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UL Technical Assessment Report of the fire resistance performance of ROCKWOOL FIREPRO® SoftSeal when installed within a 150 mm thick 'Eurobond Firemaster/Rockspan Extra' partition system based on fire test evidence

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This report has been prepared by Chris Sweeney, Project Engineer, in full accordance with the PFPF standard procedures guidance, (as outlined in the 2021 edition of 'Guide to undertaking technical assessments of fire performance of construction products based on test evidence') and in line with the principles of EN 15725: 2010.

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Introduction

This report relates to a request from ROCKWOOL Limited to undertake an assessment of the likely fire test performance of ROCKWOOL FIREPRO® SoftSeal when installed within 'Eurobond Firemaster/Rockspan Extra' partition systems with a minimum thickness of 150mm based on supporting test evidence.

The request to assess was for the following reason:

- To include tested scope for ROCKWOOL FIREPRO® SoftSeal, installed in a flexible wall, within 'Eurobond Firemaster/Rockspan Extra' partition systems.

The 'Eurobond Firemaster/Rockspan Extra' partition wall system often incorporates apertures to accommodate the passage of services. The fire resistance of the partition system is only as good as its weakest point, and it is therefore important that any apertures are adequately sealed, such that weaknesses are not created at the positions of the service penetrations.

This assessment report considers the ability of the ROCKWOOL FIREPRO® SoftSeal product to reinstate the Integrity and Insulation performance of the min 150 mm thick 'Eurobond Firemaster/Rockspan' partition systems, where it is penetrated by various service types, as described in the assessments section of this report, and subjected to a fire resistance test in accordance with EN 1366-3: 2021.

Definition

In accordance with the PFPF guide – **Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence** the definition used for the scope of this report is as follows.

'A technical evaluation of the likely performance of a component or element of structure (as defined in Approved Document B for England and Wales or their equivalent in Scotland and Northern Ireland) if it were subject to a standard fire test.

An assessment may consider design changes to a tested element of construction for a specific project or it could form a wider scope of approval with a defined period of validity

Assessments are based on sufficient relevant test evidence and provide a defined scope of approval for a particular design or range of designs and is an opinion of the likely performance of a component or element if it were subject to a standard fire test'.

For the purpose of this assessment the level of complexity is defined as – **Intermediate Assessment**

The assessment of intermediate complexity and significant changes to a tested product or system. Such changes may be critical to the fire performance of the product or construction being assessed.

Assumptions

The constructions described within this report are symmetrical and so apply to fire from either direction.

It is assumed that the proposed 'Firemaster/Rockspan Extra' partition wall will be installed by competent installers, in a manner that is in accordance with the manufacturers approved installation methods and similar to that detailed within this report.

It is further assumed that the wall apertures will be formed in the same manner as that detailed within this assessment.

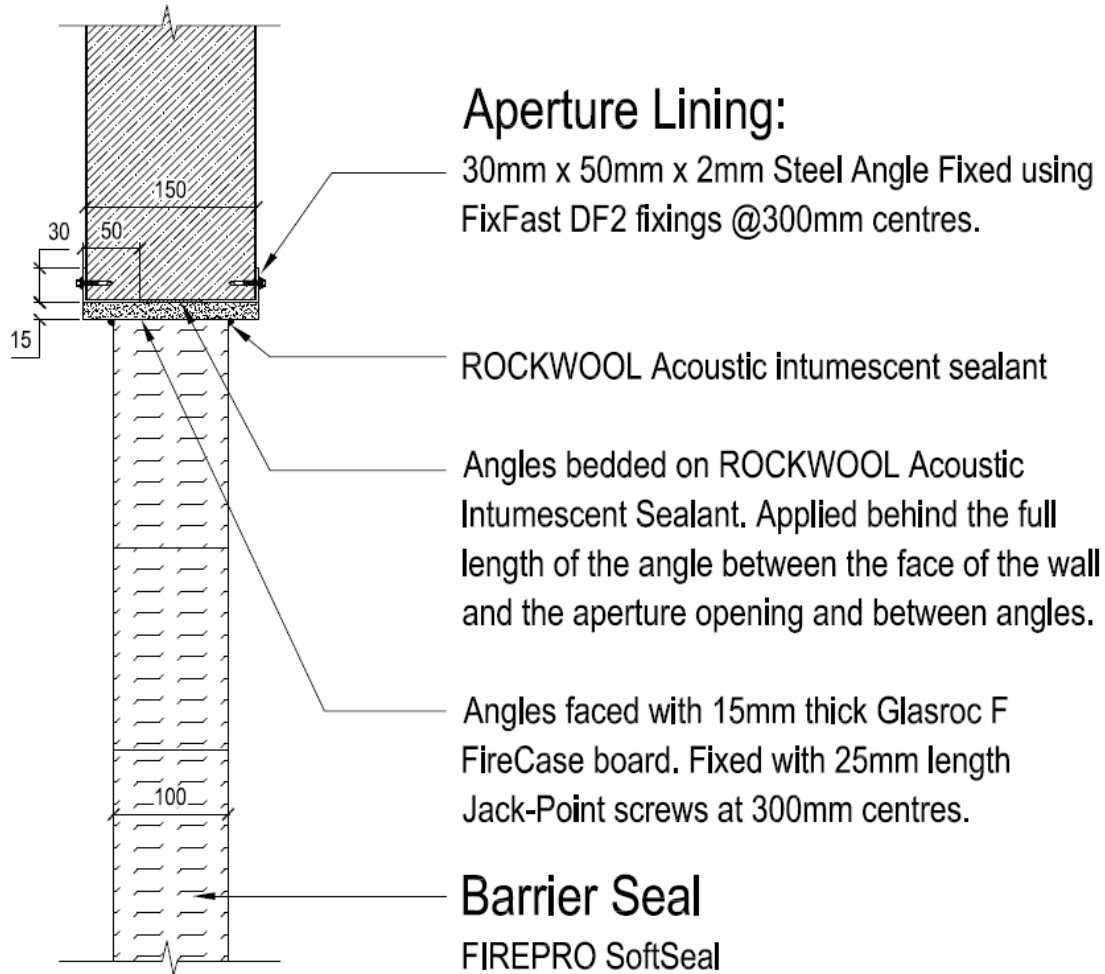
It is assumed that ROCKWOOL FIREPRO® SoftSeal penetration sealing system will be as detailed within the supporting data section of this report, unless otherwise detailed within this report.

Assessment – Performance to EN 1366-3: 2021

Wall Construction The 'Eurobond Firemaster/Rockspan Extra' wall into which the ROCKWOOL FIREPRO® SoftSeal penetration sealing system is to be installed has an overall minimum thickness of 150 mm and is constructed using steel faced stone mineral wool cored panels. Where apertures are to be introduced, to allow the passage of services, then angle framing and boarding shall be introduced in line with the supporting test data.

The framing shall consist of a 50mm x 30mm x 2mm steel angle fixed around the aperture edge using FixFast DF2 fixings at 300 mm centres. The angle shall be bedded on a bead of ROCKWOOL Acoustic Intumescent Sealant. The angle is subsequently faced with a layer of 15mm Glasroc F FireCase board, which is fixed using 25mm Jack-Point screws at 300mm centres.

Aperture lining detail:



Aperture Size and Lining

The Fire Resistance test report referenced WF 521525 details a test conducted in accordance with BS EN 1366-3:2021. The report outlines the fire resistance performance of a 150 mm thick 'Eurobond Firemaster/Rockspan' wall that was built with 3 apertures. 100mm thick ROCKWOOL FIREPRO® SoftSeal was installed within two of the apertures (specimens B & C) and FIREPRO® 60mm Ablative Coated Batt was installed into the third.

The largest of the apertures (Specimen C) was 1200 mm wide x 2000 mm high. This blank aperture incorporated no services and was tested to assess the ability of the ROCKWOOL FIREPRO® SoftSeal to be able self-support itself and also reinstate the integrity and insulation performance of the wall for the required 120 minutes duration.

The results of the test were as follows:

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
Fire Seal C	145 minutes*	145 minutes*	145 minutes*	145 minutes*

*No Failure of this test criteria at the termination of the test at 145 minutes.

The Results from the test show that there were no Integrity failures associated with the ROCKWOOL FIREPRO® SoftSeal in this large aperture seal. The seal had no additional services passing through it, which could offer support. The tested performance is 20% more than that required by this assessment and coverage for sizes up to 1200mm x 2000mm is therefore proven.

**Service penetrations:
COOL-FIT 2.0 Pipes**

In addition to fire resistance test report WF 521525, ROCKWOOL FIREPRO® SoftSeal has also been proven by test to be useable within a 100mm thick 'Eurobond Firemaster' wall. Fire resistance test report WF 431646 details four penetration seal configurations that were tested, with the ROCKWOOL FIREPRO® SoftSeal product.

Seal A: 750 mm high x 650 mm wide aperture. The seal was penetrated by two George Fischer COOL-FIT 2.0 pipes, which were pre-insulated 'pipe in Pipe' PE 100 SDR pipes. Pipe A1 had an OD of 200 mm and was wrapped with 6 No. Layers of ROCKWOOL FIREPRO® Intumescent Pipewrap Roll on both faces of the SoftSeal. Pipe A2 had an OD of 75 mm and was wrapped with 3 No. Layers of ROCKWOOL FIREPRO® Intumescent Pipewrap Roll on both faces of the SoftSeal.

The largest and smallest of the pipe sizes to be considered were tested and as such, based on the extrapolation rules of EN1366-3:2021 then the following scope can be covered:

George Fischer COOL-FIT 2.0 pipe range		ROCKWOOL FIREPRO® Intumescent Pipewrap Roll
Pipe Dia.	Overall dia.	Number of layers
32	75	3
40	90	4
50	90	4
63	110	4
75	120	5
90	140	5
110	160	6
140	200	6

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
Fire Seal A	132 minutes*	132 minutes*	132 minutes*	90 Minutes
Fire Seal A1	132 minutes*	132 minutes*	132 minutes*	90 Minutes
Fire Seal A2	132 minutes*	132 minutes*	132 minutes*	90 Minutes

**penetrations: IBAR
Busbar penetration**

No extension to scope from that tested within 431646

The results of the test were as follows:

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
Fire Seal D and busbar penetration	132 minutes*	132 minutes*	132 minutes*	102 minutes

*No Failure of this test criteria at the termination of the test at 132 minutes.

**penetrations: EZ-
Path Series 44+
Pathway**

No extension to scope from that tested within 431646 & 521525

The results of test 431646 were as follows:

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
Fire Seal B	132 minutes*	132 minutes*	132 minutes*	98 minutes

*No Failure of this test criteria at the termination of the test at 132 minutes.

The results of test 521525 were as follows:

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
Fire Seal B	144 minutes	145 minutes*	144 minutes	99 minutes

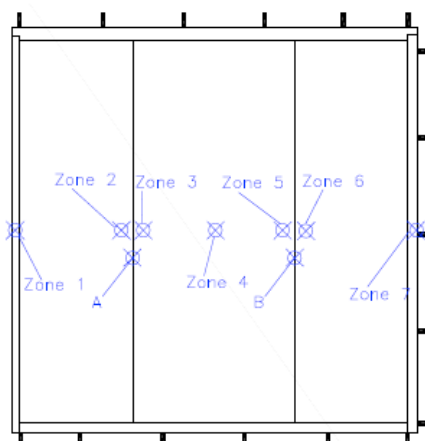
*No Failure of this test criteria at the termination of the test at 145 minutes.

Additional services The ROCKWOOL FIREPRO® SoftSeal has been subjected to further testing, conducted in flexible wall constructions, that offers further scope to the service penetration types that it can be used to protect. Whilst this additional test data was not obtained through testing within the ‘Eurobond Firemaster/Rockspan’ partition system, it was obtained through similarly full-sized flexible constructions that would offer similar or greater deflection forces on to the installed firestop.

There were no recordings made as to the overall deflection of the ‘Eurobond Firemaster/Rockspan’ partition with ROCKWOOL FIREPRO® SoftSeal, as this is not a requirement of the test standard EN 1366-3. There were, however, readings taken during the original fire resistance test for the wall, test report BMT/FEP/F15207, which was conducted without apertures, and the testing recorded the following deflection measurements:

4.6 Deflection

The deflection of the specimen partition was measured at the points shown below. The readings have been tabulated and are shown graphically below. A positive reading represents deflection in towards the furnace. A negative reading represents deflection away from the furnace. Two further readings were taken centrally at the vertical joints to measure the gaps between the panel edges, labelled A and B. The recordings are tabulated below.



Time (minutes)	0	10	20	30	40	50	60	70	80
Zone 1 (mm)	0	17	16	10	8	7	6	3	0
Zone 2 (mm)	0	18	16	15	14	12	11	9	7
Zone 3 (mm)	0	18	17	16	14	12	11	9	7
Zone 4 (mm)	0	16	14	12	10	10	5	0	-5
Zone 5 (mm)	0	12	9	5	2	0	-3	-8	-13
Zone 6 (mm)	0	10	6	4	1	-1	-4	-8	-13
Zone 7 (mm)	0	-9	-11	-13	-15	-17	-19	-21	-22
Joint A (mm)	1.2	1.2	1.4	1.4	2.1	1.2	2.0	2.0	2.0
Joint B (mm)	0.4	1.1	1.3	1.2	1.3	1.2	1.2	1.2	1.3

Time (minutes)	90	95	100	105	110	115	120
Zone 1 (mm)	-2	-	-4	-	-4	-	-5
Zone 2 (mm)	7	-	10	-	21	-	*
Zone 3 (mm)	7	-	10	-	21	-	*
Zone 4 (mm)	-9	-	-12	-	-11	-	*
Zone 5 (mm)	-19	-	-24	-	-33	-	*
Zone 6 (mm)	-19	-	-24	-	-33	-	*
Zone 7 (mm)	-24	-	-25	-	-26	-	*
Joint A (mm)	1.5	1.3	1.5	2.0	3.2	5.3	*
Joint B (mm)	1.4	1.3	1.3	1.3	1.4	2.3	*

* Deflection measurements could not be taken due to flaming coming from the specimen. However, visual observations of the specimen showed minimal change to the deflection of the panel from the measurements at 110 minutes.

The data shows that the walls deflected up to a maximum of -33 mm at 110 minutes of testing. The wall itself exhibited a gradual movement over the course of the first 120 minutes of testing, rather than there being a sudden forceful deflection of the partition system. This movement is similar to that commonly exhibited by gypsum based flexible walls of the type that the additional penetration seal data was obtained from. The supporting test data shows that the ROCKWOOL FIREPRO® SoftSeal testing was conducted in walls that complied with the requirements of Table 3 of BS EN 1366-3. The table defines the 'standard supporting construction' that allows extrapolation of test data to other similarly built wall types.

The use of these insulated gypsum walls as 'standard supporting constructions' in the test standard is because of their onerous nature in offering considerable deformation during the testing. The inclusion of the fully insulated cavity creates a large temperature disparity between the exposed face and the unexposed face causing the partition to deflect. This puts considerable force onto the penetration seal as the firestop moves in sympathy to the wall whilst the services themselves remain fixed on their supports. The greater the movement of the wall the greater the force placed on the firestop. Movement of these flexible walls is commonly seen to be around 100 mm.

It is therefore reasonable to accept that the testing obtained with the EN 1366-3 standard supporting constructions would be at least equally as onerous were the same seal configuration to be tested within the Eurobond Firemaster/Rockspan partition. The interface between the ROCKWOOL FIREPRO® SoftSeal and the Eurobond Firemaster wall has been proven within test reports WF 4316464 & 521525. Based on this the following additional service types can be positively appraised to pass thorough the ROCKWOOL FIREPRO® SoftSeal mounted within the Eurobond Firemaster/Rockspan 150mm thick partition systems.

**Test Report: WF
411471/R**

The Fire Resistance test report referenced WF 411471/R details a test conducted in accordance with EN 1366-3:2009. The report details the fire resistance performance of four specimens of penetration sealing systems that were installed within a flexible partition.

The flexible drywall construction had overall dimensions of 3000mm high x 3000mm wide x 100 thick. The wall incorporated two apertures which were penetrated by various services and into which ROCKWOOL FIREPRO® SoftSeal seals were installed. The specimens were referenced Specimen A and Specimen B. The wall also incorporated two partial penetrations that are not subject to this assessment. These specimens were referenced C and D.

Test Report: WF 517980/R

The Fire Resistance test report referenced WF 517980/R details a test conducted in accordance with EN 1366-3:2021. The report details the fire resistance performance of four specimens of penetration sealing systems that were installed within a flexible partition.

The flexible drywall construction had overall dimensions of 3000mm high x 3000mm wide x 102mm thick. The wall incorporated four framed and lined apertures which were penetrated by various services and into two of which ROCKWOOL FIREPRO® SoftSeal seals were installed. The specimens were referenced Specimen B and Specimen D. The wall also incorporated two penetrations that are not subject to this assessment. These specimens were referenced A and C.

Test Report: WF 411468/R

The Fire Resistance test report referenced WF 411468/R details a test conducted in accordance with EN 1366-3:2009. The report details the fire resistance performance of three specimens of penetration sealing systems that were installed within a flexible partition.

The flexible drywall construction had overall dimensions of 3000mm high x 3000mm wide x 100mm thick. The wall incorporated three apertures which were penetrated by various services and into one of which ROCKWOOL FIREPRO® SoftSeal seals was installed above two layers of FIREPRO 50mm Ablative Coated Batt. The specimen was referenced Specimen A. The wall also incorporated two penetrations sealing systems that are not subject to this assessment. These specimens were referenced B and C.

Metallic pipe penetrations

Specimen B of WF 411471/R incorporated an aperture that was 900 mm wide by 1200 mm high that was penetrated by various service types. Within the seal were three metallic pipes that were referenced; B1, B2 & B3. The pipes were installed such that they formed a cluster formation with 0 mm separation between the installed pipe insulation. The pipes comprised;

Specimen	Pipe type	Size mm	Wall thickness	Insulation
B1	Steel	Ø219 mm	5.0 mm	25 mm thick ROCKWOOL Rocklap H&V – 1000 mm long mounted centrally though the seal (LS).
B2	Copper	Ø159 mm	2.0 mm	
B3	Copper	Ø42 mm	1.2 mm	

The performance of the tested pipes was as follows;

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
B1	103 minutes	132 minutes*	132 minutes*	97 minutes
B2	132 minutes*	132 minutes*	132 minutes*	58
B3	132 minutes*	132 minutes*	132 minutes*	132 minutes*

*No Failure of this test criteria at the termination of the test at 132 minutes.

Test reference B2 suffered an insulation failure at 58 minutes. The position of the failure was taken on the Copper pipe itself rather than on the Rocklap H&V insulation (which satisfied the 60 minutes insulation criteria). It is proposed that the length of the insulation is increased by 50% to achieve 60 minutes

The additional 2 minutes of insulation performance to meet the required 60 minute requirement.

Specimen B of WF 517980/R incorporated an aperture that was 900 mm wide by 600 mm high that was penetrated by various copper pipes. Within the seal was a single copper pipe that was referenced B4. The pipe was installed with 0 mm separation to the edge of the seal. The pipe penetration is detailed below;

Specimen	Pipe type	Size mm	Wall thickness	Insulation
B4	Copper	Ø108 mm	1.7 mm	25 mm thick ROCKWOOL Rocklap H&V – 1000 mm long mounted centrally though the seal (LS).

The performance of the tested pipe was as follows;

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
B4	132 minutes*	132 minutes*	132 minutes*	122 minutes

*No Failure of this test criteria at the termination of the test at 132 minutes.

Specimen A of WF 411468/R incorporated an aperture that was 1200 mm wide by 1200 mm high that was penetrated by various service types. The bottom 900mm of the aperture was sealed with two layers of FIREPRO® 50mm Ablative Coated Batt, the top 300mm of the aperture was sealed with ROCKWOOL FIREPRO® SoftSeal seals. Within the ROCKWOOL FIREPRO® SoftSeal were three metallic pipes that were referenced; A1, A2 & A3. The pipes were installed such that they formed a cluster formation with 0 mm separation between the installed pipe insulation. The pipes comprised;

Specimen	Pipe type	Size mm	Wall thickness	Insulation
A1	Steel	Ø219 mm	5.0 mm	25 mm thick ROCKWOOL Rocklap H&V – 1000 mm long mounted centrally though the seal (LS).
A2	Copper	Ø159 mm	2.0 mm	
A3	Copper	Ø42 mm	1.2 mm	

The performance of the tested pipes was as follows;

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
A1	132 minutes*	132 minutes*	132 minutes*	118 minutes
A2	117 minutes	132 minutes*	132 minutes*	54
A3	132 minutes*	132 minutes*	132 minutes*	N/A**

*No Failure of this test criteria at the termination of the test at 132 minutes.

**No result due to thermocouple malfunction.

The Direct Field of Application contained within the test standard EN 1366-3: 2009 (Clause E.1.5.1) allows for the interpolation of pipe sizes between that tested. As such the scope detailed in Annex A – Service type: Metallic pipes, can be gained from the above test results.

Plastic pipe penetrations

Specimen A incorporated an aperture that was 1200 mm wide by 1200 mm high that was penetrated by six plastic pipes, installed at 45°, that were referenced; A1 – A6. Specimen B (detailed above) was also penetrated by 3 plastic pipes that were referenced B4, B5 & B6. The pipes comprised;

Specimen	Pipe type	Size	Wall thickness	Insulation
A1	PP	Ø110 mm	2.7 mm	300 mm long x 25 mm thick ROCKWOOL FirePro Insulated Fire Sleeve (IFS)
A2	PVC	Ø110 mm	4.2 mm	
A3	PE	Ø110 mm	6.6 mm	
A4	PVC	Ø160 mm	6.2 mm	
A5	PE	Ø160 mm	9.5 mm	
A6	PE	Ø160 mm	4.9 mm	
B4	PE	Ø160 mm	4.9 mm	150 mm long x 25 mm thick ROCKWOOL FirePro Insulated Fire Sleeve (IFS)
B5	PE	Ø160 mm	9.5 mm	
B6	PVC	Ø160 mm	6.2 mm	

The performance of the tested pipes was as follows;

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
A1	132 minutes*	132 minutes*	132 minutes*	132 minutes*
A2	132 minutes*	132 minutes*	132 minutes*	132 minutes*
A3	132 minutes*	132 minutes*	132 minutes*	132 minutes*
A4	132 minutes*	132 minutes*	132 minutes*	132 minutes*
A5	132 minutes*	132 minutes*	132 minutes*	130 minutes
A6	132 minutes*	132 minutes*	132 minutes*	132 minutes*
B4	108 minutes	110 minutes	108 minutes	88 minutes
B5	110 minutes	110 minutes	110 minutes	88 minutes
B6	110 minutes	110 minutes	110 minutes	91 minutes

*No Failure of this test criteria at the termination of the test at 132 minutes.

The pipe sizes/specifications included within this test had been determined as ‘critical pipes’ in the previous test referenced WF Test Report No. 411457/R. This test incorporated a range of plastic pipes to allow for interpolation of diameters and wall thicknesses and thus by again testing the ‘critical pipes’, the established field of application may be transferred into alternative constructions/substrates. The tested pipes comprised:

Specimen	Seal	Aperture	Service
A	150 mm long by 25 mm thick 'FIREPRO® Insulated Fire Sleeve' installed symmetrically within the aperture. The remaining annular space was filled with 25 mm deep 'FIREPRO® Acoustic Intumescent Sealant' on both sides.	Ø 110 mm	Ø 40 mm by 1.8 mm wall thickness PP pipe, U/C
B		Ø 110 mm	Ø 40 mm by 1.9 mm wall thickness PVC pipe, U/C
C		Ø 180 mm	Ø 110 mm by 6.3 mm wall thickness PP pipe, U/C
D		Ø 180 mm	Ø 100 mm bundle of 'F' type telecom cables
E		Ø 110 mm	Ø 40 mm by 5.5 mm wall thickness PP pipe, U/C
F		Ø 180 mm	Ø 110 mm by 6.6 mm wall thickness PVC-u pipe, U/C
G		Ø 230 mm	Ø 160 mm by 4.9 mm wall thickness PE pipe, U/C
H		Ø 230 mm	Ø 160 mm by 9.5 mm wall thickness PE pipe, U/C
I		Ø 110 mm	Ø 40 mm by 2.4 mm wall thickness PE pipe, U/C
J		Ø 180 mm	Ø 110 mm by 4.2 mm wall thickness PVC-u pipe, U/C
K		Ø 230 mm	Ø 160 mm by 9.5 mm wall thickness PVC-u pipe, U/C
L		Ø 230 mm	Ø 160 mm by 6.2 mm wall thickness PVC-u pipe, U/C
M		Ø 110 mm	Ø 40 mm by 3.7 mm wall thickness PE pipe, U/C
N		Ø 180 mm	Ø 110 mm by 6.6 mm wall thickness PE pipe, U/C
O		Ø 230 mm	Ø 160 mm by 4 mm wall thickness PP pipe, U/C
P		Ø 230 mm	Ø 160 mm by 9.1 mm wall thickness PP pipe, U/C

Specimen	Seal	Aperture	Service
Q	150 mm long by 25 mm thick 'FIREPRO® Insulated Fire Sleeve' installed symmetrically within the aperture. The remaining annular space was filled with 25 mm deep 'FIREPRO® Acoustic Intumescent Sealant' on both sides.	Ø 110 mm	Ø 40 mm by 3.0 mm wall thickness PVC pipe, U/C
R		Ø 180 mm	Ø 110 mm by 2.7 mm wall thickness PE pipe, U/C
S		Ø 180 mm	Ø 110 mm by 2.7 mm wall thickness PP pipe, U/C
T		Ø 240 mm	Ø 169.3 mm by 5.0 mm wall thickness mild steel pipe, C/U

The performance of the tested pipes was as follows;

Specimen	Integrity (minutes)			Insulation (minutes)
	Cotton Pad	Sustained flaming	Gap Gauge	
A	132*	132*	132*	132*
B	132*	132*	132*	132*
C	132*	132*	132*	132*
D	32	32	35 [#]	32
E	132*	132*	132*	132*
F	132*	132*	132*	132*
G	132*	132*	132*	132*
H	132*	132*	132*	132*
I	132*	132*	132*	132*
J	132*	132*	132*	132*
K	132*	132*	132*	132*
L	124	126 [#]	126 [#]	124
M	132*	132*	132*	132*
N	132*	132*	132*	132*
O	94 [#]	94 [#]	94 [#]	60
P	132*	132*	132*	132*
Q	132*	132*	132*	132*
R	132*	132*	132*	132*
S	132*	132*	132*	61
T	132*	132*	132*	132*

[#]Specimen blanked off to allow test to continue.

*Test was discontinued after a period of 132 minutes.

The pipes referenced G, H & L (160mm diameter) and J, N & S (110m diameter) were selected as critical based upon their observed performance and were therefore included in the test referenced WF 411471/R. The pipe referenced O was not selected as critical as PP pipes greater than 110mm diameter are not covered in the scope of this assessment.

The Direct Field of Application contained within the test standard EN 1366-3: 2009 (Clause E.2.7.2) allows for the interpolation of pipe sizes between that tested. As such the scope detailed in Annex A – Service type: Plastic pipes with ROCKWOOL Insulated Firesleeve (ROCKWOOL IFS), can be gained from the above test results.

Test Report: WF 411470/R

The Fire Resistance test report referenced WF 411470/R details a test conducted in accordance with EN 1366-3:2009. The report details the fire resistance performance of four specimens of penetration sealing systems that were installed within a flexible partition.

The flexible drywall construction had overall dimensions of 3000mm high x 3000mm wide x 100mm thick. The wall incorporated two apertures which were penetrated by various services and into which ROCKWOOL FIREPRO® SoftSeal seals were installed. The specimens were referenced Specimen A and Specimen B. The wall also incorporated two partial penetrations that are not subject to this assessment. These specimens were referenced C and D.

cPVC Blazemaster

Specimen B incorporated an aperture that was 900 mm wide by 1200 mm high that was penetrated by various service types. Within the seal there were two CPVC plastic pipes, installed at 45°, that were referenced; B2 and B3. The pipes comprised;

Specimen	Pipe type	Size	Service Seal
B2	CPVC	3/4"	FIREPRO High Expansion Sealant 20 mm wide by 25 mm deep at both faces
B3	CPVC	3"	

The performance of the tested pipes was as follows;

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
B2	90 minutes*	90 minutes*	90 minutes*	90 minutes*
B3	90 minutes*	90 minutes*	90 minutes*	90 minutes*

*Test was discontinued after a period of 90 minutes

The scope gained from the above test results of the cPVC Blazemaster pipes is detailed in Annex A – Service type: cPVC Blazemaster.

Classification	This classification report defines the classification assigned to the element
Report: WF 371988B	'ROCKWOOL FIREPRO® SoftSeal' in accordance with the procedures given in BS EN 13501-2:2007 + A1: 2009.

Cables/ Cable Carries The following classifications were given for various services installed within ROCKWOOL 'FIREPRO® SoftSeal' in rigid or flexible walls 100 mm thick (minimum):

Rockwool 'Firepro Softseal' in Rigid or Flexible Walls 100 mm thick (min.)				
Aperture size (mm)	Seal composition	Service(s)	Position of service(s)	Classification
Max 800mm wide by 800mm high Flexi Seal Or *Max 430mm wide by 800mm high Flexi Seal	100mm thick by 100mm deep stonewool blocks 80kg/m ³ . Compressed 20%. Coated with 0.7mm DFT Flexi Coat external faces	¹ Electrical cables up to 21mm – 50mm dia	50mm edge. min	EI90
		¹ Electrical cables 51 - 80 mm dia		E90 EI60
		¹ Cable trays and ladders		EI90
		¹ 100 mm diameter bundle telecommunication cable type "F"		EI120
		¹ Unsheathed electrical cables up to 24mm dia		E90 EI60
		¹ Steel or Copper Conduits up to 16mm		EI90

*Installed within 2 x 50mm FirePro Ablative Coated Batt (Coated external faces) max opening 730mm wide x 1200mm high (min 100mm edge cover)

¹Insulated with Stonewool 40mm thick, 45Kg/m³ 200mm (LI)

The scope gained from the above classification for various services is detailed in Annex A – Service type: Cables/cable carriers.

Test Report: WF 521527/R

The Fire Resistance test report referenced WF 521527 details a test conducted in accordance with EN 1366-3:2021. The report details the fire resistance performance of six specimens of penetration sealing systems that were installed within a flexible partition.

The flexible drywall construction had overall dimensions of 3000mm high x 3000mm wide x 100mm thick. The wall incorporated three apertures which were penetrated by various services and into which ROCKWOOL FIREPRO® SoftSeal seals were installed. The specimens were referenced Specimen A, D and F. The wall also incorporated three penetration Specimens that are not subject to this assessment. These specimens were referenced B, C and E.

Cables

Specimen F incorporated individual cable carriers, specifically, perforated steel trays and ladders, with small, medium, and large cables and additional F-Bunch as defined within EN 1366-3 2021. These are not the standard cable configuration rather the individual services covered by the standard.

The services comprised:

Specimen	Carrier	Cable type	Service Seal
F1	450mm wide perforated steel cable tray	1no. D1, 1no. D3, 100mm Ø bunch of F, 1no. E	ROCKWOOL Ablative Coating liquid applied to the services for 300mm from both faces. Additionally, 40mm thick RWA45 wrapped around the services on each face.
F2(1)	350mm wide cable ladder	1no. C1, 1no. C3, 1no. E	
F2(2)	350mm wide cable ladder	1no. D3, 100mm Ø bunch of F	

The performance of the tested cables/carriers was as follows;

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
F1	132 minutes*	132 minutes*	132 minutes*	121 minutes
F2(1)	132 minutes*	132 minutes*	132 minutes*	132 minutes*
F2(2)	132 minutes*	132 minutes*	132 minutes*	126 minutes
F Seal	132 minutes*	132 minutes*	132 minutes*	132 minutes*

*Test was discontinued after a period of 132 minutes

The scope gained from the above test results of the cable tray supporting F type cables is detailed in Annex A – Service type: Cables/cable carriers.

Steel beams

Specimens A & D of this report incorporate two reference size steel beams that were installed as penetrations through the ROCKWOOL FIREPRO® SoftSeal seals. Specimen A incorporated no additional protection to the beams and as such insulation performance is limited. Specimen D included additional FIREPRO® 50mm Ablative Coated Batt protection to obtain 120 minutes insulation performance.

Specimen	Service	Service Seal
A	Steel 'I' Beam 1250mm long by 457 mm high by 152 mm wide	No additional seal
D		FIREPRO 50 mm Ablative Coated Batt cut to size and secured around the steel beam with pigtail screws on the unexposed and exposed face, 300mm to each side. Additionally, FIREPRO Acoustic Intumescent sealant was used on all cuts and edges

The performance of the tested steel services was as follows;

Test reference	Integrity			Insulation
	Cotton Pad	Gap Gauge	Continuous Flaming	
A	132 minutes*	132 minutes*	132 minutes*	57 minutes
D	132 minutes*	132 minutes*	132 minutes*	132 minutes*

*Test was discontinued after a period of 132 minutes

The scope gained from the above test results of the steel 'I' beams is detailed in Annex A – Service type: Steel Beams.

Limits of Applicability

The conclusions of this report only apply to ROCKWOOL FIREPRO® SoftSeal when installed within a 150 mm thick 'Eurobond Firemaster/Rockspan Extra' partition system as detailed in the Assessment section of this report.

This assessment does not constitute product certification by UL and should not be used to demonstrate compliance where the project requires product certification.

Conclusions

It can be concluded that the fire resistance performance of ROCKWOOL FIREPRO® SoftSeal when installed within a 150 mm thick 'Eurobond Firemaster/Rockspan Extra' partition system, as discussed earlier in this report, can be expected to provide the required level of performance if subjected to a test in accordance with EN 1366-3: 2021. The positively assessed scope is detailed in Annex A.

Report Prepared For: ROCKWOOL Limited

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UL Confirmation of Validity

This assessment is issued on the basis of the test data and information to hand at the time of issue. If contradictory evidence becomes available to the assessing authority the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly, the assessment should be re-evaluated, if the assessed construction is subsequently tested, since actual test data is deemed to take precedence.

This assessment is valid for an initial period of five years (if the clause above is not enacted) after which time it is recommended that it be submitted to the assessing authority for re-evaluation.

This report may only be used in its entirety and should be supplied to interested parties or AHJ's as such.

NB This assessment report is not valid unless it incorporates all pages and the declaration duly signed by the applicant's representative.

Client Declaration

During the application process the client ROCKWOOL Limited has confirmed in writing the following.

All information and evidence provided is accurate and reflects exactly the product or system which is subject to assessment. All information relevant to the assessment; references, drawings technical specifications, photographs and test/certification reports have been made available to the UL assessor; including any test failures and any information/evidence which they are aware of which may be unfavourable to the assessment outcome.

The client has also confirmed that they have not been refused an assessment by any other competent organisation and that to their knowledge the product or system has not been tested in the configuration (or similar) they are seeking an assessment on.

The original application declaration is kept on file for reference.

UL Declaration

UL have agreed to undertake this assessment based on the client's supplied information and their declaration confirming full disclosure of information. UL have reviewed the application and have completed an impartiality assessment. This report therefore represents an independent expert opinion, which has not been influenced by any commercial, financial, or other pressures, that could compromise impartiality.

Report Prepared For: ROCKWOOL Limited

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Signatories

Engineer Completing the Assessment on behalf of UL.

Name of Engineer	Signature	Date
Chris Sweeney		5 th January 2024
Name of Reviewer	Signature	Date
David Yates		5 th January 2024

Date of Issue	5 th January 2024
Date end of validity (five years from issue)	4 th January 2029

Annex A – Assessment Scope

The following services are covered by this assessment to be installed through 150mm thick ROCKWOOL FIREPRO® SoftSeal when installed within a 150 mm thick ‘Eurobond Firemaster/Rockspan’ partition system as described within.

Service type: Cables/Cable carriers

Electrical/Data Cables		Firestop Type	Additional Protection	Aperture edge Distance	Service Separation	Integrity (minutes)	Insulation (minutes)
Cable Size				a ₁			
Type	Size	SoftSeal (100mm)	300mm long 40 mm ROCKWOOL RWA 45 Each face	50 mm	50 mm		
S	0-21 mm					90	90
M	22-50 mm					90	90
L	51-80 mm					90	60
F-Bundle	100 mm dia.					120	120
Perforated Tray						90	90
Ladder						90	90

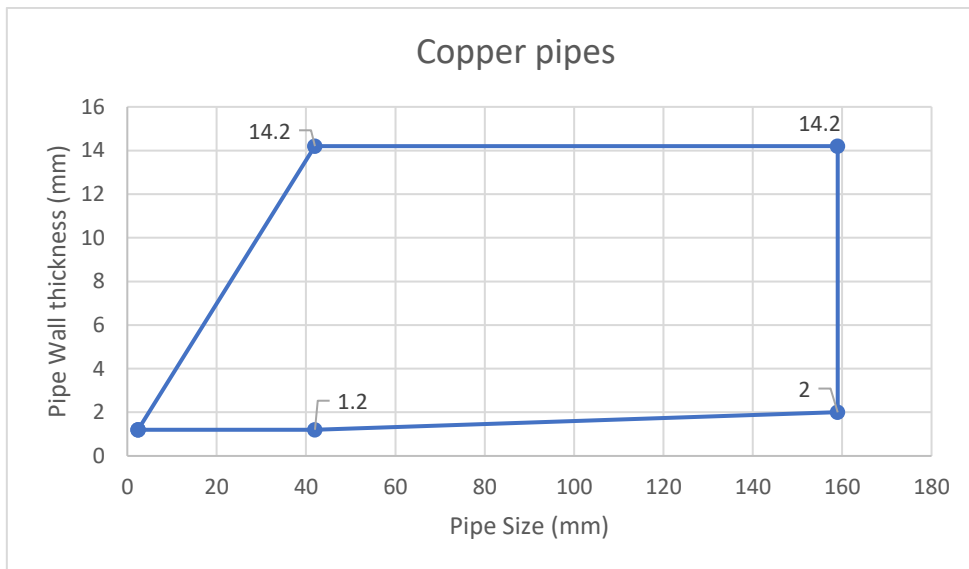
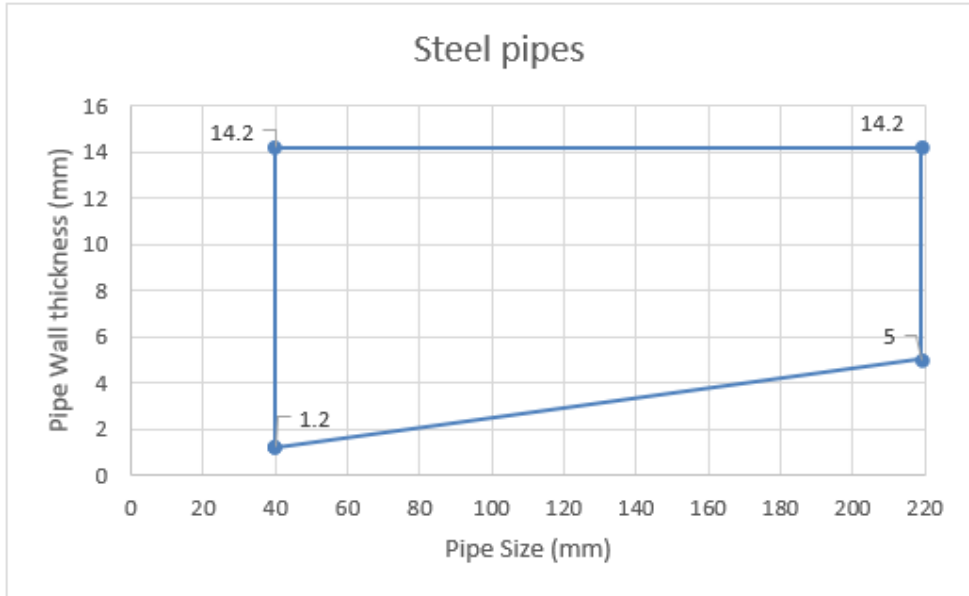
Individual cable carriers

Electrical/Data Cables		Firestop Type	Additional Protection	Aperture edge Distance	Service Separation	Integrity (minutes)	Insulation (minutes)
Cable Size				a ₁			
Type	Size	SoftSeal (100mm)	300mm long 40 mm ROCKWOOL RWA 45 Each face 300mm L/I Coatback with ablative liquid 2mm DFT	50 mm	100 mm	120	120
S	0-21 mm						
M	22-50 mm						
L	51-80 mm						
F-Bundle	100 mm dia.						
Perforated Tray							
Ladder							

Service type: Metallic pipes

Pipe material	Pipe Dia. Range (mm)	Pipe Wall Thickness (mm)	Insulation	Firestop type	Pipe arrangement	Pipe angle	Aperture edge distance	Service separation	Integrity (minutes)	Insulation (minutes)
Steel	42 - 219	See graph*	1m Long 25mm Thick RockLap H&V Section	SoftSeal (100mm)	Clustered	0° in a Cluster Up to 45° when single pipes	50 (mm)	0 (mm)	120	90
Copper	0 – 42	See graph*	1.5m Long 25mm Thick RockLap H&V Section						120	120
Copper	43 - 159	See graph*							120	60
Copper /steel	<108mm	1.7 – 14.2	1m Long 25mm Thick RockLap H&V Section	SoftSeal (100mm)	Single	Up to 45° when single pipes	50 (mm)	0 (mm)	120	120

*See graphs for pipe wall thickness interpolated sizes



Blazemaster	Firestop type	Closure device	Pipe angle	Aperture edge distance	Service separation	Integrity (minutes)	Insulation (minutes)
FlameGuard 3/4"	SoftSeal (100mm)	High Expansion Sealant 20mm Annulus 25mm Deep both faces	0 - 45° Horizontal	50 (mm)	100 (mm)	90	90
FlameGuard 3"							

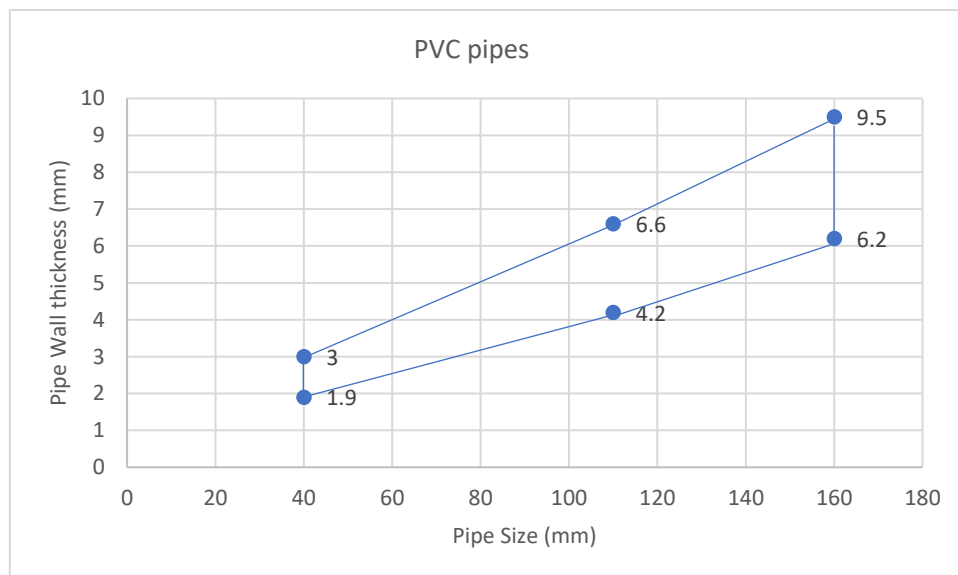
Service type: Plastic pipes with ROCKWOOL Insulated Firesleeve

PVC, PP & PE pipes	Firestop type	Closure device	Pipe Arrangement	Pipe angle	Aperture edge distance	Service separation	Integrity (minutes)	Insulation (minutes)
0-110 mm	SoftSeal (100mm)	300 mm IFS Insulated Fire Sleeve	Linear	0 - 45° Horizontal	50 (mm)	0 (mm)	120	120
111-160 mm						35 (mm)		
0-160 mm	SoftSeal (100mm)	150mm IFS	Clustered	NA	50 (mm)	35 (mm)	90	60

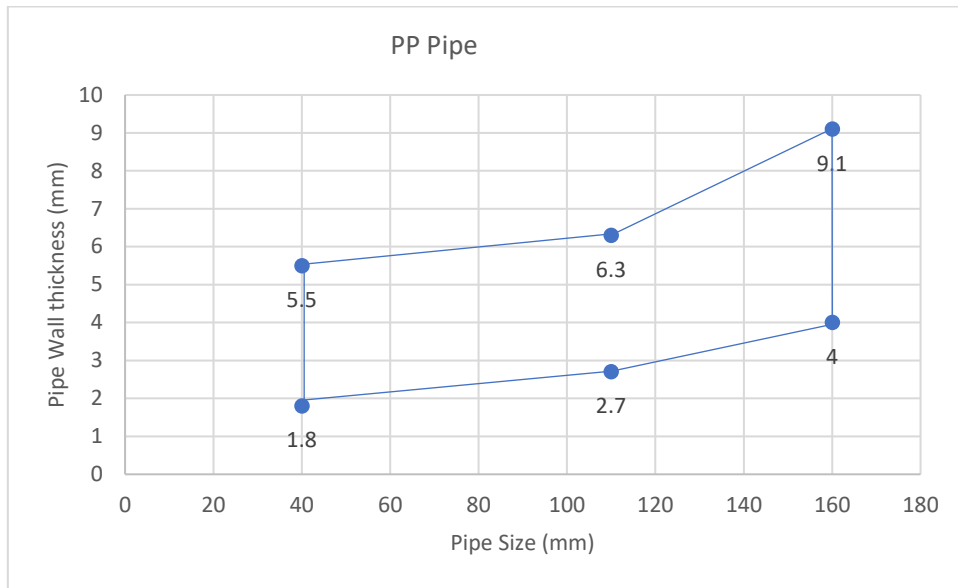
See graphs for pipe wall thickness interpolated sizes

Pipe Wall thickness graphs: ROCKWOOL Insulated Firesleeve passing through SoftSeal

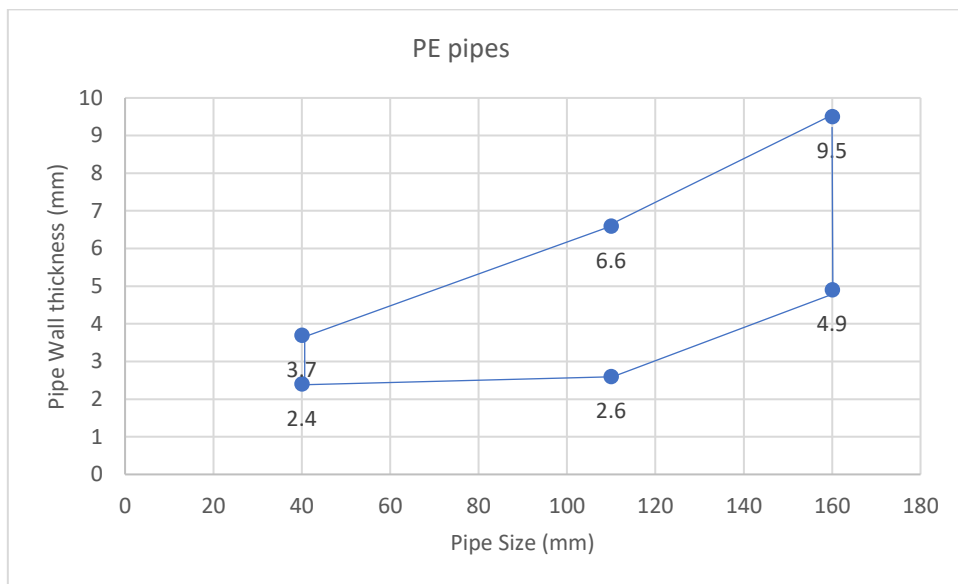
PVC-U & PVC-C



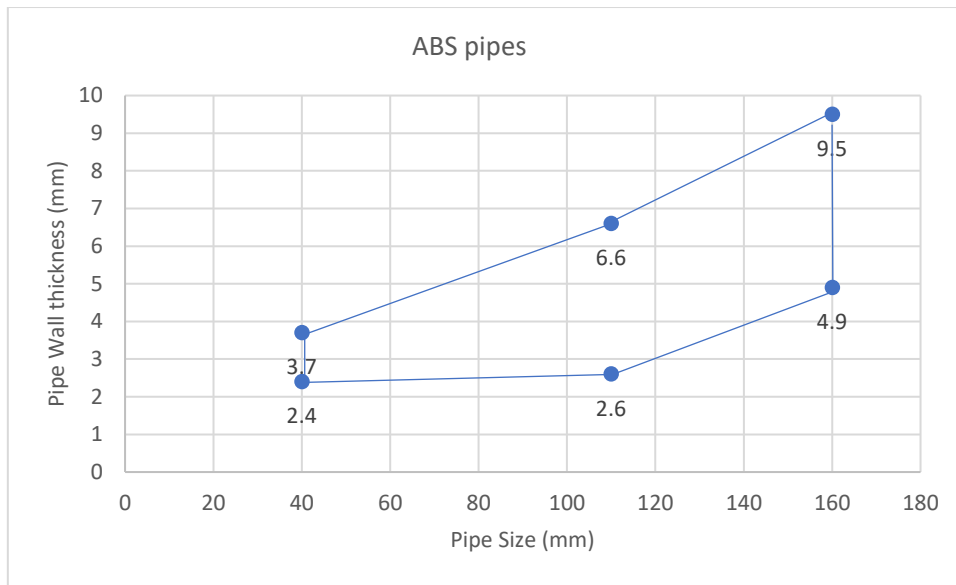
PP Pipes



PE Pipes



ABS Pipes



Steel Beams

Steel I Beams	Firestop type	Additional protection	Aperture edge distance	Service separation	Integrity (minutes)	Insulation (minutes)
< 457 x 152mm	SoftSeal (100mm)		0 (mm)	100 (mm)	120	45
< 457 x 152mm		FirePro 50mm Ablative Coated Batt, cut to size and secured around the beam. 300mm on each face		100 (mm)	120	120

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Annex B – Supporting Evidence

List of Primary Evidence referred to

Warringtonfire Test Report

Report No.: BMT/FEP/F15207

Test Specimen:

150mm thick Eurobond Rockspan/Firemaster modular partition

Standards:

BS EN 1364-1: 2015

This report relates to the use of 150mm thick Eurobond Rockspan/Firemaster modular partition in providing fire resistance of 120 minutes as defined in BS EN 1363-1 :2020 and shows the expected deflection of the system.

Test Sponsor : Eurobond Laminates Ltd (permission provided)

Test Date : 21st August 2015

Warringtonfire Test Report

Report No.: WF 431646

Test Specimen:

ROCKWOOL FIREPRO® SoftSeal in 100mm thick Eurobond Firemaster partition

Standards:

BS EN 1366-3: 2009

This report relates to the use of ROCKWOOL FIREPRO® SoftSeal in providing fire resistance of upto 120 minutes as defined in BS EN 1363-1 :2012 when installed in a 100mm thick Eurobond Firemaster partition. It also proves the performance of Cool-Fit 2.0 pipes, IBar Busbar system and EZ-Path Series 44+ Pathway detailed in section 3 of this assessment.

Test Sponsor : Euroclad Group Ltd (permission provided)

Test Date : 17th August 2020

Report Prepared For: ROCKWOOL Limited

Project: 4790921776

Report No.: 4790921776-1 Issue 2

Warringtonfire Test Report

Report No.: WF 411471/R

Test Specimen:

ROCKWOOL FIREPRO® SoftSeal in 100mm thick flexible construction

Standards:

BS EN 1366-3: 2009

This report relates to the use of metallic and plastic pipe services installed through ROCKWOOL FIREPRO® SoftSeal in providing fire resistance of up to 120 minutes as defined in BS EN 1363-1 :2012.

Test Sponsor : ROCKWOOL Ltd

Test Date : 13th December 2019

Warringtonfire Test Report

Report No.: WF 411470/R

Test Specimen:

ROCKWOOL FIREPRO® SoftSeal in 100mm thick flexible construction

Standards:

BS EN 1366-3: 2009

This report relates to the use of cPVC Blazemaster pipes installed through ROCKWOOL FIREPRO® SoftSeal in providing fire resistance of 90 minutes as defined in BS EN 1363-1 :2012.

Test Sponsor : ROCKWOOL Ltd

Test Date : 18th December 2019

Report Prepared For: ROCKWOOL Limited

Project: 4790921776

Report No.: 4790921776-1 Issue 2

Warringtonfire Classification Report

Report No.: 371988B

Product Covered:

ROCKWOOL FIREPRO® SoftSeal in 100mm thick rigid or flexible construction

Standards:

EN 13501-2: 2007 + A1: 2009

This report relates to the use of cables and cable carriers installed through ROCKWOOL FIREPRO® SoftSeal in providing fire resistance of up to 120 minutes as defined in BS EN 1363-1 :2012.

Report Sponsor : ROCKWOOL Ltd
Issue Date : 27th September 2016

Warringtonfire Test Report

Report No.: WF 411457/R

Test Specimen:

Various pipe penetrations sealed with Firepro Insulated Fire Sleeves in 100mm thick flexible construction

Standards:

BS EN 1366-3: 2009

This report relates to the critical pipes used to justify the coverage of plastic pipes detailed in Annex A of this assessment report.

Test Sponsor : ROCKWOOL Ltd
Test Date : 24th July 2019

Report Prepared For: ROCKWOOL Limited

Project: 4790921776

Report No.: 4790921776-1 Issue 2

Warringtonfire Test Report

Report No.: WF 521525/R

Test Specimen:

ROCKWOOL FIREPRO® SoftSeal in a 150mm thick Eurobond 'Firemaster/Rockspan' partition

Standards:

BS EN 1366-3: 2021

This report relates to a blank ROCKWOOL FIREPRO® SoftSeal and service transit system passing through ROCKWOOL FIREPRO® SoftSeal in a 'Eurobond Firemaster/Rockspan' wall and is used to justify the maximum seal size and coverage of EZ-Path Series 44+ Pathway detailed in the Assessment section this report.

Test Sponsor : ROCKWOOL Ltd

Test Date : 26th August 2023

Warringtonfire Test Report

Report No.: WF 521527/R

Test Specimen:

Various cable and steel section penetrations installed through ROCKWOOL FIREPRO® SoftSeal in a 100mm thick flexible construction

Standards:

BS EN 1366-3: 2021

This report relates to cable and steel section penetrations used to justify the coverage of cables/cable carriers and steel beams in Annex A of this assessment report.

Test Sponsor : ROCKWOOL Ltd

Test Date : 1st December 2022

Report Prepared For: ROCKWOOL Limited

Project: 4790921776

Report No.: 4790921776-1 Issue 2

Warringtonfire Test Report

Report No.: WF 517980/R

Test Specimen:

Various cables and metallic pipe penetrations installed through ROCKWOOL FIREPRO® SoftSeal in a 102mm thick flexible construction

Standards:

BS EN 1366-3: 2021

This report relates to metallic pipe penetrations used to justify the coverage of metallic pipe penetrations in Annex A of this assessment report.

Test Sponsor : ROCKWOOL Ltd

Test Date : 3rd May 2022

Warringtonfire Test Report

Report No.: WF 411468/R

Test Specimen:

ROCKWOOL FIREPRO® SoftSeal in 100mm thick flexible construction

Standards:

BS EN 1366-3: 2009

This report relates to the use of metallic pipe services installed through ROCKWOOL FIREPRO® SoftSeal in providing fire resistance of up to 120 minutes as defined in BS EN 1363-1 :2012.

Test Sponsor : ROCKWOOL Ltd

Test Date : 13th December 2019

Report Prepared For: ROCKWOOL Limited

Project: 4790921776

Report No.: 4790921776-1 Issue 2

Annex C – Declaration by the Applicant

Reference No.

We the undersigned confirm that we have read and complied with the obligations placed on us by
the Passive Fire Protection Forum (PFPF)

**Guide to undertaking technical assessments and
engineering evaluations based on fire test evidence**

2021

Industry Standard Procedure

We confirm that any changes which are the subject of this assessment have not to our knowledge
been tested to the standard against which this assessment has been made.

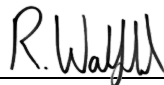
We agree to withdraw this assessment from circulation should the component or element of
structure, or any of its component parts be the subject of a failed fire resistance test to the standard
against which this assessment is being made.

We understand that this assessment is based on test evidence and will be withdrawn should evidence
become available that causes the conclusion to be questioned. In that case, we accept that new test
evidence may be required.

We are not aware of any information that could affect the conclusions of this assessment. If we
subsequently become aware of any such information, we agree to ask the assessing authority to
withdraw the assessment.

(in accordance with the principles of FTSG Resolution 82)

Signature:



Name:

Rob Wakefield

Position:

Fire Certification

Company:

ROCKWOOL

Date:

06.01.2024
