

Regulatory Information Report

RIRF24126

**Fire resistance test for penetrations through a
vertical separating element**

| | |
|--------------|-----------------|
| Client: | Agnitek Pty Ltd |
| Test method: | AS1530.4-2014 |
| Report Date: | 13/12/2024 |
| Test number: | PF24126 |



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1.1 Document revision schedule

| Revision # | Date | Description |
|------------|------------|------------------|
| 1 | 13/12/2024 | Issued to Client |

1.2 Signatories

| Report | Name | Signature | Date |
|----------------|---------------------------------------|--|------------|
| Prepared by: | Alexey Kokorin |  | 13/12/2024 |
| Authorised by: | Andrew Bain (Authorized signatory) |  | 13/12/2024 |



All tests reported herein
have been performed in
accordance with the
laboratory's scope of
accreditation

2. Report Summary

Service penetrations were tested passing through two layers of 13mm FR Plasterboard on each side of a 64mm (nominal) steel frame.

| Specimen # | Service | Actual Integrity (min) | Actual Insulation (min) | FRL |
|------------|---|------------------------|-------------------------|------------------|
| 1 | AGNI-Box – filled | 122NF | 122NF | -/120/120 |
| 1a | 40mm Steel Pipe | 122NF | 122NF | - |
| 1b | 60mm Steel Pipe | 122NF | 122NF | - |
| 1c | 25mm Copper Pipe | 122NF | 122NF | - |
| 1d | 50mm Copper Pipe | 122NF | 122NF | - |
| 2 | AGNI-Box – filled | 122NF | 122NF | -/120/120 |
| 2a | 25mm Aluminium Cable | 122NF | 122NF | - |
| 2b | 30mm Aluminium Cable | 122NF | 122NF | - |
| 2c | 50mm Aluminium Cable | 122NF | 122NF | - |
| 2d | 25mm Flexible Conduit (filled) | 122NF | 122NF | - |
| 3 | AGNI-Box – filled | 122NF | 122NF | -/120/120 |
| 3a | 50mm Flexible Conduit (empty) | 122NF | 122NF | - |
| 3b | 50mm Flexible Conduit (filled) | 122NF | 122NF | - |
| 3c | 50mm uPVC Pipe | 122NF | 122NF | - |
| 3d | 25mm Flexible Conduit (empty) | 122NF | 122NF | - |
| 4 | AGNI-Box – filled | 122 | 122 | -/120/120 |
| 4a | 25mm Copper Pipe (with Armaflex insulation) | 122 | 122 | - |
| 4b | 50mm Copper Pipe (with Armaflex insulation) | 122 | 122 | - |
| 4c | 32mm PPR Pipe | 122 | 122 | - |
| 4d | 32mm CPVC Pipe | 122 | 122 | - |
| 5 | AGNI-Box – filled | 122NF | 96 | -/120/90 |
| 5a | 25mm Copper Pipe (with Armaflex insulation) | 122NF | 104 | - |
| 5b | 50mm Copper Pipe (with Armaflex insulation) | 122NF | 96 | - |
| 5c | 32mm PPR Pipe | 122NF | 122NF | - |
| 5d | 32mm CPVC Pipe | 122NF | 122NF | - |



| | | | | |
|----------|----------------------------------|--------------|--------------|------------------|
| 6 | AGNI-Box – filled | 122NF | 122NF | -/120/120 |
| 6a | <i>TPS Cable Bundle (x 25)</i> | <i>122NF</i> | <i>122NF</i> | - |
| 6b | <i>Data Cable Bundle (x 25)</i> | <i>122NF</i> | <i>122NF</i> | - |
| 6c | <i>Alarm Cable Bundle (x 25)</i> | <i>122NF</i> | <i>122NF</i> | - |

NF – No Failure

3. General Information

3.1 Testing Scope

Applicable Standards:

AS 1530.4-2014 Section 10: Service penetrations and control joints

AS 4072.1-2005 (r. 2016) Components for the protection of openings in fire-resistant separating elements. Part 1: Service penetrations and control joints

Departures from Testing Method:

No departures from the testing method

Test conditions:

Conditions complied with the Standard

3.2 Contact Details

Accredited Testing Laboratory

Fire TS Lab - Passive Fire Inspection and Test Services Ltd

Accreditation Number - 1335

1/113 Pavilion Drive, Mangere, Auckland, 2022

New Zealand

Contact e-mail: tests@firelab.co.nz

Client/Applicant:

Agnitek Pty Ltd

8 Clare St, Bayswater, VIC, 3153

Australia

Contact e-mail: info@agnitek.com.au

Manufacturer:

Same as Client/Applicant

3.3 Specimen Preparation, Conditioning and Timeline

Specimens conditioning and delivery to Laboratory:

Separating element was built by the Laboratory in line with Client instructions. Installation of fire stopping system was performed by the Laboratory in line with Client instructions. The Laboratory was not involved in sampling of the materials. The Laboratory checked materials during construction of the specimen. All pipes were capped on fire side only.

Testing date:

5/11/2024

Installation completion date:

1/11/2024

Termination of The Test:

The test was discontinued at 122 minutes.

3.4 Use of the Report

This report shall not be reproduced, except in full.

A regulatory information report was issued in addition to the full test report PF24126. This provides the minimum information required for regulatory compliance.

This report details the methods of construction, test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in AS 1530.4. Any significant variation with respect to size, constructional details, loads, stresses, edge or end conditions, other than that allowed under the field of direct application in the relevant test method, is not covered by this report.

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

The test results relate to the specimens of the product in the form in which they were tested. Differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product, which is supplied or used, is fully represented by the specimens, which were tested.

The specimens were supplied by the sponsor and the Laboratory was not involved in any of selection or sampling procedures.

The results of these fire tests may be used to directly assess fire hazard, but it should be recognized that a single test method will not provide a full assessment of fire hazard under all fire conditions.

4. Specimen Description

4.1 Supporting Construction

| Separating element | | |
|--------------------|------------|--|
| 1.1 | Item | 64mm (nominal) steel stud frame with two layers of 13mm FR Plasterboard fitted to each side of the frame |
| | Dimensions | Width / Height (W/H): 1200mm x 1200mm |

| Materials | | |
|--------------|---|---|
| 1.3 | Item / Product Name | Steel Stud |
| | Dimensions | Width / Height (W/H): 64mm x 1200mm |
| | Installation | Used to construct studs and nogs in steel frame |
| 1.4 | Item / Product Name | Steel Track |
| | Dimensions | Width / Height (W/H): 64mm x 1200mm |
| | Installation | Used to construct top and bottom plates in steel frame |
| 1.5 | Item / Product Name | Self-Tapping Screw |
| | Dimensions | 10g x 16mm |
| | Installation | Used to construct steel stud frame – secure studs, tracks and nogs together |
| 1.6 | Item / Product Name | FR Plasterboard |
| | Dimensions | Width / Height (W/H): 1200mm x 1200mm |
| | | Thickness (T): 13mm |
| Installation | Two layers applied to each face of the steel frame to create separating element | |
| 1.7 | Item / Product Name | Self Tapping Screw |
| | Dimensions | 41mm |
| | Installation | Used to secure plasterboard to frame |
| 1.8 | Item / Product Name | Plaster |
| | Dimensions | 15L Pail |
| | Installation | Used to cover screw heads on plasterboard |



4.2 Specimens

| Services | | |
|----------|---------------------|---|
| 2.1 | Item / Product Name | AGNI-Box |
| | Dimensions | Width / Height (W/H): 300mm x 151mm (OD) |
| | Construction | The AGNI-Box is constructed using 0.9bmt steel measuring 300mm (width) x 151mm (height) x 200mm (depth). A 50mm recessed steel lip surrounds all four side of both faces of the AGNI-Box and holds two layers of 3.5mm intumescent material that are cut to size. The recessed space was fitted with 50mm thick foam to the both faces of the AGNI-Box. |
| 2.2 | Item / Product Name | 40mm STEEL PIPE |
| | Dimensions | Diameter (ID): 35.8mm |
| | | Diameter (OD): 42.6mm |
| | | Thickness (T): 3.4mm |
| 2.3 | Item / Product Name | 60mm STEEL PIPE |
| | Dimensions | Diameter (ID): 53.6mm |
| | | Diameter (OD): 60.5mm |
| | | Thickness (T): 3.45mm |
| 2.4 | Item / Product Name | 25mm Copper pipe |
| | Dimensions | Diameter (ID): 24.5mm |
| | | Diameter (OD): 27.5mm |
| | | Thickness (T): 1.5mm |
| 2.5 | Item / Product Name | 50mm COPPER PIPE |
| | Dimensions | Diameter (ID): 50.5mm |
| | | Diameter (OD): 53.5mm |
| | | Thickness (T): 1.5mm |
| 2.6 | Item / Product Name | ARMAFLEX insulation 25mm |
| | Dimensions | Diameter (ID): 25mm |
| | | Diameter (OD): 59mm |
| | | Thickness (T): 17mm |
| | Item / Product Name | ARMAFLEX insulation 50mm |



| | | |
|------|---------------------|---|
| 2.7 | Dimensions | Diameter (ID): 50mm |
| | | Diameter (OD): 76mm |
| | | Thickness (T): 13mm |
| 2.8 | Item / Product Name | MULTICORE ALUMINIUM 4 CORE + EARTH CABLE |
| | Cable | Diameter (OD): 28.2mm (nominal) |
| | Conductor | Diameter (OD): 6.9mm (nominal) |
| | Insulation | Diameter (OD): 8.7mm (nominal) |
| 2.9 | Item / Product Name | ALUMINIUM 4 CORE + EARTH CABLE |
| | Cable | Diameter (OD): 29.8mm (nominal) |
| | Conductor | Diameter (OD): 7.4mm (nominal) |
| | Insulation | Diameter (OD): 9.2mm (nominal) |
| 2.10 | Item / Product Name | X-90 ELECTRIC CABLE 0.6/1kV 4CX185 SQMM ALUMINIUM CABLE |
| | Cable | Diameter (OD): 48.9mm |
| | Insulation | Thickness (T): 1.6mm |
| 2.11 | Item / Product Name | 25mm uPVC FLEXIBLE CONDUIT |
| | Dimensions | Diameter (OD): 19.5mm |
| | | Diameter (ID): 25mm |
| | | Thickness (T): 2.75mm |
| 2.12 | Item / Product Name | ELECTRICAL CABLE 450/750V 2C + E |
| | Cable Dimensions | Width x Depth (W/D): 14mm x 6.5mm |
| | Core Dimensions | Overall Diameter (OD): 4mm |
| | | Wire Diameter: 0.85mm |
| | Earth Dimensions | Overall Diameter (OD): 3.2mm |
| | | Wire Diameter: 0.64mm |
| 2.13 | Item / Product Name | 50mm uPVC FLEXIBLE CONDUIT |
| | Dimensions | Diameter (ID): 40mm |
| | | Diameter (OD): 50mm |
| | | Thickness (T): 5mm |
| 2.14 | Item / Product Name | DN50 PVC-U DWV PIPE |
| | Dimensions | Diameter (ID): 50.3mm |

| | | |
|------|---------------------|---|
| | | Diameter (OD): 55.7mm |
| | | Thickness (T): 2.7mm |
| 2.15 | Item / Product Name | SDR11 S 32mm PPR PIPE |
| | Dimensions | Inner Diameter (ID):24.8mm |
| | | Outer Diameter (OD): 32.0mm |
| | | Thickness (T): 3.6mm |
| 2.16 | Item / Product Name | CPVC pipe |
| | Dimensions | Diameter (ID): 31.3mm |
| | | Diameter (OD): 42.5mm |
| | | Thickness (T): 5.6mm |
| 2.17 | Item / Product Name | 2 CORE 0.75mm ² RED FIRE ALARM CABLE |
| | Dimensions | Diameter (OD): 6.5mm |
| 2.18 | Item / Product Name | CAT6 BLUE SOLID CABLE |
| | Dimensions | Diameter (OD): 7.5mm |

Sealants

| | | |
|-----|---------------------|--|
| 3.1 | Item / Product Name | AGNI-Seal |
| | Dimensions | 600mL Sausage |
| | Installation | Used to seal between the edge of the separating element and applied to all specimens |

Fixings

| | | |
|-----|---------------------|--|
| 4.1 | Item / Product Name | Self Tapping Screw |
| | Dimensions | 41mm |
| | Installation | Used to secure AGNI-Box to steel frame |
| 4.2 | Item / Product Name | Self-Tapping Screw |
| | Dimensions | 10g x 16mm |
| | Installation | Used to construct AGNI-Box steel frame |
| 4.3 | Item / Product Name | AGNI-Strap |
| | Dimensions | Width / Length (W/L): 4.6mm x 450mm |
| | Installation | Used to secure AGNI-Shield |

| Intumescent | | |
|--------------------|--------------|--------------------------------------|
| 5.1 | Item | AGNI-Shield |
| | Dimensions | Width / Length (W/L): 300mm x 1000mm |
| | | Thickness (T): 13mm |
| | Installation | Installed around specimens |

| Other | | |
|--------------|---------------------|-------------------------------------|
| 6.1 | Item / Product Name | Steel Stud 64mm 0.55bmt |
| | Dimensions | Width / Height (W/H): 300mm x 151mm |
| | Installation | Used to frame AGNI-Box |

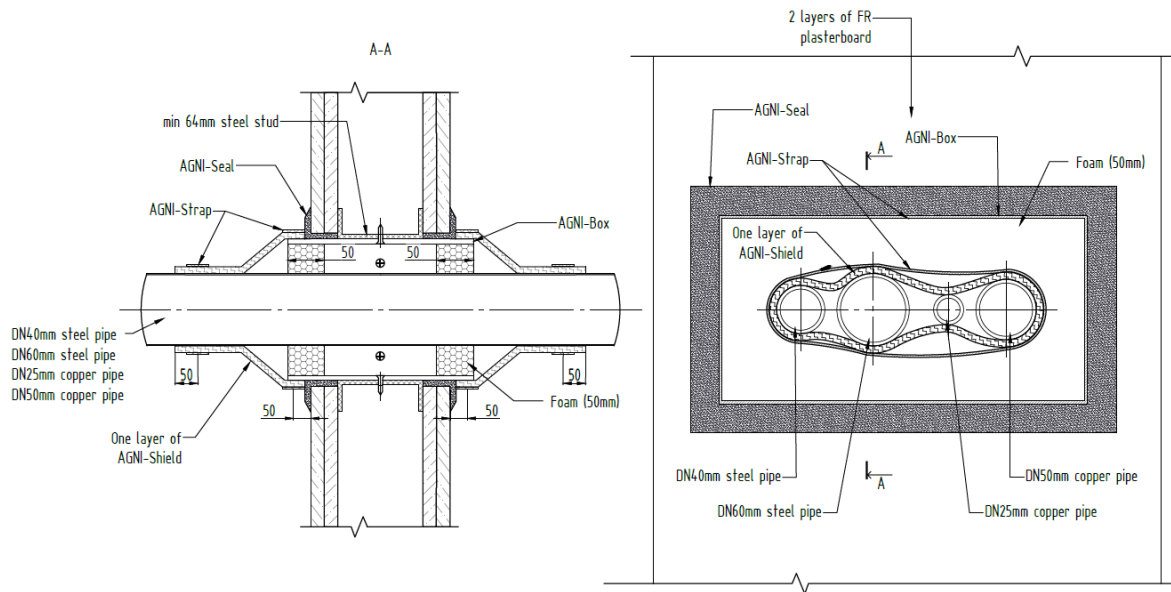
6. Test Results

6.1 Observations during the test

| Time min | Test face | SP# | OBSERVATIONS/REMARKS |
|----------|-----------|------------|--|
| 2 | U | 1a, 3d | Smoke coming from between the services |
| 2 | U | 1, 2, 3, 4 | Smoke coming from between the services and the AGNI-Shield |
| 5 | U | 6 | Smoke coming from between the services and the AGNI-Shield |
| 122 | U | 4 | Naked flame + 10sec - FAIL |
| 122 | | | TEST DISCONTINUED |

NOTE: E - Exposed Face (inside furnace)
U - Unexposed Face (outside furnace)
SE - Separating element

6.2 Specimen 1



Service penetration details

| | |
|-----------------|---|
| Service | AGNI-Box – filled 40mm Steel Pipe + 60mm Steel Pipe + 25mm Copper Pipe + 50mm Copper Pipe |
| Aperture Size | 300mm x 151mm |
| Annular Spacing | Min: 0mm, Max: 5mm |

Local Fire-stopping system

| | |
|--------------------|---|
| Application | Symmetrical – applied to both faces of separating element |
| System description | <ol style="list-style-type: none"> 64mm steel stud frame was constructed (300mm wide x 151mm height) in the centre of the cavity for a tight fit of the AGNI-Box. AGNI-Box was installed and secured to the steel stud frame using 41mm screws on each of the four sides of the AGNI-Box. Services were installed passing through the AGNI-Box and the foam face was cut to fit around these services. A 20mm (nominal) sealant cone of AGNI-Seal was applied around the edge of the AGNI-Box. 300mm wide AGNI-Shield was wrapped around the AGNI-Box with a 100mm overlap. AGNI-Shield was then pushed onto the sealant cone. AGNI-Shield was secured with two AGNI-Straps, 50mm from each end of the AGNI-Shield. |

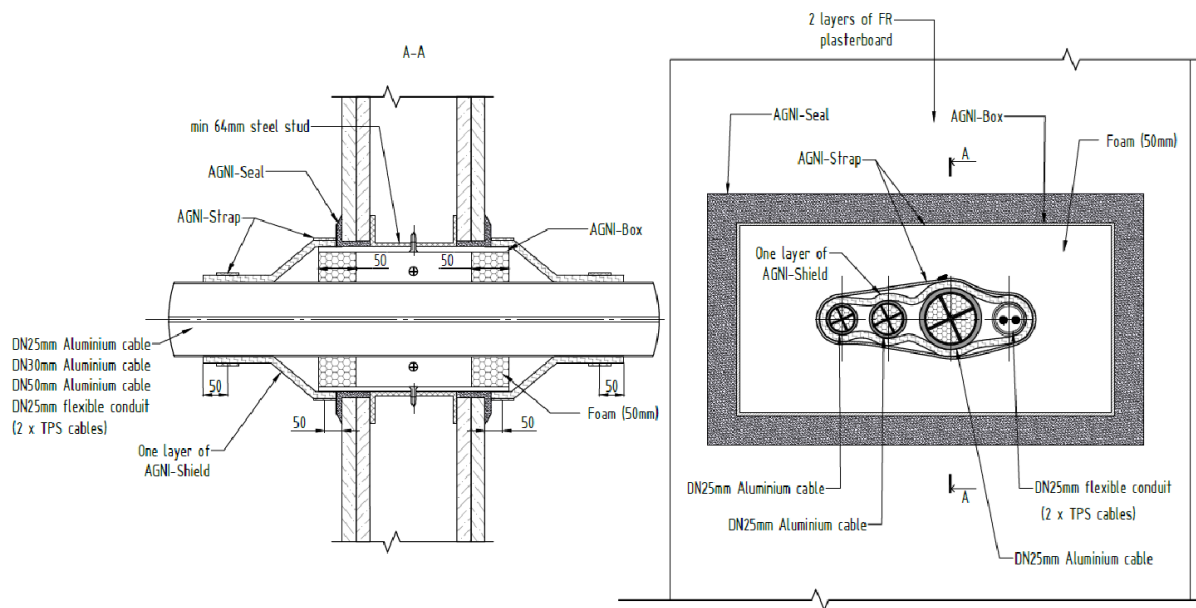
| | |
|--|--|
| | 7. 10mm (nominal) of AGNI-Seal sealant was applied to seal between the AGNI-Shield and the separating element. |
|--|--|

Test results

| | |
|---------------------|---------------------------|
| Structural adequacy | Not applicable |
| Integrity | No failure at 122 minutes |
| Insulation | No failure at 122 minutes |



6.3 Specimen 2



| Service penetration details | |
|-----------------------------|--|
| Service | AGNI-Box – filled 25mm Aluminium Cable + 30mm Aluminium Cable + 50mm Aluminium Cable + 25mm Flexible Conduit (filled 2 x TPS Cables) |
| Aperture Size | 300mm x 151mm |
| Annular Spacing | Min: 0mm, Max: 5mm |

| Local Fire-stopping system | |
|----------------------------|---|
| Application | Symmetrical – applied to both faces of separating element |
| System description | <ol style="list-style-type: none"> 64mm steel stud frame was constructed (300mm wide x 151mm height) in the centre of the cavity for a tight fit of the AGNI-Box. AGNI-Box was installed and secured to the steel stud frame using 41mm screws on each of the four sides of the AGNI-Box. Services were installed passing through the AGNI-Box and the foam face was cut to fit around these services. A 20mm (nominal) sealant cone of AGNI-Seal was applied around the edge of the AGNI-Box. 300mm wide AGNI-Shield was wrapped around the AGNI-Box with a 100mm overlap. AGNI-Shield was then pushed onto the sealant cone. |

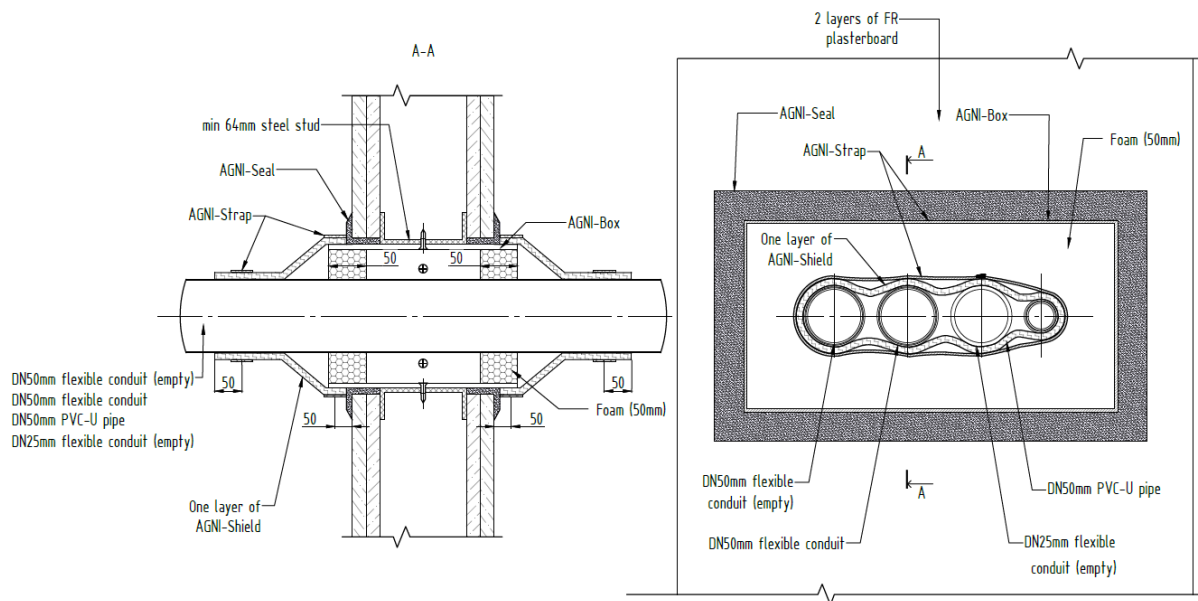
| | |
|--|--|
| | <p>6. AGNI-Shield was secured with two AGNI-Straps, 50mm from each end of the AGNI-Shield.</p> <p>7. 10mm (nominal) of AGNI-Seal sealant was applied to seal between the AGNI-Shield and the separating element.</p> |
|--|--|

Test results

| | |
|---------------------|---------------------------|
| Structural adequacy | Not applicable |
| Integrity | No failure at 122 minutes |
| Insulation | No failure at 122 minutes |



6.4 Specimen 3



| Service penetration details | |
|-----------------------------|--|
| Service | AGNI-Box – filled 50mm Flexible Conduit (empty) + 50mm Flexible Conduit (filled 6 x TPS Cables) + 50mm uPVC Pipe + 25mm Flexible Conduit (empty) |
| Aperture Size | 300mm x 151mm |
| Annular Spacing | Min: 0mm, Max: 5mm |

| Local Fire-stopping system | |
|----------------------------|---|
| Application | Symmetrical – applied to both faces of separating element |
| System description | <ol style="list-style-type: none"> 64mm steel stud frame was constructed (300mm wide x 151mm height) in the centre of the cavity for a tight fit of the AGNI-Box. AGNI-Box was installed and secured to the steel stud frame using 41mm screws on each of the four sides of the AGNI-Box. Services were installed passing through the AGNI-Box and the foam face was cut to fit around these services. A 20mm (nominal) sealant cone of AGNI-Seal was applied around the edge of the AGNI-Box. 300mm wide AGNI-Shield was wrapped around the AGNI-Box with a 100mm overlap. AGNI-Shield was then pushed onto the sealant cone. |

| | |
|--|--|
| | <p>6. AGNI-Shield was secured with two AGNI-Straps, 50mm from each end of the AGNI-Shield.</p> <p>7. 10mm (nominal) of AGNI-Seal sealant was applied to seal between the AGNI-Shield and the separating element.</p> |
|--|--|

Test results

| | |
|---------------------|---------------------------|
| Structural adequacy | Not applicable |
| Integrity | No failure at 122 minutes |
| Insulation | No failure at 122 minutes |



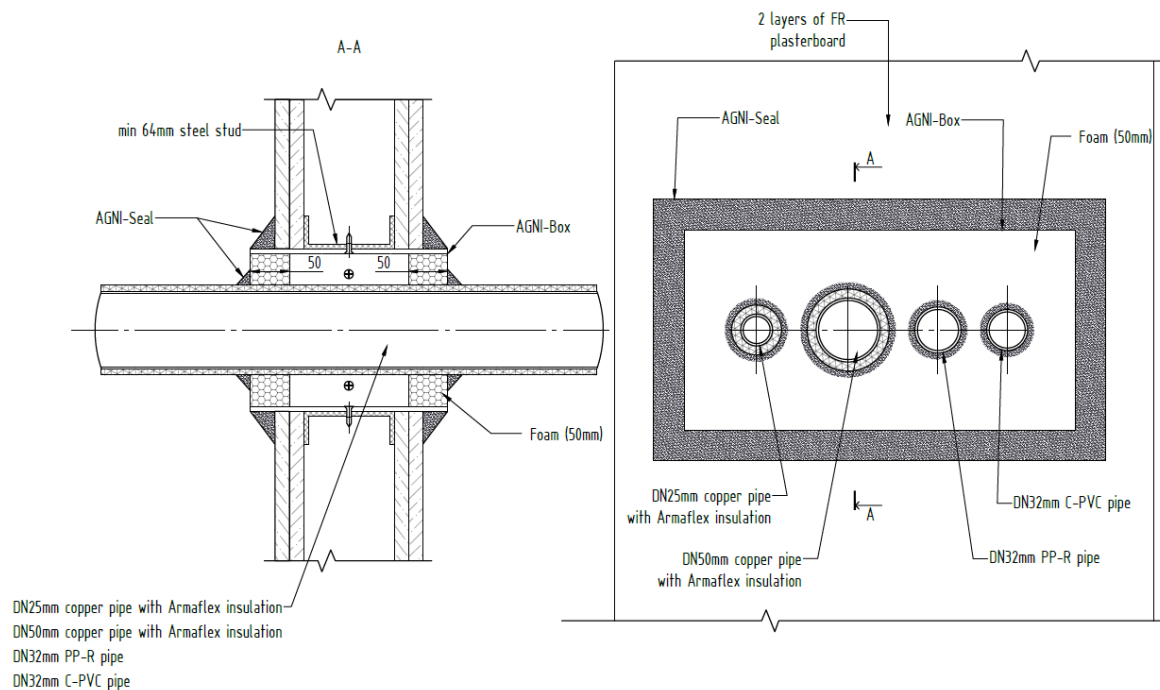
| | |
|--|---|
| | <ol style="list-style-type: none"> 5. 300mm wide AGNI-Shield was wrapped around the AGNI-Box with a 100mm overlap. AGNI-Shield was then pushed onto the sealant cone. 6. AGNI-Shield was secured with two AGNI-Straps, 50mm from each end of the AGNI-Shield. 7. 10mm (nominal) of AGNI-Seal sealant was applied to seal between the AGNI-Shield and the separating element. |
|--|---|

Test results

| | |
|---------------------|----------------|
| Structural adequacy | Not applicable |
| Integrity | 122 minutes |
| Insulation | 122 minutes |



6.6 Specimen 5



Service penetration details

| | |
|-----------------|--|
| Service | AGNI-Box – filled 25mm Copper Pipe (with Armaflex insulation) + 50mm Copper Pipe (with Armaflex insulation) + 32mm PPR Green Pipe + 32mm CPVC Pipe |
| Aperture Size | 300mm x 151mm |
| Annular Spacing | Min: 0mm, Max: 5mm |

Local Fire-stopping system

| | |
|--------------------|--|
| Application | Symmetrical – applied to both faces of separating element |
| System description | <ol style="list-style-type: none"> 1. 64mm steel stud frame was constructed (300mm wide x 151mm height) in the centre of the cavity for a tight fit of the AGNI-Box. 2. The AGNI-Box was installed and secured to the steel stud frame using 41mm screws on each of the four sides of the AGNI-Box. 3. The services were installed passing through the AGNI-Box and the foam face was cut to fit around these services. 4. A 40mm AGNI-Seal sealant cone was applied around all outside edges of the AGNI-Box. |

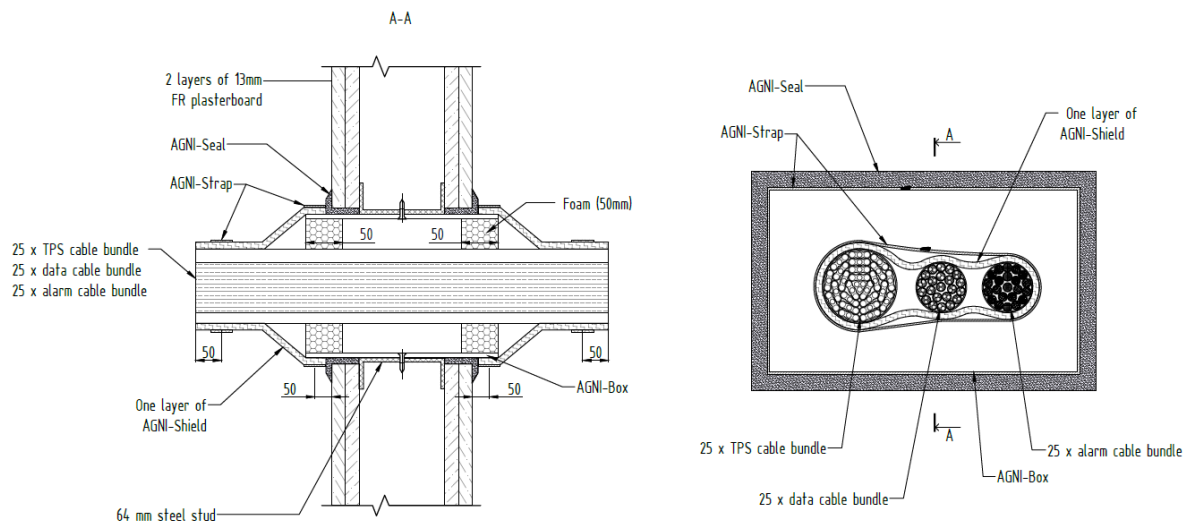
| | |
|--|---|
| | 5. 10mm (nominal) AGNI-Seal sealant was applied to seal between the services and the foam face of the AGNI-Box. |
|--|---|

Test results

| | |
|---------------------|---------------------------|
| Structural adequacy | Not applicable |
| Integrity | No failure at 122 minutes |
| Insulation | 96 minutes |



6.7 Specimen 6



| Service penetration details | |
|-----------------------------|--|
| Service | AGNI-Box – filled TPS Cable Bundle (25) + Data Cable Bundle (25) + Alarm Cable Bundle (25) |
| Aperture Size | 300mm x 151mm |
| Annular Spacing | Min: 0mm, Max: 5mm |

| Local Fire-stopping system | |
|----------------------------|---|
| Application | Symmetrical – applied to both faces of separating element |
| System description | <ol style="list-style-type: none"> 64mm steel stud frame was constructed (300mm wide x 151mm height) in the centre of the cavity for a tight fit of the AGNI-Box. AGNI-Box was installed and secured to the steel stud frame using 41mm screws on each of the four sides of the AGNI-Box. Services were installed passing through the AGNI-Box and the foam face was cut to fit around these services. A 20mm (nominal) sealant cone of AGNI-Seal was applied around the edge of the AGNI-Box. 300mm wide AGNI-Shield was wrapped around the AGNI-Box with a 100mm overlap. AGNI-Shield was then pushed onto the sealant cone. AGNI-Shield was secured with two AGNI-Straps, 50mm from each end of the AGNI-Shield. |

| | |
|--|--|
| | 7. 10mm (nominal) of AGNI-Seal sealant was applied to seal between the AGNI-Shield and the separating element. |
|--|--|

Test results

| | |
|---------------------|---------------------------|
| Structural adequacy | Not applicable |
| Integrity | No failure at 122 minutes |
| Insulation | No failure at 122 minutes |



7. Photos

7.1 Photos before the test

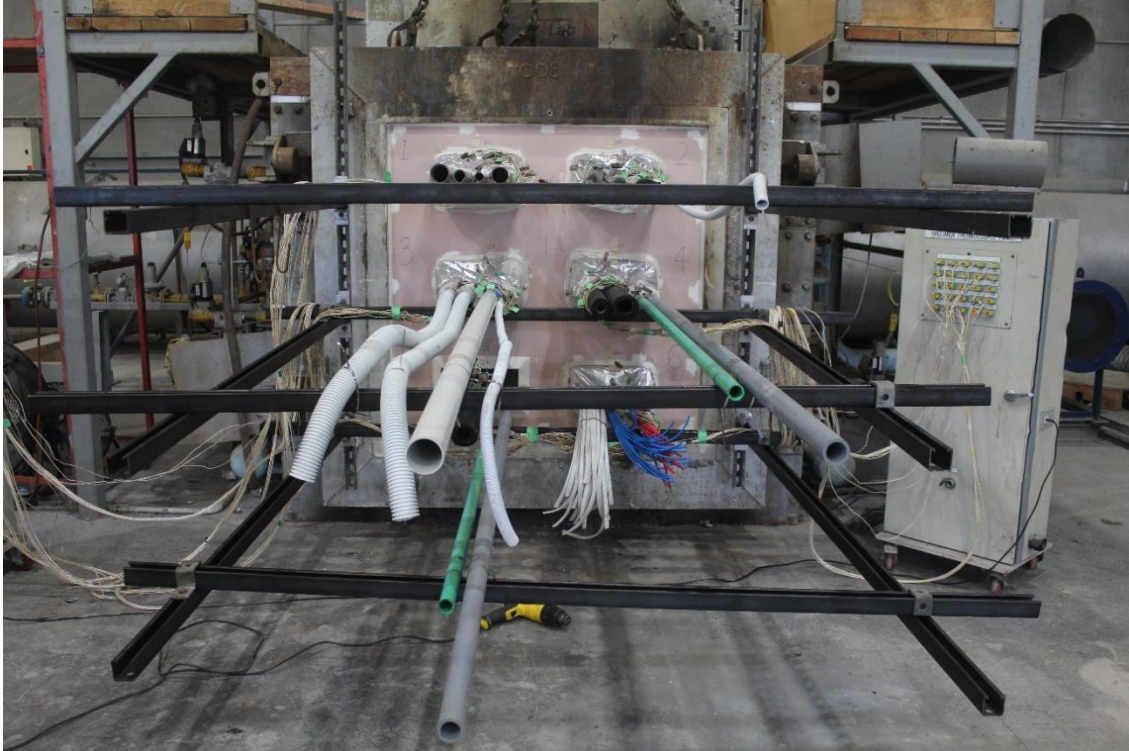


Figure 1 – Unexposed face prior to test commencement



Figure 2 – Exposed face prior to test commencement