

Regulatory Information Report

RIRF23097

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

Client: Agnitek Pty Ltd

Test method: AS1530.4-2014

Report Date: 12/09/2024

Test number: PF23097



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1.1 Document Revision Schedule

Revision #	Date	Description
1	26/06/2024	Issued to Client
2	09/07/2024	Typographical error is corrected
3	12/09/2024	Amended as per Client request

1.2 Signatories

Report	Name	Signature	Date
Prepared by:	Alexey Kokorin		12/09/2024
Authorised by:	Andrew Bain (Authorized signatory)		12/09/2024



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



2. Report Summary

9 x service penetrations installed in a 120mm concrete floor, with corresponding apertures cored through the slab.

Specimen #	Service	Actual Integrity (min)	Actual insulation (min)	FRL
1	DN 40 PVC Pipe	243 NF	225	-/240/210
2	DN 50 PVC Pipe	243 NF	222	-/240/210
3	DN 65 PVC Pipe	243 NF	124	-/240/120
4	DN 80 PVC Pipe	163	163	-/150/150
5	DN 100 PVC Pipe	118	49	-/90/45
6	DN 16 PEX Pipe	156	115	-/150/90
7	DN 40 Floor waste & socket	243 NF	243 NF	-/240/240
8	DN 80 Floor waste & socket	144	123	-/120/120
9	20mm Flexible conduit with TPS cables	243 NF	207	-/240/180

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:

There were 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 Client. The Laboratory was not involved in sampling of the materials. Laboratory checked materials during construction of the specimen.

Testing date:

08/01/2023

Installation completion date:

04/01/2023

Termination of The Test:

The test was discontinued at 243 minutes.

3.4 Use of Reports

A regulatory information report was issued in addition to the full test report PF23097. This provides the minimum information required for regulatory compliance.

This report shall not be reproduced, except in full.

The specimen was an asymmetrical construction. The results of the test apply if exposed to fire as tested.

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

Supporting Construction		
1.1	Item	120mm concrete slab
	Dimensions	Width / Height (W/H): 1450mm x 1450mm
		Thickness (T): 120mm

4.2 Specimens

Services		
2.1	Item	DN 40 PVC Pipe
	Dimensions	Inner Diameter (ID): 38mm
		Outer Diameter (OD): 43mm
		Thickness (T): 2.5mm
2.2	Item	DN 50 PVC Pipe
	Dimensions	Inner Diameter (ID): 51mm
		Outer Diameter (OD): 56mm
		Thickness (T): 2.5mm
2.3	Item	DN 65 PVC Pipe
	Dimensions	Inner Diameter (ID): 63mm
		Outer Diameter (OD): 69.5mm
		Thickness (T): 3mm
2.4	Item	DN 80 PVC Pipe
	Dimensions	Inner Diameter (ID): 76mm
		Outer Diameter (OD): 82mm
		Thickness (T): 3mm
2.5	Item	DN 100 PVC Pipe
	Dimensions	Inner Diameter (ID): 104mm
		Outer Diameter (OD): 110mm
		Thickness (T): 3mm
	Item	DN 16 PEX Pipe



2.6	Dimensions	Inner Diameter (ID): 11.5mm
		Outer Diameter (OD): 16mm
		Thickness (T): 2mm
2.7	Item	50mm Floor Waste
	Dimensions	Inner Diameter (ID): 45mm
		Outer Diameter (OD): 50.5mm
		Thickness (T): 2.5mm
Additional info	Flange was taken off to fit Floor Waste	
2.8	Item	100mm Square Floor Waste with Matt Black Finish
		Inner Diameter (ID): 86mm
		Outer Diameter (OD): 102mm
	Additional Info	Base was taken off
2.9	Item	Sanitary System Plain Bend F&F
	Dimension	DN40 x 88°
2.10	Item	UPVC DWV Pipe Fitting
	Dimension	DN40 x 88°
2.11	Item	100mm Square Floor Waste tile with Chrome Finish
		Inner Diameter (ID): 86mm
		Outer Diameter (OD): 102mm
2.12	Item	DWV PVC FWG80 Base
	Dimensions	Inner Diameter (ID): 82mm
		Outer Diameter (OD): 88mm
		Thickness (T): 3mm
2.13	Item	DWV PVC FWG50 Outlet
	Dimensions	Inner Diameter (ID): 56mm
		Outer Diameter (OD): 61mm
		Thickness (T): 2.5mm
2.14	Item	20mm Flexible conduit
	Dimensions	Inner Diameter (ID): 14mm
		Outer Diameter (OD): 20mm
		Thickness (T): 3mm

2.15	Item	TPS Cable
	Dimensions	Width / Height (W/H): 13mm x 6mm

Sealants

3.1	Item	AGNI-Seal Fire-rated acrylic sealant
	Dimensions	310mL

Fixings

4.1	Item / Product Name	Hex Concrete Anchor
	Dimensions	6.5 x 32 mm
	Installation	Used to fix AGNI-Wrap to separating element
4.2	Item / Product Name	AGNI-Clip Stainless steel Clips
	Installation	Used to fix AGNI-Wrap to separating element
4.3	Item / Product Name	AGNI-Strap Cable Tie
	Dimensions	Width / Height (W/H): 4.6mm x 200mm
	Installation	Used to fix AGNI-Wrap around service

Fire Board

5.1	Item	AGNI-Board
	Dimensions	Width / Height (W/H): 600mm x 1200mm
	Thickness	50mm
	Density	160 kg/m ³ nominal, 194 kg/m ³ measured
	Installation	Sections of AGNI-Board trimmed to 20mm thickness, then installed in annular gap, 20mm from separating element surface

Intumescent materials

9.1	Item / Product Name	AGNI-Wrap
	Dimensions	Width (W): 25mm
		Thickness (T): 3mm
		Installed around service, against separating element

5. Specimens

5.1 Specimen 1

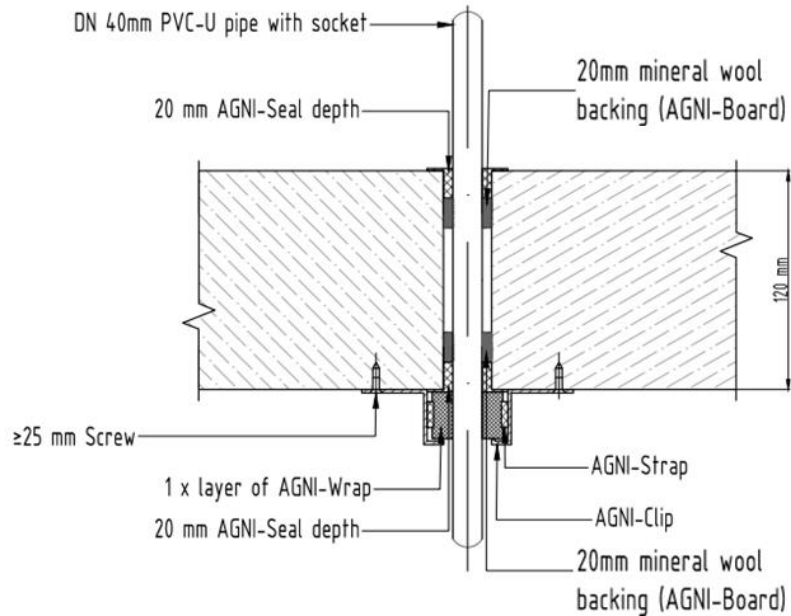


Figure 4 – Specimen 1 (side view)

Service penetration details	
Service	DN 40 PVC Pipe
Aperture Diameter	57mm
Annular Spacing	Min: 6mm, Max: 8mm

Local Fire-stopping system	
Application	Asymmetrical
System description	AGNI-Board was installed in annular space, 20mm from both faces of separating element. 20mm (nominal) deep sealant was installed in the annular space from both faces. On exposed face, 1 revolution of intumescent strip with 11mm overlap was wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 2 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	No failure at 243 minutes
Insulation	225 minutes

5.2 Specimen 2

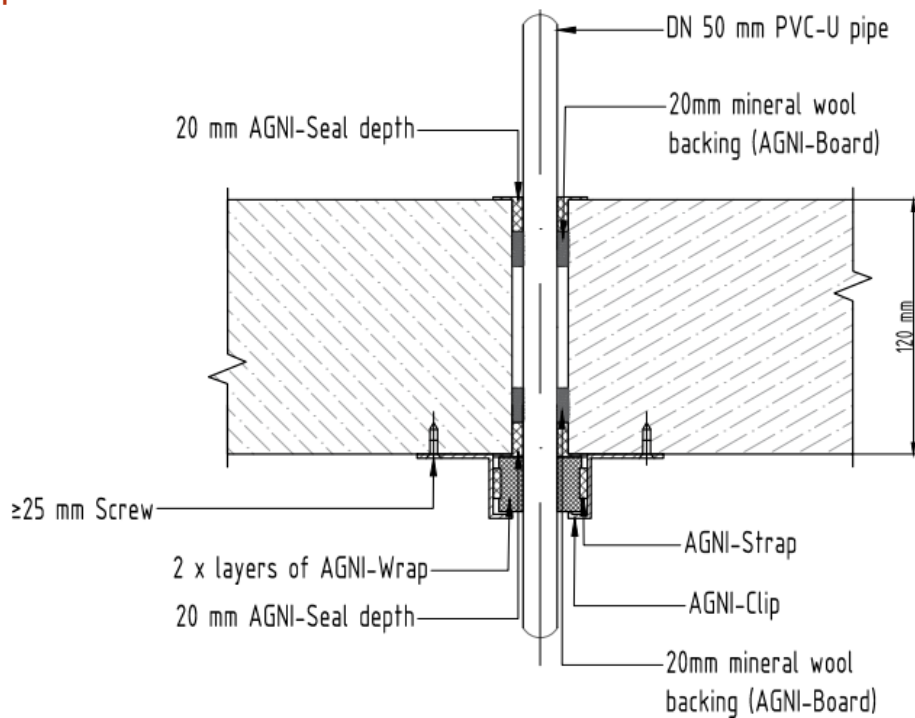


Figure 7 – Specimen 2 (side view)

Service penetration details	
Service	DN 50 PVC Pipe
Aperture Diameter	72mm
Annular Spacing	Min: 2mm, Max: 14mm

Local Fire-stopping system	
Application	Asymmetrical
System description	AGNI-Board was installed in annular space, 20mm from both faces of separating element. 20mm (nominal) deep sealant was installed in the annular space from both faces. On exposed face, 2 revolutions of intumescent strip with 15mm overlap were wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 3 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	No failure at 243 minutes
Insulation	222 minutes

5.3 Specimen 3

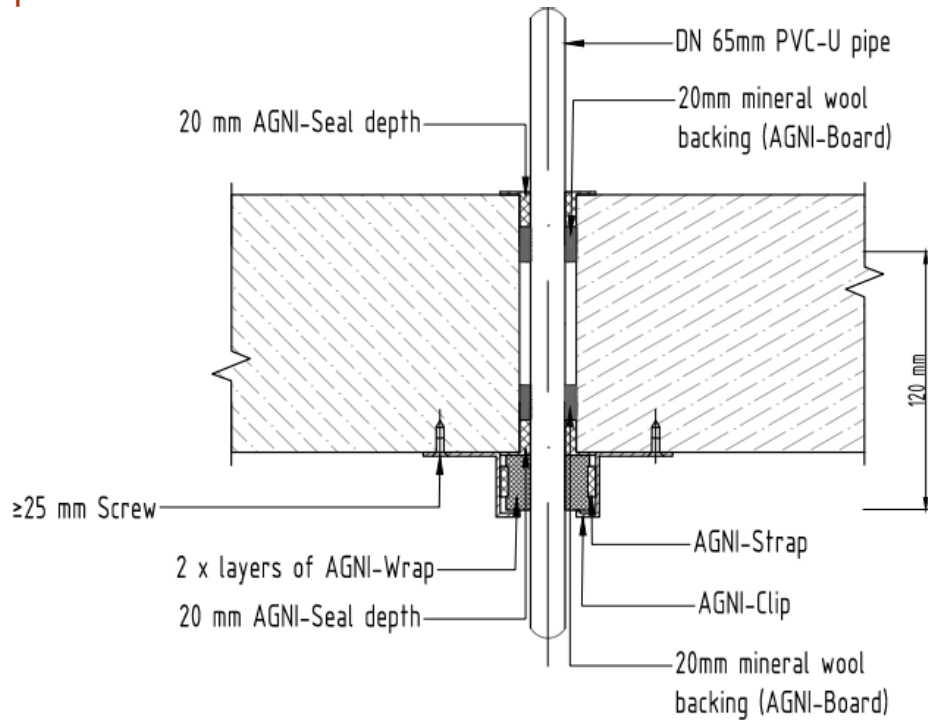


Figure 10 – Specimen 3 (side view)

Service penetration details	
Service	DN 65 PVC Pipe
Aperture Diameter	87mm
Annular Spacing	Min:3.5mm, Max: 14mm

Local Fire-stopping system	
Application	Asymmetrical
System description	AGNI-Board was installed in annular space, 20mm from both faces of separating element. 20mm (nominal) deep sealant was installed in the annular space from both faces. On exposed face, 2 revolutions of intumescent strip with 10mm overlap were wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 3 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	No failure at 243 minutes
Insulation	124 minutes

5.4 Specimen 4

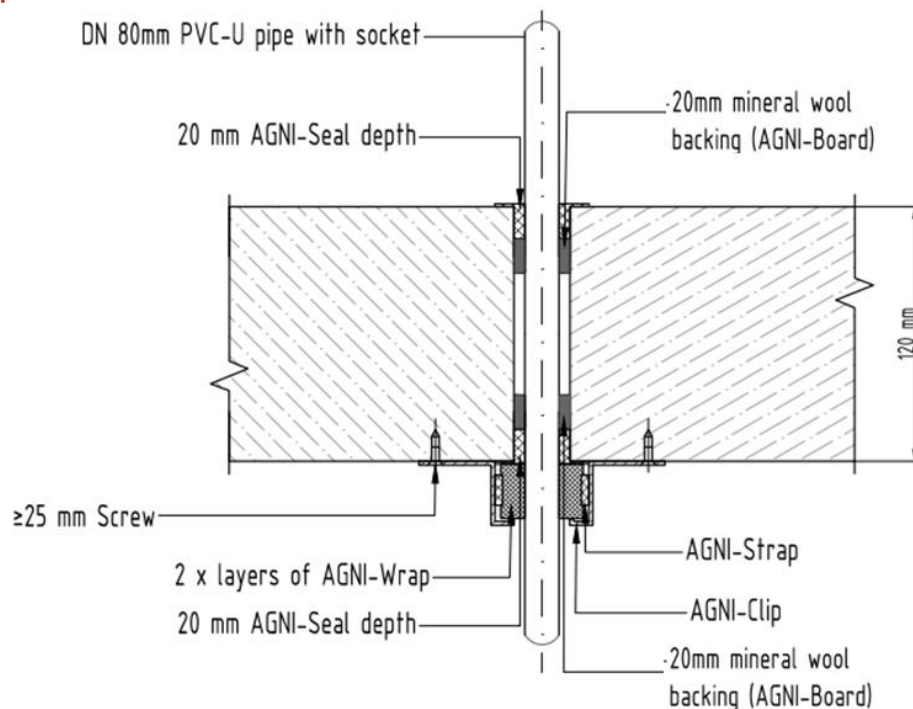


Figure 13 – Specimen 4 (side view)

Service penetration details	
Service	DN 80 PVC Pipe
Aperture Diameter	92mm
Annular Spacing	Min: 4mm, Max: 6mm

Local Fire-stopping system	
Application	Asymmetrical
System description	AGNI-Board was installed in annular space, 20mm from both faces of separating element. 20mm (nominal) deep sealant was installed in the annular space from both faces. On exposed face, 2 revolutions of intumescent strip with 8mm overlap were wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 3 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	163 minutes
Insulation	163 minutes

5.5 Specimen 5

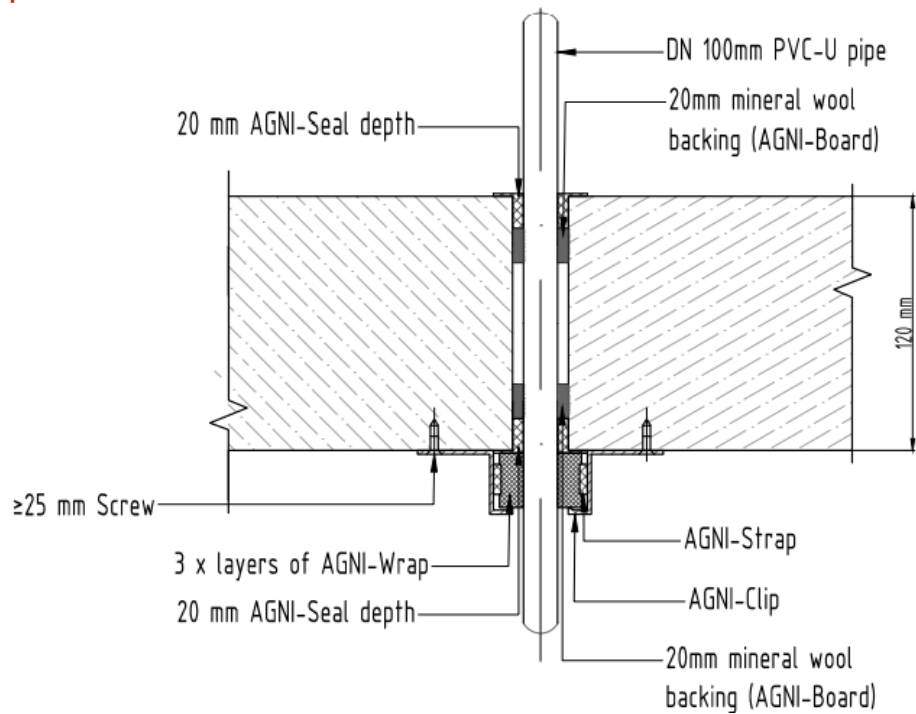


Figure 16 – Specimen 5 (side view)

Service penetration details	
Service	DN 100 PVC Pipe
Aperture Diameter	123mm
Annular Spacing	Min: 2.5mm, Max: 10.5mm

Local Fire-stopping system	
Application	Asymmetrical
System description	AGNI-Board was installed in annular space, 20mm from both faces of separating element. 20mm (nominal) deep sealant was installed in the annular space from both faces. On exposed face, 3 revolutions of intumescent strip with 7mm overlap were wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 5 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	118 minutes
Insulation	49 minutes

5.6 Specimen 6

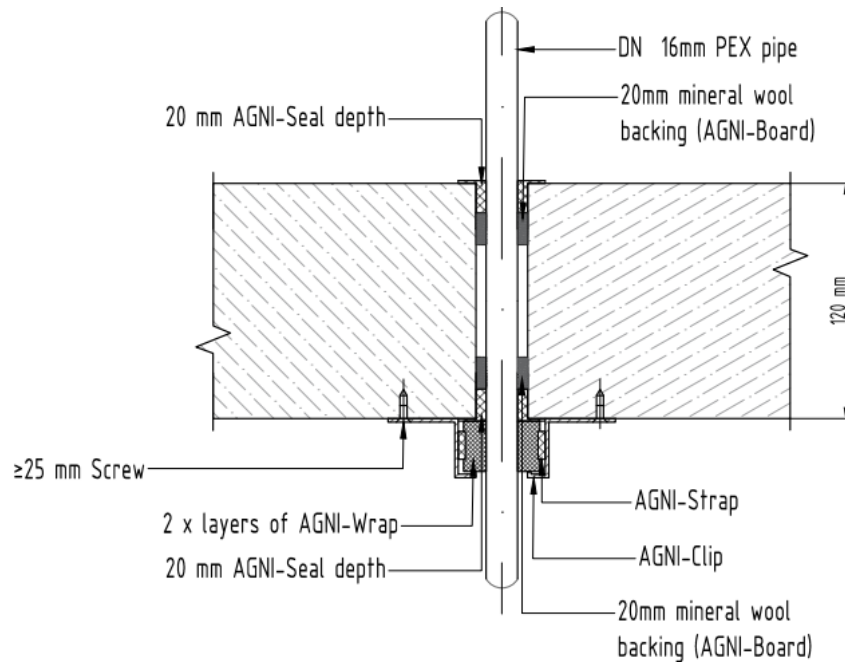


Figure 19 – Specimen 6 (side view)

Service penetration details	
Service	DN 16 PEX Pipe
Aperture Diameter	42mm
Annular Spacing	Min: 12mm, Max: 14mm

Local Fire-stopping system	
Application	Asymmetrical
System description	AGNI-Board was installed in annular space, 20mm from both faces of separating element. 20mm (nominal) deep sealant was installed in the annular space from both faces. On exposed face, 2 revolutions of intumescent strip with 12mm overlap were wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 2 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	156 minutes
Insulation	115 minutes

5.7 Specimen 7

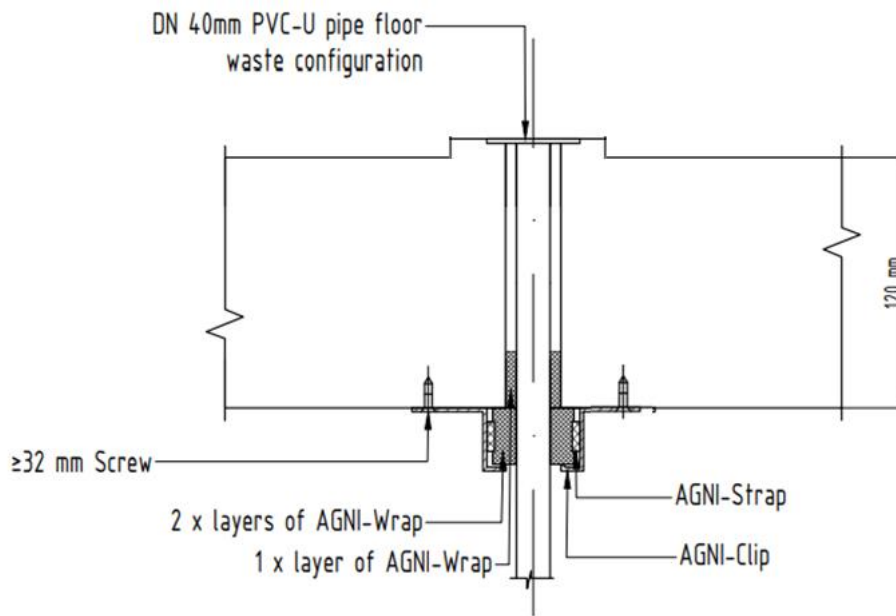


Figure 22 – Specimen 7 (side view)

Service penetration details	
Service	DN 40 Floor waste and socket
Aperture Diameter	62mm
Annular Spacing	Exposed Face, Min: 9mm, Max: 10mm
	Unexposed Face: 0mm

Local Fire-stopping system	
Application	Asymmetrical – Installed on exposed face of separating element
System description	1 revolution of intumescent with 30mm overlap were wrapped around the pipe, recessed 10-15mm from separating element surface. 2 revolutions of intumescent strip with 30mm overlap were wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 2 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	No failure at 243 minutes
Insulation	No failure at 243 minutes

5.8 Specimen 8

DN 80mm PVC-U pipe floor waste configuration with socket

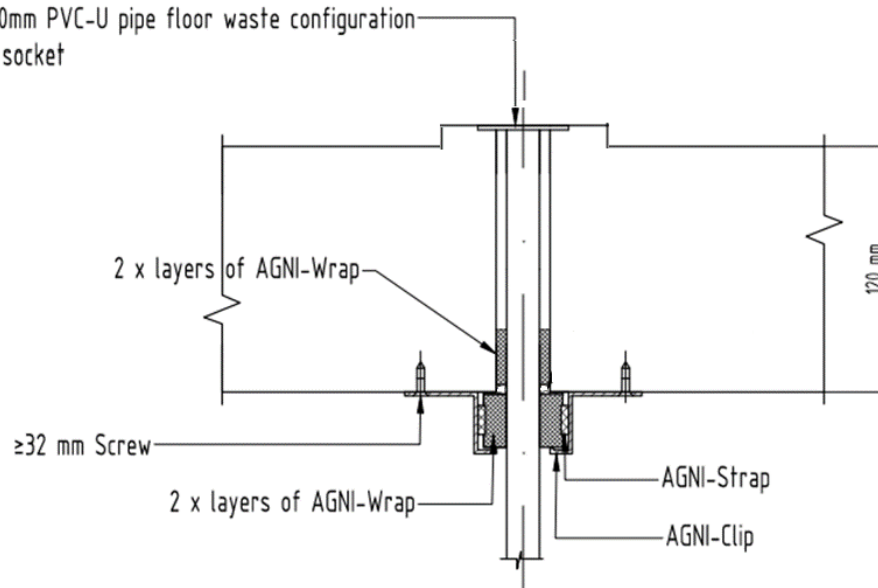


Figure 25 – Specimen 8 (side view)

Service penetration details	
Service	DN 80 Floor waste and socket
Aperture Diameter	102.5mm
Annular Spacing	Exposed Face, Min: 9.5mm, Max: 11mm
	Unexposed Face: 0mm

Local Fire-stopping system	
Application	Asymmetrical – Installed on exposed face of separating element
System description	1 revolution of intumescent with 18mm overlap were wrapped around the pipe, recessed in annular space and flush with separating element surface. 2 revolutions of intumescent strip with 30mm overlap were wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 3 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	144 minutes
Insulation	123 minutes

5.9 Specimen 9

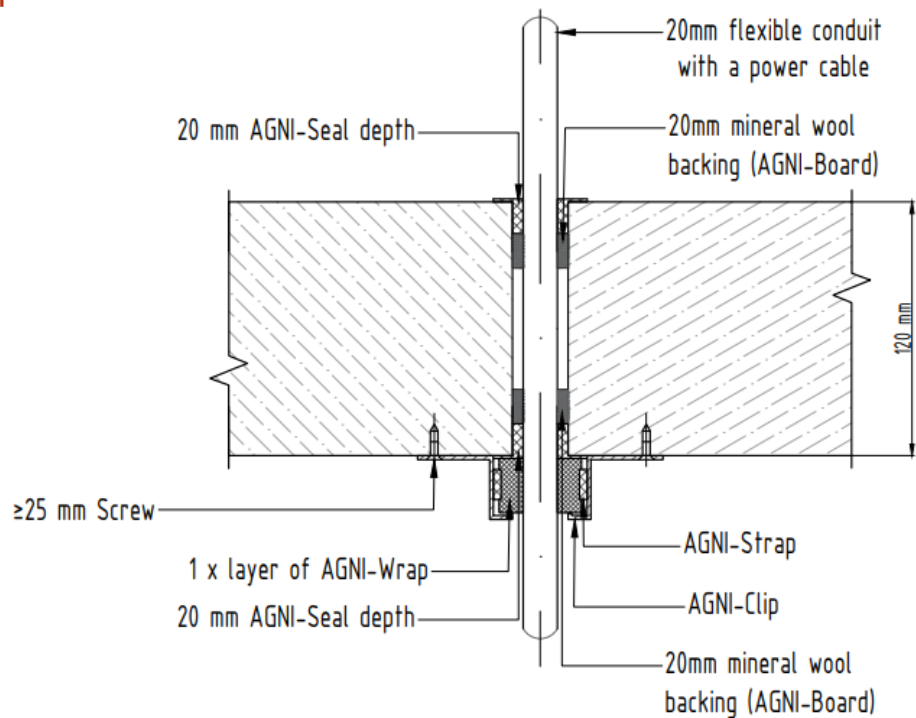


Figure 28 – Specimen 9 (side view)

Service penetration details	
Service	20mm Flexible conduit packed with 1 TPS Cable
Aperture Diameter	42mm
Annular Spacing	Min: 8mm, Max: 14mm

Local Fire-stopping system	
Application	Asymmetrical
System description	AGNI-Board was installed in annular space, 20mm from both faces of separating element. 20mm (nominal) deep sealant was installed in the annular space from both faces. On exposed face, 1 revolution of intumescent strip with 18mm overlap was wrapped around the pipe. The intumescent was secured using a cable tie then fixed to the separating element with 2 screw and clip fixings.

Test results

Structural adequacy	Not applicable
Integrity	No failure at 243 minutes
Insulation	207 minutes

6. Observations during the test

Time min	Test face	SP#	OBSERVATIONS/REMARKS
5	U	7, 8	Cotton pad test applied over floor waste for 30 seconds – PASS
88	U	5	Cotton pad test applied over aperture for 30 seconds – PASS
89	U	1	Cotton pad test applied over aperture for 30 seconds – PASS
118	U	5	Open flame > 10 seconds on pipe near aperture – FAIL
144	U	8	Cotton pad test applied over floor waste for 30 seconds – FAIL
156	U	6	Cotton pad test applied over the red glow for 30 seconds – FAIL
163	U	4	Cotton pad test applied over the red glow in annular space for 30 seconds – FAIL
239	U	2	Cotton pad test applied near the aperture for 30 seconds – PASS
243	U		Test Discontinued

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

7. Additional photos



Figure 29 – Unexposed face prior to test commencement



Figure 30 – Exposed face prior to test commencement