# Regulatory Information Report

# PF24102

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

| | |
|---|---|
| Client: | Agnitek Pty Ltd |
| Test method: | AS1530.4-2014 |
| Report Date: | 15/11/2024 |
| Test number: | PF24102 |

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# Table of Contents

## 1.1 Document revision schedule

| Revision # | Date | Description |
|---|---|---|
| **1** | 15/11/2024 | Issued to Client |

## 1.2 Signatories

| Report | Name | Signature | Date |
|---|---|---|---|
| **Prepared by:** | Alexey Kokorin |  | 15/11/2024 |
| **Authorised by:** | Andrew Bain<br>(Authorized signatory) |  | 15/11/2024 |

ACCREDITED
TESTING LABORATORY

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

## 2. Report Summary

Service penetrations were tested through one layer of 13mm FR Plasterboard on each side of a 64mm (nominal) steel frame. Services were capped on the fire side.

| Sp # | Service | Penetration side | Actual Integrity (min) | Actual Insulation (min) | FRL |
|---|---|---|---|---|---|
| 1 | 2 x PE Pair Coils + 2 x TPS Cables | Both | 66NF | 66NF | -/60/60 |
| 2 | 2 x PE Pair Coils + 2 x TPS Cables | Fire side only | 66NF | 66NF | -/60/60 |
| 3 | 2 x PE Pair Coils + 2 x TPS Cables | Non-fire side only | 66NF | 66NF | -/60/60 |
| 4 | PE Pair Coil + TPS Cable | Both | 66NF | 66NF | -/60/60 |
| 5 | PE Pair Coil + TPS Cable | Fire side | 66NF | 65 | -/60/60 |
| 6 | PE Pair Coil + TPS Cable | Non-fire side only | 66NF | 66NF | -/60/60 |
| 7 | 25mm Aluminium Cable | Both | 66NF | 66NF | -/60/60 |
| 8 | 30mm Aluminium Cable | Both | 66NF | 66 | -/60/60 |
| 9 | 52mm Aluminium Cable | Both | 66NF | 39 | -/60/30 |
| 10 | 16mm PEX/AL/PEX Pipe | Both | 66NF | 65 | -/60/60 |
| 11 | 12mm Threaded Rod | Both | 66NF | 66NF | -/60/60 |

**NF – No failure during the test**

# 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.

**Testing date:**

21/10/2024

**Installation completion date:**

13/10/2024

**Termination of The Test:**

The test was discontinued at 66 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 PF24102. 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 one layer of 13mm FR Plasterboard fitted to each side of the frame |
| | Dimensions | Width / Height (W/H): 1200mm × 1200mm |

## 4.2 Specimens

| Services | | |
|---|---|---|
| 2.1 | Item / Product Name | POLYETHYLENE PAIR COIL INSUALTED REFRIGERATION TUBE - ARDENT ANNEALED COPPER TUBE |
| | Copper Tube 1 | Overall Dimensions (OD): 19.05mm |
| | | Wall Thickness (T): 1.14mm |
| | Copper Tube 2 | Overall Dimensions (OD): 9.52mm |
| | | Wall Thickness (T): 0.81mm |
| | Insulation | Thickness (T): 16mm |
| | Material | Polyethylene |
| 2.2 | 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 |
| 2.3 | Item / Product Name | MULTICORE ALUMINIUM 4 CORE + EARTH CABLE |
| | Cable | Diameter (OD): 26.4mm (nominal) |
| | Conductor | Diameter (OD): 6.9mm (nominal) |

| | | |
|---|---|---|
| 2.4 | Item / Product Name | MULTICORE ALUMINIUM 4 CORE + EARTH CABLE |
| | Cable | Diameter (OD): 30.5mm (nominal) |
| | Conductor | Diameter (OD): 7.4mm (nominal) |
| | | Conductor fine wire EC1350 aluminium, Class 5, to IEC 60228 and AS/NZS 1125 |
| 2.5 | Item / Product Name | X-90 ELECTRIC CABLE 0.6/1kV 4CX185 SQMM ALUMINIUM CABLE |
| | Cable | Diameter (OD): 50.8mm |
| | | Extruded Polyvinyl Chloride Compound |
| | Conductor | Aluminium 1350, compacted Stranded, Sector-shaped, AS / NZS 1125 |
| 2.6 | Item / Product Name | DN16 PE/AL/PEX NATURAL GAS-LPG |
| | Dimensions | Diameter (OD): 16mm |
| | | Diameter (ID): 11mm |
| | | Thickness (T): 2.5mm |
| 2.7 | Item / Product Name | M12 steel threaded rod |
| | Dimensions | Diameter (OD): 12.07mm |

| **Sealants** | | |
|---|---|---|
| 3.1 | Item / Product Name | AGNI-Seal |
| | Dimensions | 600mL Sausage |
| | Installation | Used to seal around edge of separating element and 30mm cone around services (specimens 7-9 & 11). Used to seal around specimen 10. |
| 3.2 | Item / Product Name | AGNI-Black |
| | Dimensions | 300mL Cartridge |
| | Installation | Used to seal between AGNI-Wrap and services |

| **Intumescent** | | |
|---|---|---|
| 3.1 | Item / Product Name | AGNI-Wrap 50 |
| | Dimensions | 50mm wide |
| | Installation | Specimens 1-6 |

# 5. Test Results

## 6.1 Observations during the test

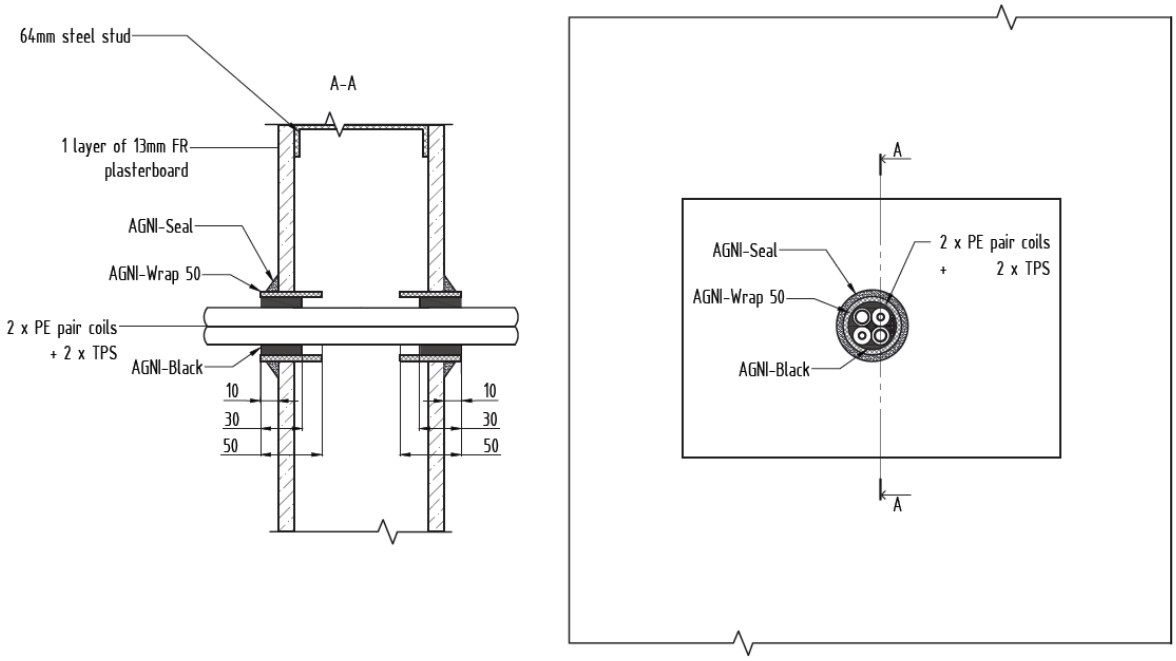
| Time min | Test face | SP# | OBSERVATIONS/REMARKS |
|---|---|---|---|
| 47 | U | 8, 9 | Sealant beginning to expand |
| 58 | U | 9 | Cable insulation is starting to melt |
| 63 | U | ALL | Discolouration of separating element |
| **65** | | | **TEST DISCONTINUED** |

**NOTE: E – Exposed Face (inside furnace)**

**U – Unexposed Face (outside furnace)**

**SE – Separating element**

## 6.2 Specimen 1

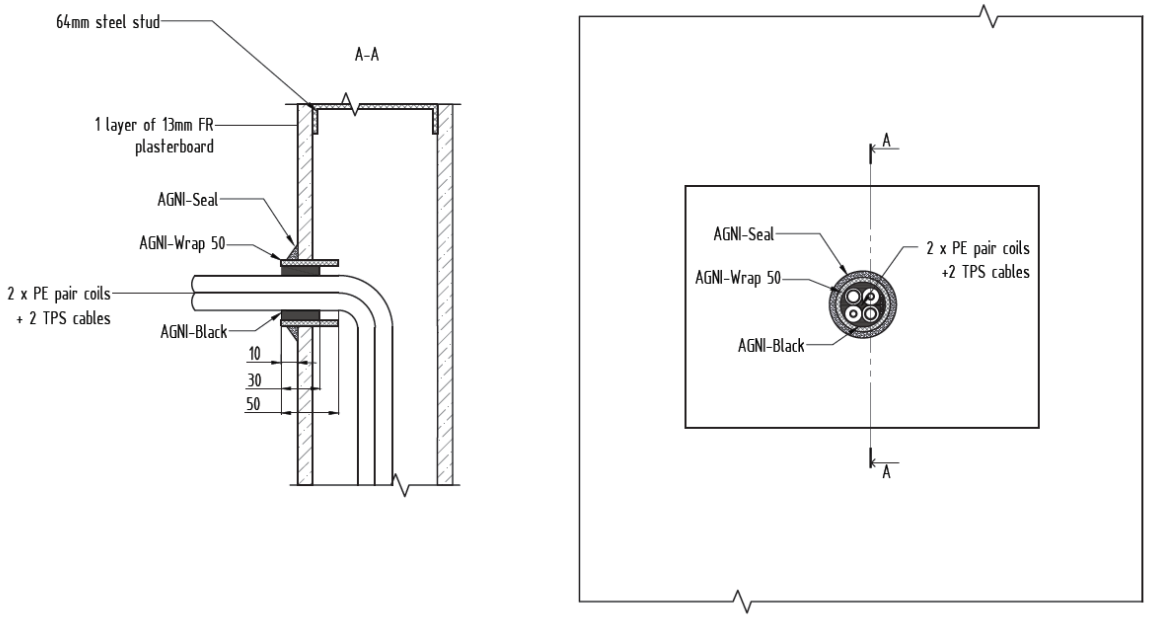



| **Service penetration details** | |
|---|---|
| Service | 2 x PE PAIR COILS + 2 x TPS CABLES |
| Installation | Installed passing through the separating element |
| Aperture Size | 85mm |
| Annular Spacing | Min: 3.5mm, Max: 22mm |

| **Local Fire-stopping system** | |
|---|---|
| Application | Symmetrical – applied to both faces of the separating element |
| System description | One revolution of 50mm wide AGNI-Wrap inserted into the aperture leaving 10mm past the separating element. 30mm (nominal) deep AGNI-Black applied in the annular gap between the AGNI-Wrap and the services. |

| **Test results** | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | No failure at 66 minutes |

## 6.3 Specimen 2

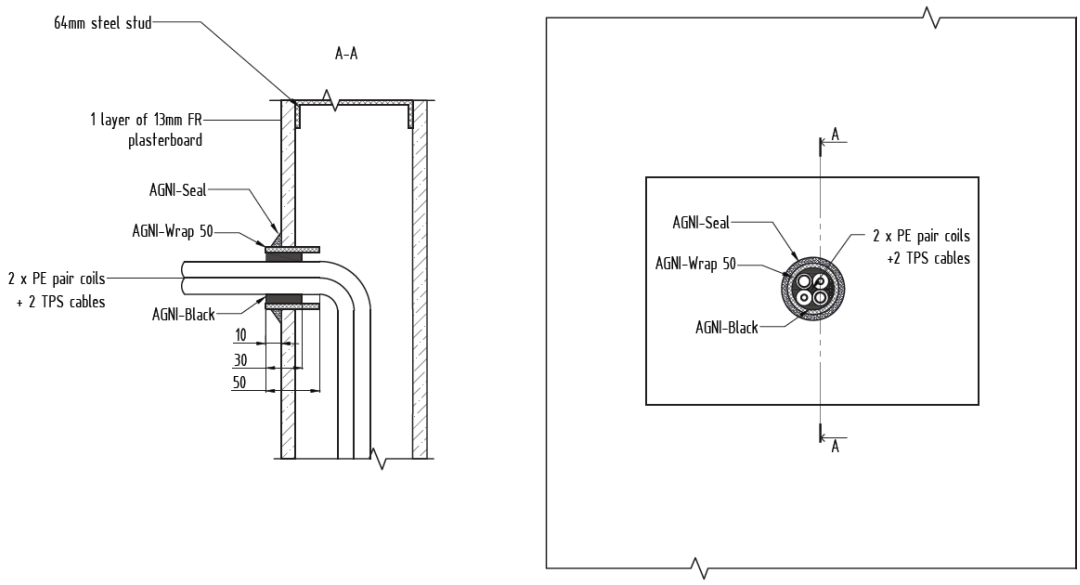



| **Service penetration details** | |
|---|---|
| Service | 2 x PE PAIR COILS + 2 x TPS CABLES |
| Installation | Installed on exposed side only |
| Aperture Size | 85mm |
| Annular Spacing | Min: 3.5mm, Max: 18.5mm |

| **Local Fire-stopping system** | |
|---|---|
| Application | Asymmetrical – applied to the exposed face of the separating element |
| System description | One revolution of 50mm wide AGNI-Wrap inserted into the aperture leaving 10mm past the separating element. 30mm (nominal) deep AGNI-Black applied in the annular gap between the AGNI-Wrap and the services. |

| **Test results** | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | No failure at 66 minutes |

## 6.4 Specimen 3

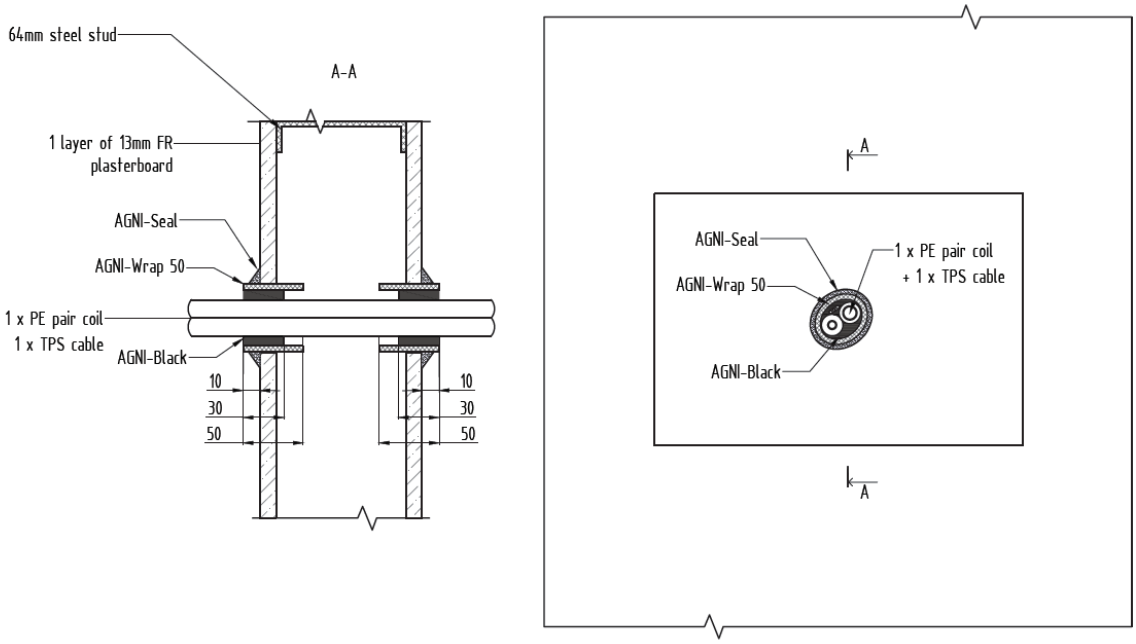



| Service penetration details | |
|---|---|
| Service | 2 x PE PAIR COILS + 2 x TPS CABLES |
| Service Support | Unexposed side: Multistrut at 280mm |
| Installation | Installed on unexposed side only |
| Aperture Size | 85mm |
| Annular Spacing | Min: 3.5mm, Max: 19mm |

| Local Fire-stopping system | |
|---|---|
| Application | Asymmetrical – applied to the unexposed face of the separating element |
| System description | One revolution of 50mm wide AGNI-Wrap inserted into the aperture leaving 10mm past the separating element. 30mm (nominal) deep AGNI-Black applied in the annular gap between the AGNI-Wrap and the services. |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | No failure at 66 minutes |

## 6.5 Specimen 4

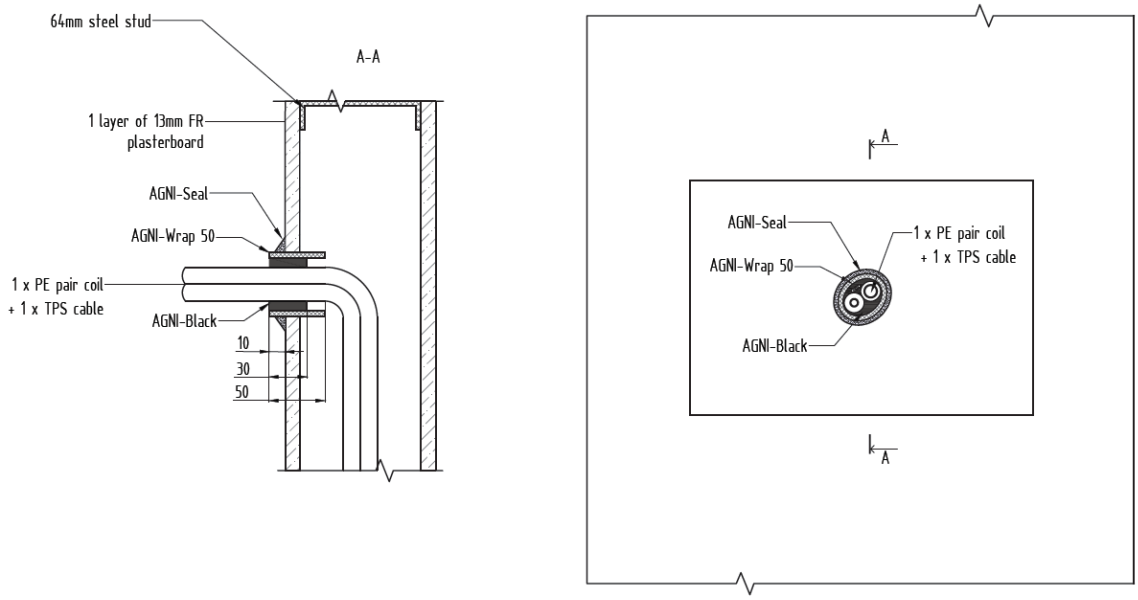



| **Service penetration details** | |
|---|---|
| Service | 1 x PE PAIR COIL + 1 x TPS CABLE |
| Installation | Installed passing through the separating element |
| Aperture Size | 76mm wide x 57mm high oval |
| Annular Spacing | Min: 3.5mm, Max: 30mm |

| **Local Fire-stopping system** | |
|---|---|
| Application | Symmetrical – applied to both faces of the separating element |
| System description | One revolution of 50mm wide AGNI-Wrap inserted into the aperture leaving 10mm past the separating element. 30mm (nominal) deep AGNI-Black applied in the annular gap between the AGNI-Wrap and the services. |

| **Test results** | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | No failure at 66 minutes |

## 6.6 Specimen 5

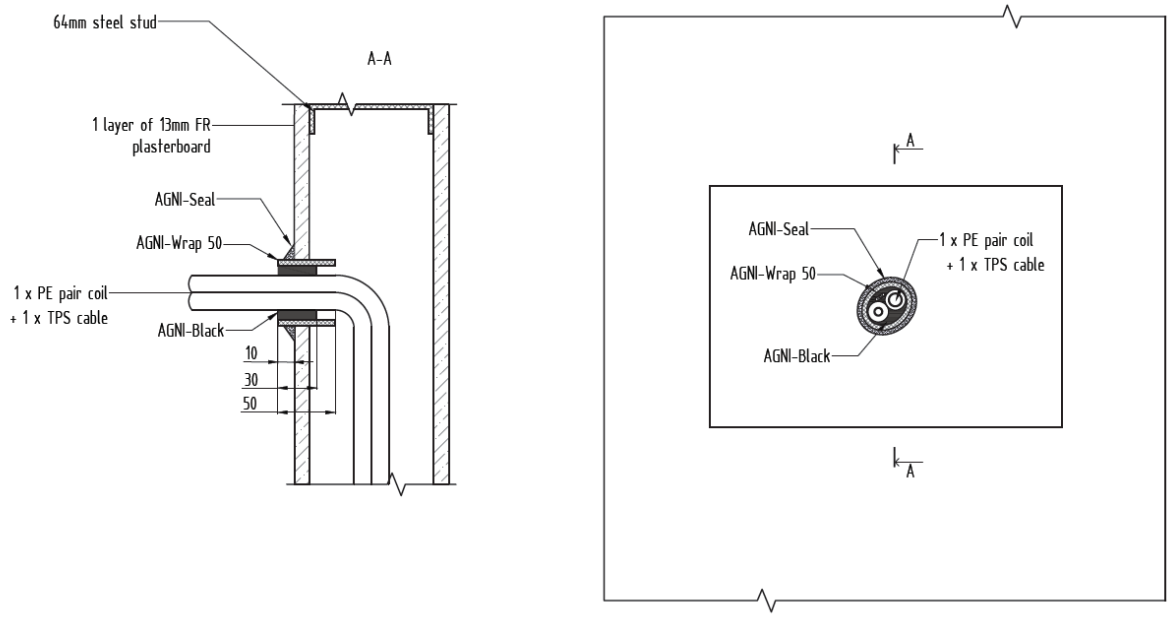



| **Service penetration details** | |
|---|---|
| Service | 1 x PE PAIR COIL + 1 x TPS CABLE |
| Installation | Installed on exposed side only |
| Aperture Size | 76mm wide x 57mm high oval |
| Annular Spacing | Min: 3.5mm, Max: 19.5mm |

| **Local Fire-stopping system** | |
|---|---|
| Application | Asymmetrical – applied to the exposed face of the separating element |
| System description | One revolution of 50mm wide AGNI-Wrap inserted into the aperture leaving 10mm past the separating element. 30mm (nominal) deep AGNI-Black applied in the annular gap between the AGNI-Wrap and the services. |

| **Test results** | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | 65 minutes |

## 6.7 Specimen 6

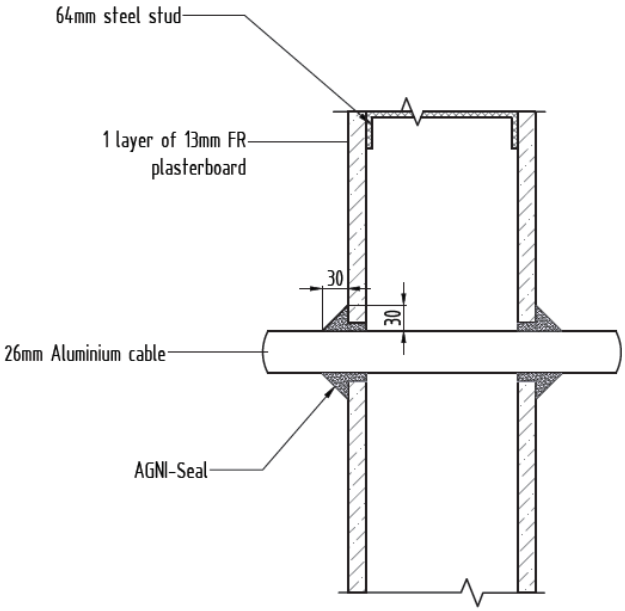



| Service penetration details | |
|---|---|
| Service | 1 x PE PAIR COIL + 1 x TPS CABLE |
| Installation | Installed on unexposed side only |
| Aperture Size | 76mm wide x 57mm high oval |
| Annular Spacing | Min: 3.5mm, Max: 18.5mm |

| Local Fire-stopping system | |
|---|---|
| Application | Asymmetrical – applied to the unexposed face of the separating element |
| System description | One revolution of 50mm wide AGNI-Wrap inserted into the aperture leaving 10mm past the separating element. 30mm (nominal) deep AGNI-Black applied in the annular gap between the AGNI-Wrap and the services. |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | No failure at 66 minutes |

## 6.8 Specimen 7



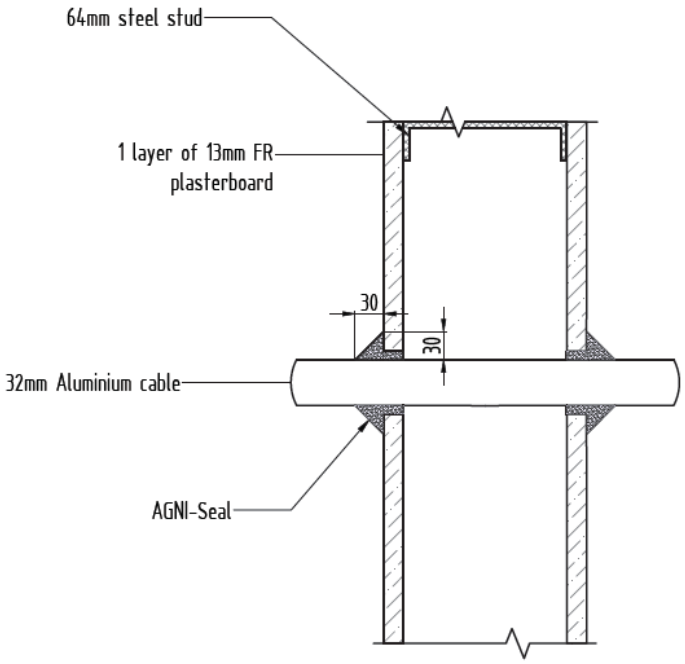

| Service penetration details | |
|---|---|
| Service | ALUMINIUM 4 CORE + EARTH CABLE |
| Installation | Installed passing through the separating element |
| Aperture Size | 35mm |
| Annular Spacing | Min: 1.5mm, Max: 7.1mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – applied to both faces of the separating element |
| System description | Annular gap between the service and wall is sealed with AGNI-Seal. A 30mm x 30mm AGNI-Seal sealant cone applied to seal the gap between cable and separating element. |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | No failure at 66 minutes |

Figure 17 – Specimen 7 thermocouple temperature rise readings

## 6.9 Specimen 8

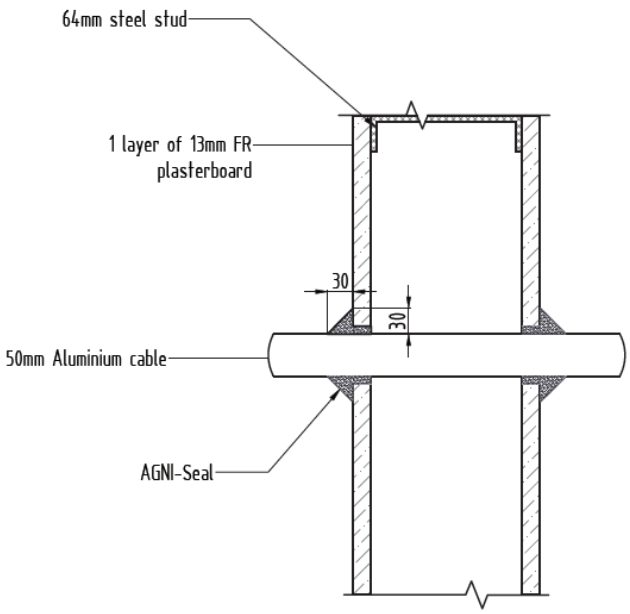



| Service penetration details | |
|---|---|
| Service | ALUMINIUM 4 CORE + EARTH CABLE |
| Installation | Installed passing through the separating element |
| Aperture Size | 40mm |
| Annular Spacing | Min: 2mm, Max: 7.5mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – applied to both faces of the separating element |
| System description | Annular gap between the service and wall is sealed with AGNI-Seal. A 30mm x 30mm AGNI-Seal sealant cone applied to seal the gap between cable and separating element. |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | 66 minutes |

## 6.10 Specimen 9

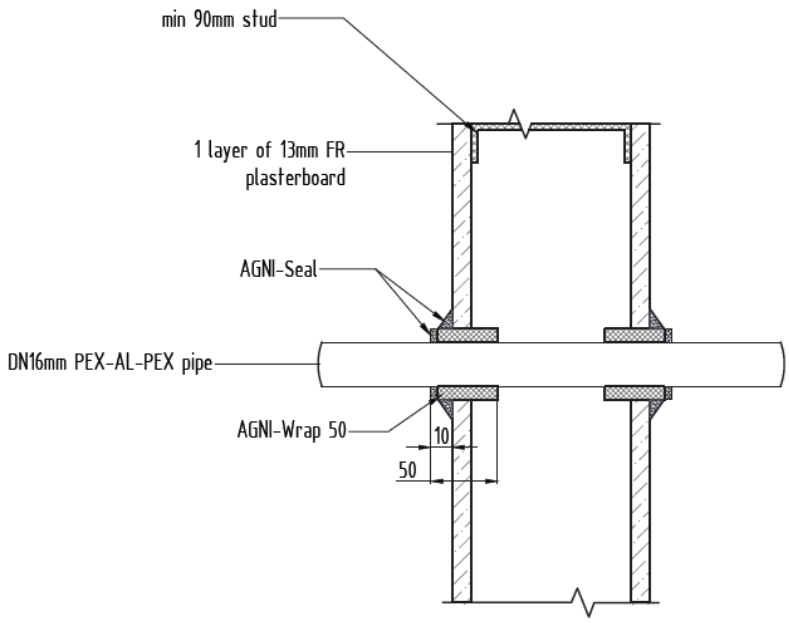



| Service penetration details | |
|---|---|
| Service | ALUMINIUM 4 CORE CABLE |
| Installation | Installed passing through the separating element |
| Aperture Size | 60mm |
| Annular Spacing | Min: 1mm, Max: 8.2mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – applied to both faces of the separating element |
| System description | Annular gap between the service and wall is sealed with AGNI-Seal. A 30mm x 30mm AGNI-Seal sealant cone applied to seal the gap between cable and separating element. |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | 39 minutes |

## 6.11 Specimen 10

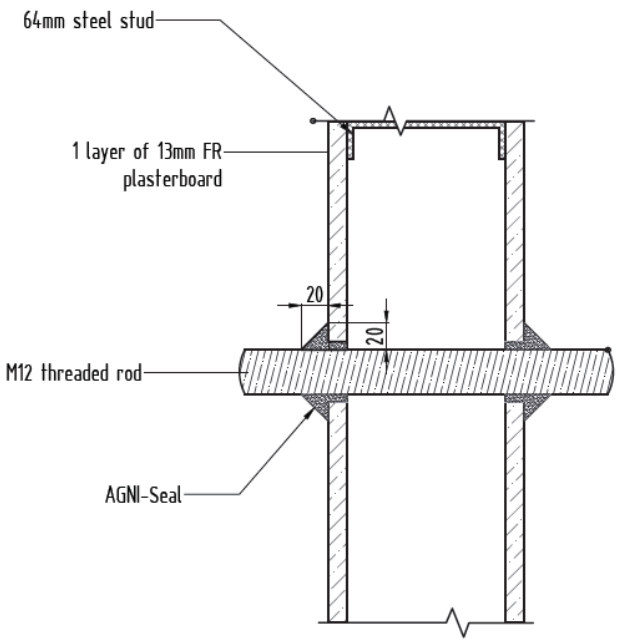



| Service penetration details | |
|---|---|
| Service | DN16 PE/AL/PEX |
| Installation | Installed passing through the separating element |
| Aperture Size | 25mm |
| Annular Spacing | Min: 3.5mm, Max: 5.5mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – applied to both faces of the separating element |
| System description | AGNI-Wrap was inserted into the aperture finishing 10mm past the separating element. AGNI-Seal was applied, 10mm (nominal) deep into the gap between the pipe and the AGNI-wrap. 5mm (nominal) AGNI-Seal was used to seal between the AGNI-Wrap and the separating element. |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | 65 minutes |

## 6.12 Specimen 11




| Service penetration details | |
|---|---|
| Service | 12mm THREADED ROD |
| Installation | Installed passing through the separating element |
| Aperture Size | 25mm |
| Annular Spacing | Min: 5.4mm, Max: 6.5mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – applied to both faces of the separating element |
| System description | Annular gap between the service and wall is sealed with AGNI-Seal. A 20mm x 20mm AGNI-Seal sealant cone applied to seal the gap between cable and separating element. |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 66 minutes |
| Insulation | No failure at 66 minutes |

# 6. Photos

## 7.1 Photos before the test

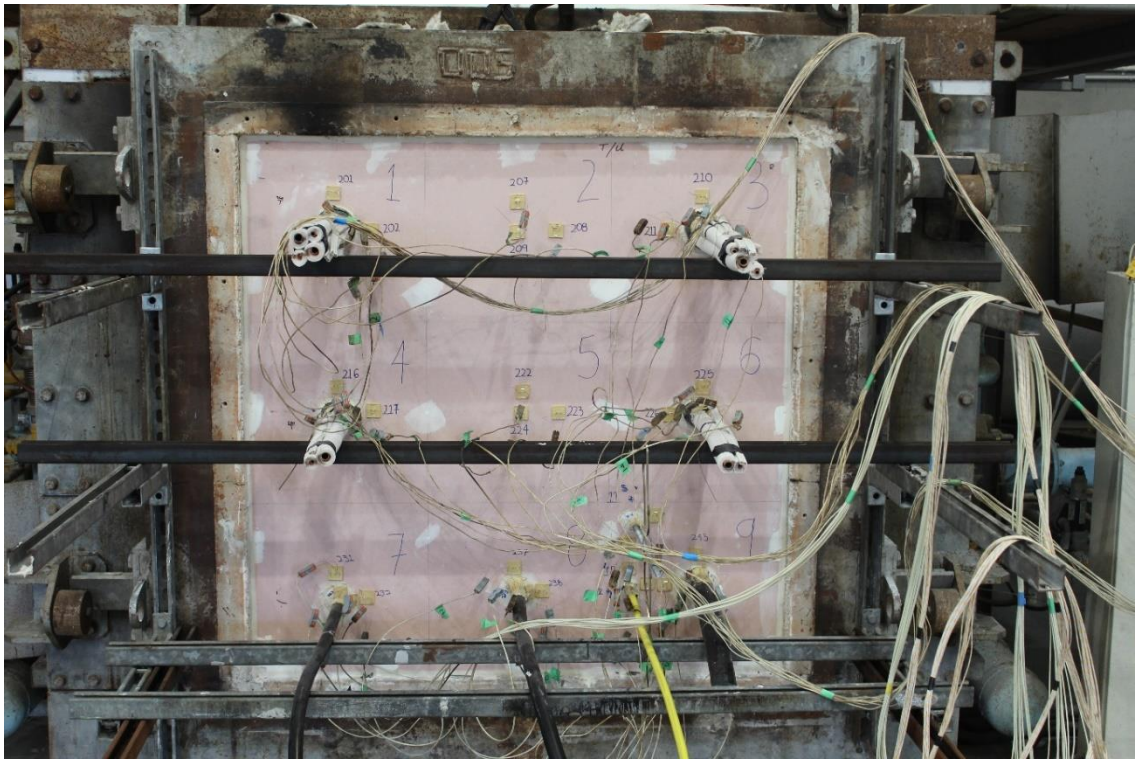


Figure 1 – Unexposed face prior to test commencement

Figure 2 – Exposed face prior to test commencement