

Fire-resistance test on fire collars protecting a plasterboard wall penetrated by services

Test Report

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Report number: FSP 1658
Date: 15 January 2015

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Commercial-in-confidence

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Report Status and Revision History:

VERSION	STATUS	DATE	DISTRIBUTION	ISSUE NUMBER
Revision A	Final for issue	15/01/2015	CSIRO/SNAP	FSP 1658

Report Authorization:

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22 December 2014	8 January 2015	15 January 2015

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Sponsored Investigation No. FSP 1658

1 Introduction

1.1 Identification of specimen

The sponsor identified the specimen as Snap Cast-in Fire Collars protecting a plasterboard wall penetrated by eight (8) +GF+ Georg Fischer Progef Polypropylene PP-H pipes. The pipes are stated to be manufactured in accordance with DIN 8077, DIN 8078 & EN ISO 15494.

1.2 Sponsor

Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

1.3 Manufacturer

Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

1.4 Test standard

Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2005, Fire-resistance tests of elements of construction.

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 4444/3773

1.7 Test date

The fire-resistance test was conducted on 4 September 2014.

2 Description of specimen

2.1 General

The wall system was constructed in accordance with CSR wall system with an established fire resistance level (FRL) of -/180/180. Construction comprised 64-mm x 0.55-mm steel studs and noggins installed at nominally 600-mm centres, lined on each side with two layers of 16-mm thick Firestop plasterboard sheets. The plasterboard sheeting was screw fixed to the steel studs using plasterboard screws at nominally 200-mm centres. The plasterboard wall thickness was 128-mm from exposed face to unexposed face. The wall was penetrated by eight (8) +GF+ Georg Fischer Progef Polypropylene PP-H stack pipe protected by retro-fitted Snap Fire Systems fire collars. The pipes are stated to be manufactured in accordance with DIN 8077, DIN 8078 & EN ISO 15494.

For the purpose of the test, the specimens were referenced as Penetrations # A, B, C, D, E, F, G and H.

Penetration #A – 32R retrofitted fire collar protecting a 20-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 20-mm nominal diameter PP-H pipe, with a wall thickness of 2.3-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 21-mm diameter cut-out hole as shown in drawing titled "Penetration #A PP-H (20-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Penetration #B – 32R retrofitted fire collar protecting a 20-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 7.4 PN16 stack pipe

The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer

of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 20-mm nominal diameter PP-H pipe, with a wall thickness of 3.5-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 21-mm diameter cut-out hole as shown in drawing titled "Penetration #B PP-H (20-mm Ø SDR 7.4) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Penetration #C – 32R retrofitted fire collar protecting a 25-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 25-mm nominal diameter PP-H pipe, with a wall thickness of 2.9-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 26-mm diameter cut-out hole as shown in drawing titled "Penetration #C PP-H (25-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Penetration #D – 32R retrofitted fire collar protecting a 25-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 7.4 PN16 stack pipe

The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 25-mm nominal diameter PP-H pipe, with a wall thickness of 3.5-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 26-mm diameter cut-out hole as shown in drawing titled "Penetration #D PP-H (25-mm Ø SDR 7.4) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the

furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Penetration #E – 32R retrofitted fire collar protecting a 32-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 32-mm nominal diameter PP-H pipe, with a wall thickness of 3.8-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 33-mm diameter cut-out hole as shown in drawing titled "Penetration #E PP-H (32-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Penetration #F – 32R retrofitted fire collar protecting a 40-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 40-mm nominal diameter PP-H pipe, with a wall thickness of 4.1-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 41-mm diameter cut-out hole as shown in drawing titled "Penetration #F PP-H (40-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Penetration #G – 50R retrofitted fire collar protecting a 50-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

The SNAP Retrofit 50R fire collar comprised a 0.75-mm steel casing with a 62-mm inner diameter and a 149-mm diameter base flange. The 47-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 43-mm wide x 200-mm long, and 4-mm thick x 43-mm wide x 220-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 210 mm long x 42-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 50R-T dated 4 November 2013, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using three hollow wall anchors.

The penetrating service comprised a 50-mm nominal diameter PP-H pipe, with a wall thickness of 5.1-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 51-mm diameter cut-out hole as shown in drawing titled "Penetration #G PP-H (50-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Penetration #H – 63R retrofitted fire collar protecting a 63-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

The SNAP Retrofit 63R fire collar comprised a 0.75-mm steel casing with a 72-mm inner diameter and a 157-mm diameter base flange. The 47-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumesh intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 43-mm wide x 230-mm long, and 4-mm thick x 43-mm wide x 255-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 240 mm long x 42-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 63R-T dated 15 November 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using three hollow wall anchors.

The penetrating service comprised a 63-mm nominal diameter PP-H pipe, with a wall thickness of 6.7-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 64-mm diameter cut-out hole as shown in drawing titled "Penetration #H PP-H (63-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

2.2 Dimensions

The wall specimen was nominally 1150-mm wide x 1150-mm high x 128-mm thick. All dimensions are nominal.

2.3 Orientation

The wall specimen system was of symmetrical construction.

2.4 Conditioning

The specimen was left to cure for a period longer than 10 days.

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:

Drawing titled “Penetration #A – PP-H (20 mm Ø SDR 11) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing titled “Penetration #B – PP-H (20 mm Ø SDR 7.4) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing titled “Penetration #C – PP-H (25 mm Ø SDR 11) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing titled “Penetration #D – PP-H (25 mm Ø SDR 7.4) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing titled “Penetration #E – PP-H (32 mm Ø SDR 11) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing titled “Penetration #F – PP-H (40 mm Ø SDR 11) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing titled “Penetration #G – PP-H (50 mm Ø SDR 11) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing titled “Penetration #H – PP-H (63 mm Ø SDR 11) Stack” dated 8 August 2014, by Snap Fire Systems Pty Ltd.

Drawing numbered 32 R-T, dated 2 July 2014, by Snap Fire Systems Pty Ltd.

Drawing numbered 50 R-T, dated 4 November 2013, by Snap Fire Systems Pty Ltd.

Drawing numbered 63 R-T, dated 15 November 2014, by Snap Fire Systems Pty Ltd.

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 1530.4-2005 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 specimen 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 13°C at the commencement of the test.

6 Departure from standard

There were no departures from the requirements of AS 1530.4-2005.

7 Termination of test

The test was terminated at 181 minutes by the agreement with the sponsor.

8 Test results

8.1 Critical observations

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

Time	Observation
3 minutes -	Fluing is visible from Penetrations # A, B, C, and E.
4 minutes -	Fluing is visible from Penetrations # F, and E only.
8 minutes -	Fluing is visible from Penetration # H only.
11 minutes -	Fluing has ceased from all penetrations.
60 minutes -	No apparent changes observed from the specimen.
171 minutes -	Fluing is visible from Penetrations # B, and G only.
173 minutes -	Fluing is visible from Penetrations # B, F, and G. Some glowing visible on base of Penetration# E.
175 minutes -	Cotton pad test applied on Penetration #E – no failure.

- 179 minutes - Some glowing visible on base of Penetration #G.
Cotton pad test applied on Penetration #G – no failure.
- 181 minutes - Test terminated.

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 Specimen temperature

Figure 3 shows the curve of maximum temperature versus time associated with Penetration #A.
 Figure 4 shows the curve of maximum temperature versus time associated with Penetration #B.
 Figure 5 shows the curve of maximum temperature versus time associated with Penetration #C.
 Figure 6 shows the curve of maximum temperature versus time associated with Penetration #D.
 Figure 7 shows the curve of maximum temperature versus time associated with Penetration #E.
 Figure 8 shows the curve of maximum temperature versus time associated with Penetration #F.
 Figure 9 shows the curve of maximum temperature versus time associated with Penetration #G.
 Figure 10 shows the curve of maximum temperature versus time associated with Penetration #H.

8.5 Performance

Performance observed in respect of the following AS 1530.4-2005 criteria:

<u>Penetration #A – 32R retrofitted fire collar protecting a 20-mm diameter +GF+ d20 Progef PP-H SDR 11 PN10 pipe</u>		
Structural adequacy	-	not applicable
Integrity	-	no failure at 180 minutes
Insulation	-	no failure at 180 minutes

Penetration #B – 32R retrofitted fire collar protecting a 20-mm diameter +GF+ d20 Progef PP-H SDR 7.4 PN16 pipe

Structural adequacy	-	not applicable
Integrity	-	no failure at 180 minutes
Insulation	-	no failure at 180 minutes

Penetration #C – 32R retrofitted fire collar protecting a 25-mm diameter +GF+ d25 Progef PP-H SDR 11 PN10 pipe

Structural adequacy	-	not applicable
Integrity	-	no failure at 180 minutes
Insulation	-	no failure at 180 minutes

Penetration #D – 32R retrofitted fire collar protecting a 25-mm diameter +GF+ d25 Progef PP-H SDR 7.4 PN16 pipe

Structural adequacy	-	not applicable
Integrity	-	no failure at 180 minutes
Insulation	-	no failure at 180 minutes

Penetration #E – 32R retrofitted fire collar protecting a 32-mm diameter +GF+ d32 Progef PP-H SDR 11 PN10 pipe

Structural adequacy	-	not applicable
Integrity	-	no failure at 180 minutes
Insulation	-	no failure at 180 minutes

Penetration #F – 32R retrofitted fire collar protecting a 40-mm diameter +GF+ d40 Progef PP-H SDR 11 PN10 pipe

Structural adequacy - not applicable

Integrity - no failure at 180 minutes

Insulation - no failure at 180 minutes

Penetration #G – 50R retrofitted fire collar protecting a 50-mm diameter +GF+ d50 Progef PP-H SDR 11 PN10 pipe

Structural adequacy - not applicable

Integrity - no failure at 180 minutes

Insulation - no failure at 180 minutes

Penetration #H – 63R retrofitted fire collar protecting a 63-mm diameter +GF+ d63 Progef PP-H SDR 11 PN10 pipe

Structural adequacy - not applicable

Integrity - no failure at 180 minutes

Insulation - no failure at 180 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 #A	-	-/180/180;
Penetration #B	-	-/180/180;
Penetration #C	-	-/180/180;
Penetration #D	-	-/180/180;
Penetration #E	-	-/180/180;
Penetration #F	-	-/180/180;
Penetration #G	-	-/180/180; and
Penetration #H	-	-/180/180.

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

For the purposes of AS 1530.4-2005 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 10.11 of AS 1530.4-2005, have been made provided no individual component is removed or reduced.

11 Tested by



Mario Lara-Ledermann
Testing Officer

Appendices

Appendix A – Measurement location

Measurement Location		
Group location	T/C Position	T/C designation
Specimen		
Penetration #A	On wall – 25-mm from pipe.	S1
	On wall – 25-mm from pipe.	S2
	On collar.	S3
	On collar.	S4
	On wall – 25-mm from collar.	S5
	On wall – 25-mm from collar.	S6
Penetration #B	On wall – 25-mm from pipe.	S7
	On wall – 25-mm from pipe.	S8
	On collar.	S9
	On collar.	S10
	On wall – 25-mm from collar.	S11
	On wall – 25-mm from collar.	S12
Penetration #C	On wall – 25-mm from pipe.	S13
	On wall – 25-mm from pipe.	S14
	On collar.	S15
	On collar.	S16
	On wall – 25-mm from collar.	S17
	On wall – 25-mm from collar.	S18
Penetration #D	On wall – 25-mm from pipe.	S19
	On wall – 25-mm from pipe.	S20
	On collar.	S21
	On collar.	S22
	On wall – 25-mm from collar.	S23
	On wall – 25-mm from collar.	S24
Penetration #E	On wall – 25-mm from pipe.	S25
	On wall – 25-mm from pipe.	S26
	On collar.	S27
	On collar.	S28
	On wall – 25-mm from collar.	S29
	On wall – 25-mm from collar.	S30
Penetration #F	On wall – 25-mm from pipe.	S31
	On wall – 25-mm from pipe.	S32
	On collar.	S33

	On collar.	S34
	On wall – 25-mm from collar.	S35
	On wall – 25-mm from collar.	S36
Penetration #G	On wall – 25-mm from pipe.	S37
	On wall – 25-mm from pipe.	S38
	On collar.	S39
	On collar.	S40
	On wall – 25-mm from collar.	S41
	On wall – 25-mm from collar.	S42
Penetration #H	On wall – 25-mm from pipe.	S43
	On wall – 25-mm from pipe.	S44
	On collar.	S45
	On collar.	S46
	On wall – 25-mm from collar.	S47
	On wall – 25-mm from collar.	S48
Rover		Rover
Ambient		Ambient

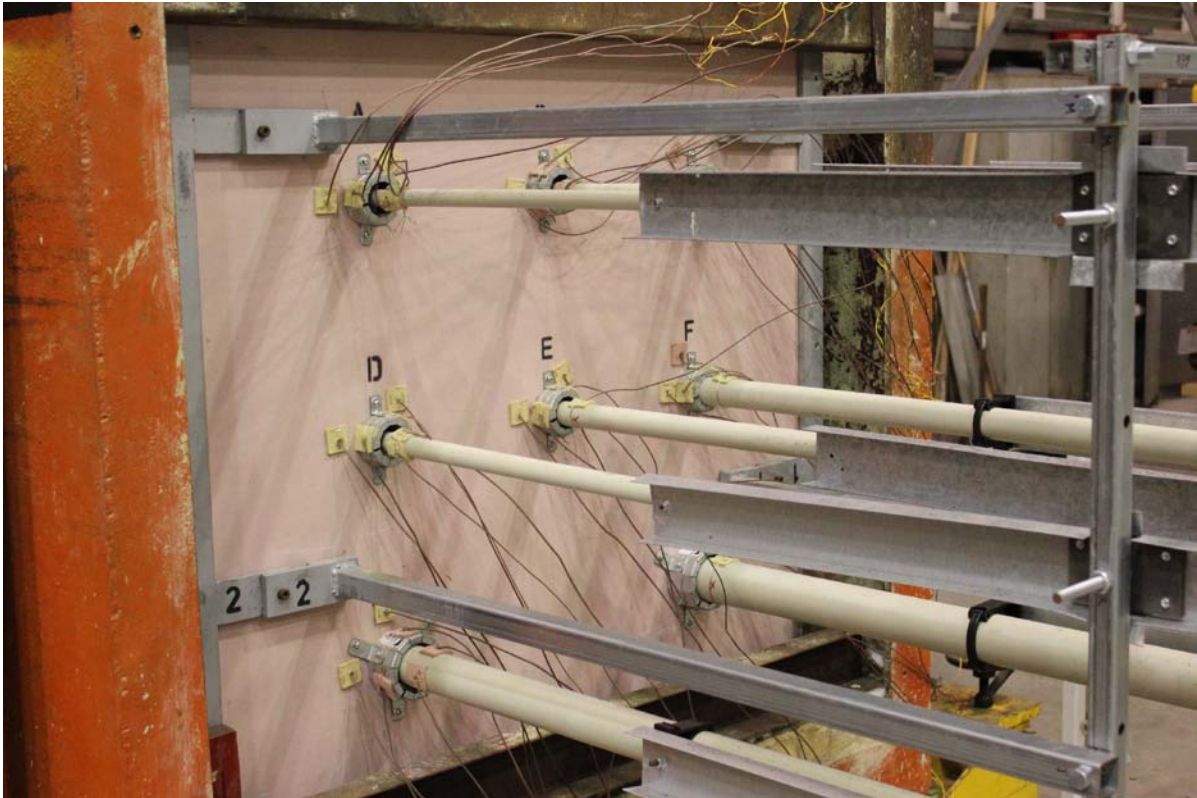
Appendix B – Photographs



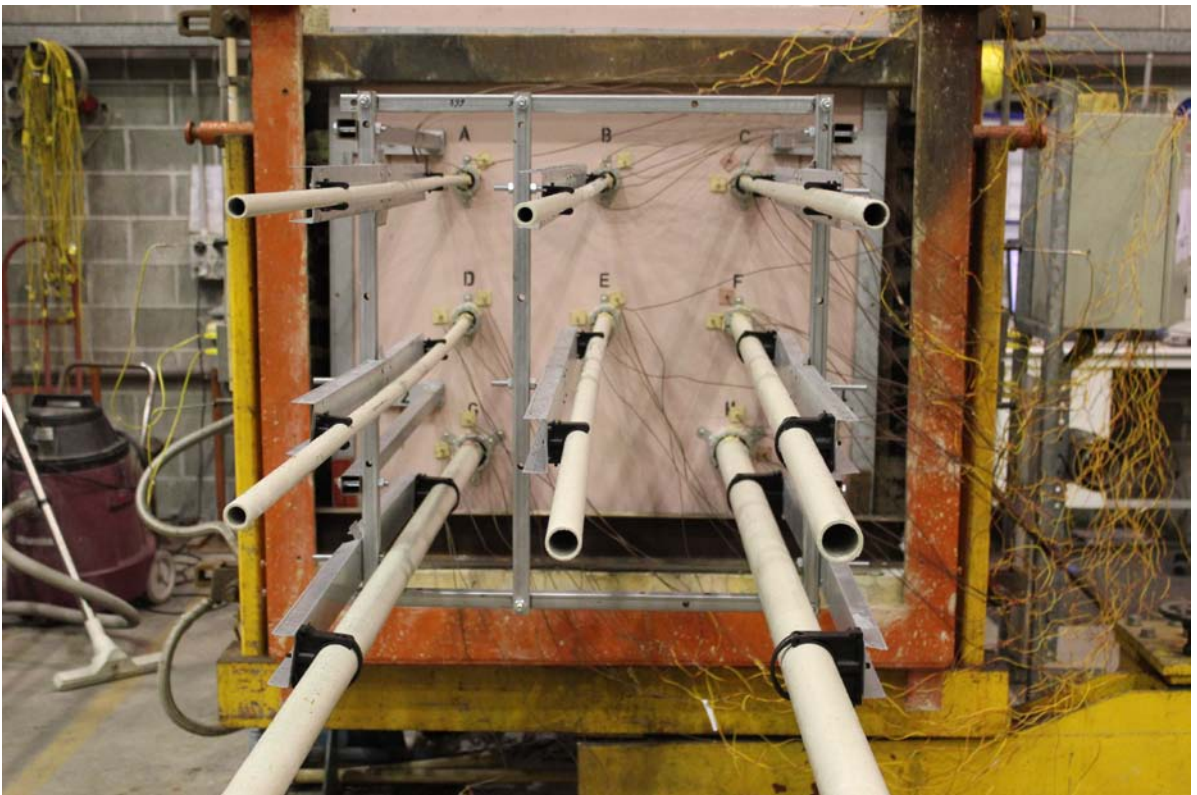
PHOTOGRAPH 1 – EXPOSED FACE OF SPECIMENS PRIOR TO TESTING



PHOTOGRAPH 2 – UNEXPOSED FACE OF SPECIMENS PRIOR TO TESTING



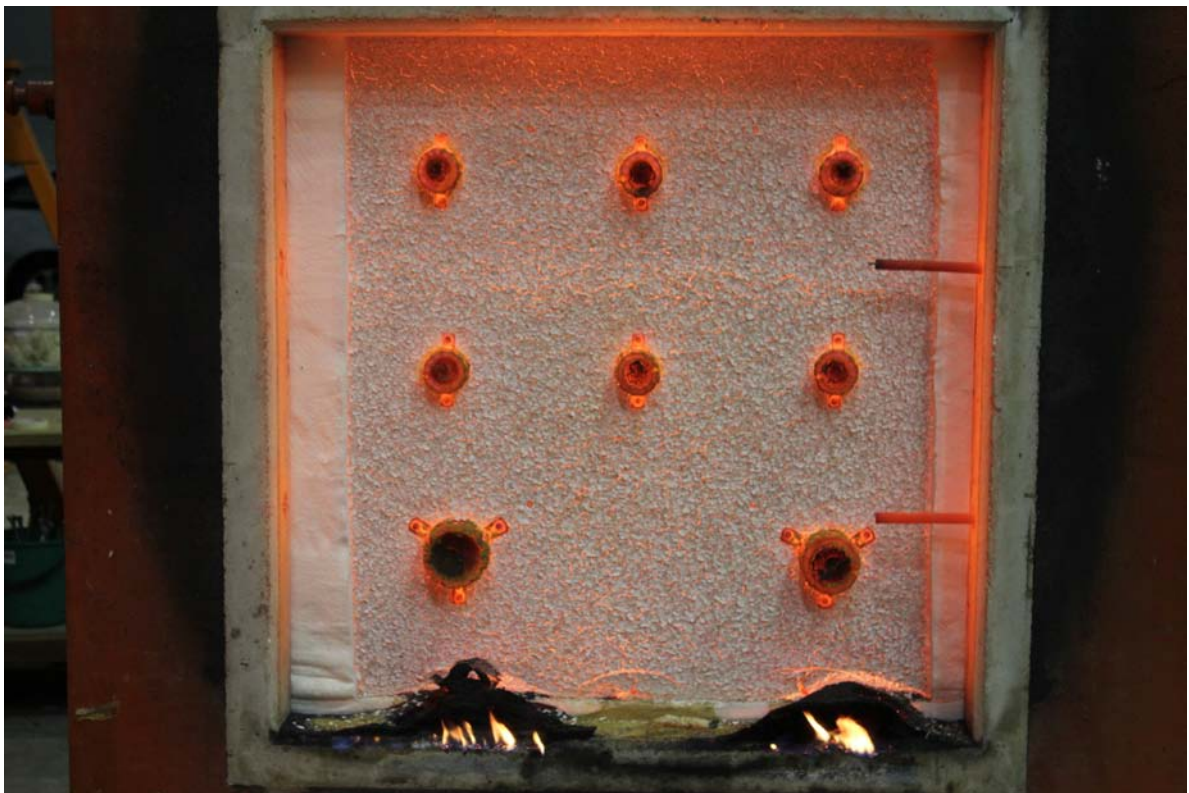
PHOTOGRAPH 3 – SPECIMENS AFTER 60 MINUTES OF TESTING



PHOTOGRAPH 4 – SPECIMENS AFTER 120 MINUTES OF TESTING



PHOTOGRAPH 5 – SPECIMENS AFTER 180 MINUTES OF TESTING



PHOTOGRAPH 6 – EXPOSED FACE OF SPECIMENS AT CONCLUSION OF TESTING

Appendix C – Furnace Temperature

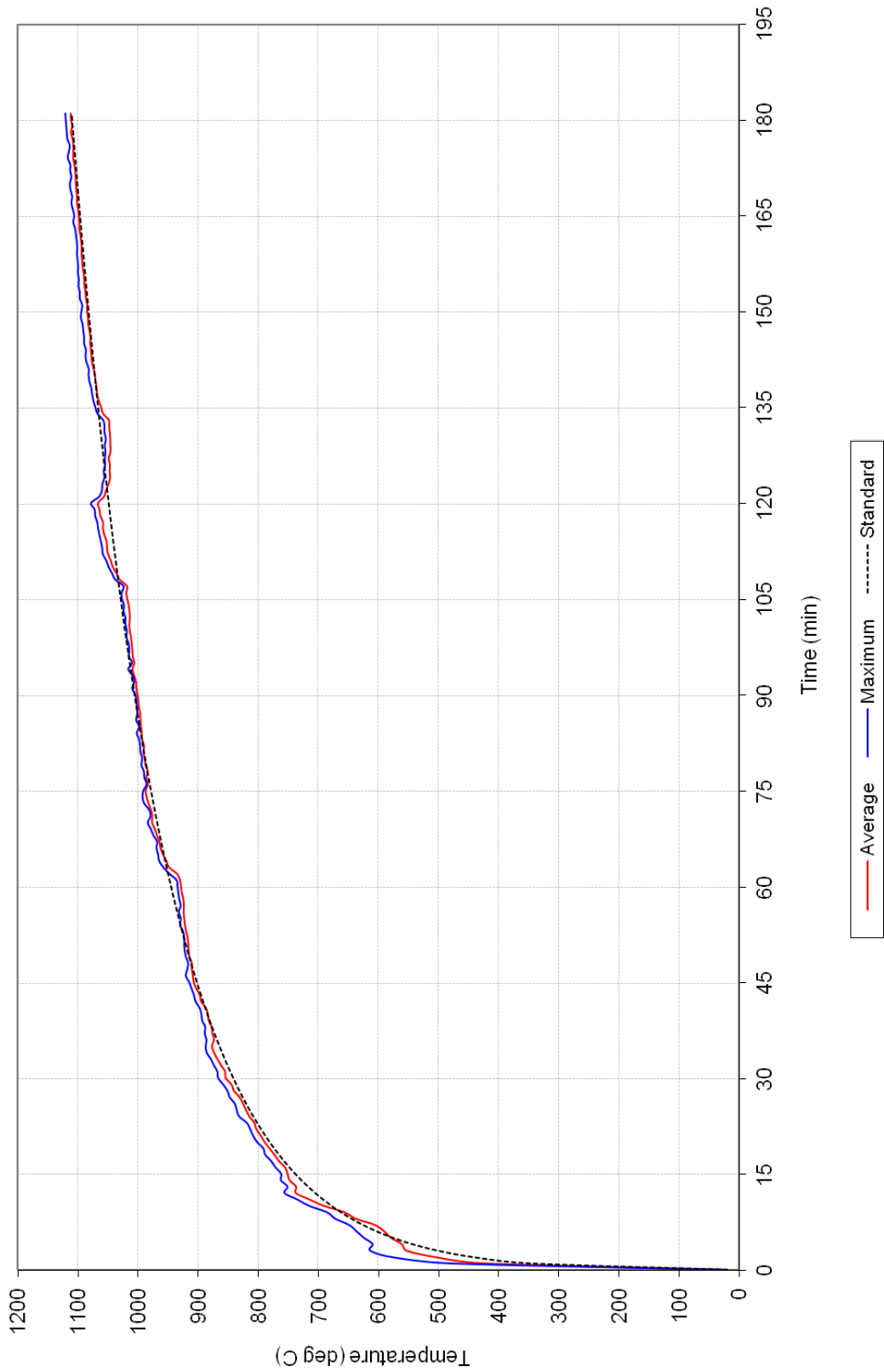


FIGURE 1 – FURNACE TEMPERATURE

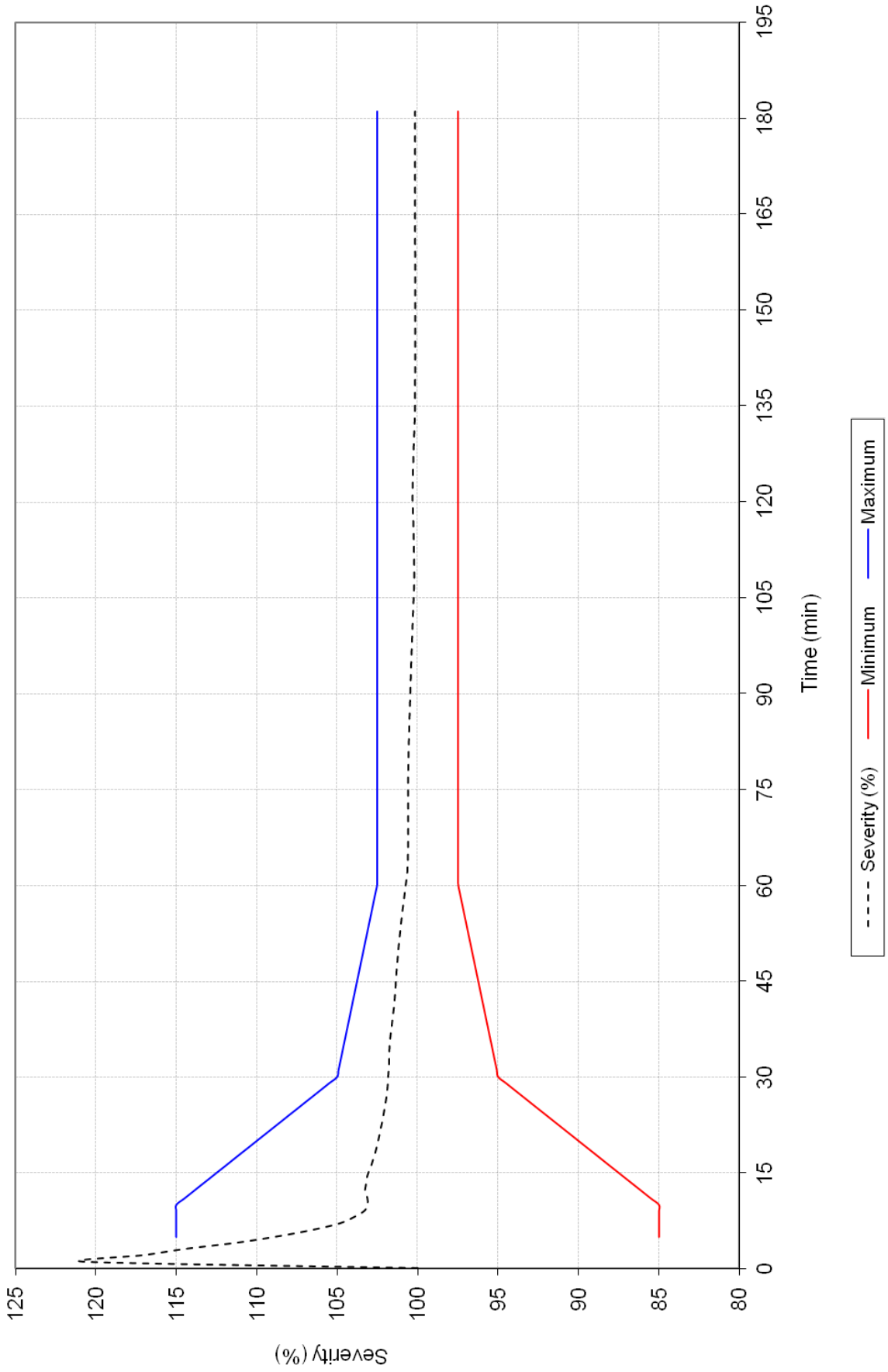


FIGURE 2 – FURNACE SEVERITY

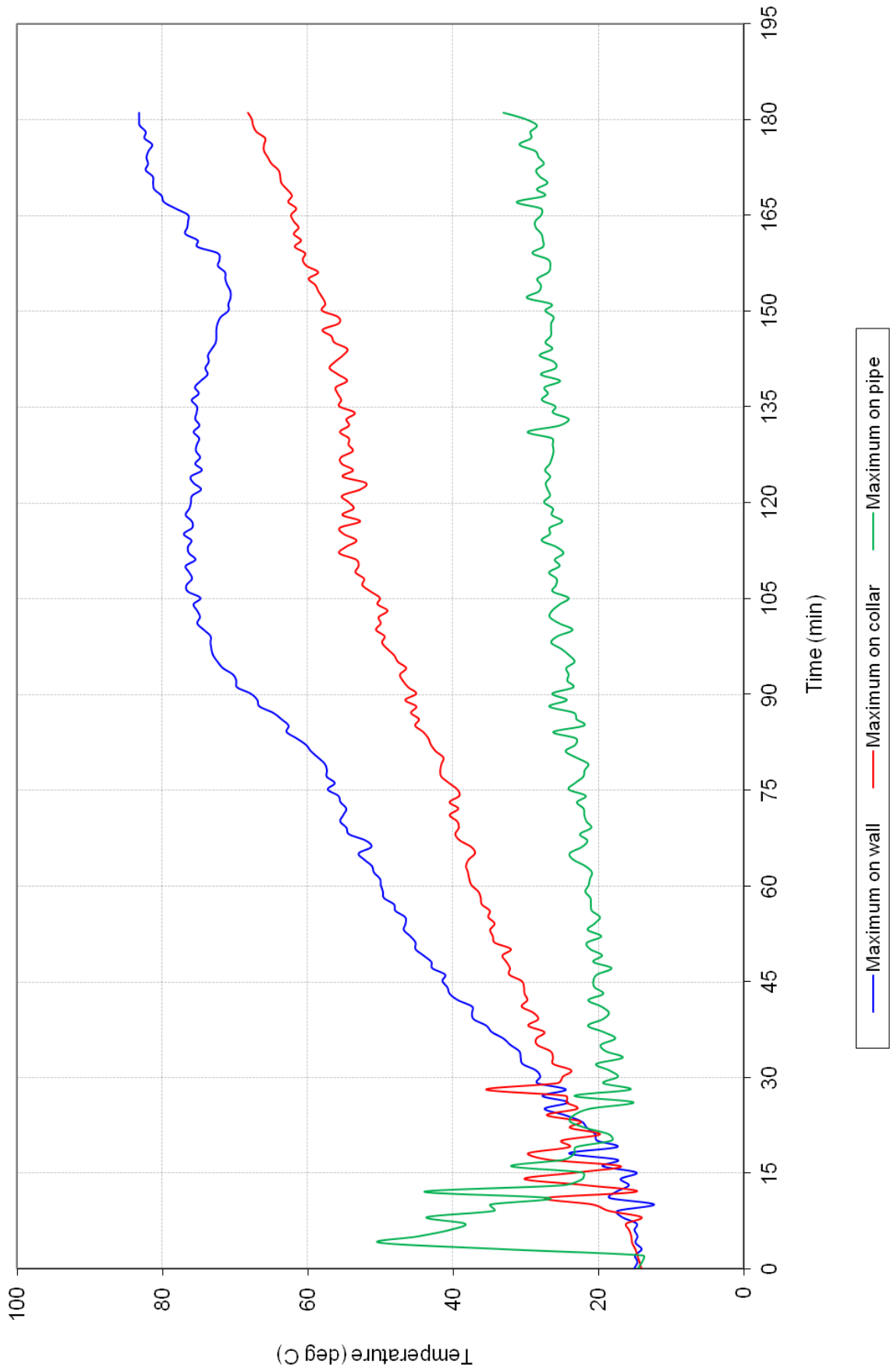


FIGURE 3 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #A

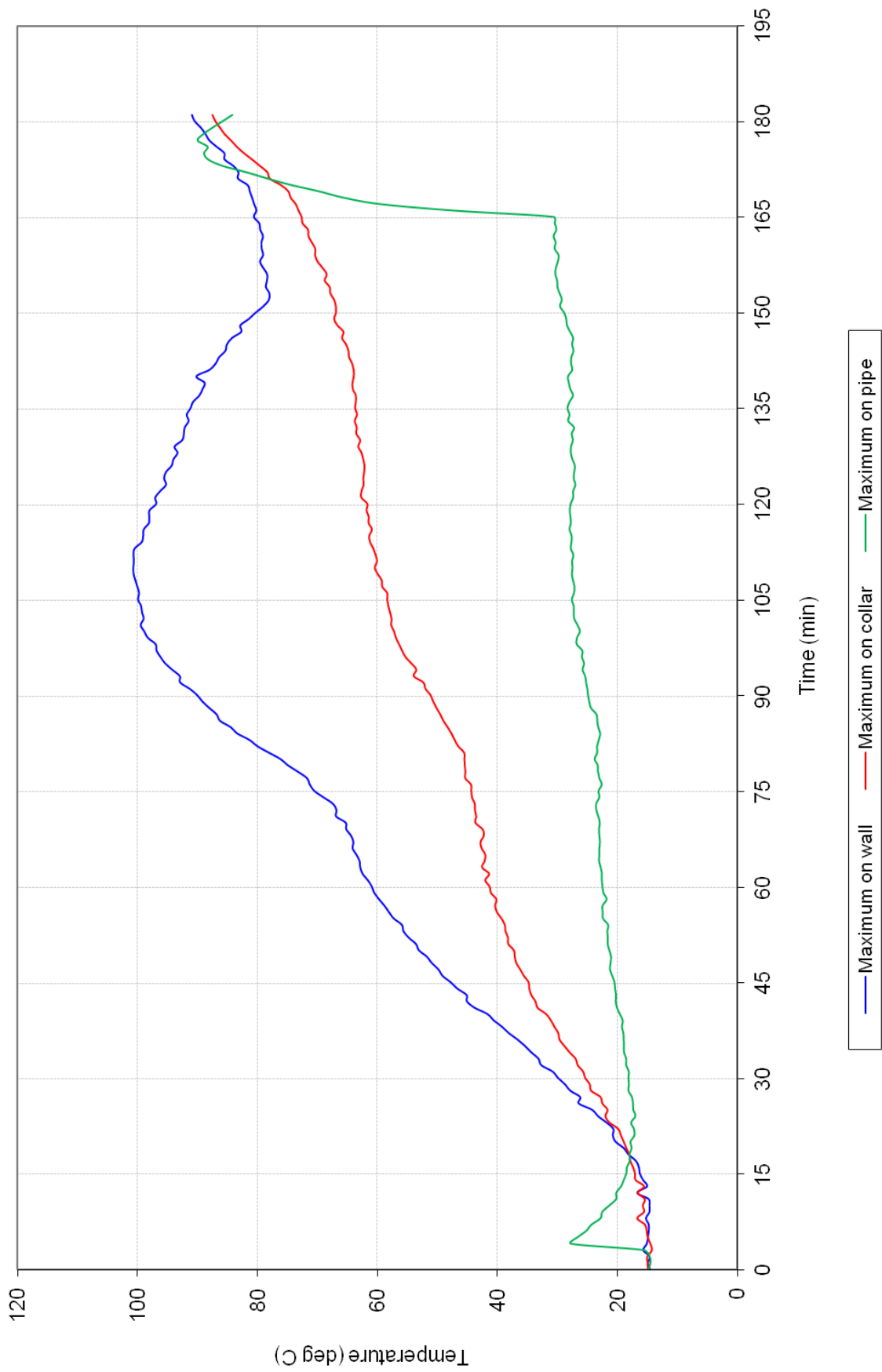


FIGURE 4 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #B

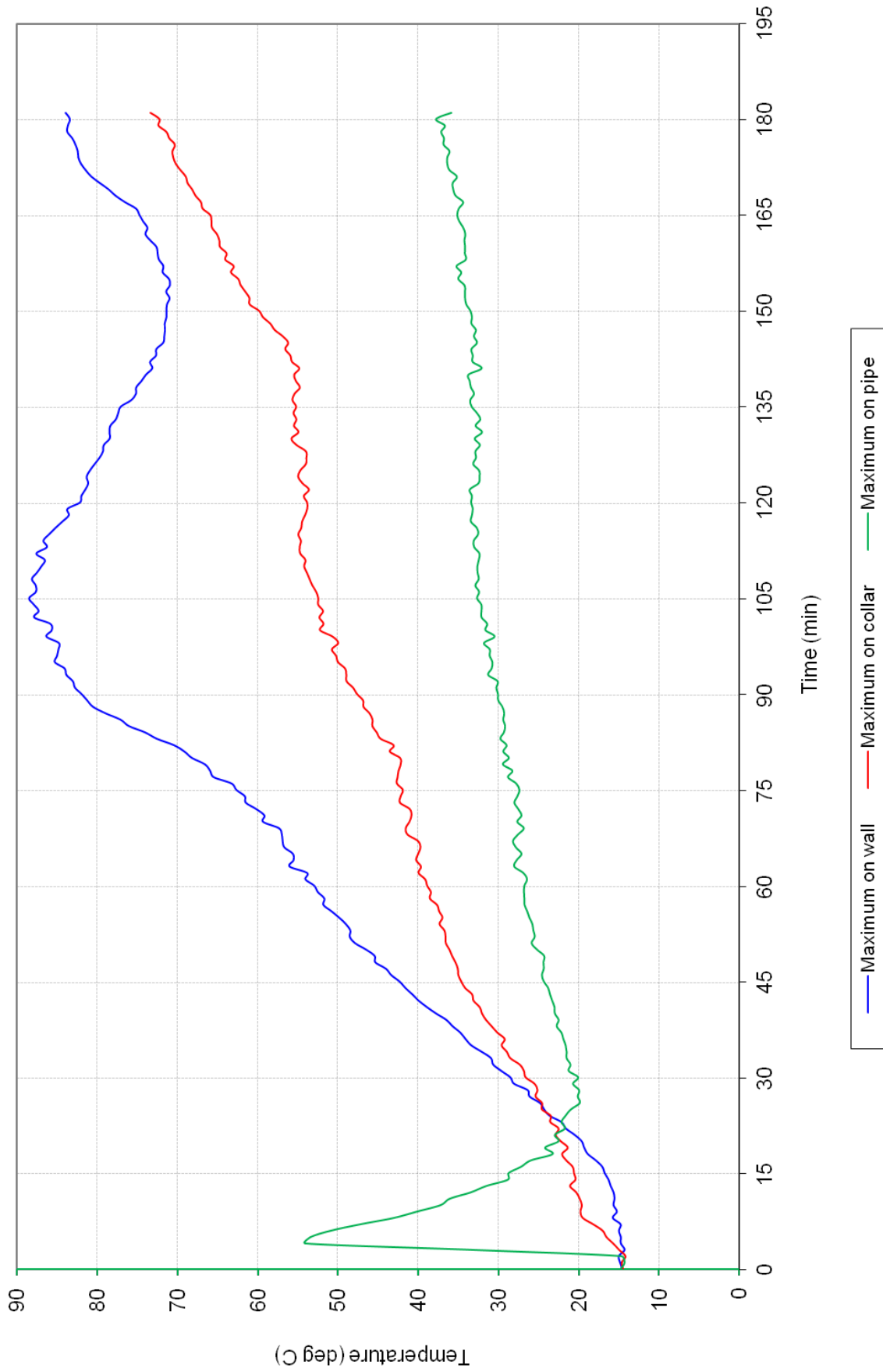


FIGURE 5 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #C

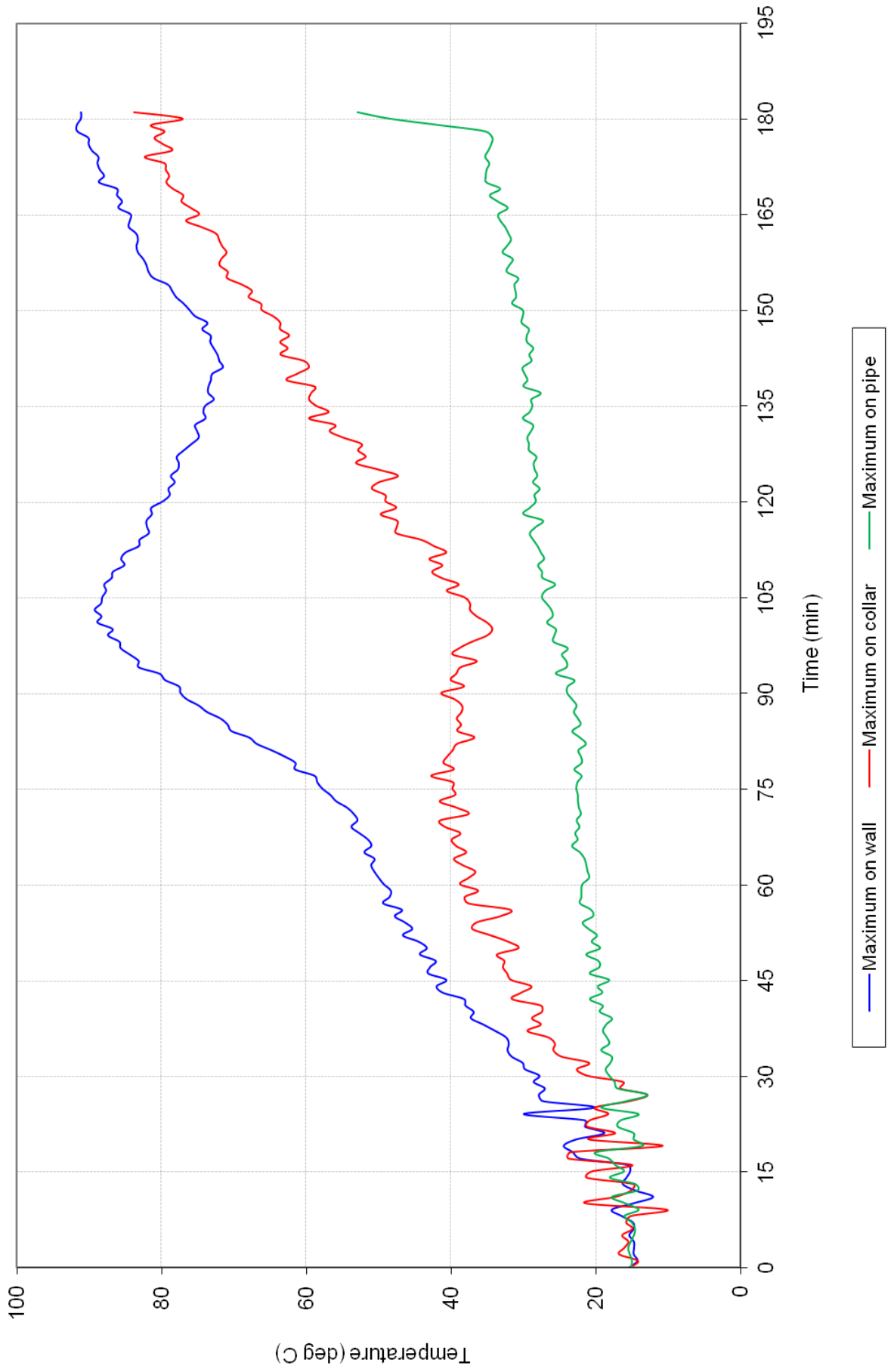


FIGURE 6 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #D

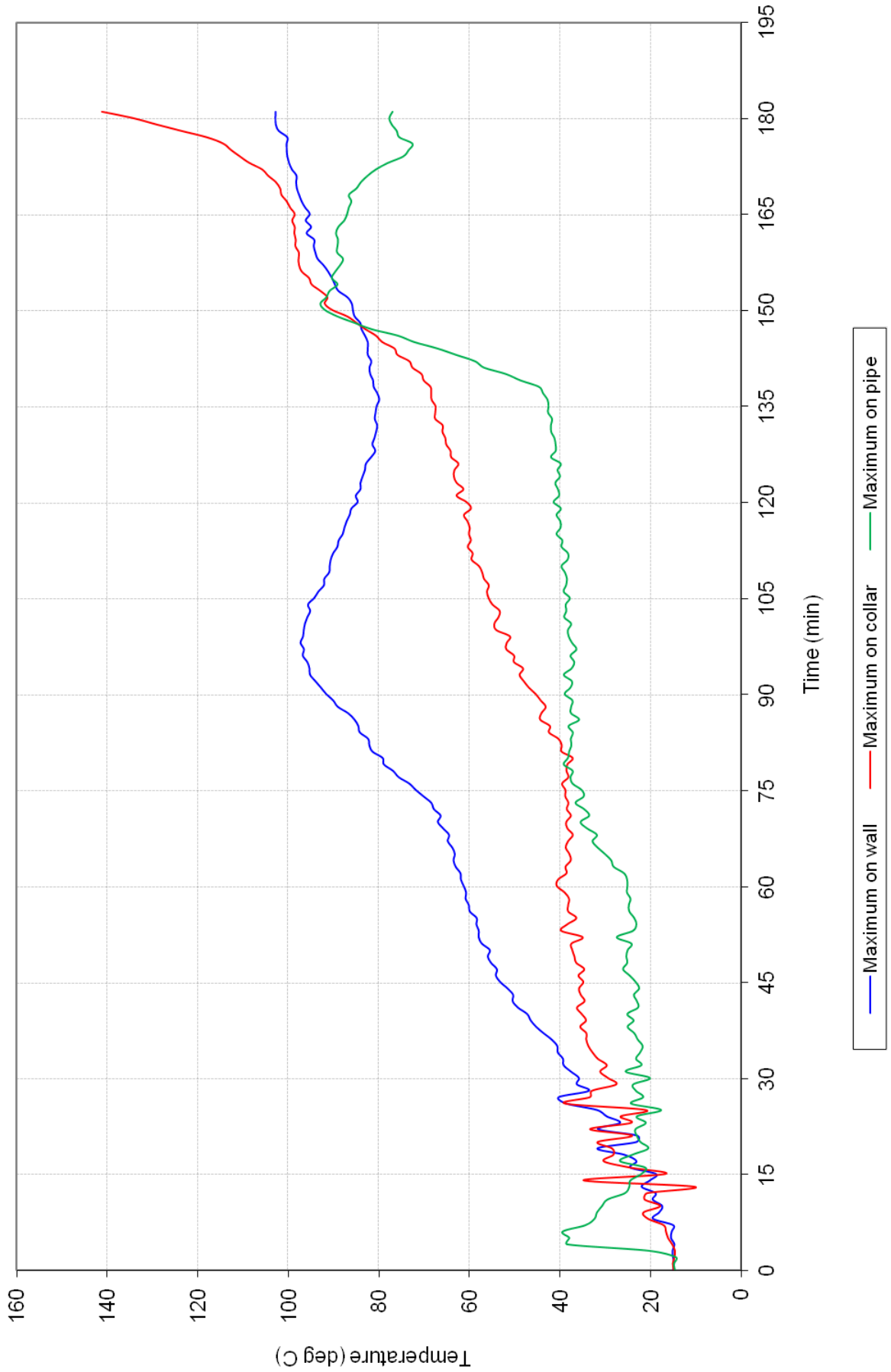


FIGURE 7 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #E

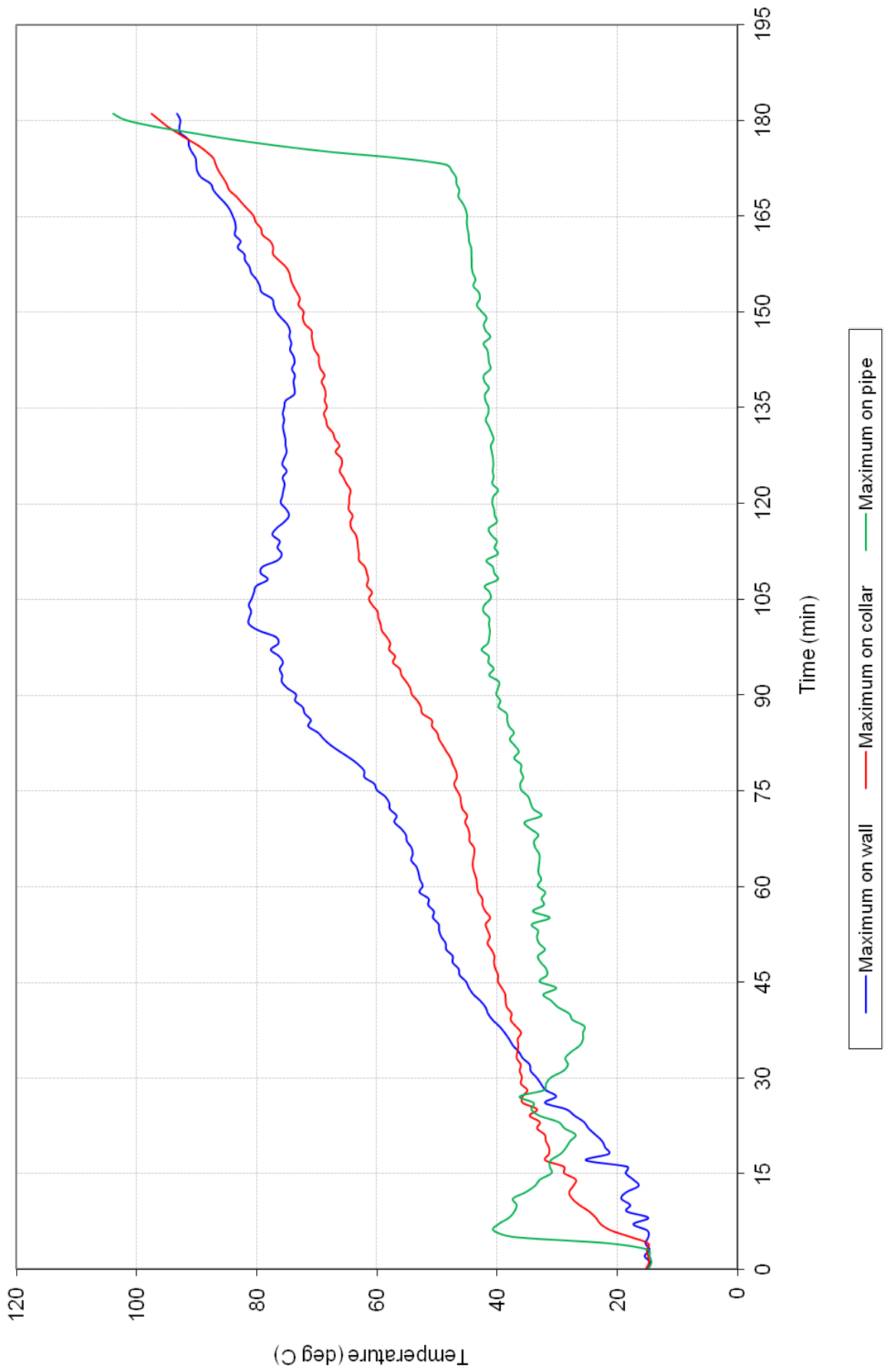


FIGURE 8 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #F

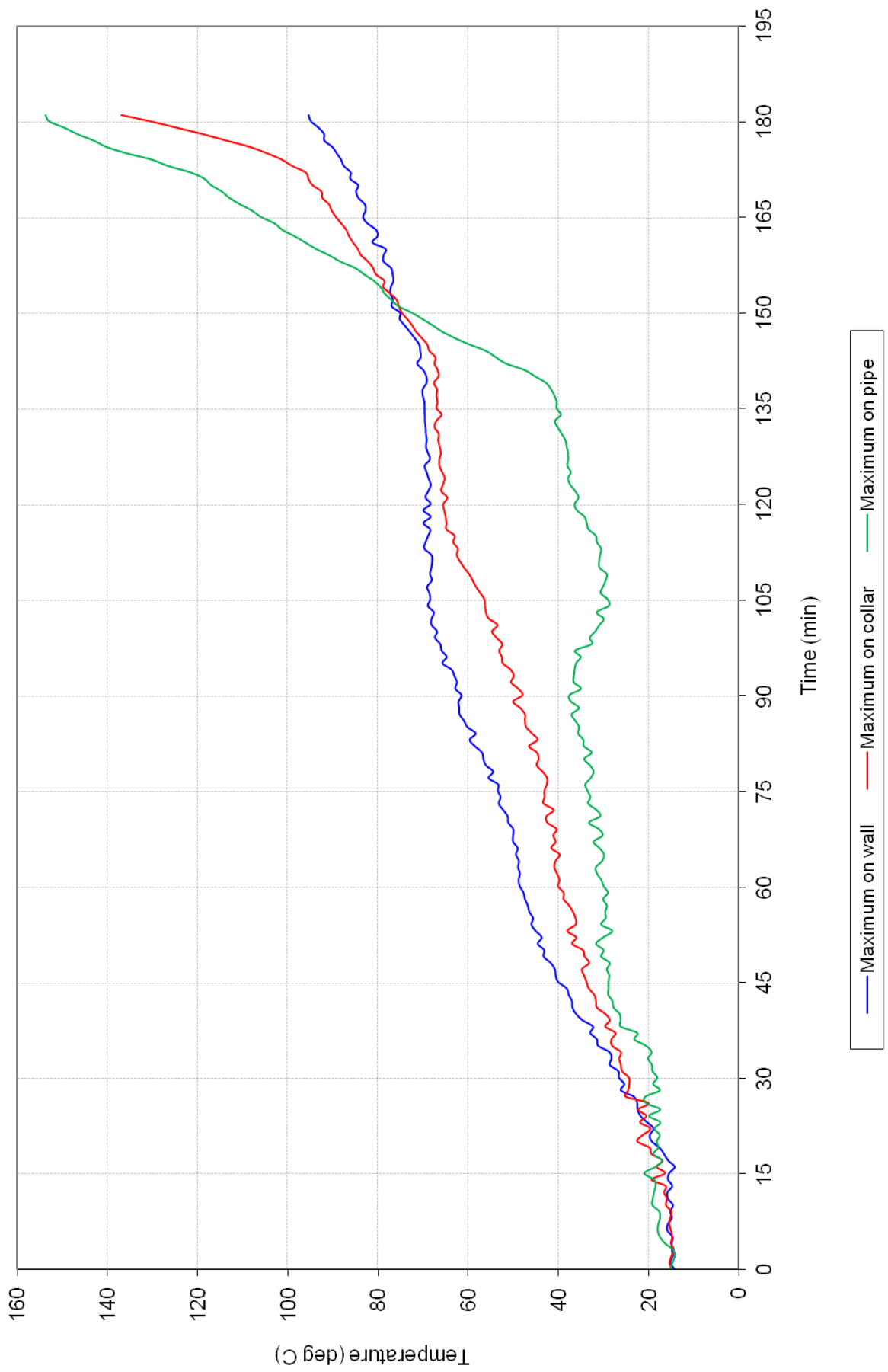


FIGURE 9 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #G

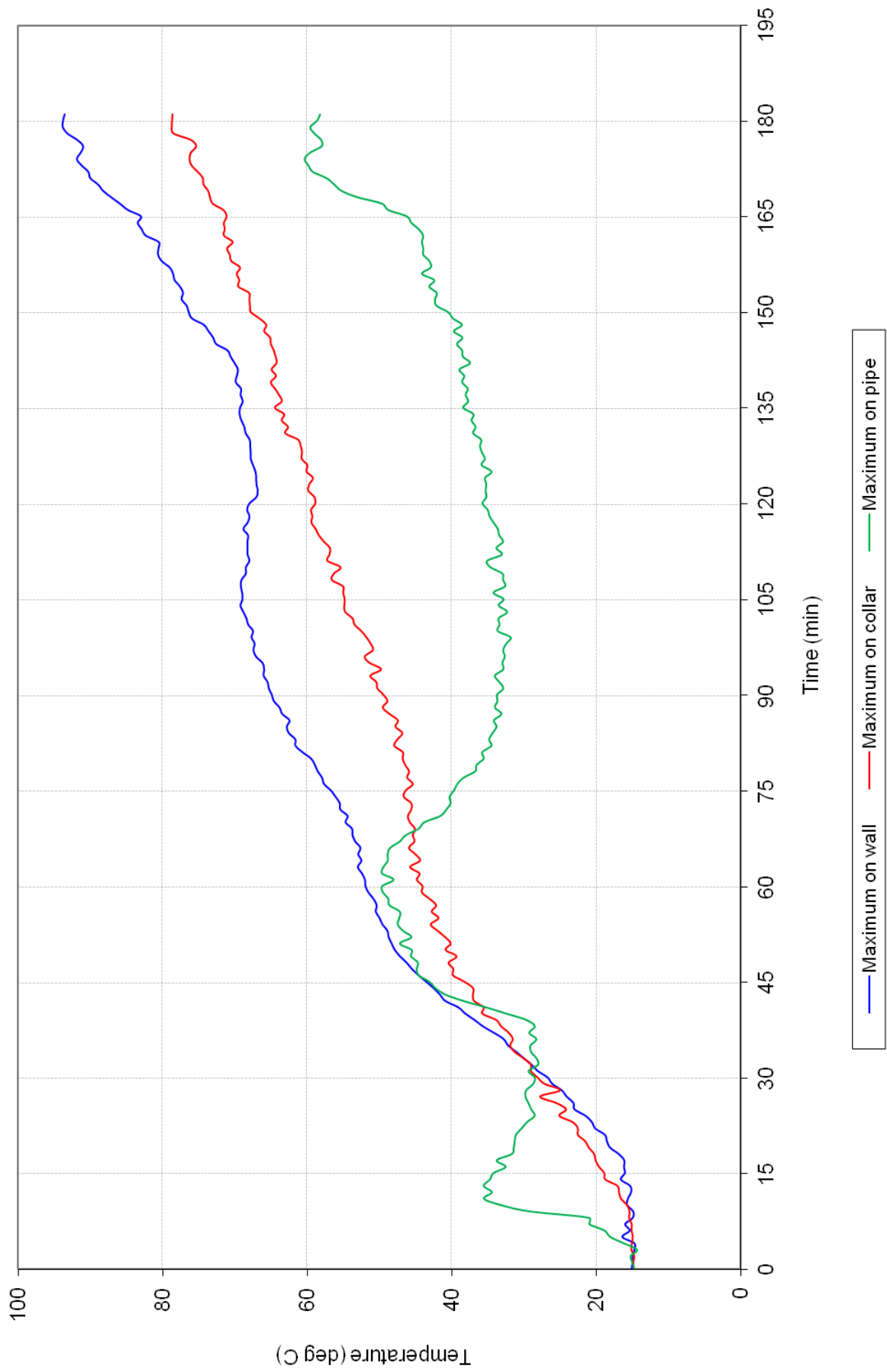
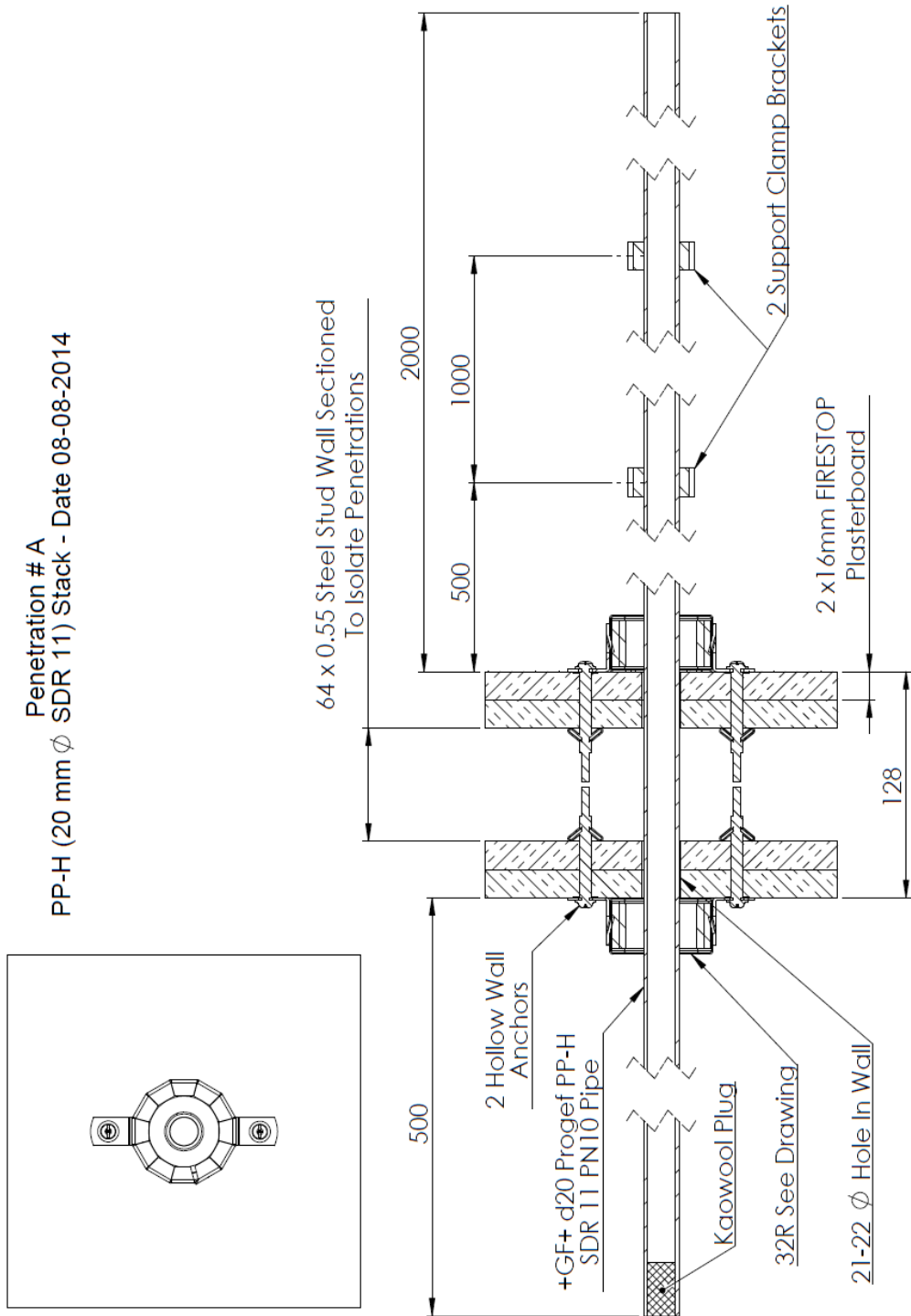
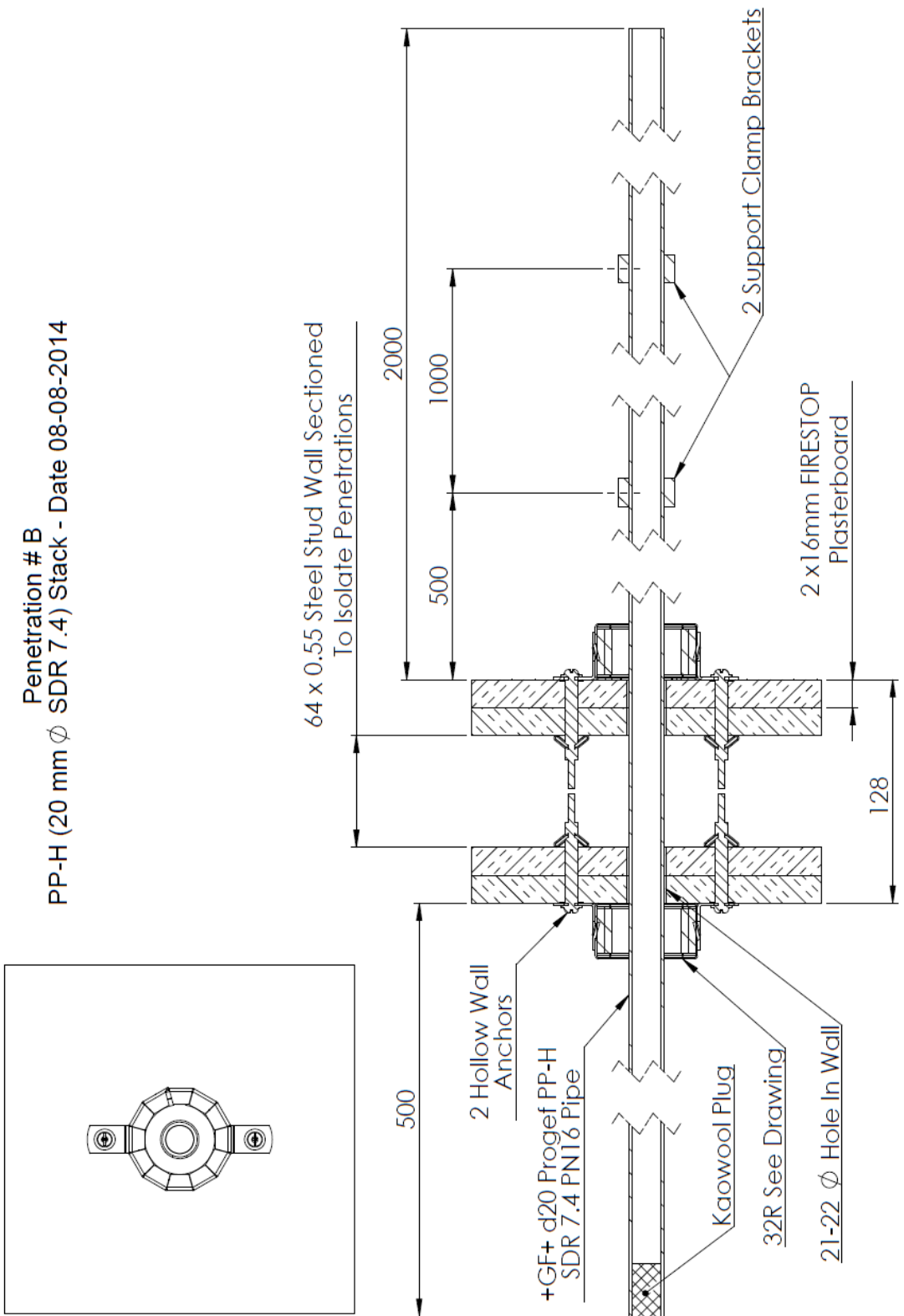


FIGURE 10 – SPECIMEN TEMPERATURE – ASSOCIATED WITH PENETRATION #H

Appendix D – Installation drawings

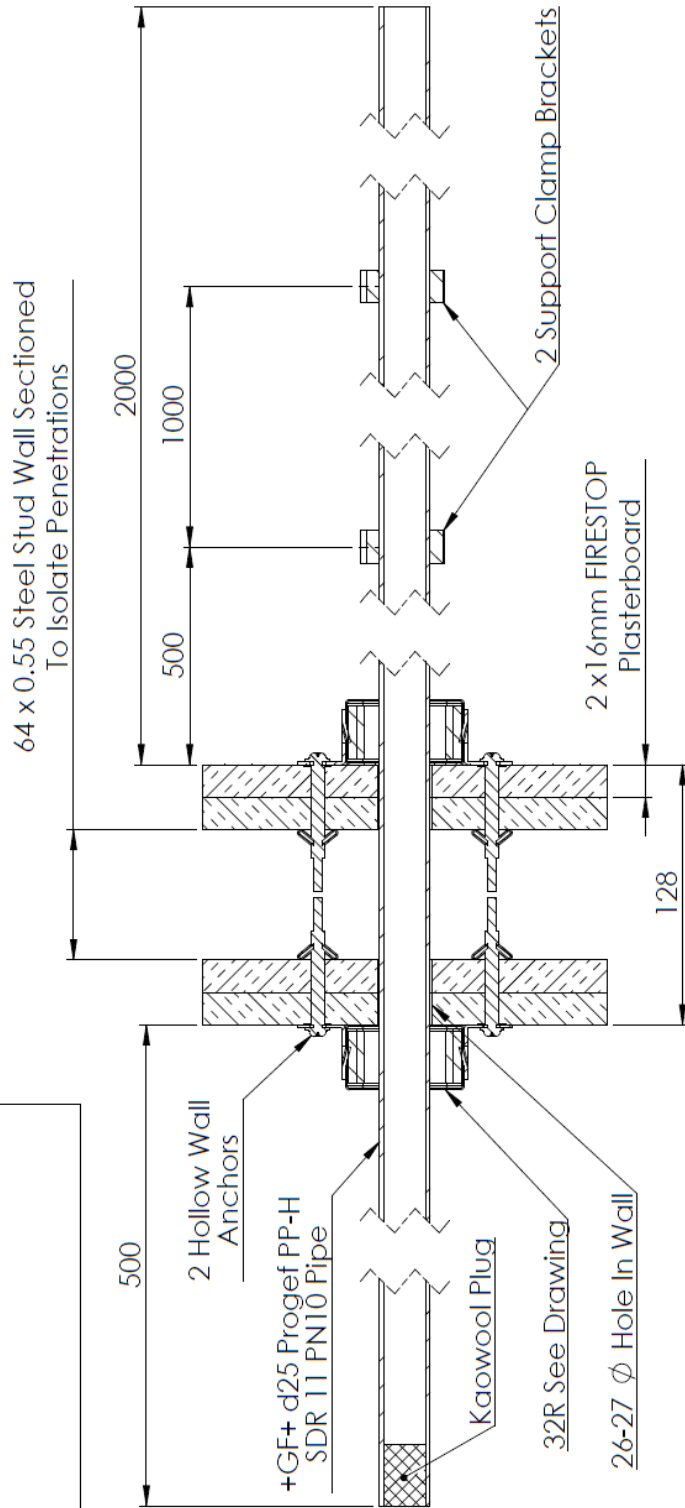
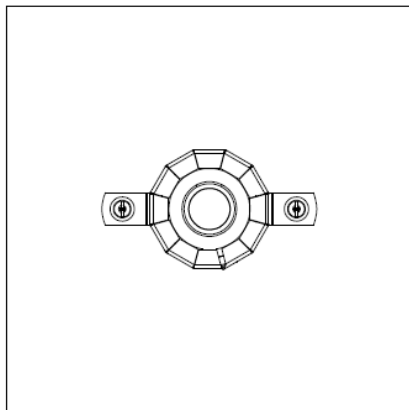


DRAWING TITLED “PENETRATION #A – PP-H (20 MM ϕ SDR 11) STACK”, DATED 08/08/2014 SUPPLIED BY SNAP FIRE SYSTEMS PTY LTD



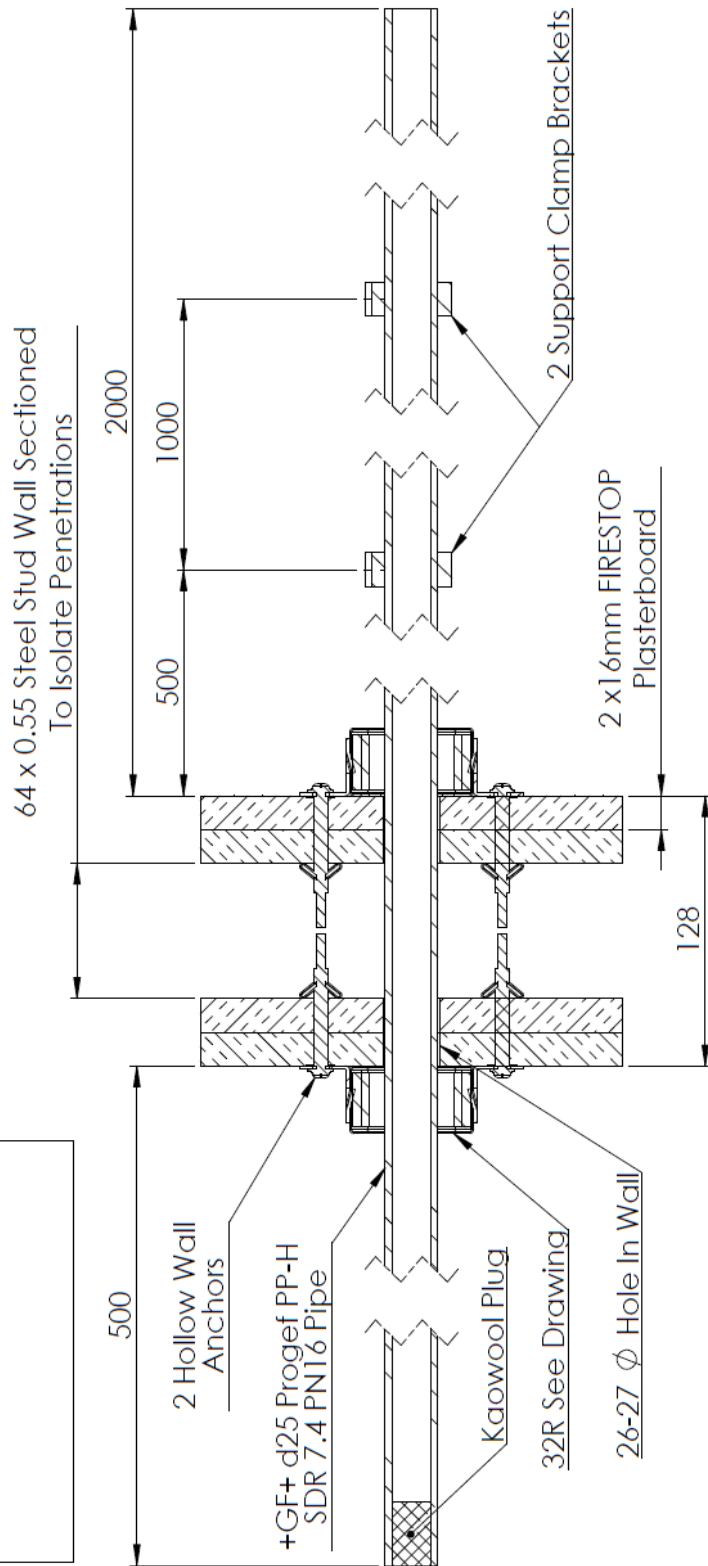
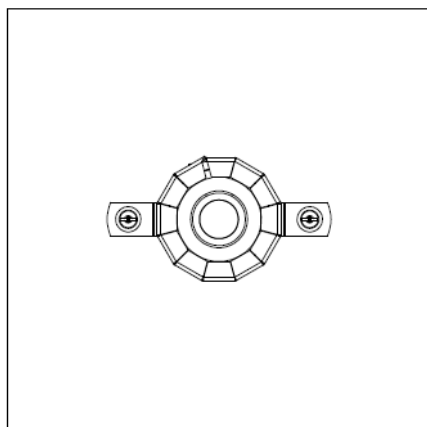
DRAWING TITLED "PENETRATION #B – PP-H (20 MM ϕ SDR 7.4) STACK", DATED 08/08/2014 SUPPLIED BY SNAP FIRE SYSTEMS PTY LTD

Penetration # C
 PP-H (25 mm ϕ SDR 11) Stack - Date 08-08-2014



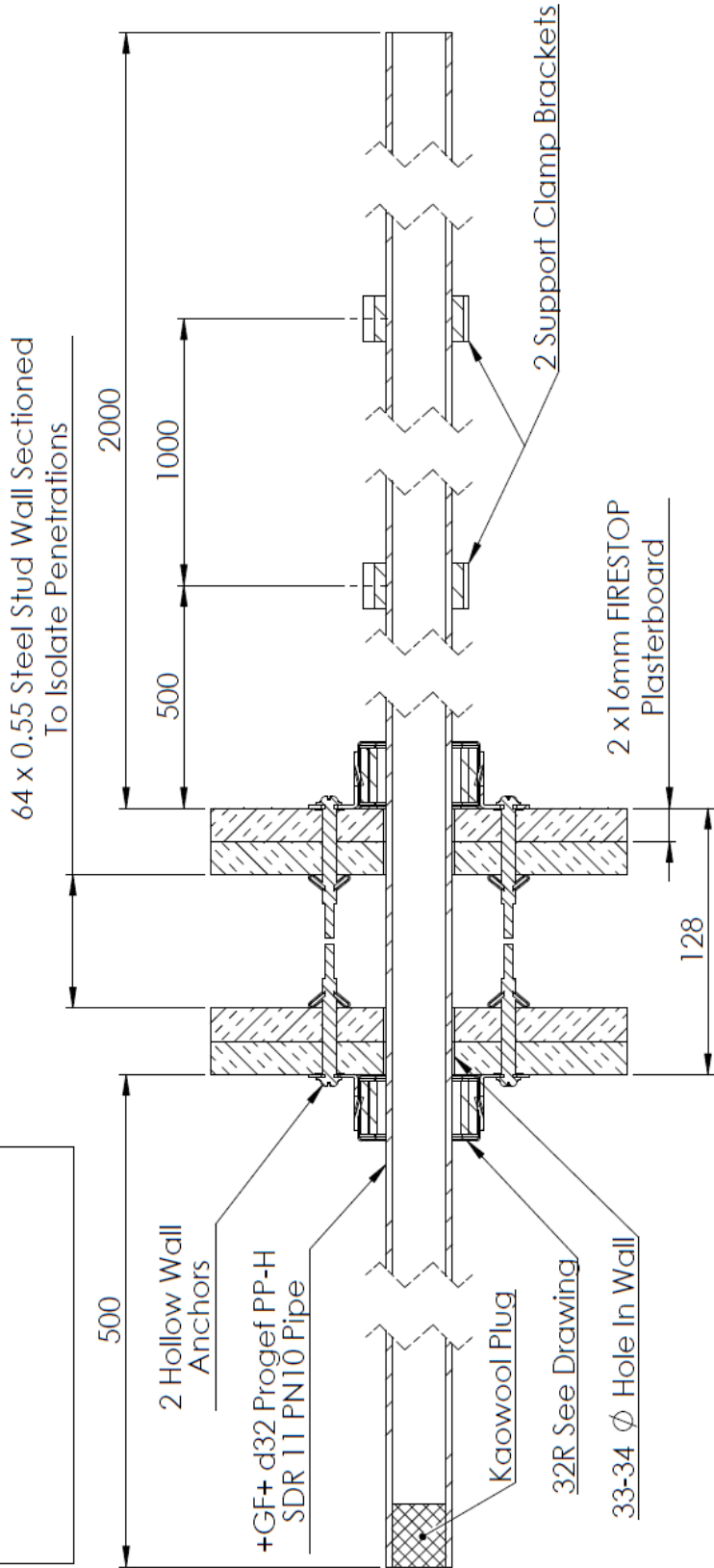
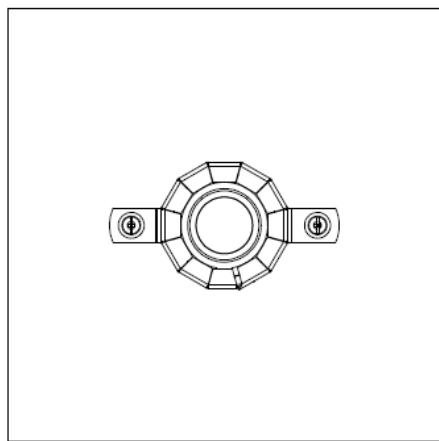
DRAWING TITLED "PENETRATION #C – PP-H (25 MM ϕ SDR 11) STACK", DATED 08/08/2014 SUPPLIED BY SNAP FIRE SYSTEMS PTY LTD

Penetration # D
 PP-H (25 mm ϕ SDR 7.4) Stack - Date 08-08-2014



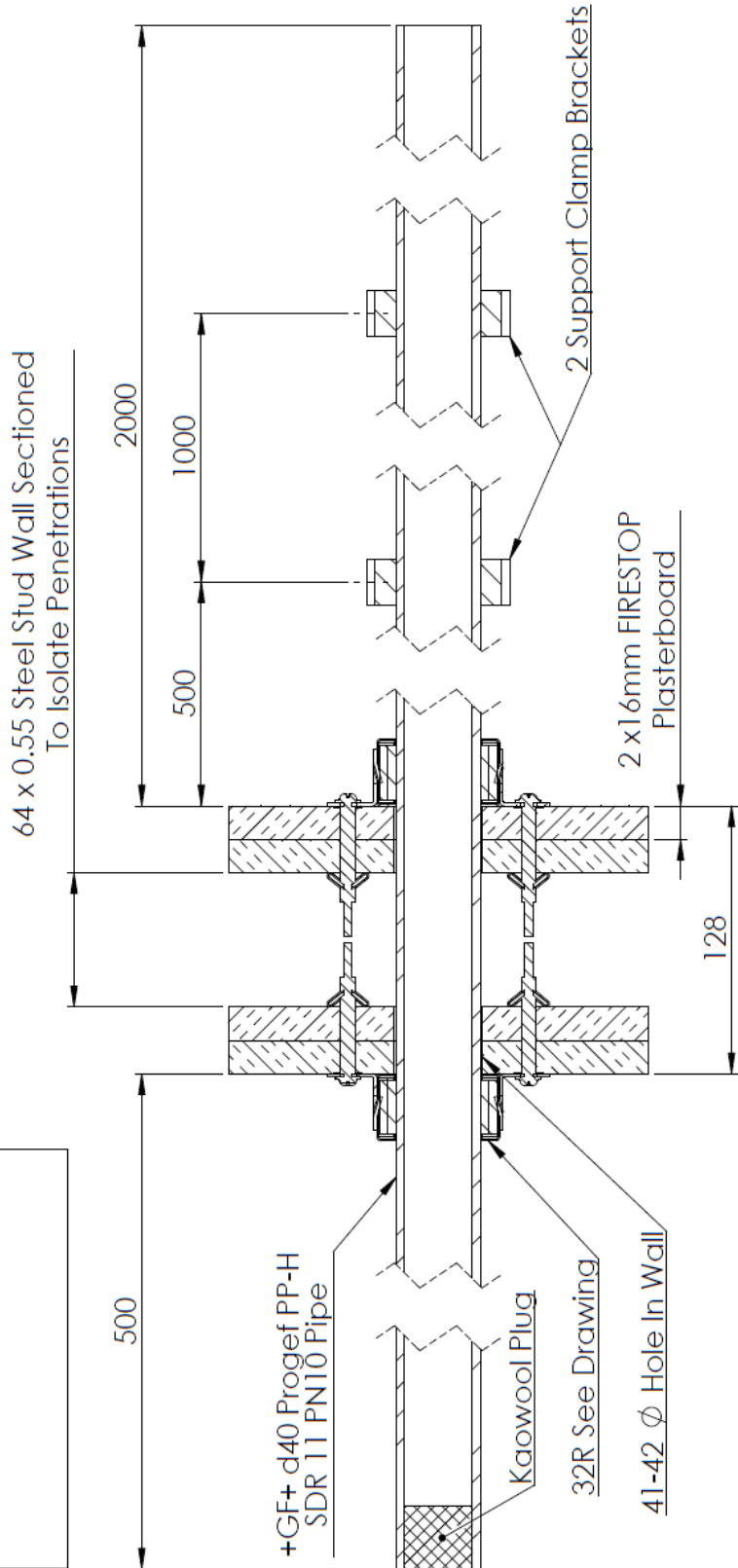
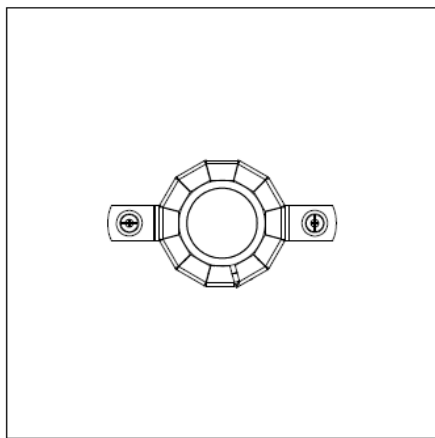
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Penetration # E
 PP-H (32 mm ϕ SDR 11) Stack - Date 08-08-2014



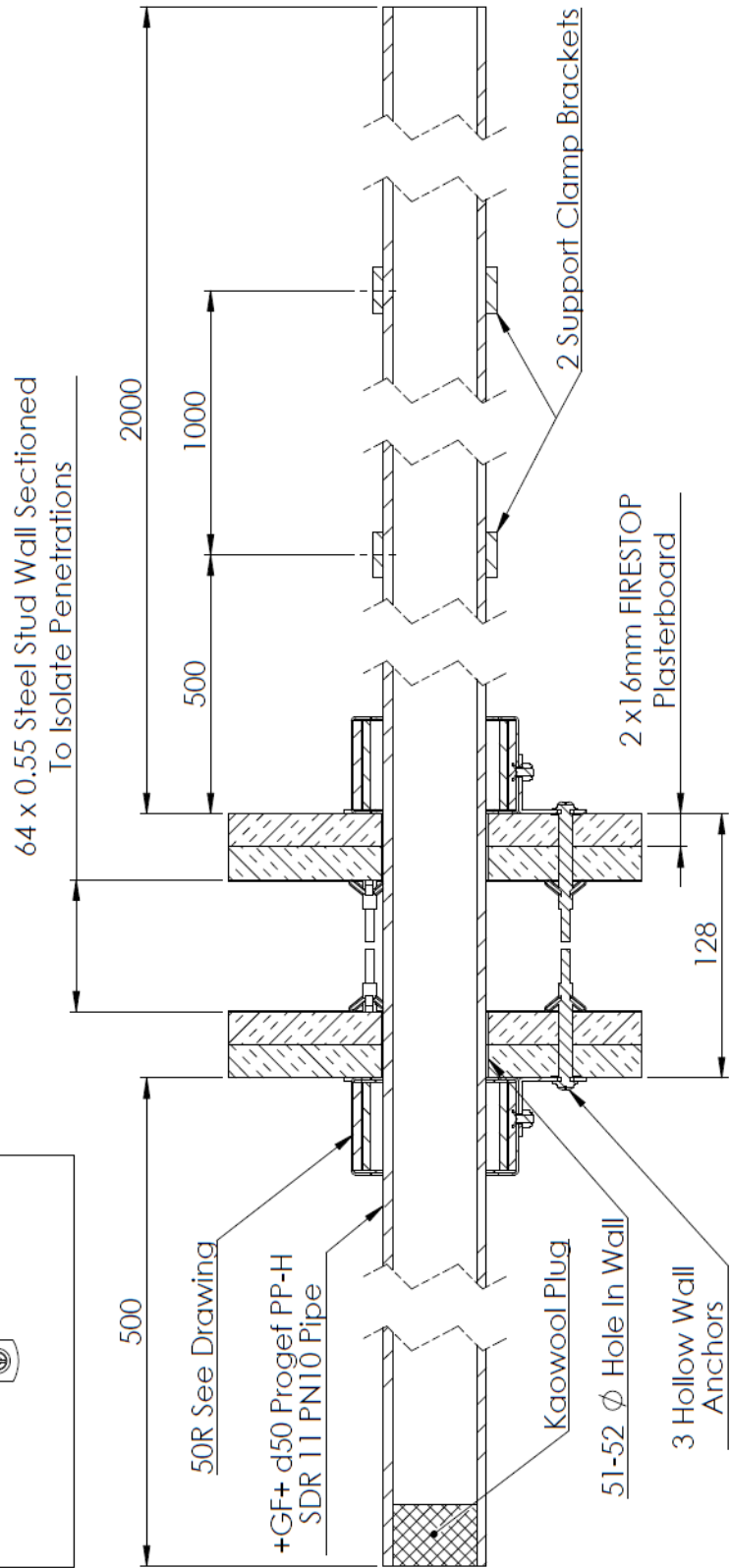
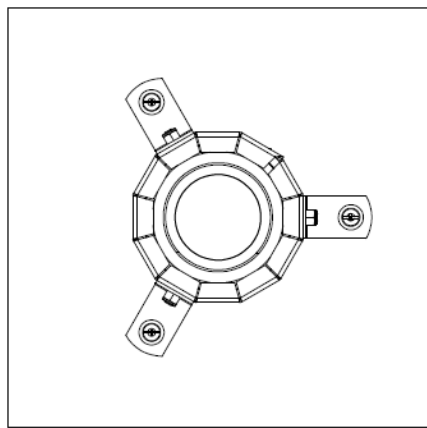
DRAWING TITLED "PENETRATION #E – PP-H (32 MM ϕ SDR 11) STACK", DATED 08/08/2014 SUPPLIED BY SNAP FIRE SYSTEMS PTY LTD

Penetration # F
 PP-H (40 mm ϕ SDR 11) Stack - Date 08-08-2014



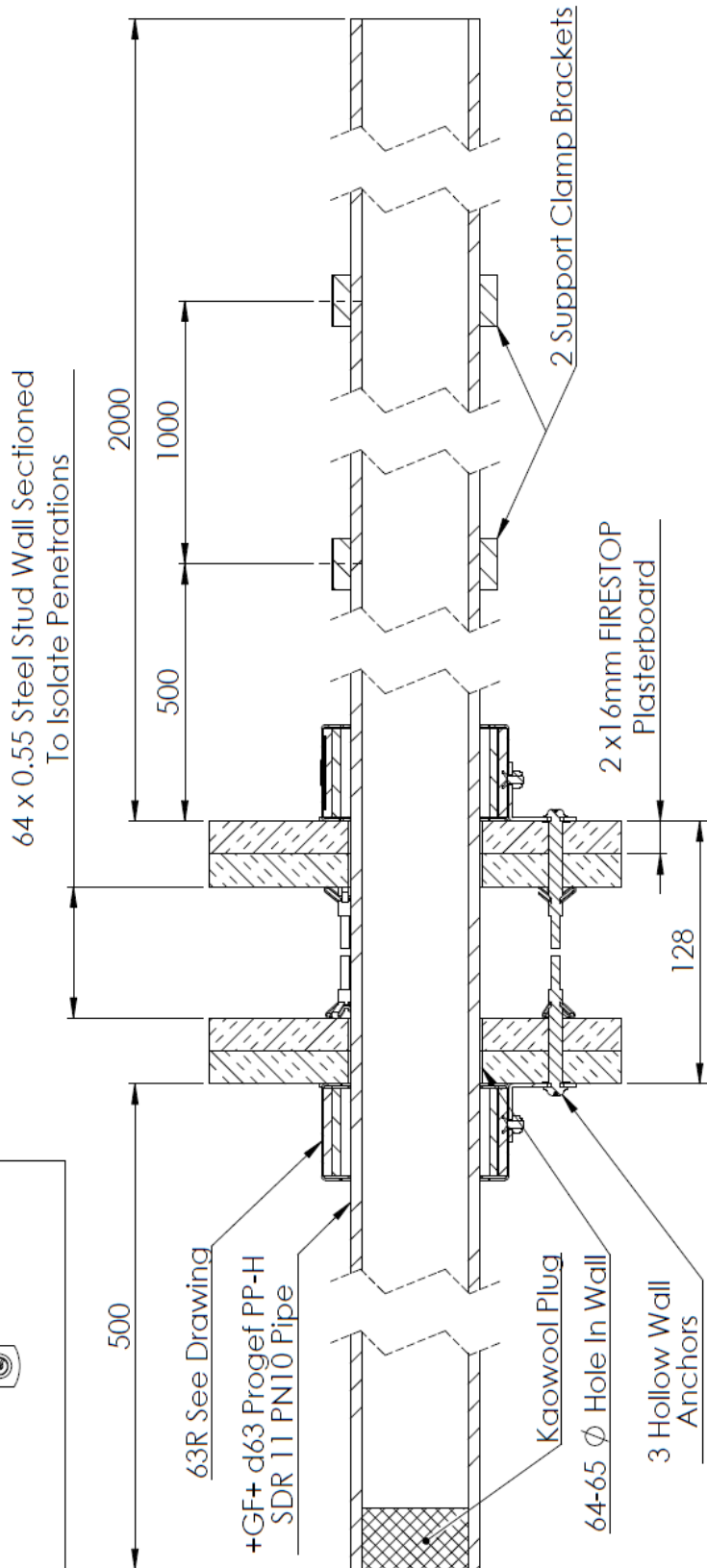
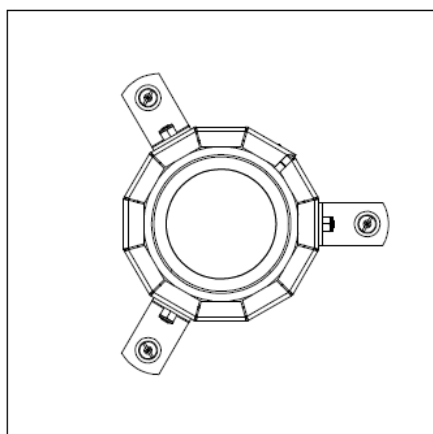
DRAWING TITLED "PENETRATION # F – PP-H (40 MM ϕ SDR 11) STACK", DATED 08/08/2014 SUPPLIED BY SNAP FIRE SYSTEMS PTY LTD

Penetration # G
 PP-H (50 mm ϕ SDR 11) Stack - Date 08-08-2014



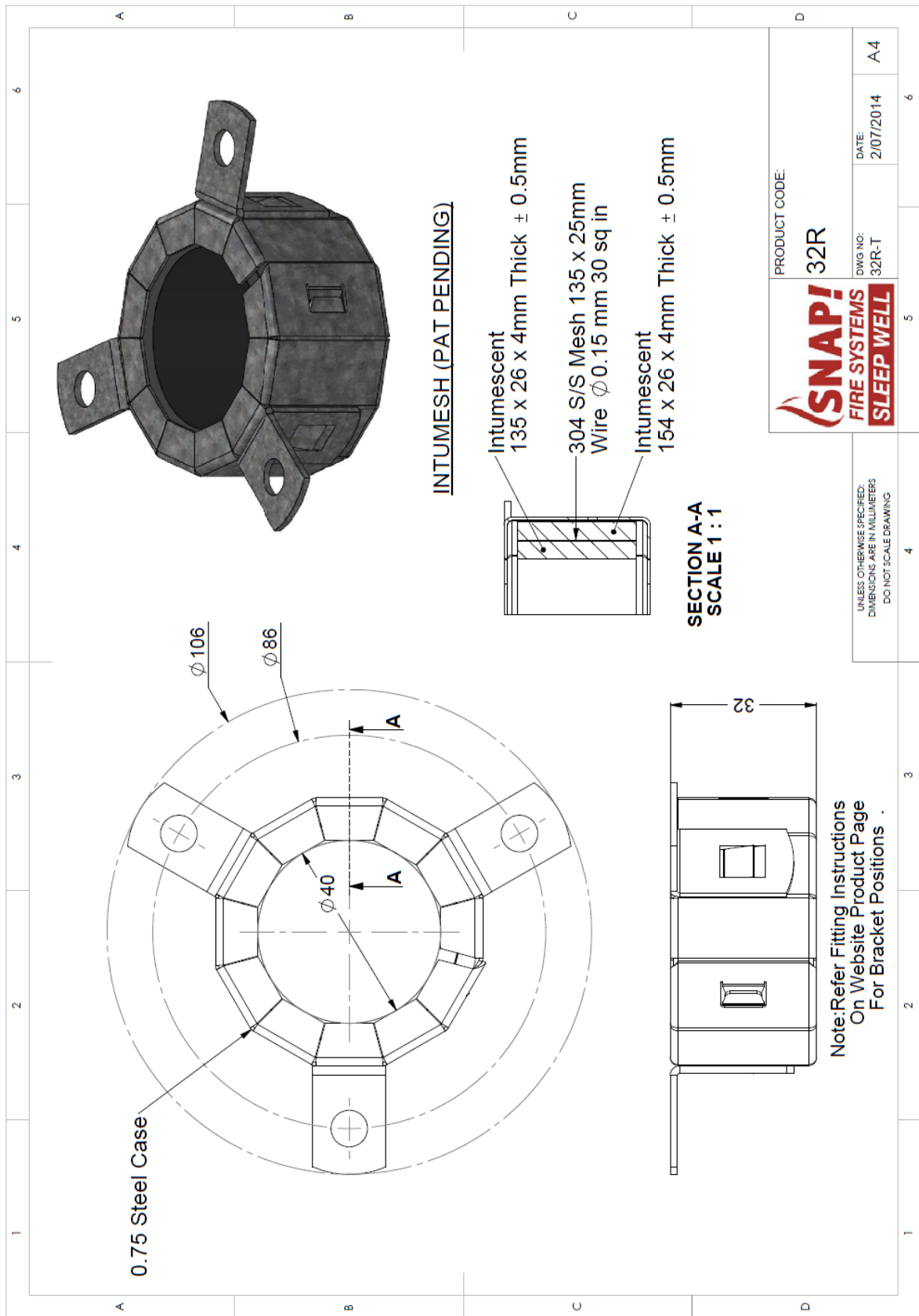
DRAWING TITLED "PENETRATION #G – PP-H (50 MM ϕ SDR 11) STACK", DATED 08/08/2014 SUPPLIED BY SNAP FIRE SYSTEMS PTY LTD

Penetration # H
 PP-H (63 mm ϕ SDR 11) Stack - Date 08-08-2014

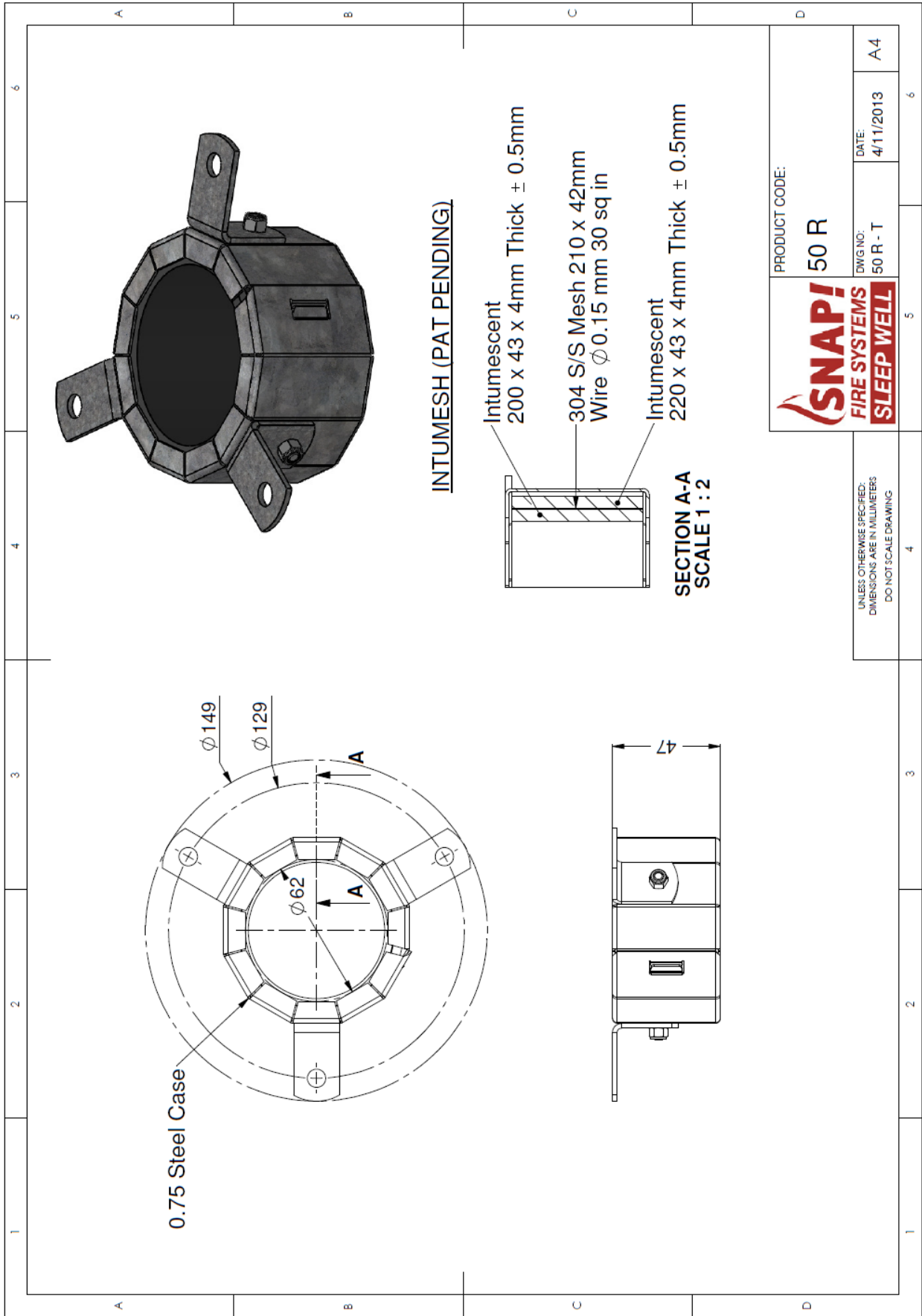


DRAWING TITLED "PENETRATION #H – PP-H (63 MM ϕ SDR 11) STACK", DATED 08/08/2014 SUPPLIED BY SNAP FIRE SYSTEMS PTY LT

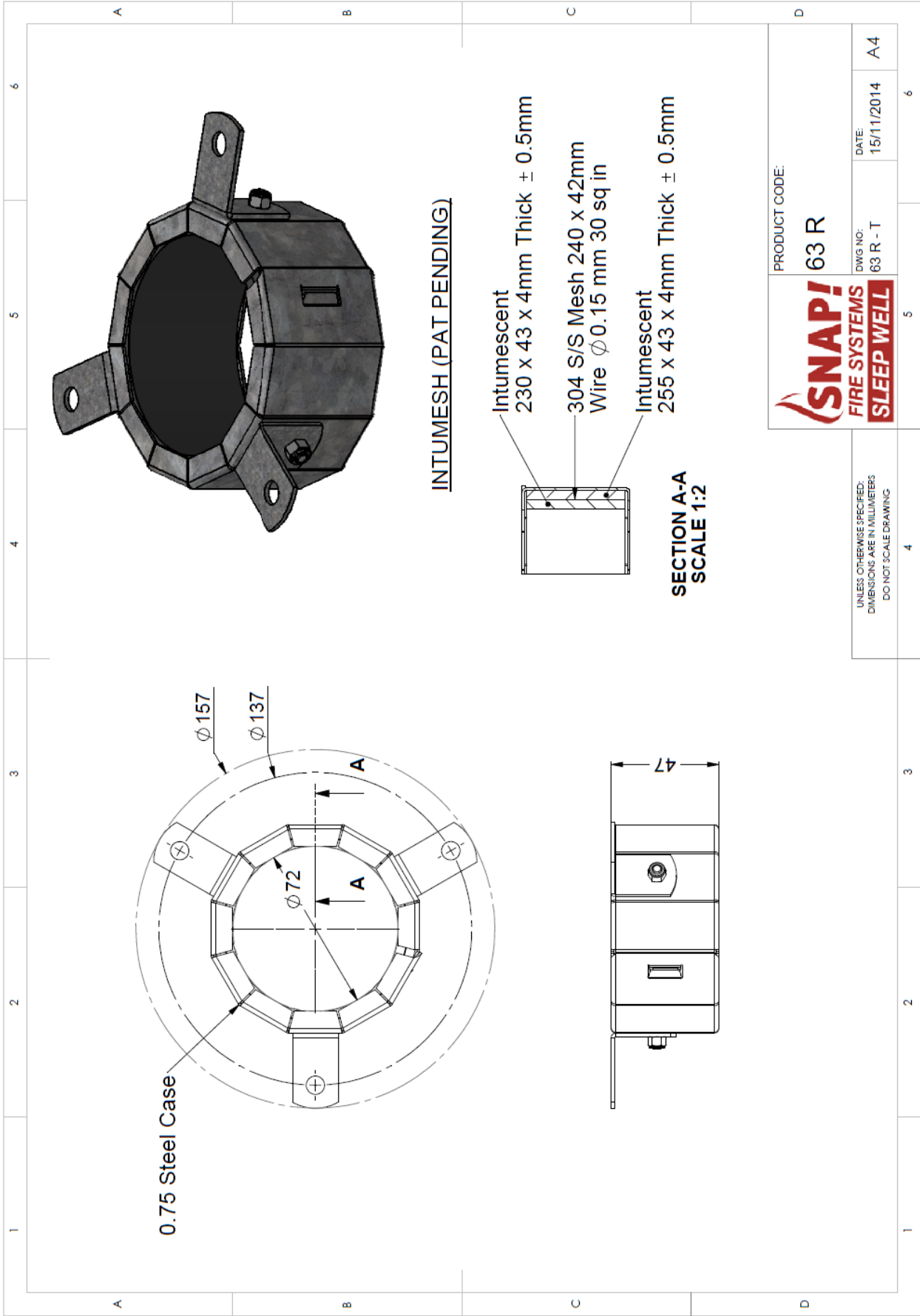
Appendix E – Specimen Drawings



DRAWING NUMBERED 32 R-T, DATED 2 JULY 2014, BY SNAP FIRE SYSTEMS PTY LTD.



DRAWING NUMBERED 50 R-T, DATED 4 NOVEMBER 2013, BY SNAP FIRE SYSTEMS PTY LTD.



DRAWING NUMBERED 63 R-T, DATED 15 NOVEMBER 2014, BY SNAP FIRE SYSTEMS PTY LTD.

Appendix F – Certificates

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		
<h2>Certificate of Test</h2>		No. 2622 "Copyright CSIRO 2015 ©" Copying or alteration of this report without written authorisation from CSIRO is forbidden.
This is to certify that the element of construction described below was tested by the CSIRO Division of Materials Science and Engineering in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2005 on behalf of:		
Snap Fire Systems Pty Ltd Unit 2/160 Redland Bay Road CAPALABA QLD		
A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.		
Product Name:	Penetration #A –32R retrofitted fire collar protecting a 20-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe	
Description:	<p>The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.</p> <p>The penetrating service comprised a 20-mm nominal diameter PP-H pipe, with a wall thickness of 2.3-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 21-mm diameter cut-out hole as shown in drawing titled "Penetration #A PP-H (20-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.</p>	
Structural Adequacy		not applicable
Integrity		no failure at 180 minutes
Insulation		no failure at 180 minutes
and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.		
This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.		
Testing Officer:	Mario Lara-Ledermann	Date of Test: 4 September 2014
Issued on the 15 th day of January 2015 without alterations or additions.		
		
Mario Lara-Ledermann For Manager, Fire Testing and Assessments		
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Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.

Product Name: Penetration #B – 32R retrofitted fire collar protecting a 20-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 7.4 PN16 stack pipe

Description: The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 20-mm nominal diameter PP-H pipe, with a wall thickness of 3.5-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 21-mm diameter cut-out hole as shown in drawing titled "Penetration #B PP-H (20-mm Ø SDR 7.4) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Structural Adequacy	not applicable
Integrity	no failure at 180 minutes
Insulation	no failure at 180 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.

This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Mario Lara-Ledermann Date of Test: 4 September 2014

Issued on the 15th day of January 2015 without alterations or additions.

Mario Lara-Ledermann
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Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.

Product Name: Penetration #C – 32R retrofitted fire collar protecting a 25-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

Description: The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 25-mm nominal diameter PP-H pipe, with a wall thickness of 2.9-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 26-mm diameter cut-out hole as shown in drawing titled "Penetration #C PP-H (25-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Structural Adequacy	not applicable
Integrity	no failure at 180 minutes
Insulation	no failure at 180 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.

This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Mario Lara-Ledermann Date of Test: 4 September 2014

Issued on the 15th day of January 2015 without alterations or additions.

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Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.

Product Name: Penetration #D – 32R retrofitted fire collar protecting a 25-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 7.4 PN16 stack pipe

Description: The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 25-mm nominal diameter PP-H pipe, with a wall thickness of 3.5-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 26-mm diameter cut-out hole as shown in drawing titled "Penetration #D PP-H (25-mm Ø SDR 7.4) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Structural Adequacy	not applicable
Integrity	no failure at 180 minutes
Insulation	no failure at 180 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.

This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Mario Lara-Ledermann Date of Test: 4 September 2014

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Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.

Product Name: Penetration #E – 32R retrofitted fire collar protecting a 32-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

Description: The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 32-mm nominal diameter PP-H pipe, with a wall thickness of 3.8-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 33-mm diameter cut-out hole as shown in drawing titled "Penetration #E PP-H (32-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Structural Adequacy	not applicable
Integrity	no failure at 180 minutes
Insulation	no failure at 180 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.

This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Mario Lara-Ledermann Date of Test: 4 September 2014

Issued on the 15th day of January 2015 without alterations or additions.

Mario Lara-Ledermann
For Manager, Fire Testing and Assessments



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Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.

Product Name: Penetration #F – 32R retrofitted fire collar protecting a 40-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

Description: The SNAP Retrofit 32R fire collar comprised a 0.75-mm steel casing with a 40-mm inner diameter and a 106-mm diameter base flange. The 32-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 26-mm wide x 135-mm long, and 4-mm thick x 26-mm wide x 154-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 135 mm long x 25-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 32R-T dated 2 July 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using two hollow wall anchors.

The penetrating service comprised a 40-mm nominal diameter PP-H pipe, with a wall thickness of 4.1-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 41-mm diameter cut-out hole as shown in drawing titled "Penetration #F PP-H (40-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Structural Adequacy	not applicable
Integrity	no failure at 180 minutes
Insulation	no failure at 180 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.

This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Mario Lara-Ledermann Date of Test: 4 September 2014

Issued on the 15th day of January 2015 without alterations or additions.

Mario Lara-Ledermann
For Manager, Fire Testing and Assessments



This document is issued in accordance with NATA's accreditation requirements.
Accreditation No. 165 – Corporate Site No. 3625
Accredited for compliance with ISO/IEC 17025

COPY OF CERTIFICATE OF TEST – NO. 2627



Certificate of Test

No. 2628

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This is to certify that the element of construction described below was tested by the CSIRO Division of Materials Science and Engineering in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2005 on behalf of:

Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.

Product Name: Penetration #G – 50R retrofitted fire collar protecting a 50-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

Description: The SNAP Retrofit 50R fire collar comprised a 0.75-mm steel casing with a 62-mm inner diameter and a 149-mm diameter base flange. The 47-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 43-mm wide x 200-mm long, and 4-mm thick x 43-mm wide x 220-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 210 mm long x 42-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 50R-T dated 4 November 2013, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using three hollow wall anchors.

The penetrating service comprised a 50-mm nominal diameter PP-H pipe, with a wall thickness of 5.1-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 51-mm diameter cut-out hole as shown in drawing titled "Penetration #G PP-H (50-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Structural Adequacy	not applicable
Integrity	no failure at 180 minutes
Insulation	no failure at 180 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.

This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Mario Lara-Ledermann Date of Test: 4 September 2014

Issued on the 15th day of January 2015 without alterations or additions.

Mario Lara-Ledermann
For Manager, Fire Testing and Assessments



This document is issued in accordance with NATA's accreditation requirements.
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COPY OF CERTIFICATE OF TEST – NO. 2628



Certificate of Test

No. 2629

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This is to certify that the element of construction described below was tested by the CSIRO Division of Materials Science and Engineering in accordance with Australian Standard 1530, Methods for fire tests on building materials, components and structures, Part 4-2005 on behalf of:

Snap Fire Systems Pty Ltd
Unit 2/160 Redland Bay Road
CAPALABA QLD

A full description of the test specimen and the complete test results are detailed in the Division's Sponsored Investigation report numbered FSP 1658.

Product Name: Penetration #H – 63R retrofitted fire collar protecting a 63-mm diameter +GF+ Georg Fischer Progef Polypropylene PP-H SDR 11 PN10 stack pipe

Description: The SNAP Retrofit 63R fire collar comprised a 0.75-mm steel casing with a 72-mm inner diameter and a 157-mm diameter base flange. The 47-mm high collar casing incorporated a closing mechanism that was comprised of two soft Intumescent wraps lined within the internal circumference of the collar. The inner and outer wraps were 4-mm thick x 43-mm wide x 230-mm long, and 4-mm thick x 43-mm wide x 255-mm long, respectively. Between the wraps was a layer of 304 stainless steel mesh 240 mm long x 42-mm wide with wire mesh diameter of 0.15-mm, as shown in drawing numbered 63R-T dated 15 November 2014, by SNAP Fire Systems. One collar was fixed to each side of the plasterboard wall in a back-to-back configuration using three hollow wall anchors.

The penetrating service comprised a 63-mm nominal diameter PP-H pipe, with a wall thickness of 6.7-mm, fitted through the collar's sleeve and penetrating the plasterboard wall through a 64-mm diameter cut-out hole as shown in drawing titled "Penetration #H PP-H (63-mm Ø SDR 11) Stack" dated 8 August 2014, by SNAP Fire Systems. The pipe projected horizontally, approximately 2000-mm away from the unexposed face of the plasterboard wall and approximately 500-mm into the furnace chamber. The pipe was supported at nominally 500-mm from the unexposed face of the plasterboard wall by two support clamp brackets spaced apart at nominally 1000-mm. The pipe was open at the unexposed end and capped on the exposed end with a ceramic fibre (Kaowool) plug.

Structural Adequacy	not applicable
Integrity	no failure at 180 minutes
Insulation	no failure at 180 minutes

and therefore for the purpose of Building Regulations in Australia, achieved a fire-resistance level (FRL) of -/180/180. The FRL is applicable for exposure to the fire from both directions.

This certificate is provided for general information only and does not comply with regulatory requirements for evidence of compliance.

Testing Officer: Mario Lara-Ledermann Date of Test: 4 September 2014

Issued on the 15th day of January 2015 without alterations or additions.

Mario Lara-Ledermann
For Manager, Fire Testing and Assessments



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COPY OF CERTIFICATE OF TEST – NO. 2629

References

The following informative documents are referred to in this Report:

- | | |
|----------------|---|
| AS 1530.4-2005 | 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. |

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FOR FURTHER INFORMATION

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