Fire Testing Laboratory

TEST REPORT

PF25011

Fire resistance test for penetration through a vertical separating element

Client:	BOSS Products (Australia) Pty Ltd
Test method:	AS1530.4-2014
Report Date:	17/04/2025
Test number:	PF25011

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

Table of Contents

1.1 Document revision schedule

Revision #	Date	Description
1	02/04/2025	Initial issue for Client review
2	17/04/2025	Issued to Client

1.2 Signatories

Report	Name	Signature	Date
Prepared by:	Alexey Kokorin		17/04/2025
Authorised by:	Andrew Bain (Authorized signatory)		17/04/2025

ACCREDITED
IANZ
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 92mm steel frame insulated wall lined with one layer of 13mm fire rated plasterboard on each side.

Specimen #	Service	Actual Integrity (min)	Actual Insulation (min)	FRL*
1	20mm Wing Back (installed ***non-fire side*** only)	92NF	92NF	-/60/60
2	20mm Wing Back (installed ***fire side*** only)	92NF	92NF	-/60/60
3	20mm Wing Back (installed ***non-fire side*** only)	92NF	89	-/60/60
4	20mm Wing Back (installed ***fire side*** only)	92NF	92NF	-/60/60
5	20mm Wing Back (installed ***non-fire side*** only)	92NF	92NF	-/60/60
6	20mm Wing Back (installed ***fire side*** only)	92NF	92NF	-/60/60
7	TPS Cable Bundle (22 cables)	92NF	58	-/60/45
8	CAT6 Cable Bundle (38 cables)	92NF	90	-/60/60
9	25mm PEX Pipe	92NF	29	-/60/15
10	Heat Trace Cable	92NF	92NF	-/60/60
11	Heat Trace Cable	92NF	92NF	-/60/60

NF – No Failure

* - FRL was reduced to the published performance of the wall.

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

Performance Criteria:

Failure shall be deemed to have occurred when one of the following occurs:

a) The temperature at any location on the unexposed face of the test specimen exceeds the initial temperature by more than 180℃

b) Integrity failure shall be deemed to have occurred upon ignition of the cotton pad when glowing or flaming occurs for a period of 30 seconds.

c) Flaming to the unexposed face for 10 seconds or longer shall be deemed to be an Integrity failure.

Documentation:

Testing products were checked and tested based on the Client description, refer to the Specimens description below. Documents provided by the Client:

- Test 1 – Elevation – Aperture Location Fire Side – Horizontal.pdf
- Test 1 – Elevation – Aperture Location Fire Side – Vertical.pdf
- Test 1 – Elevation – Aperture Location Non Fire Side – Horizontal.pdf
- Test 1 – Elevation – Aperture Location Non Fire Side – Vertical.pdf
- Test 1 – Elevation – Aperture Size Fire Side.pdf
- Test 1 – Elevation – Aperture Size Non Fire Side.pdf
- Test 1 – Elevation – Fire Side.pdf
- Test 1 – Elevation – Framing Fire Side.pdf
- Test 1 – Elevation – Non Fire Side.pdf
- Test 1 – Section A.pdf
- Test 1 – Specimen Backing Detail.pdf
- Test 1 – Specimen Sections.pdf

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:

BOSS Products (Australia) Pty Ltd

Unit 1, 16 Atkinson Road, Tarren Point 2229, New South Wales

Australia

Contact e-mail: mark.prior@bossfire.com.au

Supplier/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 service were capped on the fire side, wing back had a PEX pipe extension (not capped).

Testing date:

13/03/2025

Installation completion date:

19/02/2025

Termination of The Test:

The test was discontinued at 92 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	92mm (nominal) steel stud frame insulated wall with one layer of 13mm FR Plasterboard fitted to each side of the frame
	Dimensions	Width x Height: 1200mm × 1200mm

Materials		
1.2	Item	Ramset AnkaScrew AS06075WGM
	Dimensions	6mm x 75mm
	Installation	Fixing top and bottom plates to refractory frame
1.3	Item	Steel Stud 0.50bmt
	Dimensions	Width x Height: 92mm x 1200mm
	Installation	Used to construct studs and nogs in steel frame
1.4	Item	Steel Deflection Head 0.75bmt
	Dimensions	Width x Height: 92mm x 1200mm
	Installation	Used to construct top plate
1.4	Item	Steel Track 0.50bmt
	Dimensions	Width x Height: 92mm x 1200mm
	Installation	Used to construct bottom plate
1.5	Item	Self-Tapping Screw
	Dimensions	10g x 16mm
	Installation	Used to construct steel stud frame
1.6	Item	GIB Fyreline
	Dimensions	Width x Height: 1200mm x 1200mm
		Thickness: 13mm
	Installation	1 layer applied to each face of separating element
1.7	Item	GIB Grabber Self Tapping Screw
	Dimensions	41mm
	Installation	Used to secure GIB Fyreline to frame

1.8	Item	GIB Plus 4 Plaster
	Dimensions	15L Pail
	Installation	Used to cover screw heads on plasterboard
1.9	Item / Product Name	Boss FireMastic-300
	Dimensions	600mL sausage
	Installation	Used to seal between separating element and refractory frame
1.10	Item	Boss Batt
	Dimensions	Width x Height: 600mm x 1200mm
	Installation	Cut to fit flush in studs and nogs between specimen cells
1.11	Item	Earthwool insulation – glass wool insulation
	Dimensions	R2.2 90mm thick
	Installation	Insulation in separating element
1.12	Item	20mm Plywood
	Dimensions	Height x Width: 200mm x 300mm
	Installation	Used as backing for Wingbacks
1.13	Item	Buildex 8-18 x 35mm Metal CSK Wing Tek Screw
	Dimensions	8g x 35mm
	Installation	Fixing to secure plywood to stud

4.2 Specimens

Services		
2.1	Item	Auspex External Wingback Elbow 20mm x ½”
	Dimensions	Size: 20mm
		Length: 65mm
	Material	DR Brass
2.2	Item	Brass Blank Cap 15mm
	Dimensions	Size: 15mm
	Material	DR Brass

2.3	Item	Nexans Olex 2024 V-90 Electrical Cable 450/750V 2C+E 2.5mm²
	Cable	Width x Depth: 11.7mm x 5.2mm
		Sheath Material: PVC
		Sheath Thickness: 0.95mm
	Core	Number of Cores: 2 (circular shaped)
		Overall Diameter: 3.26mm
		Conductor Diameter: 0.63mm
		Conductor Material: Copper
		Insulation Material: V-90 PVC
		Insulation Thickness: 0.8mm
	Earth	Overall Diameter: 3.1mm
		Wire Diameter: 0.65mm
2.4	Item	Dynamix UTP 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
2.5	Item	Auspex DN25 PN20 SDR9 PE-Xb Pipe
	Dimensions	Diameter (OD): 25.1mm
		Diameter (ID): 19.2mm
		Wall Thickness (T): 2.95mm
2.6	Item	Chemelex Raychem EM2-XR 2 Core Heat Trace Cable
	Cable	Width x Depth: 13.6mm x 6.4mm
		Sheath Material: Modified Polyolefin
		Sheath Thickness: 0.7mm
	Core	Number of Cores: 2

		Overall Diameter: 10.0mm x 2.5mm
		Conductor Diameter: 0.27mm
		Conductor Material: Copper
		Insulation Material: Tinned Copper Braid
		Insulation Thickness: 0.48mm

Sealants		
3.1	Item / Product Name	Boss FireSilicone-EMA
	Dimensions	310mL Cartridge
3.2	Item / Product Name	Boss FireMastic-300
	Dimensions	600mL sausage
3.3	Item / Product Name	Boss FireMastic-HPE
	Dimensions	600mL sausage

Collars		
4.1	Item	BOSS Collar shell 65 (no intumescent included)
	Collar	Height: 30mm Maximum Opening: 66mm Steel Thickness: 0.70BMT
	Fixing Points	3

Fixings		
5.1	Item	Bremick Hex Head Screw Type 17
	Dimensions	12g x 25mm
5.2	Item	Ramset Hollow Wall Anchor 16-24mm Zinc Plated
	Dimensions	M4 x 16-24mm
5.3	Item	Ramset RD16 Steel Discs
	Dimensions	16mm

5. Test Conditions

5.1 Equipment

Furnace:

1200X1200mm Indicative Furnace designed to operate to AS1530.4:2014

Temperature:

Furnace Temperature measurements were controlled with 3mm Type K MIMS thermocouples set within 50-100 mm from the face of the specimens in line with AS1530.4-2014. All thermocouples are calibrated by ISO/IEC 17025 accredited laboratory - a signatory to the International Laboratory Accreditation Corporation (ILAC) through their Mutual Recognition Agreement (MRA) to the accuracy required by AS 1530.4-2014.

Pressure measurement:

Kepware Siemens Data logging system including multi-channel recording data at 5 second intervals. Calibrated by ISO/IEC 17025 accredited laboratory - a signatory to the International Laboratory Accreditation Corporation (ILAC) through their Mutual Recognition Agreement (MRA) to the accuracy required by AS 1530.4-2014.

Ambient Temperature:

Ambient temperature was recorded 15 minutes before the test was commenced, at the start of the test and monitored during the test. All thermocouples are calibrated by ISO/IEC 17025 accredited laboratory - a signatory to the International Laboratory Accreditation Corporation (ILAC) through their Mutual Recognition Agreement (MRA) to the accuracy required by AS 1530.4-2014.

Specimen thermocouples:

Specimen thermocouples were installed to the unexposed face. Type K copper disk thermocouples fixed within the required locations referenced from AS1530.4-2014. Thermocouples are calibrated by ISO/IEC 17025 accredited laboratory - a signatory to the International Laboratory Accreditation Corporation (ILAC) through their Mutual Recognition Agreement (MRA) to the accuracy required by AS 1530.4-2014.

Dimensional measurements:

All linear measurements are made with equipment calibrated by ISO/IEC 17025 accredited laboratory - a signatory to the International Laboratory Accreditation Corporation (ILAC) through their Mutual Recognition Agreement (MRA) to the accuracy required by AS 1530.4-2014.

5.2 Furnace Data

Furnace Temperature:

The furnace was controlled to follow the temperature/time relationship specified in AS 1530.4-2014.

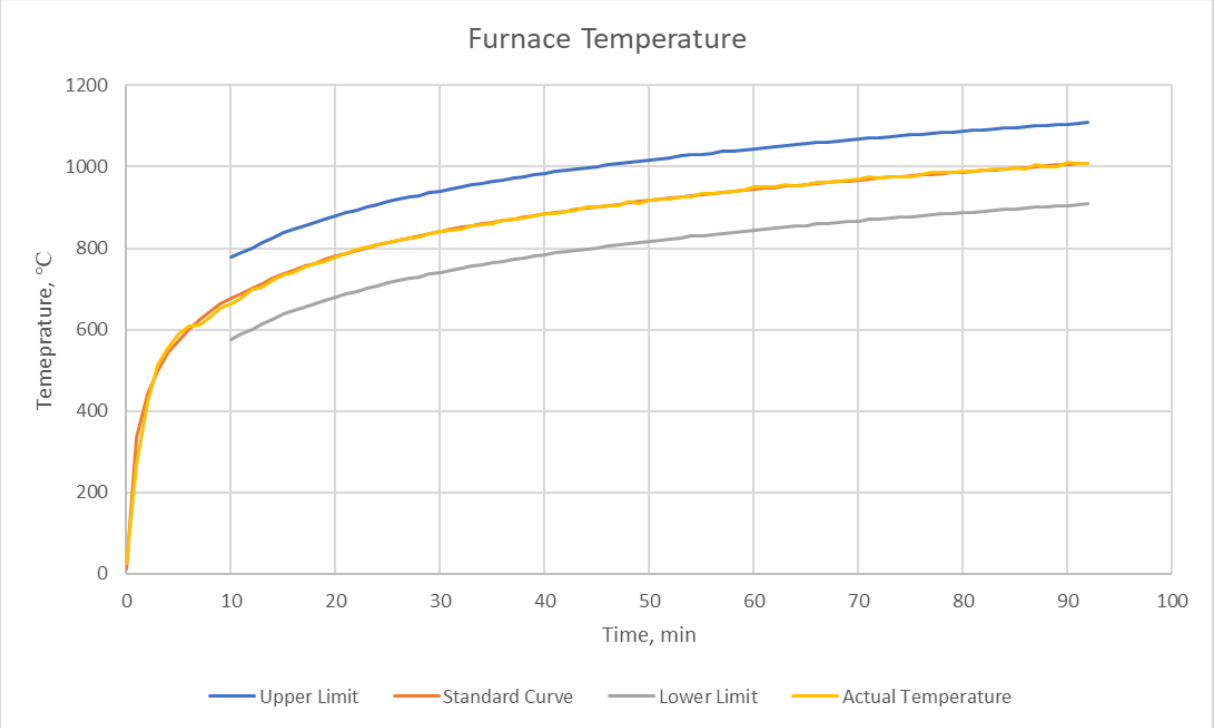


Figure 1 - Furnace Temperature during the test

Ambient Temperature:

The ambient temperature of the test area 15 minutes before the test and at the commencement of the test was 20°C.

Furnace Pressure:

After the first 5 minutes of the test, the furnace pressure was maintained at 15±3 Pa with respect to atmosphere. The probe was located 500mm above the furnace floor.

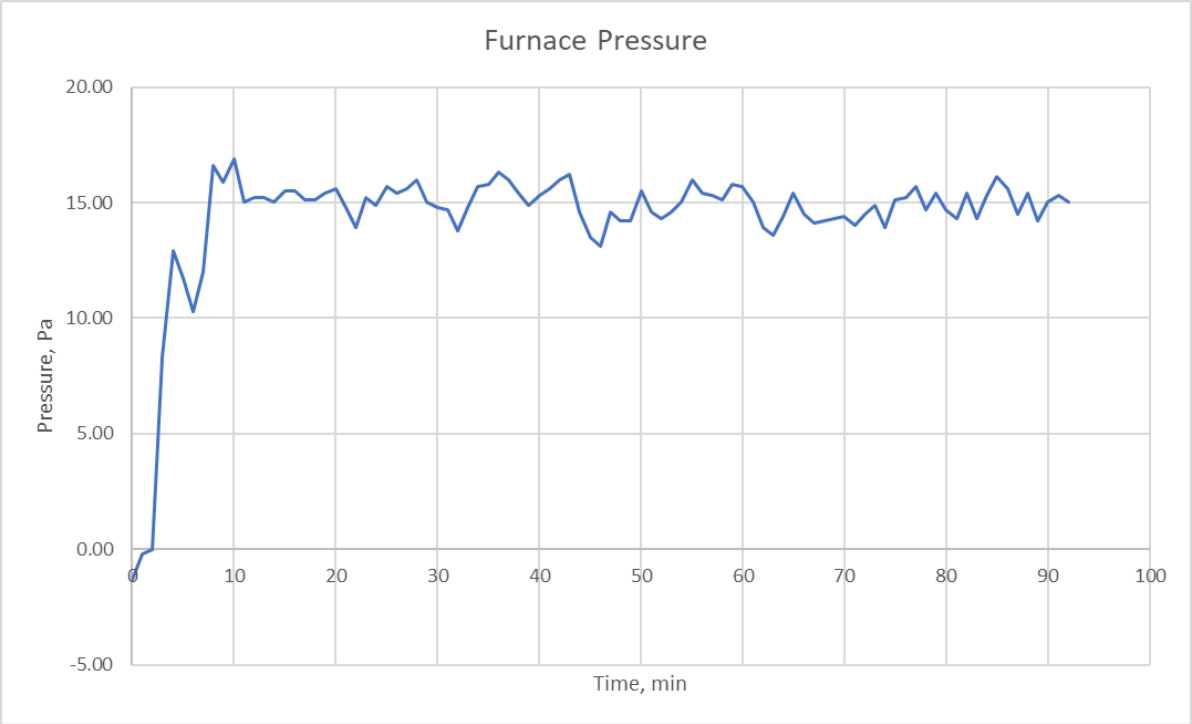
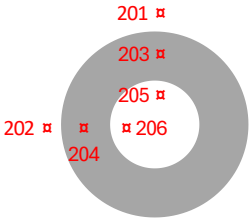
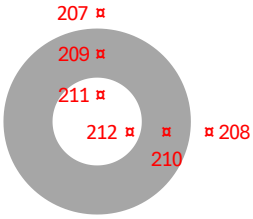
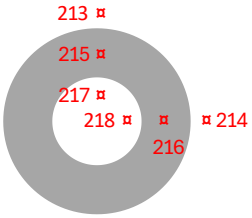
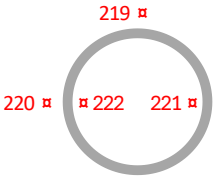
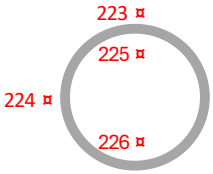
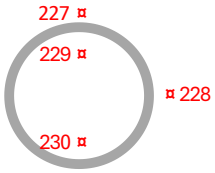
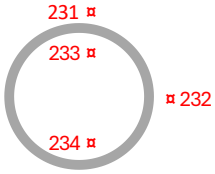


Figure 2 - Furnace Pressure during the test

5.3 Thermocouple locations

Service: DATA CABLE	**Service:** PEX PIPE - 25	**Service:** BOSS TPS CABLE
# of Thermocouples: 6	**# of Thermocouples:** 6	**# of Thermocouples:** 6
Start: TC201 **Finish:** TC206	**Start:** TC207 **Finish:** TC212	**Start:** TC213 **Finish:** TC218
		

Service: HEAT TRACE CABLE	**Service:** WINGBACK - 20	**Service:** WINGBACK - 20	**Service:** WINGBACK - 20
# of Thermocouples: 4	**# of Thermocouples:** 4	**# of Thermocouples:** 4	**# of Thermocouples:** 4
Start: TC219 **Finish:** TC222	**Start:** TC223 **Finish:** TC226	**Start:** TC227 **Finish:** TC230	**Start:** TC231 **Finish:** TC234
			

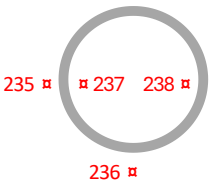
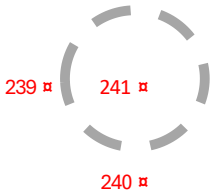
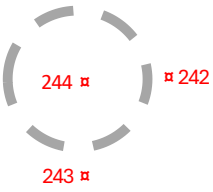
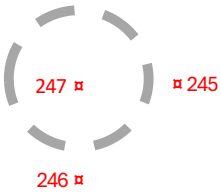
Service: HEAT TRACE CABLE	**Service:** WINGBACK - 20	**Service:** WINGBACK - 20	**Service:** WINGBACK - 20
# of Thermocouples: 4	**# of Thermocouples:** 3	**# of Thermocouples:** 3	**# of Thermocouples:** 3
Start: TC235 **Finish:** TC238	**Start:** TC239 **Finish:** TC241	**Start:** TC242 **Finish:** TC244	**Start:** TC245 **Finish:** TC247
			

Figure 3 - Thermocouple locations

6. Test Results

6.1 Observations during the test

Time min	Test face	SP#	OBSERVATIONS/REMARKS
2	U	7, 8	Smoke coming through between cables
7	E	9	Pipe dislodged from the separating element
8	E	7, 8, 9	Intumescent has engaged in the aperture
10	U	7	Moisture visible above specimen on the separating element
29	U	9	Pipe beginning to distort
34	U	9	Intumescent beginning to engage
41	U	5	Sealant beginning to expand
49	U	7	Intumescent beginning to engage, cables on the side melting
49	U	5, 9	Sealant starting to crack
53	U	9	Intumescent engaged, crack in sealant growing
61	U	7	Discolouration visible on collar
63	U	3	Smoke coming through from around the service
70	U	9	Discolouration visible on the separating element
74	U	8	Intumescent beginning to engage
80	U	9	Piece of intumescent fallen away from the specimen
83	U	3	Smoke coming through the centre of the wingback
86	U	5	Crack visible in the sealant
88	U	1	Smoke coming through from around the service
90	U	3	Cotton pad test - PASS
91			**TEST DISCONTINUED**

NOTE: E – Exposed Face (inside furnace)

U – Unexposed Face (outside furnace)

SE – Separating element

6.2 Specimen 1

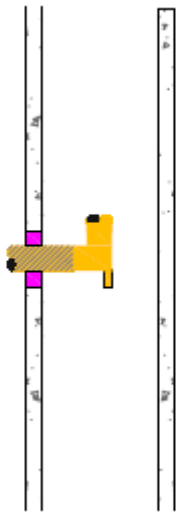


Figure 4 - Specimen 1

Service penetration details	
Service	20mm Wing Back
Aperture Size	45.9mm
Annular Gap	Min: 7.8mm, Max: 17.7mm

Local Fire-stopping system	
Application	Asymmetrical – non-fire side only
Products	FireMastic-300
Procedure	1. FireMastic-300 applied into the annular gap 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	No failure at 92 minutes

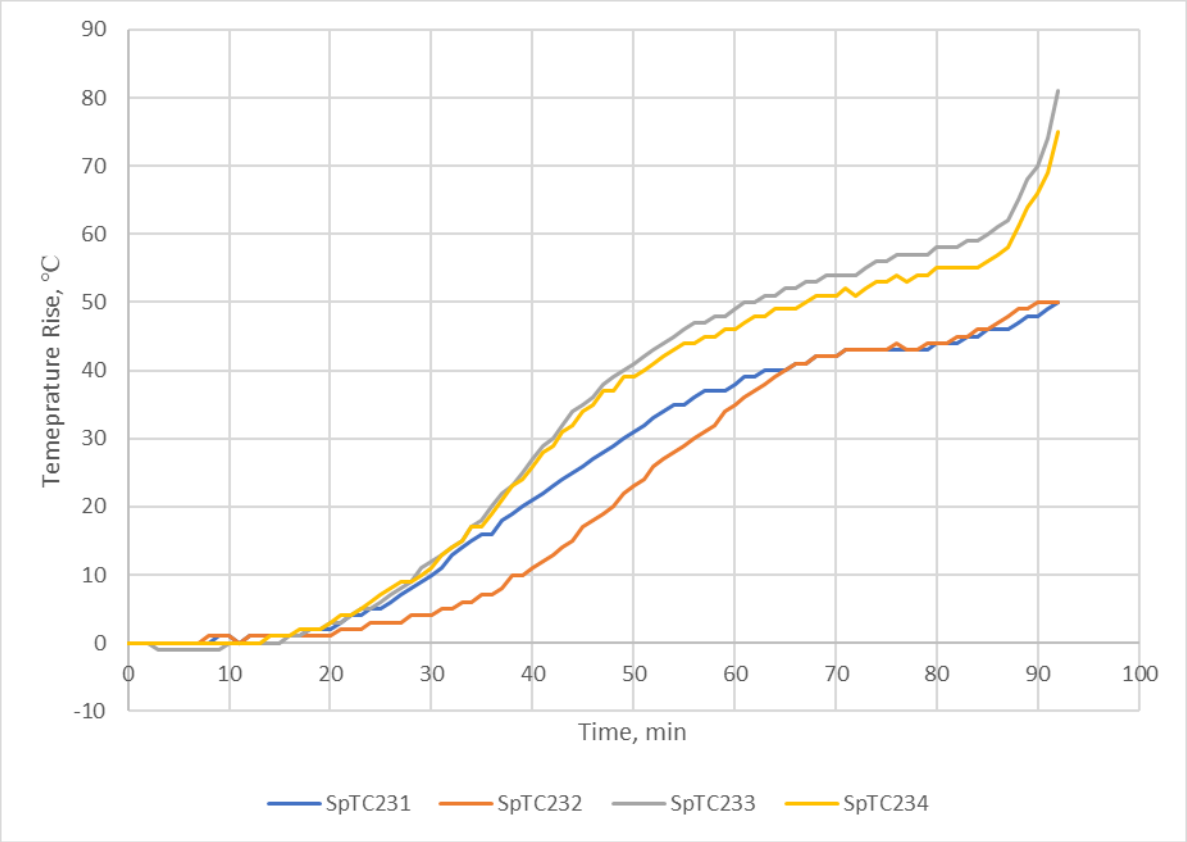


Figure 5 - Specimen 1 thermocouple temperature rise readings

6.3 Specimen 2

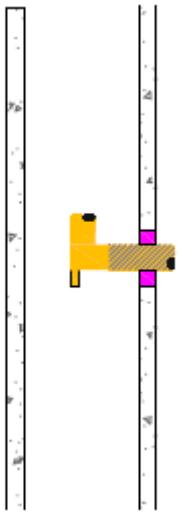


Figure 6 - Specimen 2

Service penetration details	
Service	20mm Wing Back
Aperture Size	45.3mm
Annular Gap	Min: 10.2mm, Max: 14.1mm

Local Fire-stopping system	
Application	Asymmetrical – fire side only
Products	FireMastic-300
Procedure	1. FireMastic-300 applied into the annular gap 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	No failure at 92 minutes

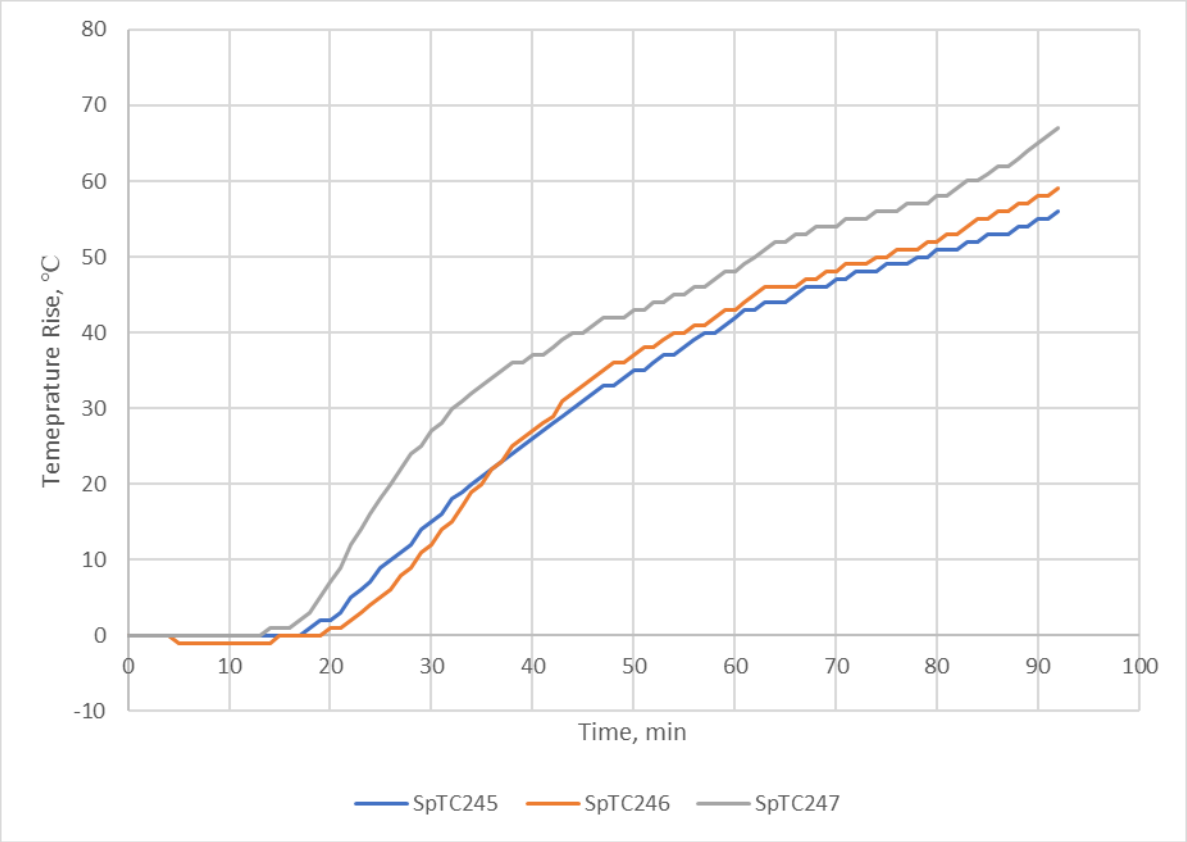


Figure 7 - Specimen 2 thermocouple temperature rise readings

6.4 Specimen 3

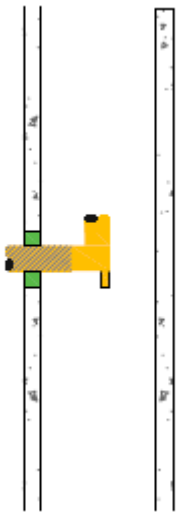


Figure 8 - Specimen 3

Service penetration details	
Service	20mm Wing Back
Aperture Size	45.2mm
Annular Gap	Min: 11.1mm, Max: 13.1mm

Local Fire-stopping system	
Application	Asymmetrical – non-fire side only
Products	FireMastic-HPE
Procedure	1. FireMastic-HPE applied into the annular gap 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	89 minutes

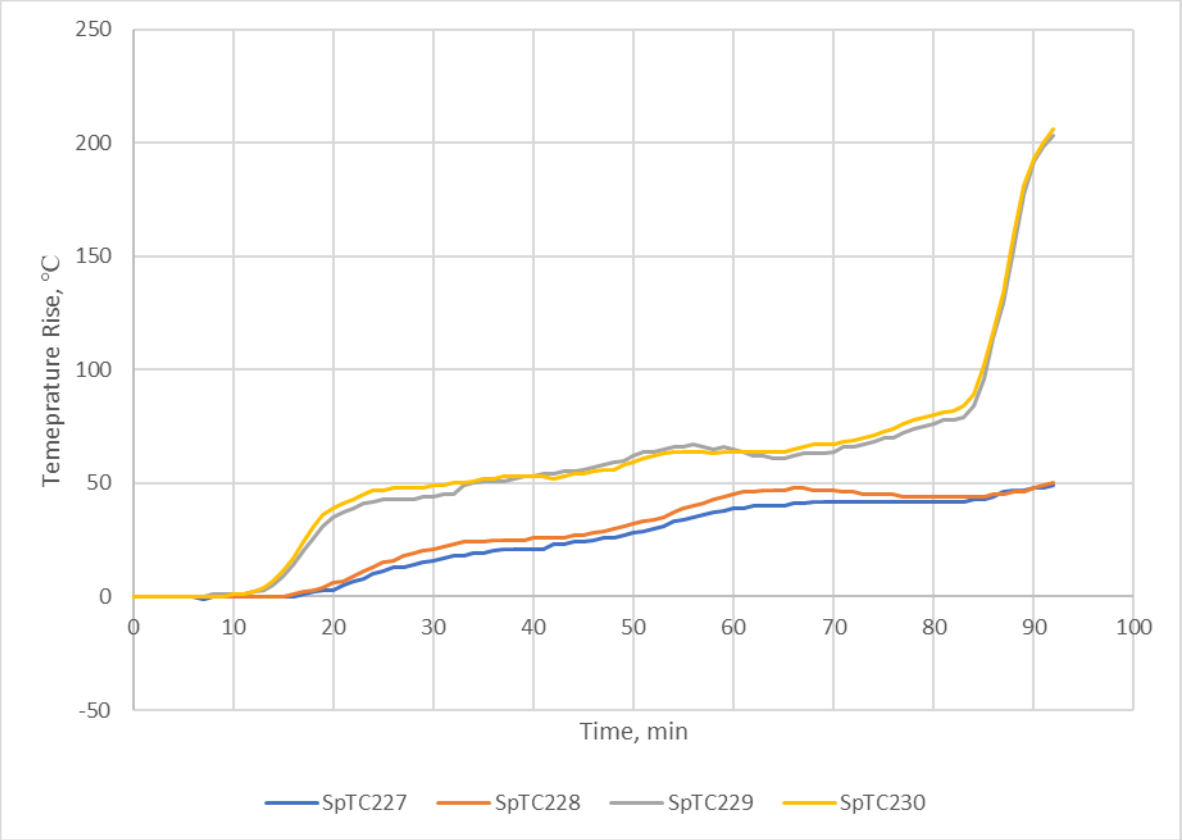


Figure 9 - Specimen 3 thermocouple temperature rise readings

6.5 Specimen 4

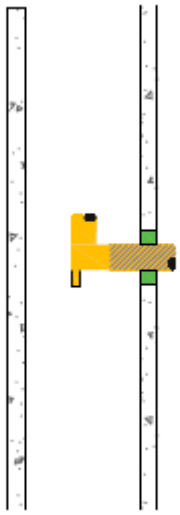


Figure 10 - Specimen 4

Service penetration details	
Service	20mm Wing Back
Aperture Size	45.6mm
Annular Gap	Min: 11.8mm, Max: 12.8mm

Local Fire-stopping system	
Application	Asymmetrical – fire side only
Products	FireMastic-HPE
Procedure	1. FireMastic-HPE applied into the annular gap 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	No failure at 92 minutes

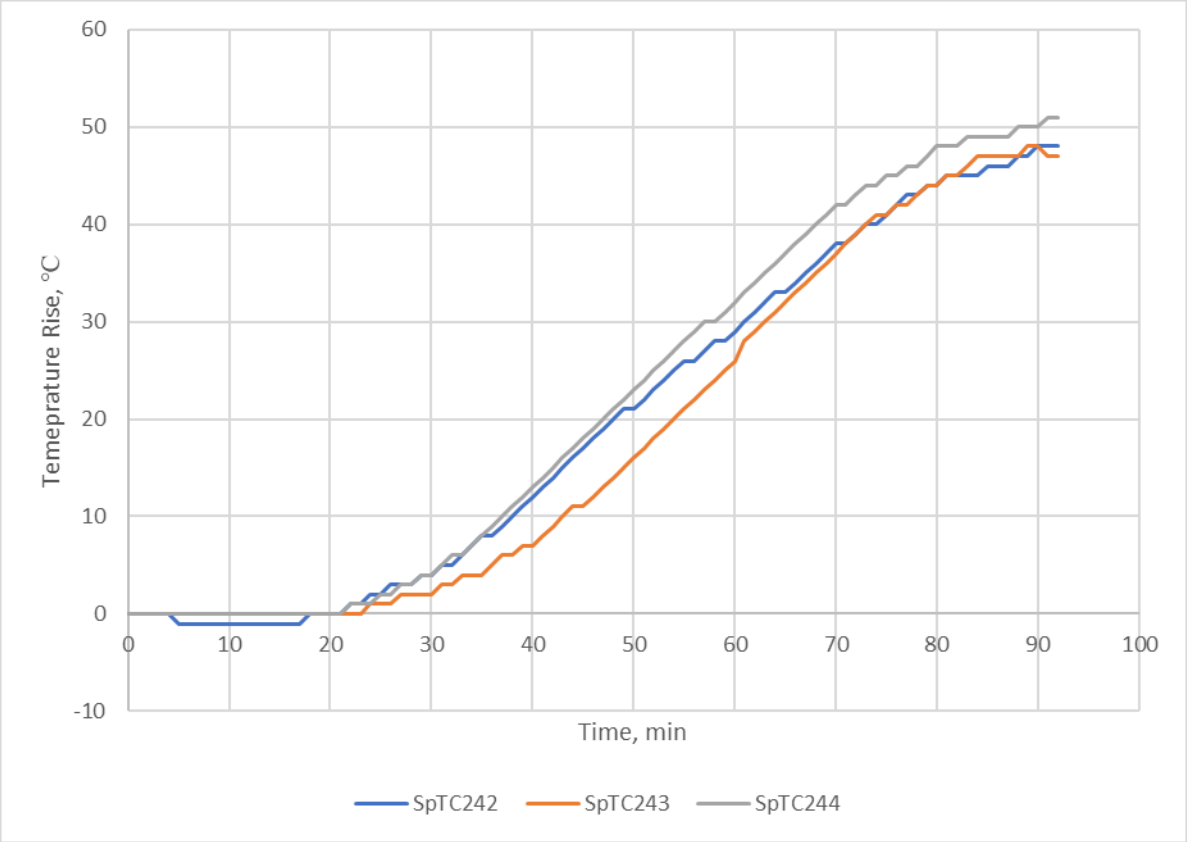


Figure 11 - Specimen 4 thermocouple temperature rise readings

6.6 Specimen 5

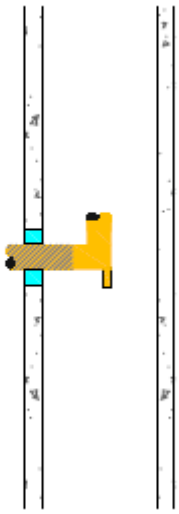


Figure 12 - Specimen 5

Service penetration details	
Service	20mm Wing Back
Aperture Size	45.3mm
Annular Gap	Min: 8.7mm, Max: 15.6mm

Local Fire-stopping system	
Application	Asymmetrical – non-fire side only
Products	FireSilicone-EMA
Procedure	1. FireSilicone-EMA applied into the annular gap 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	No failure at 92 minutes

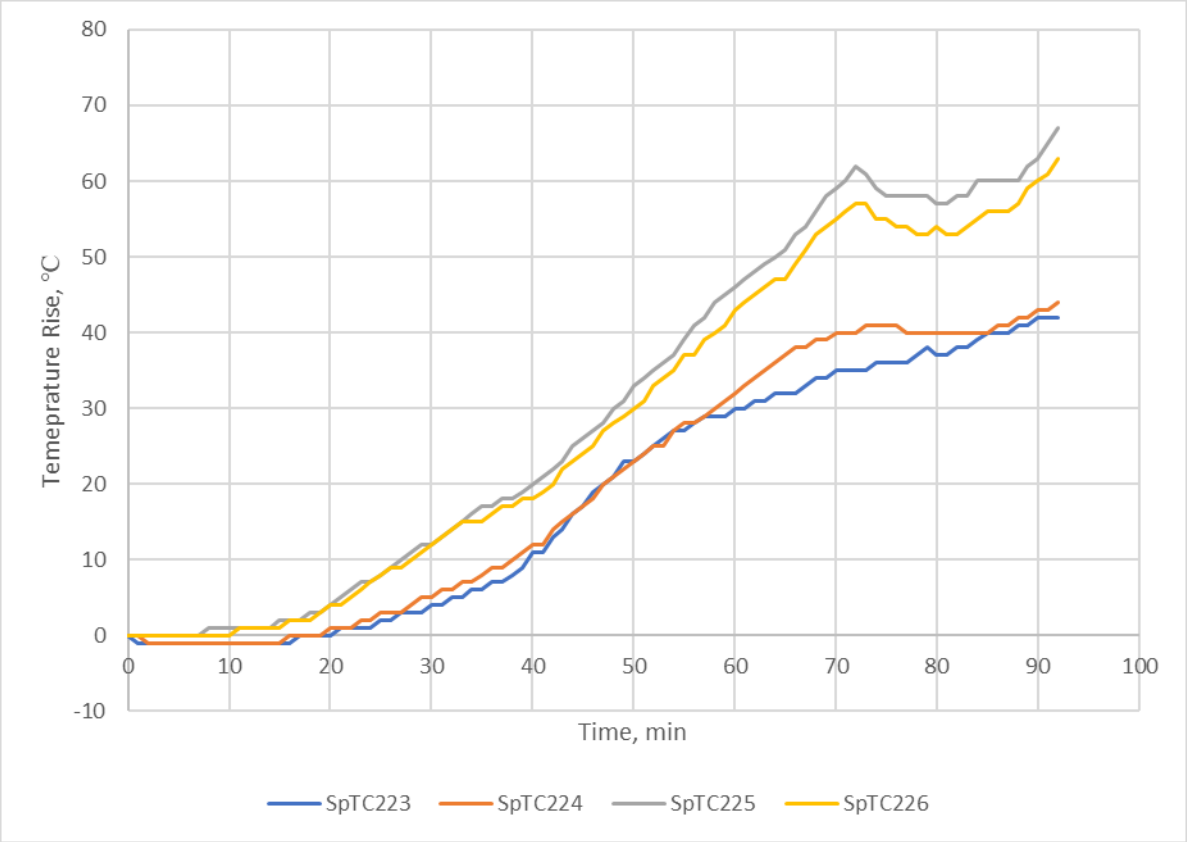


Figure 13 - Specimen 5 thermocouple temperature rise readings

6.7 Specimen 6

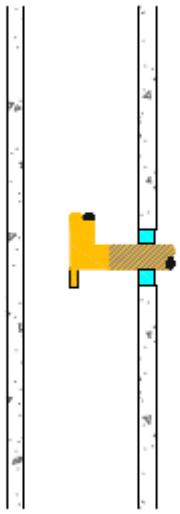


Figure 14 - Specimen 6

Service penetration details	
Service	20mm Wing Back
Aperture Size	46.1mm
Annular Gap	Min: 9.2mm, Max: 15.9mm

Local Fire-stopping system	
Application	Asymmetrical –fire side only
Products	FireSilicone-EMA
Procedure	1. FireSilicone-EMA applied into the annular gap 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	No failure at 92 minutes

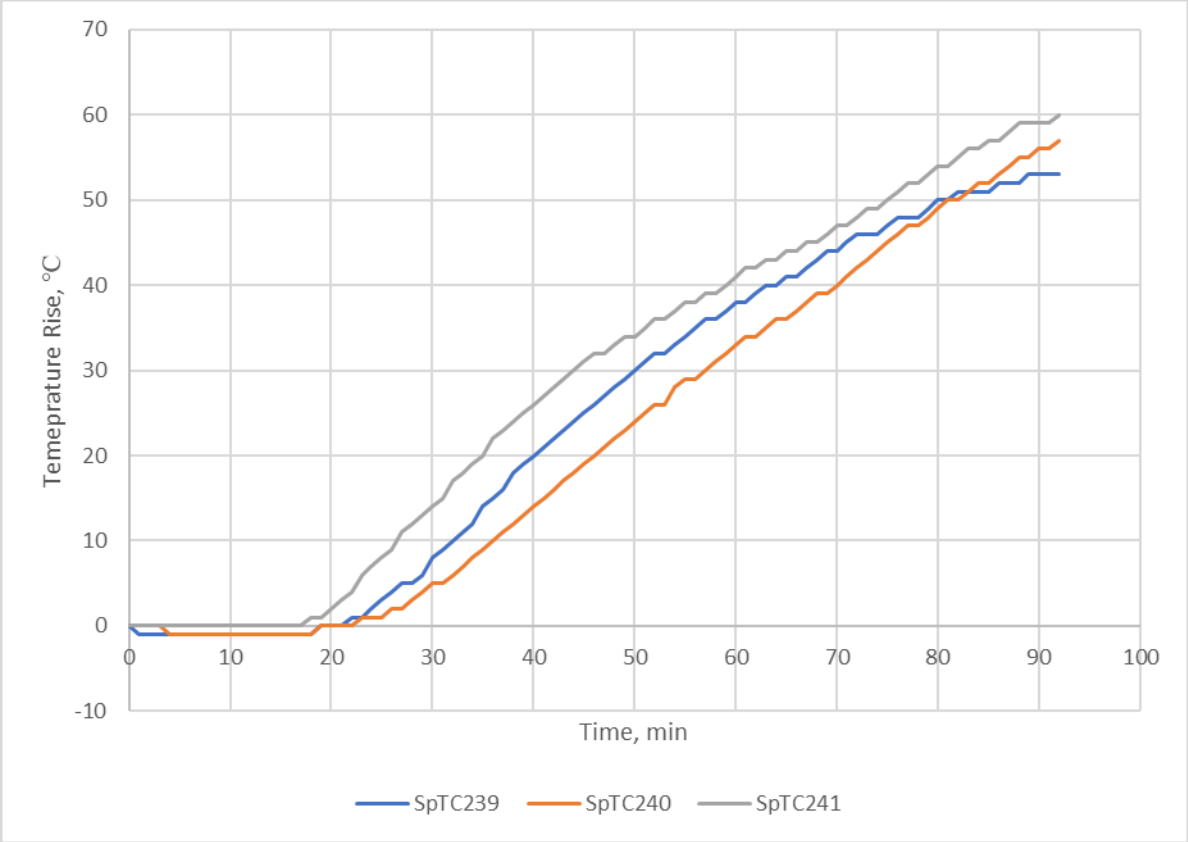


Figure 15 - Specimen 6 thermocouple temperature rise readings

6.8 Specimen 7

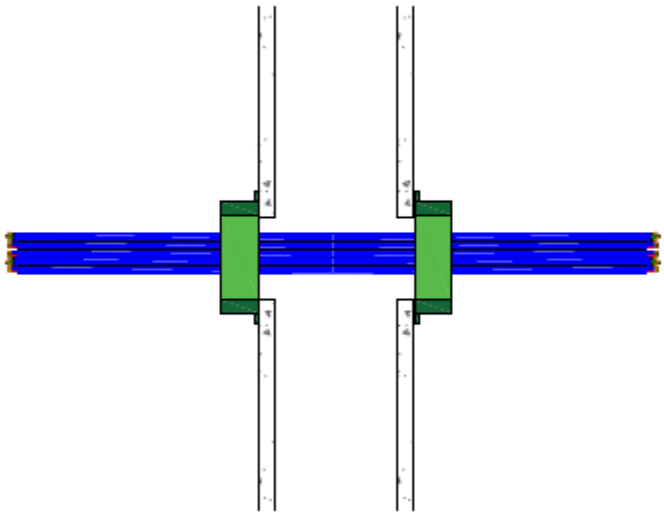


Figure 16 - Specimen 7

Service penetration details	
Service	TPS Cable Bundle (22 cables)
Service Support	Exposed Face: 270mm Unexposed Face: 520mm
Aperture Size	67.9mm

Local Fire-stopping system	
Application	Symmetrical – applied to both faces of the separating element
Products	Boss Collar shell 65, FireMastic-HPE
Procedure	1. Collar installed around cables and secured to the separating element in the fixing points with screws and washers. 2. FireMastic-HPE applied in the collar around cables, finished flush with the top of the collar.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	58 minutes

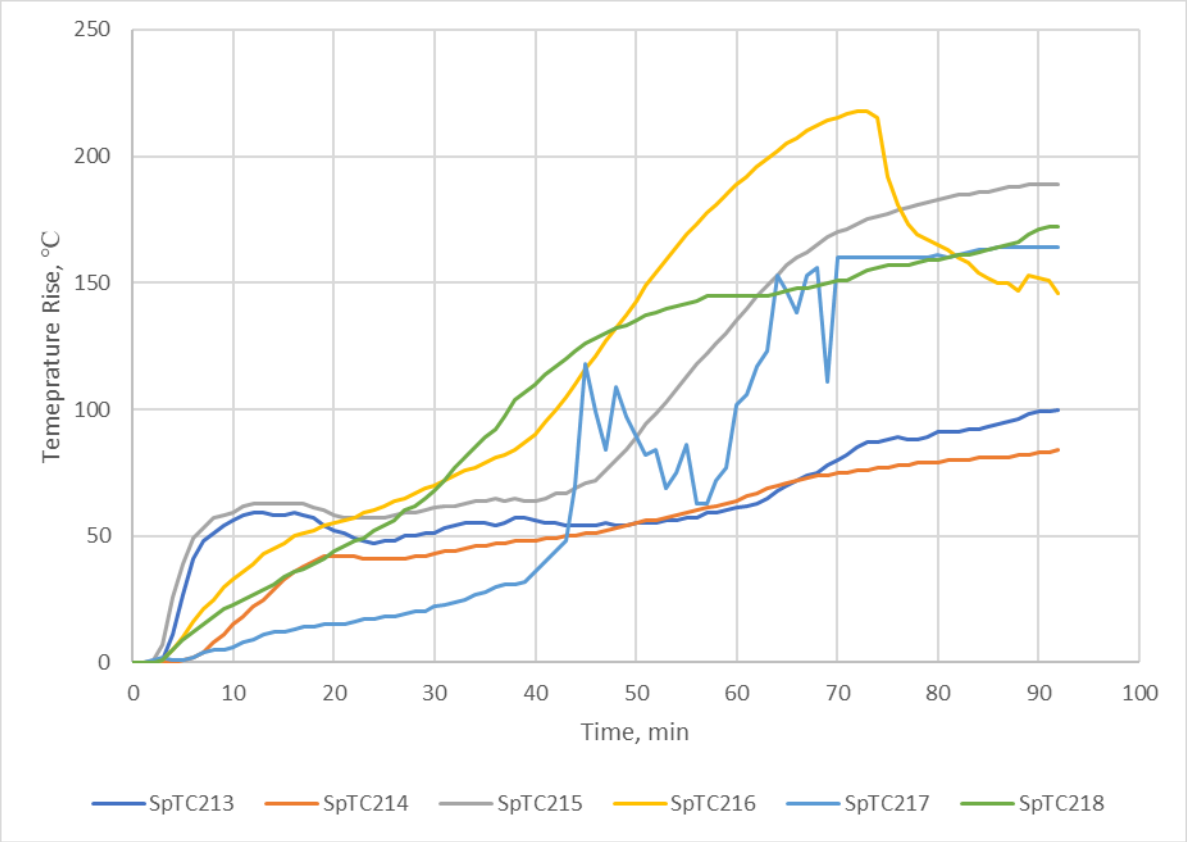


Figure 17 - Specimen 7 thermocouple temperature rise readings

6.9 Specimen 8

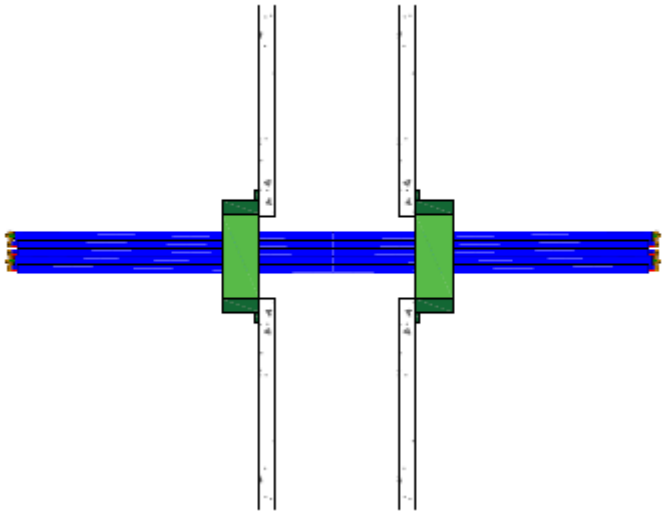


Figure 18 - Specimen 8

Service penetration details	
Service	CAT6 Cable Bundle (38 cables)
Service Support	Exposed Face: 20mm Unexposed Face: 520mm and 1740mm
Aperture Size	69.0mm

Local Fire-stopping system	
Application	Symmetrical – applied to both faces of the separating element
Products	Boss Collar shell 65, FireMastic-HPE
Procedure	1. Collar wrapped around cables and secured to the separating element in the fixing points with screws and washers. 2. FireMastic-HPE applied in the collar around cables, finished flush with the top of the collar.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	90 minutes

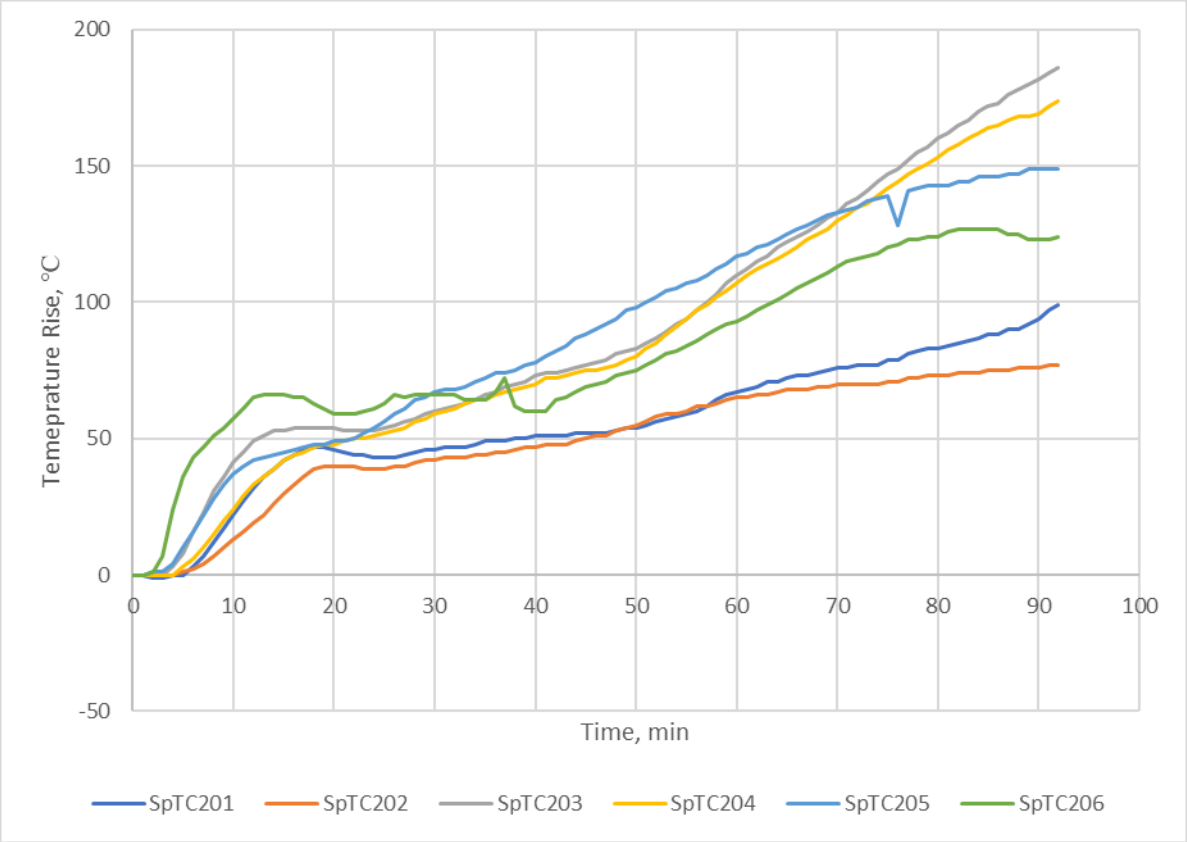


Figure 19 - Specimen 8 thermocouple temperature rise readings

6.10 Specimen 9

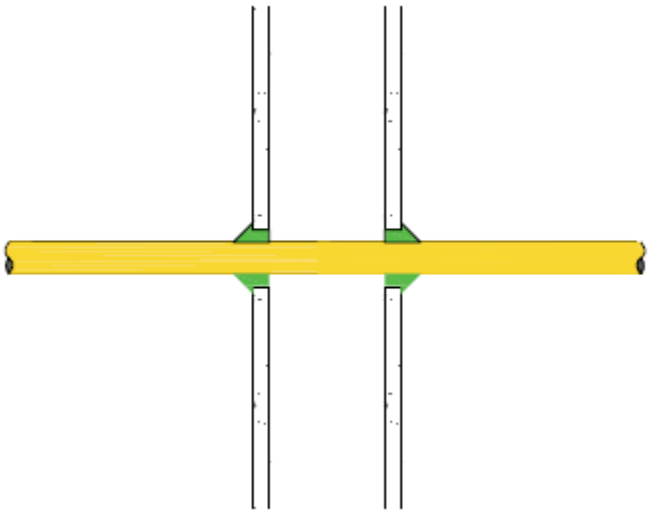


Figure 20 - Specimen 9

Service penetration details	
Service	25mm PEX Pipe
Service Support	Exposed Face: 270mm Unexposed Face: 520mm and 1525mm
Aperture Size	45.5mm
Annular Gap	Min: 8.0mm, Max: 12.4mm

Local Fire-stopping system	
Application	Symmetrical – applied to both faces of the separating element
Products	FireMastic-HPE
Procedure	1. FireMastic-HPE applied into the annular gap, 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	29 minutes

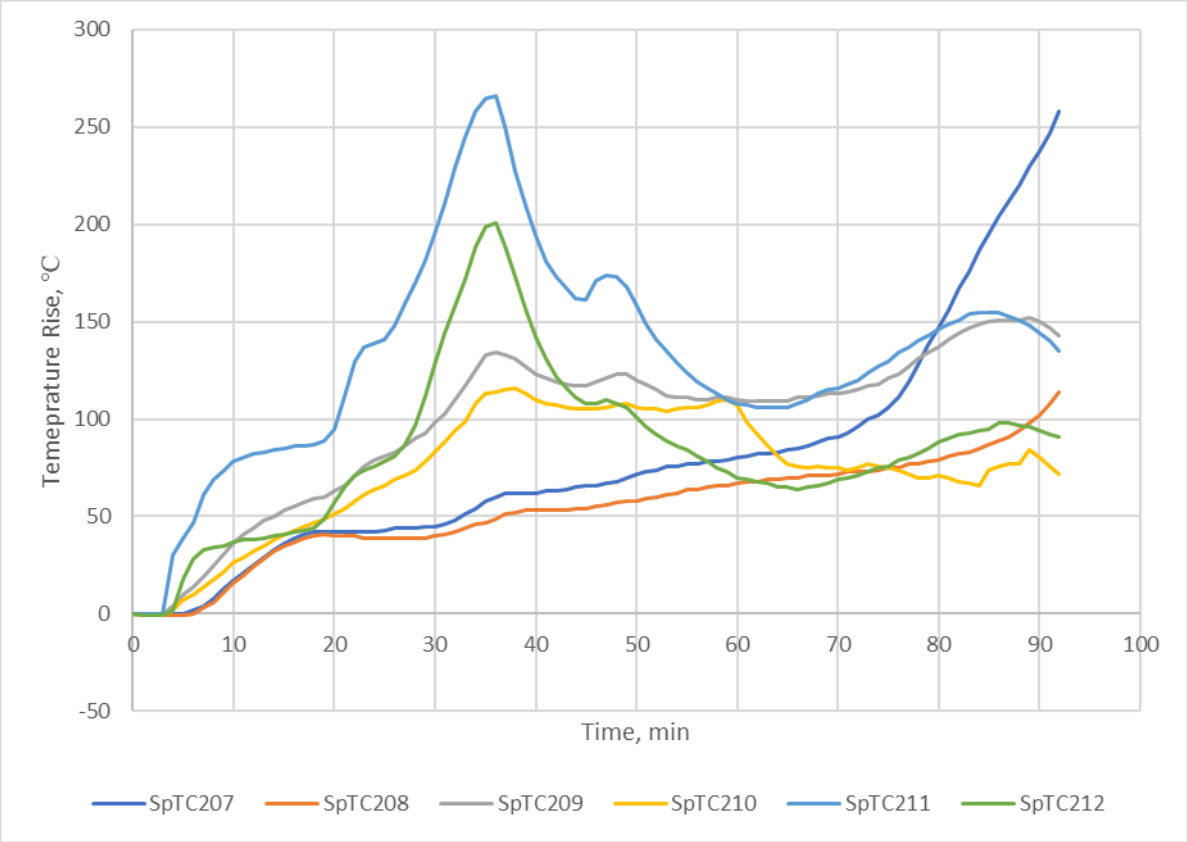


Figure 21 - Specimen 9 thermocouple temperature rise readings

6.11 Specimen 10

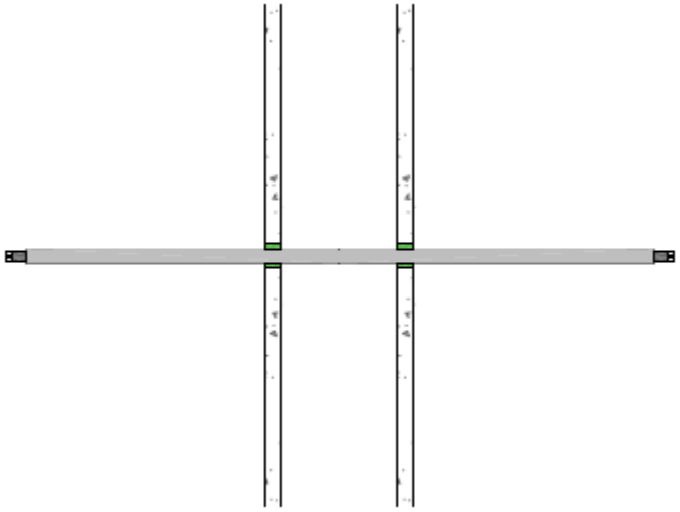


Figure 22 - Specimen 10

Service penetration details	
Service	Heat Trace Cable
Service Support	Wire secured from cable to separating element
Aperture Size	20.2mm

Local Fire-stopping system	
Application	Symmetrical – applied to both faces of the separating element
Products	FireMastic-HPE
Procedure	1. FireMastic-HPE applied into the annular gap, 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	No failure at 92 minutes

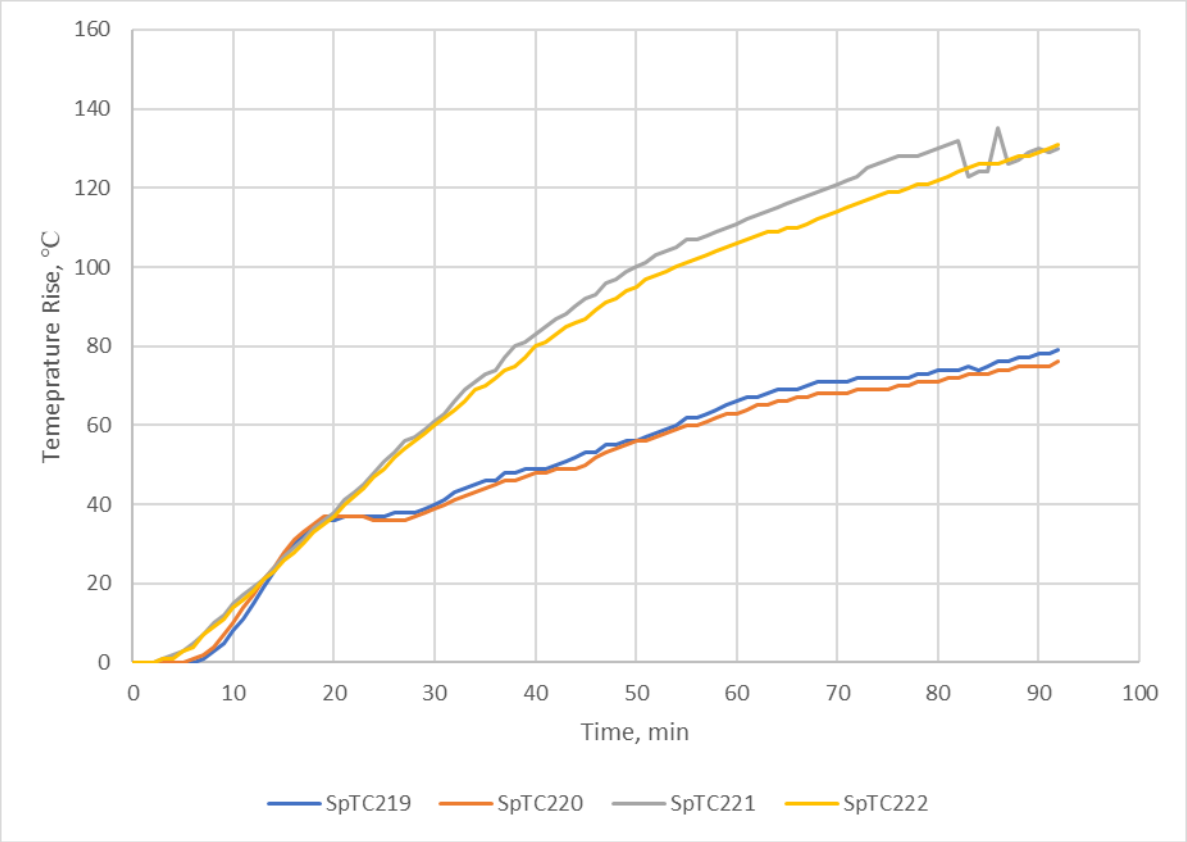


Figure 23 - Specimen 10 thermocouple temperature rise readings

6.12 Specimen 11

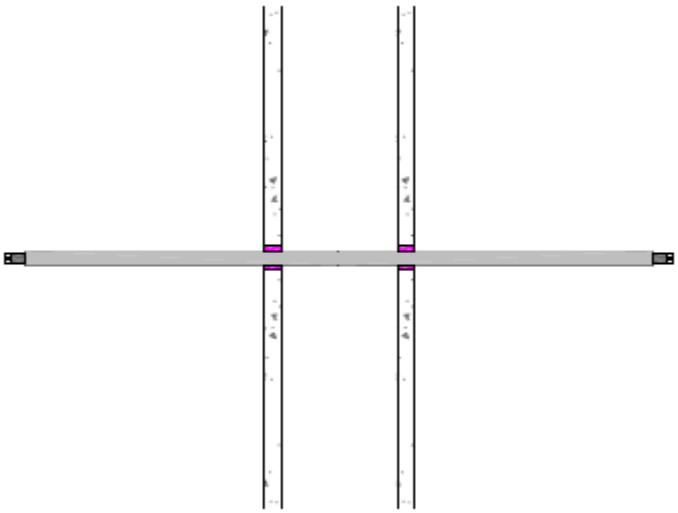


Figure 24 - Specimen 11

Service penetration details	
Service	Heat Trace Cable
Service Support	Wire secured from cable to specimen above
Aperture Size	20.2mm

Local Fire-stopping system	
Application	Symmetrical – applied to both faces of the separating element
Products	FireMastic-300
Procedure	1. FireMastic-300 applied into the annular gap, 13mm (nominal) deep and finished flush with the separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 92 minutes
Insulation	No failure at 92 minutes

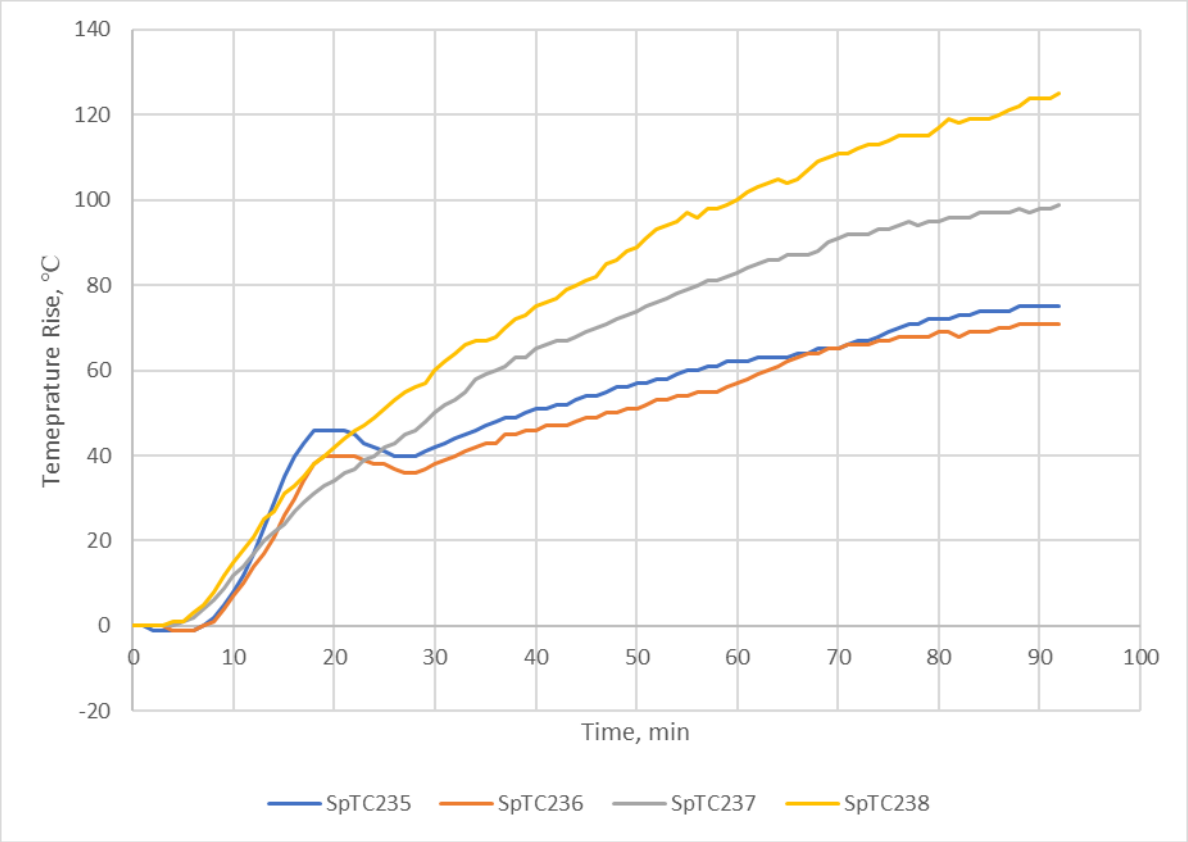


Figure 25 - Specimen 11 thermocouple temperature rise readings

7. Photos

7.1 Photos before the test

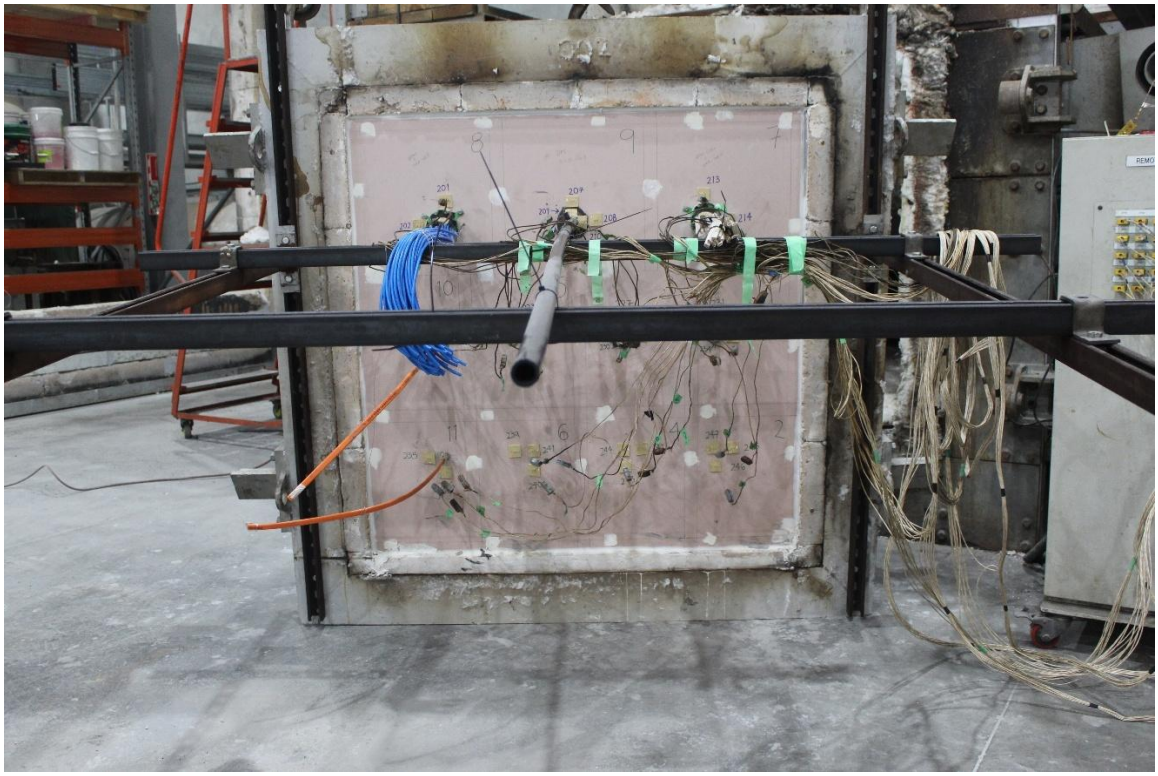


Figure 26 - Unexposed face prior to test commencement

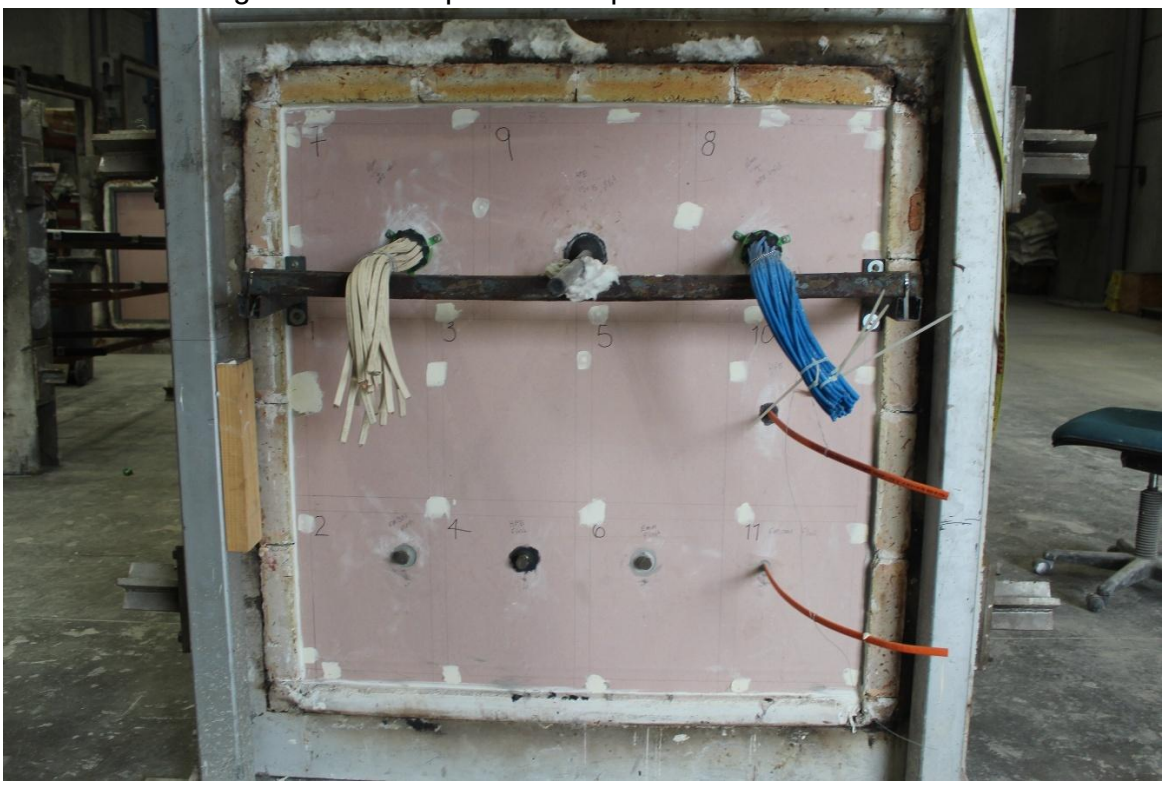


Figure 27 - Exposed face prior to test commencement

7.2 During and after the test

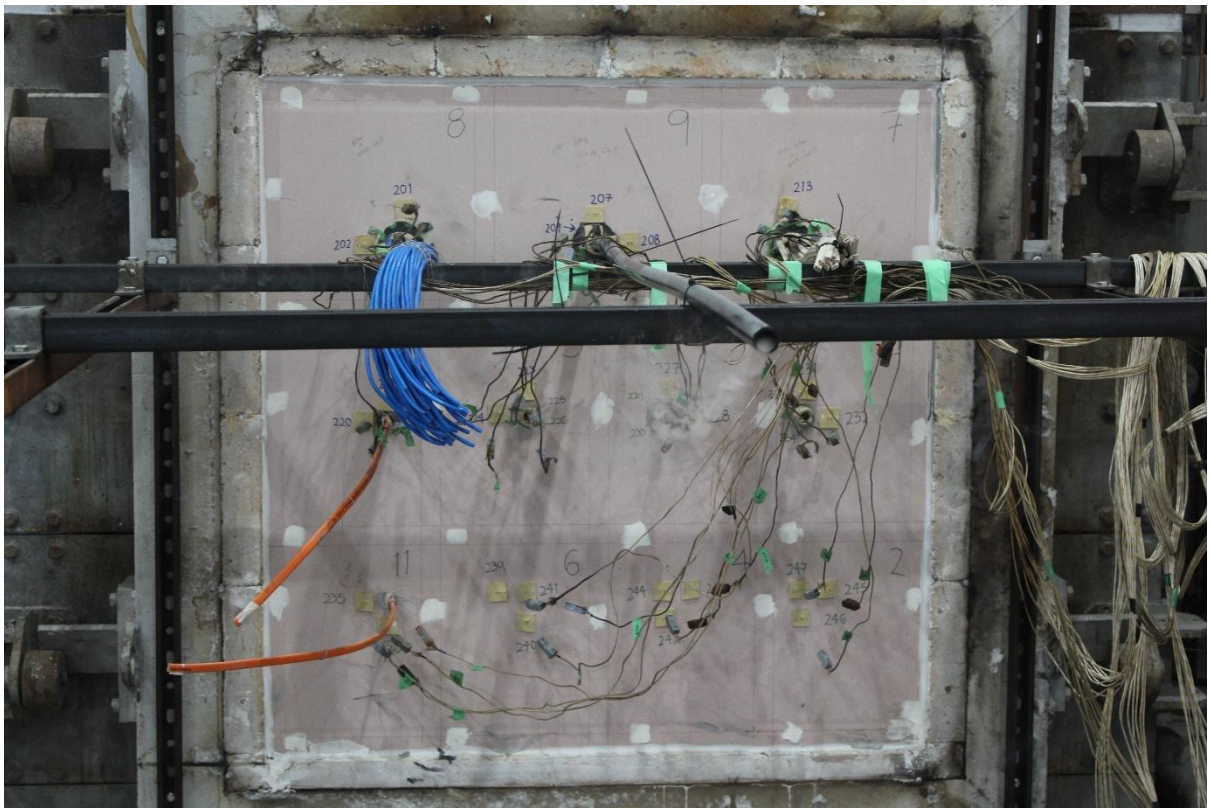


Figure 28 - Unexposed face at 15 minutes

Figure 29 - Exposed face at 15 minutes

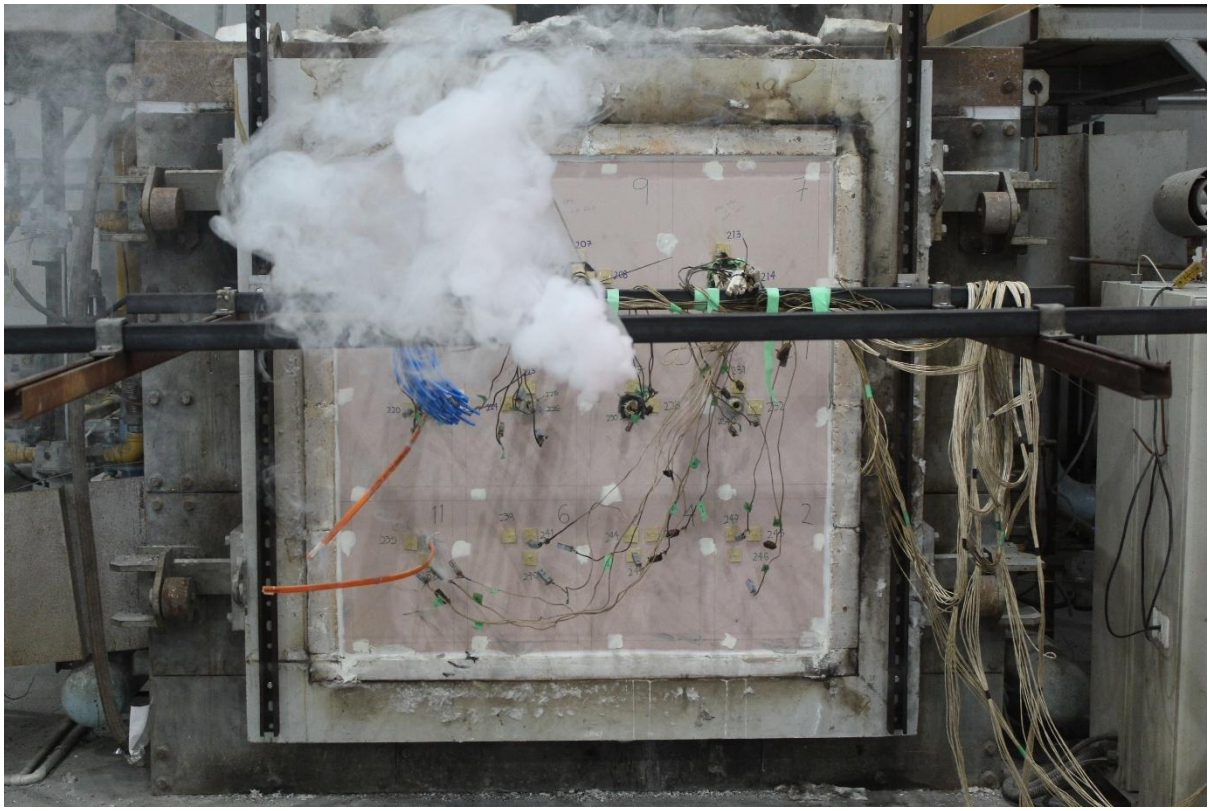


Figure 30 - Unexposed face at 30 minutes

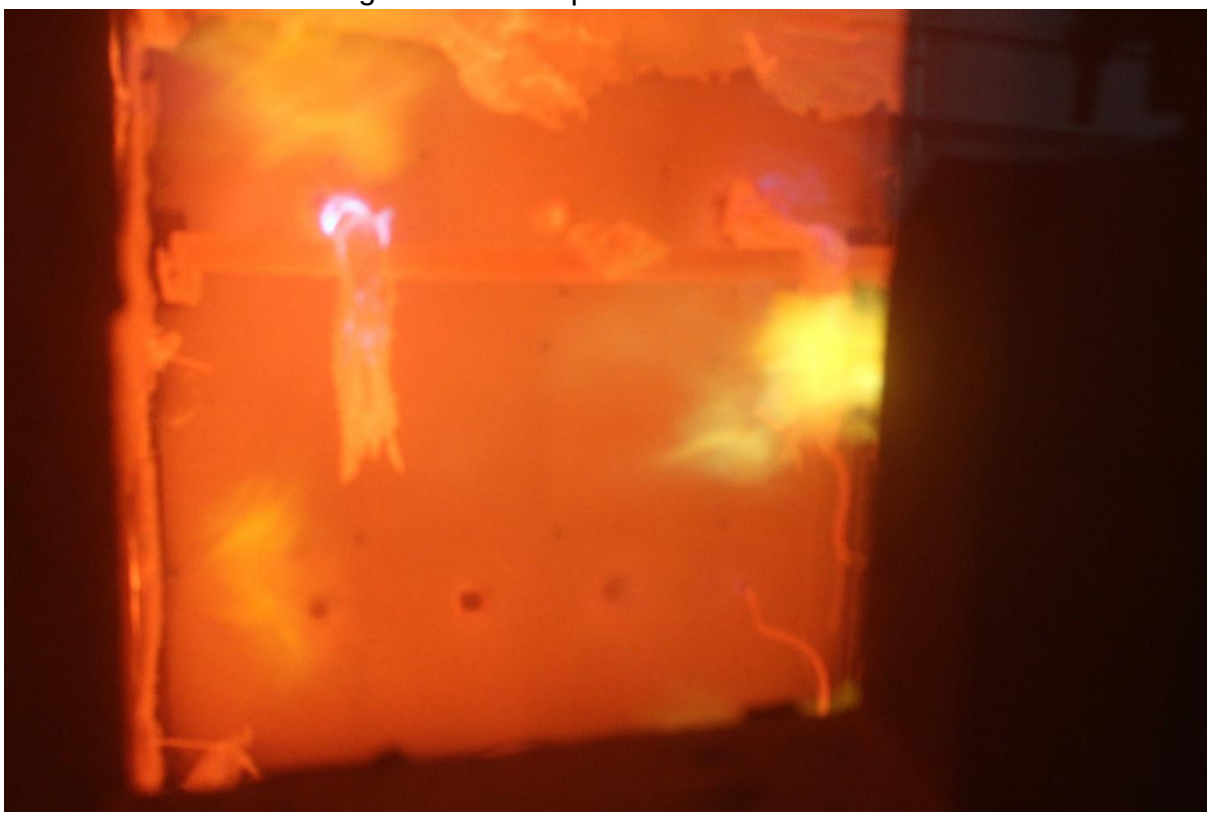


Figure 31 - Exposed face at 30 minutes

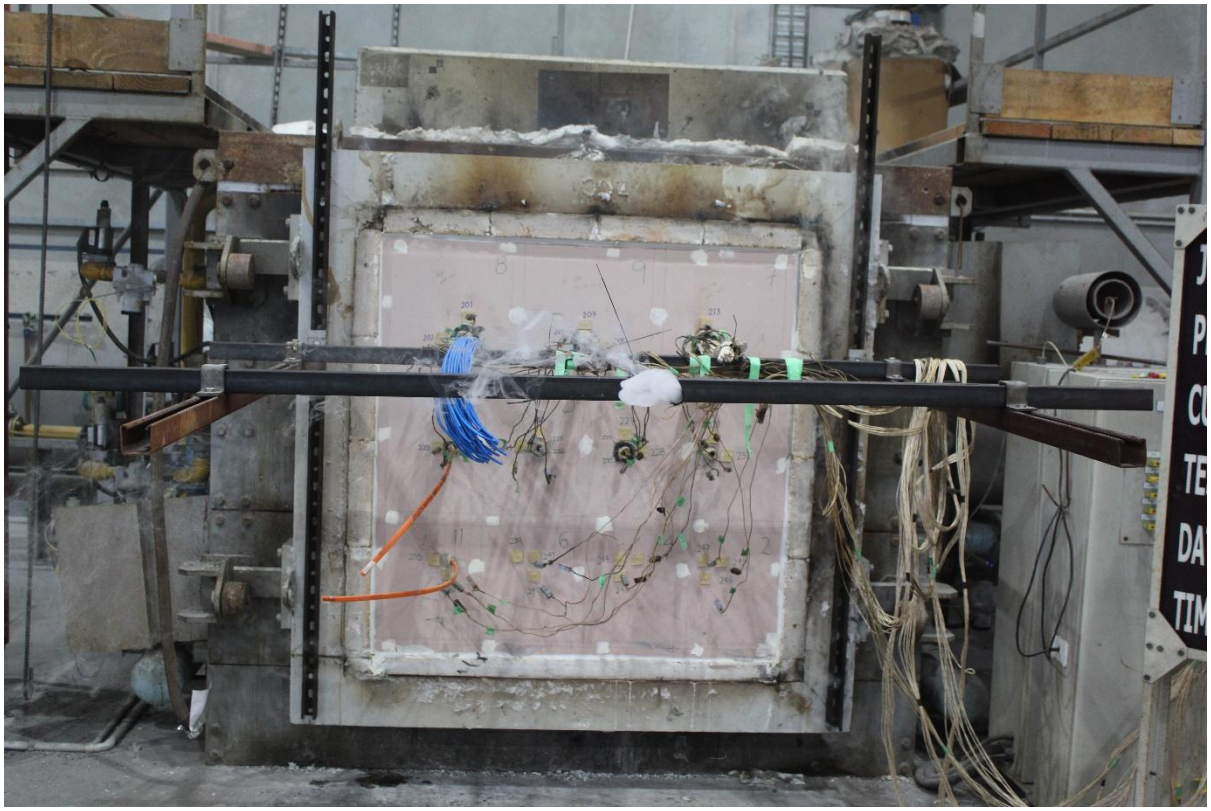


Figure 32 - Unexposed face at 45 minutes

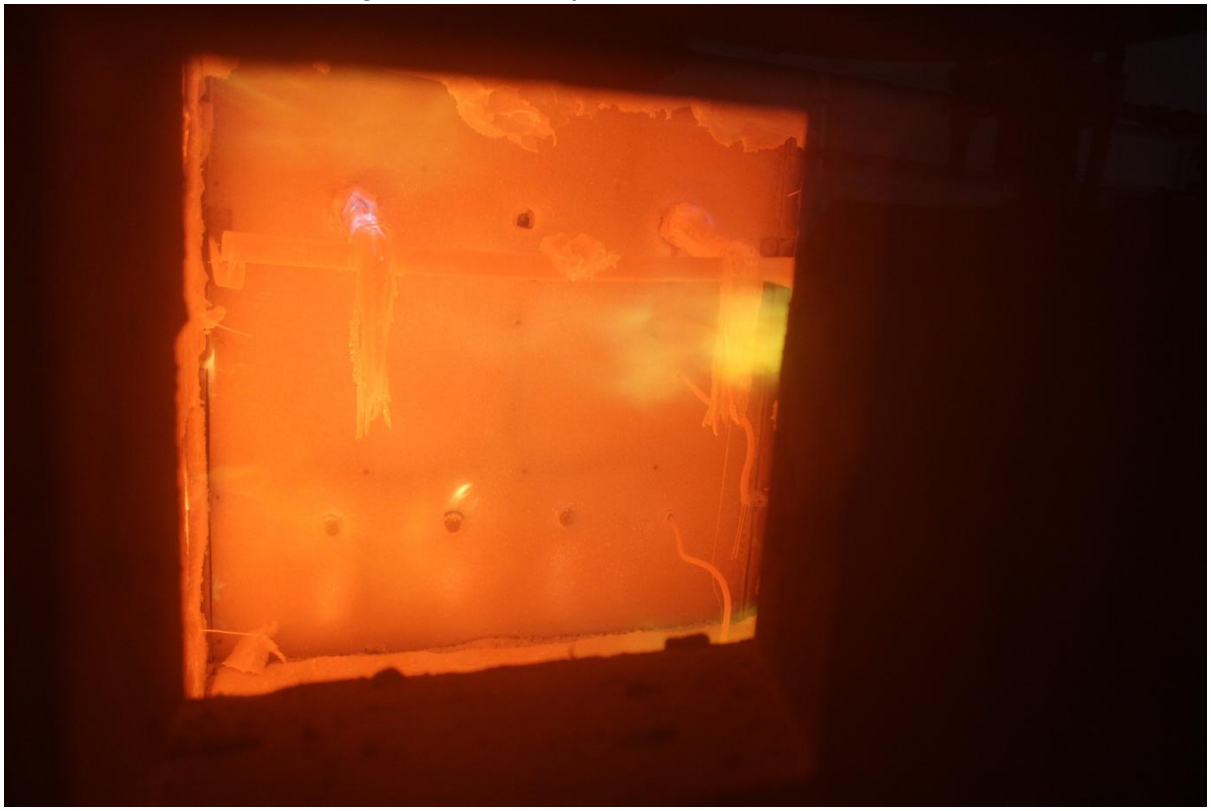


Figure 33 - Exposed face at 45 minutes

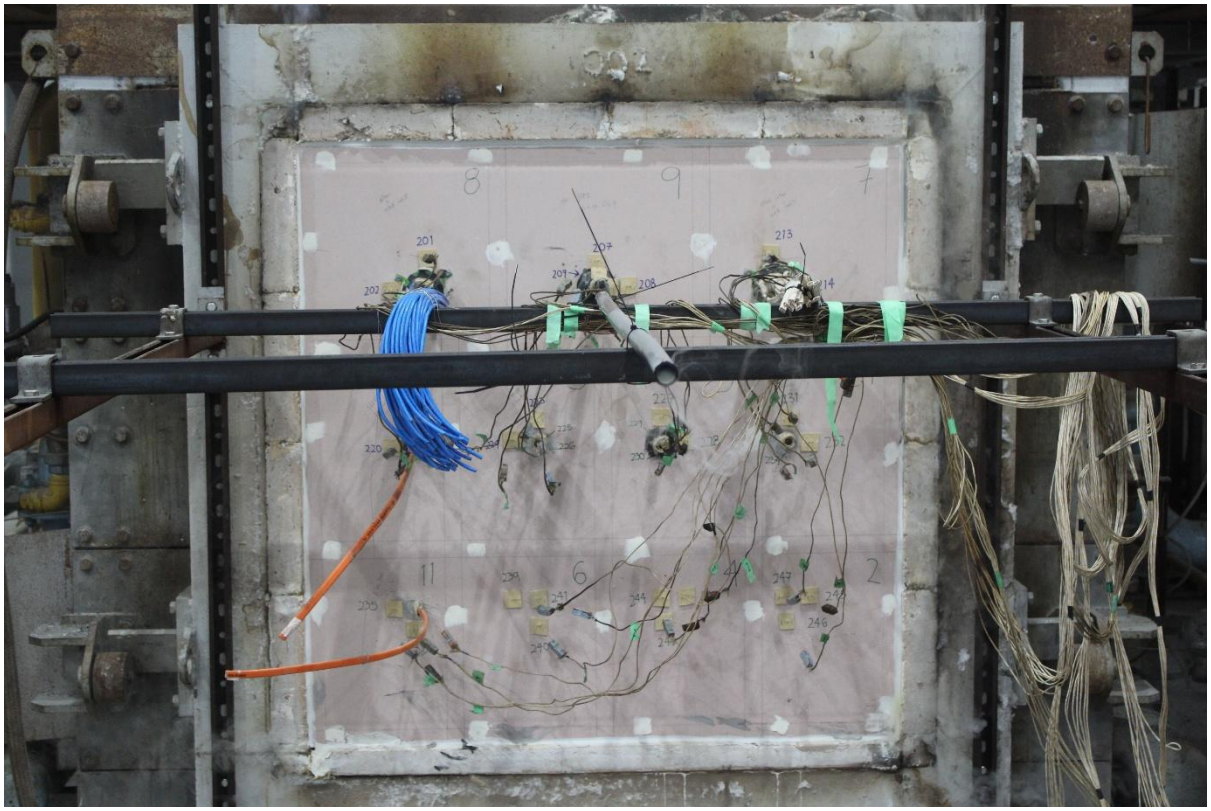


Figure 34 - Unexposed face at 60 minutes

Figure 35 - Exposed face at 60 minutes

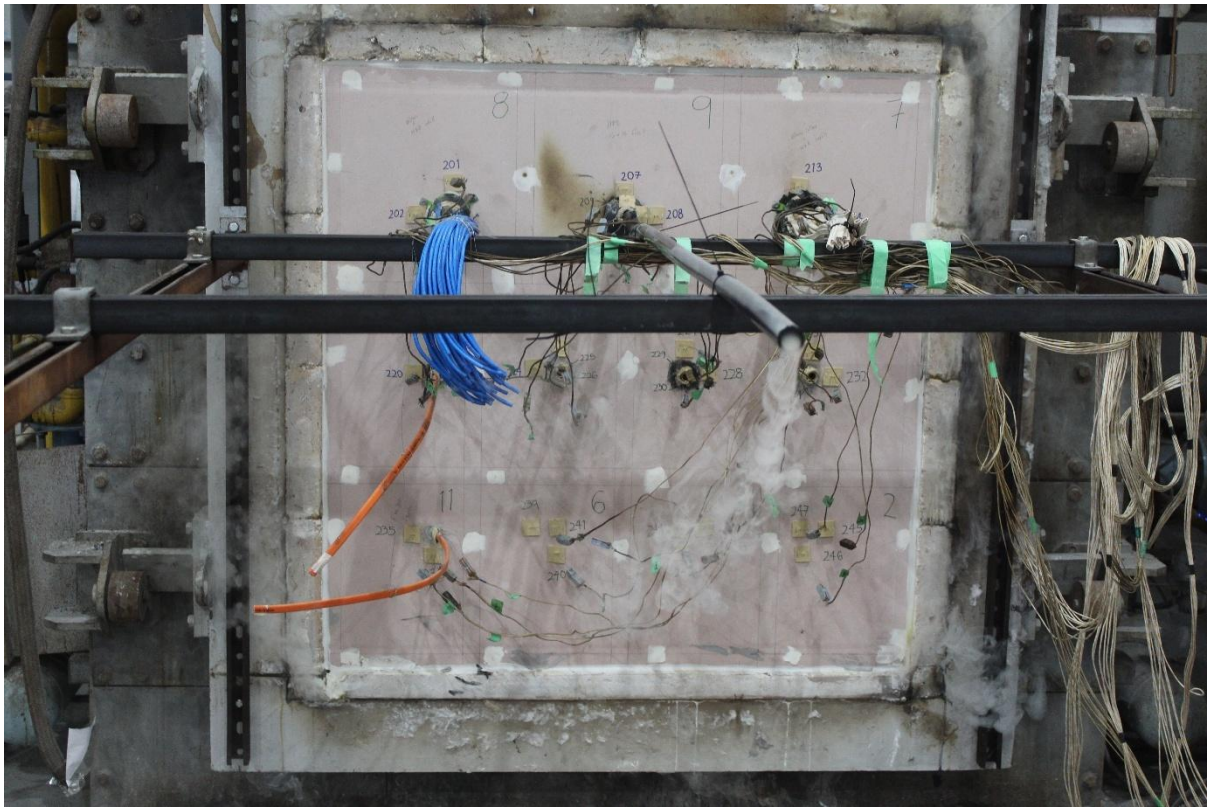


Figure 36 - Unexposed face at 90 minutes

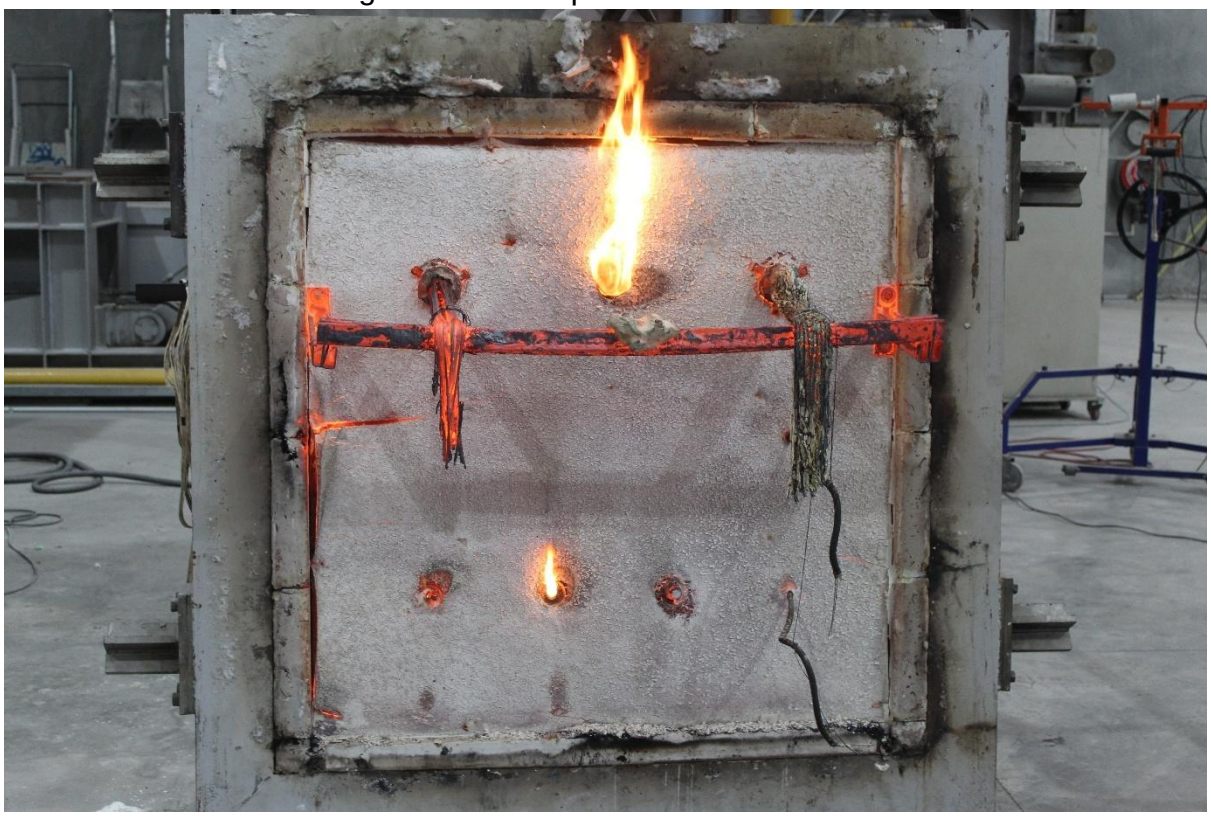


Figure 37 - Exposed face after the test

8. Appendix

8.1 Client supplied drawings

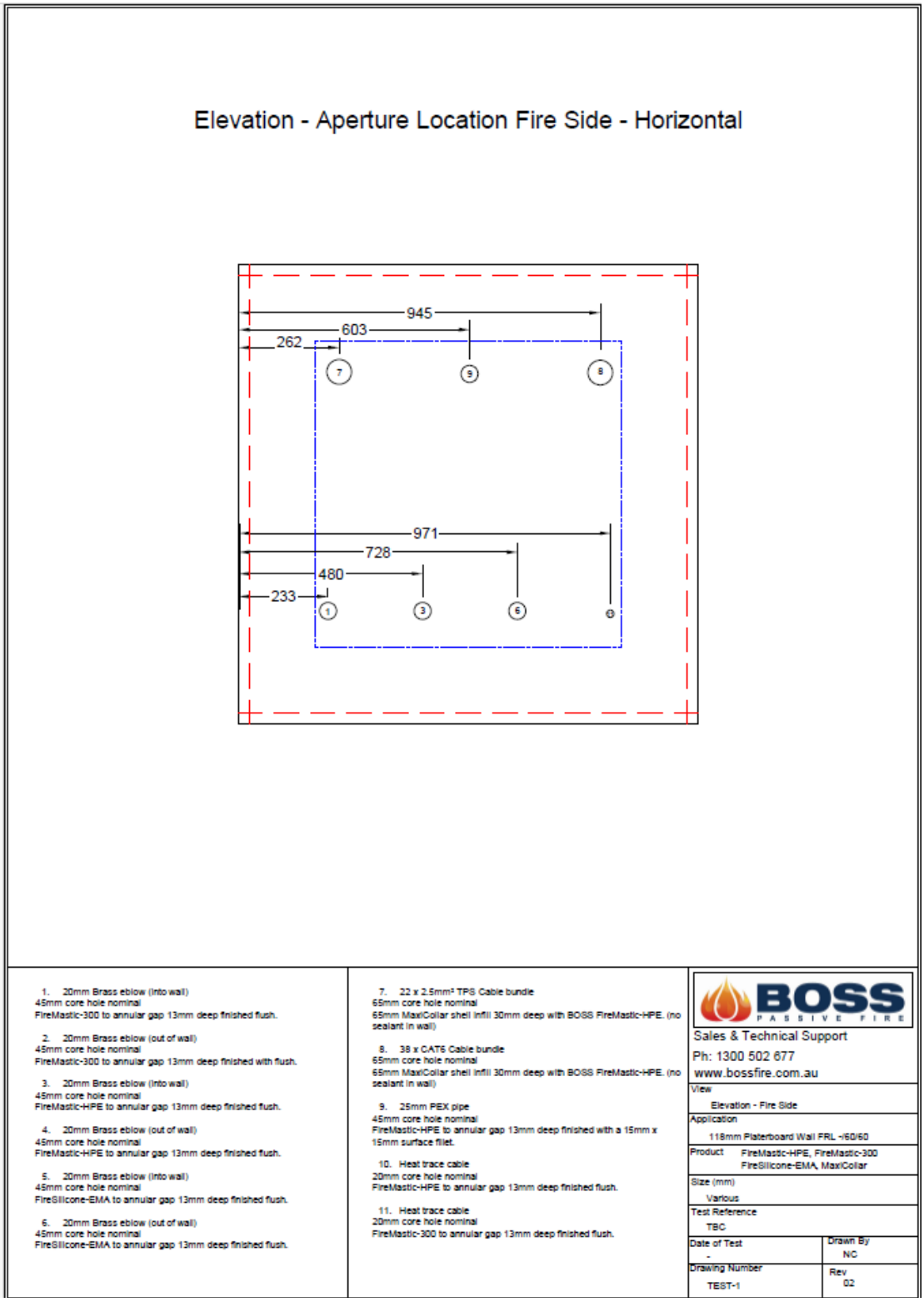
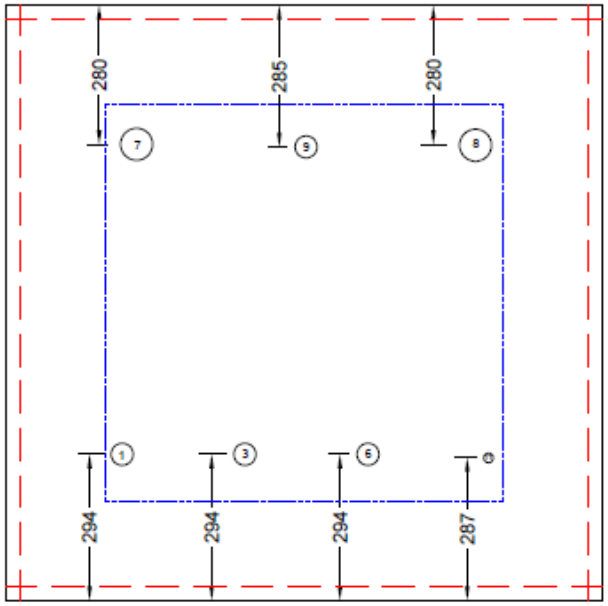


Figure 38 - Test 1 – Elevation – Aperture Location Fire Side – Horizontal.pdf

Elevation - Aperture Location Fire Side - Vertical



1. 20mm Brass eblow (into wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

2. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished with flush.

3. 20mm Brass eblow (into wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

4. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

5. 20mm Brass eblow (into wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

6. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

7. 22 x 2.5mm² TPS Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

8. 38 x CAT6 Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

9. 25mm PEX pipe
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished with a 15mm x 15mm surface fillet.

10. Heat trace cable
20mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

11. Heat trace cable
20mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

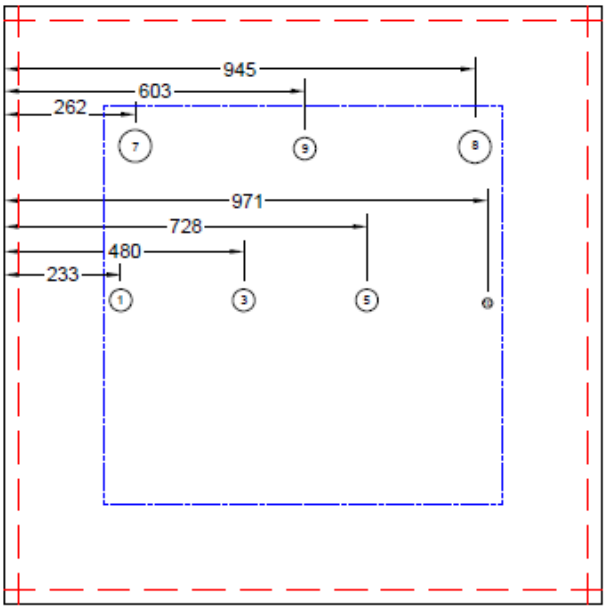
BOSS PASSIVE FIRE

Sales & Technical Support
Ph: 1300 502 677
www.bossfire.com.au

View	Elevation - Fire Side
Application	118mm Plasterboard Wall FRL -/60/60
Product	FireMastic-HPE, FireMastic-300 FireSilicone-EMA, MaxiCollar
Size (mm)	Various
Test Reference	TBC
Date of Test	-
Drawn By	NC
Drawing Number	TEST-1
Rev	02

Figure 39 - Test 1 – Elevation – Aperture Location Fire Side – Vertical.pdf

Elevation - Aperture Location Non Fire Side - Horizontal



1. 20mm Brass eblow (Into wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

2. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished with flush.

3. 20mm Brass eblow (Into wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

4. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

5. 20mm Brass eblow (Into wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

6. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

7. 22 x 2.5mm² TPS Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

8. 38 x CAT6 Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

9. 25mm PEX pipe
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished with a 15mm x 15mm surface fillet.

10. Heat trace cable
20mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

11. Heat trace cable
20mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

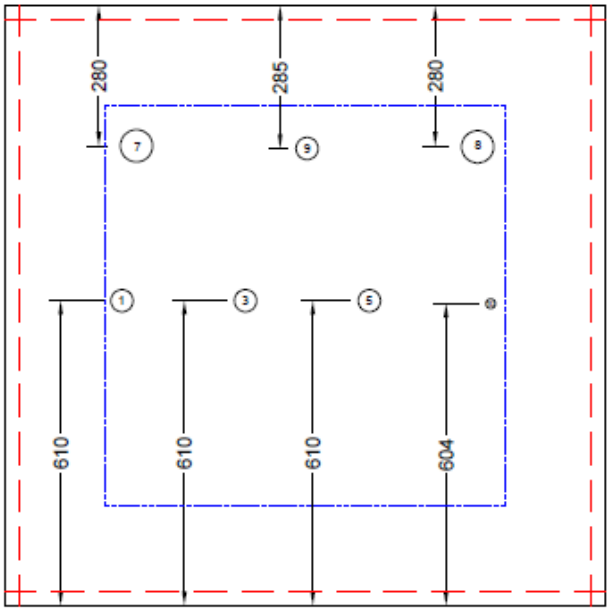
BOSS PASSIVE FIRE

Sales & Technical Support
Ph: 1300 502 677
www.bossfire.com.au

View	Elevation - Fire Side
Application	118mm Plasterboard Wall FRL -/60/60
Product	FireMastic-HPE, FireMastic-300 FireSilicone-EMA, MaxiCollar
Size (mm)	Various
Test Reference	TBC
Date of Test	-
Drawn By	NC
Drawing Number	TEST-1
Rev	02

Figure 40 - Test 1 – Elevation – Aperture Location Non Fire Side – Horizontal.pdf

Elevation - Aperture Location Non Fire Side - Vertical



1. 20mm Brass eblow (into wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

2. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished with flush.

3. 20mm Brass eblow (into wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

4. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

5. 20mm Brass eblow (into wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

6. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

7. 22 x 2.5mm² TPS Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

8. 38 x CAT6 Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

9. 25mm PEX pipe
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished with a 15mm x 15mm surface fillet.

10. Heat trace cable
20mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

11. Heat trace cable
20mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

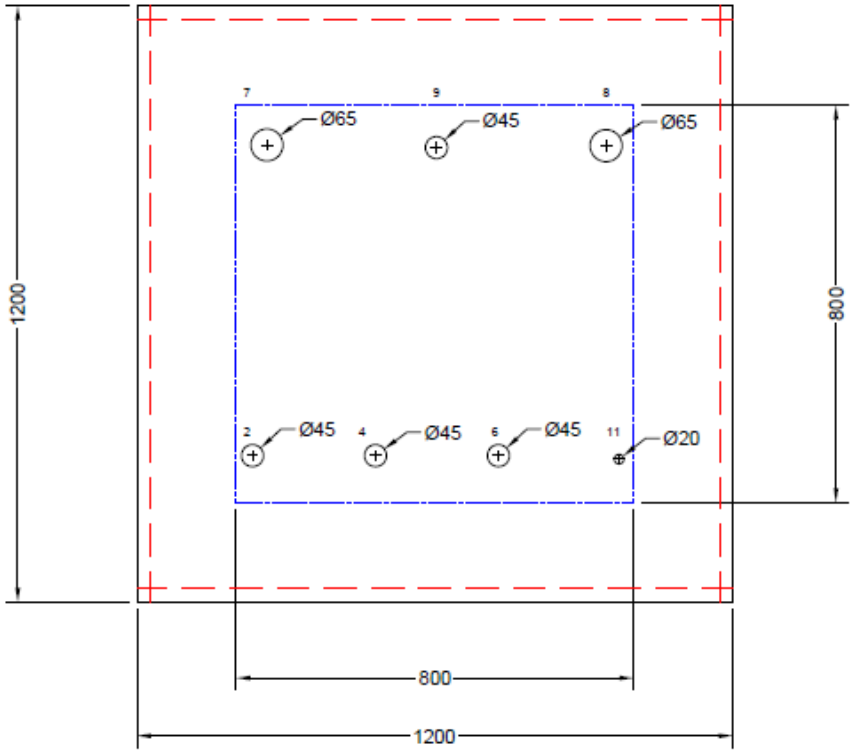
BOSS PASSIVE FIRE

Sales & Technical Support
Ph: 1300 502 677
www.bossfire.com.au

View	Elevation - Fire Side
Application	118mm Plasterboard Wall FRL -/60/60
Product	FireMastic-HPE, FireMastic-300 FireSilicone-EMA, MaxiCollar
Size (mm)	Various
Test Reference	TBC
Date of Test	-
Drawn By	NC
Drawing Number	TEST-1
Rev	02

Figure 41 - Test 1 – Elevation – Aperture Location Non Fire Side – Vertical.pdf

Elevation - Aperture Size Fire Side



1. 20mm Brass eblow (into wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

2. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished with flush.

3. 20mm Brass eblow (into wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

4. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

5. 20mm Brass eblow (into wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

6. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

7. 22 x 2.5mm² TPS Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

8. 38 x CAT6 Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

9. 25mm PEX pipe
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished with a 15mm x 15mm surface fillet.

10. Heat trace cable
20mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

11. Heat trace cable
20mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

BOSS PASSIVE FIRE

Sales & Technical Support
Ph: 1300 502 677
www.bossfire.com.au

View	Elevation - Fire Side
Application	118mm Plasterboard Wall FRL -/60/60
Product	FireMastic-HPE, FireMastic-300 FireSilicone-EMA, MaxiCollar
Size (mm)	Various
Test Reference	TBC
Date of Test	-
Drawn By	NC
Drawing Number	TEST-1
Rev	02

Figure 42 - Test 1 – Elevation – Aperture Size Fire Side.pdf

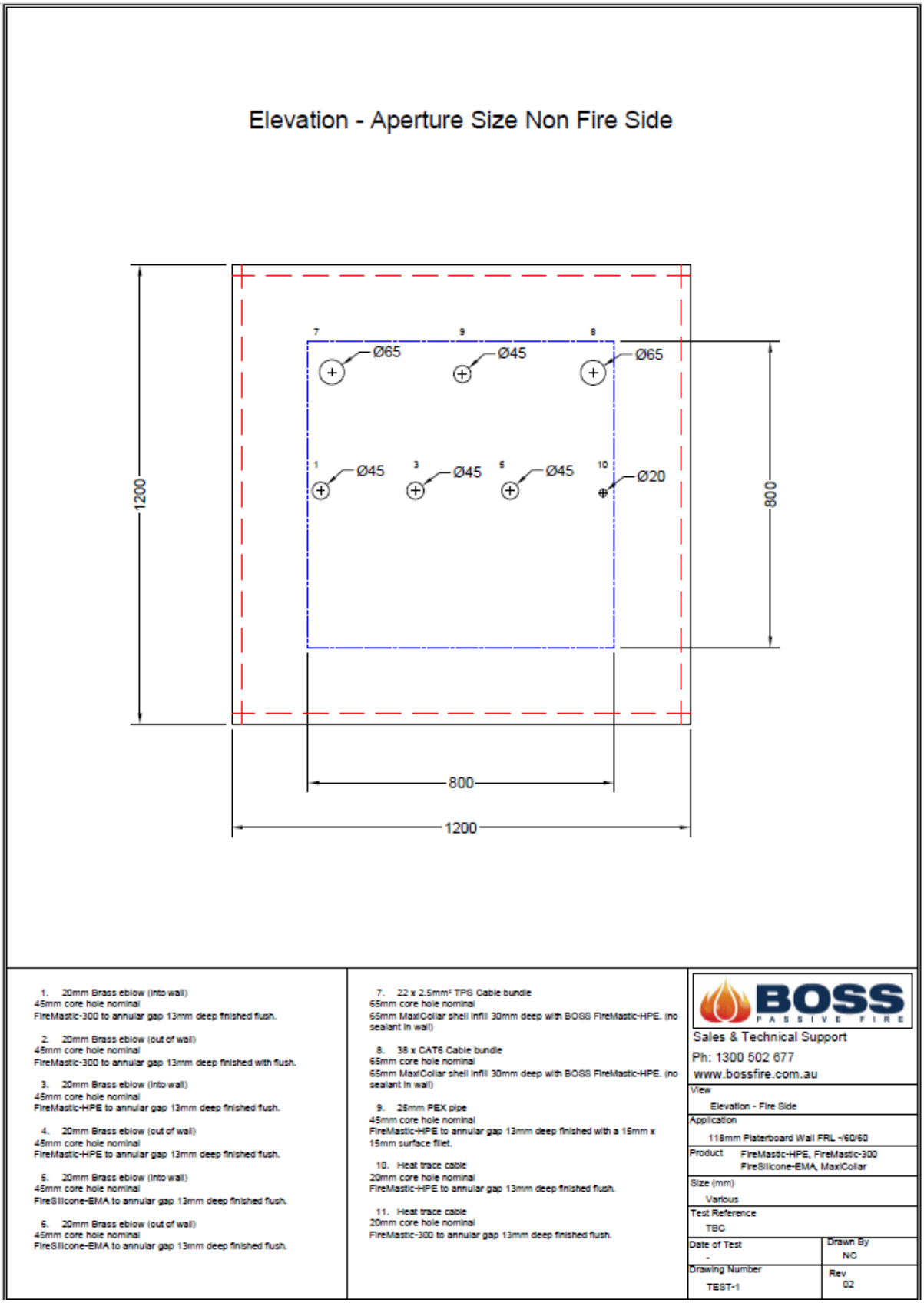


Figure 43 - Test 1 – Elevation – Aperture Size Non Fire Side.pdf

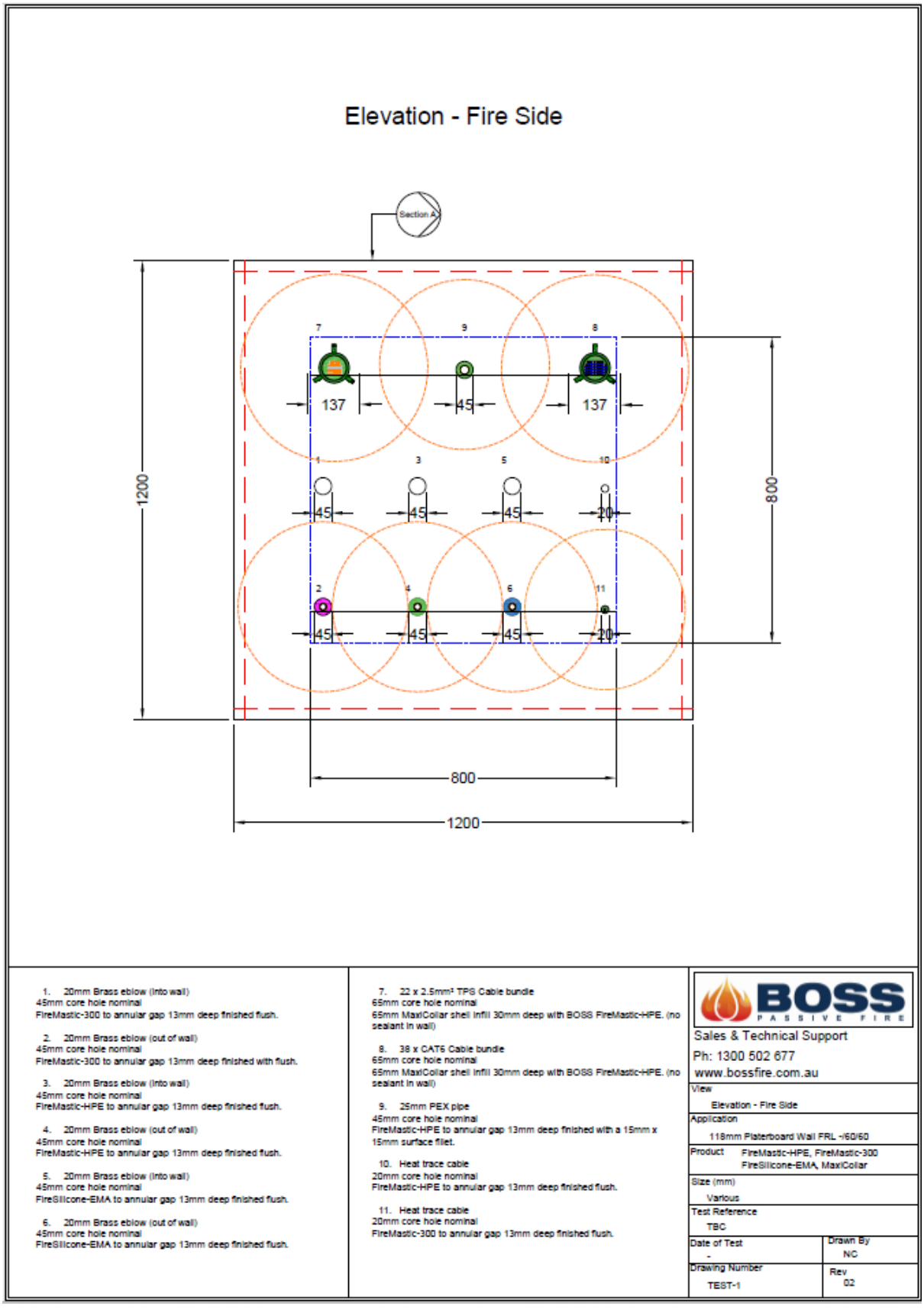


Figure 44 - Test 1 – Elevation – Fire Side.pdf

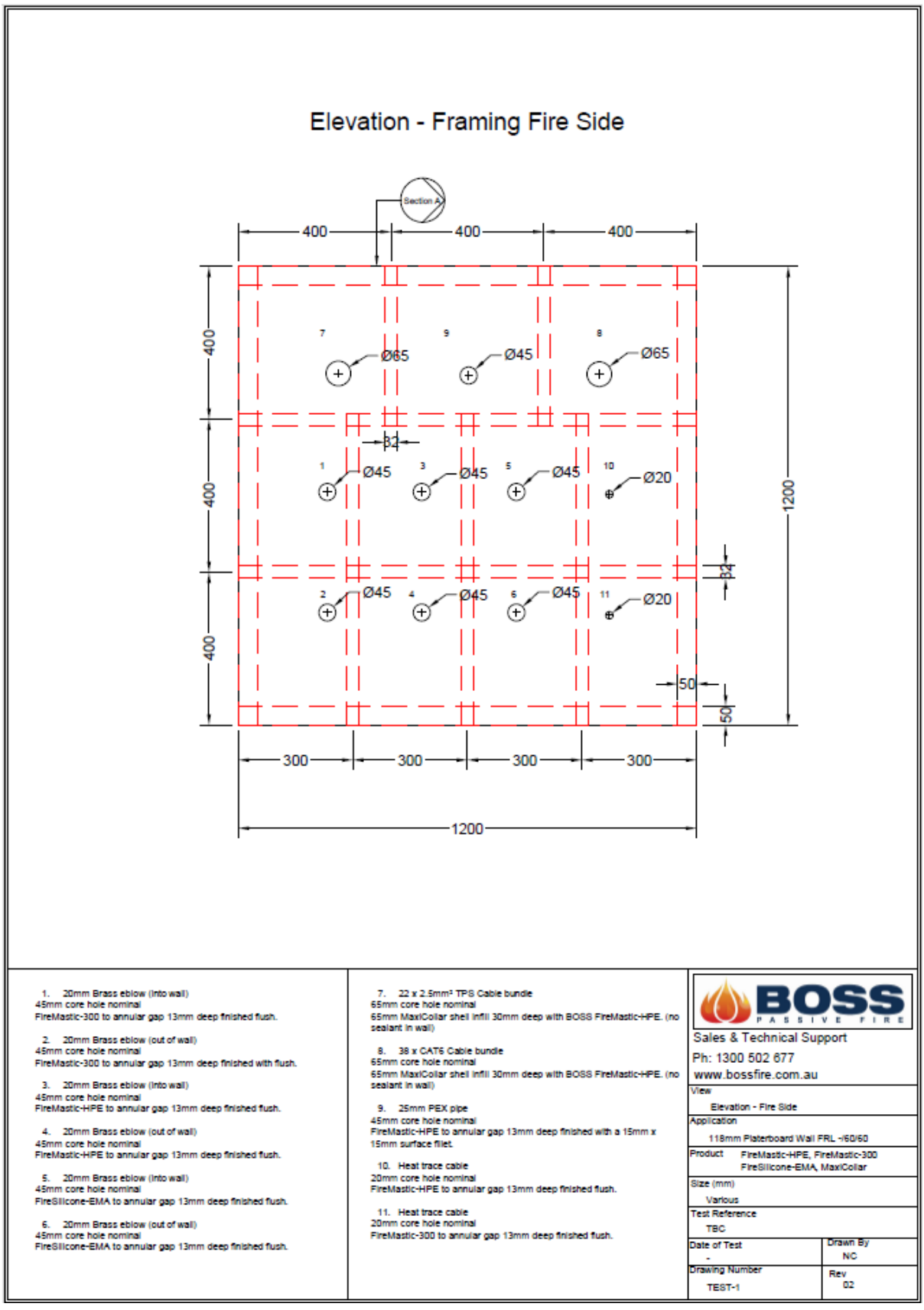
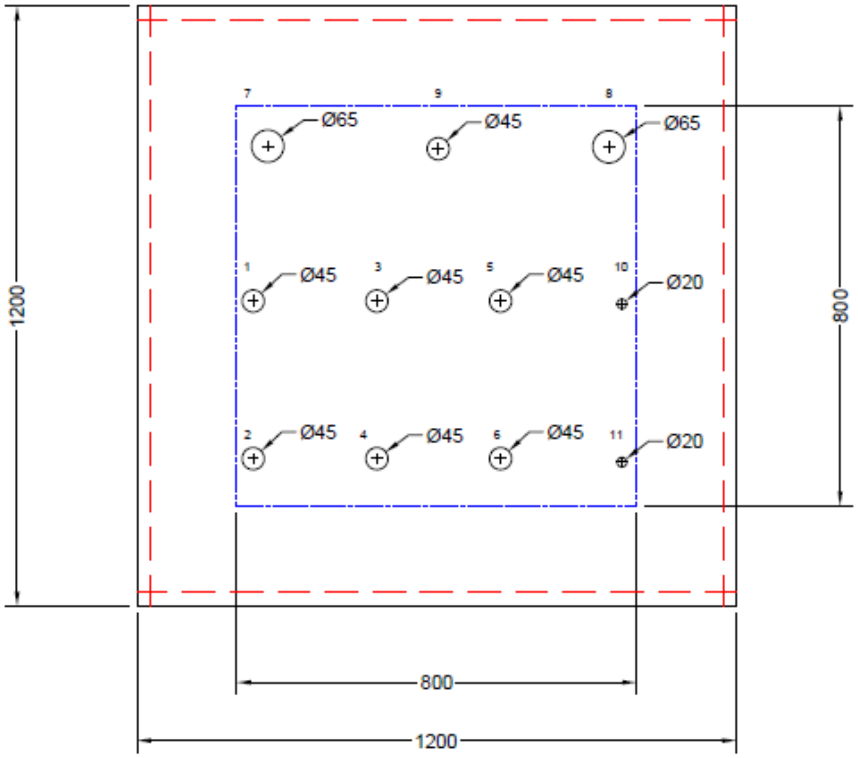


Figure 45 - Test 1 – Elevation – Framing Fire Side.pdf

Elevation - Aperture Size Fire Side



1. 20mm Brass eblow (Into wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

2. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished with flush.

3. 20mm Brass eblow (Into wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

4. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

5. 20mm Brass eblow (Into wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

6. 20mm Brass eblow (out of wall)
45mm core hole nominal
FireSilicone-EMA to annular gap 13mm deep finished flush.

7. 22 x 2.5mm² TPS Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

8. 38 x CAT6 Cable bundle
65mm core hole nominal
65mm MaxiCollar shell infill 30mm deep with BOSS FireMastic-HPE. (no sealant in wall)

9. 25mm PEX pipe
45mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished with a 15mm x 15mm surface fillet.

10. Heat trace cable
20mm core hole nominal
FireMastic-HPE to annular gap 13mm deep finished flush.

11. Heat trace cable
20mm core hole nominal
FireMastic-300 to annular gap 13mm deep finished flush.

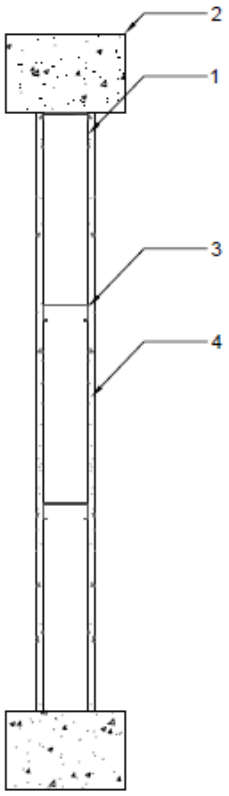
BOSS PASSIVE FIRE

Sales & Technical Support
Ph: 1300 502 677
www.bossfire.com.au

View	Elevation - Fire Side
Application	118mm Plasterboard Wall FRL -/60/60
Product	FireMastic-HPE, FireMastic-300 FireSilicone-EMA, MaxiCollar
Size (mm)	Various
Test Reference	TBC
Date of Test	-
Drawn By	NC
Drawing Number	TEST-1
Rev	02

Figure 46 - Test 1 – Elevation – Non Fire Side.pdf

Section A



1. Steel Deflection Head Track 94.4mm x 50mm
2. Concrete Surround
3. Steel Wall Stud 92mm x 32mm
4. 13mm Fire Rated Plasterboard

BOSS PASSIVE FIRE

Sales & Technical Support
Ph: 1300 502 677
www.bossfire.com.au

View	Elevation - Fire Side
Application	118mm Plasterboard Wall FRL -/60/60
Product	FireMastic-HPE, FireMastic-300 FireSilicone-EMA, MaxiCollar
Size (mm)	Various
Test Reference	TBC
Date of Test	-
Drawn By	NC
Drawing Number	TEST-1
Rev	01

Figure 47 - Test 1 – Section A.pdf

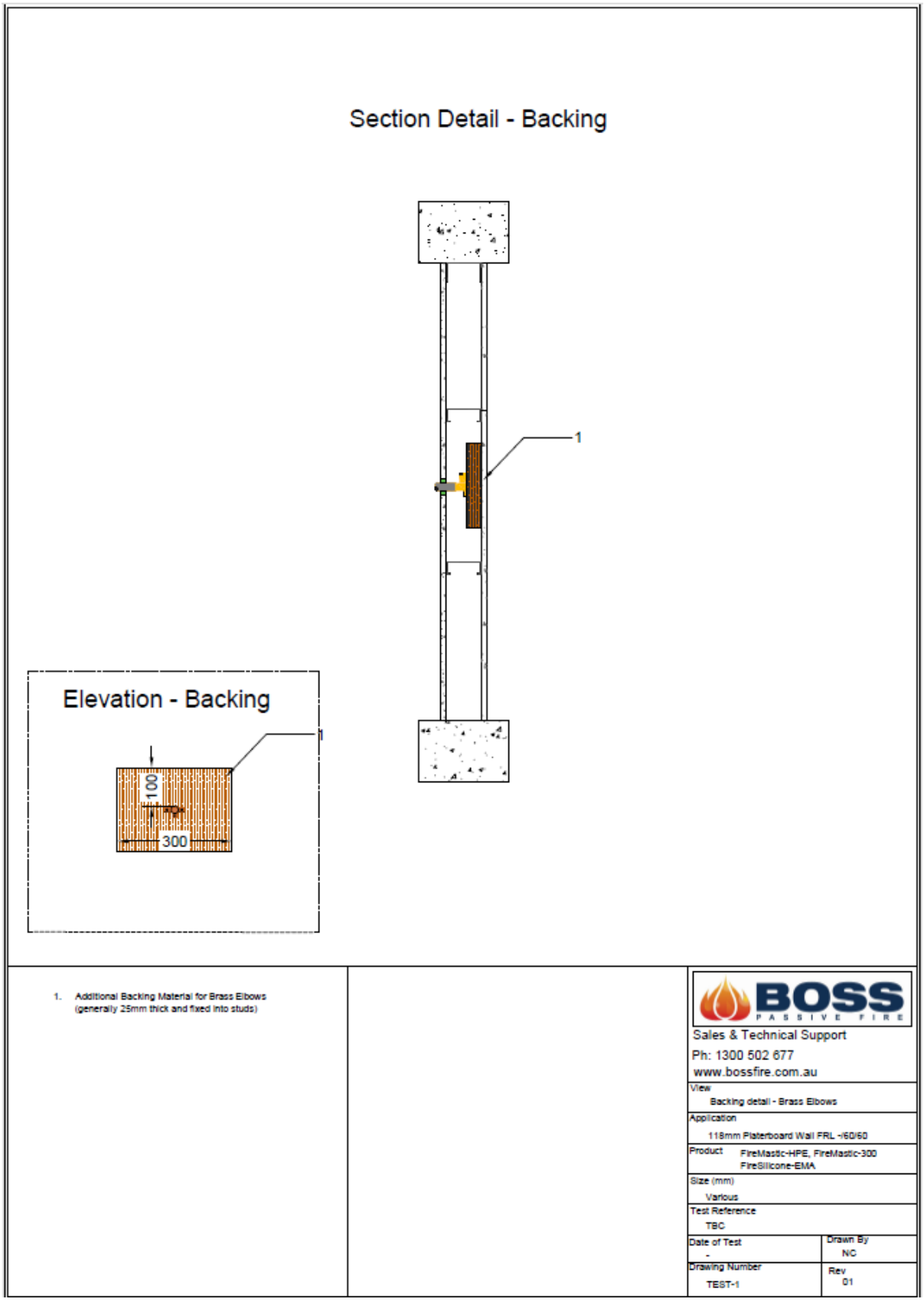


Figure 48 - Test 1 – Specimen Backing Detail.pdf

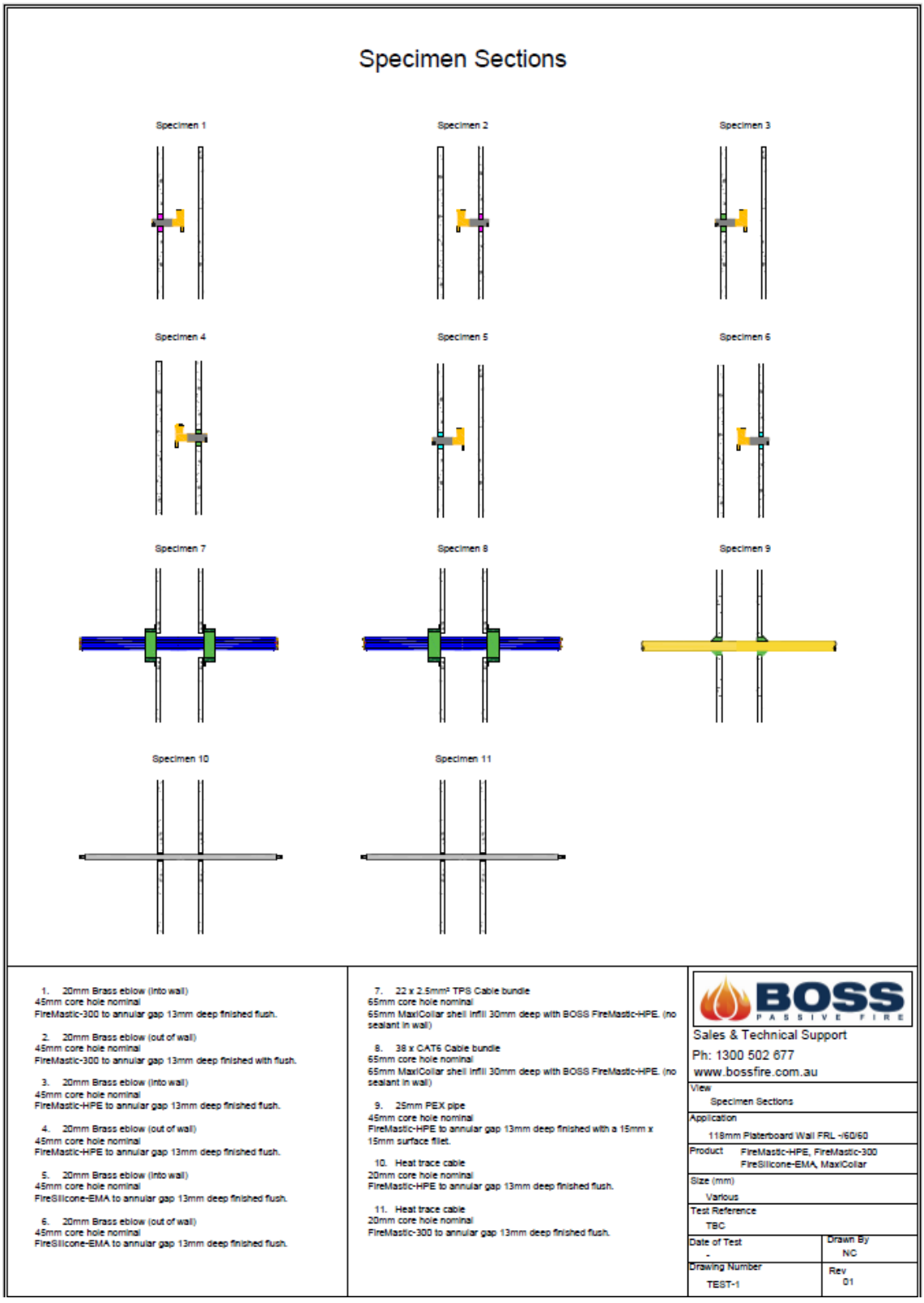


Figure 49 - Test 1 – Specimen Sections.pdf