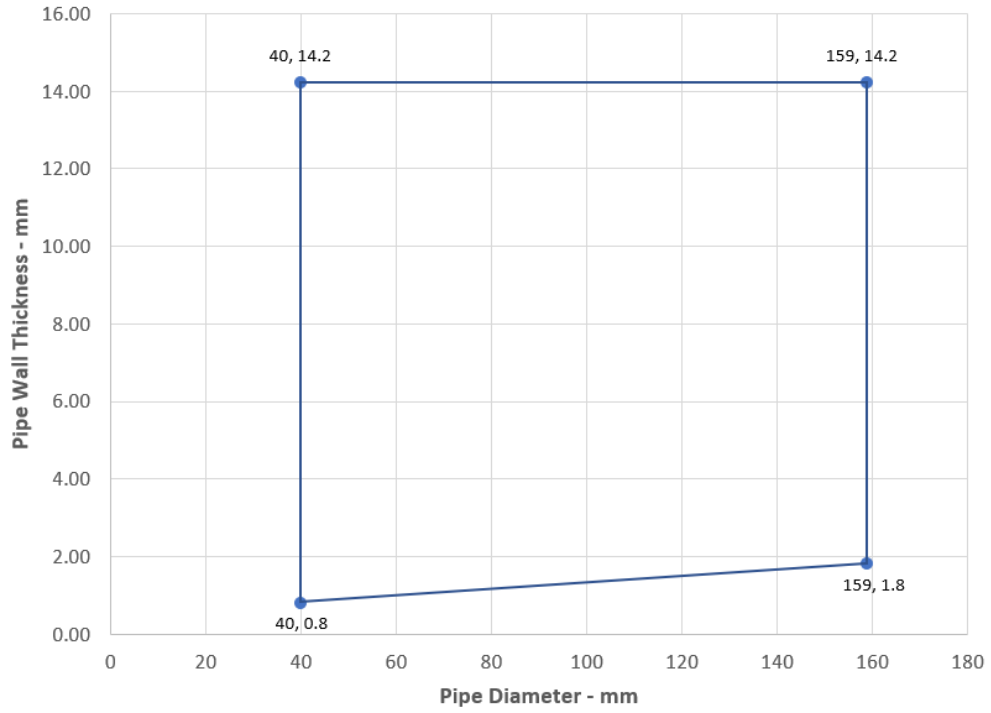
|                              |  |
|------------------------------|--|
| <p>Construction details:</p> | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Metal Pipe</u></li> <li>3. <u>Flexible Wall</u></li> <li>4. <u>Backing Material</u></li> </ol> |
|------------------------------|--|

#### A.3.2.1

| Penetration Service  | Depth (mm) | Annular (mm) | Backing Material                                       | Classification                    |
|--|------------|--------------|--|-----------------------------------|
| Copper or steel pipe 15-40 mm diameter/ 0.8-14.2 mm wall thickness   | 25         | 10           | PE backing rod, glass wool, stone wool or ceramic wool | E 120 C/U, C/C,<br>EI 15 C/U, C/C |
| Copper or steel pipe 40-159 mm diameter/ 1.8-14.2 mm wall thickness*   |            |              |  | E 120 C/U, C/C,                   |
| Copper or steel pipe 40 mm diameter/ 0.8-14.2mm wall thickness insulated with Astro Thermal defense wrap to both sides of the wall at 300 mm (L/I)       |            |              |  | E 120 C/U, C/C,<br>EI 90 C/U, C/C |
| Copper or steel pipe 40-159 mm diameter/ 1.8-14.2 mm wall thickness insulated with Astro Thermal defense wrap to both sides of the wall at 300 mm (L/I)* |            |              |  | E 120 C/U, C/C,<br>EI 20 C/U, C/C |

\* See below graphs for interpolated pipe sizes and permitted wall thicknesses

### Copper or Steel Pipes - C/U



**A.4 Rigid wall constructions with wall thickness of minimum 150 mm**

**A.4.1 Double side penetration seal with metallic pipes**

**Penetration Seal:** Metallic pipes (single) fitted at any position within the aperture, sealed with Astro Intu Mastic sealant to either side of the wall, backed with Stone wool or ceramic wool ( $\geq 144 \text{ mm } \geq 80 \text{ kg/m}^3$ ). Minimum separation between penetration seals 200 mm (a2).

Construction details:

Key:

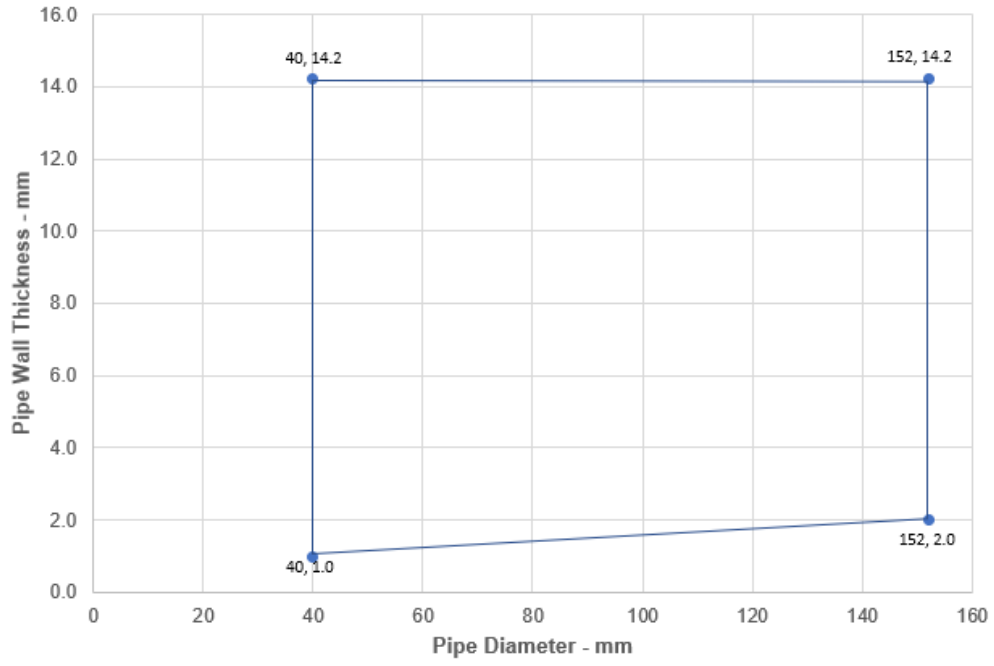
1. Astro Intu Mastic Sealant
2. Metal Pipe
3. Rigid Wall
4. Backing Material

**A.4.1.1**

| Penetration Service                                       | Depth (mm) | Maximum Aperture Size (mm) | Backing Material   | Minimum Distance to Edge of Aperture (mm) | Classification               |
|---|------------|----------------------------|--|---|------------------------------|
| Steel pipe 40-152 mm diameter/ 2.5-14.2mm wall thickness* | 6          | Pipe $\varnothing$ + 50 mm | Stone wool or ceramic wool ( $\geq 144 \text{ mm } \geq 80 \text{ kg/m}^3$ ) | 0   | <b>E 240 C/C</b>             |
| Steel pipe 40 mm diameter/ 1.5-14.2 mm wall thickness     | 6          | Pipe $\varnothing$ + 50 mm | Stone wool or ceramic wool ( $\geq 144 \text{ mm } \geq 80 \text{ kg/m}^3$ ) | 0   | <b>E 240 C/C, EI 120 C/C</b> |

\* See below graphs for interpolated pipe sizes and permitted wall thicknesses

### Steel Pipes - C/C

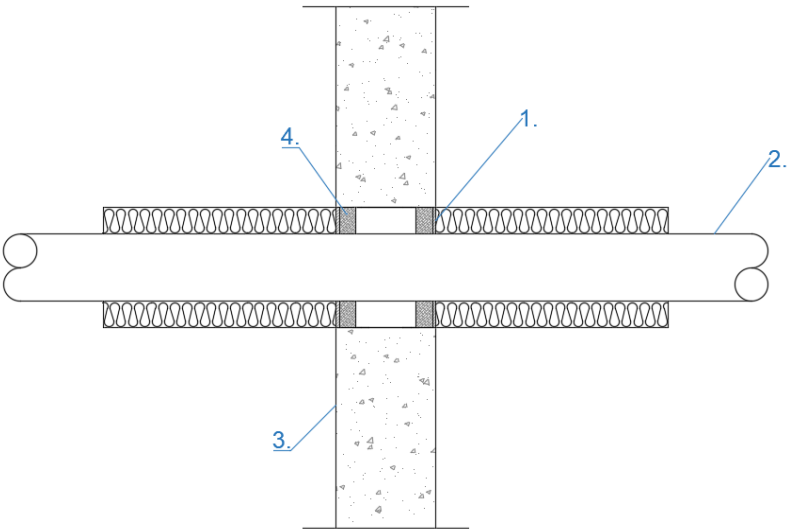




### A.4.2 Double side penetration seal with insulated metallic pipes

**Penetration Seal:** Insulated metallic pipes (single) fitted at any position within the aperture, sealed with Astro Intu Mastic sealant to both sides of the wall, backed with various backing materials. Minimum separation between penetration seals 200 mm (a2).

Construction details:



Key:

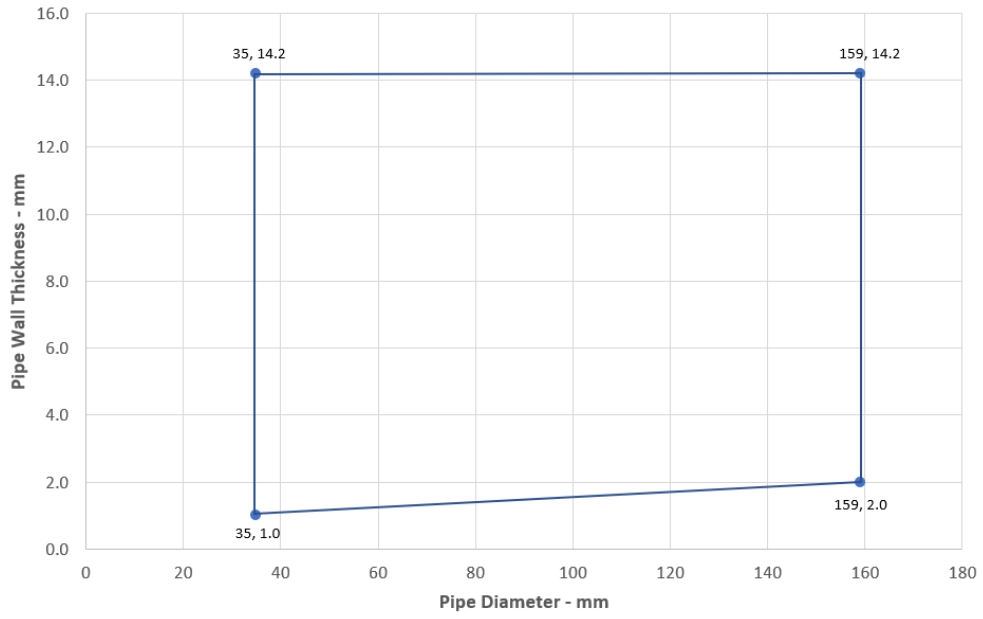
1. Astro Intu Mastic Sealant
2. Metal Pipe
3. Rigid Wall
4. Backing Material

#### A.4.2.1

| Penetration Service  | Depth (mm) | Maximum Aperture Size (mm)    | Backing Material   | Minimum Distance to Edge of Aperture (mm) | Classification  |
|--|------------|-------------------------------|--|---|-----------------|
| Copper or steel pipe<br>35-159mm diameter/<br>2-14.2 mm wall<br>thickness insulated<br>with stone wool 50<br>mm thick 100kg/m <sup>3</sup><br>(C/I)* | 5          | Pipe $\varnothing$ + 55<br>mm | PE backing rod, glass<br>wool, stone wool or<br>ceramic wool | 0   | EI 240 C/U, C/C |

\* See below graphs for interpolated pipe sizes and permitted wall thicknesses

### Copper or Steel Pipes - C/U



## A.5 Rigid floor constructions with floor depth of minimum 150 mm

### A.5.1 Penetration seal with metallic pipes

**Penetration Seal:** Metallic pipes (single) fitted within the aperture, sealed with Astro Intu Mastic sealant on the top side of the floor, backed with Stone wool or ceramic wool ( $\geq 145 \text{ mm } \geq 45 \text{ kg/m}^3$ ). Minimum separation between penetration seals 200 mm (a2).

Construction details:

Key:

1. Astro Intu Mastic Sealant
2. Metal Pipe
3. Rigid Floor
4. Backing Material

#### A.5.1.1

| Penetration Service   | Depth (mm) | Maximum Aperture Size (mm) | Backing Material   | Minimum Distance to Edge of Aperture (mm) | Classification |
|---|------------|----------------------------|--|---|----------------|
| Copper or steel pipe<br>42-159 mm diameter/<br>1-14.2 mm wall thickness | 5          | 200 x 200                  | Stone wool or ceramic wool ( $\geq 145 \text{ mm } \geq 45 \text{ kg/m}^3$ ) | 20  | E 180 C/U, C/C |
| Copper or steel pipe<br>42 mm diameter/<br>1-14.2 mm wall thickness     |            |                            |  |   | E 240 C/U, C/C |

### A.5.2 Penetration seal with cables

**Penetration Seal:** Cables and conduits fitted at any position within the aperture, sealed with Astro Intu Mastic sealant to the top side of the floor, backed with Stone wool or ceramic wool ( $\geq 145 \text{ mm } \geq 45 \text{ kg/m}^3$ ). Minimum separation between penetration seals 200 mm (a2).

|                              |  |
|------------------------------|--|
| <p>Construction details:</p> | <p>Key:</p> <ol style="list-style-type: none"> <li>1. <u>Astro Intu Mastic Sealant</u></li> <li>2. <u>Cables</u></li> <li>3. <u>Rigid Floor</u></li> <li>4. <u>Backing Material</u></li> </ol> |
|------------------------------|--|

#### A.5.2.1

| Penetration Service   | Depth (mm) | Maximum Aperture Size (mm) | Backing Material   | Minimum Distance to Edge of Aperture (mm) | Classification      |
|---|------------|----------------------------|--|---|---------------------|
| Telecoms cables $\leq 21$ mm diameter in cable bunch $\leq 100$ mm diameter | 5          | 200 x 200                  | Stone wool or ceramic wool ( $\geq 145 \text{ mm } \geq 45 \text{ kg/m}^3$ ) | 0   | <b>E 45, EI 15</b>  |
| PVC conduits $\leq 16$ mm diameter  |            |                            |  |   | <b>E 45, EI 15</b>  |
| Steel or copper conduits $\leq 16$ mm diameter                              |            |                            |  |   | <b>E 45, EI 15</b>  |
| Cables $\leq 80$ mm diameter  |            |                            |  |   | <b>E 90, EI 45</b>  |
| Cables $\leq 50$ mm diameter  |            |                            |  |   | <b>E 90, EI 45</b>  |
| Cables $\leq 21$ mm diameter  |            |                            |  |   | <b>E 240, EI 90</b> |

## ANNEX B – Air Permeability - Astro Intu Mastic

| Product tested                          | 25 mm thick x 30 mm wide Astro Intu Mastic intumescent sealant |                             |   |
|---|--|-----------------------------|---|
|   | Summary of testing procedure                                   |                             | Result                                      |
|   | Pressure (Pa)  | Leakage (m <sup>3</sup> /h) | Leakage (m <sup>3</sup> /m <sup>2</sup> /h) |
| Results under negative chamber pressure | 50   | 0.0                         | 0.0   |
|   | 100  | 0.0                         | 0.0   |
|   | 150  | 0.1                         | 2.8   |
|   | 200  | 0.1                         | 2.8   |
|   | 250  | 0.1                         | 2.8   |
|   | 300  | 0.0                         | 0.0   |
|   | 450  | 0.1                         | 2.8   |
|   | 600  | 0.1                         | 2.8   |
| Results under positive chamber pressure | 50   | 0.0                         | 0.0   |
|   | 100  | 0.0                         | 0.0   |
|   | 150  | 0.0                         | 0.0   |
|   | 200  | 0.0                         | 0.0   |
|   | 250  | 0.0                         | 0.0   |
|   | 300  | 0.0                         | 0.0   |
|   | 450  | 0.1                         | 2.8   |
|   | 600  | 0.1                         | 2.8   |

## ANNEX C – Airborne Sound Insulation - Astro Intu Mastic

### C.1 Astro Intu Mastic sealant at 15 mm deep in the following configuration

**Astro Intu Mastic sealant tested to EN 10140-2010  
THROUGH A FLEXIBLE CONSTRUCTION**

| ACOUSTIC TEST RESULTS      |            |
|----------------------------|------------|
| Partition & Sealant Result | 63 Rw dB   |
| Sealant Result             | 51 Rw dB   |
| Sealant Result             | 61 Dnew dB |

1 - Astro Intu Mastic sealant to one side of wall 15mm depth  
2 - 55mm DEPTH STONE WOOL 60kg DENSITY  
3 - CONSTRUCTING ELEMENT RATED TO 65 dB

| BWR 5 Protection against noise |                           |                       |
|--------------------------------|---------------------------|-----------------------|
| Assessment method              | Essential characteristic  | Product performance   |
| EN 10140-1,2,4,5/ EN ISO 717-1 | Airborne sound insulation | Rw (C;Ctr)= 63(-1;-7) |

**C.2 Astro Intu Mastic sealant at 25 mm deep in the following configuration**

**Astro Intu Mastic sealant tested to EN 10140-2010  
THROUGH A FLEXIBLE CONSTRUCTION**

| ACOUSTIC TEST RESULTS      |            |
|----------------------------|------------|
| Partition & Sealant Result | 63 Rw dB   |
| Sealant Result             | 51 Rw dB   |
| Sealant Result             | 61 Dnew dB |

**1 - Astro Intu Mastic sealant to one side of wall 25mm depth**  
**2 - 55mm DEPTH STONE WOOL 60kg DENSITY**  
**3 - CONSTRUCTING ELEMENT RATED TO 65 dB**

| BWR 5 Protection against noise |                           |                       |
|--------------------------------|---------------------------|-----------------------|
| Assessment method              | Essential characteristic  | Product performance   |
| EN 10140-1,2,4,5/ EN ISO 717-1 | Airborne sound insulation | Rw (C;Ctr)= 63(-1;-7) |