Fire Testing Laboratory

Regulatory Information Report

RIRF25003

Fire resistance test for penetration through a horizontal separating element

Client:	**Agnitek Pty Ltd**
Test method:	AS1530.4-2014
Report Date:	23/04/2025
Test number:	PF25003

Passive Fire Inspection and Test Services Limited
1/113 Pavilion Drive, Mangere, Auckland 2022, New Zealand
w: firelab.co.nz
e: tests@firelab.co.nz

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1.1 Document revision schedule

Revision #	Date	Description
1	23/04/2025	Issued to Client

1.2 Signatories

Report	Name	Signature	Date
Prepared by:	Alexey Kokorin		23/04/2025
Authorised by:	Andrew Bain (Authorized signatory)		23/04/2025

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 passing through a ceiling system with one layer of 16mm and one layer of 13mm fire rated plasterboard on the fire side (ceiling) only.

Specimen #	Service	Actual Integrity (min)	Actual Insulation (min)	FRL	RISF (min)
1	4 x TPS Cables	66NF	66NF	-/60/60	66NF
2	4 x Alarm Cables	66NF	66NF	-/60/60	66NF
3	4 x Data Cables	66NF	66NF	-/60/60	66NF
4	60mm Steel Pipe	66NF	45	-/60/45	63
5	25mm Copper Pipe	66NF	40	-/60/30	66NF
6	50mm Copper Pipe	66NF	35	-/60/30	65
7	100mm Copper Pipe	66NF	47	-/60/45	64
8	25mm Conduit (empty)	61	61	-/60/60	66
9	25mm Conduit (filled)	66NF	66NF	-/60/60	66NF

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

FTSL - 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. Services were capped om fire side only.

Testing date:

17/03/2025

Installation completion date:

04/03/2025

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.

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	Ceiling system with one layer of 16mm and one layer of 13mm fire rated plasterboard on the fire side (ceiling) only
	Dimensions	Width x Height: 1200mm × 1200mm

Materials		
1.2	Item	Steel Stud 0.50bmt
	Dimensions	Width x Height: 92mm x 1200mm
	Installation	Used to construct framing
1.3	Item	Steel Track 0.50bmt
	Dimensions	Width x Height: 92mm x 1200mm
	Installation	Used to construct framing
1.4	Item	Self-Tapping Screw
	Dimensions	10g x 16mm
	Installation	Used to construct steel stud frame
1.5	Item	FR Plasterboard
	Dimensions	Width x Height: 1200mm x 1200mm
		Thickness: 16mm
	Installation	First layer applied to the fire side of separating element
1.6	Item	FR Plasterboard
	Dimensions	Width x Height: 1200mm x 1200mm
		Thickness: 13mm
	Installation	Second layer applied to the fire side of separating element
1.7	Item	Self Tapping Screw
	Dimensions	41mm
	Installation	Used to secure GIB Fyreline to frame

1.8	Item / Product Name	AGNI-Seal
	Installation	Used to seal around edge of separating element to the refractory frame

4.2 Specimens

Services		
2.1	Item	TPS Electrical Cable 450/750V 2C + E
	Cable	Width x Depth: 12mm x 5.5mm
		Sheath Material: 3V-90 PVC
		Sheath Thickness: 0.92mm
	Core	Number of Cores: 2 (circular shaped)
		Overall Diameter: 3.3mm
		Conductor Diameter: 0.64mm
		Conductor Material: Copper
		Insulation Material: V-90 PVC
		Insulation Thickness: 0.6mm
	Earth	Overall Diameter: 3.2mm
		Wire Diameter: 0.64mm
2.2	Item	Fire Alarm Cable
	Cable	Overall Diameter: 6.95mm
		Sheath Material: 5V-90 PVC
		Sheath Thickness: 1.2mm
	Core	Number of Cores: 2 (circular shaped)
		Overall Diameter: 2.6mm
		Conductor Diameter: 0.24mm
		Conductor Material: Copper
		Insulation Material: V-90 PVC
		Insulation Thickness: 0.65mm
2.3	Item	CAT6 Blue Solid Cable
	Cable	Overall Diameter: 6.3mm

		Sheath Material: PVC
		Sheath Thickness: 0.5mm
	Core	Overall Diameter: 2.6mm
		Conductor Diameter: 0.24mm
		Conductor Material: Copper
		Insulation Material: V-90 PVC
		Insulation Thickness: 0.65mm
2.4	Item	65mm Steel Pipe
	Dimensions	Diameter (OD): 76.0mm
		Diameter (ID): 69.1mm
		Wall Thickness (T): 3.45mm
2.5	Item	25mm Copper Pipe
	Dimensions	Diameter (OD): 27.5mm
		Diameter (ID): 24.5mm
		Wall Thickness (T): 1.5mm
2.6	Item	50mm Copper Pipe
	Dimensions	Diameter (OD): 53.2mm
		Diameter (ID): 49.4mm
		Wall Thickness (T): 1.9mm
2.7	Item	100mm Copper Pipe
	Dimensions	Diameter (OD): 104.8mm
		Diameter (ID): 101.5mm
		Wall Thickness (T): 1.65mm
2.8	Item	uPVC Electrical Conduit 25mm
	Dimensions	Diameter (OD): 26.9mm
		Diameter (ID): 23.0mm
		Wall Thickness (T): 1.95mm
2.9	Item	Optical Cable
	Cable	Overall Diameter: 4.8mm
		Sheath Thickness: 1.3mm
	Core	Overall Diameter: 2.15mm

		Conductor Diameter: 0.94mm
		Conductor Material: Optic Fibre
		Insulation Thickness: 0.5mm

Sealants		
	Item / Product Name	AGNI-Seal
	Dimensions	600mL sausage

Intumescent		
	Item	AGNI-Sleeve
	Dimensions	Width: 100mm – 300mm Thickness: 3.5mm

Insulation		
	Item / Product Name	AGNI-Shield
	Dimensions	Width: 100mm – 300mm
		Thickness: 13mm

Fixings		
	Item / Product Name	AGNI-Strap
	Dimensions	Width x Height: 4.6mm x 450mm
		Thickness: 0.25mm

5. Test Results

5.1 Observations during the test

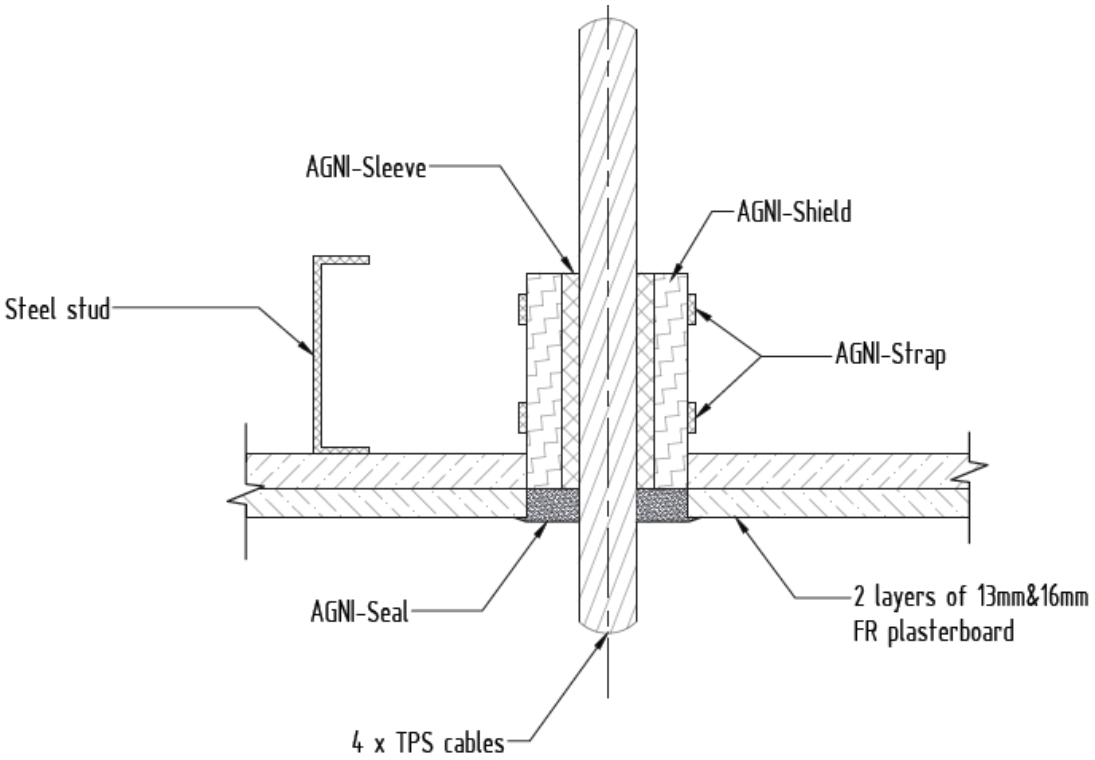
Time min	Test face	SP#	OBSERVATIONS/REMARKS
59	U	8	Cotton pad test – PASS
61	U	8	Cotton pad test - FAIL
66			**TEST DISCONTINUED**

NOTE: E – Exposed Face (inside furnace)

U – Unexposed Face (outside furnace)

SE – Separating element

5.2 Specimen 1



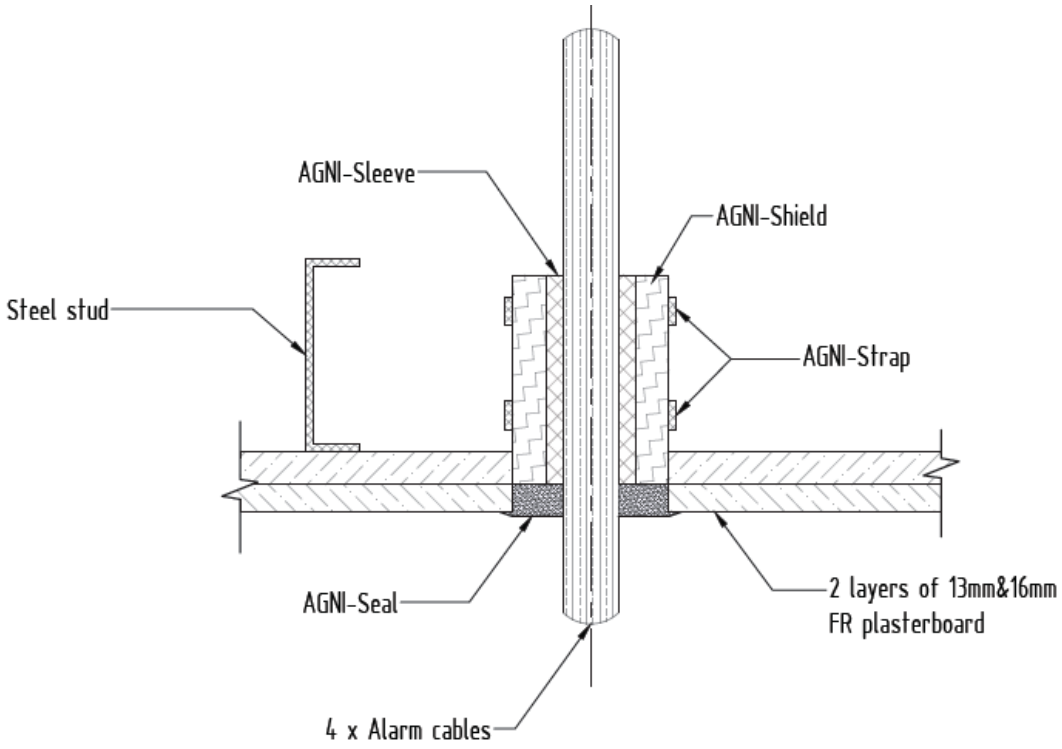
Service penetration details	
Service	4 x TPS cables
Aperture Size	44.6mm
Annular gap	Min: 14.6mm, Max: 17.3mm

Local Fire-stopping system	
Application	Asymmetrical – applied through fire side of the separating element
Products	AGNI-Shield, AGNI-Sleeve, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 100mm wide AGNI-Shield with a 50mm overlap to fit around cables. 2. Cut one revolution of 100mm wide AGNI-Sleeve to fit around the cables. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around cables and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	No failure at 66 minutes
Resistance to incipient spread of fire	No failure at 66 minutes

5.3 Specimen 2



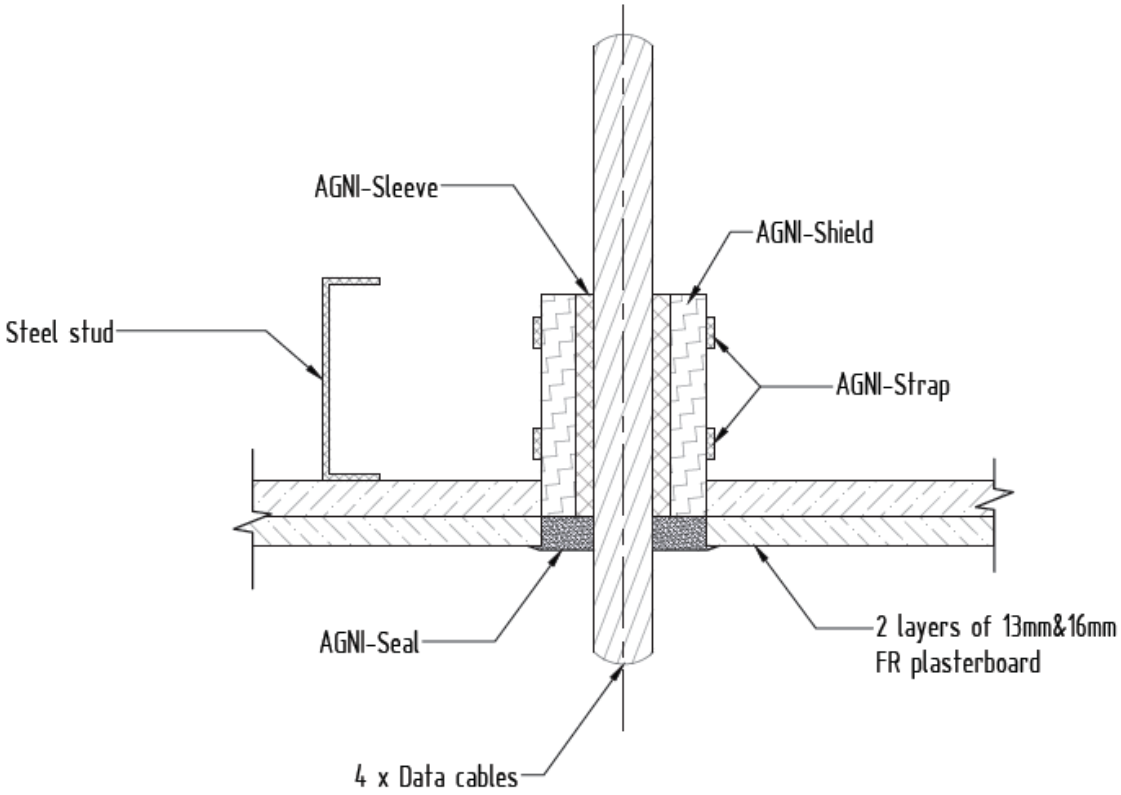
Service penetration details	
Service	4 x 2 Core Red Fire Alarm Cables
Aperture Size	53.8mm
Annular gap	Min: 16.1mm, Max: 19.2mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Sleeve, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 100mm wide AGNI-Shield with a 50mm overlap to fit around cables. 2. Cut one revolution of 100mm wide AGNI-Sleeve to fit around the cables. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around cables and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	No failure at 66 minutes
Resistance to incipient spread of fire	No failure at 66 minutes

5.4 Specimen 3



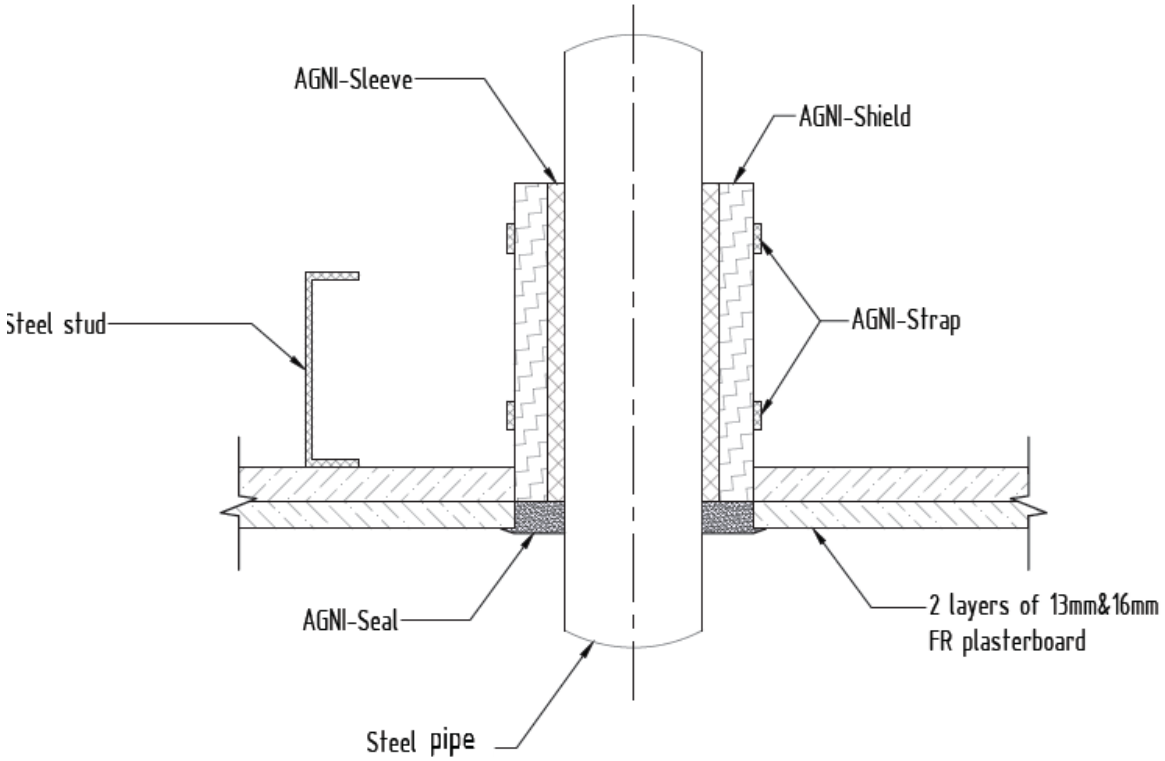
Service penetration details	
Service	4 x CAT6 Blue Solid Cable
Aperture Size	44.4mm
Annular gap	Min: 13.6mm, Max: 15.1mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Sleeve, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 100mm wide AGNI-Shield with a 50mm overlap to fit around cables. 2. Cut one revolution of 100mm wide AGNI-Sleeve to fit around the cables. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around cables and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	No failure at 66 minutes
Resistance to incipient spread of fire	No failure at 66 minutes

5.5 Specimen 4



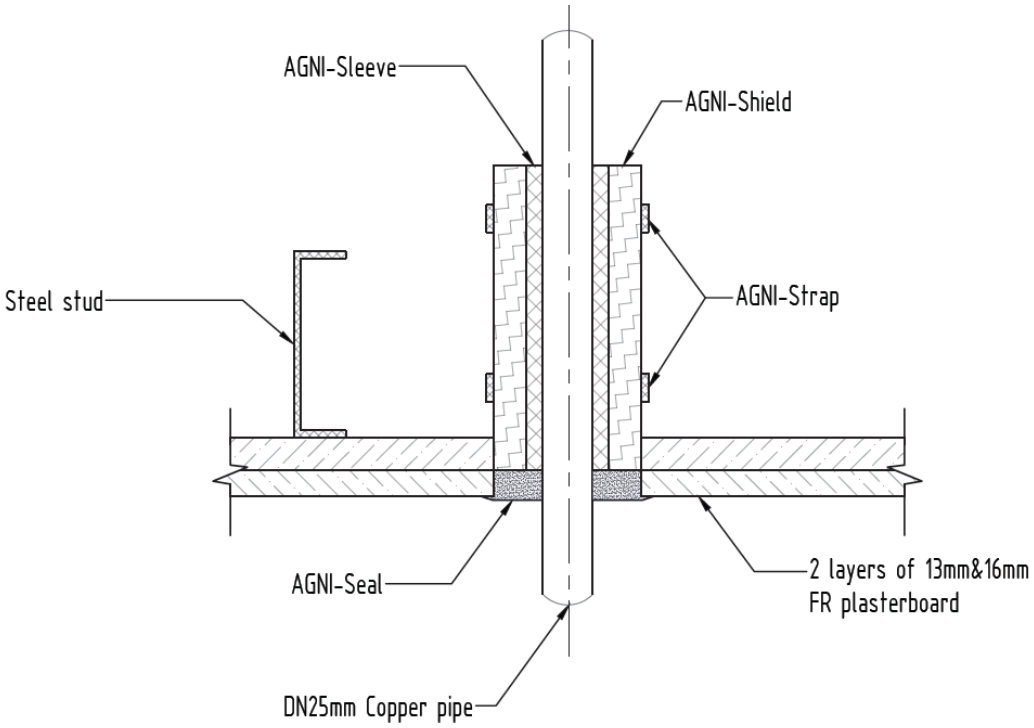
Service penetration details	
Service	65mm Steel Pipe
Aperture Size	108.6mm
Annular Gap	Min: 14.3mm, Max: 18.3mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 150mm wide AGNI-Shield with a 50mm overlap to fit around pipe. 2. Cut one revolution of 150mm wide AGNI-Sleeve to fit around the pipe. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around pipe and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	45 minutes
Resistance to incipient spread of fire	63 minutes

5.6 Specimen 5



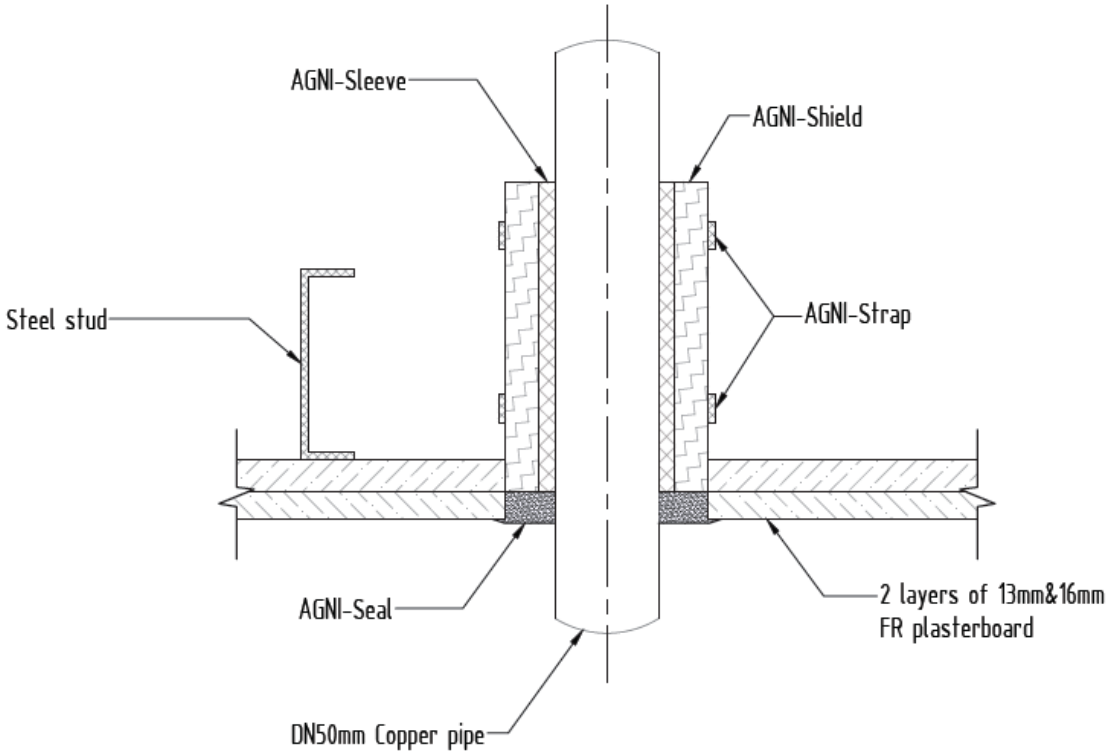
Service penetration details	
Service	25mm Copper Pipe
Aperture Size	54.7mm
Annular Gap	Min: 13.2mm, Max: 14.0mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 150mm wide AGNI-Shield with a 50mm overlap to fit around pipe. 2. Cut one revolution of 150mm wide AGNI-Sleeve to fit around the pipe. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around pipe and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	40 minutes
Resistance to incipient spread of fire	No failure at 66 minutes

5.7 Specimen 6



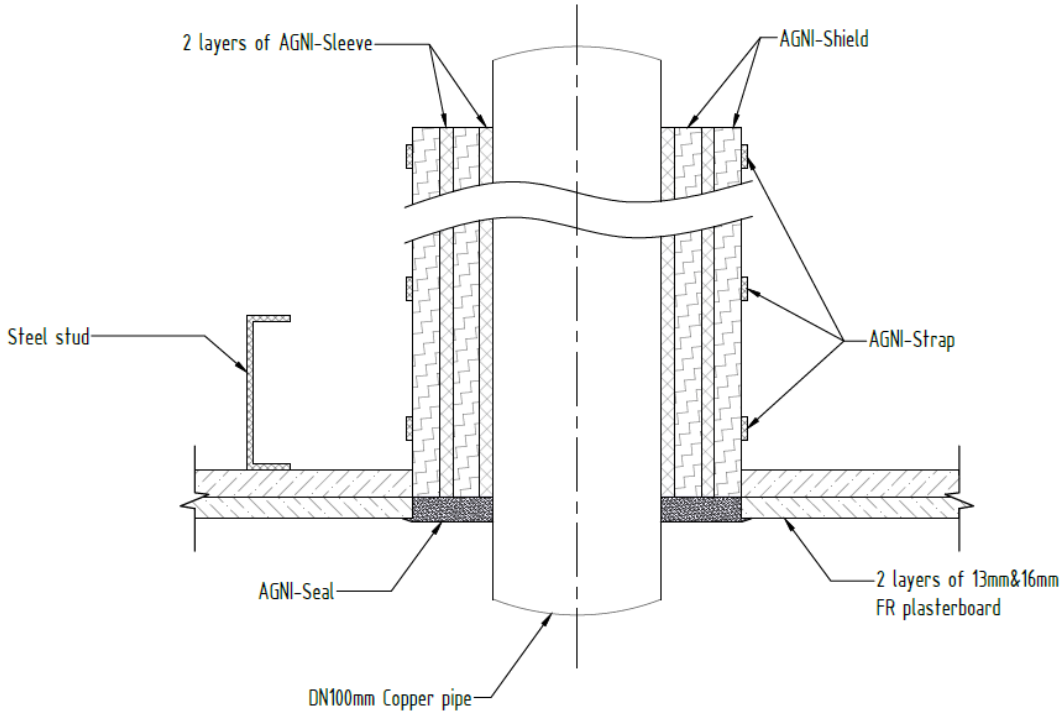
Service penetration details	
Service	50mm Copper Pipe
Aperture Size	83.0mm
Annular Gap	Min: 13.6mm, Max: 16.2mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 150mm wide AGNI-Shield with a 50mm overlap to fit around pipe. 2. Cut one revolution of 150mm wide AGNI-Sleeve to fit around the pipe. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around pipe and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	35 minutes
Resistance to incipient spread of fire	65 minutes

5.8 Specimen 7



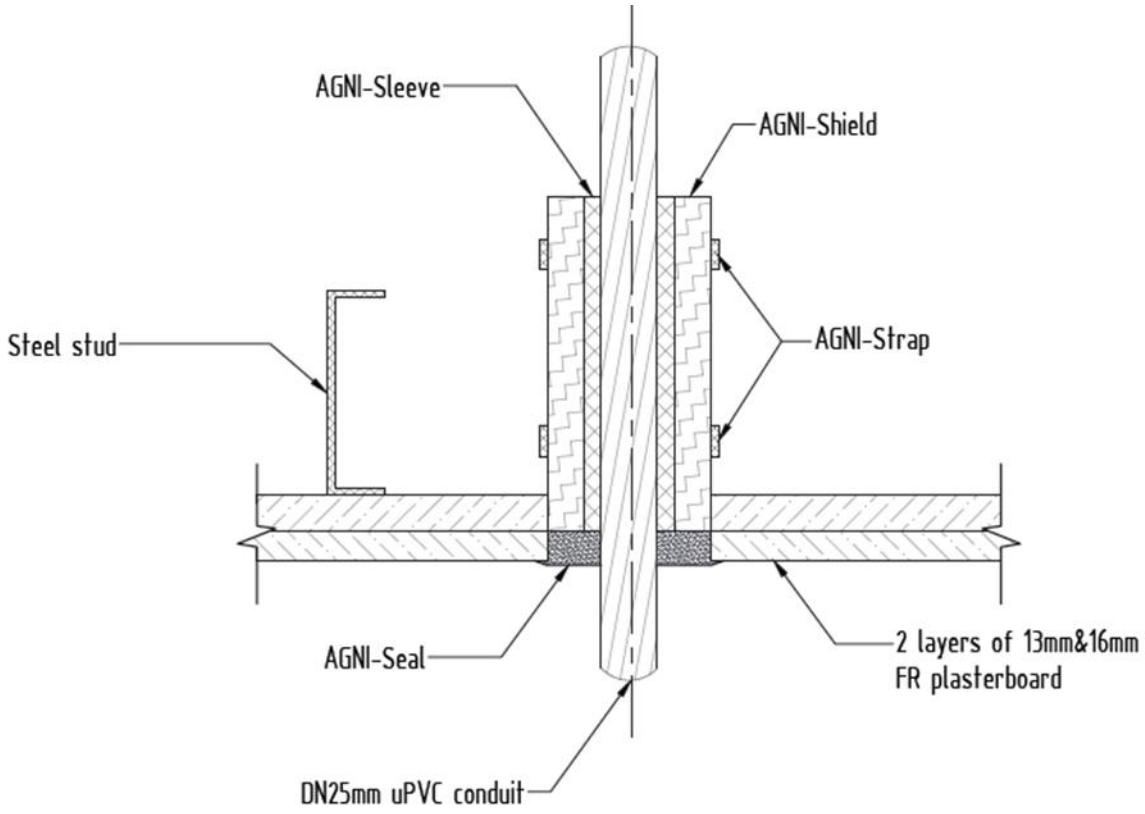
Service penetration details	
Service	100mm Copper Pipe
Service Support	Unexposed Side: 730mm
Aperture Size	152.4mm
Annular Gap	Min: 23.6mm, Max: 24.0mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Strap, AGNI-Seal
Procedure	1. Cut two revolutions of 300mm wide AGNI-Shield with a 50mm overlap to fit around pipe. 2. Cut two revolutions of 300mm wide AGNI-Sleeve to fit around the pipe. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around pipe and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	47 minutes
Resistance to incipient spread of fire	64 minutes

5.9 Specimen 8



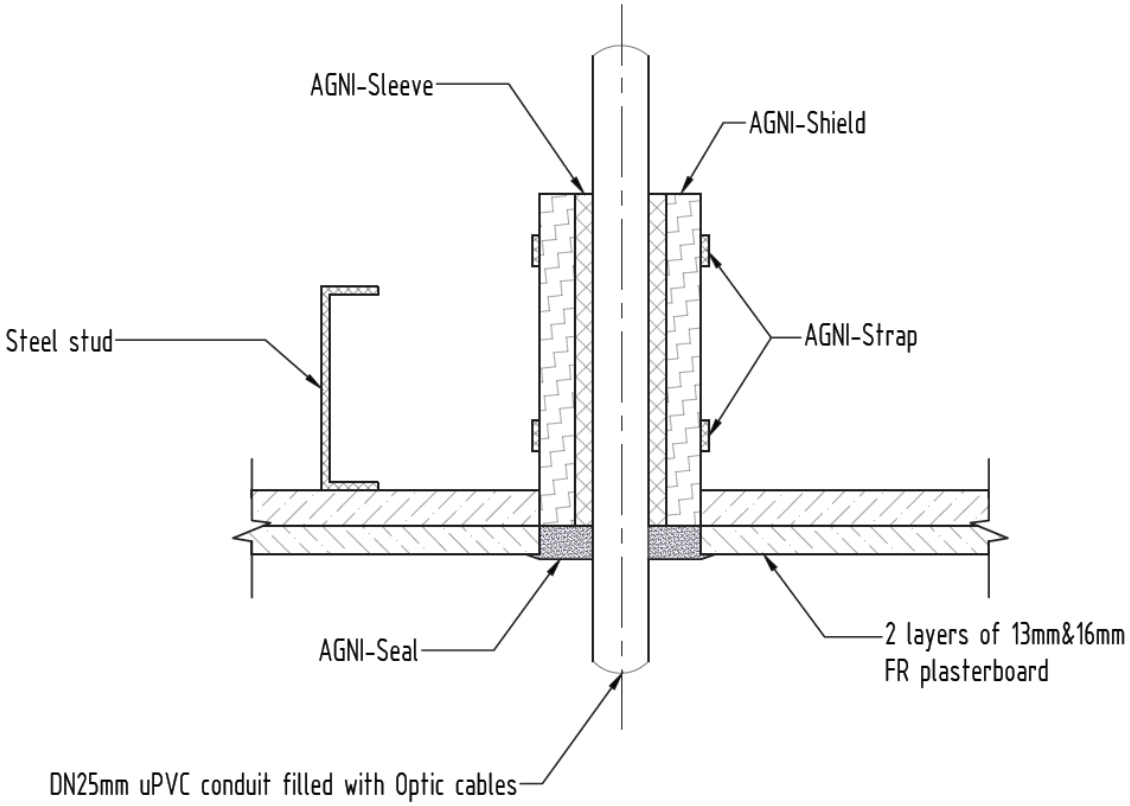
Service penetration details	
Service	uPVC Electrical Conduit 25mm (empty)
Aperture Size	53.6mm
Annular Gap	Min: 13.8mm, Max: 14.8mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Sleeve, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 100mm wide AGNI-Shield with a 50mm overlap to fit around conduit. 2. Cut one revolution of 100mm wide AGNI-Sleeve to fit around the conduit. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around conduit and secure using AGNI-Strap, 50mm from top and bottom. Push the protection up leaving 13mm recess from below.

	5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	61 minutes
Insulation	61 minutes
Resistance to incipient spread of fire	66 minutes

5.10 Specimen 9



Service penetration details	
Service	uPVC Electrical Conduit 25mm (filled – 8 x 4.8mm Optic Cables)
Service Support	Unexposed Side: 730mm
Aperture Size	54.6mm
Annular Gap	Min: 14.4mm, Max: 15.2mm

Local Fire-stopping system	
Application	Asymmetrical – applied to fire side of the separating element
Products	AGNI-Shield, AGNI-Sleeve, AGNI-Strap, AGNI-Seal
Procedure	1. Cut one revolution of 100mm wide AGNI-Shield with a 50mm overlap to fit around conduit. 2. Cut one revolution of 100mm wide AGNI-Sleeve to fit around the conduit. 3. Attach AGNI-Sleeve to the inside of the AGNI-Shield using staples. 4. Installation from below - Wrap AGNI-Shield / AGNI-Sleeve around conduit and secure using AGNI-Strap,

	50mm from top and bottom. Push the protection up leaving 13mm recess from below. 5. Apply AGNI-Seal into the aperture 13mm (nominal) deep and finish flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 66 minutes
Insulation	No failure at 66 minutes
Resistance to incipient spread of fire	No failure at 66 minutes

6. Photos

6.1 Photos before the test

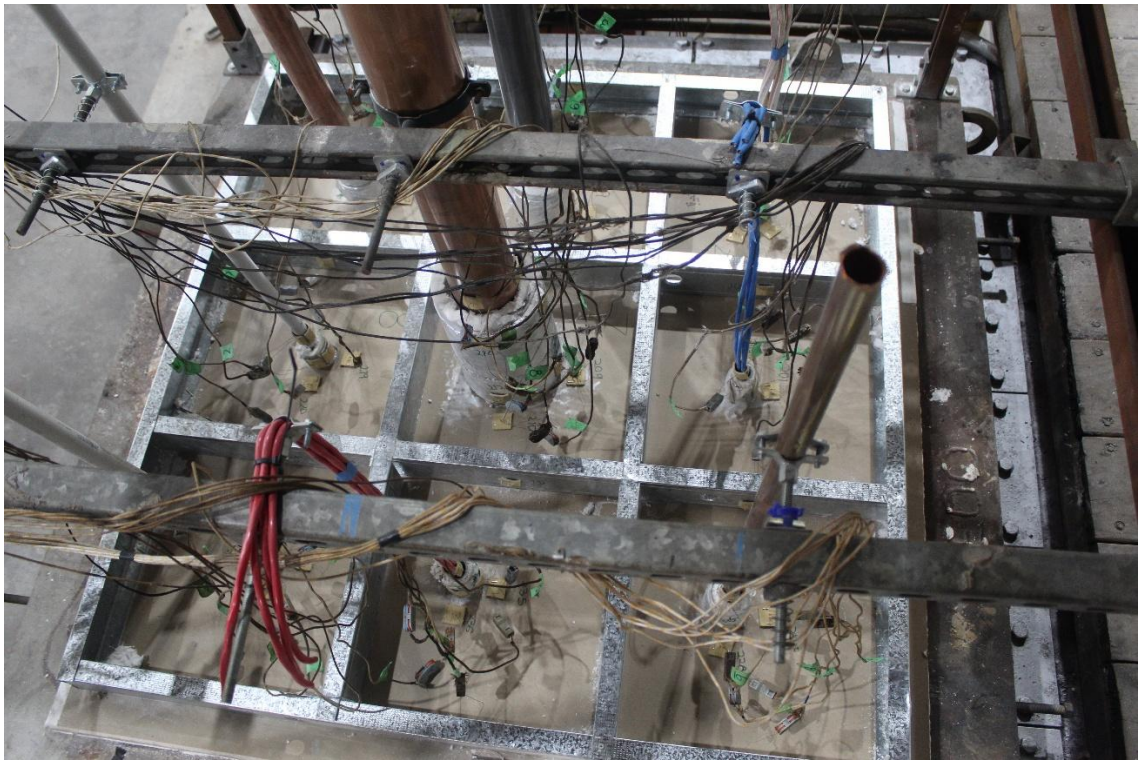


Figure 1 - Unexposed face prior to test commencement

Figure 2 - Exposed face prior to test commencement