Regulatory Information Report

RIRF24096

Fire resistance test for penetrations through the horizontal separating element

Client:	Agnitek Pty Ltd
Test method:	AS1530.4-2014
Report Date:	07/10/2024
Test number:	PF24096

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Table of Contents

1.1 Document revision schedule

Revision #	Date	Description
1	07/10/2024	Issued to Client

1.2 Signatories

Report	Name	Signature	Date
Prepared by:	Alexey Kokorin		07/10/2024
Authorised by:	Andrew Bain (Authorized signatory)		07/10/2024

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 passing through a 190mm thick concrete horizontal separating element (concrete slab).

Specimen #	Service	Actual Integrity (min)	Actual Insulation (min)	FRL
1	DN100 PVC-U DWV PIPE	360NF	360NF	-/360/360
2	DN32 PVC-U DWV PIPE	360NF	360NF	-/360/360
3	DN125 SDR11 PPR PIPE	360NF	360NF	-/360/360
4	DN100 PVC-U DWV PIPE	360NF	360NF	-/360/360
5	DN65 PVC-U DWV PIPE	360NF	360NF	-/360/360
6	DN50 PVC-U DWV PIPE	360NF	360NF	-/360/360
7	DN100 PVC-U DWV PIPE	360NF	360NF	-/360/360
8	DN80 PVC-U DWV PIPE	360NF	360NF	-/360/360
9	80mm FLOOR WASTE	360NF	360NF	-/360/360

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. Pipes were capped from exposed side only.

Testing date:

13/09/2024

Installation completion date:

13/09/2024

Termination of The Test:

The test was discontinued at 360 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 PF24096. 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	Concrete Slab
	Dimensions	Width / Height (W/H): 1500mm × 1500mm
		Slab Thickness (T): 190mm

4.2 Specimens

Services		
2.1	Item / Product Name	DN100 PVC-U DWV PIPE
	Dimensions	Diameter (ID): 104mm
		Diameter (OD): 111mm
		Thickness (T): 3.5mm
2.2	Item / Product Name	DN32 PVC-U DWV PIPE
	Dimensions	Inner Diameter (ID): 31.8mm
		Outer Diameter (OD): 36.8mm
		Thickness (T): 2.5mm
2.3	Item / Product Name	AQUATHERM SDR11 S 125mm GREEN PPR PIPE
	Dimensions	Inner Diameter (ID):102.2mm
		Outer Diameter (OD): 125mm
		Thickness (T): 11.4mm
2.4	Item / Product Name	DN65 PVC-U DWV PIPE
	Dimensions	Diameter (ID): 63mm
		Diameter (OD): 69mm
		Thickness (T): 3mm
2.5	Item / Product Name	DN50 PVC-U DWV PIPE
	Dimensions	Inner Diameter (ID): 50.6mm
		Outer Diameter (OD): 55.7mm
		Thickness (T): 2.5mm

2.6	Item / Product Name	DN80 PVC-U DWV PIPE
	Dimensions	Inner Diameter (ID): 75mm
		Outer Diameter (OD): 82mm
		Thickness (T): 3.5mm
2.7	Item / Product Name	80mm SQUARE TILE KIT WITH 65mm FWG OUTLET
	Dimensions	Inner Diameter (ID): 76.3mm
		Outer Diameter (OD): 82.7mm
		Thickness (T): 3.2mm
2.8	Item / Product Name	100mm STAINLESS STEEL BLACK ELEGANCE DRAIN
	Dimensions	Width x Length (W/L): 108mm x 108mm
		Height (H): 16mm
2.9	Item / Product Name	100mm BLACK DRAIN RISER
	Dimensions	Inner Diameter (ID): 104mm
		Outer Diameter (OD): 111mm
		Thickness (T): 3.5mm
2.10	Item / Product Name	90° ELBOW PVC-U
	Dimensions	Inner Diameter (ID): 82mm
		Outer Diameter (OD): 75mm
		Thickness (T): 3.5mm

Sealants		
3.1	Item / Product Name	AGNI-Seal
	Dimensions	600mL
	Installation	Installed 10mm (nominal) deep between separating element and pipe for all specimens

Intumescent		
4.1	Item / Product Name	AGNI-Sleeve
	Dimensions	Width (W): 400mm (Cut to size)

		Thickness (T): 3.5mm
	Installation	Installed around services

Fixings		
5.1	Item / Product Name	Ramset Shuredrive Anchor
	Dimensions	Width / Height (W/H): 6mm x 30mm
	Installation	Used to secure AGNI-Sleeve to concrete slab on unexposed face
5.2	Item / Product Name	Concrete Bolt
	Dimensions	Width / Height (W/H): 6.5mm x 32mm
	Installation	Used to secure AGNI-Sleeve to concrete slab on exposed face

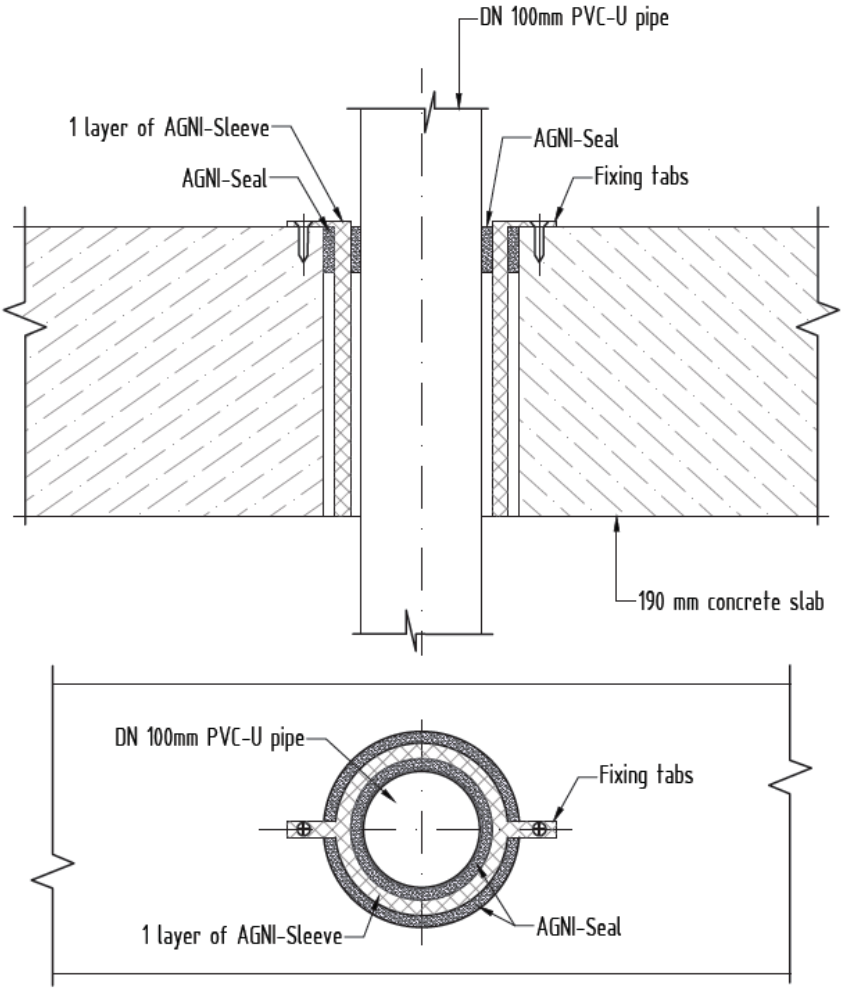
6. Test Results

6.1 Observations during the test

Time min	Test face	SP#	OBSERVATIONS/REMARKS
148	U	ALL	Maximum temperature of 93°C measured with a roving thermocouple
221	U	4, 7	Intumescent expanded, can be seen above SE on unexposed face
253	U	ALL	Maximum temperature of 137°C measured with a roving thermocouple
299	U	ALL	Maximum temperature of 154°C measured with a roving thermocouple
357	U	ALL	Maximum temperature of 190°C measured with a roving thermocouple
360			**TEST DISCONTINUED**

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

6.2 Specimen 1

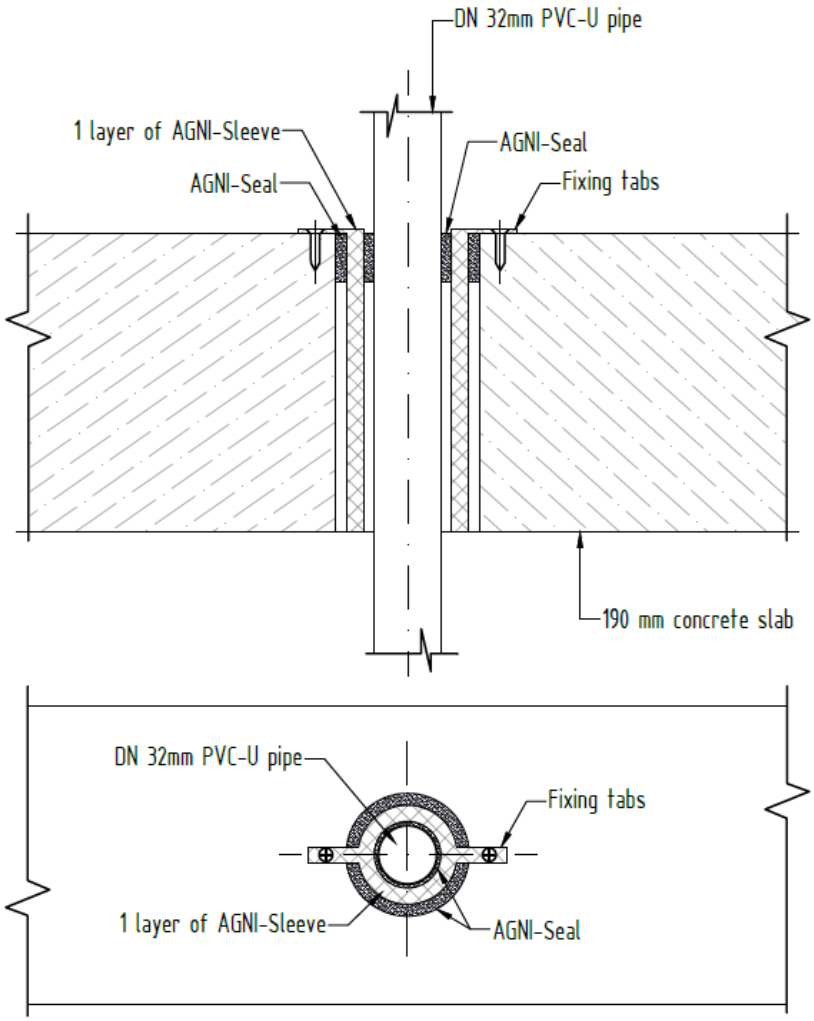


Service penetration details	
Service	DN100 PVC-U DWV PIPE
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	127mm
Annular Spacing	Min: 7.5mm Max: 8.5mm
Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit one revolution. 2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture.

	3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.3 Specimen 2



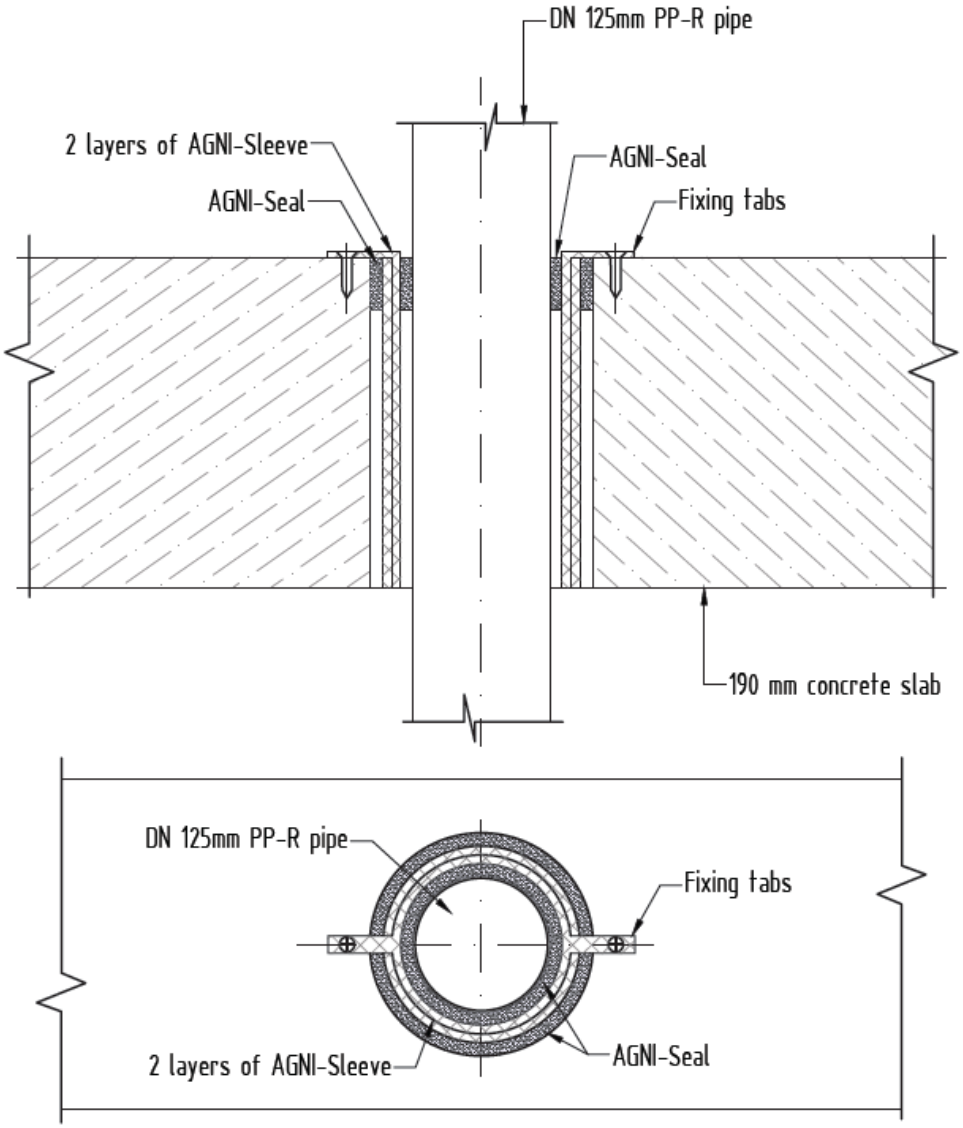
Service penetration details	
Service	DN32 PVC-U DWV PIPE
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	57mm
Annular Spacing	Min: 9mm Max: 11mm

Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit one revolution.

	2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.4 Specimen 3



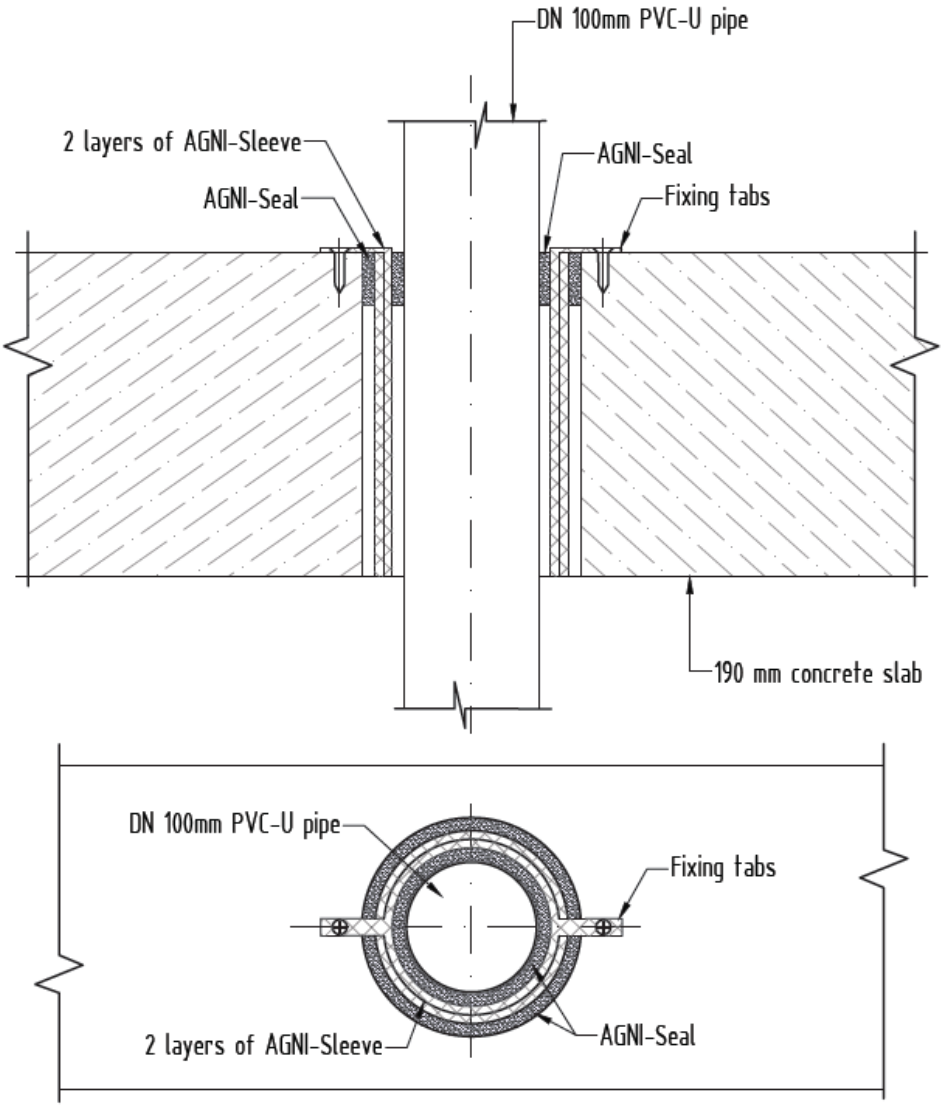
Service penetration details	
Service	125mm PPR PIPE SDR11 S
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	162mm
Annular Spacing	Min: 13mm Max: 24mm

Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit two revolution.

	2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.5 Specimen 4



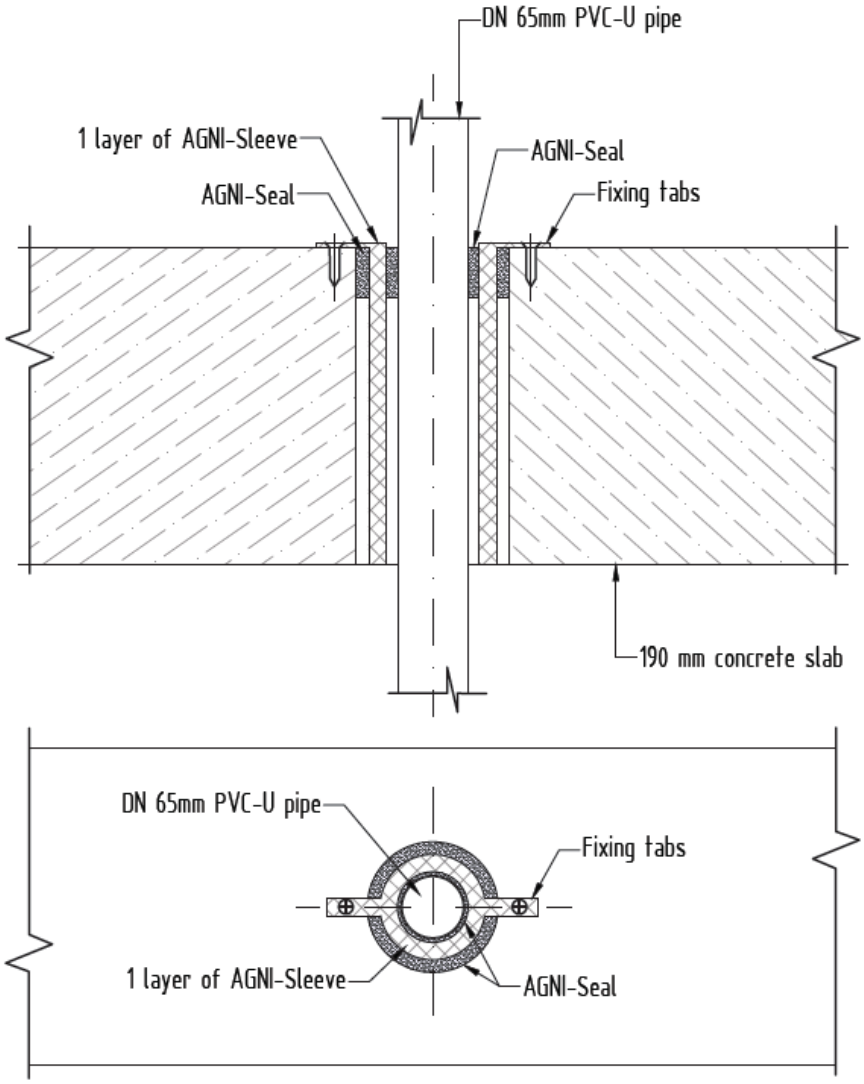
Service penetration details	
Service	DN100 PVC-U PIPE
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	127.5mm
Annular Spacing	Min: 7.5mm Max: 9mm

Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit two revolutions.

	2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.6 Specimen 5



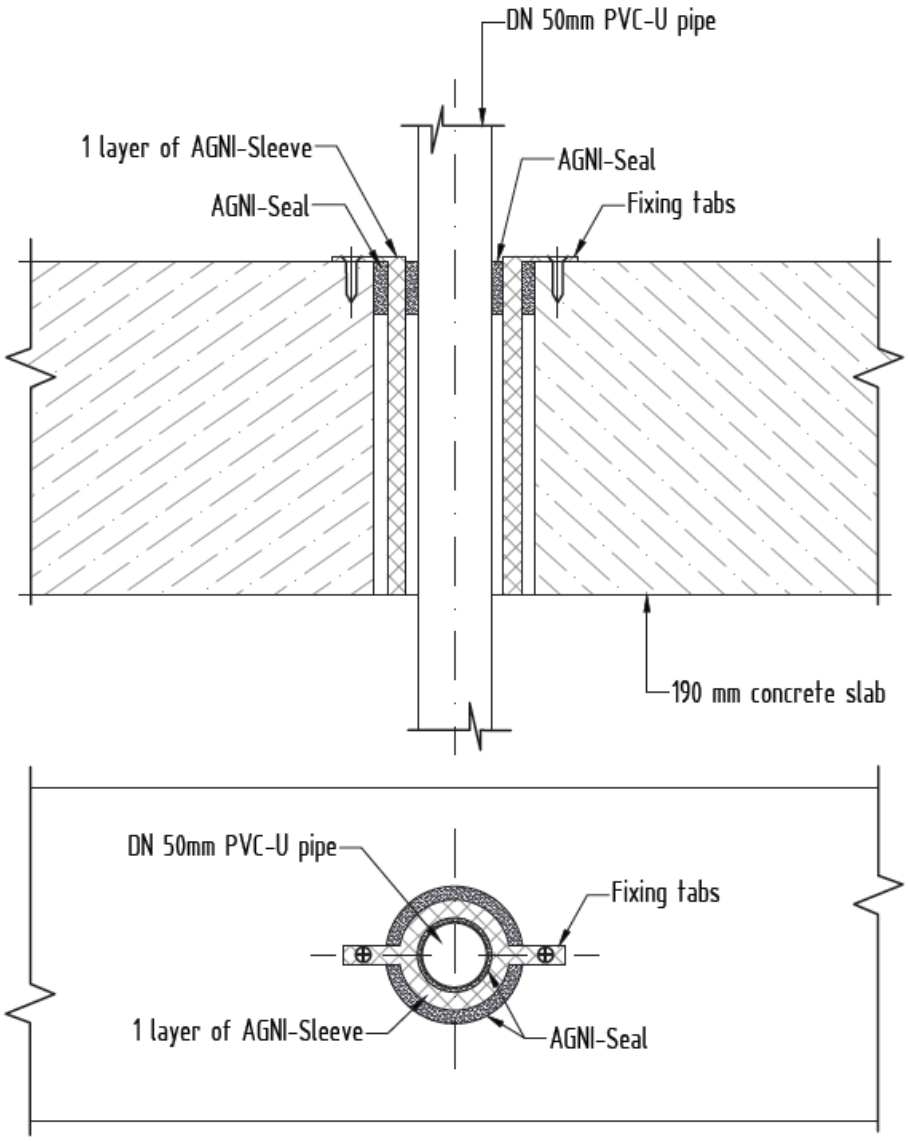
Service penetration details	
Service	DN65 PVC-U PIPE
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	87mm
Annular Spacing	Min: 7mm Max: 11mm

Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit one revolution.

	2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.7 Specimen 6



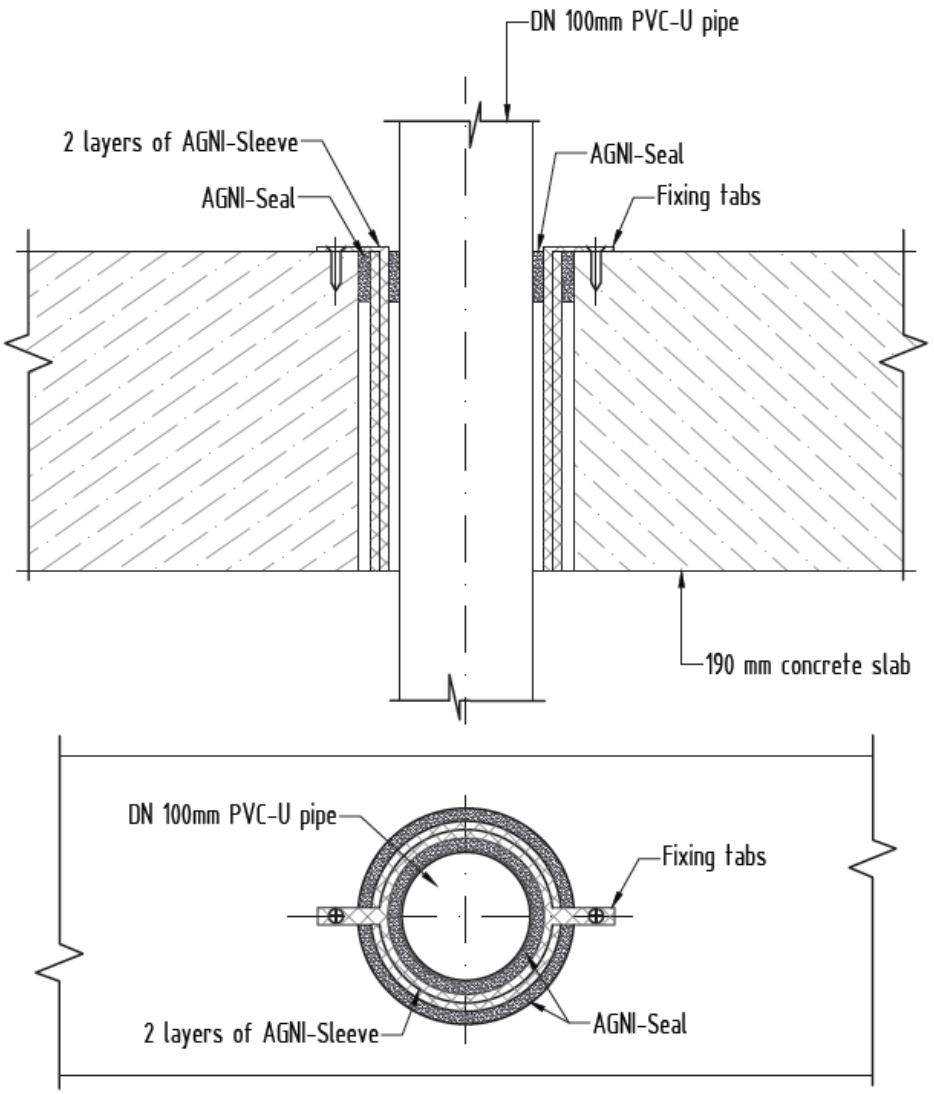
Service penetration details	
Service	DN50 PVC-U PIPE
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	77.5mm
Annular Spacing	Min: 9mm Max: 11mm

Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit one revolution.

	2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.8 Specimen 7



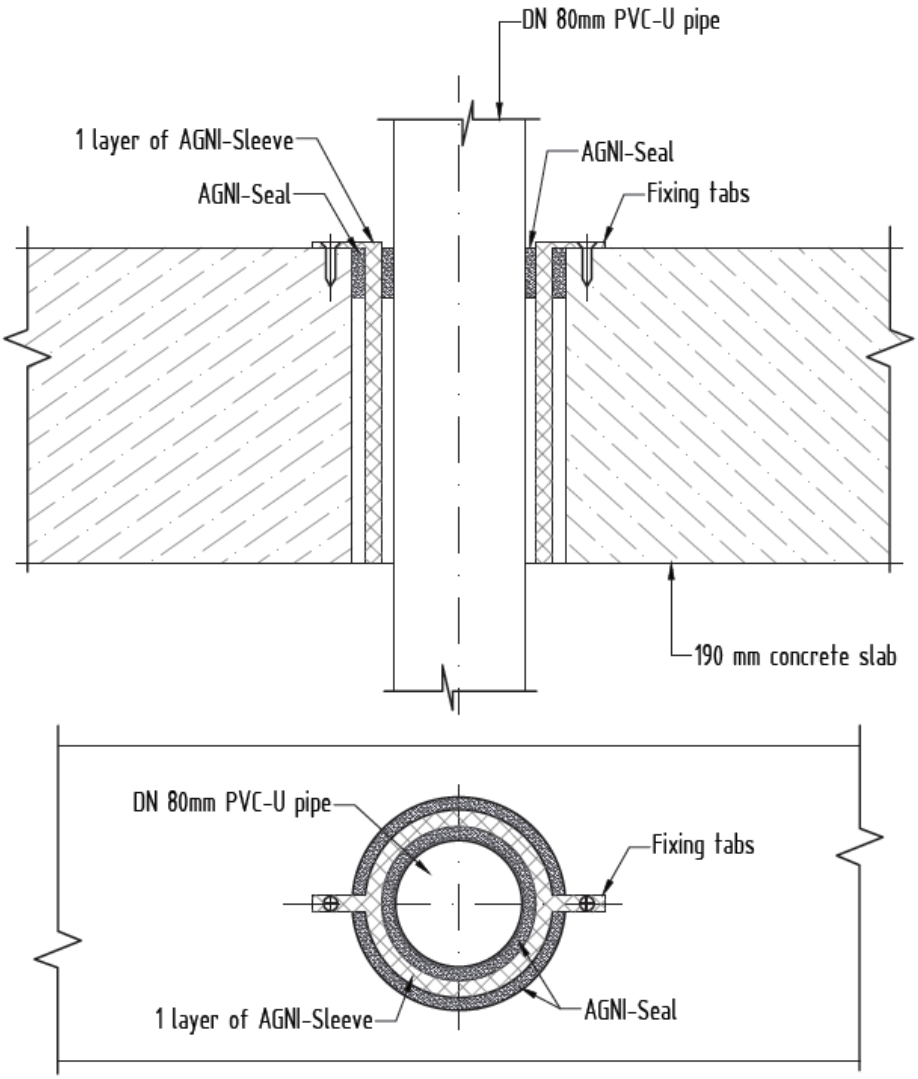
Service penetration details	
Service	DN100 PVC-U PIPE
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	133.5mm
Annular Spacing	Min: 10mm Max: 12.5mm

Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit two revolutions.

	2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.9 Specimen 8



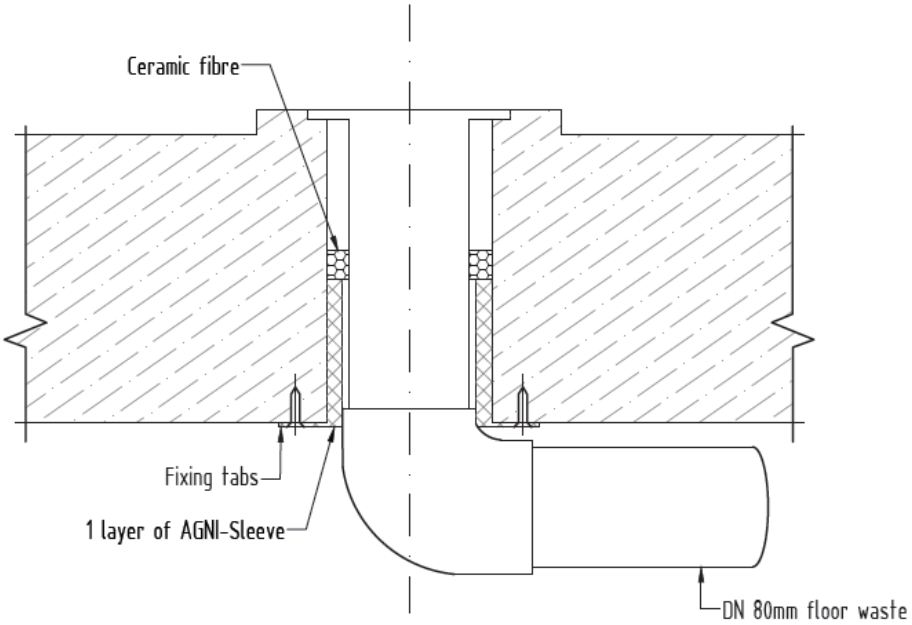
Service penetration details	
Service	DN80 PVC-U PIPE
Service Support	Unexposed Side - at 550mm and 1615mm
Aperture Diameter	102.5mm
Annular Spacing	Min: 4.5mm Max: 16.5mm

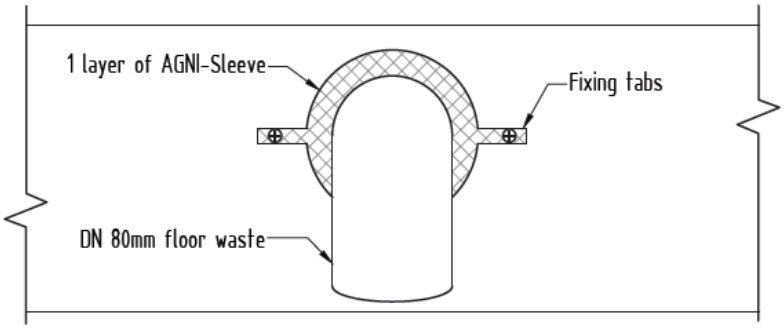
Local Fire-stopping system	
Application	Asymmetrical – installed from the unexposed side
System description	1. 240mm wide (190mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit one revolution.

	2. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 3. The cut AGNI-Sleeve was inserted into the aperture from the unexposed surface (flush with exposed face), tabs remained past the face of the unexposed surface. 4. The tabs were bent over onto the surface of the separating element and secured using concrete anchors. 5. AGNI-Seal was applied (10mm nominal) deep to unexposed side between the separating element, AGNI-Sleeve and the pipe, finishing flush with the face of the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

6.10 Specimen 9





Service penetration details	
Service	80mm SQUARE TILE KIT WITH 65mm FWG and 100mm STAINLESS STEEL BLACK ELEGANCE DRAIN + 80mm 90° PVC ELBOW
Aperture Diameter	102mm
Annular Spacing	Min: 7mm Max: 9mm

Local Fire-stopping system	
Application	Asymmetrical – installed from the exposed side
System description	1. 20mm thick AGNI-Sheild ceramic fibre (foil removed) was inserted into the aperture.

	2. 150mm wide (100mm within the slab and 50mm for tabs) AGNI-Sleeve was cut to fit one revolution AGNI-Sleeve was cut to fit one revolution. 3. The AGNI-Sleeve was then cut down to include two 50mm high x 25mm wide tabs, approximately opposite each other once installed into the aperture. 4. The cut AGNI-Sleeve was inserted into the aperture through the exposed surface and pushed up the AGNI-Sheild backing, tabs remained past the face of the exposed surface. 5. The tabs were bent over onto the surface of the separating element and secured using masonry screws.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 360 minutes
Insulation	No failure at 360 minutes

7. Photos

7.1 Photos before the test

Figure 1 – Unexposed face prior to test commencement