# Regulatory Information Report

## RIRF24082

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

| | |
|---|---|
| Client: | Agnitek Pty Ltd |
| Test method: | AS1530.4-2014 |
| Report Date: | 27/09/2024 |
| Test number: | PF24082 |

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# Table of Contents

## 1.1 Document revision schedule

| Revision # | Date | Description |
|---|---|---|
| **1** | 27/09/2024 | Issued to Client |

## 1.2 Signatories

| Report | Name | Signature | Date |
|---|---|---|---|
| **Prepared by:** | Alexey Kokorin |  | 27/09/2024 |
| **Authorised by:** | Andrew Bain<br>(Authorized signatory) |  | 27/09/2024 |

ACCREDITED
TESTING LABORATORY

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

## 2. Report Summary

Service penetration was tested passing through one layer of 13mm FR Plasterboard on each side of a 92mm (nominal) steel frame.

| Specimen # | Service | Actual Integrity (min) | Actual Insulation (min) | FRL |
|---|---|---|---|---|
| 2 | DN32 Pex/Al/Pex Pipe | 63NF | 63NF | -/60/60 |
| 3 | Kelox Plus Insulated Pipe | 63NF | 58 | -/60/45 |
| 4 | D2 Cable Tray | 63NF | 63NF | -/60/60 |
| 5 | D1 Cable Tray | 63NF | 61 | -/60/60 |
| 6 | 21mm OD X-90 electric cable | 63NF | 61 | -/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

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 services were capped on the fire side.

**Testing date:**

27/08/2024

**Installation completion date:**

15/08/2024

**Termination of The Test:**

The test was discontinued at 63 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 PF24082. 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 | 92mm (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 |

| Materials | | |
|---|---|---|
| 1.3 | Item / Product Name | Steel Stud |
| | Dimensions | Width / Height (W/H): 92mm x 1200mm, 0.5BMT |
| | Installation | Used to construct studs in steel frame and nogs |
| 1.4 | Item / Product Name | Steel Track |
| | Dimensions | Width / Height (W/H): 92mm x 1200mm, 0.5BMT |
| | 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 | One layer applied to each face of the frame to create separating element |
| 1.7 | Item / Product Name | Self Tapping Screw |
| | Dimensions | 41mm |
| | Installation | Used to secure GIB Fyreline to frame |
| 1.8 | Item / Product Name | Plaster |
| | Dimensions | 5L Pail |
| | Installation | Used to cover screw heads on plasterboard |

| | | |
|---|---|---|
| 1.10 | Item / Product Name | AGNI-Seal |
| | Dimensions | 600mL Sausage |
| | Installation | 2mm – 9mm bead of sealant between the GIB Fyreline and refractory frame on both faces |

## 4.2 Specimens

| **Services** | | |
|---|---|---|
| 2.2 | Item / Product Name | 32mm PE/AL/PEX |
| | Dimensions | Diameter (OD): 32.3mm |
| | | Diameter (ID): 25.26mm |
| | | Thickness (T): 3.18mm |
| 2.3 | Item / Product Name | KM133 KELOX Plus CEW Insulated Pipe |
| | Dimensions | Diameter (OD): 50mm |
| | | Diameter (ID): 30mm |
| | | Insulation Thickness (T): 15mm nominal |
| 2.4 | Item / Product Name | D2 Cable Tray |
| | Dimensions | Height (Overall): 117mm |
| | | Width (Overall): 321mm |
| | | Depth (Overall): 1353mm |
| 2.5 | Item / Product Name | D1 Cable Tray |
| | Dimensions | Height (Overall): 59mm |
| | | Width (Overall): 444mm |
| | | Depth (Overall): 1209mm |
| 2.6 | Item / Product Name | Electra Cable 2023 X-90 0.6/1 kV CU |
| | Dimensions | Diameter (OD): 20.5mm |
| | Cable location | 1 cable in cavity 6<br>8 cables in D1 Cable Tray (D) |
| 2.7 | Item / Product Name | GARLAND UTPL350HF 240AWG 50PR LSZH CAT2 Cable |
| | Dimensions | Diameter (OD): 16.5mm |
| | | Wire (OD): 0.5mm |

| | | |
|---|---|---|
| | | Cable: 100 wires, 50 pairs |
| | Cable location | 60 cables in D2 Cable Tray |
| 2.8 | Item / Product Name | XLPE single-core 0.6/1 kV CU |
| | Dimensions | Diameter (OD): 41.4mm |
| | | Thickness (T): 2.4mm (insulation) |
| | Cable location | 1 cable in D1 Cable Tray (A) |
| 2.9 | Item / Product Name | APEC 2023 X-90 Electra Cable 0.6/1 kV 3C+E CU |
| | Dimensions | Diameter (OD): 53.8mm |
| | | Thickness (T): 0.7mm (insulation) |
| | Cable location | 1 cable in D1 Cable Tray (B) |
| 2.10 | Item / Product Name | Electra Cable 2018 V-90 Electric Cable 0.6/1 kV 6mm² x 3C+E CU |
| | Dimensions | Diameter (OD): 16mm |
| | Cable location | 3 cables in D1 Cable Tray (C) |

| **Sealants** | | |
|---|---|---|
| 3.1 | Item / Product Name | AGNI-Seal |
| | Dimensions | 600mL Sausage |
| | Installation | Used to seal around specimens / services and to create sealant cones |

| **Fixings** | | |
|---|---|---|
| 4.2 | Item / Product Name | Self Tapping Screw |
| | Dimensions | 41mm |
| | Installation | Used to secure AGNI-Box to steel frame |
| 4.3 | Item / Product Name | Self-Tapping Screw |
| | Dimensions | 10g x 16mm |
| | Installation | Used to construct AGNI-Box steel frame |

| **Intumescent** |
|---|

| | | |
|---|---|---|
| 5.1 | Item | AGNI-Sleeve |
| | Dimensions | Width (W): 168mm |
| | | Thickness (T): 3mm |
| | Installation | Installed around specimen two and three, passed through separating element |

| **Other** | | |
|---|---|---|
| 6.1 | Item | AGNI-Coat |
| | Size | 5L pail |
| | Installation | Used to seal cut edges of AGNI-Board prior to installation |
| 6.2 | Item | AGNI-Board |
| | | Thickness (T): 50mm |
| | Installation | Installed around cable trays – 2 layers finished flush with separating element on both sides |
| 6.3 | Item / Product Name | Rondo Steel Stud |
| | Dimensions | Width / Height (W/H): 92mm x 1200mm |
| | Installation | Used to create framing for AGNI-Boxes, used for studs in cavity four and five. |

# 5. Test Results

## 5.1 Observations during the test

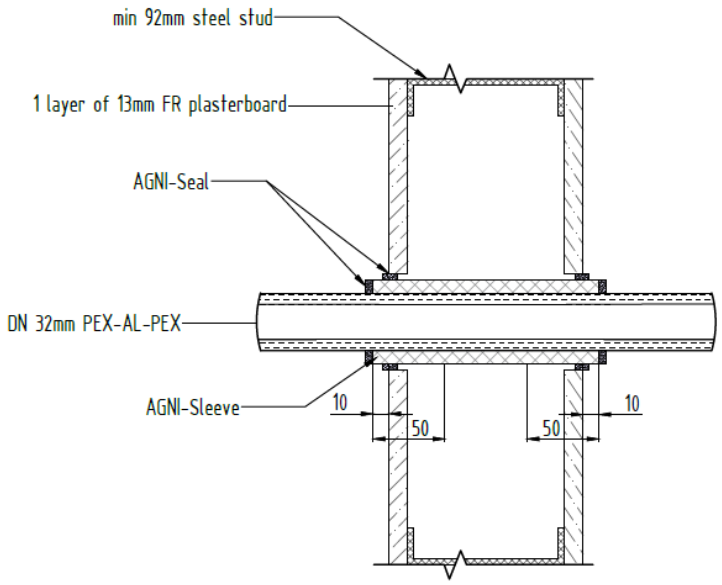
| Time min | Test face | SP# | OBSERVATIONS/REMARKS |
|---|---|---|---|
| 2 | U | 4, 5 | Smoke from cables |
| 11 | U | 3 | Smoke coming from between SE and service |
| 12 | E | 2, 3 | Pipes fallen away from SE |
| 12 | U | 2 | Smoke coming from between SE and pipe |
| 18 | U | 4 | Discolouration of cables |
| 24 | U | 2, 3 | AGNI-Wrap moving into aperture |
| 24 | U | 2 | Discolouration of pipe |
| 26 | U | 2 | Cotton pad test – PASS |
| 27 | U | 6 | Sealant expanding |
| 42 | U | 2, 3 | AGNI-Wrap expanding |
| 48 | U | 4, 5 | Sealant expanding |
| 49 | U | 2 | Cotton pad test – PASS |
| **63** | | | **TEST DISCONTINUED** |

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

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

**SE – Separating element**

## 5.2 Specimen 2

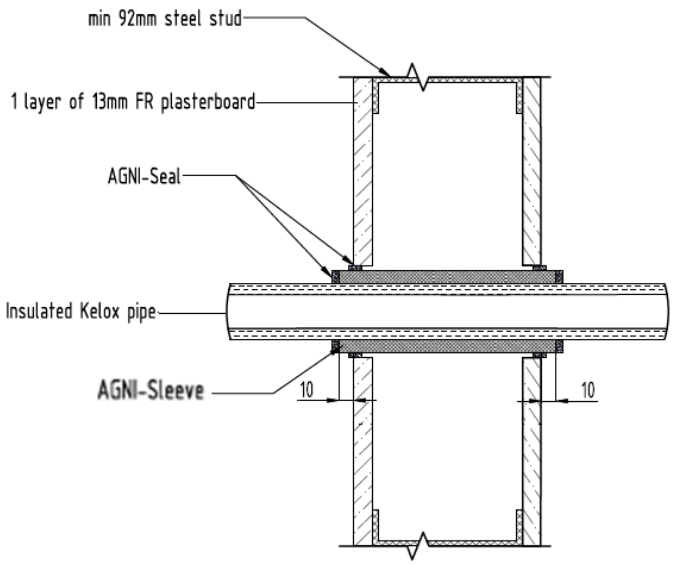



| Service penetration details | |
|---|---|
| Service | 32DN KemPex Gas Pipe PN14 PE/AL/PEX |
| Aperture Size | 46.5mm |
| Annular Spacing | Min: 5mm, Max: 9mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – installed passing through separating element |
| System description | The following procedure was followed:<br>1. AGNI-Sleeve was cut to 138mm wide.<br>2. One revolution of the 138mm wide AGNI-Sleeve was measured and cut to fit the aperture<br>3. The AGNI-Sleeve was passed through the separating element finishing 10mm past separating element on both faces<br>4. A bead of AGNI-Seal (5mm nominal) was applied between separating element and AGNI-Sleeve |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 63 minutes |
| Insulation | No failure at 63 minutes |

## 5.3 Specimen 3

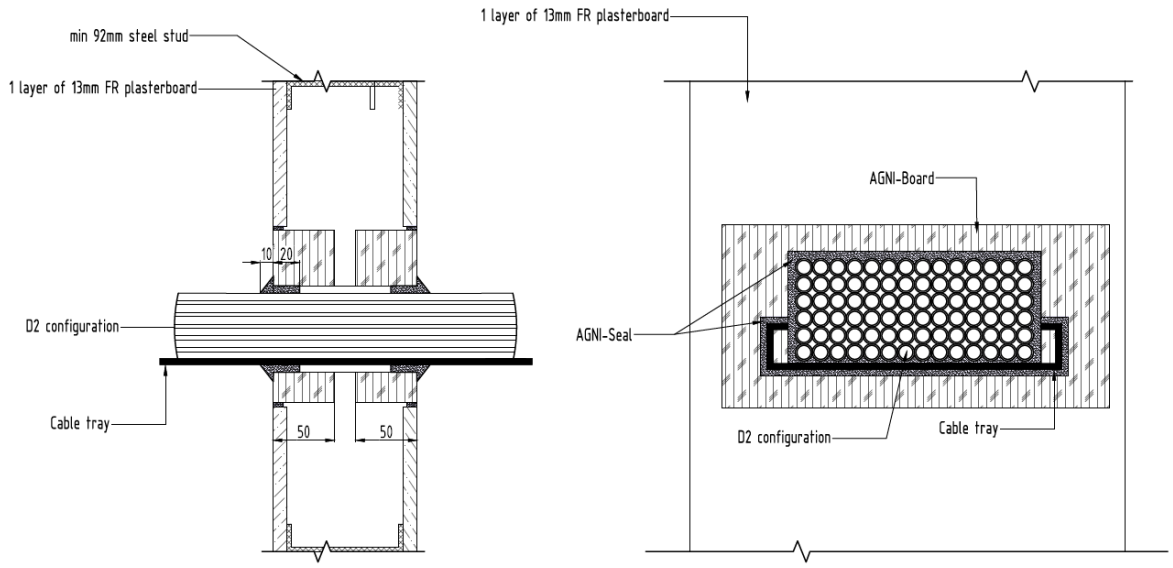



| Service penetration details | |
|---|---|
| Service | KM133 KELOX Plus CEW Insulated Pipe |
| Aperture Diameter | 60.5mm |
| Annular Spacing | Min: 4.0mm, Max: 6.5mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – installed passing through separating element |
| System description | The following procedure was followed:<br>1. AGNI-Sleeve was cut to 138mm wide.<br>2. One revolution of the 138m wide AGNI-Sleeve was measured and cut to fit the aperture<br>3. The AGNI-Sleeve was passed through the separating element finishing 10mm past separating element on both faces<br>4. A bead of AGNI-Seal (5mm nominal) was applied between separating element and AGNI-Sleeve |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 63 minutes |
| Insulation | 58 minutes |

## 5.4 Specimen 4



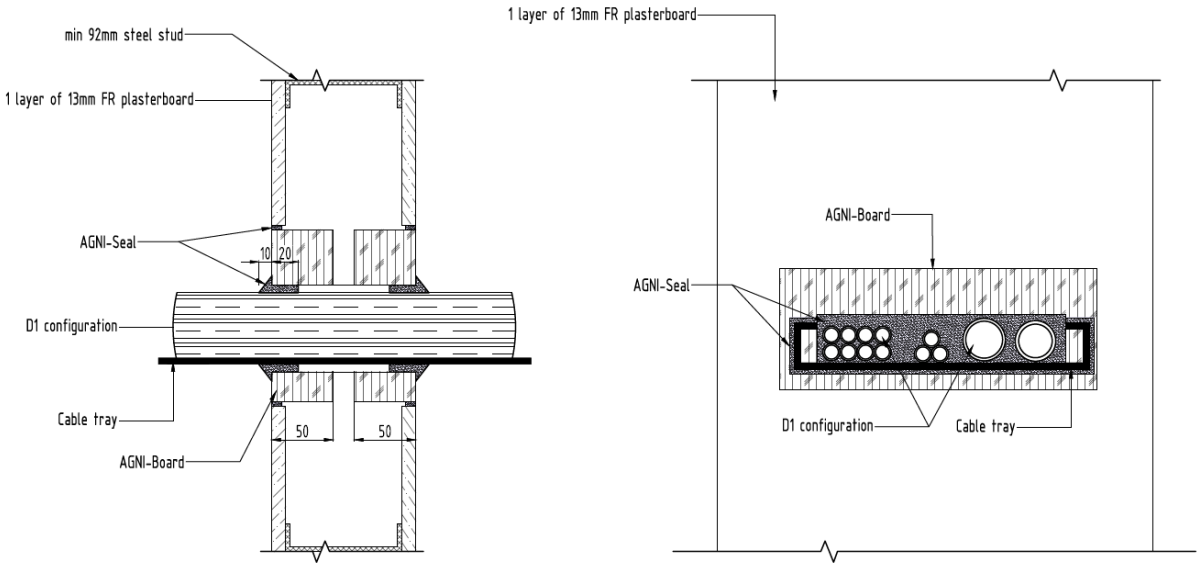

| **Service penetration details** | |
|---|---|
| Service | D2 Cable configuration |
| Aperture Diameter | 418mm x 208mm |
| Annular Spacing | Min: 2mm, Max: 8mm |

| **Local Fire-stopping system** | |
|---|---|
| Application | Symmetrical – applied to both faces of separating element |
| System description | The following procedure was followed:<br>1. A 92mm steel stud was installed 200mm from the refractory frame (right side of cavity)<br>2. AGNI-Board was cut to fit in the aperture, around the D2 Cable Configuration (2-5mm gap between the AGNI-Board and the services)<br>3. All AGNI-Board edges were painted with AGNI-Coat<br>4. AGNI-Board was inserted into aperture around the D2 Cable Configuration<br>5. AGNI-Seal was applied between the separating element and the AGNI-Board (10mm nominal)<br>6. AGNI-Seal was applied to fill the gaps between the AGNI-Board and the D2 Cable Configuration (20mm nominal) |

| | |
|---|---|
| | 7. AGNI-Seal was applied to all joins in the AGNI-Board (10mm nominal) |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 63 minutes |
| Insulation | No failure at 63 minutes |

## 5.5 Specimen 5



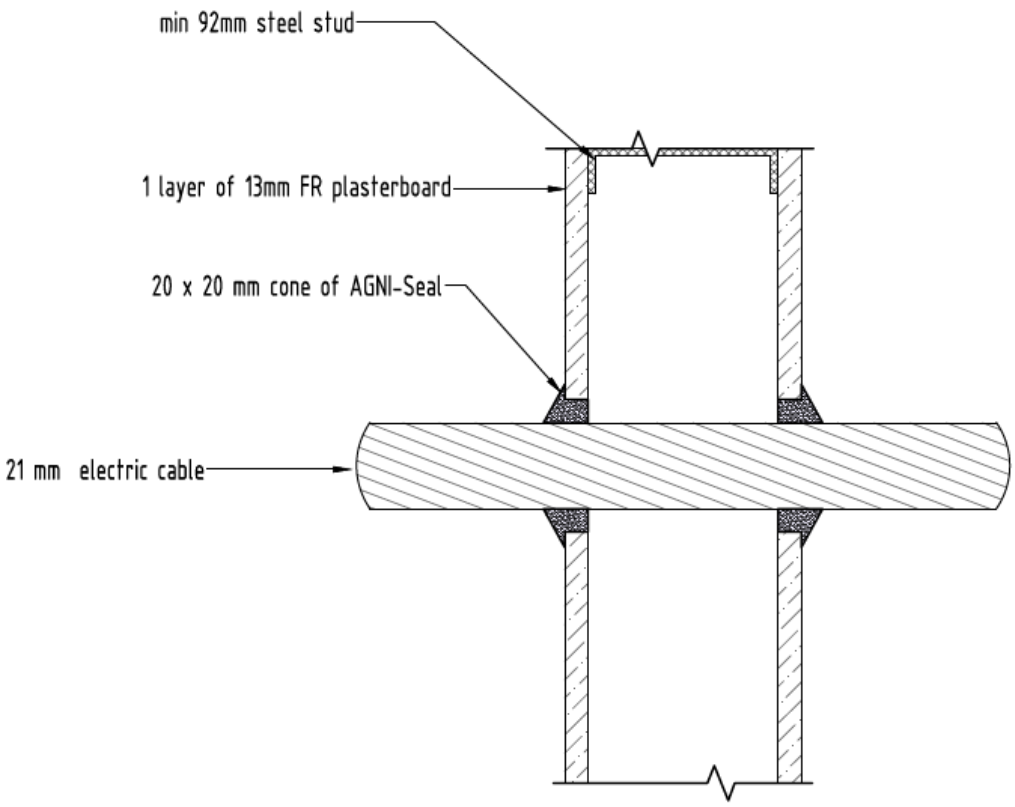

| **Service penetration details** | |
|---|---|
| Service | D1 Cable configuration |
| Aperture Diameter | 600mm x 157mm |
| Annular Spacing | Min: 1mm, Max: 10mm |

| **Local Fire-stopping system** | |
|---|---|
| Application | Symmetrical – applied to both faces of separating element |
| System description | The following procedure was followed:<br>1. A 92mm steel stud was installed 200mm from the refractory frame (left side of the cavity)<br>2. AGNI-Board was cut to fit in the aperture, around the D1 Cable configuration (2-5mm gap between the AGNI-Board and the services)<br>3. All AGNI-Board edges were painted with AGNI-Coat<br>4. AGNI-Board was inserted into aperture around the D1 Cable configuration<br>5. AGNI-Seal was applied between the separating element and the AGNI-Board (10mm nominal)<br>6. AGNI-Seal was applied to fill the gaps between the AGNI-Board and the D1 Cable configuration (20mm nominal) |

| | |
|---|---|
| | 7. AGNI-Seal was applied to all joins in the AGNI-Board (10mm nominal) |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 63 minutes |
| Insulation | 61 minutes |

## 5.6 Specimen 6




| Service penetration details | |
|---|---|
| Service | 21mm OD Electra Cable 2023 X-90 0.6/1 kV 3C+E CU |
| Aperture Diameter | 33.5mm |
| Annular Spacing | Min: 4mm, Max: 9mm |

| Local Fire-stopping system | |
|---|---|
| Application | Symmetrical – applied to both faces of separating element |
| System description | 1. AGNI-Seal was applied around the cable to create a 20mm x 20mm sealant cone, sealing between the cable and the separating element |

| Test results | |
|---|---|
| Structural adequacy | Not applicable |
| Integrity | No failure at 63 minutes |
| Insulation | 61 minutes |

# 6. Photos

## 6.1 Photos before the test

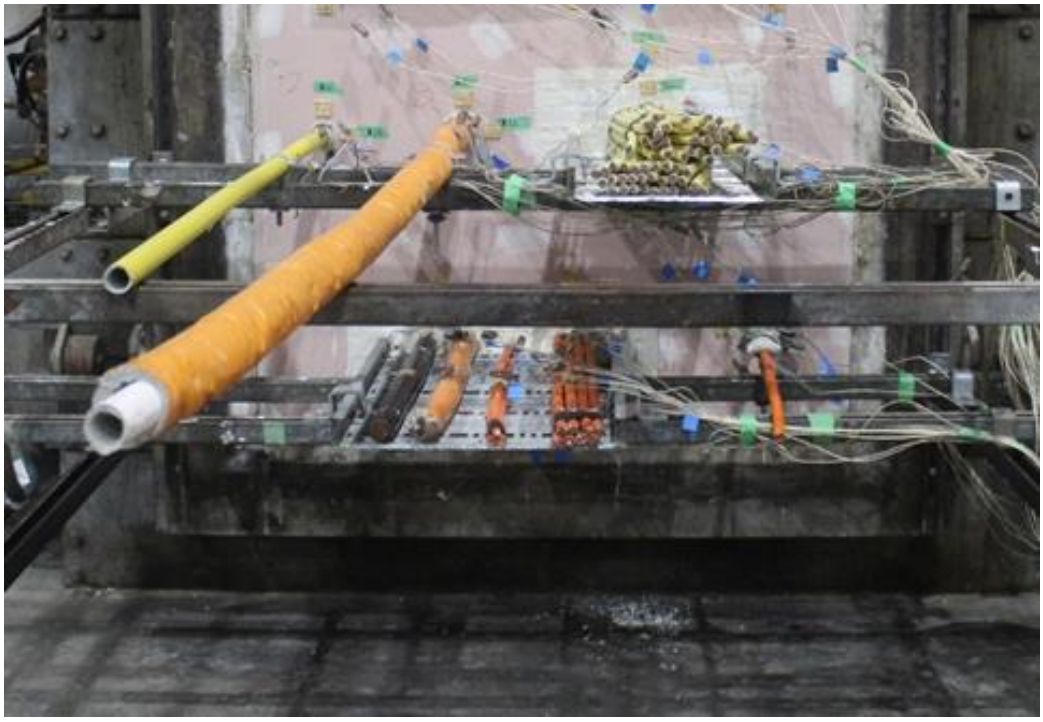


Figure 1 – Unexposed face prior to test commencement


Figure 2 – Exposed face prior to test commencement