
Title:

Smoke control test for door and shutter assemblies, when tested to the principles of with EN 1634-3: 2004.

Single Leaf, Single Acting Doorset – Threshold seal and fire stopping foam only

Date Of Test:

09/11/2023

Issue Date:

21/03/2024

WYC Report No:

WYC538106/AR1

Prepared for:

C.C.E Srl

Villa del Conte
Via Dell'Artigianato,
16 35010 PD
Italy



Approved Body No: 1314

AR1 Information

The details of the sponsor of the original test report WYC538106 are held on file by Warringtonfire. This report is additional to that issued originally as WYC538106/AR1 and dated 6th March 2024. The original report shall remain valid and is not replaced by the additional report.



Quality Management

Version	Date	Information about the report	
1	21 March 2024	Description	Final issue
		Prepared by	Authorised by
		Name	Rudy Bell-Bishop
		Signature	Lee Grant-Riach
			
			

Signed for and on behalf of Warringtonfire Testing and Certification Limited

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Results of Test: WYC538106/AR1/Test 1

C.C.E Srl

Villa del Conte

Via Dell'Artigianato

16 35010 PD

Italy

This document confirms that performance testing was conducted on 09/11/2023. Testing was conducted to the principles of BS EN 1634-3: 2004 Incorporating corrigendum № 1: 2007 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 3: Smoke control test for door and shutter assemblies.

The following results were achieved:

Product tested	Single Leaf Single Acting Doorset		
Test Detail	Fire Door Foam™ Only – Pre 100,000 cycles		
Summary of testing procedure			Result
BS EN 1634-3: 2004	Pressure (Pa)	Leakage (m³/h)	Leakage (m³/m/h)
Results under positive chamber (door leaf opening away from chamber)	50	0.32	N/A
	25	0.26	N/A
	10	0.20	N/A
Results under negative chamber (door leaf opening away from chamber)	50	0.32	N/A
	25	0.21	N/A
	10	0.20	N/A

Testing was carried out at ambient temperature only. The temperature of the test chamber was measured using a calibrated digital thermometer before and after testing.

This test was to determine the leakage rate of the fire stopping foam only. The total length of fire stopping was 5.148m



Issued by:
Rudy Bell-Bishop
Technical Officer



Authorised by:
Lee Grant-Riach
Advanced Technical Officer
Issue date: 21st March 2024

Warringtonfire Testing and Certification Ltd.

Laboratory address: Chiltern House Stocking Lane, Hughenden Valley, High Wycombe, HP14 4ND, UK.

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Results of Test: WYC538106/AR1/Test 2

C.C.E Srl
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16 35010 PD
Italy

This document confirms that performance testing was conducted on 09/11/2023. Testing was conducted to the principles of BS EN 1634-3: 2004 Incorporating corrigendum № 1: 2007 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 3: Smoke control test for door and shutter assemblies.

The following results were achieved:

Product tested	Single Leaf Single Acting Doorset		
Test Detail	Fire Door Foam™ and threshold seal only – Pre 100,000 cycles		
Summary of testing procedure			Result
BS EN 1634-3: 2004	Pressure (Pa)	Leakage (m³/h)	Leakage (m³/m/h)
Results under positive chamber (door leaf opening away from chamber)	50	1.72	1.86
	25	1.03	1.11
	10	0.40	0.43
Results under negative chamber (door leaf opening away from chamber)	50	1.51	1.63
	25	0.93	1.00
	10	0.40	0.43

Testing was carried out at ambient temperature only. The temperature of the test chamber was measured using a calibrated digital thermometer before and after testing.

This test was to determine the linear leakage rate of the threshold seal including fire stopping foam leakage. The total length of fire stopping was 5.148m

The perimeter length of the threshold seal was 0.926m



Issued by:
Rudy Bell-Bishop
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Results of Test: WYC538106/AR1/Test 3

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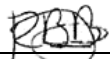
This document confirms that performance testing was conducted on 14/11/2023. Testing was conducted to the principles of BS EN 1634-3: 2004 Incorporating corrigendum № 1: 2007 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 3: Smoke control test for door and shutter assemblies.

The following results were achieved:

Product tested	Single Leaf Single Acting Doorset		
Test Detail	Fire Door Foam™ only – Post 100,000 cycles		
Summary of testing procedure			Result
BS EN 1634-3: 2004	Pressure (Pa)	Leakage (m³/h)	Leakage (m³/m/h)
Results under positive chamber (door leaf opening away from chamber)	50	0.44	N/A
	25	0.31	N/A
	10	0.20	N/A
Results under negative chamber (door leaf opening away from chamber)	50	0.64	N/A
	25	0.41	N/A
	10	0.20	N/A

Testing was carried out at ambient temperature only. The temperature of the test chamber was measured using a calibrated digital thermometer before and after testing.

This test was to determine the leakage rate of the fire stopping foam only. The total length of fire stopping was 5.148m



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Results of Test: WYC538106/AR1/Test 4

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Italy

This document confirms that performance testing was conducted on 14/11/2023. Testing was conducted to the principles of BS EN 1634-3: 2004 Incorporating corrigendum № 1: 2007 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware – Part 3: Smoke control test for door and shutter assemblies.

The following results were achieved:

Product tested	Single Leaf Single Acting Doorset		
Test Detail	Fire Door Foam™ and threshold seal only – Post 100,000 cycles		
Summary of testing procedure			Result
BS EN 1634-3: 2004	Pressure (Pa)	Leakage (m³/h)	Leakage (m³/m/h)
Results under positive chamber (door leaf opening away from chamber)	50	1.10	1.19
	25	0.83	0.90
	10	0.40	0.43
Results under negative chamber (door leaf opening away from chamber)	50	1.28	1.38
	25	0.82	0.89
	10	0.40	0.43

Testing was carried out at ambient temperature only. The temperature of the test chamber was measured using a calibrated digital thermometer before and after testing.

This test was to determine the linear leakage rate of the threshold seal including fire stopping foam leakage. The total length of fire stopping was 5.148m



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Rudy Bell-Bishop
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1 Introduction

In Accordance with CERTIFIRE Technical Schedule TS21 the specimen was initially tested to BS EN 1634-3:2004 incorporating corrigendum no. 1 on 9th November 2023.

The Specimen was subjected to 100,000 cycles according to the CERTIFIRE Technical Schedule TS21 test method from 9th November 2023 to the 14th of November 2023.

On completion of the cycles, the specimen was again tested BS EN 1634-3:2004 incorporating corrigendum no. 1 on 14th November 2023.

The specimen was configured as a single leaf single acting doorset. The specimen installed opening out of the chamber. In Accordance with BS EN 1634-3: 2004 section 10.1.1, the leaf was pre-cycled before the smoke leakage test (See section 5.1 for further details).

2 Specimen verification

The doorset was delivered to the Warringtonfire smoke leakage laboratory on 8th November 2023 . The component parts of the specimen were identified based on nominal information provided by the sponsor. These details are outlined in the specimen construction section of this report (section 5).

2.1 Conditioning

The specimen was made from hygroscopic/non-hygroscopic materials and was conditioned for at least 24 hours at an average temperature between 18°C and 25°C. Relative humidity was between 51% and 65%.

2.2 Sampling

See Appendix 1 for sampling report.

Thee results apply to the sample as received.

3 Description of supporting construction

The partition was constructed of nominal 90mm x 45mm timber studs at 600mm centres with one layer of 12.5mm plasterboard on each face. The stud wall is taken to be of a standard wall construction.

The specimen was fixed with 4No. 5 x 80 screws per jamb.

4 Test Equipment

Description
Scientific Monitor
Tape Measure
Callipers
Laminar Flow element:
Mass Flow Meter
Pressure Transducer
Force Gauge

5 Description of Specimen Construction

Door frame

1. Door frame	
Manufacturer	Birmingham Joinery Ltd
Reference	42719
Material	Hardwood Sapele
Density	640 Kg/m ³
Moisture content	8.6%
Overall frame size	2078 mm high x 992 mm wide
Frame section size (Head)	91 mm wide x 30 mm thick
Frame section size (Jambs)	91 mm wide x 30 mm thick
Stop size	32 mm wide x 13 mm deep
Jamb to Head jointing method, fixing detail and location	Trench Lapped Joint, Glued + Screwed
Stop to Frame jointing method, fixing detail and location	40mm Steel Blad nails
Presence of Adhesives	Yes
<ul style="list-style-type: none"> Manufacturer 	Anchor Bond
<ul style="list-style-type: none"> Type 	D3 PVA

2. Frame Fixing Method to Supporting Construction

Manufacturer	Timco
Reference	50100 Solo 2
Type & material	Carbon Steel Zinc + Clear Pass
Overall size	5 mm diameter x 100 mm long
Spacing	150 mm from top corner of jamb, 150mm from bottom corner of jamb and at no more than Equal centres
Does the fixing penetrate intumescent seal within frame reveal	No, Intumescent Removed + Replaced
Packing Material	Timco Flat Packers
Packing Material Dimension	28mm x 30mm x 100mm
Packing Material Location	Fixing locations

3. Intumescent to frame reveal (1)

Quantity	1 No.
Manufacturer	Lorient Polyproducts Ltd
Reference	LP1504 DS
Material	PVC Encapsulated Sodium Silicate 6,7
Section size	15 mm wide x 4 mm thick with 4 mm high
Application method	Self-adhesive
Location within frame reveal	8 mm from the opening face
Presence of Adhesives	Yes – Integral to the seal

4. Intumescent to frame reveal (2)

Quantity	1 No.
Manufacturer	Lorient Polyproducts Ltd
Reference	LP1504
Material	PVC Encapsulated Sodium Silicate 6,7
Section size	15 mm wide x 4 mm thick
Application method	Self-adhesive
Location within frame reveal	47 mm from the opening face
Presence of Adhesives	Yes – Integral to the seal

Fire stopping

5. Frame to supporting construction fire stopping detail for Doorset A	
Manufacturer	Fire and Acoustic Seals Ltd
Reference	FAS 750G Orange V1
Material	Fas Fire Door Foam
Overall dimension	Full depth of the frame. See section 6.4 for width details No mastic cap applied
Application method	PU Foam Applicator Gun

Door leaf

6. Door Leaf	
Manufacturer (blank)	Falcon Timber
Reference	Stredor
Quantity of leaves on doorset	1 No.
Glazing bead location relative to the head and closing edge	123 mm from the head of the leaf and 123 mm from the closing edge of the leaf
Overall leaf size supplied for testing	926 mm wide x 2040 mm high x 54 mm thick
7. Lippings / Edge banding	
Manufacturer	Birmingham Joinery Ltd
Reference	42719
Material	Sapele
Density	640 kg/m ³
Moisture content	9%
Overall size	54 mm wide x 10 mm thick
Fixing method	PUR Glue
Location	All four edges
Presence of Adhesives	Yes
<ul style="list-style-type: none"> • Manufacturer 	Henkel
<ul style="list-style-type: none"> • Type 	Technomelt
<ul style="list-style-type: none"> • Reference 	HKP27 PUR
<ul style="list-style-type: none"> • Application method 	Holt Melt – Edge Bander
Presence of Mechanical Fixings	No

Hardware

8. Hinges	
Supplier	Zoo
Reference	ZHSS23RS3
Quantity	3 No.
Primary material	Stainless Steel
Type	Butt Hinge
Size	
<ul style="list-style-type: none"> knuckle 	14 mm Ø x 107 mm high
<ul style="list-style-type: none"> blades 	101 mm high x 30 mm wide
Fixings	
<ul style="list-style-type: none"> type 	As Supplied with hardware
<ul style="list-style-type: none"> sizes 	4.5 mm Ø x 31 mm long
<ul style="list-style-type: none"> number off per blade 	4 No.
Position of each hinge relative to the head of the leaf	150 mm, 927 mm and 1705 mm
Details of intumescent protection	Interdens behind both blades
Interruptions to Intumescent within the frame reveal	1 st seal is fully interrupted, 2 nd seal is not interrupted
9. Door Closer	
Manufacturer	Zoo
Reference	2/4 Overhead
Material	
<ul style="list-style-type: none"> Cover 	Stain Nickel
Configuration	Overhead
Overall size	
<ul style="list-style-type: none"> Cover 	76 mm high x 262 mm wide x 42 mm deep
Fixing method	As per manufacturer's instructions

10. Drop Down Seal	
Manufacturer	C.C.E
Reference	Trend
Material	6060 T6 Aluminum Alloy
• Seal	Co. Soft Tubular Seal
Overall size	
• Body	20 mm high x 12 mm wide x 926 mm long
Fixing method, type and locations	Screws 3.5 x 30mm
Location within leaf	Centrally fitted
Maximum operating drop	14mm
11. Lockset / Latch	
Manufacturer	Hoppe
Reference	AR8100 – R - SSS
Material	
Overall sizes	
• Central Lockcase	165 mm high x 16 mm wide x 85 mm deep
• Forend plate	235 mm high x 24 mm wide x 2 mm thick
Fixing method	3 No. screws, 3.8 mm Ø x 25 mm long
Operation of latch bolt	Handle
Operation of lock bolt	Key to Key
Details of intumescent protection	
• Central lockcase	1 mm MAP
• Forend plate	1 mm MAP
Location of centre of the bolts relative to the bottom of the leaf	Latch bolt – 1024 mm Lock bolt – 994 mm

12. Keeps	
Overall sizes	
<ul style="list-style-type: none"> Centre Strike Plate and Keep 	168 mm high x 24 mm wide x 1.5 mm thick incorporating a 54 mm high x 16 mm wide tongue. Total width at tongue 40 mm
Fixing method	3 No. screws
Details of intumescent protection	1 mm MAP
Interruptions to Intumescent within the frame reveal	1 st seal fully interrupted. 2 nd seal is partially interrupted leaving 7 mm remaining
13. Cylinder	
Manufacturer	Zoo
Reference	VIER V5EP80DSCE
Overall size	33 mm high x 17 mm wide x 80mm long
14. Lever handles	
Manufacturer	F P Herings
Reference	Hertings SR100CP Dart Lever Latch on Rose
Material	Zintec
Overall size	115 mm long x 16 mm wide on a 51 mm Ø x 11 mm thick rose with a total projection 67 mm
Fixing method, fixing material, sizes, quantity and location	Bolts, 4 mm Ø As Supplied with Hardware
Details of intumescent protection	None
15. Escutcheon	
Overall size	53 mm Ø x 7 mm thick
Location	Around the cylinder
Fixing method	2 No. screws, 3.5 mm Ø
Details of intumescent protection	None

Glazing

16. Glass	
Manufacturer / Supplier	AGC
Reference (Declaration of Performance)	Pyrobelite 12
Unit overall size	770 mm high x 145 mm wide x 12 mm thick
Aperture location relative to the head and closing edge of the leaf	127 mm from the head of the leaf and 127 mm from the closing edge of the leaf
Sight size	725 mm high x 100 mm wide
17. Beading	
Manufacturer	Birmingham Joinery Ltd
Reference	Birm02
Material	Sapele
Density	640 kg/m ³
Moisture content	8 %
Overall size	32 mm wide x 22 mm thick
Fixing method, fixing material and sizes	Pinned 60mm Steel Pins
Fixing distances from corners, centres and angle relative to the face of the glass	25 mm from corners, 150 mm centres and at 35 ° to the face of the glass
18. Glazing Lining / Intumescent liner / Wet mastic system	
Manufacturer	Dixon International
Reference	Therm-A-Line
Overall size	54 mm high x 2 mm thick
Fixing method	Self Adhesive
Glazing Tape to Bead	Sealmaster Intumescent Glazing Tape 20mm x 5mm S/A

6 Pre-test measurements

6.1 Pre-test Conditioning

Prior to testing, the doorsets were subjected to appropriate mechanical pre-test conditioning in accordance with the requirement of BS EN 16034. Specifically, the pre-cycle requirement within Annex A.2.2:

Operability Pre-cycling

Minimum angle of opening:	90°
Number of operation cycles completed:	25

Specimen Self-Closing

Angle of Measurement	10°±2°
Closing speed	135m/s

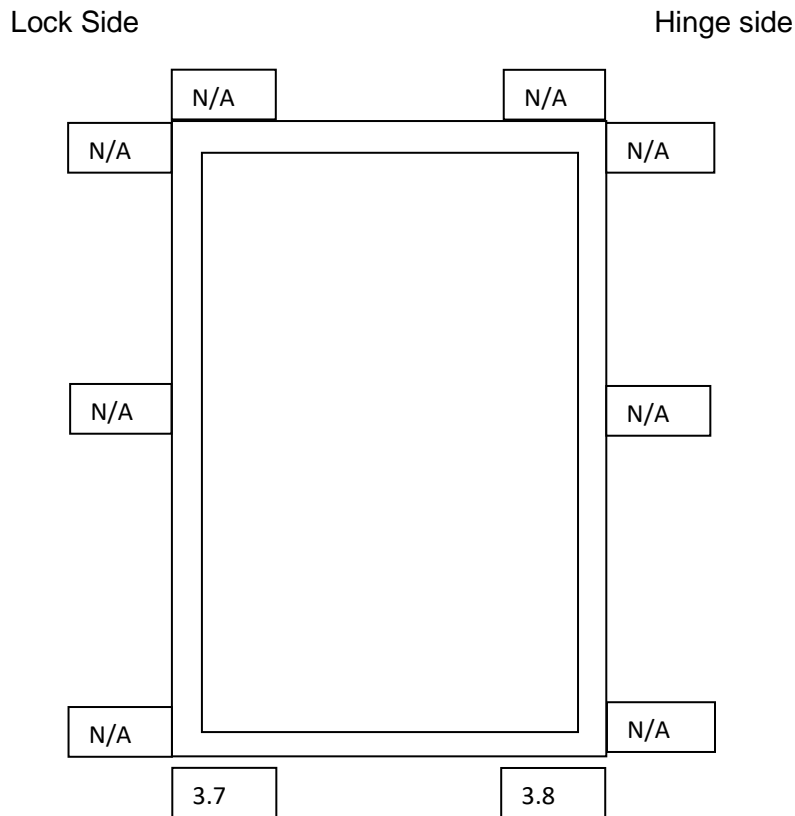
6.2 Retention forces

Measured in accordance with BS EN 1634-3: 2004 section 10.1.2.

Opening Forces
28N at handle position

6.3 Leaf/frame gaps Single Leaf

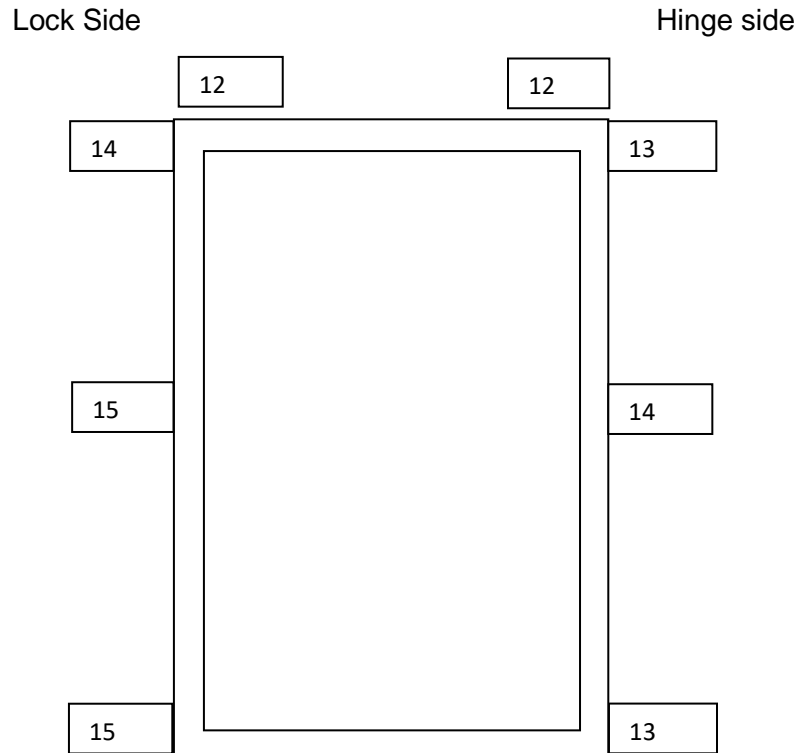
The gaps were measured before testing commenced – See diagram below (Gaps were measured within 20mm from corners and at the centre of stiles) – All measurements given in mm.



**threshold seal tested only. Perimeter seals were 'taped' for all tests*

6.4 Frame/supporting construction gaps Single Leaf

The gaps were measured before testing commenced – See diagram below (Gaps were measured within 20mm from corners and at the centre of stiles) – All measurements given in mm.



7 Limitations

- The results only relate to the behaviour of the specimen submitted for test, as described in the Technical Specification (section 5), and under the particular conditions of test.
- The results are not intended to be the sole criteria for assessing the smoke leakage performance of the element in use nor do they necessarily reflect the actual behaviour once installed on site.
- The specification and interpretation of test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over 5 years old should be considered by the user. Warringtonfire will be able to offer a review of the procedures adopted for a particular test to ensure that they are consistent with current practices.
- The results are solely for use by the sponsor and the stated purpose.
- The sponsor cannot rely on information provided without consent from Warringtonfire.
- Any recommendations are specific to the assignment and the sponsor.
- Extracts from the report are not permitted.

8 Field of direct application of test results

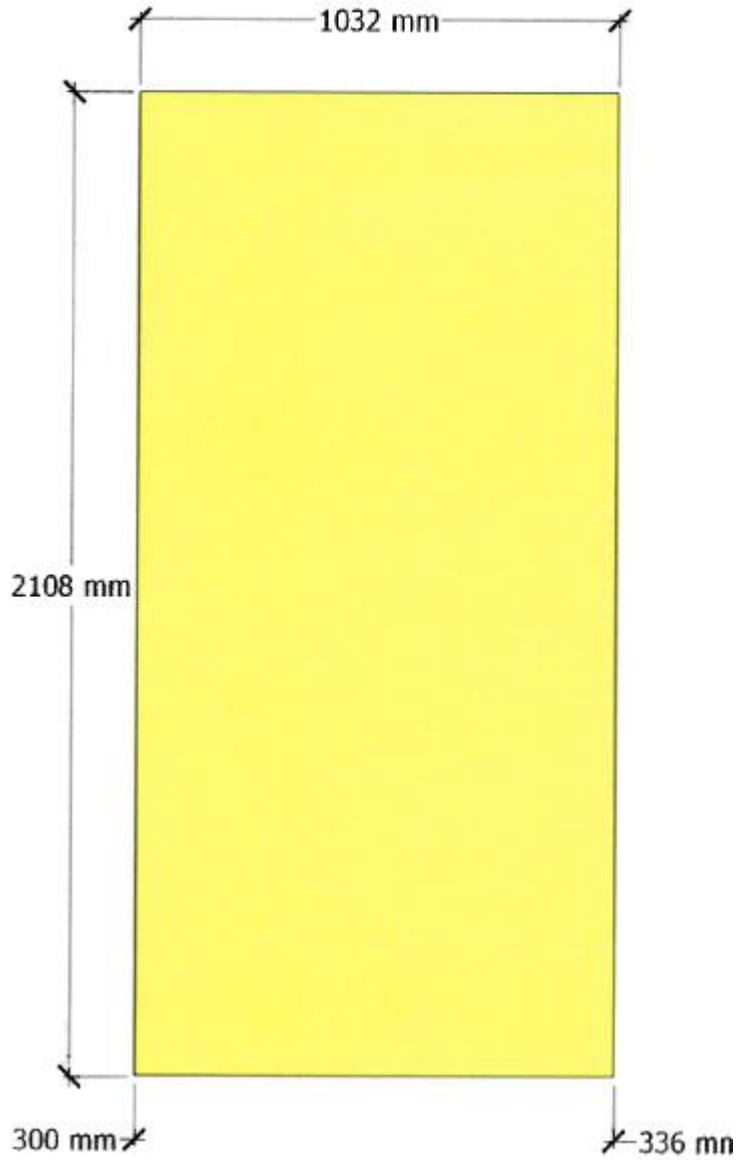
The results of the test are directly applicable to similar constructions where one or more of the changes listed in BS EN 1634-3: 2004, Clause 13, are made and the construction continues to comply with that appropriate design code for its stiffness and stability. Other changes are not permitted by the document. A copy of the field of direct application is available from Warringtonfire upon request.

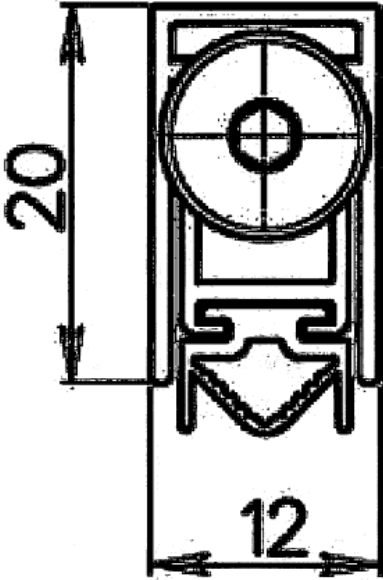
Appendix 1 – Sampling Report (13 pages)

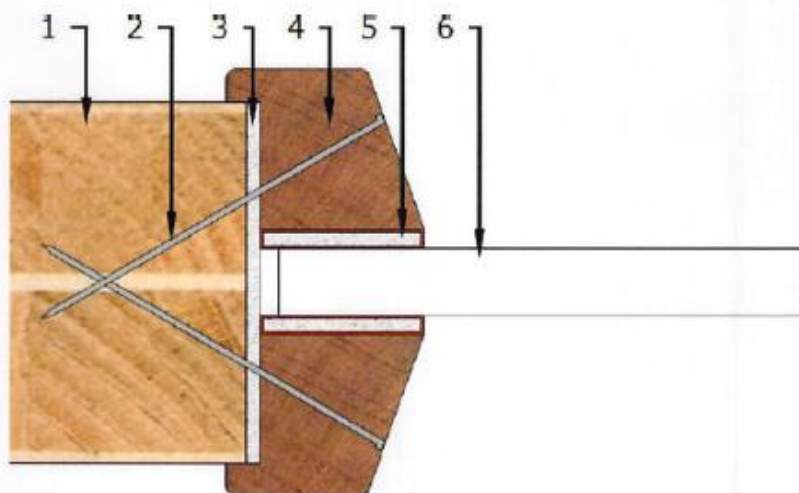


Appendix 2 – Sponsors Drawings (6 pages)

- Drawings not verified by Warringtonfire



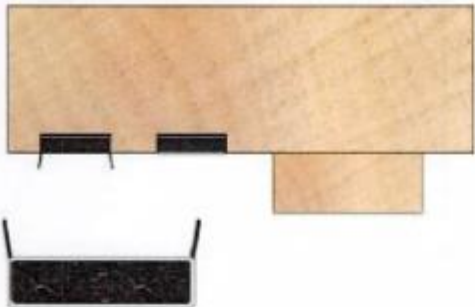




INSTALLATION DETAIL – 42719

NOT TO SCALE

1. 54MM MDF STREDOR DOOR CORE
2. 60MM LONGE STEEL PINS AT 35degrees, 150MM CENTRES
3. 54 X 2MM THERM-A-LINE APETURE LINING
4. BIRM02 22X32MM SAPELE HARDWOOD 7 X 5MM BOLLECTION RETURN
GLAZING BEADS AROUND GLAZING APETURES ON BOTH FACED
5. 20 X 5MM SEALMASTER INTUMESCENT GLAZING TAPE FITTED ON THE
FACE OF EACH GLAZING BEAD
6. 12MM PYROBELITE GLASS



Lorient LP1504DS

JOB CARD

Page 1

PLEASE CHECK ALL ATTACHED PAPERWORK

Fire & Acoustic Seals Ltd

Order No 42719
Order Date 01/11/2023
Customer Ref Fire Test
Account Ref CASHAC

Qty Ordered	Product Code	Product Description
2.00	S3	<p>2040 x 926 x 54mm Stredor MDF Faced c/w 10mm Sapele Hardwood lippings to all 4 edges using PUR glue c/w 770 x 145 (glass size) 12mm Pyrobelite glazed vision panel 22 x 32mm (BIRM02) Sapele Hardwood Glazing bead with 20 x 5mm Sealmaster Intumescent glazing tape to bead faces Aperture lined with 54 x 2mm Thermaline Glazing bead retained in position with 60mm long steel pins at 35° at 150mm centres (VP positioned - 127 down & in) Machined for CCE Trend Drop seal (20 x 12mm) fixed with 38 x 3mm Diameter Screws Machined for 3no Zoo (ZHSS243RS3) hinges (TMB) - R/H Interdens Radius Hinge pads Machined & fitted with Hoppe AR8100-R-SSS Sashlock & AR/60 Lock Intumescent Pack (WF377027 Revision A)</p>

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Author: Rudy Bell-Bishop
Sponsor: C.C.E Srl

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Page 2

PLEASE CHECK ALL ATTACHED PAPERWORK

Fire & Acoustic Seals Ltd

Order No 42719
Order Date 01/11/2023
Customer Ref Fire Test
Account Ref CASHAC

Qty Ordered	Product Code	Product Description
2.00	S3	<p>Pre-hung - 3mm Undercut 90 x 30mm MDF frame liner & 32 x 12mm MDF Frame stops Trenched/lapped joint, glued & screwed with 3no 80mm M5 screws per joint Machined & fitted with 3no Zoo (ZHSS243RS3) hinges (TMB) - R/H & Interdens Radius Hinge pads Machined & fitted with Hoppe AR8100-R-SSS Sashlock Keep & AR/60 Lock Intumescent Pack (1000mm up) c/w Lorient Plain 15 x 4 White Intumescent seal & Lorient 15 x 4 White Dual Seal FAS35 Perimeter Seal white around stop/rebate</p> <p>Supplied with Zoo 2/4 Overhead Door Closer - Satin Nickel 19mm RTD Lever Handle (ZCS030S) FDKS (2)</p>

Delivery Address
Chiltern House site
Stocking Lane
Hughenden Valley
High Wycombe
HP14 4ND

Despatch Date
08/11/2023

Order Taken By
JoeG

All Products marked FSC are FSC Mix
70% unless otherwise stated.
TT-COC-002882

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