Fire Testing Laboratory

Regulatory Information Report

RIR2207701

Fire Resistance Test for Penetrations in FR Plasterboard Wall

Issued to:	Firestop Centre Ltd
Test method:	AS1530.4-2014
Report Date:	08/07/2025
Test number:	PF22077

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Table of Contents

1.1 Document revision schedule

Revision #	Date	Description
1	08/07/2025	Issued

1.2 Signatories

Report	Name	Signature	Date
Prepared by:	Alexey Kokorin		08/07/2025
Authorised by:	Andrew Bain (Authorized signatory)		08/07/2025

ACCREDITED
IANZ
TESTING LABORATORY

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

2. Report Summary

A 64mm steel stud frame, lined with 2 x 13mm FR plasterboard on each side was constructed and installed below a 150mm concrete slab lintel. Steel studs were installed to accommodate a horizontal linear gap along the lintel, cable bundles, copper pipes and a steel pipe. A deflection head track was installed directly to the lintel and bottom of the refractory frame, with studs between. The plasterboard was trimmed and installed 40mm below the lintel, resulting in a 40mm horizontal linear gap ontop of the deflection head track.

Additional penetrations for 5 x cable bundles, 2 x copper pipes and 1 x steel pipe were cut. All services were protected using FIRESTOP Ultra sealant with or without ceramic fibre blanket.

Specimen	Joint	Actual Integrity (min)	Actual Insulation (min)	FRL
A	40mm horizontal linear gap	123 NF	123 NF	-/120/120
B	20mm Cable Bundle	123 NF	123 NF	-/120/120
C	DN150 Copper pipe	123 NF	70	-/120/60
D	DN100 Copper pipe	123 NF	96	-/120/90
E	Single Cable	123 NF	123 NF	-/120/120
F	5mm Cable Bundle	123 NF	123 NF	-/120/120
G	35mm Cable Bundle	123 NF	123 NF	-/120/120
H	32 NB Steel pipe	123 NF	123 NF	-/120/120
I	20mm Cable Bundle	123 NF	123 NF	-/120/120
J	35mm Cable Bundle	123 NF	123 NF	-/120/120

NF indicates no failures observed during test

3. General Information

3.1 Testing Scope

Applicable Standards:

AS 1530-2014 Part 4: Section 10 Service penetrations and control joints.

AS 4072.1-2005 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

Issued to:

Firestop Centre Ltd.

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New Zealand

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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 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.

Testing date:

28/02/2023

Installation completion date:

22/01/2023

Termination of The Test:

The test was discontinued at 123 minutes.

3.4 Use of the Report

A regulatory information report was issued in addition to the full test report PF22077. This provides the minimum information required for regulatory compliance

This report shall not be reproduced, except in full.

The specimen was a symmetrical construction. The results of the test apply if exposed to fire from either side. 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 / Product Name	Steel Stud and Plasterboard Separating element
	Measurements	Width / Height (W/H): 1200mm x 1200mm
		Wall Thickness: 116mm
		Cavity: 64mm

1.2	Item / Product Name	Steel Stud
	Measurements	Width / Height (W/H): 64mm x 35.5mm
		Thickness (T): 0.50BMT
	Additional Info	Used to construct separating element
1.3	Item / Product Name	Steel Deflection Track
	Measurements	Width / Height (W/H): 64mm x 50mm
		Thickness (T): 0.75BMT
	Additional Info	Used to construct separating element
1.4	Item / Product Name	13mm FR Plasterboard
	Measurements	Width / Height (W/H): 1200mm x 3000mm
		Thickness (T): 13mm
	Additional Info	2 x layers installed to each side of steel frame
1.5	Item / Product Name	Concrete Slab
	Measurements	Width / Length (W/L): 1200mm x 490mm
		Thickness (T): 150mm
	Additional Info	Used to construct separating element
4.1	Item / Product Name	Self-Tapping Screws
	Measurements	32mm
	Installation	Used to fix plasterboard to steel stud

4.2	Item / Product Name	Self-Tapping Screws
	Measurements	41mm
	Installation	Used to fix plasterboard to steel stud
4.3	Item / Product Name	Metal Screw – Button Head Philips drive
	Measurements	8g x 25mm
	Installation	Used to fix framing components

4.2 Specimen A

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed ontop of deflection head track to create a 26mm depth horizontal linear gap seal

4.3 Specimen B

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed into annular gap + 50 x 70mm cone
2.1	Item / Product Name	Cat6 Cable
	Measurements	Outer Diameter (OD): 6.5mm (nominal)
	Additional Info	8 x cables installed in deflection head aperture

4.4 Specimen C

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed into annular gap + 50 x 70mm cone
2.2	Item / Product Name	DN150 Copper Pipe
	Measurements	Outer Diameter (OD): 153mm
		Inner Diameter (ID): 148mm
		Thickness (T): 2.5mm

	Additional Info	Installed through aperture

5.1	Item / Product Name	Ceramic Fibre Blanket
	Measurements	Width / Height (W/H): 610mm x 7200mm
		Thickness (T): 25mm
		Density (ρ): 128Kg/m^3
	Additional Info	Wrapped around service 2 x times with additional 150mm overlap, extending 300mm from separating element
4.4	Item / Product Name	Stainless-Steel Cable Ties
	Measurements	10mm x 1000mm
	Installation	Used to fix wrap around services 100mm from ends of wrap

4.5 Specimen D

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed in annular gap + 50x70mm cone
2.3	Item / Product Name	DN100 Copper Pipe
	Measurements	Outer Diameter (OD): 102mm
		Inner Diameter (ID): 98mm
		Thickness (T): 2.25mm
	Additional Info	Installed through aperture
5.1	Item / Product Name	Ceramic Fibre Blanket
	Measurements	Width / Height (W/H): 610mm x 7200mm
		Thickness (T): 25mm
		Density (ρ): 128Kg/m^3
	Additional Info	Wrapped around service 2 x times with additional 150mm overlap, extending 300mm from separating element
4.4	Item / Product Name	Stainless-Steel Cable Ties
	Measurements	10mm x 1000mm

	Installation	Used to fix wrap around services 100mm from ends of wrap

4.6 Specimen E

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed in annular gap + 50x70mm cone
2.4	Item / Product Name	TPS Cable
	Measurements	Width / Height (W/H): 12.5mm x 5mm
	Additional Info	1 x cable installed through aperture

4.7 Specimen F

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed in annular gap + 50x70mm cone
2.4	Item / Product Name	Nexans OLEX TPS Cable
	Measurements	Width / Height (W/H): 12.5mm x 5mm
	Additional Info	2 x cables installed through aperture

4.8 Specimen G

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed in annular gap + 50x70mm cone
2.1	Item / Product Name	Cat6 Cable
	Measurements	Outer Diameter (OD): 6.5mm (nominal)
	Additional Info	16 x cables installed through aperture

4.9 Specimen H

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed in annular gap + 50x70mm cone
2.5	Item / Product Name	32NB Steel Pipe
	Measurements	Outer Diameter (OD): 42.5mm
		Inner Diameter (ID): 36mm
		Thickness (T): 3.25mm
	Additional Info	Installed through aperture
5.1	Item / Product Name	Ceramic Fibre Blanket
	Measurements	Width / Height (W/H): 610mm x 7200mm
		Thickness (T): 25mm
		Density (ρ): 128Kg/m^3
	Additional Info	Wrapped around service 2 x times with additional 150mm overlap, extending 300mm from separating element
4.4	Item / Product Name	Stainless-Steel Cable Ties
	Measurements	10mm x 1000mm
	Installation	Used to fix wrap around services 100mm from ends of wrap

4.10 Specimen I

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed in annular gap + 50x70mm cone
2.1	Item / Product Name	Cat6 Cable
	Measurements	Outer Diameter (OD): 6.5mm (nominal)
	Additional Info	8 x cables installed through aperture

4.11 Specimen J

3.1	Item / Product Name	Formulation F023SDW01 - FIRESTOP Ultra sealant
	Dimensions	600mL
	Installation	Installed in annular gap + 50x70mm cone
2.1	Item / Product Name	Cat6 Cable
	Measurements	Outer Diameter (OD): 6.5mm (nominal)
	Additional Info	16 x cables installed through aperture

5. Test Results

5.1 Observations during the test

Time Minutes	Test Face	SP	Observations
2	U	G, I, J	Smoke from between cables
8	U	A	Smoke from between cables
9	U	C, D	Smoke from end of pipe
10	E	B, E, F, G, I, J	Visible charring/discolouring of sealant cone
10	E	B, E, F, G, I, J	Cables have combusted and are deforming
20	U	ALL	No notable changes
30	E	A	Combustion of sealant, visible discolouring
45	U	ALL	No notable changes
60	U	ALL	No notable changes
75	U	ALL	No notable changes
90	U	ALL	No notable changes
95	U	A	Visible expansion of sealant cone, crack in sealant
120	U	H	Crack between sealant and wrap junction
120	U	C	Discolouring of copper pipe 200mm from wrap
123			TEST DISCONTINUED

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

5.2 Specimen A – 40mm Horizontal linear gap

Service	40mm wide Horizontal Linear Gap seal
Joint Details	Sealant (3.1)
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	The top of the plasterboard was measured to be 40mm below the concrete slab, exposing the deflection head track. Sealant (3.1) was applied on top of the deflection head track, flush with the plasterboard, resulting in a 26mm (nominal) seal.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

5.3 Specimen B – 20mm Cable bundle

Service	20mm Cable Bundle
Service Details	8 x Cable (2.1), Sealant (3.1)
Aperture Size	30mm
Annular Spacing	Min: 2mm, Max: 4mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the deflection head track, between the concrete slab and the plasterboard. 8 x cables (2.1) were bundled together (25mm nominal bundle OD), then passed through the aperture, extending 500mm from the exposed face. Sealant was applied on top of the deflection head track, flush with the plasterboard, resulting in a 26mm (nominal) seal. An additional 50mm x 70mm cone of sealant was applied between the cable bundle and separating element. The cone extended 50mm from the cable bundle onto the separating element, and 70mm along the cable bundle.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

5.4 Specimen C – 150DN Copper Pipe

Service	DN150 Copper pipe
Service Details	Pipe (2.2), Sealant (3.1), Ceramic Fibre Blanket (5.1), Cable Ties (4.4)
Aperture Size	153mm
Annular Spacing	Min: 0mm, Max: 1mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. The pipe (2.8) was placed through the aperture, extending 500mm from the exposed face. A 50mm x 70mm cone of sealant was applied between the pipe and separating element. The cone extended 50mm from the pipe onto the separating element, and 70mm along the pipe. Once the sealant had cured, the cable tray was wrapped with ceramic blanket (5.1). Two revolutions were applied around the pipe, with 150mm (nominal) overlap. The wrap extended 300mm from the separating element, and was secured using two cable ties, spaced 100mm from each end of the wrap.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**70 min**

5.5 Specimen D – 100DN Copper Pipe

Service	DN100 Copper pipe
Service Details	Pipe (2.3), Sealant (3.1), Ceramic Fibre Blanket (5.1), Cable Ties (4.4)
Aperture Size	102mm
Annular Spacing	Min: 0mm, Max: 1mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. The pipe (2.8) was placed through the aperture, extending 500mm from the exposed face. A 50mm x 70mm cone of sealant was applied between the pipe and separating element. The cone extended 50mm from the pipe onto the separating element, and 70mm along the pipe. Once the sealant had cured, the cable tray was wrapped with ceramic blanket (5.1). Two revolutions were applied around the pipe, with 150mm (nominal) overlap. The wrap extended 300mm from the separating element, and was secured using two cable ties, spaced 100mm from each end of the wrap.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**96 min**

5.6 Specimen E – Single Cable

Service	Single Cable
Service Details	1 x Cable (2.4), Sealant (3.1)
Aperture Size	25mm
Annular Spacing	Min: 10mm, Max: 16mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. 1 x cable (2.4) was passed through the aperture, extending 500mm from the exposed face. Sealant was installed in the annular gap, flush with the plasterboard, resulting in a 26mm (nominal) seal. An additional 50mm x 70mm cone of sealant was applied between the cable and separating element. The cone extended 50mm from the cable onto the separating element, and 70mm along the cable.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

5.7 Specimen F – 5mm Cable bundle

Service	5mm Cable Bundle
Service Details	2 x Cable (2.4), Sealant (3.1)
Aperture Size	25mm
Annular Spacing	Min: 8mm, Max: 10mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. 2 x cables (2.1) were bundled together (14mm nominal bundle OD), then passed through the aperture, extending 500mm from the exposed face. Sealant was installed in the annular gap, flush with the plasterboard, resulting in a 26mm (nominal) seal. An additional 50mm x 70mm cone of sealant was applied between the cable bundle and separating element. The cone extended 50mm from the cable bundle onto the separating element, and 70mm along the cable bundle.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

5.8 Specimen G – 35mm Cable bundle

Service	35mm Cable Bundle
Service Details	16 x Cable (2.1), Sealant (3.1)
Aperture Size	50mm
Annular Spacing	Min: 5mm, Max: 8mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. 16 x cables (2.1) were bundled together (40mm nominal bundle OD), then passed through the aperture, extending 500mm from the exposed face. Sealant was installed in the annular gap, flush with the plasterboard, resulting in a 26mm (nominal) seal. An additional 50mm x 70mm cone of sealant was applied between the cable bundle and separating element. The cone extended 50mm from the cable bundle onto the separating element, and 70mm along the cable bundle.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

5.9 Specimen H – NB32 Steel Pipe

Service	32 NB Steel pipe
Service Details	Pipe (2.3), Sealant (3.1), Ceramic Fibre Blanket (5.1), Cable Ties (4.4)
Aperture Size	58mm
Annular Spacing	Min: 7mm, Max: 9mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. The pipe (2.8) was placed through the aperture, extending 500mm from the exposed face. A 50mm x 70mm cone of sealant was applied between the pipe and separating element. The cone extended 50mm from the pipe onto the separating element, and 70mm along the pipe. Once the sealant had cured, the cable tray was wrapped with ceramic blanket (5.1). Two revolutions were applied around the pipe, with 150mm (nominal) overlap. The wrap extended 300mm from the separating element, and was secured using two cable ties, spaced 100mm from each end of the wrap.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

5.10 Specimen I – 20mm Cable bundle

Service	20mm Cable Bundle
Service Details	8 x Cable (2.1), Sealant (3.1)
Aperture Size	30mm
Annular Spacing	Min: 0mm, Max: 4mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. 8 x cables (2.1) were bundled together (25mm nominal bundle OD), then passed through the aperture, extending 500mm from the exposed face. Sealant was installed in the annular gap, flush with the plasterboard, resulting in a 26mm (nominal) seal. An additional 50mm x 70mm cone of sealant was applied between the cable bundle and separating element. The cone extended 50mm from the cable bundle onto the separating element, and 70mm along the cable bundle.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

5.11 Specimen J – 35mm Cable bundle

Service	35mm Cable Bundle
Service Details	16 x Cable (2.4), Sealant (3.1)
Aperture Size	30mm x 70mm
Annular Spacing	Min: 5mm, Max: 10mm
Local Fire-stopping Protection	
Application	Symmetrical
Protection Used	Aperture was cut into the separating element. 16 x cables (2.1) were bundled together (20mm x 50mm nominal bundle OD), then passed through the aperture, extending 500mm from the exposed face. Sealant was installed in the annular gap, flush with the plasterboard, resulting in a 26mm (nominal) seal. An additional 50mm x 70mm cone of sealant was applied between the cable bundle and separating element. The cone extended 50mm from the cable bundle onto the separating element, and 70mm along the cable bundle.

Structural adequacy	**Not applicable**
Integrity	**No failure at 123 min**
Insulation	**No failure at 123 min**

6. Photos

Unexpoesd faced:

Exposed face: