Regulatory Information Report

RIRF24019

Fire resistance test for penetrations through the vertical separating element

Client:	Agnitek Pty Ltd
Test method:	AS1530.4-2014
Report Date:	29/06/2024
Test number:	PF24019

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1.1 Document Revision Schedule

Revision #	Date	Description
1	29/06/2024	Issued to Client

1.2 Signatories

Report	Name	Signature	Date
Prepared by:	Alexey Kokorin		29/06/2024
Authorised by:	Andrew Bain (Authorized signatory)		29/06/2024

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 64mm Steel Stud wall with two layers of 13mm FR plasterboard each side.

Specimen #	Service	Actual Integrity (min)	Actual Insulation (min)	FRL*
1	DN20 PE-X Pipe	183 NF	183 NF	-/120/120
4	DN25 Polybutylene Pipe	183 NF	164	-/120/120
5	20mm PE 80 BLUE PE Pipe	183 NF	176	-/120/120
6	63mm PE 80 BLUE PE Pipe	183 NF	174	-/120/120
7	20mm Air Conditioning & Refrigeration PVCU Pipe	183 NF	178	-/120/120
8	DN16 PEX-AL-PEX Gas Pipe	183 NF	123	-/120/120
9	DN25 PEX-AL-PEX Pipe	174	85	-/120/60

NF – No failure during the test

*** - The FRL is limited to the stated performance of the separating element.**

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. The Laboratory checked materials during construction of the specimen. All specimens were capped on fire side only.

Testing date:

20/02/2024

Installation completion date:

31/01/2024

Termination of The Test:

The test was discontinued at 183 minutes.

3.4 Use of Reports

A regulatory information report was issued in addition to the full test report PF24019. This provides the minimum information required for regulatory compliance.

This report shall not be reproduced, except in full.

The specimen was a symmetrical construction.

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 Steel Stud with two layers of 13mm FR plasterboard each side
	Dimensions	Width / Height (W/H): 1200mm × 1200mm
		Wall Thickness (T): 116mm
		Cavity: 64mm

Materials		
1.2	Item / Product Name	Steel Track
	Dimensions	Width / Height (W/H): 64mm × 30mm
		Thickness (T): 0.55 BMT
	Additional Info	Installed to top and bottom of refractory frame
1.3	Item / Product Name	Steel Stud
	Dimensions	Width / Height (W/H): 64mm × 34mm
		Thickness (T): 050 BMT
	Additional Info	Fixed to steel tracks, used to construct steel stud frame
1.4	Item / Product Name	AGNI-Board
	Dimensions	Width / Height (W/H): 600mm × 1200mm
		Thickness (T): 50mm
		Density (ρ): 160 kg/m^3 nominal, 190.95 kg/m^3 measured
	Installation	Installed to steel stud frame between specimens, trimmed to flush with steel studs
1.5	Item / Product Name	Fire Rated Plasterboard
	Dimensions	Width / Height (W/H): 1200mm × 1200mm
		Thickness (T): 13mm
	Additional Info	2 × layers installed to each face of steel stud frame

1.6	Item / Product Name	Screw
	Dimensions	6.5 × 32mm
	Installation	Used to fix top and bottom plates
1.7	Item / Product Name	Screw
	Dimensions	10 × 16mm
	Installation	Used to fix steel stud frame
1.8	Item / Product Name	Self Tapping Screw
	Dimensions	6g × 41mm
	Installation	Used to fix plasterboard to steel stud frame

4.1 Specimens

Services		
2.1	Item / Product Name	20mm Air Conditioning & Refrigeration PVCU Pipe
	Dimensions	Inner Diameter (ID): 23mm
		Outer Diameter (OD): 26.5mm
		Thickness (T): 1.5mm
2.2	Item / Product Name	63mm PE Pressure Pipe
	Dimensions	Inner Diameter (ID): 50.5mm
		Outer Diameter (OD): 63.5mm
		Thickness (T): 6.5mm
2.3	Item / Product Name	20mm PE Pressure Pipe
	Dimensions	Inner Diameter (ID): 15.5mm
		Outer Diameter (OD): 20mm
		Thickness (T): 2mm
2.4	Item / Product Name	DN20 PE-X Pipe
	Dimensions	Inner Diameter (ID): 14.5mm
		Outer Diameter (OD): 20.5mm
		Thickness (T): 3mm

2.8	Item / Product Name	DN16 PEX-AL-PEX Gas Pipe
	Dimensions	Inner Diameter (ID): 11mm
		Outer Diameter (OD): 16.5mm
		Thickness (T): 2.5mm
2.9	Item / Product Name	DN25 PEX-AL-PEX Pipe
	Dimensions	Inner Diameter (ID): 19mm
		Outer Diameter (OD): 25mm
		Thickness (T): 2.5mm

Sealants		
3.1	Item / Product Name	AGNI-Seal
	Dimensions	310mL sausage
	Installation	Installed to all specimens

Fixings		
4.1	Item	AGNI-Strap - Stainless Steel Ties
	Dimensions	Width / Height (W/H): 4.6mm × 200mm
	Installation	Used to fix AGNI-Wrap around service

Intumescent		
5.1	Item	AGNI-Wrap
	Dimensions	Width (W): 25mm
		Thickness (T): 3mm
	Installation	Installed around service, against separating element

5. Specimens

5.1 Specimen 1

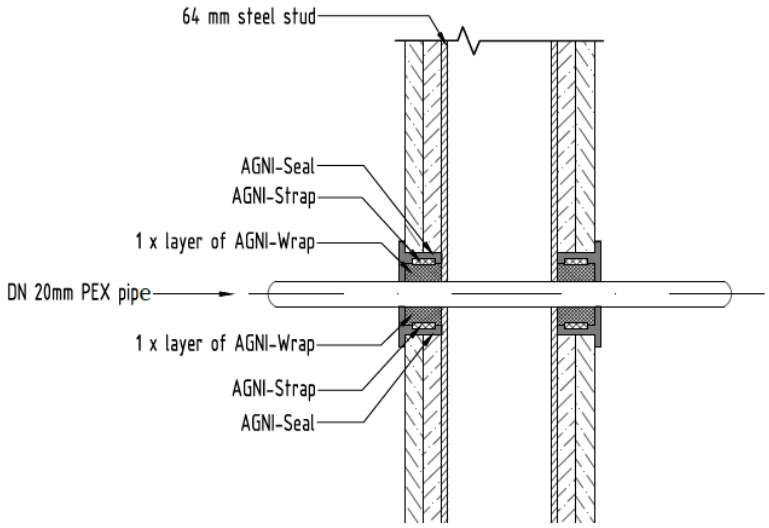

Figure 3 – Specimen 1

Service penetration details	
Service	DN20 PE-X Pipe
Aperture Diameter	35mm
Annular Spacing	Min: 0mm, Max: 9.5mm

Local Fire-stopping system	
Application	Symmetrical – installed on both faces of separating element
System description	AGNI-Wrap was wrapped around the pipe with 10mm (nominal) overlap on both sides of separating element. AGNI-Wrap was secured with cable tie, then inserted into the aperture flush with separating element. 26mm (nominal) deep sealant was installed in the annular space between the AGNI-Wrap and plasterboard. The surface was sealed with AGNI-Seal flush with separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 183 minutes
Insulation	No failure at 183 minutes

5.2 Specimen 4

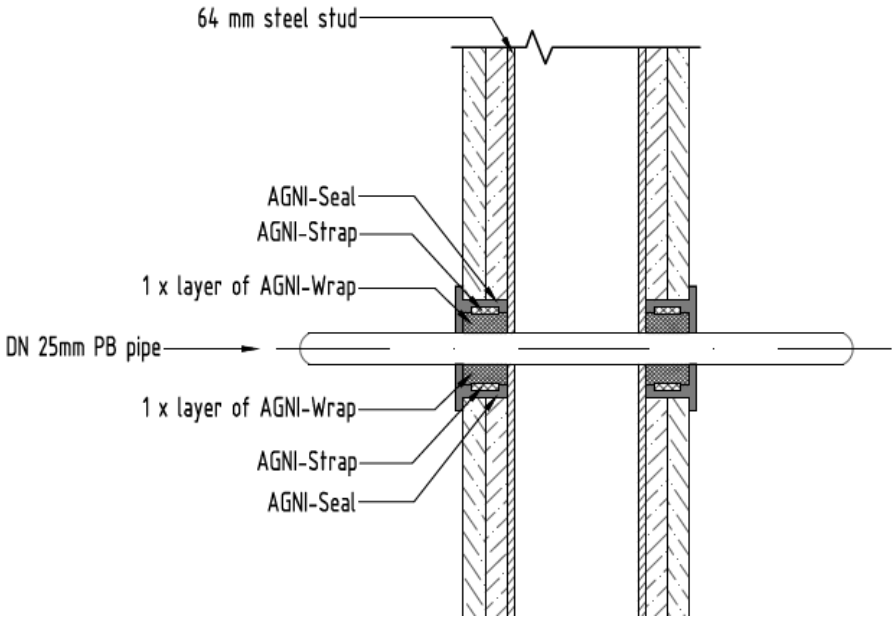

Figure 9 – Specimen 4

Service penetration details	
Service	DN25 Polybutylene Pipe
Aperture Diameter	45mm
Annular Spacing	Min: 6mm, Max: 11mm

Local Fire-stopping system	
Application	Symmetrical – installed on both faces of separating element
System description	AGNI-Wrap was wrapped around the pipe with 10mm (nominal) overlap on both sides of separating element. AGNI-Wrap was secured with cable tie, then inserted into the aperture flush with separating element. 26mm (nominal) deep sealant was installed in the annular space between the AGNI-Wrap and plasterboard. The surface was sealed with AGNI-Seal flush with separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 183 minutes
Insulation	164 minutes

5.3 Specimen 5

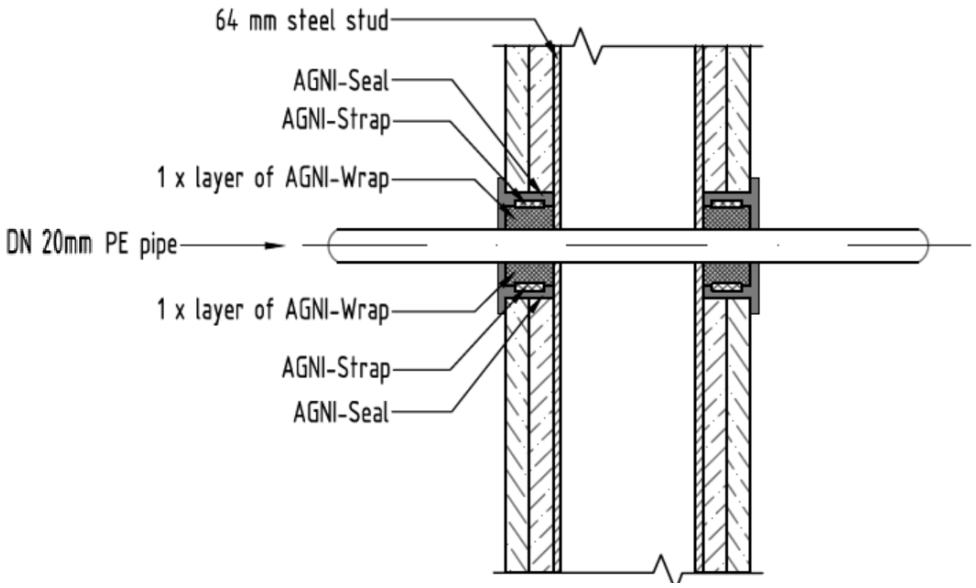

Figure 11 – Specimen 5

Service penetration details	
Service	20mm PE 80 Pressure Pipe
Aperture Diameter	Min: 35mm, Max: 36mm
Annular Spacing	Min: 4mm, Max: 12mm

Local Fire-stopping system	
Application	Symmetrical – installed on both faces of separating element
System description	AGNI-Wrap was wrapped around the pipe with 10mm (nominal) overlap on both sides of separating element. AGNI-Wrap was secured with cable tie, then inserted into the aperture flush with separating element. 26mm (nominal) deep sealant was installed in the annular space between the AGNI-Wrap and plasterboard. The surface was sealed with AGNI-Seal flush with separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 183 minutes
Insulation	176 minutes

5.4 Specimen 6

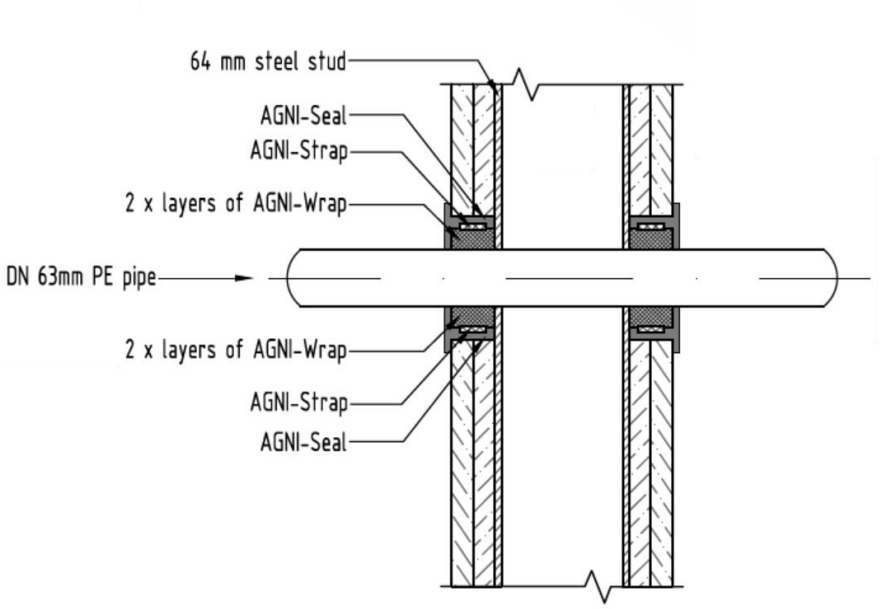

Figure 13 – Specimen 6

Service penetration details	
Service	63mm PE 80 Pressure Pipe
Aperture Diameter	86mm
Annular Spacing	Min: 8mm, Max: 14.5mm

Local Fire-stopping system	
Application	Symmetrical – installed on both faces of separating element
System description	2 revolutions of AGNI-Wrap were wrapped around the pipe with 10mm (nominal) overlap on both sides of the separating element. AGNI-Wrap was secured with cable tie, then inserted into the aperture flush with separating element. 26mm (nominal) deep AGNI-Seal was installed in the annular space between the AGNI-Wrap and plasterboard, flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 183 minutes
Insulation	174 minutes

5.5 Specimen 7

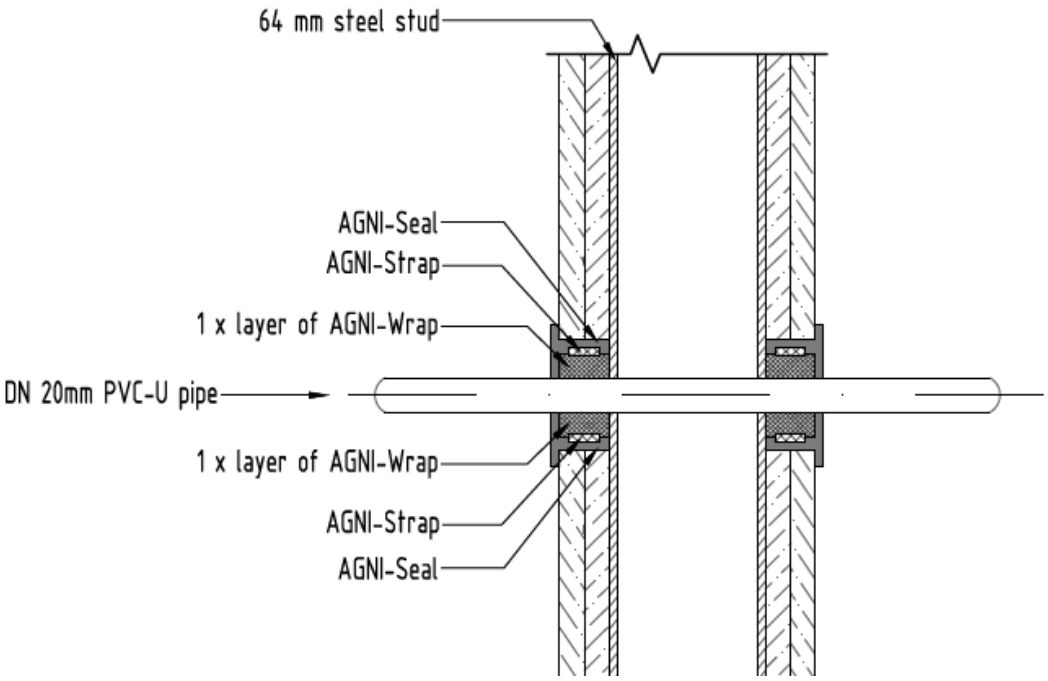

Figure 15 – Specimen 7

Service penetration details	
Service	20mm Air Conditioning & Refrigeration PVC-U Pipe
Aperture Diameter	45mm
Annular Spacing	Min: 5mm, Max: 14.5mm

Local Fire-stopping system	
Application	Symmetrical – installed on both faces of separating element
System description	AGNI-Wrap was wrapped around the pipe with 10mm (nominal) overlap on both sides of separating element. AGNI-Wrap was secured with cable tie, then inserted into the aperture flush with separating element. 26mm (nominal) deep sealant was installed in the annular space between the AGNI-Wrap and plasterboard. The surface was sealed with AGNI-Seal flush with separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 183 minutes
Insulation	178 minutes

5.6 Specimen 8

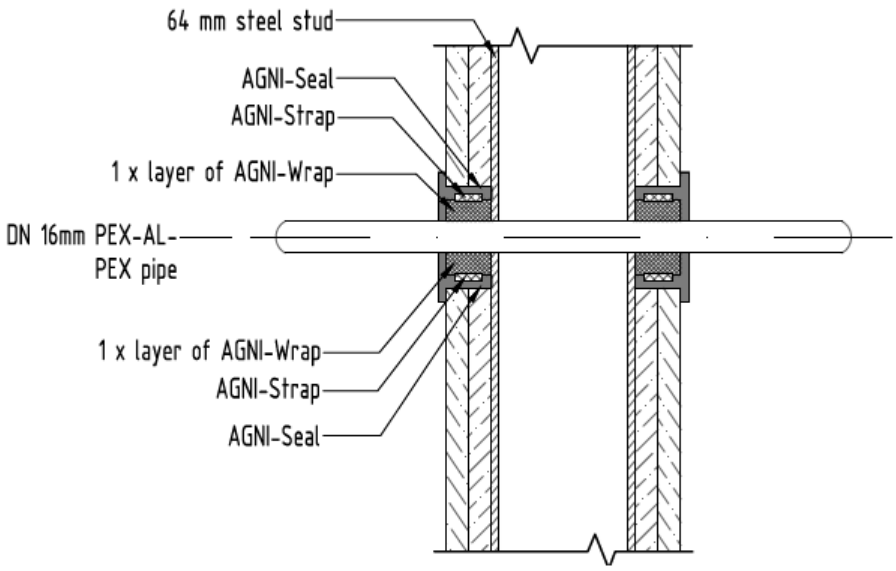

Figure 17 – Specimen 8

Service penetration details	
Service	DN16 PEX-AL-PEX Gas Pipe
Aperture Diameter	Min: 33mm, Max: 34mm
Annular Spacing	Min: 6.5mm, Max: 11.5mm

Local Fire-stopping system	
Application	Symmetrical – installed on both faces of separating element
System description	AGNI-Wrap was wrapped around the pipe with 10mm (nominal) overlap on both sides of separating element. AGNI-Wrap was secured with cable tie, then inserted into the aperture flush with separating element. 26mm (nominal) deep sealant was installed in the annular space between the AGNI-Wrap and plasterboard. The surface was sealed with AGNI-Seal flush with separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 183 minutes
Insulation	123 minutes

5.7 Specimen 9

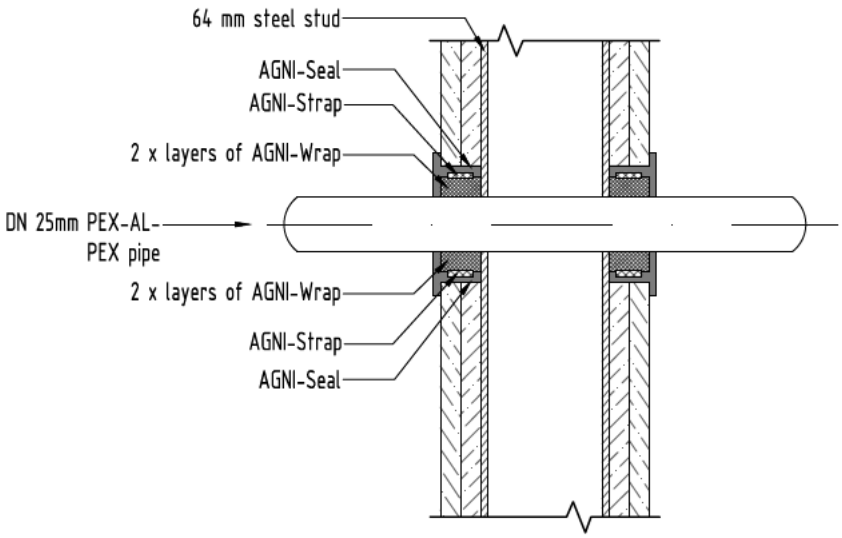

Figure 19 – Specimen 9

Service penetration details	
Service	DN25 PEX-AL-PEX Gas Pipe
Aperture Diameter	45mm
Annular Spacing	Min: 8mm, Max: 12mm

Local Fire-stopping system	
Application	Symmetrical – installed on both faces of separating element
System description	AGNI-Wrap was wrapped around the pipe with 10mm (nominal) overlap on both sides of separating element. AGNI-Wrap was secured with cable tie, then inserted into the aperture flush with separating element. 26mm (nominal) deep sealant was installed in the annular space between the AGNI-Wrap and plasterboard. The surface was sealed with AGNI-Seal flush with separating element.

Test results	
Structural adequacy	Not applicable
Integrity	174 minutes
Insulation	85 minutes

6. Observations during the test

Time min	Test face	SP#	OBSERVATIONS/REMARKS
173	U	3	Open flame > 10 seconds on specimen
174	U	9	Open flame on specimen 3 spread onto specimen 9
183			Test Discontinued

NOTE: E – Exposed Face (inside furnace)

U – Unexposed Face (outside furnace)

SE – Separating element