Fire-resistance test on service penetrations in a framed wall system

Test Report

Author: Peter Gordon
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Client: Boss Fire & Safety Pty Ltd

Commercial-in-confidence

NATA Accredited Laboratory
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Corporate Site No 3625
Accredited for compliance with ISO/IEC 17025 - Testing

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Fire-resistance test on service penetrations in a framed wall system

Sponsored Investigation No. FSP 1791

1 Introduction

1.1 Identification of specimen

The sponsor identified the specimens as a number of services penetrating a plasterboard wall system with various protection systems.

1.2 Sponsor

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

1.3 Manufacturer

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

1.4 Test standard

Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, Fire-resistance tests of elements of construction Section 10: Service penetrations and control joints

1.5 Reference standard

Australian Standard 4072, Components for the protection of openings in fire-resistant separating elements, Part 1 - 2005, Service penetrations and control joints.

1.6 Test number

CSIRO Reference test number: FS 4648/4079

1.7 Test date

The fire-resistance test was conducted on 24 January 2017.

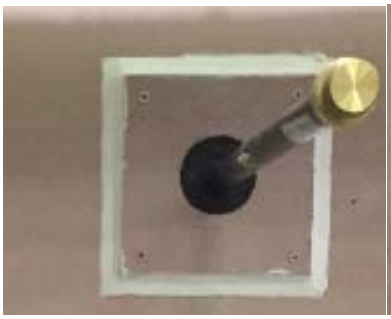
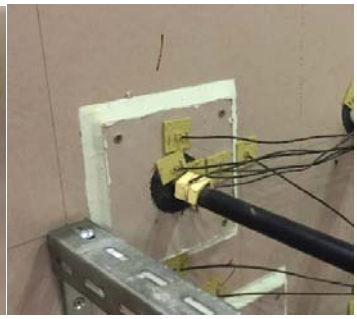
2 Description of specimen

2.1 General

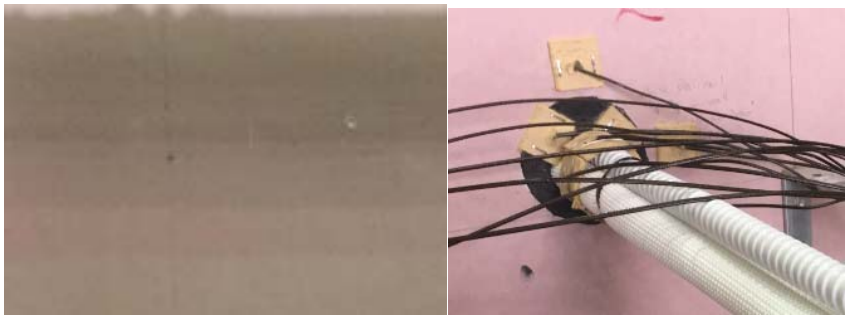
The specimens comprised eight (8) services penetrating a plasterboard wall and protected by sealants.

For the purpose of the test, the specimens were referenced as Specimen 1, 2, 3, 4, 5, 6, 7 and 8.

Specimen 1 – FireMastic-HPE sealant protecting a 60-mm round opening penetrated by PEX Cross Linked Polyethylene plumbing pipe 20mm diameter.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
60-mm ID opening in a 90 mm thick wall.	
PENETRATING SERVICE	
Description	PEX Cross Linked Polyethylene plumbing pipe. The service penetrated the non-exposed side by 2000-mm and the exposed side by 500-mm.
Size	PEX Cross Linked Polyethylene plumbing pipe 20-mm diameter with a 20-mm annular gap sealed with BOSS FireMastic-HPE intumescent sealant to a depth of 26-mm.
End conditions	Sealed on the exposed end using SmarteX P 20-mm Push fit brass Pex cap and left open on the unexposed end.
Supports	Approximately 500-mm and 1500-mm away from the wall on the non exposed face.
FIRE STOPPING SYSTEM	
Trade name	FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	A second layer of plasterboard 150-mm x 150-mm was placed over the penetration (on both sides) and secured to the wall with 4 x 25-mm long plasterboard screws. The edges of the plasterboard build up was coated with a 13-mm x 13-mm fillet of BOSS FireMastic-300 sealant. The annular gap of 20-mm between the pipe and the plasterboard on the non-exposed face was sealed with BOSS FireMastic-HPE to a depth of 26-mm and finished flush with the surface of the wall.
Photograph	  Exposed Unexposed
Drawing	CSIRO 0117 – 02 dated 23/02/17 by Boss Fire & Safety.

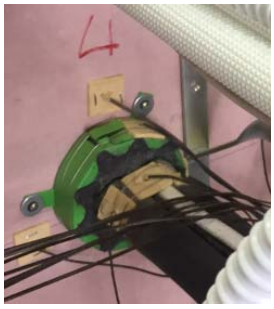
Specimen 2 – FireMastic-HPE sealant protecting a 80-mm round opening penetrated by a bundle of Paircoil, uPVC drain and Cable in a One-Sided System.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
80-mm ID opening in a 90 mm thick wall.	
PENETRATING SERVICE	
Description	Bundle of Paircoil, uPVC drain and Cable in a One-Sided System. The PVC pipe extends 2000-mm from the non-exposed side, and all pipes and cable extend 500-mm down into the wall cavity.
Size	Polyaire Paircoil 6.35-mm/9.52-mm insulated copper pipes with non-rated insulation lagging, 1.5-mm^2 2C+E TPS power cable, and a 16-mm^2 PVC flexible outlet pipe.
End conditions	The exposed face of the wall is not penetrated and pipes are left open on the unexposed face.
Supports	Approximately 500-mm and 1500-mm away from the wall on the non exposed face.
FIRE STOPPING SYSTEM	
Trade name	FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	The annular gap around the bunch of the paircoil, conduit and cables was sealed on both sides of the wall with FireMastic-HPE sealant to a nominal depth of 13-mm controlled by foam backing rod and finished flush with the surface of the wall.
Photograph	 Exposed Unexposed
Drawing	CSIRO 0117 – 03 dated 23/02/17 by Boss Fire & Safety.

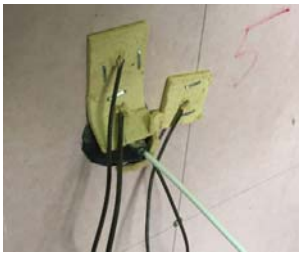
Specimen 3 – FireMastic-HPE sealant protecting a 25-mm round opening penetrated by a Bundle of Paircoil, Power Cable and Control Cable and a uPVC conduit.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
80-mm ID opening in a 90-mm thick wall.	
PENETRATING SERVICE	
Description	Bundle of Paircoil, Power Cable and Control Cable sealed with FireMastic-HPE. The services penetrated each side of the wall by 500-mm of PVC conduit.
Size	Paircoil 10-mm/15-mm insulated copper pipes with non-rated insulation lagging, 2.5-mm^2 2C+E TPS power cable, and a 1.5-mm^2 2-core data cable and a 20-mm uPVC outlet pipe.
End conditions	Copper pipes were crimped on the exposed side and left open on the non exposed side. The uPVC pipe was capped on the exposed end using a uPVC cap and left open on the unexposed end
Supports	Approximately 500-mm away from the wall on the non exposed face.
FIRE STOPPING SYSTEM	
Trade name	FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	A second layer of plasterboard 150-mm x 150-mm was placed over the penetration (on both sides) and secured to the wall with 4 x 25-mm plasterboard screws. The edges of the plasterboard build up was coated with a 13-mm x 13-mm fillet of BOSS FireMastic-300 sealant. The resulting annular gap around the bunch of the paircoil and PVC cable sealed on both sides of the wall with FireMastic-HPE sealant to a nominal depth of 26-mm and finished flush with the surface of the wall.
Photograph	
Drawing	CSIRO 0117 – 04 dated 23/02/17 by Boss Fire & Safety.

Specimen 4 – FireMastic-HPE sealant protecting a 80-mm round opening penetrated by Bundle of Paircoil, Power Cable and Control Cable and uPVC conduit sealed with a BOSS MaxiCollar.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
80-mm ID opening in a 90-mm thick wall.	
PENETRATING SERVICE	
Description	Bundle of Paircoil, Power Cable and Control PVC Cable sealed with a BOSS MaxiCollar. The services penetrated each side of the wall by 500-mm.
Size	Polyaire Paircoil 10mm/15mm insulated copper pipes with non-rated insulation lagging, 2.5-mm^2 2C+E TPS power cable, and a 1.5-mm^2 2-core data cable.
End conditions	Copper pipes were crimped on the exposed side and left open on the non exposed side. The uPVC pipe was capped on the exposed end using a uPVC cap and left open on the unexposed end
Supports	Approximately 500-mm away from the wall on the non exposed face.
FIRE STOPPING SYSTEM	
Trade name	80-mm Boss MaxiCollar in filled with FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	Boss MaxiCollar – a multi layered intumescent collar Fire Mastic-HPE is a High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	On both sides of the wall BOSS MaxiCollar which was surface mounted to the plasterboard using 3 x 25-mm plasterboard screws. There was no sealant used between the interface of the collar and the wall with the sealant attached to the plasterboard only or the pipes and the wall. The void left between the pipes and the collar was in-filled with FireMastic-HPE to the depth of collar and finished flush with the outer face of the collar.
Photograph	
Drawing	CSIRO 0117 – 05 dated 23/02/17 by Boss Fire & Safety.

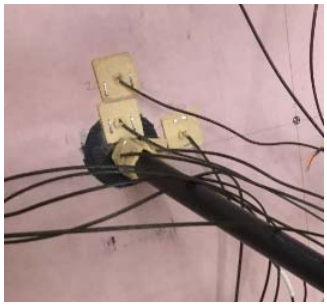
Specimen 5 – Single core fibre optic cable protected with 20mm fillet of FireMastic-HPE on non-exposed side only.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
8-mm ID opening in a 90-mm thick wall.	
PENETRATING SERVICE	
Description	Single core NBN cable – marking on sheath - OFS OPTICAL CABLE IO30-001E-WDW NBN CO SMOF G.657.A2 01/2016 PC9-023162001 LSZH IEC 60332-3C IEC 61034-2. The cable penetrated each side of the wall by 500-mm.
Size	NBN data cable 5-mm diameter.
End conditions	Cables on both the exposed and unexposed side were left untreated.
Supports	Approximately 500-mm away from the wall on the non-exposed face only.
FIRE STOPPING SYSTEM	
Trade name	FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	A surface seal around the cable was created with a 20-mm fillet of FireMastic-HPE intumescent sealant on the non-exposed side only.
Photograph	 Exposed side  Non Exposed side
Drawing	CSIRO 0117 – 06 dated 23/02/17 by Boss Fire & Safety.

Specimen 6 – Bundle of Power Cables sealed with FireMastic-HPE.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
60-mm ID opening in a 90-mm thick wall.	
PENETRATING SERVICE	
Description	Bundle of eight power cables.
Size	8 x 2.5mm^2, 3-core TPS cables.
End conditions	Cables on both exposed and unexposed side were left untreated.
Supports	Approximately 500-mm away from the wall on the unexposed side.
FIRE STOPPING SYSTEM	
Trade name	FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	The remaining 10-mm annular gap was sealed with BOSS FireMastic-HPE intumescent sealant to a depth of 13-mm on each face of the wall and finished flush with the surface of the plaster board on both faces.
Photograph	 Exposed Side  Unexposed side
Drawing	CSIRO 0117 – 07 dated 23/02/17 by Boss Fire & Safety.

Specimen 7 – 20-mm PEX pipe sealed with FireMastic-HPE.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
60-mm ID opening in a 90-mm thick wall.	
PENETRATING SERVICE	
Description	PEX Cross Linked Polyethylene plumbing pipe. The service penetrated the non-exposed side by 2000-mm and the exposed side by 500-mm.
Size	20-mm diameter
End conditions	Exposed end sealed using a Brass 20-mm cap and left open on the unexposed end.
Supports	Approximately 500-mm and 1500-mm away from the wall on the non - exposed side.
FIRE STOPPING SYSTEM	
Trade name	FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	The FireMastic-HPE fills the void between the pipe and the plasterboard sheet with an annular gap of 20-mm and a depth of 13-mm. The FireMastic-HPE is finished flush with the surface of the plasterboard wall on both faces.
Photograph	
Drawing	CSIRO 0117 – 08 dated 23/02/17 by Boss Fire & Safety.

Specimen 8 – Single core fibre optic cable 20mm protected with a fillet of FireMastic-HPE on the exposed side only.

SEPERATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
TYPE AND SIZE OF CONSTRUCTION	
8-mm ID opening in a 90-mm thick wall.	
PENETRATING SERVICE	
Description	Single core NBN cable with the following marking on the sheath OFS OPTICAL CABLE IO30-001E-WDW NBN CO SMOF G.657.A2 01/2016 PC9-023162001 LSZH IEC 60332-3C IEC 61034-2. The cable penetrated each side of the wall by 500-mm.
Size	NBN data cable 5-mm diameter.
End conditions	Cables on both exposed and unexposed side were left treated.
Supports	Approximately 500-mm away from the wall on the non-exposed side.
FIRE STOPPING SYSTEM	
Trade name	FireMastic-HPE sealant
Manufacturer	Boss Fire & Safety Pty Ltd
Description	High Pressure Exerting graphite-based, thixotropic, one-part acrylic sealant
Application	A surface seal around the cable was created with a 20-mm fillet of FireMastic-HPE intumescent sealant on the exposed side only.
Photograph	 Exposed side  Non Exposed side
Drawing	CSIRO 0117 – 09 dated 23/02/17 by Boss Fire & Safety.

2.2 Dimensions

The overall dimension of the plasterboard wall was 1100-mm wide x 1100-mm long x 90-mm, to suit the opening in the specimen containing frame.

2.3 Orientation

The plasterboard wall was placed vertically against the furnace chamber, and subjected to fire exposure from one side only.

2.4 Conditioning

The specimen was delivered to CSIRO on 20 January 2017.

3 Documentation

The following documents were supplied or referenced by the sponsor as a complete description of the specimen and should be read in conjunction with this report in appendix D:

Drawings numbered CSIRO 0117, numbered 1-9, dated 23 February 2017, by Boss Fire & Safety.

4 Equipment

4.1 Furnace

The furnace had a nominal opening of 1000-mm x 1000-mm for attachment of vertical or horizontal specimens.

The furnace was lined with refractory bricks and materials with the thermal properties as specified in AS 1530.4-2014 and was heated by combustion of a mixture of natural gas and air.

4.2 Temperature

The temperature in the furnace chamber was measured by four type K, 3-mm diameter, and 310 stainless steel Mineral Insulated Metal Sheathed (MIMS) thermocouples. Each thermocouple was housed in high-nickel steel tubes opened at the exposed end.

The temperatures of the specimen were measured by glass-fibre insulated and sheathed K-type thermocouples with a wire diameter of 0.5-mm.

Location of the thermocouples on the unexposed face of the specimens are described in Appendix A.

4.3 Measurement system

The primary measurement system comprised a multiple-channel data logger, scanning at one minute intervals during the test.

5 Ambient temperature

The temperature of the test area was 29°C at the commencement of the test.

6 Departure from standard

There were no departures from the requirements of AS1530.4 – 2014.

7 Termination of test

The test was terminated at 61 minutes by the agreement with the sponsor.

8 Test results

8.1 Critical observations

The following observations were made during the fire-resistance test:

1 minute -	Smoke emitted from the ends of penetrations # 3 and #4.
2 minutes -	Penetration # 3 stopped fluing.
3 minutes -	Smoke fluing from the ends of penetrations #1 and #7.
20 minutes -	Smoke emitted from the end of the flexible PVC pipe in penetration #2.
	Smoke fluing reduced from the ends of penetrations #1 and #7
23 minutes -	Fluing from the end of penetration #2 ceased.
25 minutes -	Fluing from the end of penetration #7 ceased.
30 minutes -	Insulation on penetrations #3 and #4 showing signs of becoming heat affected near the unexposed wall.
37 minutes -	Fluing from the end of pentration#2 – copper pipes.
48 minutes -	Insulation on the cables of penetration # 6 softening and sagging.
55 minutes -	The mastic swelled on the exposed face of penetration #6.
61 minutes -	Test terminated at clients request.

8.2 Furnace temperature

Figure 1 shows the standard curves of temperature versus time for heating the furnace chamber and the actual curves of average and maximum temperature versus time recorded during the heating period.

8.3 Furnace severity

Figure 2 shows the curve of furnace severity versus time during the heating period.

8.4 Specimeln temperature

Figure 3 shows the curve of temperature versus time associated with Specimen 1.

Figure 4 shows the curve of temperature versus time associated with Specimen 2.

Figure 5 shows the curve of temperature versus time associated with Specimen 3.

Figure 6 shows the curve of temperature versus time associated with Specimen 4.

Figure 7 shows the curve of temperature versus time associated with Specimen 5.

Figure 8 shows the curve of temperature versus time associated with Specimen 6.

Figure 9 shows the curve of temperature versus time associated with Specimen 7.

Figure 10 shows the curve of temperature versus time associated with Specimen 8.

8.5 Performance

Performance observed in respect of the following AS 1530.4-2014 criteria:

Penetration # 1 – 20mm PEX pipe sealed with FireMastic-HPE; in a 60-mm ID hole.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

Penetration # 2 – Bundle of Paircoil, uPVC drain and Cable in a 80-mm ID hole One-Sided System.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

Penetration # 3 – Bundle of Paircoil, Power Cable and Control Cable sealed with FireMastic-HPE in a 80-mm ID hole.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

Penetration # 4 – Bundle of Paircoil, Power Cable and Control Cable sealed with a BOSS MaxiCollar though a 80-mm hole.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

Penetration # 5 – NBN Fibre Optic Cable in a One-sided system through a 8-mm ID hole.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

Penetration # 6 – Bundle of Power Cables sealed with FireMastic-HPE through a 60-mm ID hole.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

Penetration # 7 – Bundle of Power Cables sealed with FireMastic-HPE through a 60-mm ID hole.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

Penetration # 8 – NBN Fibre Optic Cable in a One-sided system; through a 8-mm ID hole.

Structural adequacy	-	Not applicable
Integrity	-	No failure at 61 minutes
Insulation	-	No failure at 61 minutes

This report details methods of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in this standard. Any significant variation with respect to size, constructional details, loads, stresses, edge or end conditions, other than those 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.

9 Fire-resistance level (FRL)

For the purpose of building regulations in Australia, the FRL's of the test specimens were as follows:

Penetration # 1	-	-/60/60	Penetration # 5	-	- /60/60
Penetration # 2	-	-/60/60	Penetration # 6	-	- /60/60
Penetration # 3	-	-/60/60	Penetration # 7	-	- /60/60
Penetration # 4	-	-/60/60	Penetration # 8	-	- /60/60

The fire-resistance level of the wall system is applicable when the system is exposed to fire from either direction.

The fire-resistance level (FRL) are limited to that of the separating element.

For the purposes of AS 1530.4-2014 the results of these fire tests may be used to directly assess fire hazard, but it should be noted that a single test method will not provide a full assessment of fire hazard under all fire conditions.

10 Field of direct application of test results

The results of the fire test contained in this test report are directly applicable, without reference to the testing authority, to similar constructions where one or more changes listed in Clause 10.12 of AS 1530.4-20014, have been made provided no individual component is removed or reduced.

11 Tested by

Russell Collins
Testing Officer

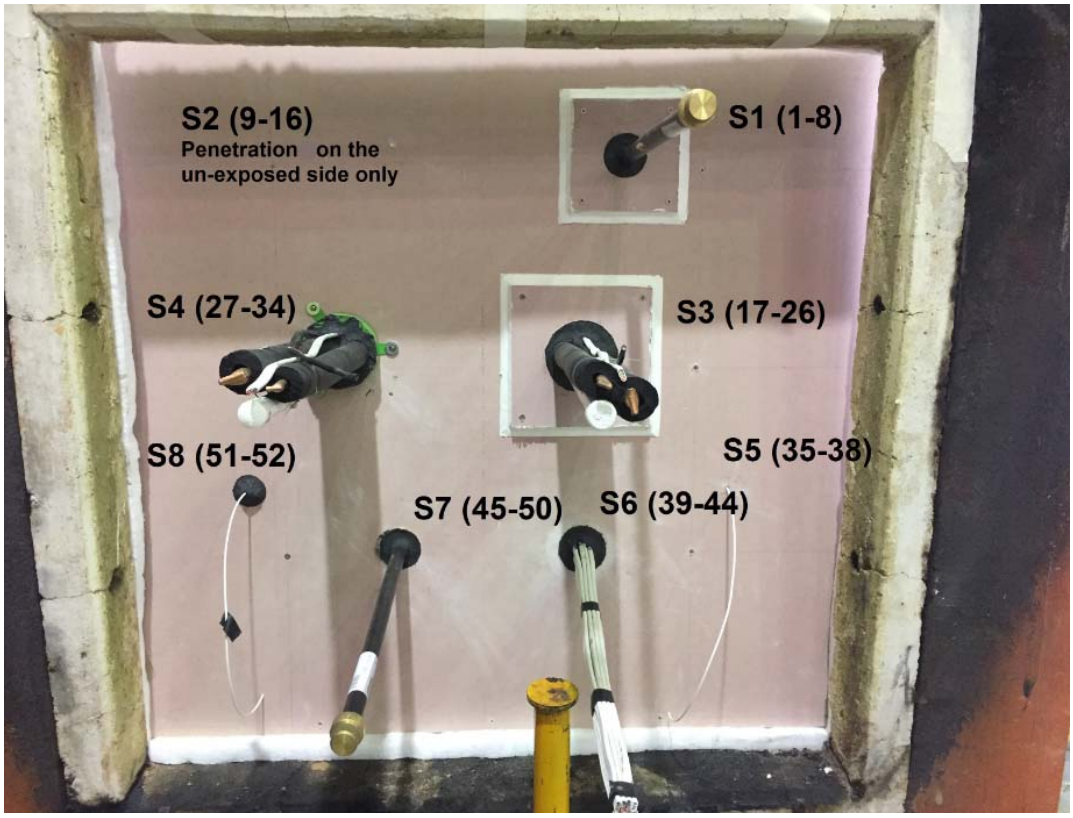
Appendices

Appendix A – Measurement location

Specimen	T/C Position	T/C designation
Specimen 1 – 20-mm PEX pipe sealed with FireMastic-HPE	On wall – 25-mm above p/b transition	S1
	On wall – 25-mm beside p/b transition	S2
	On p/b, 25-mm above mastic	S3
	On p/b, 25-mm beside mastic	S4
	On top of mastic	S5
	On side of mastic	S6
	On top of pipe 25-mm from mastic	S7
	On side of pipe 25-mm from mastic	S8
Specimen 2 – Bundle of Paircoil, uPVC drain and Cable in a One-Sided System	On wall – 25-mm above mastic	S9
	On wall – 25-mm beside mastic	S10
	On top of mastic	S11
	On side of mastic	S12
	On flex pipe, 25-mm from mastic	S13
	On insulation of 10-mm Cu pipe 25-mm from mastic	S14
	On insulation of 6-mm Cu pipe 25-mm from mastic	S15
	On 3-core power cable 25-mm from mastic	S16
Specimen 3 – Bundle of Paircoil, Power Cable, Control Cable sealed and uPVC drain with FireMastic-HPE	On wall – 25-mm above p/b transition	S17
	On wall – 25-mm beside p/b transition	S18
	On p/b, 25-mm above mastic	S19
	On p/b, 25-mm beside mastic	S20
	On top of mastic	S21
	On side of mastic	S22
	On 3-core power cable + comms 25-mm from mastic	S23
	On insulation of 10-mm Cu pipe 25-mm from mastic	S24
	On insulation of 16-mm Cu pipe 25-mm from mastic	S25
	On conduit 25-mm from mastic	S26

Specimen 4 – Bundle of Paircoil, Power Cable, Control Cable and uPVC drain sealed with a BOSS MaxiCollar	On wall – 25-mm above collar	S27
	On wall – 25-mm beside collar	S28
	On top of collar	S29
	On side of collar	S30
	On 3-core power cable + comms 25-mm from collar	S31
	On insulation of 9-mm Cu pipe 25-mm from mastic	S32
	On insulation of 26-mm Cu pipe 25-mm from mastic	S33
	On 22-mm conduit 25-mm from mastic	S34
Specimen 5 – NBN Fibre Optic Cable in a One-sided system	On wall – 25-mm above mastic	S35
	On wall – 25-mm beside mastic	S36
	On top of mastic	S37
	On side of mastic	S38
Specimen 6 – Bundle of Power Cables sealed with FireMastic-HPE	On wall – 25-mm above mastic	S39
	On wall – 25-mm beside mastic	S40
	On top of mastic	S41
	On side of mastic	S42
	On cable (8x3-core power) 25-mm from mastic	S43
	On cable (8x3-core power) 25-mm from mastic	S44
Specimen 7 – 20mm PEX pipe sealed with FireMastic-HPE	On wall – 25-mm above mastic	S45
	On wall – 25-mm beside mastic	S46
	On top of mastic	S47
	On side of mastic	S48
	On pipe 25-mm from mastic	S49
	On pipe 25-mm from mastic	S50
Specimen 8 – NBN Fibre Optic Cable in a One-sided system	On wall – 25-mm above penetration	S51
	On wall – 25-mm beside penetration	S52
Ambient		S53
Rover		S54
		S55
		S56
Radiometer 1		R1
Radiometer 2		R2

Appendix B – Test photographs

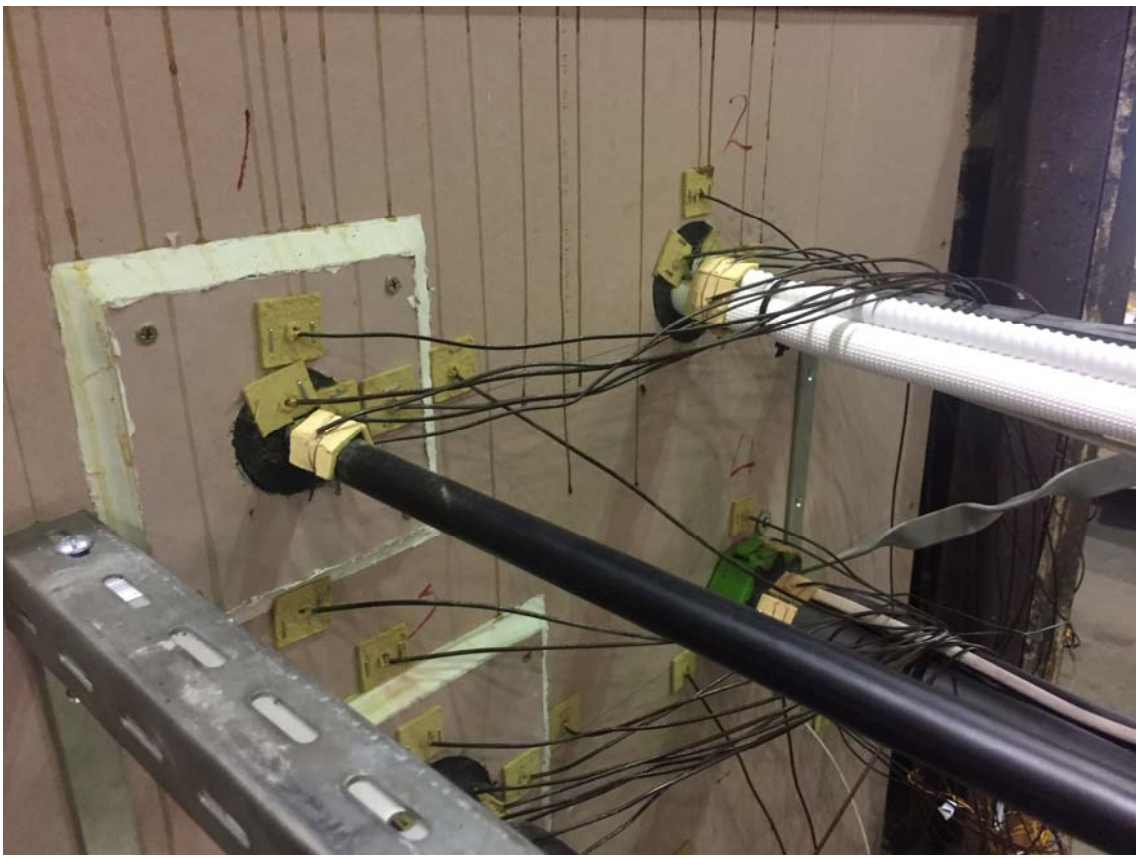


PHOTOGRAPH 1 – EXPOSED SIDE OF THE SPECIMENS PRIOR TO TESTING

PHOTOGRAPH 2 – UNEXPOSED SIDE OF THE SPECIMENS PRIOR TO TESTING

PHOTOGRAPH 3 – SPECIMENS AFTER 4 MINUTES OF TESTING

PHOTOGRAPH 4 – SPECIMENS AFTER 30 MINUTES OF TESTING



PHOTOGRAPH 5 – SPECIMENS AFTER 30 MINUTES OF TESTING

PHOTOGRAPH 6 – SPECIMENS AT THE CONCLUSION OF TESTING - 60 MINUTES

PHOTOGRAPH 7 – EXPOSED FACE OF THE SPECIMENS AFTER THE CONCLUSION OF TESTING

Appendix C – Test data charts

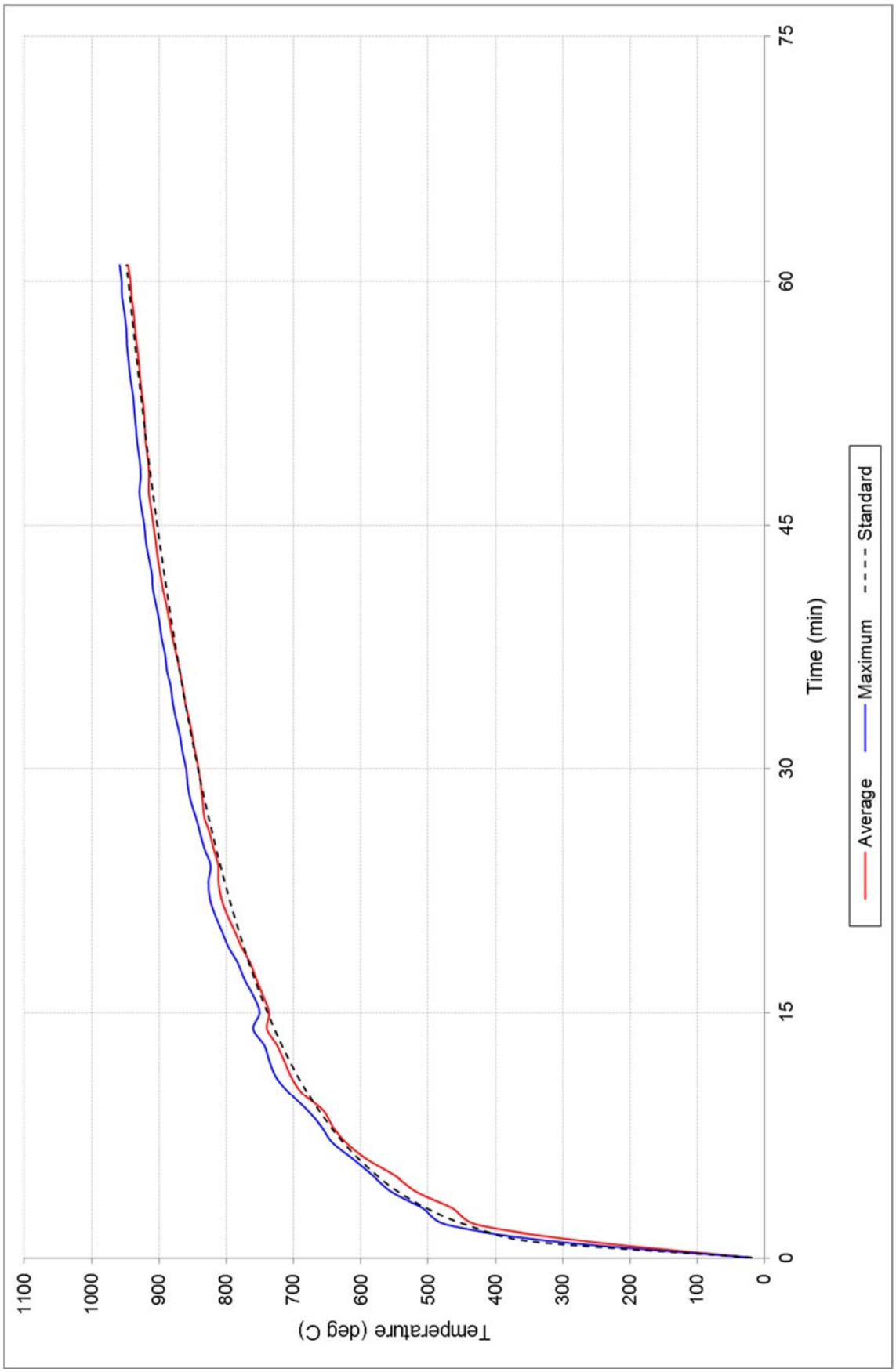


FIGURE 1 – FURNACE TEMPERATURE

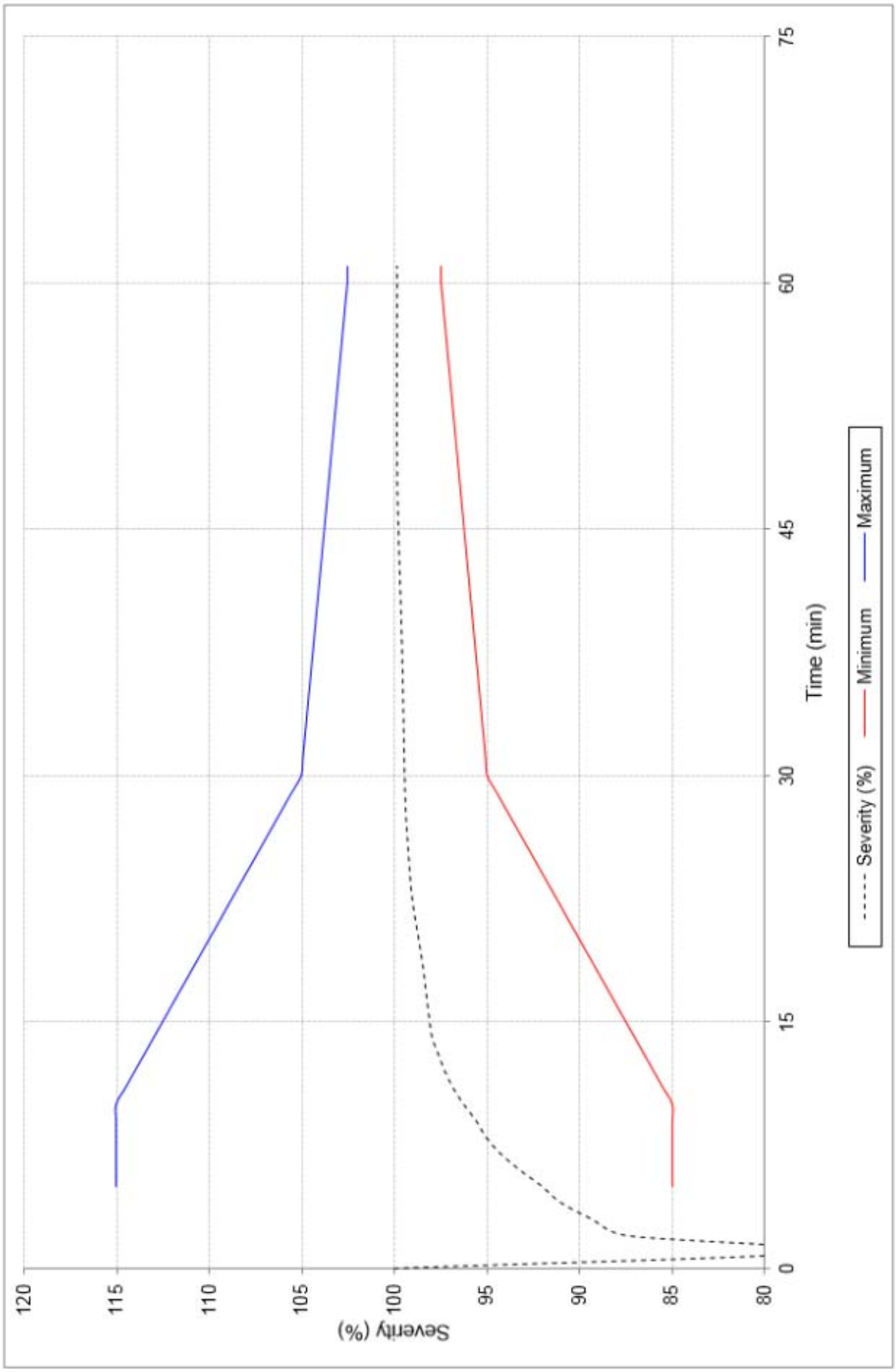


FIGURE 2 – FURNACE SEVERITY

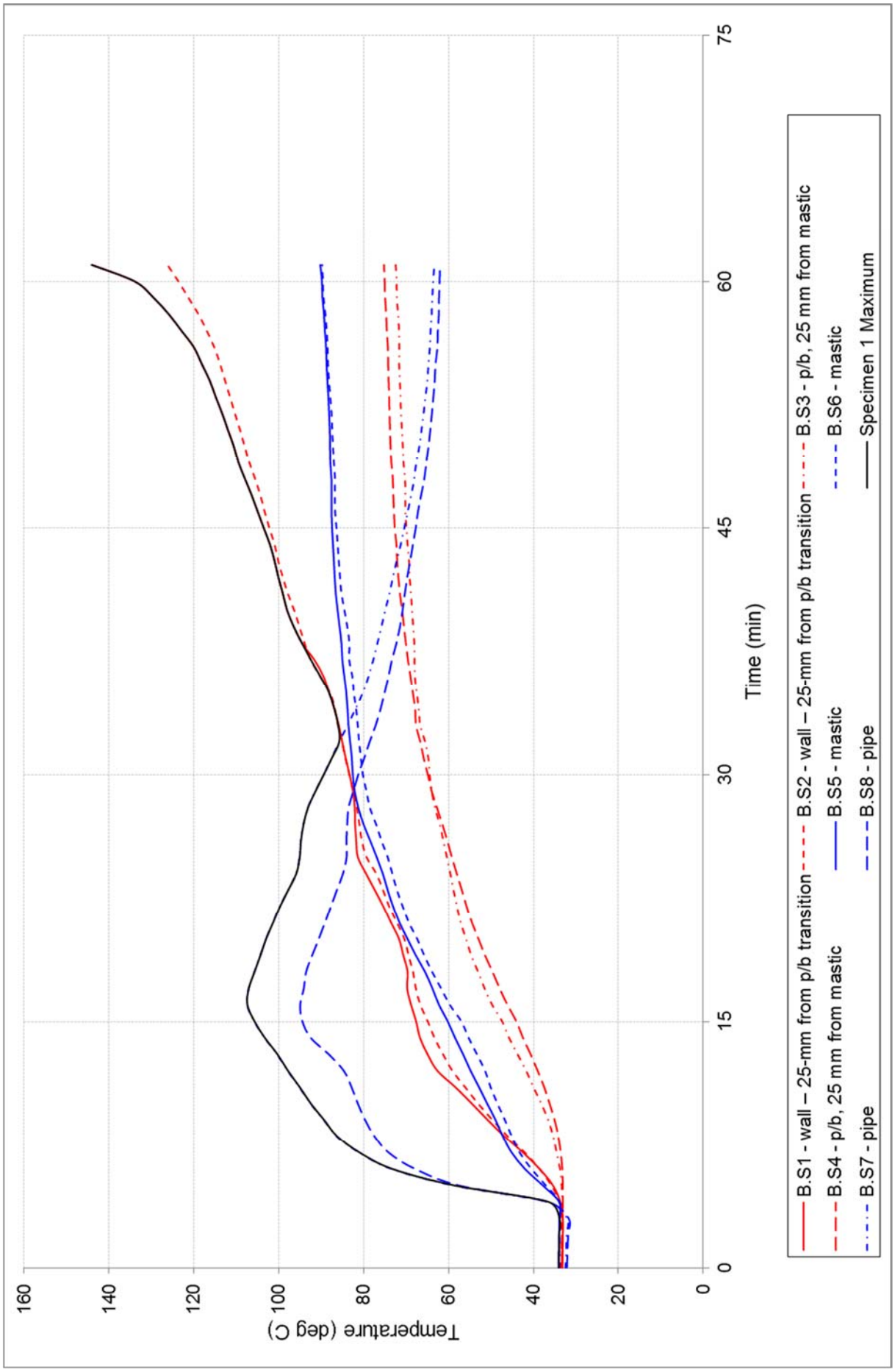


FIGURE 3 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 1

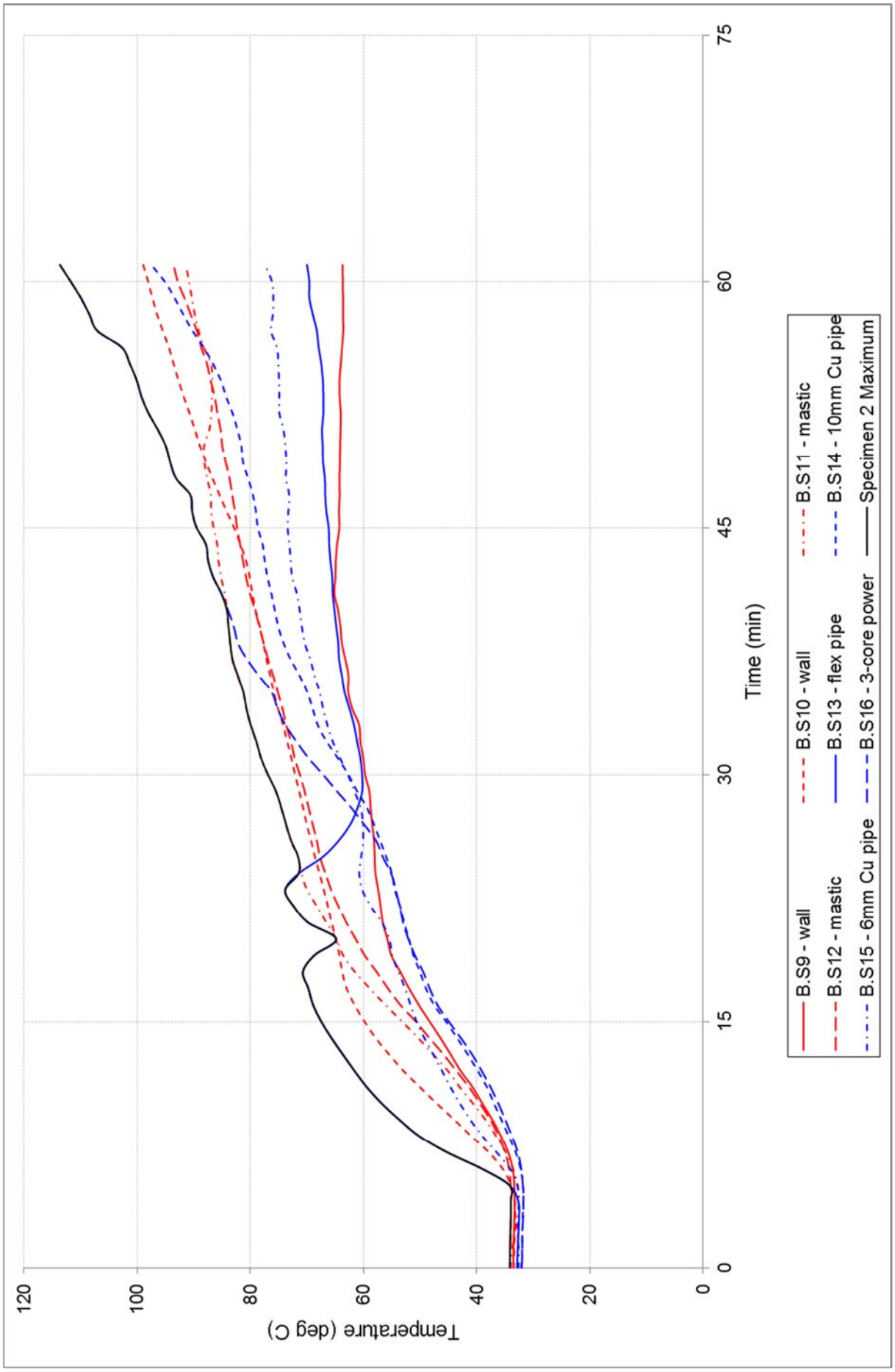


FIGURE 4 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 2

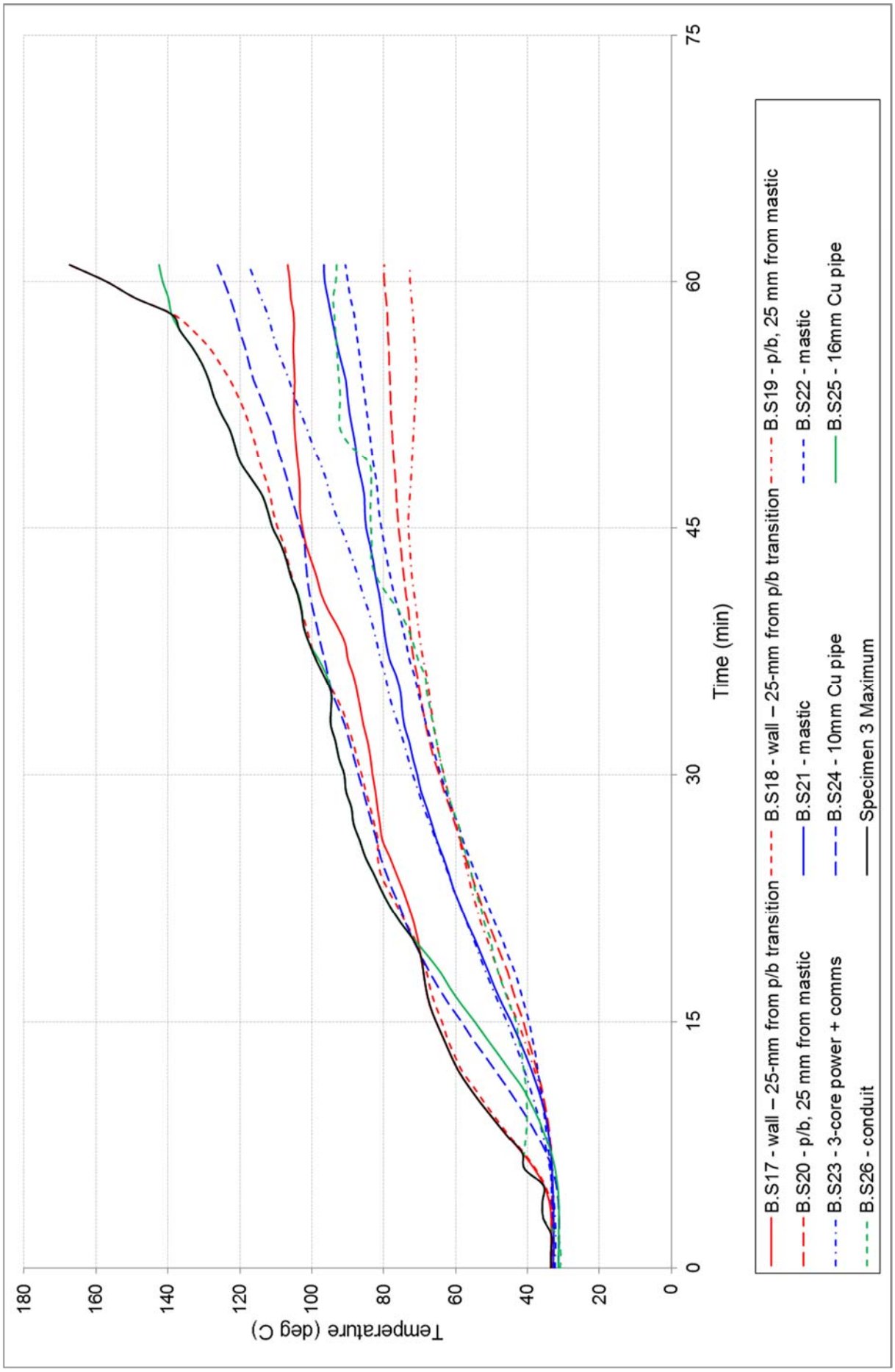


FIGURE 5 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 3

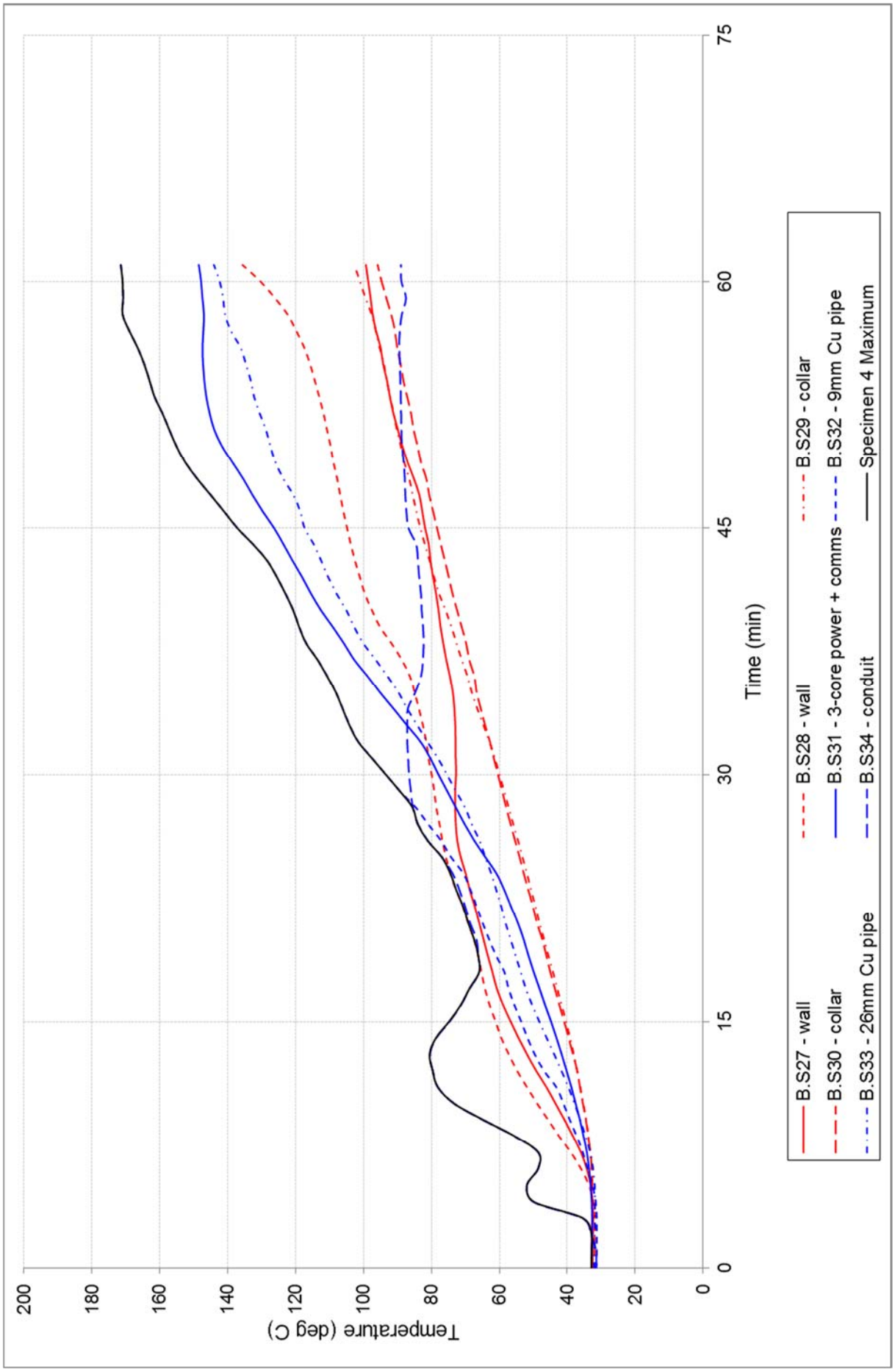


FIGURE 6 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 4

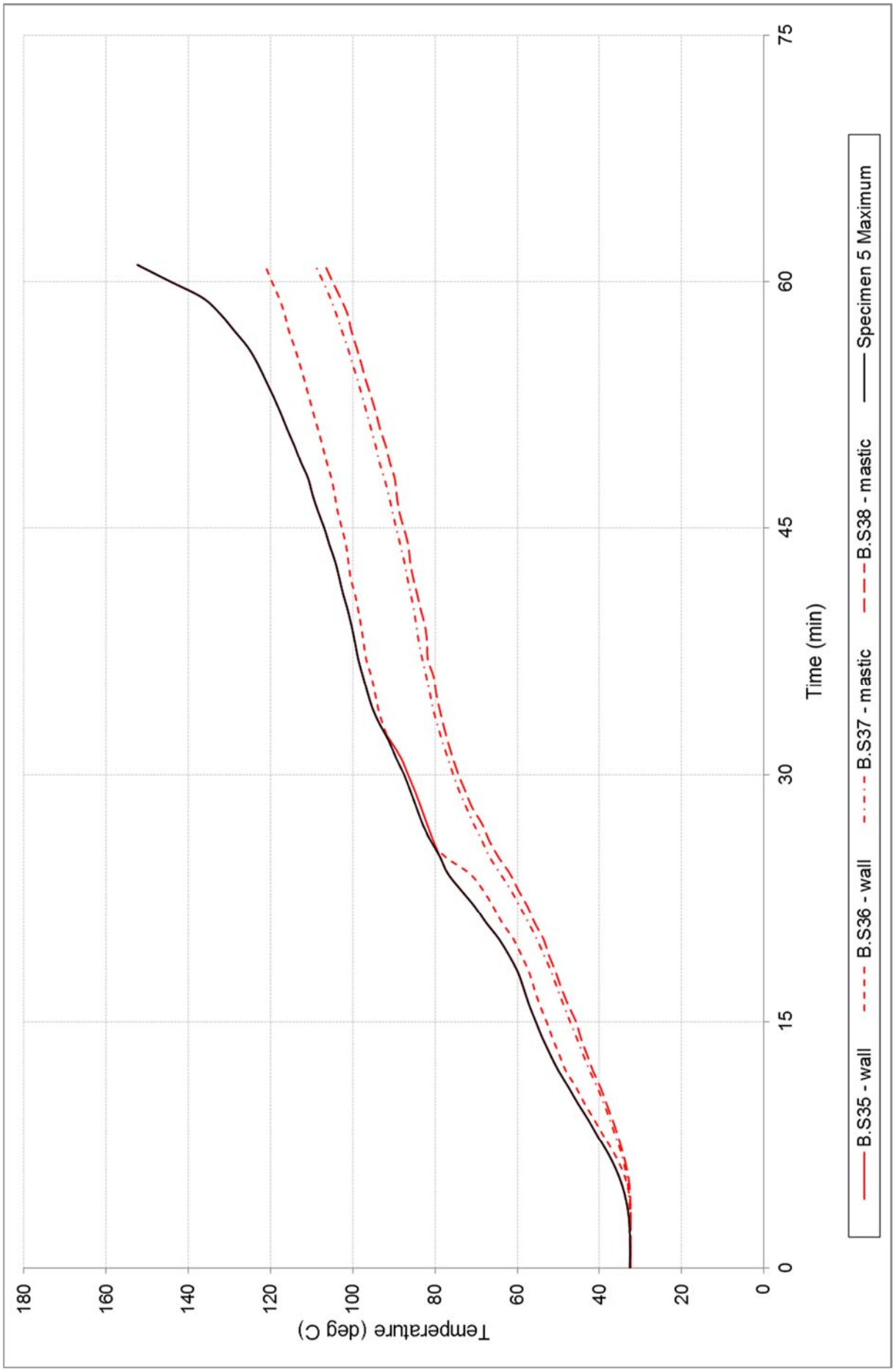


FIGURE 7 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 5

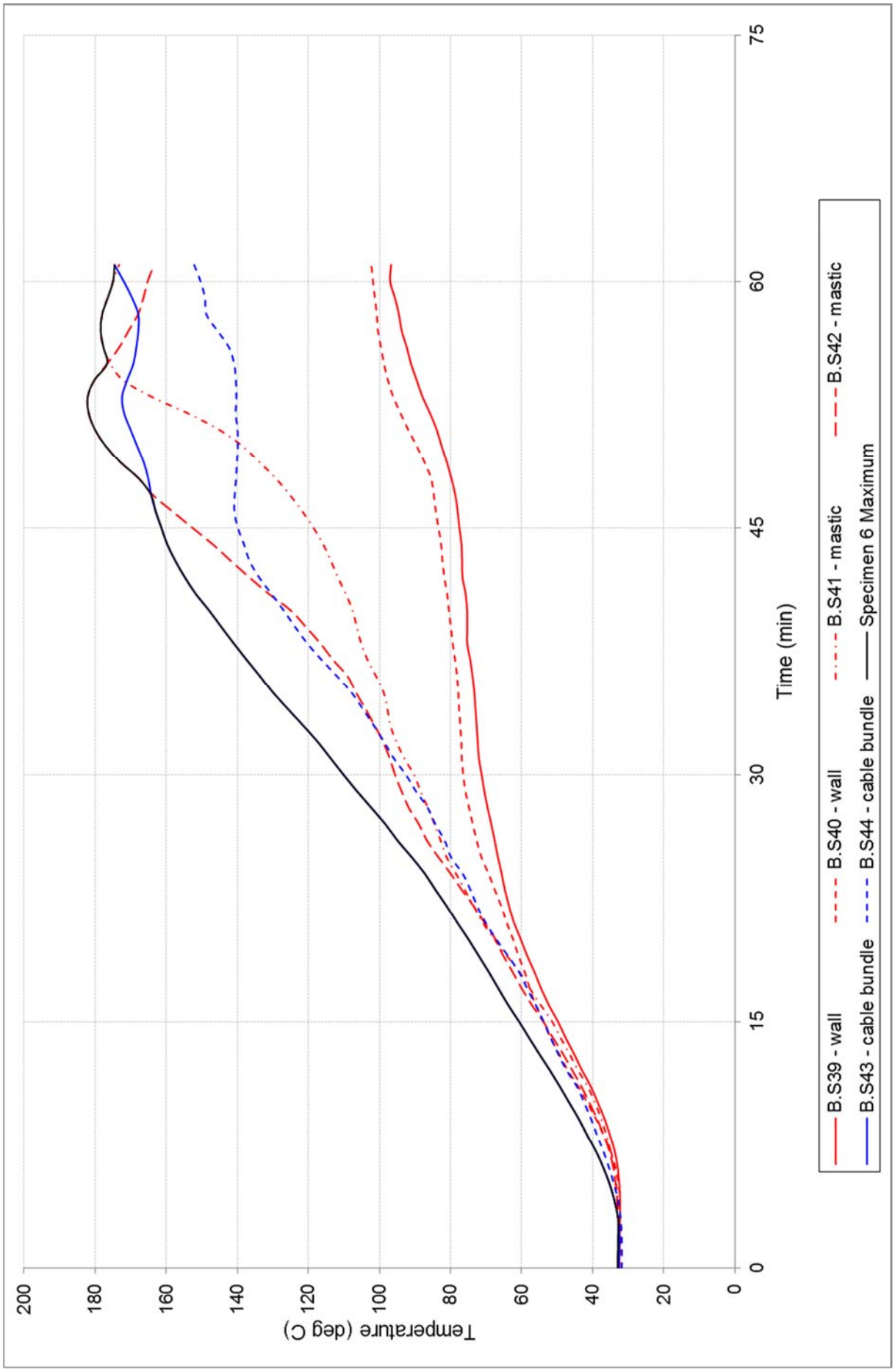


FIGURE 8 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 6

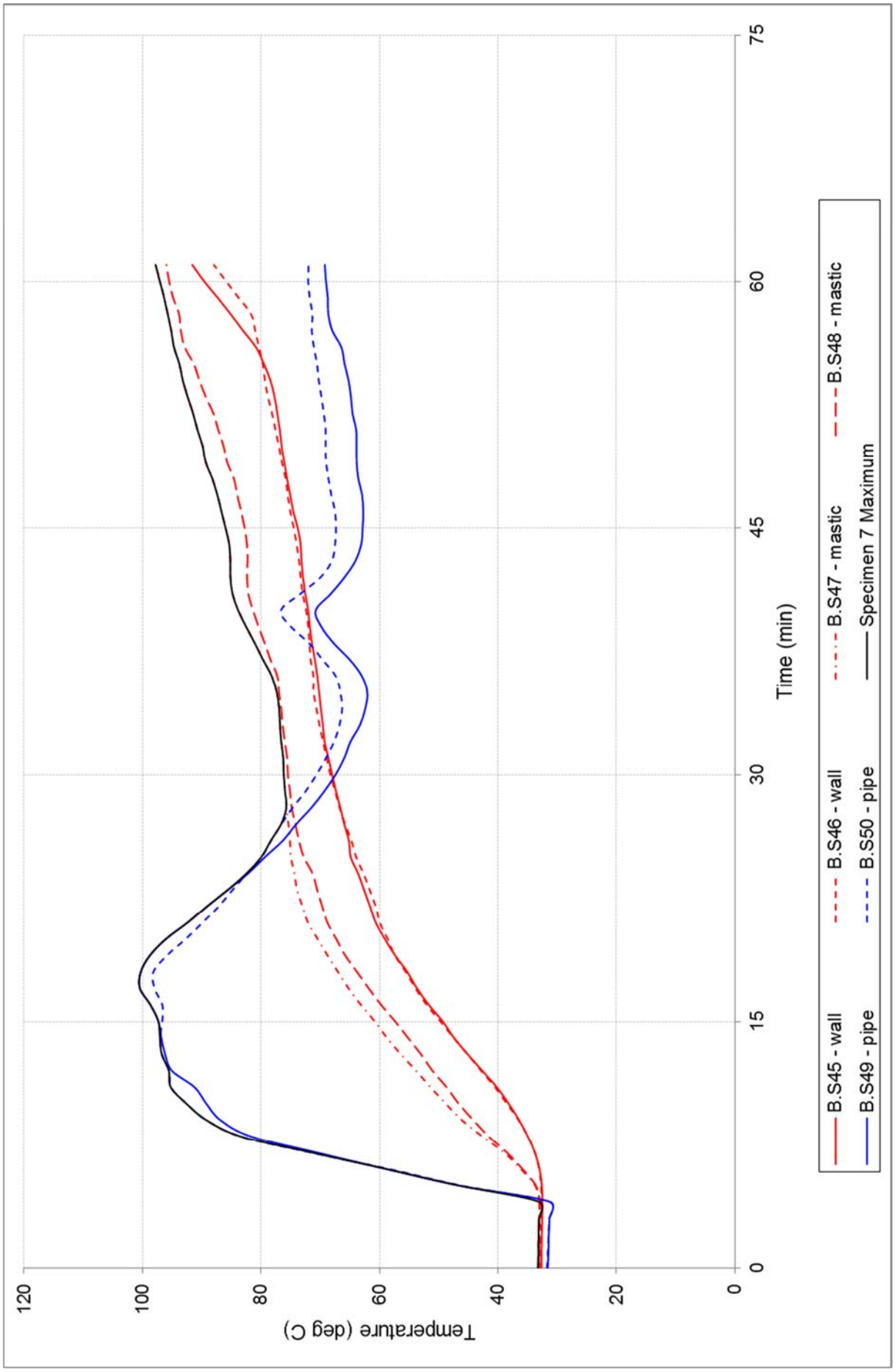


FIGURE 9 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 7

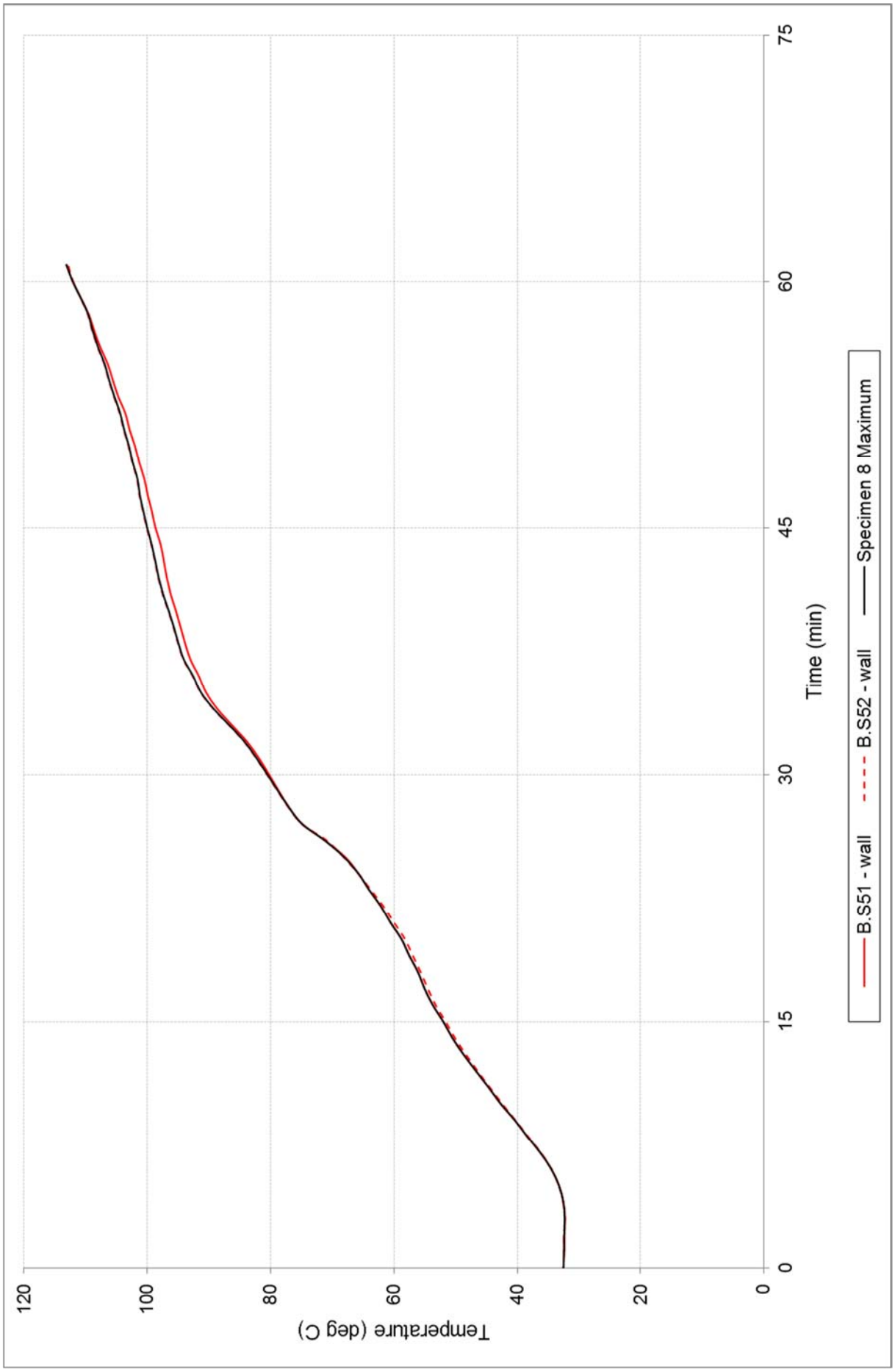
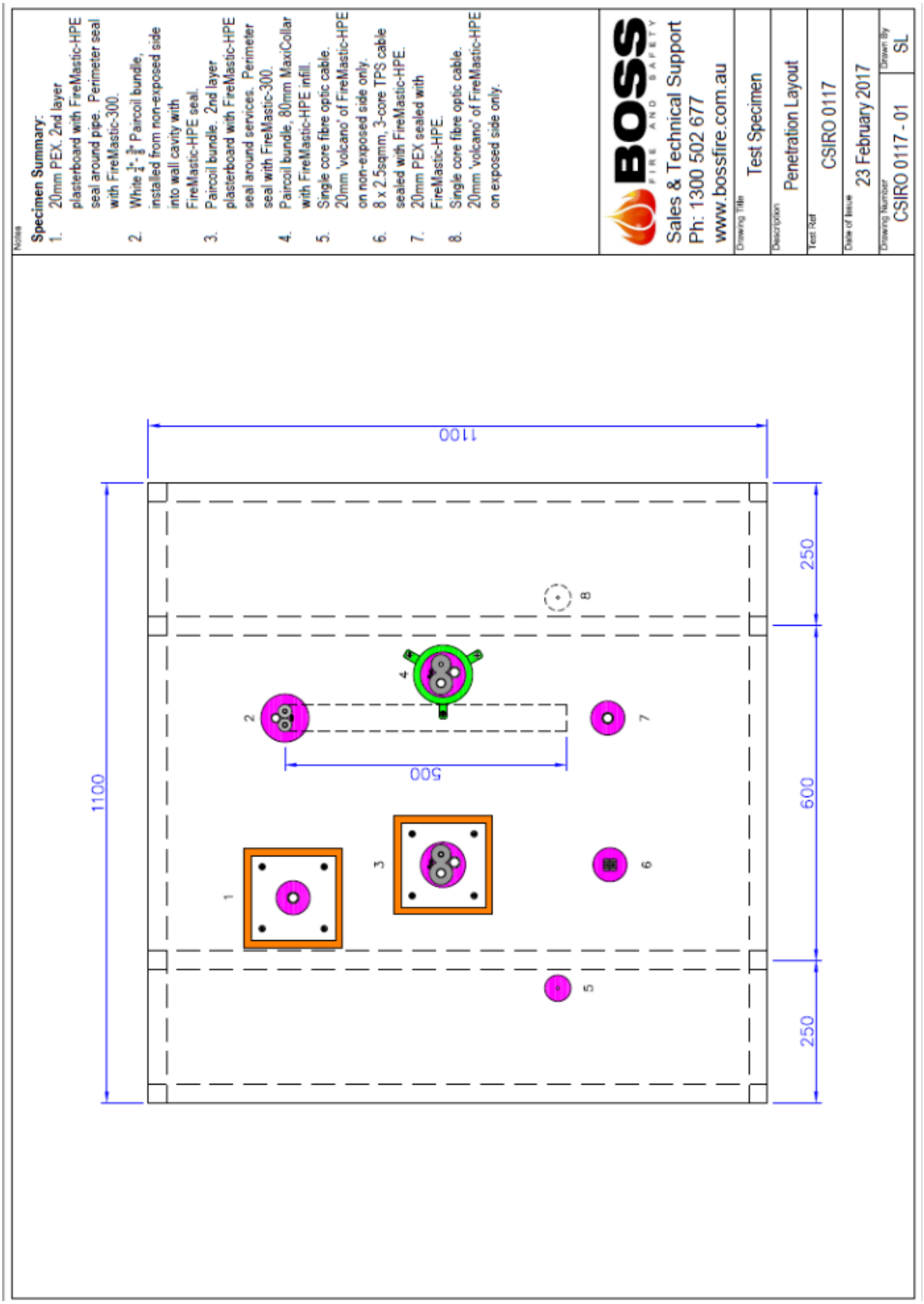


FIGURE 10 – SPECIMEN TEMPERATURE – UNEXPOSED FACE PENETRATION 8

Appendix D – Specimen drawings



DRAWING NUMBER CSIRO 0117 -01 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY

Notes

Component Summary:

(1) Plasterboard, 13mm fire-rated

(2) 2nd layer plasterboard, 13mm fire-rated, minimum size 150mm x 150mm

(3) Hole size 60mm minimum

(4) 20mm PEX Pipe

(5) BOSS FireMastic-HPE seal, 26mm deep

(6) Plasterboard screws, 8g x 25mm

(7) BOSS FireMastic-300, 13mm fillet

BOSS FIRE AND SAFETY

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

Drawing Title	PEX Pipe Penetrating 60min Wall
Description	FireMastic-HPE Fire Seal
Test Ref	CSIRO 0117
Date of Issue	23 February 2017
Drawing Number	CSIRO 0117 - 02
Drawn By	SL

DRAWING NUMBER CSIRO 0117 -02 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY

Notes

Component Summary:

(1) Plasterboard, 13mm Fire-rated

(2) Hole Size 80mm minimum

(3) BOSS FireMastic-HPE seal, 13mm deep

(4) Services bundle comprising ¼" - ⅜" paircoil with white "non-rated" insulation, 1.5mm² 3-core TPS cable and 16mm corrugated uPVC drain

BOSS FIRE AND SAFETY

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

Drawing Title: Paicoil Cluster 1-Sided Fire Seal

Description: FireMastic-HPE installed 1 side only

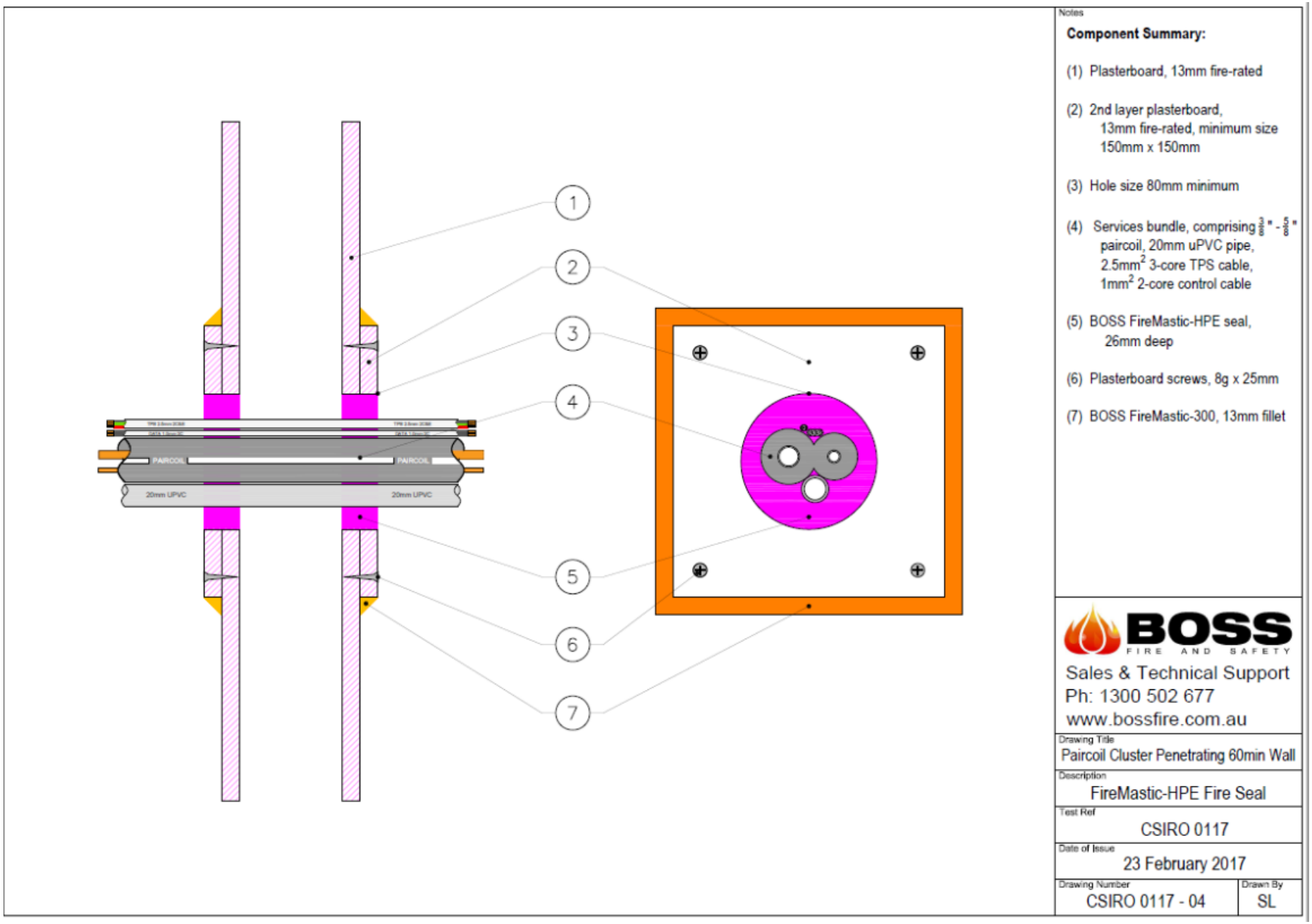
Test Ref: CSIRO 0117

Date of Issue: 23 February 2017

Drawing Number: CSIRO 0117 - 03

Drawn By: SL

DRAWING NUMBER CSIRO 0117 -03 DATED 23 FEBRUARY, BY BOSS FIRE & SAFETY



Notes

Component Summary:

(1) Plasterboard, 13mm fire-rated

(2) 2nd layer plasterboard, 13mm fire-rated, minimum size 150mm x 150mm

(3) Hole size 80mm minimum

(4) Services bundle, comprising $\frac{3}{4}$" - $\frac{1}{2}$" paircoil, 20mm uPVC pipe, 2.5mm^2 3-core TPS cable, 1mm^2 2-core control cable

(5) BOSS FireMastic-HPE seal, 26mm deep

(6) Plasterboard screws, 8g x 25mm

(7) BOSS FireMastic-300, 13mm fillet

BOSS FIRE AND SAFETY

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

Drawing Title	Paircoil Cluster Penetrating 60min Wall
Description	FireMastic-HPE Fire Seal
Test Ref	CSIRO 0117
Date of Issue	23 February 2017
Drawing Number	CSIRO 0117 - 04
Drawn By	SL

DRAWING NUMBER CSIRO 0117 -04 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY

Notes

Component Summary:

(1) Plasterboard, 13mm fire-rated

(2) BOSS MaxiCollar, 80mm

(3) BOSS FireMastic-HPE seal, infilled around services

(4) Services bundle, comprising $\frac{3}{16}$" - $\frac{5}{16}$" paircoil, 20mm uPVC pipe, 2.5mm^2 3-core TPS cable, 1mm^2 2-core control cable

(5) Plasterboard screws, 8g x 15mm

BOSS FIRE AND SAFETY

Sales & Technical Support

Ph: 1300 502 677

www.bossfire.com.au

Drawing Title: Paircoil Cluster Penetrating 60min Wall

Description: FireMastic-HPE and MaxiCollar Fire Seal

Test Ref: CSIRO 0117

Date of Issue: 23 February 2017

Drawing Number: CSIRO 0117 - 05

Drawn By: SL

DRAWING NUMBER CSIRO 0117 -05 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY

Notes

Component Summary:

(1) Plasterboard, 13mm fire-rated

(2) BOSS FireMastic-HPE seal, 20mm 'volcano', 1 - side only

(3) Hole size 8mm

(4) Single core NBN cable

BOSS FIRE AND SAFETY

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

Drawing Title	NBN Fibre Optic Cable 1-Sided Fire Seal
Description	FireMastic-HPE Installed 1 side only
Test Ref	CSIRO 0117
Date of Issue	23 February 2017
Drawing Number	CSIRO 0117 - 06
Drawn By	SL

DRAWING NUMBER CSIRO 0117 -06 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY

Notes

Component Summary:

(1) Plasterboard, 13mm fire-rated

(2) Hole size 60mm minimum

(3) Cable Bundle, up to 8 x 2.5mm^2, 3-core TPS

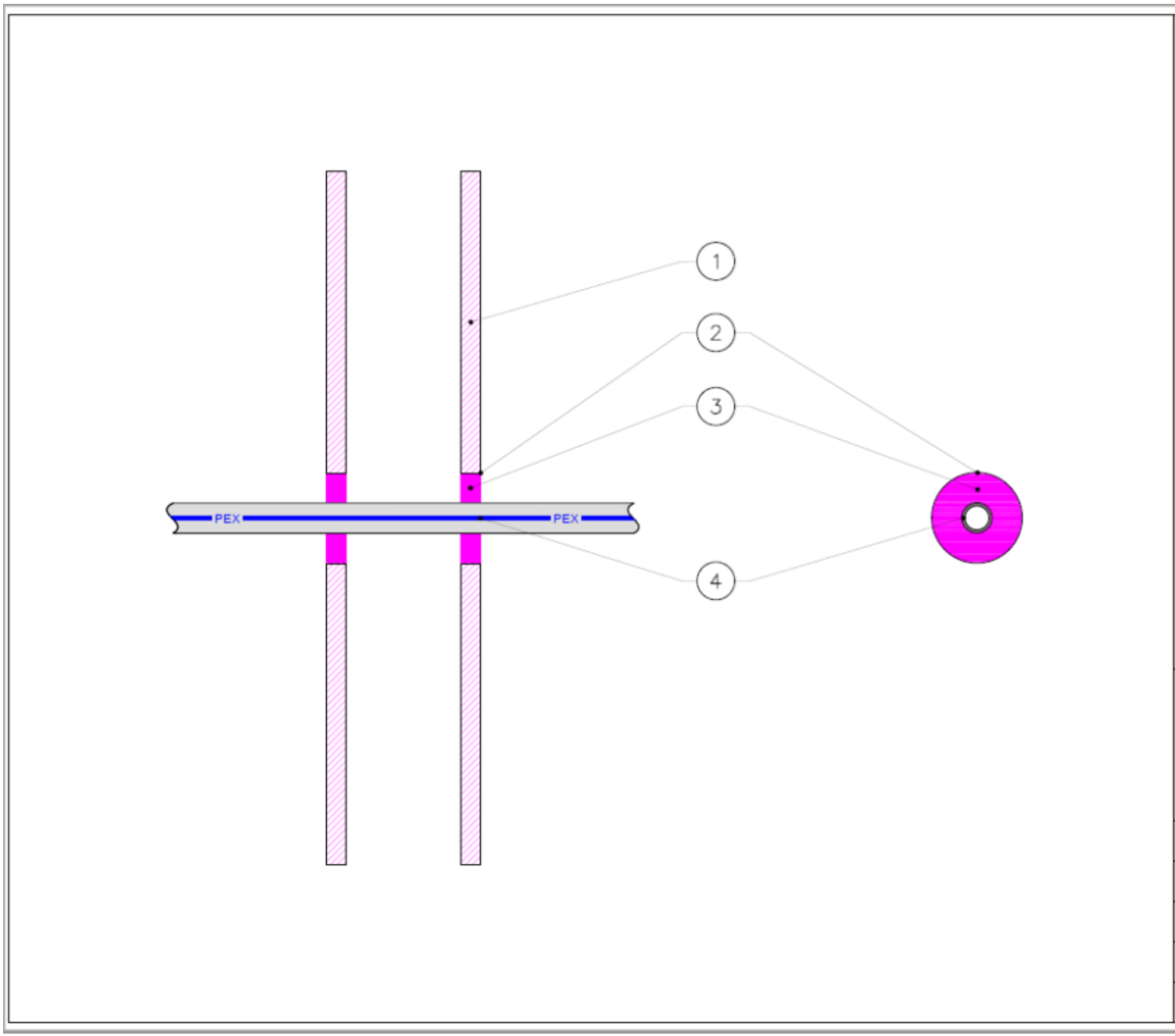
(4) BOSS FireMastic-HPE seal, 13mm deep. Minimum annular gap - 10mm.

BOSS FIRE AND SAFETY

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

Drawing Title	Cable Bundle Penetrating 60min Wall
Description	FireMastic-HPE Fire Seal
Test Ref	CSIRO 0117
Date of Issue	23 February 2017
Drawing Number	CSIRO 0117 - 07
Drawn By	SL

DRAWING NUMBER CSIRO 0117 -07 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY



Notes

Component Summary:

(1) Plasterboard, 13mm fire-rated

(2) Hole size 60mm

(3) BOSS FireMastic-HPE seal, 13mm deep

(4) 20mm PEX pipe

BOSS FIRE AND SAFETY

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

Drawing Title	PEX Pipe Penetrating 60min Wall
Description	FireMastic-HPE Fire Seal
Test Ref	CSIRO 0117
Date of Issue	23 February 2017
Drawing Number	CSIRO 0117 - 08
Drawn By	SL

DRAWING NUMBER CSIRO 0117 -08 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY

DRAWING NUMBER CSIRO 0117 -09 DATED 23 FEBRUARY 2017, BY BOSS FIRE & SAFETY

Appendix E – Certificate(s) of Test

INFRASTRUCTURE TECHNOLOGIES
www.csiro.au
14 Julius Avenue, North Ryde NSW 2113
PO Box 310, North Ryde NSW 1670, Australia
T (02) 9490 5444 • ABN 41 687 119 230

Certificate of Test

No. 2917

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: FireMastic-HPE sealant protecting a 60-mm round opening penetrated by PEX Cross Linked Polyethylene plumbing pipe 20mm diameter

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	PEX Cross Linked Polyethylene plumbing pipe. The service penetrated the non-exposed side by 2000-mm and the exposed side by 500-mm
Size	PEX Cross Linked Polyethylene plumbing pipe 20-mm diameter with a 20-mm annular gap sealed with BOSS FireMastic-HPE intumescent sealant to a depth of 26-mm
End conditions	Sealed on exposed end using SmarteX P 20-mm Push fit brass Pex cap & left open on unexposed end
Supports	Approximately 500-mm and 1500-mm away from the wall on the non exposed face
FIRE STOPPING SYSTEM	
Application	A second layer of plasterboard 150-mm x 150-mm was placed over penetration (on both sides) & secured to wall with 4 x 25-mm long plasterboard screws. Edges of plasterboard build up coated with a 13-mm x 13-mm fillet of BOSS FireMastic-300 sealant. Annular gap of 20-mm between pipe & plasterboard on non-exposed face sealed with BOSS FireMastic-HPE to depth of 26-mm & finished flush with surface of wall.
Drawing	CSIRO 0117 – 02 dated 23/02/17 by Boss Fire & Safety.

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

NATA Accredited Laboratory
Number: 165
Corporate Site No 3625
Accredited for compliance with ISO/IEC 17025 - Testing

COPY OF CERTIFICATE OF TEST – NO. 2917

INFRASTRUCTURE TECHNOLOGIES
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14 Julius Avenue, North Ryde NSW 2113
PO Box 310, North Ryde NSW 1670, Australia
T (02) 9490 5444 • ABN 41 687 119 230

Certificate of Test

No. 2918

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: FireMastic-HPE sealant protecting a 80-mm round opening penetrated by a bundle of Paircoil, uPVC drain and Cable in a One-Sided System

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	Bundle of Paircoil, uPVC drain and Cable in a One-Sided System. The PVC pipe extends 2000-mm from the non-exposed side, and all pipes and cable extend 500-mm down into the wall cavity
Size	Polyaire Paircoil 6.35-mm/9.52-mm insulated copper pipes with non-rated insulation lagging, 1.5-mm^2 2C+E TPS power cable, and a 16-mm^2 PVC flexible outlet pipe
End conditions	The exposed face of the wall is not penetrated and pipes are left open on the unexposed face.
Supports	Approximately 500-mm and 1500-mm away from the wall on the non exposed face
FIRE STOPPING SYSTEM	
Application	The annular gap around the bunch of the paircoil, conduit and cables was sealed on both sides of the wall with FireMastic-HPE sealant to a nominal depth of 13-mm controlled by foam backing rod and finished flush with the surface of the wall
Drawing	CSIRO 0117 – 03 dated 23/02/17 by Boss Fire & Safety.

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

NATA Accredited Laboratory
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Certificate of Test

No. 2919

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: FireMastic-HPE sealant protecting a 25-mm round opening penetrated by a Bundle of Paircoil, Power Cable and Control Cable and a uPVC conduit

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	Bundle of Paircoil, Power Cable and Control Cable sealed with FireMastic-HPE. The services penetrated each side of the wall by 500-mm of PVC conduit.
Size	Paircoil 10-mm/15-mm insulated copper pipes with non-rated insulation lagging, 2.5-mm^2 2C+E TPS power cable, and a 1.5-mm^2 2-core data cable and a 20-mm uPVC outlet pipe
End conditions	Copper pipes were crimped on the exposed side and left open on the non exposed side. The uPVC pipe was capped on the exposed end using a uPVC cap and left open on the unexposed end
Supports	Approximately 500-mm away from the wall on the non exposed face
FIRE STOPPING SYSTEM	
Application	A second layer of plasterboard 150-mm x 150-mm was placed over penetration (on both sides) & secured to wall with 4 x 25-mm plasterboard screws. Edges of plasterboard build up were coated with 13-mm x 13-mm fillet of BOSS FireMastic-300 sealant. Annular gap around bunch of paircoil & PVC cable sealed on both sides of wall with FireMastic-HPE sealant to nom. depth of 26-mm & finished flush with surface of wall
Drawing	CSIRO 0117 – 04 dated 23/02/17 by Boss Fire & Safety

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

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Certificate of Test

No. 2920

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: FireMastic-HPE sealant protecting a 80-mm round opening penetrated by Bundle of Paircoil, Power Cable and Control Cable and uPVC conduit sealed with a BOSS MaxiCollar

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	Bundle of Paircoil, Power Cable and Control PVC Cable sealed with a BOSS MaxiCollar. The services penetrated each side of the wall by 500-mm
Size	Polyaire Paircoil 10mm/15mm insulated copper pipes with non-rated insulation lagging, 2.5-mm^2 2C+E TPS power cable, and a 1.5-mm^2 2-core data cable.
End conditions	Copper pipes were crimped on the exposed side and left open on the non exposed side. The uPVC pipe was capped on the exposed end using a uPVC cap and left open on the unexposed end
Supports	Approximately 500-mm away from the wall on the non exposed face
FIRE STOPPING SYSTEM	
Application	On both sides of wall BOSS MaxiCollar which was surface mounted to plasterboard using 3 x 25-mm plasterboard screws. There was no sealant used between interface of collar and wall with the sealant attached to the plasterboard only or the pipes and the wall. The void left between the pipes and the collar was in-filled with FireMastic-HPE to the depth of collar and finished flush with the outer face of the collar.
Drawing	CSIRO 0117 – 05 dated 23/02/17 by Boss Fire & Safety

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

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Certificate of Test

No. 2921

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: Single core fibre optic cable protected with 20mm fillet of FireMastic-HPE on non-exposed side only

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	Single core NBN cable – marking on sheath - OFS OPTICAL CABLE IO30-001E-WDW NBN CO SMOF G.657.A2 01/2016 PC9-023162001 LSZH IEC 60332-3C IEC 61034-2. The cable penetrated each side of the wall by 500-mm
Size	NBN data cable 5-mm diameter.
End conditions	Cables on both the exposed and unexposed side were left untreated
Supports	Approximately 500-mm away from the wall on the non-exposed face only
FIRE STOPPING SYSTEM	
Application	A surface seal around the cable was created with a 20-mm fillet of FireMastic-HPE intumescent sealant on the non-exposed side only
Drawing	CSIRO 0117 – 06 dated 23/02/17 by Boss Fire & Safety

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

NATA Accredited Laboratory
Number: 165
Corporate Site No 3625
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Certificate of Test

No. 2922

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: Bundle of Power Cables sealed with FireMastic-HPE

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	Bundle of eight power cables
Size	8 x 2.5mm^2, 3-core TPS cables.
End conditions	Cables on both exposed and unexposed side were left untreated
Supports	Approximately 500-mm away from the wall on the unexposed side.
FIRE STOPPING SYSTEM	
Application	The remaining 10-mm annular gap was sealed with BOSS FireMastic-HPE intumescent sealant to a depth of 13-mm on each face of the wall and finished flush with the surface of the plaster board on both faces.
Drawing	CSIRO 0117 – 07 dated 23/02/17 by Boss Fire & Safety.

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

NATA Accredited Laboratory
Number: 165
Corporate Site No 3625
Accredited for compliance with ISO/IEC 17025 - Testing

COPY OF CERTIFICATE OF TEST – NO. 2922

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Certificate of Test

No. 2923

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: 20-mm PEX pipe sealed with FireMastic-HPE

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	PEX Cross Linked Polyethylene plumbing pipe. The service penetrated the non-exposed side by 2000-mm and the exposed side by 500-mm
Size	20-mm diameter
End conditions	Exposed end sealed using a Brass 20-mm cap and left open on the unexposed end
Supports	Approximately 500-mm and 1500-mm away from the wall on the non -exposed side.
FIRE STOPPING SYSTEM	
Application	The FireMastic-HPE fills the void between the pipe and the plasterboard sheet with an annular gap of 20-mm and a depth of 13-mm. The FireMastic-HPE is finished flush with the surface of the plasterboard wall on both faces
Drawing	CSIRO 0117 – 08 dated 23/02/17 by Boss Fire & Safety.

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

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Certificate of Test

No. 2924

This is to certify that the element of construction described below was tested by the CSIRO Infrastructure Technologies in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2014, on behalf of:

Boss Products (Australia) Pty Ltd
Unit 8, 15-23 Kumulla Rd
Caringbah NSW

A full description of the test specimen and complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1791.

Product Name: Single core fibre optic cable 20mm protected with a fillet of FireMastic-HPE on the exposed side only

SEPARATING ELEMENT	
Plasterboard wall system – 13-mm plasterboard wall, with an established FRL of -/60/60	
PENETRATING SERVICE	
Description	Single core NBN cable with the following marking on the sheath OFS OPTICAL CABLE IO30-001E-WDW NBN CO SMOF G.657.A2 01/2016 PC9-023162001 LSZH IEC 60332-3C IEC 61034-2. The cable penetrated each side of the wall by 500-mm.
Size	NBN data cable 5-mm diameter.
End conditions	Cables on both exposed and unexposed side were left treated.
Supports	Approximately 500-mm away from the wall on the non-exposed side.
FIRE STOPPING SYSTEM	
Application	A surface seal around the cable was created with a 20-mm fillet of FireMastic-HPE intumescent sealant on the exposed side only.
Drawing	CSIRO 0117 – 09 dated 23/02/17 by Boss Fire & Safety

The element of construction described above satisfied the following criteria for fire-resistance for the period stated.

Structural Adequacy	not applicable
Integrity	no failure at 60 minutes
Insulation	no failure at 60 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/60/60. The FRL is applicable for exposure to fire from either direction. This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Russell Collins Date of Test: 24 January 2017

Issued on the 20th day of March 2017 without alterations or additions.

Brett Roddy
Manager, Fire Testing and Assessments

NATA Accredited Laboratory
Number: 165
Corporate Site No 3625
Accredited for compliance with ISO/IEC 17025 - Testing

COPY OF CERTIFICATE OF TEST – NO. 2924

References

The following informative documents are referred to in this Report:

AS 1530.4-2014	Methods for fire tests on building materials, components and structures Part 4: Fire-resistance tests of elements of building construction.
AS 4072.1-2005	Components for the protection of openings in fire-resistant separating elements. Part 1: Service penetrations and control joints.

END OF REPORT

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FOR FURTHER INFORMATION

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