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Title

Field of Application for:

The Falcon Timber Ltd, Front Entrance Doorset Range of Doorsets in Timber Based Frames

For 30 minutes Fire Resistance

&

Ambient Temperature Smoke Control

Report No.:

WF525209

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Prepared for:

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The version/revision stated on the front of this Field of Application supersedes all previous versions/revisions and must be used to manufacture doorsets from the stated validity date on this front cover. Previous revisions of the Field of Application cannot be used once an updated Field of Application has been issued under a new revision.

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1 Foreword

This Field of application report has been commissioned by Falcon Timber Ltd and relates to the fire resistance and ambient temperature smoke control performance of the doorset designs contained herein, to achieve a minimum of 30 minutes fire resistance performance when tested to BS 476: Part 22: 1987 as well as maintain a leakage rate less than $3m^3/m/h$ at 25Pa (Pascals) of pressure, if the designs were tested in accordance with BS 476: Part 31.1: 1983.

The report is for National Application and has been written in accordance with the general principles outlined in BS EN 15725.

This Field of Application (scope) uses established empirical methods of extrapolation and experience of fire and smoke testing similar doorsets, in order to extend the scope of application by determining the limits for the designs based on the tested constructions and performances obtained. The scope is an evaluation of the potential fire resistance and ambient temperature smoke control performance if the variations specified herein were to be tested in accordance with BS 476-22: 1987 and BS 476-31.1: 1983, respectively.

This scope document cannot be used as supporting documentation for either a UKCA or CE marking application nor can the conclusion be used to establish a formal classification against EN13501-2.

This Field of Application has been written using appropriate test evidence generated at UKAS accredited laboratories, to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturers stated door design and is summarised in section 3.

The scope presented in this report relates to the behaviour of the proposed door design variations under the particular conditions of the test(s); it is not intended to be the sole criterion for considering the potential fire or smoke hazard of the door assembly in use.

This Field of Application has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the Passive Fire Protection Forum (PFPF) *'Guide to Undertaking Technical Assessments of the Fire Performance of Construction Products Based on Fire Test Evidence'.* The aim of the PFPF guidelines is to give confidence to end-users that assessments that exist in the UK are of a satisfactory standard to be used for building control and other purposes.

The drawings provided in this report are for guidance and illustrative purposes only. Please note that the written scope of application takes precedence.

2 Proposal

It is proposed to consider the fire resistance and ambient temperature smoke control performance of the Falcon Timber Ltd, front entrance doorset designs, for:

- 30 minutes fire resistance integrity performance (and where appropriate insulation performance), if the doorset designs were to be tested to the requirements of BS 476-22: 1987, *Methods for determination of the fire resistance of non-loadbearing elements of construction.*
- The ability for the designs to maintain a leakage rate less than 3m^3/m/h at 25Pa (Pascals) of pressure, if the tested samples were tested in accordance with BS 476: Part 31.1: 1983, *Fire tests on building materials and structures – Part 31.1: Method for measuring smoke penetration through doorsets and shutter assemblies* with the threshold un-taped and sealed with the threshold sealing system that has been tested with the doorset design.

The field of application defined in this report is based on the fire resistance and ambient temperature smoke control test evidence for the doorset design, which is summarised in section 3. Analysis of specific construction details that require assessment are given within this report against the relevant element of construction, as appropriate. For the purpose of this assessment the lowest common performance will be established in order to allow for interchangeability and extension of the product family.

Whilst specific items are included within this Field of Application report that may be used to provide additional performance characteristics (such as acoustics for example), it is beyond the remit of this Field of Application report to provide scope for performance characteristics other than fire resistance integrity, insulation, and ambient temperature smoke control. Any other performance requirement for the door designs contained herein is to be subject to a separate analysis.

2.1 Assumptions

- All timber densities referred to in this document are based upon an assumed moisture content of 12%.
- It is assumed that unless otherwise documented in the field of application sections of this report, the doorset subject to this report will be constructed in accordance with the test evidence referred to herein.
- For components created using solid timber sections referred to in this assessment, it is assumed that, for all timbers, they will be of a quality deemed to meet or exceed class J30 as specified in BS EN 942: 2007, subject to adequate repairs, other than glazing beads which must meet a minimum class J10. Note that areas under intumescent seals/gaskets are not considered to be concealed faces and defects must be repaired.
- Where timber is referred to within this document it is assumed that the timber element is made from a continuous solid piece, unless specifically detailed otherwise.
- All dimensions detailed herein may be varied by ±2% except where minimum, maximum or a range of dimensions are given.
- Where morticed items of hardware are used (within the leaf or frame) it is assumed that the preparation for such items are tight to the item (and where applicable intumescent protection) as tested with no excessive gaps, unless stated otherwise within a particular section of this report.

3 Test Data

The test evidence summarised below has been generated to support the fire resistance and ambient temperature smoke control performance of the door designs that are the subject of this field of application. The summary details are the key aspects of the design tested.

Note:

1. Dimensions are in mm unless otherwise stated.
2. Abbreviations: (h) = height; (w) = width; (t) = thickness; (d) = deep: (l) = long.
3. Latches fitted but disengaged for the test, are reported as 'unlatched'.

The test evidence has been generated in a single leaf, single acting doorset configuration, including glazed apertures and fanlights.

3.1 Primary Fire Resistance Test Evidence

Some of the evidence below as summarised has been generated to BS EN 1634-1, which is known to be more onerous than the BS 476: Part 22: 1987 standard, primarily due to the use of plate thermocouples within the furnace to record the furnace temperature.

The same time temperature curve is used to control the temperature within the furnace for both test methods (the heating curve given within ISO 834-1). However, the plate thermocouple used to record the temperature within the furnace for the EN test method, requires a longer thermal exposure to read the same temperature as the probe thermocouple that is used for the BS 476: Part 22: 1987 test, particularly during the early stages of the test. Furthermore, the neutral pressure regime is positioned lower relative to the specimen height in a European fire door test, therefore resulting in greater relative positive pressure conditions than those expected in a BS 476-22: 1987 test, which has the potential to increase hot gases and flaming on the unexposed side. These factors result in more onerous test conditions for doorsets tested to the BS EN 1634-1 test standard compared with the BS 476: Part 22: 1987 test standard, which has been demonstrated by testing the same products to both standards.

It is therefore the opinion of Warringtonfire that the evidence citied in the following section, tested to both named standards referenced above can be utilised in this assessment which will conclude in terms of the fire resistance performance of the Falcon Timber Ltd doorset designs if tested in accordance with BS 476: Part 22: 1987.

3.1.1 Test Report WF416690 Issue 2

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested element provides evidence for the door leaf size, apertures within the leaf and various hardware items.

Date of Test:	8th August 2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	**Both Doorsets:** Stredor© 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open out away from the heating conditions of the test. **Doorset B** – Open in towards the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of Warringtonfire under contract reference WF416656 on 31/07/19.
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2153mm (h) x 933mm (w) x 44mm (t) Falcon Panel Products Ltd, Stredor 44 EV Ply: **Inner Facing:** Poplar Ply, 4.6 (t), 510kg/m3, **Outer Facing:** EV Venner, 0.4 (t), 600 kg/m3, **Inner Core:** Poplar Ply, 4 (t), 510 kg/m3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 15 (t) x 28 (w), 480 kg/m3, **Lipping:** Sapele, 640kg/m^3, 10 (t) applied to all edges. **Frame:** Sapele, 621kg/m^3, 80 (d) x 44(w) including a 12 (h) x 33 (w) integral stop. **Frame Fixing:** 5No. Steel wood screws applied to each vertical jamb, 500 max centres. **Fire Stopping:** Rockwool RWA 45 mineral fibre fully filling the void with Everbuild Fire Sealant 300 Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Pyroplex Ltd, 8500, Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Norseal Ltd, NOR710, PVC smoke seal, 11 (w) x 10 (d), fitted against the stop. Norseal, NOR810S, aluminium drop down seal with PVC and co-extruded seal 20 (h) x 12 (w). **Architrave:** MDF, 45 (w) x 18 (t) fitted to the exposed face only. **Hardware:** 3No. Zoo Ball Bearing Butt Hinges, ZHSS234RS Hoppe, AR1500 surface mounted overhead closer. ERA SureFire Classic 2 hook multi-point Door Lock ERA 1X000 Stainless Steel Handle set. ERA Fab&Fix Nu Mail Door Letterplate ERA Fab&Fix Spyhole ERA PVCu/Timber Door Chain 791-65 ERA Fab&Fix Door Numerals – FFNUM8BC

	ERA Ingot Door Knocker – 4A550 **Hardware Protection:** **Hinges:** 1(t) MAP applied to each blade. **Multi-point latch:** Sealed Tight Solutions Ltd, 1 (t) graphite type intumescent applied to each face of all lock bodies, 1 (t) graphite intumescent under all keep locations, 1 (t) graphite type intumescent applied lining the forend. (Branded as Flexifire Universal SureFire Multipoint Lock Kit) **Letterplate:** 2No. wraps of Sealed Tight Solutions Ltd. 40 (w) x 2 (t) Graphite type intumescent **Viewer:** 0.5 (t) graphite type intumescent supplied with spyhole. **Glazing:** **Glass (Both Apertures):** Fireglass UK, Pyrobelite 9EG, 11 (t) **Upper Aperture:** **Sight Size:** 960 (h) x 205 (w) **Aperture Size:** 990 (h) x 230 (w) **Lower Aperture:** **Sight Size:** 610 (h) x 205 (w) **Aperture Size:** 638 (h) x 230 (w) **Beading:** Sapele, 685kg/m^3, 21 (h) x 19 (d) including a 6 x 6 bolection return and a 15-degree chamfer **Bead Fixings:** Steel pins, 50 (l) at 50 from corners and 145 centres at 25-35 degrees to the face of the glass. **Glazing System:** Sealmaster, Black Glazing Tape (BGT) 10 (w) x 4 (t) applied between the glass and the bead on both faces. **Latching Status:** Engaged	
Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 34 minutes **Insulation:** 33 minutes
	Doorset B	**Integrity:** 50 minutes **Insulation:** 29 minutes

3.1.2 Test Report WF416689

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	7th August 2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	**Both Doorsets:** Strebord 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open out away from the heating conditions of the test. **Doorset B** – Open in towards the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of Warringtonfire under contract reference FM405514 & FM416657 on 30/10/18 & 01/08/19 respectively.
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2200mm (h) x 949mm (w) x 44mm (t) Falcon Panel Products Ltd, Strebord, 44 (t), 609-615kg/m^3 **Lipping:** American White Ash, 587-644kg/m^3, 8 (t) applied to all edges. **Frame:** American White Ash, 697-703kg/m^3, 95 (d) x 44(w) including a 12 (h) x 47 (w) integral stop. **Frame Fixing:** 4No. Steel wood screws applied to each vertical jamb, 600 max centres. **Fire Stopping:** 6-15 (w) Rockwool RWA 45 mineral fibre fully filling the void with Mann McGowan Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Pyroplex Ltd, 8500FO, Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Raven Seals, RP120, smoke seal, 12 (w) x 12 (d), fitted against the stop. Norseal, NOR810S, aluminium drop down seal with PVC and co-extruded seal 20 (h) x 13 (w). **Architrave:** MDF, 45 (w) x 18 (t) fitted to the exposed face only. **Hardware:** 3No. Arrone Bearing Butt Hinges, AR8182 Arrow, 324BP surface mounted overhead closer. Winkhaus AV2, multi-point lock ERA Fortress Europrofile cylinder Eurospec lever type handle, CSL-1194 Eurospec escutcheon CSE1006 D & E Architectural Hardware Ltd, D & E 3850 Ultrascope viewer. **Hardware Protection:** **Hinges:** 1(t) Sealed Tight Solutions Ltd graphite applied to each blade. **Multi-point latch:** Lorient Polyproducts Ltd, AV2 kit, 1 (t) applied to latch bodies & under keeps, Exitex, Exi-Fire graphite, 0.8 (t) fitted under the latch forend. **Viewer:** 0.5 (t) Sealed Tight Solutions Ltd graphite applied to the viewer. **Latching Status:** Engaged

Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 46 minutes **Insulation:** 46 minutes
	Doorset B	**Integrity:** 47 minutes **Insulation:** 47 minutes

3.1.3 Test Report WF414162

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	14th May 2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	**Both Doorsets:** Strebord© 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open out away from the heating conditions of the test. **Doorset B** – Open in towards the heating conditions of the test.
Sampling information:	None available – Initial type test – prototype
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2045mm (h) x 925mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Strebord 44, 630-635kg/m^3, 44 (t) **Lipping:** Ash, 710kg/m^3, 10 (t) applied to vertical edges only. **Decorative Inserts:** Ash fitted horizontally 50 form top edge of the leaf and at 200mm centres, 10 (w) x 10 (t), including a 3 x 3 “V” Groove. **Frame:** Ash, 710kg/m^3, 143 (d) x 32 (w) plus a 15 (h) x 48 (w) planted stop. **Frame Fixing:** 3No. Steel wood screws applied to each vertical jamb, 600 max centres. **Fire Stopping:** Rockwool mineral fibre fully filling the void with Mann McGowan Pyromas A Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 1No. Pyroplex Ltd, 8500 & 1No. Pyroplex Ltd, 30150 Graphite box seals, 10 (w) x 4 (t) fitted 10 apart 8 from the opening face of the frame. Lorient Polyproducts Ltd LAS 1206, weather seal, 14 (w) fitted to the upstand of the stop. **Hardware:** 3No. Royde and Tucker Hi-Load 207 Bearing Butt Type Hinges Arrone AR7383 Concealed Overhead Type Closer. Winkhaus AV3 Autofire Multipoint lock Serozzetta Plaza Stainless Steel Lever Type Handle complete with Smith and Locke Escutcheon ref 4378. Jedo Security viewer JV942 Royde and Tucker LP008 letterplate. **Hardware Protection:** **Hinges:** 1(t) Sealmaster graphite type intumescent applied to each blade.

	Closer: Arrone Intumescent kit, consisting of 2 (t) intumescent. **Multi-point latch:** 1 (t) Interdens encasing latch bodies & under keeps. **Letterplate:** Royde and Tucker LP008 Kit Supplied with Letterplate. **Eye Viewer:** Jedo JV942 Kit – Graphite type intumescent 1 (t) **Latching Status:** Engaged	
Test Standard:	BS 476-22: 1987	
Performance:	**Doorset A**	**Integrity:** 36 minutes **Insulation:** 36 minutes
	Doorset B	**Integrity:** 38 minutes **Insulation:** 38 minutes

3.1.4 Test Report WF419865

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for the door leaf size and various hardware items.

Date of Test:	07th November 2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Timber Ltd
Tested Product:	**Both Doorsets:** Strebord 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open in towards the heating conditions of the test. **Doorset B** – Open out away from the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of Warringtonfire under contract reference WF421086 on 05/11/19.
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2100mm (h) x 950mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Strebord 44, 44 (t) **Lipping:** Sapele, 8 (t) applied to vertical edges only. **Frame:** Poplar, 450kg/m^3, 100 (d) x 47 (w) with a 15 (h) x 53 (w) rebate. **Frame Fixing:** 4No. Steel wood screws applied to each vertical jamb, 600 max centres, 150 from corners **Fire Stopping:** Rockwool mineral fibre fully filling the void with Polyseam ASF Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 11 (w) x 5 (d) fitted to the upstand of the stop. Sealed Tight Solutions Ltd, ST422, aluminium drop down seal with neoprene/butyl seal, 20 (w) x 12 (t). **Hardware:** 3No. Hoppe, Arrone AR8182-SSS Ball Bearing Butt Type Hinges Dorma TS 92 surface mounted overhead closer ERA Surefire classic multi-point lock ERA Fortress 3* cylinder Lever on rose Consort Hardware CH100/G4 Sealed Tight Solutions Ltd, 4001 letterplate ERA Fab&Fix Spyhole **Hardware Protection:** **Hinges:** 1(t) STS 100x30R Sealed Tight Solutions Ltd graphite type intumescent applied to each blade. **Multi-point latch:** 1 (t) Flexifire Universal SureFire Multipoint Lock Kit, applied to all lock cases, forend and all keeps. **Letterplate:** Sealed Tight Solutions Ltd, ST302. **Viewer:** 1(t) Sealed Tight Solutions Ltd graphite type intumescent **Latching Status:** Engaged
Test Standard:	BS EN 1634-1: 2014+A1: 2018

Performance:	**Doorset A**	**Integrity:** 14 minutes **Insulation:** 14 minutes
	Doorset B	**Integrity:** 25 minutes **Insulation:** 25 minutes

Note: The above detailed test observed a failure of both doorsets local to the letterplate. The test was continued after the failure was recorded; no further failure was observed on either doorset until 34 minutes when doorset A failed a cotton pad test at the bottom closing corner. Therefore, it is the opinion of Warringtonfire that if the letterplate was not fitted to the doorsets would have achieved in excess of 30 minutes fire resistance performance. The letterplate as detailed within this test is not permitted for use with this doorset design.

3.1.5 Test Report WF421795

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	21st November 2019
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	**Both Doorsets:** Strebord 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open in towards the heating conditions of the test. **Doorset B** – Open out away from the heating conditions of the test.
Sampling information:	None available – Initial type test – prototype
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2100mm (h) x 950mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Strebord 44nominally 590kg/m^3, 44 (t) **Lipping:** Sapele, 640kg/m^3, 8 (t) applied to all edges. **Frame:** Poplar, nominally 510kg/m^3, 100 (d) x 47 (w) with a 15 (h) x 53 (w) rebate. **Frame Fixing:** 4No. Steel wood screws applied to each vertical jamb, 600 max centres **Fire Stopping:** Rockwool mineral fibre fully filling the void with Sealed Tight Solutions Ltd, ST88 Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 11 (w) x 5 (d) fitted to the upstand of the stop. Sealed Tight Solutions Ltd, ST422, aluminium drop down seal with neoprene/butyl seal, 20 (w) x 12 (t). **Hardware:** 3No. Consort, CF5511, Bearing Butt Type Hinges Dormakaba TS93 surface mounted overhead closer. Winkhaus AV3 Autofire Multipoint lock ERA Fortress 3* Europrofile cylinder

	Consort Hardware, Lever on Rose, CH100/G4 Consort Hardware, escutcheon CH311/8/316 DESWALAF EI30 viewer Royde and Tucker LP008 letterplate complete with cowl. **Hardware Protection:** **Hinges:** 1(t) Sealed Tight Solutions Ltd, graphite type intumescent applied to each blade. **Multi-point latch:** 1 (t) Interdens encasing latch bodies & under keeps. **Letterplate:** Royde and Tucker LP008 Kit Supplied with Letterplate. **Eye Viewer:** Sealed Tight Solutions Ltd, 1 (t), graphite. **Latching Status:** Engaged	
Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 35 minutes **Insulation (I_2):** 35 minutes
	Doorset B	**Integrity:** 38 minutes **Insulation (I_2):** 38 minutes

3.1.6 Test Report WF426419

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for apertures within the leaf and various hardware items.

Date of Test:	27th February 2020
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	**Both Doorsets:** Stredor 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open in towards the heating conditions of the test. **Doorset B** – Open in towards the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of Warringtonfire under contract reference FM424838 on 11/02/20 & 12/02/20.
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2399mm (h) x 1047mm (w) x 44mm (t) **Doorset A:** Falcon Panel Products Ltd, Stredor: **Inner Facing:** Poplar Ply, 4.6 (t), nominally 510kg/m^3, **Outer Facing:** EV Venner, 0.4 (t), nominally 510kg/m^3, **Inner Core:** Poplar Ply, 4 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 15 (t), nominally 480kg/m^3. **Doorset B:** Falcon Panel Products Ltd, Stredor: **Inner Facing:** Poplar Ply, 1.4 (t), nominally 510kg/m^3, **Outer Facing:** Beech Venner, 0.4 (t),

	Inner Core: Poplar Ply, 2.1 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.15 (t), nominally 480kg/m^3, **Both Doorsets:** **Lipping:** Sapele, 715kg/m^3, 10 (t) applied to all edges. **Decorative Beading:** Profiled & square edged European redwood, 70 (w) x 19 (t), nominally 510kg/m^3, glued with PU (D4) & pinned with 30mm pins. **Frame:** European redwood, nominally 510kg/m^3, 69.5 (d) x 44(w) including a 15 (h) x 22.5 (w) integral stop. **Frame Fixing:** 5No. Steel wood screws applied to each vertical jamb, 140-180 from corners at no greater than 600 max centres **Fire Stopping:** Rockwool FLEXI mineral fibre fully filling the void with Mann McGowan Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 11 (w) x 5 (d) fitted to the upstand of the stop. Sealed Tight Solutions Ltd, ST422, aluminium drop down seal with neoprene/butyl seal, 20 (w) x 12 (t). Sealed Tight Solutions Ltd, STH004, aluminium threshold. **Hardware:** 3No. Eurospec Ball Bearing Butt Hinges, HIN 1433/13 Astra, 4003 Jamb mounted concealed closer ERA SureFire Heritage 2 hook multi-point Lock ERA Fortress 3* cylinder ERA Fab&Fix, Heritage Europrofile cylinder pull. Sealed Tight Solutions Ltd, 4008 viewer. **Hardware Protection:** **Hinges:** 1(t) Sealed Tight Solutions Ltd applied to each blade. **Closer:** Sealed Tight Solutions Ltd, 1 (t) graphite lining aperture. **Multi-point latch:** Sealed Tight Solutions Ltd, ERA Surefire Intumescent Kit, 1 (t) graphite type intumescent applied to each face of all lock bodies, 1 (t) graphite intumescent under all keep locations. **Viewer:** 1 (t) Sealed Tight Solutions Ltd, graphite type intumescent. **Glazing:** **Glass:** Pilkington, Pyrostop, 15 (t) **Aperture:** **Glass Size:** 1530 (h) x 390 (w) **Aperture Size:** 1540 (h) x 400 (w) **Beading:** Sapele, nominally 640kg/m^3, 22 (h) x 19 (d) including a 6 x 6 bolection return and a 15-degree chamfer **Bead Fixings:** Steel pins, 50 (l) at 50 from corners and 150 centres at 35 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 302 trimmed to 15 (w) x 2 (t) applied lining the glazed aperture & Sealed Tight Solutions Ltd, STS ST 105-3, compressible closed cell foam tape, 9 (w) x 3 (t) applied between the glass and the bead on both faces. **Latching Status:** Engaged
Test Standard:	BS EN 1634-1: 2014+A1: 2018

Performance:	**Doorset A**	**Integrity:** 35 minutes **Insulation (I_2):** 35 minutes
	Doorset B	**Integrity:** 41 minutes **Insulation (I_2):** 41 minutes

3.1.7 Test Report WF428987 AR1

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for apertures within the leaf and various hardware items.

Date of Test:	02nd June 2020
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	**Both Doorsets:** Stredor 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open out away from the heating conditions of the test. **Doorset B** – Open in towards the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of BM TRADA under contract reference SC20096-1 & SC20096-2 on 29/05/20 – 02/06/20 and sampled by a representative of Warringtonfire under contract reference ID607840 on 17/10/19.
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2399mm (h) x 1047mm (w) x 44mm (t) **Doorset A:** Falcon Panel Products Ltd, Stredor: **Inner Facing:** Poplar Ply, 1.4 (t), nominally 510kg/m^3, **Outer Facing:** Beech Venner, 0.4 (t), **Inner Core:** Poplar Ply, 2.1 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.5 (t), nominally 480kg/m^3, **Doorset B:** Falcon Panel Products Ltd, Stredor: **Inner Facing:** Poplar Ply, 1.75-3.6 (t), nominally 510kg/m^3, **Outer Facing:** Engineered Venner, 0.4 (t), **Inner Core:** Poplar Ply, 2.1 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 16.95-18.8 (t), nominally 480kg/m^3 **Both Doorsets:** **Lipping:** Sapele, 8 (t) applied to vertical and bottom edges, 18 (t) applied to the top edge. **Frame:** Sapele, nominally 640kg/m^3, 70 (d) x 44(w) including a 15 (h) x 47 (w) rebate. **Frame Fixing:** 5No. Steel wood screws applied to each vertical jamb, 155 from corners at no greater than 600 max centres. **Fire Stopping:** Rockwool FLEXI mineral fibre fully filling the void with Mann McGowan Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face.

<table>
<tr><td></td><td colspan="2">Intumescent and Weather Control Seals:
2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal.
Sealed Tight Solutions Ltd, ST1009 weather seal, 10 (w) x 9 (d) fitted to the upstand of the stop.
Exitex, RITB MXS 15/2 aluminium extruded threshold, 9.5 x 47, bedded on Mann McGowan Pyromas A intumescent mastic.
Hardware:
3No. Rutland, RH.BB.43R.SS Stainless Steel Bearing Butt Type Hinges
Rutland ITS 11204, Overhead concealed cam action door closer
Doorset A: ERA SureFire Heritage 2 hook multi-point Lock
Doorset B: ERA SureFire Classic multi-point lock
Access 2, Tigris Premier 3 cylinder
Lorient Polyproducts Ltd, RJ008 letterplate
Rutland HA12338 viewer
Hardware Protection:
Hinges: 1(t) Rutland hinge packers applied to each blade.
Closer: Rutland IP.114 Intumescent kit for ITS11204.
Multi-point latch: Flexifire Universal SureFire Multipoint Lock Kit
Letterplate: Intumescent kit supplied with Lorient Polyproducts Ltd RJ008 letterplate
Viewer: 1 (t), graphite type intumescent.
Glazing:
Glass: Pilkington, Pyrostop 30-10, 15 (t)
Aperture:
Glass Size: 1530 (h) x 390 (w)
Aperture Size: 1540 (h) x 400 (w)
Beading: Sapele, nominally 640kg/m^3, 23 (h) x 17.5 (d) including a 6 x 8 bolection return and a 15-degree chamfer
Bead Fixings: Steel screws, 50 (l) at 50 from corners and 150 centres at 35 degrees to the face of the glass.
Glazing System: Sealed Tight Solutions Ltd, STS 302, 30 (w) x 2 (t) applied lining the glazed aperture & Sealed Tight Solutions Ltd, STS ST 105-3, compressible closed cell foam tape, 10 (w) x 3 (t) applied between the glass and the bead on both faces.
Latching Status: Engaged</td></tr>
<tr><td>Test Standard:</td><td colspan="2">BS EN 1634-1: 2014+A1: 2018</td></tr>
<tr><td rowspan="2">Performance:</td><td>Doorset A</td><td>Integrity: 31 minutes
Insulation: 31 minutes</td></tr>
<tr><td>Doorset B</td><td>Integrity: 41 minutes
Insulation: 41 minutes</td></tr>
</table>

3.1.8 Test Report WF432578 Issue 1

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for the door leaf size, single apertures within the leaf and various hardware items.

Date of Test:	02nd September 2020
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	**Both Doorsets:** Stredor® 44 – latched (3P), single leaf, single acting configuration.
Tested Orientation:	**Doorset A** – Open in towards the heating conditions of the test. **Doorset B** – Open out away from the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of BM TRADA under contract reference SC20148 on 28/08/2020.
Summary of Test Specimen:	**Both Doorsets:** **Leaf Size:** 2040mm (h) x 926mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Stredor 44: **Inner Facing:** Poplar Ply, 4.6 (t), 510kg/m^3, **Outer Facing:** Beech Venner, 0.4 (t), 600 kg/m^3, **Inner Core:** Poplar Ply, 1.8 (t), 510 kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 16 (t), 480 kg/m^3, **Lipping:** Sapele, 640kg/m^3, 8 (t) applied to all edges. **Decorative Mouldings:** Sapele, 70mm wide x 19mm thick, applied with PVA adhesive & 25mm long pins **Doorset and Fanlight Frame:** European Redwood, 529kg/m^3, 80 (d) x 44(w) including a 15 (h) x 33 (w) integral stop. **Threshold:** Stormguard, Low height Macclex – Thermally broken, 62 x 15mm complete with 2No. seals, sealed to the rear of the jambs with FireWizard fire rated acrylic sealant. **Frame Fixing:** 4No. 100mm long Steel wood screws applied to each vertical jamb, 600 max centres **Fire Stopping:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Lorient Polyproducts Ltd, LP1004, PVC encased sodium silicate box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Schlegel, Aquamac 21, 9.1 x 10.7, kerf fitted into the stop. **Hardware:** 3No. Eurospec Ball Bearing Butt Hinges, HIN 1433/13 Rutland TS9205 surface mounted overhead closer. Yale Lockmaster autoengage 2LB Classic 45mm Yale Platinum 3* Cylinder Yale 0757-2003-CH-CH Inline Lever Yale Postmaster Professional Letterplate Yale DH000768 Viewer Yale B-WS6-20-SC

	Yale Swis721BT-Numbers Yale 0716-2001-Contemporary-Knocker-No-Spyhole Stormguard, 32mm Aluminium Rain Deflector. Sealed Tight Solutions Limited, ST422GT Drop down seal **Hardware Protection:** **Hinges:** 1(t) Interdens applied to each blade. **Multi-point latch bodies & keeps:** 1(t) Interdens encased **Letterplate:** As supplied with letterplate assembly. **Viewer:** 0.5 (t) graphite type intumescent supplied with spyhole. **Fanlight Glazing:** **Glass:** Fireglass UK, Pyrobelite, 8mm spacer bar, 6.8mm Low E Laminated Glass, 26.8 overall (t) **Aperture Size:** 650 (h) x 932 (w) **Expansion Allowance:** 3mm **Beading:** Sapele, nominally 640kg/m^3, 15 (h) x 15 (d) including a 2 x 2 quirk **Bead Fixings:** Steel pins, 50 (l) x Ø2mm at 50 from corners and 140 centres at 45 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 104, 10 (w) x 4 (t) applied between the glass and the bead on both faces. **Glazing liner:** Sealed Tight Solutions Ltd, STS 302 Liner, 30 (w) x 2 (t) applied lining the glazed aperture. **Intumescent applied to rear of fanlight frame:** 2No. Sealed Tight Solutions Ltd, STS154FO, applied to the top of the fanlight frame only 15mm from each face of the frame. **Latching Status:** Engaged	
Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 46 minutes **Insulation:** 46 minutes
	Doorset B	**Integrity:** 45 minutes **Insulation:** 42 minutes

3.1.9 Test Report WF513906 Issue 2

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for the door leaf size, apertures within the leaf and various hardware items.

Date of Test:	27th January 2022
Identification of Test Body:	Warringtonfire Testing and Certification Ltd. UKAS No. 1762
Sponsor:	Falcon Timber Ltd
Tested Product:	**Doorset A:** Strebord 54 – latched (1P), single leaf, single acting configuration. Doorset B: Stredor 44 – latched (3P), single leaf, single acting configuration with sidelight and fanlight
Tested Orientation:	**Doorset A** – Open in towards the heating conditions of the test. **Doorset B** – Open in towards the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of BM TRADA under contract reference SC21182 on 07/01/2022 & SC22003 on 24/01/22.
Summary of Test Specimen:	**Doorset A:** **Leaf Size:** 1981mm (h) x 762mm (w) x 54mm (t) **Core:** Falcon Panel Products Ltd, Strebord 54: **Lipping:** Strelip, 767kg/m^3, 10 (t) applied to all edges. **Fire Stopping:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS 154FO, 15 (w) x 4 (t) fitted 10 apart centrally within the frame. Sealed Tight Solutions Ltd, ST1009K seal applied to the stop. **Hardware:** 3No. Royde & Tucker H208 Rutland TS11204 surface mounted overhead closer. ERA, DLSF-45-609-85B multi-point lock. ERA Fortress 3* BS-FOR-T3535-DC-1K cylinder Hafele HL03 Lever handles Hafele Lita Stainless Steel Escutcheon ERA Fab&Fix Nu Mail TS008 and cowl Sealed Tight Solutions Ltd STS4008 viewer Sealed Tight Solutions Limited, ST422GT Drop down seal **Hardware Protection:** **Hinges:** 1(t) Sealed tight Solutions Ltd, graphite applied to each blade. **Multi-point latch bodies & keeps:** 1(t) Sealed tight Solutions Ltd, graphite, 2mm applied to keeps. **Letterplate:** As supplied with letterplate assembly. Sealed Tight Solutions Ltd 50 x 2 graphite. **Viewer:** 1(t) Sealed tight Solutions Ltd, graphite **Glazing:** **Glass:** Fireglass UK, Pyrobelite 12 **Aperture Size:** 610 (h) x 160 (w) **Expansion Allowance:** 5mm

	Beading: Sapele, nominally 640kg/m^3, 23 (h) x 23 (d) including a 7 (h) x 5 (w) bolection **Bead Fixings:** Steel pins, 63 (l) x 16g at 50 from corners and 145 centres at 30 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 104SG, 10 (w) x 4 (t) applied between the glass and the bead on both faces. **Glazing liner:** Sealed Tight Solutions Ltd, STS 302 Liner, 30 (w) x 2 (t) applied lining the glazed aperture. **Latching Status:** Engaged **Doorset B:** **Leaf Size:** 2040mm (h) x 926mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Stredor 44 MDF: **Outer Facing:** MDF, 8 (t), nominally 700kg/m^3, **Inner Core:** Poplar Ply, 2.1 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 13 (t), nominally 480kg/m^3, **Lipping:** Strelip, 686-698kg/m^3, 8 (t) applied to all edges. **Frame:** Redwood, 80 (w) x 32 (t) with a 20 (w) x 12 (t) Stop **Cill:** Sapele, 140 (w) x 44 (t) **Fire Stopping:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS 104FO, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Sealed Tight Solutions Ltd, ST1009 seal applied to the stop. **Hardware:** 3No. Arrone Bearing Butt Hinges, AR8182 Rutland Responder 24 GU Secury Automatic VdS, Klasse A M101313 Multi-point lock Brisant Ultion DCBSC3530DT Cylinder Brisant Ultion 2* LCSS-LL handle Arrone 176 Fire Rated Door Viewer – AR539D-FR-PC Arrone Traditional Knocker – AR726K-PCH Arrone Face fix numerals – AR740-7-PCH **Hardware Protection:** **Hinges:** 1(t) Sealed tight Solutions Ltd, graphite applied to each blade. **Multi-point latch bodies & keeps:** 1(t) Sealed tight Solutions Ltd, graphite, 2mm applied to keeps. **Viewer:** 1(t) Sealed tight Solutions Ltd, graphite **Glazing:** **Leaf:** **Glass:** 26mm Pyroguard DGU consisting of 11mm Pyroguard 2 / 8mm Steel Spacer / 6.8mm Pyroguard 332 Acoustic Low E P1A glass. **Aperture Size:** 800 (h) x 238 (w) **Expansion Allowance:** 5.5mm **Beading:** Sapele, nominally 640kg/m^3, 25 (h) x 11 (d) including a 5 (h) x 5 (w) bolection and 20 degree splay **Bead Fixings:** Steel screws, 50 (l) x 4 at 50 from corners and 150 centres at 15 degrees to the face of the glass.

	Glazing System: Sealed Tight Solutions Ltd, STS 104SG, 10 (w) x 3 (t) applied between the glass and the bead on both faces. **Glazing liner:** Sealed Tight Solutions Ltd, STS 302 Liner, 30 (w) x 2 (t) applied lining the glazed aperture. **Fanlight & Sidelight:** **Glass:** 26mm Pyroguard DGU consisting of 11mm Pyroguard 2 / 8mm Steel Spacer / 6.8mm Pyroguard 332 Acoustic Low E P1A glass. **Fanlight Aperture Size:** 612 (h) x 1602 (w) **Sidelight Aperture Size:** 1126 (h) x 606 (w) **Expansion Allowance:** 5.5mm **Beading:** Sapele, nominally 640kg/m^3, 15 (h) x 15 (d) **Bead Fixings:** Steel screws, 40 (l) x 4 at 50 from corners and 150 centres at 15 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 104SG, 10 (w) x 3 (t) applied between the glass and the bead on both faces. **Glazing liner:** Sealed Tight Solutions Ltd, STS 302 Liner, 30 (w) x 2 (t) applied lining the glazed aperture. The bottom half of the sidelight include a fixed panel of the same construction as the leaf which included the same intumescent materials just applied to the lead edge. **Latching Status:** Engaged	
Test Standard:	BS 476-22: 1987	
Performance:	**Doorset A**	**Integrity:** 65 minutes **Insulation:** 65 minutes
	Doorset B	**Integrity:** 39 minutes **Insulation:** 39 minutes

3.1.10 Test Report CFR2110131

The referenced test report, the essential details of which are summarised below, is primary data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for the door leaf size, apertures within the leaf and various hardware items.

Date of Test:	13th October 2021
Identification of Test Body:	Cambridge Fire Research Ltd UKAS No. 4319
Sponsor:	Falcon Panel Products Limited
Tested Product:	Single Leaf, single acting doorset with glazed fanlight and sidelight.
Tested Orientation:	Open in towards the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of BM TRADA under contract reference SC21161 on 29/9/21.
Summary of Test Specimen:	**Leaf Size:** 2132mm (h) x 1047mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Stredor 44 Ply: **Inner Facing:** Poplar Ply, 1.4 (t), 510kg/m^3, **Outer Facing:** Venner, 0.4 (t), 600 kg/m^3, **Inner Core:** Poplar Ply, 2.1 (t), 520 kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.5 (t), 480 kg/m^3, **Lipping:** Utile, 640kg/m^3, 8 (t) applied to all edges. **Doorset Frame:** Redwood, 79 (d) x 41(w) including a 12 (h) x 30 (w) integral stop. **Fanlight & Sidelight Frame:** Redwood, 79 (d) x 45(w) including a 15 (h) x 30 (w) integral stop. **Cill:** Utile, 640kg/m^3, 139 (d) x 45(w). applied under doorset only. **Frame Fixing:** Door vertical edge fixed with 6No. 140mm long Steel wood screws applied to each vertical jamb, 530 max centres, fanlight and sidelight fixed to the supporting construction at 100 from corners and no greater than 500 centres. **Fire Stopping:** Void filled with Blue 60 fire rated foam and capped with Norseal Firewizard fire rated intumescent acrylic sealant. **Intumescent and Weather Control Seals:** 2No. Intumescent Seals Ltd, Therm-A-Seal, PVC encased graphite box seals, 10 (w) x 4 (t) fitted 11 apart centrally within the frame. Schlegel, Aquamac 21, 11 x 13.3 (uncompressed), kerf fitted into the stop. Exitex Ltd, MXS 15/2 RITB aluminium threshold complete with 2No. elastomeric seals & Intumescent Seals Ltd, Therm-A-Flex 23 (w) x 3 (t) graphite type intumescent applied to the platform of the threshold. The threshold was bedded on 2No, beads of intumescent mastic. **Hardware:** 3No. Eurospec Ball Bearing Butt Hinges, HIN 1433/13SSS/R Rutland TS9205 surface mounted overhead closer. Fullex Locks Ltd, SL16 Crimebeater multi-point lock UAP Kinetica KM561977 cylinder UAP nanocoast 243 aluminium lever type handle

	Lorient / UAP Soterian TS008-SLIM letterplate. UAP Firecheck Viewer – SWALF Satin Chrome UAP Narrow Door Chain – Satin Silver UAP 6 inch Victorian Urn UAP 3" Nanocoast Number 1 **Hardware Protection:** **Hinges:** 1(t) Intumescent Seals Ltd, Therm-A-Strip applied to each blade. **Multi-point latch bodies & keeps:** 1(t) Intumescent Seals Ltd, Therm-A-Strip applied to each blade. **Handleset:** 2 (t) Intumescent Sealed Ltd, Therm-A-Flex, graphite type intumescent applied to line the aperture of the fixings. **Letterplate:** As supplied with letterplate assembly. **Viewer:** 1 (t) Intumescent Sealed Ltd, Therm-A-Flex, graphite type intumescent applied to line the aperture. **Fanlight & Sidelight Glazing:** **Glass:** Fireglass UK, Pyrobelite 12 EW60 2(b)2 – 36dB, 8mm spacer bar, 6.8mm acoustic Laminated Glass, 26.8 overall (t) **Fanlight** **Aperture Size:** 387 (h) x 1717 (w) **Sight Size:** 355 (h) x 1688 (w) Sidelight **Aperture Size:** 2118 (h) x 609 (w) **Sight Size:** 2089 (h) x 576 (w) **Setting Blocks:** Glass Reinforced Gypsum 6 (h) x 50 (w) x 20 (d) applied 100mm from corners on the bottom edge. **Beading:** Sapele, 640kg/m^3, 22 (h) x 24 (d) including a 7 x 7 bolection and 16 degree chamfer. **Bead Fixings:** Steel pins, 50 (l) at 50 from corners and 200 centres at 30 degrees to the face of the glass. **Glazing System:** Sealmaster, Intumescent Foam Glazing Tape, 15 (w) x 5 (t) (uncompressed) fitted between the bead and the glass on both faces. **Glazing liner:** Sealmaster, Fireglaze Tape, 26 (w) x 2.5 (t) applied lining the aperture. **Glazing Sealant:** Dow Inc. Dowsil 799EU Neutral Silicone Sealant, applied capping the above detailed foam glazing tape. **Intumescent applied to rear of fanlight frame:** Norseal, Firewizard Fire Rated Intumescent Acrylic. **Latching Status:** Engaged
Test Standard:	BS EN 1634-1: 2014+A1: 2018
Performance:	**Integrity:** 49 minutes **Insulation:** 40 minutes

3.2 Supporting Fire Resistance Test Evidence

3.2.1 Test Report EFR-18-H-003671

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	15th November 2018
Identification of Test Body:	EFECTIS France, Voie Romaine, F-57280 Maizieres-Les-Metz. Certification body No: 1-1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	2No. Single Leaf Single Acting Doorsets.
Tested Orientation:	**Doorset A –** Towards the heating conditions of the test. **Doorset B –** Away from the heating conditions of the test.
Sampling information:	The doorsets subjected to testing were sampled by a representative of BM TRADA on 01/11/2018 under contract reference PS181001.
Summary of Test Specimen:	**Both Doorsets** **Leaf Size:** 1047 mm wide by 2402 mm high by 44mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Stredor® 44, 500kg/m^3 **Lipping:** 8mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Frame:** European Redwood door frame nominal density 510kg/m^3 (90 mm x 44mm including 47mm x 15mm rebate) **Frame Fixing:** 4No. Steel masonry fixings (6mm x 110mm), positioned local to each vertical jamb. **Intumescent and smoke control seals:** **Frame:** 2No. Sealed Tight Solutions Ltd, Graphite based, STS 104FO, 10 (w) x 4 (t) applied 10mm apart, 7mm from the opening face within the frame reveal. **Hardware:** **Hinge:** 3No. Royde & Tucker H207 hinges **Closer:** Astra 4000 series jamb mounted closer **Lock/Latch:** Multi-point lock, manufacturer not identified within the report. **Handle:** Stanza ZPZ090SC **Drop Down Seal:** Sealed Tight Solutions Ltd, STS 422 Mechanical Drop Seal **Viewer:** Sealed Tight Solutions Ltd, ST4008 **Hardware Protection:** **Lock/Latch:** Sealed Tight Solutions Ltd, Graphite, 1mm (t) applied to the centre lock body (encasing) **Top and bottom lock bodies:** Sealed Tight Solutions Ltd, Graphite, 1mm (t) applied to the centre lock body (encasing) **Lock/Latch Keep:** Sealed Tight Solutions Ltd, Graphite, 1mm (t) **Lock Forend:** Sealed Tight Solutions Ltd, Graphite, 10 (w) x 1mm (t) applied to the rebate of the locking system. **Drop Down Seal:** Sealed Tight Solutions Ltd, Graphite, 1mm (t) applied to each side within the leaf.

	Viewer: Sealed Tight Solutions Ltd, Graphite, 1mm (t) **Closer:** Sealed Tight Solutions Ltd, Graphite, 1mm (t) applied to forends and encasing closer body. **Glazing:** **Glass:** AGC Flat Glass, Pyrobelite 9EG, 12 thick **Aperture Size:** 1540 (h) x 400 (w) **Expansion Allowance:** 3mm **Glazing Liner:** Sapele, 640kg/m^3, 6 thick. **Beading:** Sapele, 640kg/m^3, 23 (h) x 19.5 (d) including an 6 x 6 bolection and a 15 degree chamfer. **Bead Fixing:** 50mm long steel screws **Glazing System:** Sealed Tight Solutions Ltd, STS 105GT-3-DS, 10mm wide x 3mm thick applied between the glass and the bead on both faces. **Latching arrangement:** Latched	
Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 36 minutes **Insulation:** 21 minutes
	Doorset B	**Integrity:** 36 minutes **Insulation:** 32 minutes

3.2.2 Test Report WF391843

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	11th November 2017
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Limited. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	2No. Single Leaf Single Acting Doorsets.
Tested Orientation:	**Both Doorsets –** Towards the heating conditions of the test.
Sampling information:	Prototype test – No sampling information available.
Summary of Test Specimen:	**Doorset A:** **Leaf Size:** 1050 mm wide by 2235 mm high by 44mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Strebord® 44, Particle Board, 540-660kg/m^3 **Lipping:** 6mm thick Solid Sapele. 640kg/m^3, applied on bottom, head and hanging edges. 18mm thick solid Sapele, 640kg/m^3, applied to the closing edge of the leaf. **Doorset B:** **Leaf Size:** 916 mm wide by 2140 mm high by 44mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Stredor® 44, consisting poplar ply inner core, 510kg/m^3, 2.1mm thick, Vertically orientated finger jointed spruce lamels outer core, 480kg/m^3, 18mm thick, Cross grain poplar inner facing, 510kg/m^3, 1.4mm thick & Long grain beech outer facing, 640kg/m^3, 0.6mm thick **Lipping:** 6mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Both Doorsets:** **Frame:** European Redwood door frame nominal density 510kg/m^3 (100 mm x 44mm including 52mm x 15mm rebate) **Frame Fixing:** 4No. Steel masonry fixings (5mm x 100mm), positioned local to each vertical jamb. **Fire Stopping Detail:** 10-15mm depth of Sealed Tight Solutions Ltd Intumescent mastic, ST88 to both faces. European Redwood architraves 45mm wide x 18mm thick applied to the exposed face 35 x 18mm to the unexposed face. **Intumescent and smoke control seals:** **Frame:** 2No. Sealed Tight Solutions Ltd, Graphite based, STS 104FO, 10 (w) x 4 (t) applied 8mm apart, 8mm from the opening face within the frame reveal. **Hardware:** **Hinge:** 3No. Royde & Tucker Hi-Load 101 Lift off hinges **Closer:** Astra 4000 series jamb mounted closer **Lock/Latch:** ERA Surefire MPL DLSF-609-45-85 **Handle:** Fab & Fix Balmoral Inline lever 1A000

	Cylinder: ERA 3* Fortress 70mm BS-FOR-3535-DC-1 **Hardware Protection:** **Lock/Latch:** Sealed Tight Solutions Ltd, Graphite, 1mm (t) applied to the centre lock body (encasing) **Top and bottom lock bodies:** None fitted, rebates were greater than required, section of European Redwood (1.8mm thick) was laminated to each face of the hook body. **Lock/Latch Keep:** Sealed Tight Solutions Ltd, Graphite, 1mm (t) **Glazing:** **Glass:** AGC Flat Glass, Pyrobelite, 12 thick **Aperture Size:** 784 (h) x 234 (w) **Expansion Allowance:** 3mm **Glazing Liner:** (Doorset A Only) Sapele, 640kg/m^3, 6 thick. **Beading:** Sapele, 640kg/m^3, 22 (h) x 21 (d) including an 8 x 7 bolection and a 16 degree chamfer. **Bead Fixing:** 40mm long steel pins, fitted at 7-17mm from corners at no greater than 150mm centres at 35 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 105GT-3-DS, 10mm wide x 3mm thick applied between the glass and the bead on both faces. **Latching arrangement:** Latched	
Test Standard:	BS 476-22: 1987	
Performance:	**Doorset A**	**Integrity:** 51 minutes **Insulation:** 36 minutes
	Doorset B	**Integrity:** 47 minutes **Insulation:** 39 minutes

3.2.3 Test Report WF401039

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	22nd June 2018
Identification of Test Body:	Warringtonfire, now trading as Warringtonfire Testing and Certification Limited. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	2No. Single Leaf Single Acting Doorsets.
Tested Orientation:	**Both Doorsets –** Towards the heating conditions of the test.
Sampling information:	Prototype test – No sampling information available.
Summary of Test Specimen:	**Doorset A:** **Leaf Size:** 1048 mm wide by 2408 mm high by 44mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Strebord 44 AV, Particle Board, 570-630kg/m^3 **Decorative Inserts:** Ash, 10 (w) x 10 (t), including a 5 deep "V" Groove. **Lipping:** 6mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Doorset B:** **Leaf Size:** 1048 mm wide by 2408 mm high by 54mm thick **Core:** 54mm thick, Falcon Panel Products Ltd, Strebord 54 AV, Particle Board, 570-630kg/m^3 **Lipping:** 6mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Doorset A:** **Frame:** Engineered European Redwood (finger jointed), 488kg/m^3 (90 mm x 44mm including 44mm x 11mm integral stop) **Frame Fixing:** 4No. Steel masonry fixings (5mm x 100mm), positioned local to each vertical jamb at no greater than 600 centres. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. MDF architraves 45mm wide x 18mm thick applied to the exposed face only. **Intumescent and smoke control seals:** **Frame:** 2No. Lorient Polyproducts Ltd, LP1004, Type 617, 10 (w) x 4 (t) applied 10mm apart, 6mm from the opening face within the frame reveal. Lorient Polyproducts Ltd, 8001SI, Drop down seal applied to the centre of the bottom edge of the leaf. **Hardware:** 3No. Zoo Architectural Hardware, Bearing Butt Hinges ZHSS243RS Rutland TS9205 surface mounted overhead door closer Glutz 1893 MINT steel Multi-point latch Glutz GC9991 eurocylinder

	Glutz Zurich 5088 handleset Glutz 5380C escutcheon Glutz GY3504 viewer **Hardware Protection:** **Hinge:** 1 (t) Lorient Polyproducts Ltd, MAP applied under each blade. **Lock/Latch:** 1 (t) Lorient Polyproducts Ltd Intumescent Kit for Glutz Mint 1893 lock 30 minute, MAP **Viewer:** 0.5 (t), Lorient Polyproducts Ltd graphite type intumescent **Doorset B:** **Frame:** Sapele, 640kg/m^3 (90 mm x 44mm including 33mm x 15mm integral stop) **Frame Fixing:** 4No. Steel masonry fixings (5mm x 100mm), positioned local to each vertical jamb at no greater than 600 centres. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. MDF architraves 45mm wide x 18mm thick applied to the exposed face only. **Intumescent and smoke control seals:** **Frame:** 2No. Lorient Polyproducts Ltd, LP1504, Type 617, 15 (w) x 4 (t) applied 10mm apart, 7mm from the opening face within the frame reveal. Lorient Polyproducts Ltd, 8001SI, Drop down seal applied to the centre of the bottom edge of the leaf. **Hardware:** 3No. Royde & Tucker H207 Bearing Butt Type Hinges Geze Boxer 2-4 Concealed Overhead Closer Glutz 1893 MINT steel Multi-point latch Glutz GC9991 eurocylinder Glutz Zurich 5088 handleset Glutz 5380C escutcheon Glutz GY3504 viewer **Hardware Protection:** **Hinge:** 1 (t) Lorient Polyproducts Ltd, MAP applied under each blade. **Closer:** 1 (t) Lorient Polyproducts Ltd, MAP applied to closer body **Drop down seal:** 1 (t) Lorient Polyproducts Ltd, MAP encased **Lock/Latch:** 2 (t) Lorient Polyproducts Ltd Intumescent Kit for Glutz Mint 1893 lock 60 minute, MAP applied to latch forend, 1 (t) applied to keeps and lock bodies. **Viewer:** 0.5 (t), Lorient Polyproducts Ltd graphite type intumescent **Glazing:** **Glass:** Pilkington, Pyrostop EI30-10 15mmCS, 15 thick **Aperture Size:** 1610 (h) x 410 (w) **Glass Size:** 1600 (h) x 400 (w) **Expansion Allowance:** 5mm

	Beading: Sapele, 640kg/m^3, 35 (h) x 23 (d) including an 10 x 6 bolection and a 30 degree chamfer. **Bead Fixing:** 60mm long steel screws, fitted at 40mm from corners at no greater than 150mm centres at 30 degrees to the face of the glass. **Glazing System:** Lorient Polyproducts Ltd, RF1, including Sodium silicate liner, 54 (w) x 2 (t) & Glazing seal referenced RG2704, 27 (w) x 4 (t). **Latching arrangement:** Latched	
Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 36 minutes **Insulation:** 36 minutes
	Doorset B	**Integrity:** 67 minutes **Insulation:** 57 minutes

3.2.4 Test Report BMT/FEP/F14233 AR1

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	20th January 2015
Identification of Test Body:	BM TRADA, Now trading as Warringtonfire Testing and Certification Limited. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	2No. Single Leaf Single Acting Doorsets.
Tested Orientation:	**Both Doorsets –** Towards the heating conditions of the test.
Sampling information:	Prototype test – No sampling information available.
Summary of Test Specimen:	**Doorset A:** **Leaf Size:** 915 mm wide by 2055 mm high by 44mm thick **Core:** 44mm thick, Graduated density chipboard, 620kg/m^3 **Lipping:** 6mm thick American White Oak. 700kg/m^3, applied on vertical edges only **Doorset B:** **Leaf Size:** 915 mm wide by 2052 mm high by 54mm thick **Core:** 54mm thick, Graduated density chipboard, 620kg/m^3 **Lipping:** 15mm thick American White Oak. 700kg/m^3, applied on vertical edges only **Doorset A:** **Frame:** Sapele, 640kg/m^3 (78 mm x 55mm including 15mm x 30mm integral stop) **Frame Fixing:** 4No. Steel masonry fixings (80mm), positioned local to each vertical jamb at no greater than 800 centres. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. Sapele architraves 45mm wide x 18mm thick. **Intumescent and smoke control seals:** **Frame:** 1No. Lorient Polyproducts Ltd, MAP, 10 (w) x 2 (t) applied 8mm from the opening face of the reveal, 10mm deep into the frame. 1No. Pyroplex, rigid box seal, FO8700, 15 (w) x 4 (t) applied 29mm from the opening face of the reveal. Norseal, NOR710, scope control seal, 10 x 11 applied to the upstand of the stop. **Hardware:** 3No. Zoo 2HSS 243 RS hinges Dorma TS73V surface mounted overhead door closer Winkhaus AV2 multi-point lock Winkhaus XR6 cylinder. Zoo aluminium lever handle Z2L

	Winkhaus escutcheon Z2E **Hardware Protection:** **Hinge:** 1 (t) Lorient Polyproducts Ltd, MAP applied under each blade. **Lock/Latch:** 1 (t) Lorient Polyproducts Ltd, MAP, applied to all latch bodies & keeps. **Glazing:** **Glass:** Pilkington, Pyrodur, 7 thick **Aperture Size:** 390 (h) x 390 (w) **Glass Size:** 380 (h) x 380 (w) **Expansion Allowance:** 5mm **Beading:** Sapele, 640kg/m^3, 26 (h) x 22 (d) including an 11 x 8 bolection and a 15 degree chamfer. **Bead Fixing:** 40mm long steel pins, fitted at 40mm from corners at no greater than 140mm centres at 35 degrees to the face of the glass. **Glazing System:** Pyroplex 30049, 14 x 6 applied between the glass and the bead on both faces & Pyroplex Acrylic Sealant nominal bead dimensions 5 x 7 fitted lining the glazing aperture. **Doorset B:** **Frame:** Sapele, 640kg/m^3 (94 mm x 55mm including 15mm x 37mm integral stop) **Frame Fixing:** 4No. Steel masonry fixings (80mm), positioned local to each vertical jamb at no greater than 800 centres. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. Sapele architraves 45mm wide x 18mm thick. **Intumescent and smoke control seals:** **Frame:** 1No. Lorient Polyproducts Ltd, MAP, 10 (w) x 2 (t) applied 6mm from the opening face of the reveal, 10mm deep into the frame. 1No. Pyroplex, rigid box seal, FO8700, 15 (w) x 4 (t) applied 29mm from the opening face of the reveal. Norseal, NOR710, scope control seal, 10 x 11 applied to the upstand of the stop. **Leaf:** 2No. Lorient Polyproducts Ltd, MAP, 8 (w) x 2 (t) applied 7mm from each face of the leaf, 8mm into the leaf. **Hardware:** 3No. Zoo 2HSS 243 RS hinges Dorma TS73V surface mounted overhead door closer Winkhaus AV2 multi-point lock Winkhaus X6 cylinder. Zoo aluminium lever handle Z2L Winkhaus escutcheon Z2E **Hardware Protection:** **Hinge:** 1 (t) Lorient Polyproducts Ltd, MAP applied under each blade.

	Lock/Latch: 1 (t) Lorient Polyproducts Ltd, MAP, applied to all latch bodies & keeps. **Glazing:** **Glass:** Pilkington, Pyrodur, 10 thick **Aperture Size:** 400 (h) x 400 (w) **Glass Size:** 390 (h) x 390 (w) **Expansion Allowance:** 5mm **Beading:** Sapele, 640kg/m^3, 35 (h) x 25 (d) including an 10 x 10 bolection and a 15 degree chamfer. **Bead Fixing:** 60mm long steel pins, fitted at 40mm from corners at no greater than 140mm centres at 35 degrees to the face of the glass. **Glazing System:** Mann McGowan Pyroglaze 60 25 (w) x 3 (t) applied between the glass and the bead on both faces, Mann McGowan Pyroglaze intumescent liner, 50 (w) x 2 (t) applied lining the glazing aperture. **Latching arrangement:** Latched	
Test Standard:	BS EN 1634-1: 2014	
Performance:	**Doorset A**	**Integrity:** 45 minutes **Insulation:** 17 minutes
	Doorset B	**Integrity:** 67 minutes **Insulation:** 25 minutes

3.2.5 Test Report WF402305

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	02nd August 2018
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Limited. UKAS No. 1762
Sponsor:	Aynsley Doors
Tested Product:	1No. Single Leaf Single Acting Doorset.
Tested Orientation:	**Doorset –** Towards the heating conditions of the test.
Sampling information:	Prototype test – No sampling information available.
Summary of Test Specimen:	**Doorset A:** **Leaf Size:** 1046 mm wide by 2405 mm high by 43mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Strebord® 44, Particle Board, 600kg/m^3 **Grooves:** Sapele Decorative inlay, 600kg/m^3, 10mm wide x 10mm deep including a 5 wide x 4 deep groove centrally within width. **Lipping:** 8mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Frame:** European Redwood door frame nominal density 510kg/m^3 (90 mm x 44mm including 47mm x 15mm rebate) **Frame Fixing:** 4No. Steel masonry fixings (80mm long), positioned local to each vertical jamb. **Fire Stopping Detail:** void fully filled with rock mineral wool and capped with 10mm depth of Intumescent mastic to both faces. European Redwood architraves 45mm wide x 18mm thick applied to the exposed face only. **Intumescent and smoke control seals:** **Frame:** 1No. Pyroplex, Graphite based, 104FS, 10 (w) x 4 (t) applied 9mm from the opening face within the frame reveal. 1No. Pyroplex, Graphite based, 104FO, 10 (w) x 4 (t) applied 29mm from the opening face within the frame reveal. 1No. Norseal, NOR710s smoke/acoustic, 10 x 11, seal applied to the upstand of the stop **Hardware:** **Hinge:** 3No. Royde & Tucker H102 hinges **Closer:** Astra 4000 series jamb mounted closer **Lock/Latch:** Winkhaus AV2 :-A complete with eurocylinder **Handle:** Saphire Hardware ZAA030 lever type lock & escutcheon plate **Viewer:** Norseal DV160/C **Drop Down Seal:** Norseal, NOR810S applied in the bottom edge of the leaf. **Hardware Protection:** **Hinge:** Norseal, NOR910, graphite, 1mm (t)

	Lock/Latch: Norseal, NOR910, graphite, 1mm (t) **Top and bottom lock bodies:** Norseal, NOR910, graphite, 1mm (t) **Lock/Latch Keep:** Norseal, NOR910, graphite, 1mm (t) **Viewer:** Norseal, kit supplied with viewer, graphite, 0.5mm (t) **Glazing:** **Glass:** Pilkington, Pyrodur, 11 thick **Aperture Size:** 1610 (h) x 410 (w) **Expansion Allowance:** 5mm **Beading:** Sapele, 640kg/m^3, 20 (h) x 20 (d) including an 5 x 5 bolection and a 15 degree chamfer. **Bead Fixing:** 58mm long steel wood screws, fitted at 40mm from corners at no greater than 150mm centres. **Glazing System:** Pyroplex, 30049, 14.2mm wide x 3.6mm thick applied between the glass and the bead on both faces. **Latching arrangement:** Latched
Test Standard:	BS 476-22: 1987
Performance:	**Integrity:** 51 minutes **Insulation:** 0 minutes

3.2.6 Test Report BMT/FEP/F14168 Revision A

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	20th November 2014
Identification of Test Body:	BM TRADA, now trading as Warringtonfire Testing and Certification Limited. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	1No. Single Leaf Single Acting Doorset.
Tested Orientation:	**Doorset –** Towards the heating conditions of the test.
Sampling information:	Prototype test – No sampling information available.
Summary of Test Specimen:	**Leaf Size:** 926 mm wide by 2040 mm high by 46mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Strebord 44, Particleboard, 580kg/m^3 **Facings:** 0.5 (t) kraft paper veneer. **Lipping:** 8mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Frame:** Sapele nominal density 640kg/m^3 (90 mm x 32mm with a 22 (w) x 18 (t) planted stop) **Frame Fixing:** 4No. Steel masonry fixings (100mm long), positioned local to each vertical jamb. **Fire Stopping Detail:** void fully filled with rock mineral wool and capped with 10mm depth of Intumescent mastic to both faces. **Intumescent and smoke control seals:** **Frame:** 1No. Sealmaster RetroSeal, graphite, 44 (w) x 0.5 (t) applied lining the frame reveal. 1No. Sealmaster, DeltaSeal, 12 x 12 fitted to the upstand of the stop. Sealmaster, DropSeal, 2712s, 12 (w) x 27 (h) **Hardware:** 3No. Royde & Tucker H101 hinges Aronne AR1 500p-SEBE overhead closer CLR-AGN-100 Winkhaus AV2 :-A complete with XR6 eurocylinder Winkhaus Palladio handle Tuscan Hardware Flush Pull Handle **Hardware Protection:** **Pull Handle:** Intumescent Seals Ltd, Therm-A-line, 120 x 100 x 1 (t) applied to the back face of the pull handle & encasing the handle body within the leaf, 115 x 20 x 8 (t) applied inside the pull handle body.
Test Standard:	BS 476-22: 1987

Performance:	**Integrity:** 48 minutes **Insulation:** 48 minutes

3.2.7 Test Report WF346351

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	1st December 2014
Identification of Test Body:	Exova Warringtonfire, now trading as Warringtonfire Testing and Certification Limited. UKAS No. 0249
Sponsor:	Gretsch-Unitas Ltd
Tested Product:	1No. Single Leaf Single Acting Doorset.
Tested Orientation:	**Doorset –** Towards the heating conditions of the test.
Sampling information:	Prototype test – No sampling information available.
Summary of Test Specimen:	**Leaf Size:** 931 mm wide by 2135 mm high by 44mm thick **Core:** 44mm thick, Strebord 44, Particleboard, 630kg/m^3 **Lipping:** 10mm thick American White Oak. 720kg/m^3, applied on all edges. **Frame:** Soft wood timber with primed finish nominal density 510kg/m^3 (78 mm x 32mm with a 32 (w) x 13 (t) planted stop) **Frame Fixing:** 4No. Steel masonry fixings (100mm long), positioned local to closing jamb & 6No. steel masonry fixings applied to the hanging jamb. **Intumescent and smoke control seals:** **Frame:** 1No. Firestop, Graphite based intumescent within a PVC carrier, 15 (w) x 4 (t) fitted abutting the stop 1No. Intumescent Seals Ltd, Therm-A-Strip, 10 (w) x 2 (t) applied within the frame reveal 10mm into the frame. Sealed Tight Solutions Ltd, ST1009, PVC rubber seal, applied to the upstand of the stop. Comaglio, ST422, aluminium casing with silicon rubber seal drop down seal applied to the bottom edge of the leaf. **Hardware:** 3No. Royde & Tucker H101 hinges GU Security Automatic VdS class A, M101313 multi-point lock Hoppe Tokyo M1710RH/3360N handle Assa Abloy, KMT3030-NP cylinder **Hardware Protection:** **Hinges:** Sealed Tight Solutions Ltd, STS 100X25 hinge pad, graphite, 1(t) **Lockset:** Sealed Tight Solutions Ltd, STS lock protector 1 (t) graphite applied to lock cases and strike plates.

	Cylinder: Tight Solutions Ltd, STS lock protector 1 (t) graphite, applied lining the cut out for the cylinder.
Test Standard:	BS EN 1634-1: 2014
Performance:	**Integrity:** 34 minutes **Insulation:** 34 minutes

It is noted that the report includes 2No. doorsets within the same test, however, it is noted that one of the doorsets (positioned on the right-hand side of the furnace within the photographs) is not included within the test report.

3.2.8 Test Report WF505542

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	22nd December 2021
Identification of Test Body:	Warringtonfire Testing and Certification Limited. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	2No. Single Leaf Single Acting Doorsets. Doorset B included a fixed non-openable side panel.
Tested Orientation:	**Doorset A** – Open in towards the heating conditions of the test. **Doorset B** – Open out away from the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of BM TRADA under contract reference SC21115 & SC21099 on 23/06/21 & 09/05/21 respectively.
Summary of Test Specimen:	**Doorset A:** **Leaf Size:** 918 mm wide by 2300 mm high by 44mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Strebord 44, graduated density chipboard, 611kg/m^3 **Lipping:** 8mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Doorset B:** **Leaf Size:** 951 mm wide by 2300 mm high by 54mm thick **Panel Size:** 287 mm wide x 2307 mm high **Core (leaf & panel):** 54mm thick, Falcon Panel Products Ltd, Strebord 54, graduated density chipboard, 640kg/m^3 **Lipping:** "T" profiled lippings, 25 (t) overall including a tongue into the core, meeting edges 37 (t) overall including a rebate, Solid Oak. 640kg/m^3, applied on all edges. **Doorset A:** **Frame:** Redwood, 510kg/m^3 (70 mm x 25mm with a 12mm x 20mm planted stop) **Frame Fixing:** 4No. Steel fixings (100mm), positioned local to each hanging jamb 5No. applied to the closing jamb. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. Redwood architraves 50mm wide x 12mm thick. **Intumescent and smoke control seals:** **Frame:** 1No. Sealed Tight Solutions Ltd, 15 (w) x 4 (t) applied 14.5mm from the opening face of the reveal. Sealed Tight Solutions Ltd, ST1009, Neoprene/Butyl, 11 (w) x 5 (t) applied to the upstand of the stop. **Hardware:** 3No. Rutland RH.BB.43R.SS hinges Astra 4003 jamb mounted concealed door closer Rutland RDL.L.55 referenced 50335 Rutland DIN latch (55mm backset) lock

	Rutland RDL.ESL.55 referenced 50331 Rutland Din Sashlock (55mm backset) lock. UAP Kinetica 3* (KIN30T/30CAS-HELIX-K4) cylinder Rutland RL.RTD.121.55 aluminium lever handle. Altro S/S Escutcheon E-1 (Steel) **Hardware Protection:** **Hinge:** 1 (t) Sealed Tight Solutions Ltd, graphite, applied under each blade. **Lock/Latch:** 1 (t) graphite applied to all latch bodies & keeps. **Doorset B:** **Frame:** Sapele, 640kg/m^3 (115 mm x 49mm including 17mm x 58mm rebate) **Frame Fixing:** 5No. Steel fixings (100mm), positioned local to each vertical jamb. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. MDF architraves 72mm wide x 36mm thick. **Intumescent and smoke control seals:** **Frame:** 2No. Sealed Tight Solutions Ltd. 154FO, 15 (w) x 4 (t) applied 7mm from the opening face of the reveal, 10mm apart. Sealed Tight Solutions Ltd, ST1009, Neoprene/Butyl, 11 (w) x 5 (t) applied to the upstand of the stop. Sealed Tight Solutions Ltd, STS422GT drop down seal applied centrally within the base of the leaf. **Leaf:** 1No. Sealed Tight Solutions Ltd. 204FO, 20 (w) x 4 (t) applied 5mm from the opening face the leaf. (left leaf) 1No. Sealed Tight Solutions Ltd. 104FS, 10 (w) x 4 (t) applied 29mm from the opening face the leaf. (right leaf) **Hardware:** 4No. Eurospec, HIN14333P/13BSS Enduro Grade 13 Ball Bearing Hinges Geze, Boxer 2-4 concealed closer, consisting of: Guide rail – Geze Boxer 20X12 136052, Closer – Integrated door closer Geze Boxer 2-4 closer 099728 & Restrictor – Geze Flexible opening restrictor 129343. Winkhaus AV2 lockset EVVA, KZ 41/K41 PC / Key 3 SP / SN: 09BE1KD / E87296 cylinder. Turnstyle Designs, PNP/Leather Clad Levers on Rose – R1018-CTPN-PXXXX06XXXXX: BLK J_02 lever handles. Laidlaw DESWALF.SCP/NP viewer Aldridge, 789-65 brass security chain. M Marcus, V4020-PNF escutcheon. **Hardware Protection:** **Hinge:** 1 (t) Flexifire, graphite applied under each blade. **Closer:** Guide Rail – Part No. 103729 Boxer fire pack-guide rail (Kit3) Mechanism – Part No. 103727 Boxer fire pack-mechanism 24 (Kit 1)

	Lock/Latch: 1 (t) Dufaylite, Interdens, applied to all latch bodies & 1 (t) x 10 (w) graphite applied behind forends & 1 (t) phosphate pads supplied by Norseal. **Latching arrangement:** Latched	
Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 40 minutes **Insulation:** 40 minutes
	Doorset B	**Integrity:** 64 minutes **Insulation:** 64 minutes

3.2.9 Test Report WF505552

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the fire resistance performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of Test:	24th June 2021
Identification of Test Body:	Warringtonfire Testing and Certification Limited. UKAS No. 1762
Sponsor:	Falcon Panel Products Ltd
Tested Product:	2No. Single Leaf Single Acting Doorsets. Doorset B included a fixed non-openable side panel.
Tested Orientation:	**Doorset A** – Open in towards the heating conditions of the test. **Doorset B** – Open in towards the heating conditions of the test.
Sampling information:	The products tested were sampled by a representative of BM TRADA under contract reference SC21099 & SC21114 on 09/05/21 & 23/06//21 respectively.
Summary of Test Specimen:	**Doorset A:** **Leaf Size:** 918 mm wide by 2744 mm high by 44mm thick **Core:** 44mm thick, Falcon Panel Products Ltd, Strebord 44, graduated density chipboard, minimum of 530kg/m^3 **Lipping:** 8mm thick Solid Sapele. 640kg/m^3, applied on all edges. **Doorset B:** **Leaf Size:** 951 mm wide by 2300 mm high by 54mm thick **Panel Size:** 287 mm wide x 2307 mm high **Core (leaf & panel):** 54mm thick, Falcon Panel Products Ltd, Strebord 54, graduated density chipboard, 540kg/m^3 **Lipping:** "T" profiled lippings, 25 (t) overall including a tongue into the core, meeting edges 37 (t) overall including a rebate, Solid Oak. 640kg/m^3, applied on all edges. **Doorset A:** **Frame:** Caberwood Trade MDF, 593kg/m^3 (70 mm x 25mm with a 12mm x 20mm planted stop) **Frame Fixing:** 5No. Steel fixings (100mm), positioned local to each vertical jamb. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and smoke control seals:** **Frame:** 1No. Sealed Tight Solutions Ltd, 154FO, 15 (w) x 4 (t) applied 14.5mm from the opening face of the reveal. Sealed Tight Solutions Ltd, ST1009, Neoprene/Butyl, 11 (w) x 5 (t) applied to the upstand of the stop. Sealed Tight Solutions Ltd, ST422, Drop down seal, 20 (h) x 12 (w) **Hardware:** 3No. Rutland RH.BB.43R.SS hinges Rutland ITS.11204 – Part No. 11172 concealed overhead door closer

	Rutland RDL.L.55 referenced 50335 Rutland DIN latch (55mm backset) lock UAP Kinetica 3* (KIN30T/30CAS-HELIX-K4) cylinder Altro S/S Escutcheon E-1 (Steel) **Hardware Protection:** **Hinge:** 1 (t) Sealed Tight Solutions Ltd, graphite, applied under each blade. **Closer:** Graphite intumescent kit as supplied with door closer, applied to the top of the closer body and at the perimeter of the guide rail. **Lock/Latch:** 1 (t) graphite applied to all latch body & keep. **Glazing:** **Glass:** Fireglass UK, Pyrobelite, 7 thick **Aperture Size:** 2546 (h) x 720 (w) **Glass Size:** 2538 (h) x 712 (w) **Expansion Allowance:** 4mm **Beading:** Sapele, 640kg/m^3, 15 (h) x 13.5 (d) **Bead Fixing:** 40mm long steel pins, fitted at 50mm from corners at no greater than 150mm centres at 30 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, ST104, 13mm wide x 2mm thick applied between the glass and the bead on both faces. **Setting blocks:** Calcium silicate, 7 (w) x 25 (d) x 3 (t) applied at 80mm from corners, 4No. applied to vertical edges 2No. applied to horizontal edges. **Doorset B:** **Frame:** Sapele, 640kg/m^3 (115 mm x 49mm including 17mm x 58mm rebate) **Frame Fixing:** 5No. Steel fixings (100mm), positioned local to each vertical jamb. **Fire Stopping Detail:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. MDF architraves 72mm wide x 36mm thick. **Intumescent and smoke control seals:** **Frame:** 2No. Sealed Tight Solutions Ltd. 154FO, 15 (w) x 4 (t) applied 7mm from the opening face of the reveal, 10mm apart. Sealed Tight Solutions Ltd, ST1009, Neoprene/Butyl, 11 (w) x 5 (t) applied to the upstand of the stop. Sealed Tight Solutions Ltd, STS422GT drop down seal applied centrally within the base of the leaf. **Leaf:** 1No. Sealed Tight Solutions Ltd. 204FO, 20 (w) x 4 (t) applied 5mm from the opening face the leaf. (right leaf) 1No. Sealed Tight Solutions Ltd. 104FS, 10 (w) x 4 (t) applied 29mm from the opening face the leaf. (left leaf) **Hardware:** 4No. Eurospec, HIN14333P/13BSS Enduro Grade 13 Ball Bearing Hinges Geze, Boxer 2-4 concealed closer, consisting of: Guide rail – Geze Boxer 20X12 136052, Closer – Integrated door closer Geze Boxer 2-4 closer 099728 & Restrictor – Geze Flexible opening restrictor 129343. Winkhaus AV2 lockset

	EVVA, KZ 41/K41 PC / Key 3 SP / SN: 09BE1KD / E87296 cylinder. Turnstyle Designs, PNP/Leather Clad Levers on Rose – R1018-CTPN-PXXXX06XXXXX: BLK J_02 lever handles. Laidlaw DESWALF.SCP/NP viewer Aldridge, 789-65 brass security chain. M Marcus, V4020-PNF escutcheon. **Hardware Protection:** **Hinge:** 1 (t) Flexifire, graphite applied under each blade. **Closer:** Guide Rail – Part No. 103729 Boxer fire pack-guide rail (Kit3) Mechanism – Part No. 103727 Boxer fire pack-mechanism 24 (Kit 1) **Lock/Latch:** 1 (t) Dyflyte, Interdens, applied to all latch bodies & 1 (t) x 10 (w) graphite applied behind forends & 1 (t) phosphate pads supplied by Norseal. **Latching arrangement:** Latched	
Test Standard:	BS EN 1634-1: 2014+A1: 2018	
Performance:	**Doorset A**	**Integrity:** 30 minutes **Insulation:** 30 minutes
	Doorset B	**Integrity:** 53 minutes **Insulation:** 53 minutes

3.3 Primary Ambient Temperature Smoke Control Test Evidence

As summarised below, the tested door assemblies have been tested in accordance with BS EN 1634-3: 2004. It can be observed from all the summarised test results at a chamber pressure of 25Pa (positive and negative) that the leakage rate per linear meter is less than $3m^3/m/h$ when tested in accordance with EN 1634-3: 2004, including leakage at the threshold of the doorset assembly.

For doorsets tested to BS EN 1634-3: 2004, the leakage rate is measured at positive and negative pressure differences of 10Pa (Pascals), 25Pa, and 50Pa. The same 25Pa positive and negative pressure difference is used for the BS 476-31.1:1983 test method.

The two test methods have been reviewed to compare the test apparatus, test specimen conditioning and testing procedure. The following has been observed:

Both the BS and EN test methods can be conducted on the same apparatus, which allows a conclusion to be drawn regarding the likely performance of the tested specimens, after isolating any specific differences between the BS and EN test methods regarding the specimen conditioning and testing procedures.

Both methods require the test samples to undergo a conditioning process, the EN method details that the sample shall be left in laboratory conditions for a period of 3 days prior to testing, the BS method details that the sample shall be in conditions 25±15 ^oC and a relative humidity of 55±10% until equilibrium is established. Given the temperature and humidity data recorded for the samples tested to the EN 1634-3 test method, the conditioning of the specimen was outside of the requirements specified for testing to the requirements of the BS 476: Part 31.1 test method. However, taking into consideration the tolerance range for the temperature and humidity in the BS test method and the condition of the specimens tested to the EN test method in terms of door gaps and operation, the influence of the conditioning on the specimen in terms of comparing the performance of the tested specimens to the two test methods has been deemed negligible and not to have a significant impact on the analysis provided herein.

Both test methods prescribe that doorsets are to be cycled 10 times prior to undertaking the ambient smoke leakage test, however, there is an additional requirement when testing to the EN 1634-3: 2004 method, which is found within the EN 16034 standard. This requirement increases the number of cycles required from 10 to 25 cycles. In the opinion of Warringtonfire the additional cycling performed on the doorset will have negligible influence on the performance of the doorset under test conditions, when considering the performance of the doorset designs tested to EN 1634-3 method against the requirements of the BS 476: 31.1 method.

Both test methods identify a period where equilibrium is to be reached within the test chamber prior to recording the reading of leakage at each identified datum point, for the BS method this is detailed as 3 minutes and the EN method requires 2 minutes. Providing equilibrium is reached such that the chamber is not experiencing turbulence, it is the opinion of Warringtonfire that this will not influence the performance of the doorset tested under either method, when considering the performance of the doorset designs tested to EN 1634-3 method against the requirements of the BS 476: 31.1 method.

The BS method datum points to record readings is defined as 5Pa, 10Pa, 25Pa & 50Pa, the EN method prescribes 10Pa, 25Pa & 50Pa. Due to the fact that this assessment is made on the basis of maintaining a specified leakage rate specifically at 25Pa of pressure the difference in the additional data specified by the BS method is deemed to not have a significant influence on the result of this assessment.

The key difference between the two test methods is the requirement within BS 476: Part: 31.1: 1983 to apply a correction to the data obtained throughout the test, this correction is outlined within Section 8 of the test standard and aims to correct the recorded values to provide the

value at 20ºC at standard atmospheric pressure (101325Pa). The formula which is required to be applied to each result is given below:

$$Q = Q_a \times \frac{(P_a + \Delta p)}{101325} \times \frac{293.15}{(T_a + 273.15)} \times \times \left[1 - \left(0.3795 \times \frac{M_w}{100} \times \frac{E_s}{P_a + \Delta p} \right) \right]$$

where

Q is the adjusted rate of airflow (in m^3/h);

Q_a is the measured rate of airflow (in m^3/h);

Δp is the pressure increase (in Pa);

P_a is the barometric pressure (in Pa);

T_a is the air temperature (in °C);

M_w is the relative humidity (in %);

E_s is the saturated water vapour pressure (in Pa).

The following section contains the direct results recorded in accordance with BS EN 1634-3: 2004 as well as a table below including the corrected results if the test had been conducted to BS 476-31.1: 1983 at 25 pascals based on information available to Warringtonfire at the time of this assessment.

3.3.1 Test Report WYC417406/b

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for the perimeter lengths of leaf to frame gaps and various hardware items.

Date of test:		06th August 2019	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of Warringtonfire Certification on 30/10/18 & 01/08/19.	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset.	
Performance		**Pressure (Pa)**	**Leakage ($m^3/m/h$)**
	Positive chamber	50	1.12
		25	0.51
		10	0.34
	Negative chamber	50	1.07
		25	0.52
		10	0.37
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2200mm (h) x 949mm (w) x 44mm (t) Falcon Panel Products Ltd, Strebord, 44 (t), 609-615kg/m^3 **Lipping:** American White Ash, 587-644kg/m^3, 8 (t) applied to all edges. **Frame:** American White Ash, 697-703kg/m^3, 95 (d) x 44(w) including a 12 (h) x 47 (w) integral stop. **Frame Fixing:** 4No. Steel wood screws applied to each vertical jamb, 600 max centres **Fire Stopping:** 6-15 (w) Rockwool RWA 45 mineral fibre fully filling the void with Mann McGowan Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Pyroplex Ltd, 8500FO, Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Raven Seals, RP120, smoke seal, 12 (w) x 12 (d), fitted against the stop. Norseal, NOR810S, aluminium drop down seal with PVC and co-extruded seal 20 (h) x 13 (w). **Architrave:** None fitted. **Hardware:** 3No. Arrone Bearing Butt Hinges, AR8182 Arrow, 324BP surface mounted overhead closer. Winkhaus AV2, multi-point lock ERA Fortress Europrofile cylinder Eurospec lever type handle, CSL-1194 Eurospec escutcheon CSE1006	

	D & E Architectural Hardware Ltd, D & E 3850 Ultrascope viewer. **Hardware Protection:** **Hinges:** 1(t) Sealed Tight Solutions Ltd graphite applied to each blade. **Multi-point latch:** Lorient Polyproducts Ltd, AV2 kit, 1 (t) applied to latch bodies & under keeps, Exitex, Exi-Fire graphite, 0.8 (t) fitted under the latch forend. **Viewer:** 0.5 (t) Sealed Tight Solutions Ltd graphite applied to the viewer. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	21.6 degrees	
Barometric Pressure (Pa):	100900*	
Relative Humidity:	70%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	3.20	0.51
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	3.23	0.51

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.2 Test Report WYC417497/Rev1/Test2

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for the perimeter lengths of leaf to frame gaps, glazed apertures within the leaf and various hardware items.

Date of test:		07th August 2019	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of Warringtonfire Certification under contract reference FM416656 on 31/07/19.	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset with two glazed apertures.	
Performance		**Pressure (Pa)**	**Leakage ($m^3/m/h$)**
	Positive chamber	50	1.58
		25	0.93
		10	0.42
	Negative chamber	50	1.52
		25	0.92
		10	0.42
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2153mm (h) x 933mm (w) x 44mm (t) Falcon Panel Products Ltd, Stredor 44 EV Ply: **Inner Facing:** Poplar Ply, 4.6 (t), 510kg/m3, **Outer Facing:** EV Venner, 0.4 (t), 600 kg/m3, **Inner Core:** Poplar Ply, 4 (t), 510 kg/m3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 15 (t) x 28 (w), 480 kg/m3, **Lipping:** Sapele, 640kg/m^3, 10 (t) applied to all edges. **Frame:** Sapele, 621kg/m^3, 80 (d) x 44(w) including a 12 (h) x 33 (w) integral stop. **Frame Fixing:** 5No. Steel wood screws applied to each vertical jamb, 500 max centres **Fire Stopping:** 13-19mm (w) Rockwool RWA 45 mineral fibre fully filling the void with Everbuild Fire Sealant 300 Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Pyroplex Ltd, 8500, Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Norseal Ltd, NOR710, PVC smoke seal, 11 (w) x 10 (d), fitted against the stop. Norseal, NOR810S, aluminium drop down seal with PVC and co-extruded seal 20 (h) x 12 (w). **Architrave:** None fitted. **Hardware:** 3No. Zoo Ball Bearing Butt Hinges, ZHSS234RS	

	Hoppe, AR1500 surface mounted overhead closer. ERA SureFire Classic 2 hook multi-point Door Lock ERA Fortress 3* cylinder ERA 1X000 Stainless Steel Handle set. ERA Fab&Fix Nu Mail Door Letterplate ERA Fab&Fix Spyhole ERA PVCu/Timber Door Chain 791-65 ERA Fab&Fix Door Numerals – FFNUM8BC ERA Ingot Door Knocker – 4A550 **Hardware Protection:** **Hinges:** 1(t) MAP applied to each blade. **Multi-point latch:** Sealed Tight Solutions Ltd, 1 (t) graphite type intumescent applied to each face of all lock bodies, 1 (t) graphite intumescent under all keep locations, 1 (t) graphite type intumescent applied lining the forend. (Branded as Flexifire Universal SureFire Multipoint Lock Kit) **Letterplate:** 2No. wraps of Sealed Tight Solutions Ltd. 40 (w) x 2 (t) Graphite type intumescent **Viewer:** 0.5 (t) graphite type intumescent supplied with spyhole. **Glazing:** **Glass (Both Apertures):** Fireglass UK, Pyrobelite 9EG, 11 (t) **Upper Aperture:** **Sight Size:** 960 (h) x 205 (w) **Aperture Size:** 990 (h) x 230 (w) **Lower Aperture:** **Sight Size:** 610 (h) x 205 (w) **Aperture Size:** 638 (h) x 230 (w) **Beading:** Sapele, 685kg/m^3, 21 (h) x 19 (d) including a 6 x 6 bolection return and a 15-degree chamfer **Bead Fixings:** Steel pins, 50 (l) at 50 from corners and 145 centres at 25-35 degrees to the face of the glass. **Glazing System:** Sealmaster, Black Glazing Tape (BGT) 10 (w) x 4 (t) applied between the glass and the bead on both faces. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	21.6 degrees	
Barometric Pressure (Pa):	100600*	
Relative Humidity:	69%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	5.66	0.92
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	5.60	0.91

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.3 Test Report WYC414089/Test2

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for feature grooves and various hardware items.

Date of test:		10th May 2019	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		Non-Available	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset with feature grooves.	
Performance		**Pressure (Pa)**	**Leakage ($m^3/m/h$)**
	Positive chamber	50	2.66
		25	1.77
		10	1.08
	Negative chamber	50	2.40
		25	1.66
		10	0.98
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2050mm (h) x 930mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Strebord 44, 630-635kg/m^3, 44 (t) **Lipping:** Ash, 710kg/m^3, 10 (t) applied to vertical edges only. **Decorative Inserts:** Ash, fitted horizontally 50 form top edge of the leaf and at 200mm centres, 10 (w) x 10 (t), including a 3 x 3 “V” Groove. **Frame:** Ash, 710kg/m^3, 143 (d) x 32 (w) plus a 15 (h) x 48 (w) planted stop. **Frame Fixing:** 3No. Steel wood screws applied to each vertical jamb, 600 max centres **Fire Stopping:** Rockwool mineral fibre fully filling the void with Mann McGowan Pyromas A Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 1No. Pyroplex Ltd, FO8500 & 1No. Pyroplex Ltd, 30150 Graphite box seals, 10 (w) x 4 (t) fitted 10 apart 8 from the opening face of the frame. Lorient Polyproducts Ltd LAS 1206, weather seal, 14 (w) fitted to the upstand of the stop. Norseal Ltd, 810S Drop Seal, 20 (h) x 12 (w) applied centrally within the bottom edge of the leaf.	

	Hardware: 3No. Royde and Tucker Hi-Load 207 Bearing Butt Type Hinges Arrone AR7383 Concealed Overhead Type Closer. Winkhaus AV3 Autofire Multipoint lock Serozzetta Plaza Stainless Steel Lever Type Handle complete with Smith and Locke Escutcheon ref 4378H. Jedo Security viewer JV942 Royde and Tucker LP008 letterplate. **Hardware Protection:** **Hinges:** 1(t) Sealmaster graphite type intumescent applied to each blade. **Closer:** Arrone Intumescent kit, consisting of 2 (t) intumescent. **Multi-point latch:** 1 (t) Interdens encasing latch bodies & under keeps. **Letterplate:** Royde and Tucker LP008 Kit Supplied with Letterplate. **Eye Viewer:** Jedo JV942 Kit – Graphite type intumescent 1 (t) **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	17 degrees	
Barometric Pressure (Pa):	100900*	
Relative Humidity:	79%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	10.54	1.77
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	9.90	1.66

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.4 Test Report WYC421145/Test2

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for the perimeter lengths of leaf to frame gaps and various hardware items.

Date of test:		06th November 2019	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		Non-Available	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset.	
Performance		**Pressure (Pa)**	**Leakage (m^3/m/h)**
	Positive chamber	50	1.50
		25	1.07
		10	0.72
	Negative chamber	50	1.43
		25	1.02
		10	0.68
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2100mm (h) x 950mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Strebord 44 nominally 590kg/m^3, 44 (t) **Lipping:** Sapele, 640kg/m^3, 8 (t) applied to all edges. **Frame:** Poplar, nominally 510kg/m^3, 100 (d) x 47 (w) with a 15 (h) x 53 (w) rebate. **Frame Fixing:** 4No. Steel wood screws applied to each vertical jamb, 600 max centres **Fire Stopping:** Rockwool mineral fibre fully filling the void with Sealed Tight Solutions Ltd, ST88 Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 11 (w) x 5 (d) fitted to the upstand of the stop. Sealed Tight Solutions Ltd, ST422, aluminium drop down seal with neoprene/butyl seal, 20 (w) x 12 (t). **Hardware:** 3No. Consort, CF5511, Bearing Butt Type Hinges Dormakaba TS93 surface mounted overhead closer. Winkhaus AV3 Autofire Multipoint lock ERA Fortress 3* Europrofile cylinder Consort Hardware, Lever on Rose, CH100/G4 Consort Hardware, escutcheon CH311/8/316 DESWALAF EI30 viewer Royde and Tucker LP08 TS008 letterplate complete with cowl.	

	Hardware Protection: **Hinges:** 1(t) Sealed Tight Solutions Ltd, graphite type intumescent applied to each blade. **Multi-point latch:** 1 (t) Interdens encasing latch bodies & under keeps. **Letterplate:** Royde and Tucker LP08 TS008 Kit Supplied with Letterplate. **Eye Viewer:** Sealed Tight Solutions Ltd, 1 (t), graphite. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	10.9 degrees	
Barometric Pressure (Pa):	100600*	
Relative Humidity:	85%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	6.69	1.10
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	6.38	1.05

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.5 Test Report WYC422085/b

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of test:		20th November 2019	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		Non-Available	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset.	
Performance		**Pressure (Pa)**	**Leakage (m^3/m/h)**
	Positive chamber	50	1.32
		25	1.14
		10	0.68
	Negative chamber	50	1.29
		25	1.00
		10	0.50
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2100mm (h) x 950mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Strebord 44 nominally 590kg/m^3, 44 (t) **Lipping:** Sapele, 640kg/m^3, 8 (t) applied to all edges. **Frame:** Poplar, nominally 510kg/m^3, 100 (d) x 47 (w) with a 15 (h) x 53 (w) rebate. **Frame Fixing:** 4No. Steel wood screws applied to each vertical jamb, 600 max centres **Fire Stopping:** Rockwool mineral fibre fully filling the void with Sealed Tight Solutions Ltd, ST88 Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 11 (w) x 5 (d) fitted to the upstand of the stop. Sealed Tight Solutions Ltd, ST422, aluminium drop down seal with neoprene/butyl seal, 20 (w) x 12 (t). **Hardware:** 3No. Consort, CF5511, Bearing Butt Type Hinges Dormakaba TS93 surface mounted overhead closer. Winkhaus AV3 Autofire Multipoint lock ERA Fortress 3* Europrofile cylinder Consort Hardware, Lever on Rose, CH100/G4 Consort Hardware, escutcheon CH311/8/316 DESWALAF EI30 viewer Royde and Tucker LP08 TS008 letterplate complete with cowl.	

	Hardware Protection: **Hinges:** 1(t) Sealed Tight Solutions Ltd, graphite type intumescent applied to each blade. **Multi-point latch:** 1 (t) Interdens encasing latch bodies & under keeps. **Letterplate:** Royde and Tucker LP08 TS008 Kit Supplied with Letterplate. **Eye Viewer:** Sealed Tight Solutions Ltd, 1 (t), graphite. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	10.9 degrees	
Barometric Pressure (Pa):	101400*	
Relative Humidity:	77%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	7.15	1.17
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	6.25	1.02

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.6 Test Report WYC426239/b

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of test:		25th February 2020	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of Warringtonfire Certification under contract reference FM424838 on 11/02/20 & 12/02/20.	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset.	
Performance		**Pressure (Pa)**	**Leakage (m^3/m/h)**
	Positive chamber	50	1.64
		25	1.16
		10	0.76
	Negative chamber	50	3.00
		25	1.99
		10	1.15
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2399mm (h) x 1047mm (w) x 44mm (t) Falcon Panel Products Ltd, Stredor: **Inner Facing:** Poplar Ply, 1.4 (t), nominally 510kg/m^3, **Outer Facing:** Beech Venner, 0.4 (t), **Inner Core:** Poplar Ply, 2.1 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.15 (t), nominally 480kg/m^3, **Lipping:** Sapele, 715kg/m^3, 10 (t) applied to all edges. **Decorative Beading:** Profiled & square edged European redwood, 70 (w) x 19 (t), nominally 510kg/m^3, glued with PU (D4) & pinned with 30mm pins. **Frame:** European redwood, nominally 510kg/m^3, 69.5 (d) x 44(w) including a 15 (h) x 22.5 (w) integral stop. **Frame Fixing:** 5No. Steel wood screws applied to each vertical jamb, 140-180 from corners at no greater than 600 max centres **Fire Stopping:** Rockwool FLEXI mineral fibre fully filling the void with Mann McGowan Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 11 (w) x 5 (d) fitted to the upstand of the stop. Sealed Tight Solutions Ltd, ST422, aluminium drop down seal with neoprene/butyl seal, 20 (w) x 12 (t). Sealed Tight Solutions Ltd, STH004, aluminium threshold.	

	Hardware: 3No. Eurospec Ball Bearing Butt Hinges, HIN 1433/13 Astra, 4003 Jamb mounted concealed closer ERA SureFire Heritage 2 hook multi-point Lock ERA Fortress 3* cylinder ERA Fab&Fix, Heritage Europrofile cylinder pull. Sealed Tight Solutions Ltd, 4008 viewer. **Hardware Protection:** **Hinges:** 1(t) Sealed Tight Solutions Ltd applied to each blade. **Closer:** Sealed Tight Solutions Ltd, 1 (t) graphite lining aperture. **Multi-point latch:** Sealed Tight Solutions Ltd, ERA Surefire Intumescent Kit, 1 (t) graphite type intumescent applied to each face of the all lock bodies, 1 (t) graphite intumescent under all keep locations. **Viewer:** 1 (t) Sealed Tight Solutions Ltd, graphite type intumescent. **Glazing:** **Glass:** Pilkington, Pyrostop, 15 (t) **Aperture:** **Glass Size:** 1530 (h) x 390 (w) **Aperture Size:** 1540 (h) x 400 (w) **Beading:** Sapele, nominally 640kg/m^3, 22 (h) x 19 (d) including a 6 x 6 bolection return and a 15-degree chamfer **Bead Fixings:** Steel pins, 50 (l) at 50 from corners and 150 centres at 35 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 302 trimmed to 15 (w) x 2 (t) applied lining the glazed aperture & Sealed Tight Solutions Ltd, STS ST 105-3, compressible closed cell foam tape, 9 (w) x 3 (t) applied between the glass and the bead on both faces. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	14 degrees	
Barometric Pressure (Pa):	100100*	
Relative Humidity:	72%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	8.10	1.17
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	13.82	2.01

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.7 Test Report WYC429040/AR1/Test2

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of test:		04th June 2020	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of BM TRADA under contract reference SC20096 on 17/10/2019.	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset.	
Performance		**Pressure (Pa)**	**Leakage ($m^3/m/h$)**
	Positive chamber	50	1.32
		25	0.91
		10	0.57
	Negative chamber	50	1.32
		25	0.92
		10	0.54
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2399mm (h) x 1047mm (w) x 44mm (t) Falcon Panel Products Ltd, Stredor: **Inner Facing:** Poplar Ply, 1.4 (t), nominally 510kg/m^3, **Outer Facing:** Beech Venner, 0.4 (t), **Inner Core:** Poplar Ply, 2.1 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.5 (t), nominally 480kg/m^3, **Lipping:** Sapele, 8 (t) applied to vertical and bottom edges, 18 (t) applied to the top edge. **Frame:** Sapele, nominally 640kg/m^3, 70 (d) x 44(w) including a 15 (h) x 47 (w) rebate. **Frame Fixing:** 5No. Steel wood screws applied to each vertical jamb, 155 from corners at no greater than 600 max centres **Fire Stopping:** Rockwool mineral fibre fully filling the void with Mann McGowan Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS1004 Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 10 (w) x 9 (d) fitted to the upstand of the stop. Exitex, Macclex low profile aluminium extruded threshold, 9.5 x 47, bedded on Mann McGowan Pyromas A intumescent mastic. Sealed Tight Solutions Ltd, ST422, drop down seal, 20 (w) x 12 (t). **Hardware:** 3No. Rutland, RH.BB.43R.SS Stainless Steel Bearing Butt Type Hinges	

	Rutland ITS 11204, Overhead concealed cam action door closer ERA SureFire Classic multi-point lock Access 2, Tigress Premier 3 cylinder Rutland HA12338 viewer **Hardware Protection:** **Hinges:** 1(t) Rutland hinge packers applied to each blade. **Closer:** Rutland IP.114 Intumescent kit for ITS11204. **Multi-point latch:** Flexifire Universal SureFire Multipoint Lock Kit **Viewer:** 1 (t), graphite type intumescent. **Glazing:** **Glass:** Pilkington, Pyrostop 30-10 **Aperture:** **Glass Size:** 1530 (h) x 390 (w) **Aperture Size:** 1540 (h) x 400 (w) **Beading:** Sapele, nominally 640kg/m^3, 23 (h) x 17.5 (d) including a 6 x 8 bolection return and a 15-degree chamfer **Bead Fixings:** Steel screws, 50 (l) at 50 from corners and 150 centres at 35 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 302, 30 (w) x 2 (t) applied lining the glazed aperture & Sealed Tight Solutions Ltd, STS ST 105-3, compressible closed cell foam tape, 10 (w) x 3 (t) applied between the glass and the bead on both faces. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	18.4 degrees	
Barometric Pressure (Pa):	100400*	
Relative Humidity:	68%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	6.21	0.90
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	6.26	0.91

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.8 Test Report WYC430615/AR1/Test2

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for various hardware items.

Date of test:		04th June 2020	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of BM TRADA under contract reference SC20096 on 17/10/2019.	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset.	
Performance		**Pressure (Pa)**	**Leakage (m^3/m/h)**
	Positive chamber	50	4.58
		25	2.41
		10	1.48
	Negative chamber	50	3.58
		25	2.41
		10	1.45
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2399mm (h) x 1047mm (w) x 44mm (t) Falcon Panel Products Ltd, Stredor: **Inner Facing:** Poplar Ply, 1.4 (t), nominally 510kg/m^3, **Outer Facing:** Beech Venner, 0.4 (t), **Inner Core:** Poplar Ply, 2.1 (t), nominally 510kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.5 (t), nominally 480kg/m^3, **Lipping:** Sapele, 8 (t) applied to vertical and bottom edges, 18 (t) applied to the top edge. **Frame:** Sapele, nominally 640kg/m^3, 70 (d) x 44(w) including a 15 (h) x 47 (w) rebate. **Frame Fixing:** 5No. Steel wood screws applied to each vertical jamb, 155 from corners at no greater than 600 max centres **Fire Stopping:** Rockwool mineral fibre fully filling the void with Mann McGowan Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, STS104FO Graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame reveal. Sealed Tight Solutions Ltd, ST1009 weather seal, 10 (w) x 9 (d) fitted to the upstand of the stop. Exitex, Macclex low profile aluminium extruded threshold, 9.5 x 47, bedded on Mann McGowan Pyromas A intumescent mastic. Sealed Tight Solutions Ltd, ST422, drop down seal, 20 (w) x 12 (t). **Hardware:** 3No. Rutland, RH.BB.43R.SS Stainless Steel Bearing Butt Type Hinges	

	Rutland ITS 11204, Overhead concealed cam action door closer ERA SureFire Heritage 2 hook multi-point Lock Access 2, Tigris Premier 3 cylinder 2No. Lorient Polyproducts Ltd, RJ008 letterplate Rutland HA12338 viewer **Hardware Protection:** **Hinges:** 1(t) Rutland hinge packers applied to each blade. **Closer:** Rutland IP.114 Intumescent kit for ITS11204. **Multi-point latch:** Flexifire Universal SureFire Multipoint Lock Kit **Letterplate:** Intumescent kit supplied with Lorient Polyproducts Ltd RJ008 letterplate **Viewer:** 1 (t), graphite type intumescent. **Glazing:** **Glass:** Pilkington, Pyrostop 30-10 **Aperture:** **Glass Size:** 1530 (h) x 390 (w) **Aperture Size:** 1540 (h) x 400 (w) **Beading:** Sapele, nominally 640kg/m^3, 23 (h) x 17.5 (d) including a 6 x 8 bolection return and a 15-degree chamfer **Bead Fixings:** Steel screws, 50 (l) at 50 from corners and 150 centres at 35 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 302, 30 (w) x 2 (t) applied lining the glazed aperture & Sealed Tight Solutions Ltd, STS ST 105-3, compressible closed cell foam tape, 10 (w) x 3 (t) applied between the glass and the bead on both faces. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	18.5 degrees	
Barometric Pressure (Pa):	100400*	
Relative Humidity:	68%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	16.47	2.39
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	16.52	2.40

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.9 Test Report WYC432787/02

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for the perimeter lengths of leaf to frame gaps and various hardware items.

Date of test:		01st September 2020	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of BM TRADA under contract reference SC20148 on 28/08/2020.	
Sponsor:		Falcon Panel Products Ltd	
Tested Product:		Latched, single leaf, single acting doorset with glazed fanlight.	
Performance		**Pressure (Pa)**	**Leakage ($m^3/m/h$)**
	Positive chamber	50	0.87
		25	0.53
		10	0.27
	Negative chamber	50	0.89
		25	0.53
		10	0.28
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2040mm (h) x 926mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Stredor 44: **Inner Facing:** Poplar Ply, 4.6 (t), 510kg/m^3, **Outer Facing:** Beech Venner, 0.4 (t), 600 kg/m^3, **Inner Core:** Poplar Ply, 1.8 (t), 510 kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 16 (t), 480 kg/m^3, **Lipping:** Sapele, 640kg/m^3, 8 (t) applied to all edges. **Decorative Mouldings:** Sapele, 70mm wide x 19mm thick, applied with PVA adhesive & 25mm long pins **Doorset and Fanlight Frame:** European Redwood, 529kg/m^3, 80 (d) x 44(w) including a 15 (h) x 33 (w) integral stop. **Frame Fixing:** 4No. 100mm long Steel wood screws applied to each vertical jamb, 600 max centres **Fire Stopping:** Rockwool Flexi mineral fibre fully filling the void with Mann McGowan, Pyromas A Intumescent Mastic Capping, 10 (d) fitted to each face. **Intumescent and Weather Control Seals:** 2No. Lorient Polyproducts Ltd, LP1004, PVC encased sodium silicate box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Schlegel, Aquamac 21, 9.1 x 10.7, kerf fitted into the stop. Sealed Tight Solutions Limited, ST422GT Drop down seal Stormguard, Low height Macclex – Thermally broken, 62 x 15mm complete with 2No. seals, sealed to the rear of the jambs with FireWizard fire rated acrylic sealant.	

	Hardware: 3No. Eurospec Ball Bearing Butt Hinges, HIN 1433/13 Rutland TS9205 surface mounted overhead closer. Yale Lockmaster autoengage 2LB Classic 45mm Yale Platinum 3* Cylinder Yale 0757-2003-CH-CH Inline Lever Yale Postmaster Professional Letterplate Yale DH000768 Viewer Yale B-WS6-20-SC Yale Swis721BT-Numbers Yale 0716-2001-Contemporary-Knocker-No-Spyhole Stormguard, 32mm Aluminium Rain Deflector. **Hardware Protection:** **Hinges:** 1(t) Interdens, hinge pads applied to each blade. **Multi-point latch bodies & keeps:** 1(t) MAP encased **Letterplate:** As supplied with letterplate assembly. **Viewer:** 0.5 (t) graphite type intumescent supplied with spyhole. **Fanlight Glazing:** **Glass:** Fireglass UK, Pyrobelite, 8mm spacer bar, 6.8mm Low E Laminated Glass, 26.8 overall (t) **Aperture Size:** 650 (h) x 932 (w) **Expansion Allowance:** 3mm **Beading:** Sapele, nominally 640kg/m^3, 15 (h) x 15 (d) including a 2 x 2 quirk **Bead Fixings:** Steel pins, 50 (l) x Ø2mm at 50 from corners and 140 centres at 45 degrees to the face of the glass. **Glazing System:** Sealed Tight Solutions Ltd, STS 104, 10 (w) x 4 (t) applied between the glass and the bead on both faces. **Glazing liner:** Sealed Tight Solutions Ltd, STS 302 Liner, 30 (w) x 2 (t) applied lining the glazed aperture. **Intumescent applied to rear of fanlight frame:** 2No. Sealed Tight Solutions Ltd, STS154FO, applied to the top of the fanlight frame only 15mm from each face of the frame. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	20.9 degrees	
Barometric Pressure (Pa):	102100*	
Relative Humidity:	69%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	3.18	0.54
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	3.13	0.53

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.3.10 Test Report WYC509193 Test 1

The referenced test report, the essential details of which are summarised below, is primary data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for the perimeter lengths of leaf to frame gaps, fanlights and various hardware items.

Date of test:		04th October 2021	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of BM TRADA under contract reference SC21161 on 30/09/21.	
Sponsor:		Falcon Timber Limited	
Tested Product:		Latched, single leaf, single acting doorset with glazed fanlight & sidelight.	
Performance		**Pressure (Pa)**	**Leakage ($m^3/m/h$)**
	Positive chamber	50	1.65
		25	0.62
		10	0.31
	Negative chamber	50	1.32
		25	0.53
		10	0.25
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2132mm (h) x 1047mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Stredor 44 Ply: **Inner Facing:** Poplar Ply, 1.4 (t), 510kg/m^3, **Outer Facing:** Venner, 0.4 (t), 600 kg/m^3, **Inner Core:** Poplar Ply, 2.1 (t), 520 kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.5 (t), 480 kg/m^3, **Lipping:** Sapele, 8 (t) applied to all edges. **Doorset Frame:** Redwood, 617kg/m^3, 80 (d) x 41(w) including a 12 (h) x 30 (w) integral stop. **Fanlight & Sidelight Frame:** Redwood, 80 (d) x 44(w) including a 15 (h) x 30 (w) integral stop. **Cill:** Utile, 140 (d) x 44(w). applied under doorset only. **Fire Stopping:** Void filled with foam and capped with sealant. **Intumescent and Weather Control Seals:** 2No. Intumescent Seals Ltd, Therm-A-Seal, PVC encased graphite box seals, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Schlegel, Aquamac 21, 12 x 11, kerf fitted into the stop.	

	Exitex Ltd, Low Height Macclex aluminium threshold complete with 2No. elastomeric seals. The threshold was bedded on 2No, beads of intumescent mastic. **Hardware:** 3No. Eurospec Ball Bearing Butt Hinges, HIN 1433 Rutland TS.11204 surface mounted overhead closer. UAP, SL16 Crimebeater multi-point lock UAP Kinetica 3* cylinder UAP nanocoast 243 aluminium lever type handle UAP Soterian TS008-SLIM letterplate. UAP Firecheck Viewer – SWALF Satin Chrome UAP Narrow Door Chain – Satin Silver UAP 6 inch Victorian Urn UAP 3” Nanocoast Number 1 **Hardware Protection:** **Hinges:** 1(t) Intumescent Seals Ltd, Therm-A-Strip applied to each blade. **Multi-point latch bodies & keeps:** 1(t) Intumescent Seals Ltd, Therm-A-Strip applied. **Letterplate:** As supplied with letterplate assembly. **Fanlight & Sidelight Glazing:** **Glass:** Fireglass UK, Pyrobelite 12 EW60 2(b)2 – 36dB, 8mm spacer bar, 6.8mm acoustic Laminated Glass, 26.8 overall (t) **Fanlight** **Aperture Size:** 386 (h) x 1719 (w) **Sight Size:** 356 (h) x 1689 (w) **Sidelight** **Aperture Size:** 2120 (h) x 608 (w) **Sight Size:** 2090 (h) x 578 (w) **Beading:** Redwood, 15 (h) x 15 (d) **Bead Fixings:** Steel pins, 50 (l) at 50 from corners and 150 centres. **Glazing System:** Sealmaster, Intumescent Foam Glazing Tape, 15 (w) x 5 (t) (uncompressed) fitted between the bead and the glass on both faces. **Glazing liner:** Sealmaster, Fireglaze Tape, 26 (w) x 2.5 (t) applied lining the aperture. **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	18.15 degrees	
Barometric Pressure (Pa):	100900*	
Relative Humidity:	80%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	3.93	0.62
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	3.33	0.52

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

3.4 Supporting Ambient Temperature Smoke Control Test Evidence

3.4.1 Test Report WYC423891

The referenced test report, the essential details of which are summarised below, is supporting data for supporting the ambient temperature smoke control performance of the doorset designs contained herein. The tested specimen provides evidence for the perimeter lengths of leaf to frame gaps and multiple apertures within the leaf.

Date of test:		20th January 2021	
Identification of test body:		Warringtonfire Testing and Certification Limited UKAS: 1762	
Sampling Information:		The products tested were sampled by a representative of Warringtonfire under contract reference WF423793.	
Sponsor:		Falcon Timber Limited	
Tested Product:		Latched, single leaf, single acting doorset including 2No. letterplates	
Performance		**Pressure (Pa)**	**Leakage (m^3/m/h)**
	Positive chamber	50	4.05
		25	2.67
		10	1.61
	Negative chamber	50	4.10
		25	2.95
		10	1.75
Orientation of samples:		The door leaf was orientated to open out away from the chamber	
Summary of test constructions (mm)		**Leaf Size:** 2405mm (h) x 1045mm (w) x 44mm (t) **Core:** Falcon Panel Products Ltd, Stredor 44 Ply: **Inner Facing:** Poplar Ply, 1.4 (t), 510kg/m^3, **Outer Facing:** Venner, 0.4 (t), 600 kg/m^3, **Inner Core:** Poplar Ply, 2.1 (t), 520 kg/m^3, **Outer Core:** Vertically orientated finger jointed spruce lamels, 19.5 (t), 480 kg/m^3,	

	Lipping: Sapele, 640kg/m^3, 8 (t) applied to all edges. **Doorset Frame:** Redwood, 510kg/m^3, 90 (d) x 44(w) including a 15 (h) x 43 (w) integral stop. **Fire Stopping:** Void filled with tightly packed mineral fibre and capped with fire rated intumescent acrylic mastic 10-16 (w). **Intumescent and Weather Control Seals:** 2No. Sealed Tight Solutions Ltd, ST104, 10 (w) x 4 (t) fitted 10 apart centrally within the frame. Sealed Tight Solutions Ltd, Drop seal, STS 422 Exitex Macclex 15/2 threshold **Hardware:** 3No. Eurospec Ball Bearing Butt Hinges, HIN 1433 Astra Jamb mounted concealed closer. ERA Surefire Classic multi-point lock ERA Fortress 3" lock cylinder UERA Fab N Fix Balmoral lever type handle 2No. Lorient Polyproducts Ltd, RJ008 letterplates installed in alternative orientations. **Hardware Protection:** **Hinges:** 1(t) Sealed Tight Solutions Ltd, graphite applied under each blade **Multi-point latch bodies & keeps:** 1(t) Sealed Tight Solutions Ltd, graphite ERA Surefire intumescent kit applied **Letterplate:** As supplied with letterplate assembly. **Drop seal:** 1(t) Sealed Tight Solutions Ltd, graphite applied **Closer:** 1(t) Sealed Tight Solutions Ltd, graphite applied **Latching Status:** Engaged
Test Standard	BS EN 1634-3: 2004

Corrected result at 25Pa using the formula detailed above:

Conditions:		
Ambient Laboratory Temperature:	10.35 degrees	
Barometric Pressure (Pa):	99100*	
Relative Humidity:	86%*	
Positive Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	18.59	2.69
Negative Chamber Pressure		
Pressure Condition:	**Leakage (m^3/hr)**	**Result (m^3/hr/m)**
25Pa	20.48	2.97

* Based on historical external weather data on the date of the test, it has been assumed due to the nature of laboratory environment that the conditions within the laboratory are equal to the conditions outside as recorded.

Additionally, the length of the threshold has been included within the calculation.

4 Technical Specification

4.1 General

The technical specification for the proposed door assembly is given in the following sections and is based on the test evidence for the door designs, summarised in section 3.

4.2 Intended Use

The intended use of the proposed door assembly is summarised below:

A pedestrian doorset including any frame, door leaf or leaves which is provided to give a fire resisting capability when used for the closing of permanent openings in fire resisting separating elements, which together with the building hardware and any seals (whether provided for the purpose of fire resistance or smoke control or for other purposes such as draught or acoustics) form the assembly.

4.3 Door Leaf

The door designs can be constructed from any of the following door core materials as assessed herein: Stredor® 44 (Ply faced), Stredor® 44 (MDF faced), Strebord® 44, Stredor® 54 (Ply faced), Stredor® 54 (MDF faced), Strebord® 54 all of the door cores can include the following options:

1. Glazing
2. Various hardware options
3. Decorative facings
4. Decorative planted on timber mouldings & feature grooves.

4.4 Door Frames

The construction of the door frames is softwood or hardwood with minimum frame dimensions. For further information on the specification and construction of the door frames see section 7.

Specific sections within this assessment must be referred to for design limitations and construction requirements, where applicable.

4.5 Doorset Configurations & Maximum Leaf Sizes

4.5.1 General

The evaluation of the leaf size for fire resistance performance for the leaf, frame and doorset configuration is based on the tests listed in Section 3 and takes into account:

1. The door core utilised within the testing
2. The margin of over performance above 30 minutes integrity for the tested design
3. The characteristics exhibited during test and
4. The doorset configuration tested.

The evaluation of the permitted configurations included in this field of application is based on the configuration tested. The principle is that the more components included in testing, the harder it becomes to pass a test. This approach leads to the following statements:

1. A test on a double doorset is more onerous than a test on a single doorset
2. A test on a doorset with a flush overpanel is more onerous than a test on a doorset without an overpanel. A flush overpanel has the same thickness as the door leaf and is flush with the leaf/leaves.

3. A test on an unlatched doorset is more onerous than a test on a latched doorset as the leading edge is unrestrained and will deflect more in fire test conditions.
4. A doorset with transomed overpanel is considered to perform comparably to a similar doorset without an overpanel. This is because the transom structurally separates the overpanel from the doorset.

The leaf size for each configuration is linked to the perimeter intumescent specification and frame option. The following section details the maximum leaf size for each door leaf option and configuration based on the intumescent specification and frame details tested.

The evaluation of the maximum leaf sizes and configuration for ambient temperature smoke control performance, for the Falcon Timber Ltd doorset design is based on the tests listed in Section 3 and takes into account:

1. The maximum perimeter length of gaps to the edge of the door leaf,
2. The sealing system applied at the leaf to frame junction (including rebate or stop dimensions) and
3. The doorset configuration tested.

The evaluation of the configuration included in this field of application is based on the principle that decreasing the potential for leakage at the perimeter of the leaves and increasing the restraint of the leaves represents a less onerous condition with respect to testing for ambient temperature smoke leakage to the requirements of BS 476: Part 31.1 This approach leads to the following statements:

1. A test on a double doorset is more onerous than a test on a single doorset, providing the sealing system remains unchanged.
2. A test on a doorset with an overpanel is more onerous than a test on a doorset without an overpanel.
3. A test on an unlatched doorset is more onerous than a test on a latched doorset as the leading edge is unrestrained and will be subject to movement against the seals under test conditions.

The leaf size for each configuration is linked to the perimeter sealing specification. The following section details the maximum leaf size for each door leaf option and configuration based on the tested sealing specification.

Due to the two parameters being evaluated simultaneously (fire resistance and ambient temperature smoke control) it has been necessary to limit the scope provided within this field of application to that which fulfils both criteria for all door core options. Essentially this field of application covers only the lowest common performance of the door cores considered.

Doorsets with reduced height and width dimensions from those tested are deemed to be less onerous. Therefore, doors with dimensions less than those given in the leaf size envelope (for the relevant sealing specification) in the following sections are covered and may be manufactured.

4.5.2 Configuration

The table below shows the permitted configuration for the Falcon Timber Ltd doorset design, with the abbreviation and full description of the configuration.

The following sections detail the assessed maximum leaf size envelope for each permitted configuration based on the intumescent and smoke control sealing specification and door frame tested.

Doorset Configurations		
Depiction	**Abbreviation**	**Description**
	LSASD	Latched Single Acting Single Doorset

4.5.3 Orientation

The fire resistance tests for the designs contained herein were conducted with the doorset hung such that the door leaf opened both towards and away from the heating conditions of the test, demonstrating the performance of the design in both orientations. Based on this testing, assessment is made that the doorsets to this design may be hung opening either away from or towards the fire risk side of the doorset.

The ambient temperature smoke control testing undertaken on the doorset design contained herein have included asymmetric assemblies which were installed to open out away from the testing chamber. The subsequent testing has been undertaken under both positive and negative pressure, generating leakage results from both directions of the doorset, which in all instances resulted in a leakage rate of less than $3m^3/m/h$. Based on this testing, it is the opinion of Warringtonfire that the doorsets may be installed in either direction in terms of ambient temperature smoke leakage performance.

4.5.4 Envelopes for each Configuration

The following sections detail the door leaf envelope which indicates the permitted leaf size for the listed configuration based on the perimeter intumescent, the smoke sealing arrangement, door leaf and door frame.

A table of essential hardware is given in section 10.3 for the doorset configuration, as a minimum requirement for the doorset described. Changes to hardware can affect the intumescent specification and frame details which are subsequently considered for each specific hardware component, where required.

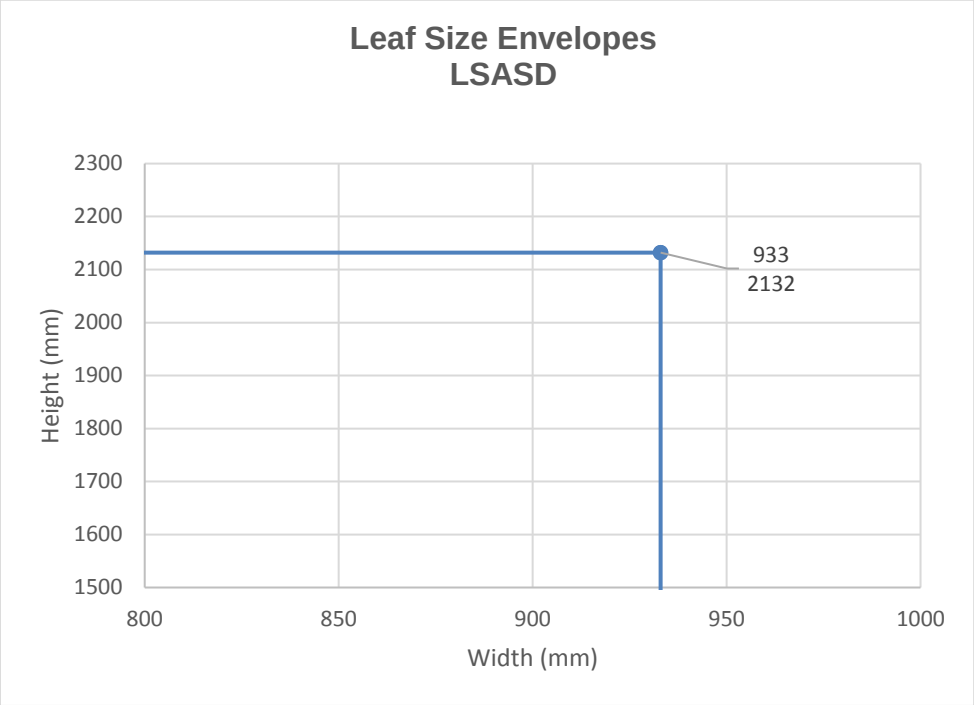
4.5.4.1 General Note on Intumescent & Smoke Control Seals

- Intumescent seals must run the full length of the leaf edge, with tightly formed abutting corner joints where the leaf edges meet, unless stated otherwise.
- Smoke control seals are uninterrupted at hardware locations unless stated otherwise.

4.5.4.2 Explanation for following sections

The performance of a doorset in terms of configuration and size is dependent on the leaf type, the smoke sealing arrangement, perimeter intumescent used and frame type. These elements are not automatically interchangeable. The following section presents the envelope for the Falcon Timber Ltd doorset design. The envelope is linked to specific perimeter intumescent and smoke sealing arrangements which are given a unique reference and is based directly on test evidence.

4.5.5 LSASD Configuration: Leaf Sizes & Intumescent Specification



Based on the assessment made herein, one of the following intumescent sealing configurations shall be applied at the perimeter of the doorset. The scope contained within this field of application is limited to the lowest common performance and therefore it is possible to interchange the smoke sealing arrangement and intumescent sealing arrangement without prejudice. However, in all cases only one of the options for both intumescent sealing and smoke control sealing shall be utilised.

The table below details the options for intumescent sealing systems permitted by this assessment, one of which **must** be utilised:

Intumescent Specification Options			
Sealing Spec. Reference & (Test Reference)	**Quantity, Reference & Dimensions:**	**Manufacturer / Supplier**	**Location**
1 (WF416689)	2No. 8500, Rigid Box Seals, 10mm x 4mm	Pyroplex Limited	Positioned 10mm apart centrally within the frame reveal.
2 (WF419865)	2No. ST104FO, Rigid Box Seals, 10mm x 4mm	Sealed Tight Solutions Limited	Positioned 10mm apart centrally within the frame reveal.
3 (WF432578)	2No. LP1004, Rigid Box Seals, 10mm x 4mm	Lorient Polyproducts Ltd	Positioned 10mm apart centrally within the frame reveal.
4 (CFR2110131)	2No. Therm-A-Seal, Rigid Box Seals, 10mm x 4mm	Intumescent Seals Ltd.	Positioned 11mm apart centrally within the frame reveal.

The table below details the options for smoke control sealing systems permitted by this assessment, one of which **must** be utilised:

Smoke Control Sealing Specification Options				
Sealing Spec. Reference & (Test Reference)	**Reference**	**Manufacturer / Supplier**	**Location**	**Minimum Rebate / Stop Height**
1 (WYC417497)	NOR710	Norseal Ltd	Applied to the upstand of the stop.	15mm
2 (WYC417406)	RP120	Raven Seals	Applied to the upstand of the stop.	
3 (WYC429040)	ST1009	Sealed Tight Solutions Limited	Applied to the upstand of the stop.	
4 (WYC509193)	Aquamac 21	Schlegel	Applied to the upstand of the stop.	

4.5.6 Threshold Sealing Arrangement

The Falcon Timber Ltd range of doorsets detailed herein **shall** be fitted with one of the following tested and approved drop down or threshold sealing arrangements in order to maintain a leakage rate below $3m^3/m/h$ when tested in accordance with BS 476-31.1: 1983. The supporting evidence contained within section 3 also demonstrates that the sealing arrangements have been successfully tested for fire resistance performance.

Arrangement No.	Product	Manufacturer	Test Reference (Section 3)	Location Relative to Leaf	Maximum Permitted Gap Dimension
1	NOR810S (Drop-down Seal)	Norseal Ltd	3.1.2 & 3.3.2	Rebated centrally in the bottom edge of the leaf	6.7mm
2	ST422 (Drop-down Seal)	Sealed Tight Solutions Ltd	3.1.5 & 3.3.5	Rebated centrally in the bottom edge of the leaf	6mm
3	MXS 15/2 (Threshold Profile)	Exitex Ltd	3.1.7 & 3.3.7	Fitted between the vertical frame Jambs	3.5mm
4	ST422GT (Drop-down Seal)	Sealed Tight Solutions Ltd	3.1.8 & 3.3.9	Rebated centrally in the bottom edge of the leaf	3.5mm (Assessed with additional data from arrangement 3 above)
	Macclex (Threshold Profile)	Stormguard		Fitted between the vertical frame Jambs	

Notes:

1. One of the above detailed threshold sealing arrangements shall always be fitted within the doorset design to provide the ambient temperature smoke control performance assessed herein.
2. 1mm (t) intumescent gaskets may be fitted to all sides of the mortice of the drop-down seal providing the application of the material does not interfere with the operation of the selected drop-down seal. The application of the material will not detract from the smoke leakage performance of the door design and will only enhance the fire resistance performance of the doorset design as when under fire resistance test conditions, it will react and reduce the heat transfer through the drop seal.
3. The test evidence for fire resistance as summarised within section 3 included a range of gaps across the threshold, the above detailed maximum gaps have been determined specifically for each of the threshold sealing solutions as supported within the test evidence for fire and smoke control performances.
4. Options 3 & 4 within the table above include a threshold profile which is to be installed between the vertical jambs, the threshold profile is to be bedded upon a nominal Ø6mm continuous bead of intumescent mastic onto the notional floor level or cill as appropriate.

5 General Description of Construction

5.1 Leaf Core Construction

The door leaf options detailed below are approved by this assessment.

5.1.1 Strebord® 44

The primary construction for door leaves of this design comprises the following:

- A homogenous solid sheet of 44mm thick Strebord® 44 particleboard (minimum density 570kg/m^3 to maximum density 630kg/m^3). The leaves are to be lipped with hardwood.

Notes:

The leaf must be lipped as specified in section 5.4.

The minimum leaf thickness after calibration is 43mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 44mm.

5.1.2 Stredor® 44 – Ply faced

The basic tested construction of the Stredor® 44 door design comprises the following.

Element		Material	Dimensions (mm)	Minimum Density (kg/m^3)
Stiles & rails		None fitted	-	-
Core	Inner core	Cross Grain Poplar Ply	2.1 (t)	510[1]
	Outer core	Vertically orientated finger-jointed Pine lamels	18.8 (t) x 28 (w) (nominal individual lamel size)	480[1]
Facings	Inner	Cross grain Poplar Ply	1.4 (t)	510[1]
	Outer	Engineered Veneer	0.6 (t)	600[1]

[1] Stated nominal densities

Notes:

The leaf must be lipped as specified in section 5.4.

The minimum leaf thickness after calibration is 43mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 44mm.

5.1.3 Stredor® 44 – MDF faced

The basic tested construction of the Stredor® 44 door design comprises the following.

Element		Material	Dimensions (mm)	Minimum Density (kg/m^3)
Stiles & rails		None fitted	-	-
Core	Inner core	Cross Grain Poplar Ply	2.1 (t)	510[1]
	Outer core	Vertically orientated finger-jointed Pine lamels	13.95 (t) x 28 (w) (nominal individual lamel size)	480[1]
Facings		MDF	7 (t)	700[1]

[1] Stated nominal densities

Notes:

The leaf must be lipped as specified in section 5.4.

The minimum leaf thickness after calibration is 43mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 44mm.

5.1.4 Strebord® 54

The primary construction for door leaves of this design comprises the following:

- A solid sheet of 54mm thick Strebord® 54 three layered particleboard (density 530-615kg/m^3). Where specified the leaves are lipped with hardwood.

Notes:

The leaf must be lipped as specified in section 5.4.

The minimum leaf thickness after calibration is 53mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 54mm.

5.1.5 Stredor® 54 – Ply faced

The basic tested construction of the Stredor® 54 door design comprises the following.

Element		Material	Dimensions (mm)	Minimum Density (kg/m^3)
Stiles & rails		None fitted	-	-
Core	Inner core	Cross Grain Poplar Ply	4.2 (t)	510[1]
	Outer core	Vertically orientated finger-jointed Pine lamels	20 (t) x 24 (w) (nominal individual lamel size)	480[1]
Facings	Inner	Poplar Ply	4.2 (t)	510[1]
	Outer	Engineered Veneer	0.4 (t)	600[1]

[1] Stated nominal densities

Notes:

The leaf must be lipped as specified in section 5.4.

The minimum leaf thickness after calibration is 53mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 54mm.

5.1.6 Stredor® 54 – MDF faced

The basic tested construction of the Stredor® 54 door design comprises the following.

Element		Material	Dimensions (mm)	Minimum Density (kg/m^3)
Stiles & rails		None fitted	-	-
Core	Inner core	Cross Grain Poplar Ply	4 (t)	510[1]
	Outer core	Vertically orientated finger-jointed Pine lamels	18 (t) x 24 (w) (nominal individual lamel size)	480[1]
Facings		MDF	7 (t)	700[1]

[1] Stated nominal densities

Notes:

The leaf must be lipped as specified in section 5.4.

The minimum leaf thickness after calibration is 53mm (i.e. a maximum of 0.5mm from both sides).

The minimum leaf thickness after finishes applied is 54mm.

5.2 Comparison of Door Core Designs

The principle of this field of application is based upon the lowest common performance shared by each of the door core designs detailed in section 5.1, with performances demonstrated by the supplied and summarised test evidence contained within section 3.

Upon review of the supplied evidence, it can be observed that most of the test evidence supplied has been undertaken on the 44mm variant of the cores.

The Strebord® 44 (WF419865) and Stredor® 44 Ply (WF416690) were both tested with dimensions not exceeding 2153mm high x 950mm wide and both achieved an integrity performance of 34 minutes. The Stredor® 44 MDF (WF513906) was tested with dimensions not exceeding 2040mm high x 926mm wide and achieved an integrity performance of 39 minutes.

Based on the fire integrity overperformance observed in each of the tested cores it is possible to increase the permitted height and width of the doorset designs from the tested arrangement by assessment. This is supported within the European extended field of application system specifically with reference to rule A.3.2 & A.3.3 of EN 15269-3: 2022. When applied to each of the tests this calculation results in assessed leaf sizes for fire resistance performance (2132mm high x 933mm wide) which are larger than permitted in section 4.5.4. Supporting the suitability of the cores for the dimensions given herein. Furthermore, each of the intumescent specifications for the three referenced tests consisted of 2No. 10mm wide x 4mm thick intumescent seals positioned centrally within the frame reveal with 10mm separation. Supporting the intumescent sealing configuration contained herein for the core types.

The 54mm variants of each core have been considered based on the fact that the construction of each of the core results in an increased thickness of the material tested compared with the 44mm variant. The increased thickness of material will result in further rigidity of the core under fire test conditions limiting the extent of the expected deflection as well as increasing the time at which burn through may occur.

The ambient temperature smoke control sealing of the doorset design including all core variants is based on the fact that each of the cores are impermeable in isolation. The expectation of areas where leakage could occur is limited to areas of breakthrough of the core material and gaps which allow the doorset to function and be installed (for example leaf glazing perimeters, letterplates and door gaps). The evidence contained in section 3.3 includes the performance of two of the above referenced 44mm variants which were subjected to fire resistance testing, neither of these tests exceeded a leakage rate of 1.10m^3/m/h under test conditions, the other testing also included within section 3.3 when compared, supports this hypothesis.

Therefore, based on this analysis for the purpose of the scope considered within this field of application the cores shall be considered interchangeable.

5.3 Leaf Size Adjustment During Manufacture

Door leaves may be altered as follows prior to the machining for hardware.

Pre-Machining Leaf Size Adjustment Specification	
Element	**Reduction**
Leaf	The size of the leaf may be reduced in height or width without restriction for manufacturing purposes, providing the finished leaf is lipped in accordance with section 5.4
Timber Lipping	The timber lipping thickness can be reduced after it has been glued in place, providing it is not reduced below the minimum stated in section 5.4

5.4 Timber Lipping

The testing documented in section 3 for both fire resistance and ambient temperature smoke control performance has been undertaken using a range of lipping thickness's applied to all edges using Hardwood and a range of adhesives.

On the above basis, the Falcon Timber Ltd doorset designs contained herein must be lipped with the following specification.

Timber Lipping Specification		
Material	**Size (mm)**	**Min Density (kg/m^3)**
Hardwood	8-13 thick	640

Notes:

1. All lippings are to be the same thickness as the door leaf.
2. Lippings shall be applied to all edges of the door leaf.
3. Lippings shall be bonded with an adhesive as detailed within section 9.
4. It is permitted to apply maximum 8mm radius to the corners of the lipping at vertical edges to create a maximum 2mm edge profiling, since the application of such radius does not influence the interface between the smoke control seal and the face of the leaf.

5.5 Decorative & Protective Facings

Relatively thin leaf facing materials are deemed to be decorative and their application is not considered to be of detriment to the overall stability or performance of the doorset design. In fact, when considered for fire resistance performance, when applied as an additional component on top of the minimum facing material required by the specified door blank, they are likely to provide a small enhancement in performance as an additional barrier to fire spread, although, this is likely to be negligible.

When considering the ambient temperature smoke control performance, providing the sealing arrangement at the peripheries of the leaf remains unaffected and the seal is still able to make contact with the face of the leaf in the same manner as tested, the following additional facing materials would have limited influence under ambient temperature smoke control test conditions.

The following additional facing materials are therefore permitted for this door design since they would have limited influence under fire resistance and ambient temperature smoke control test conditions.

Decorative & Protective Facing Specification	
Facing Material	**Maximum Permitted Thickness (mm)**
Paint	0.2
Timber veneers	2
Cellulosic and non-metallic foils	0.4

Notes:

1. Metallic facings are not permitted except for push plates and kick plates.
2. The door leaf thickness may be reduced on both sides by a maximum of 0.5mm for calibration purposes in order to accommodate the chosen finish. The minimum overall leaf thickness must remain at 44mm or 54mm after finishing has been applied depending on the starting size of the blank used.
3. Materials may over sail lipping's but must not return around leaf edges.
4. Materials must not conceal intumescent strips or interfere with the sealing arrangement at the perimeter of the leaf.

Decorative finishes listed above may be painted within the limits for paint finish, above.

5.6 Decorative Planted on Timber Mouldings

Decorative mouldings are permitted to be applied to the face of the leaf based on the following rationale:

Fire resistance: Under test conditions the below detailed decorative planted on timber mouldings would char and provide additional protection to the leaf face under the footprint of the moulding prior to eventually falling away. The decorative mouldings application is not permitted to be as a result of the removal of the core material and therefore burn through of the leaf would not be expected.

Ambient temperature smoke control: Decorative mouldings under ambient temperature smoke control test conditions will have little influence on the leakage rates of the doorset design, due to the fact that their application will not result in additional discontinuities at the leaf edges or through the leaf than those present within the tested specimens as summarised within section 3.

Decorative mouldings can be applied to the Falcon Timber Ltd doorset design providing the following criteria is adhered to:-

The mouldings:

1. Are surface applied to the door
2. Are no higher than 30mm i.e. proud of the door
3. Are no wider than 50mm
4. Cover no more than 20% of the door leaf area
5. Are no closer than 80mm to the door leaf edge or apertures within the leaf
6. Are bonded into position with no mechanical fixings
7. Are bonded using any glue which is suitable for bonding the lipping of the door.
8. Do not interfere with the sealing at the perimeter of the leaf.

5.7 Feature Grooves

Feature grooves were included within tests referenced WF414162 & WYC414089 without being of detriment to the overall performance of the doorset. The doorset they were included within achieved 36 minutes integrity and insulation performance and a leakage rate of no greater than 1.77m^3/m/h.

Overarching limitations – Feature Grooves

- Feature grooves may be fitted to either or both sides of the door leaf to the following specification.
- Feature grooves cannot be located within 20mm of any mortice for hardware (i.e. any item which requires material to be removed from the door)
- Feature grooves shall not be positioned such that they interfere or intersect with the sealing arrangement at the door stop. Therefore, the grooves shall stop 30mm from the edge of the leaf on the closing face.
- Grooves shall not coincide with glazed apertures.

The following section details the tested grooving arrangement and the associated limitations:

5.7.1 Permitted Groove Option

Groove Option		
Element	**Details**	
Max. groove size (mm)	10mm wide x 10mm deep	
Inserts	Inserts must be fitted filling the complete groove within the leaf and consist of Hardwood (minimum density 640kg/m^3). The insert can be grooved to include a 3mm deep x 3mm wide “V” Groove	
Adhesive	See Section 9 (Adhesives)	
Proximity to door edges (mm)	Horizontal Grooves	May extend full width subject to limitation given in section 5.7 above relating to the door stop sealing
	Vertical Grooves	Not permitted.
Groove spacing (mm)	No closer than 200mm apart & no closer than 50mm to horizontal edges of the leaf.	
Orientation	Horizontal only	

6 Glazing within the Leaf

6.1 General

The testing conducted on the Falcon Timber Ltd door designs has demonstrated that they are capable of tolerating glazed apertures, whilst maintaining a leakage rate of less than $3m^3/m/h$ and a fire resistance integrity performance in excess of 30 minutes. For example, test's referenced WF428987 & WYC429040/AR1/Test2 which both included a glazed aperture measuring 1540mm high x 400mm wide resulting in a maximum perimeter length of 3.88m with an area of $0.616m^2$. While these dimensions have been tested in one of the leaf types considered, the dimensions provided in the following sections must not be exceeded.

In order to include glazed apertures within the doorset design included herein the lowest common performance has been established, glazing is therefore acceptable within the following parameters.

1. The maximum assessed glazed perimeter length of any aperture must be defined by direct test evidence.
2. The glazing system, bead profile, retention technique and glass thickness must be defined by direct test evidence.
3. Glazed openings must not be less than 150mm from top and vertical edges of the leaf and 150mm from the bottom edge of the leaf.
4. In all instances the beading arrangement must not interfere with the sealing arrangement at the perimeter of the leaf.
5. Multiple apertures are not permitted.
6. Apertures must be rectilinear.
7. Apertures cannot be rotated (e.g. a square to be rotated to create a diamond effect).

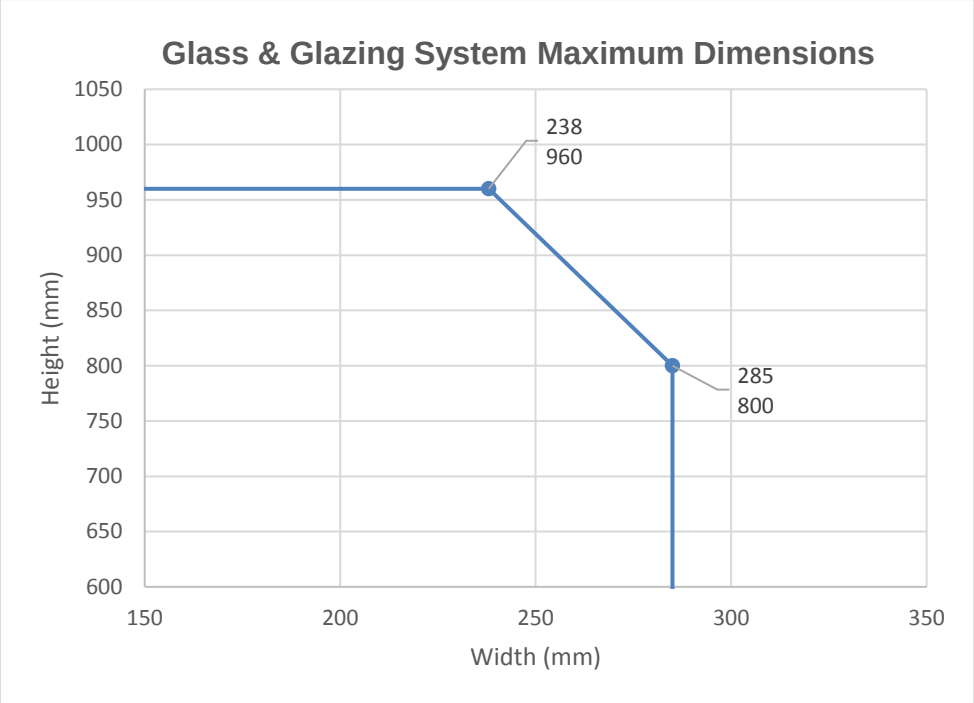
6.1.1 Single Pane Glass & Glazing Systems

Based on the tests summarised within section 3 the following glass and glazing systems are permitted for use with the Falcon Timber Ltd doorset design.

The following glass and glazing systems detailed below are permitted within all door leaf designs.

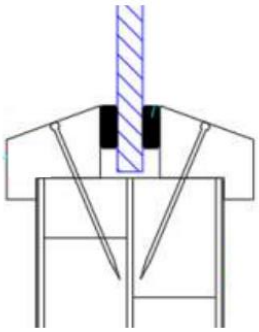
- The maximum permitted height of a glazed aperture is 960mm
- The maximum permitted width of a glazed aperture is 285mm
- The maximum permitted area of a glazed aperture is 0.238m^2

All of the above dimensions must not be exceeded in order to maintain fire resistance and ambient temperature smoke control performance characteristics. A graphical representation of the permitted glazing dimensions is given below.



6.1.1.1 Permitted Glazing System No.1

The below detailed glazing system was tested as summarised within section 3 and achieved a leakage rate below 3m^3/m/h and a fire resistance performance in excess of 30 minutes and is therefore permitted within the following parameters:

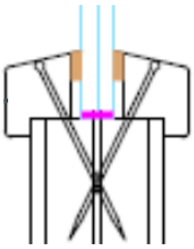
Details of permitted glazing arrangement:	
Glass	Fireglass UK Pyrobelite 9EG, 12mm thick
Sealing Arrangement	Sealmaster, Black Glazing Tape (BGT) 10mm wide x 4mm thick Applied between the glass and the bead on both faces.
Fixing Technique and Frequency	16 gauge, 50mm long steel pins, fixed at 25 – 35 degrees to the face of the glass at 50mm from corners and no greater than 145mm centres.
Beading Details	Hardwood, density ≥640kg/m^3 19mm or 24mm wide (based on core thickness) x 21mm high including a 6mm x 6mm bolection and a 15-degree chamfer.
Expansion Allowance (mm)	3mm to all edges.
Cross-sectional drawing of the above detailed glazing system	
	

Notes:

1. The above referenced glass type and thickness shall not be changed from the tested arrangement. An increase or decrease in the thickness of the glass installed will affect the interaction of the sealing arrangement of the glass within the leaf and influence the potential fire resistance and smoke control performance of the doorset design.
2. Multiple apertures are not permitted.
3. The above detailed sealing arrangement, fixing technique and frequency and beading details must be replicated as tested, no change to these elements is permitted.
4. The glass must be fitted fully in accordance with the tested details & installation requirements, particularly with respect to edge cover and expansion tolerances.

6.1.1.2 Permitted Glazing System No.2

The below detailed glazing system was tested as summarised within section 3 and achieved a leakage rate below 3m^3/m/h and a fire resistance performance in excess of 30 minutes and is therefore permitted within the following parameters:

Details of permitted glazing arrangement:	
Glass	Pilkington Pyrostop, 15mm thick
Sealing Arrangement	Sealed Tight Solutions Ltd, STS 302 Graphite based glazing liner, trimmed to 15mm wide x 2mm thick, applied lining the aperture Sealed Tight Solutions Ltd, ST 105-3, 9mm wide x 3mm thick applied between the bead and the glass on both faces.
Fixing Technique and Frequency	16 gauge, 50mm long steel pins, fixed at 35 degrees to the face of the glass at 50mm from corners and no greater than 150mm centres.
Beading Details	Hardwood, density ≥640kg/m^3 19mm or 24mm wide (based on core thickness) x 22mm high including a 6mm x 6mm bolection and a 15-degree chamfer.
Expansion Allowance (mm)	5mm to all edges.
Cross-sectional drawing of the above detailed glazing system	
	

Notes:

1. The above referenced glass type and thickness shall not be changed from the tested arrangement. An increase or decrease in the thickness of the glass installed will affect the interaction of the sealing arrangement of the glass within the leaf and influence the potential fire resistance and smoke control performance of the doorset design.
2. Multiple apertures are not permitted.
3. The above detailed sealing arrangement, fixing technique and frequency and beading details must be replicated as tested, no change to these elements is permitted.
4. The glass must be fitted fully in accordance with the tested details & installation requirements, particularly with respect to edge cover and expansion tolerances.

7 Door Frame Construction

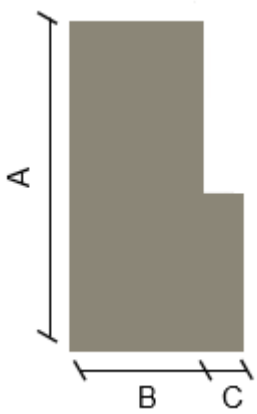
7.1 Details for Door Frame

The door frame details listed below are the minimum size and density which have been successfully tested and assessed by this report for fire resistance and ambient temperature smoke control performance. The frame must be constructed to meet the following specification.

Frame Specification		
Material	**Minimum Section Size (mm)**	**Minimum Density (kg/m^3)**
Softwood or Hardwood	80 (d) x 32 (w) with a 15 (d) stop	510

7.1.1 Standard frame detail

The diagram below shows detail of the standard frame construction.



A: Frame depth = 80mm minimum

B: Frame width = 32mm minimum

C: Stop width = 15mm minimum

7.2 Door Frame Joints

Below are depictions of the door framing joints that are deemed acceptable. Please note that the drawings are provided as general illustrations of the type of door frame joint; actual construction in terms of intumescent seal location and material, etc. must be as the text within this document specifies. The door frame joints are required to be tight, with no gaps, and require mechanical fixing with the appropriate size ring shank nails or screws.

Frame joints shall additionally be reinforced with adhesive, as detailed within section 9.

Half Lapped Joint

Mitre Joint

Mortice & Tenon Joint

Butt Joint

Trenched Joint

Figure – Approved door frame jointing options

7.3 Timber Cill

The Falcon Timber Ltd doorset design is permitted with an optional timber cill, based upon the available test evidence as summarised within section 3 (CFR2110131 & WYC509193). The timber cill when fitted shall be in line with the below detailed specification:

- Hardwood timber of minimum density 640kg/m^3.
- Minimum depth of 92mm and between 15-45mm thick.
- One of the detailed threshold sealing arrangements detailed within section 4.5.6 shall be applied across the bottom of the doorset.
- The timber cill is to be bedded on a nominally Ø6mm continuous bead of intumescent mastic when applied.

8 Fanlights

8.1 General

Based on the evidence summarised within section 3, it is permitted to apply glazed fanlights to the Falcon Timber Ltd doorset design without compromising the ambient temperature smoke control or fire resistance performance. When applied, the fanlight must comply with the following parameters:

The maximum perimeter of fanlights permitted with the Falcon Timber Ltd doorset design is defined within section 8.2 and must not be exceeded.

Framing for modular glazed fanlights must be as detailed within section 8.3, including information on jointing to the doorset.

8.2 Maximum Permitted Dimensions

The Falcon Timber Ltd doorset design has been tested with the application of a modular framed glazed fanlight, as detailed within section 3. The Falcon Timber Ltd doorset design range is therefore assessed to include fanlights as detailed within the following sections.

The below table provides the maximum size of fanlight considered within this assessment which may be used based on the testing undertaken, it is possible to include a fanlight to a doorset providing the maximum permitted dimensions are not exceeded:

Element:	Maximum Permitted Linear Dimension:
Height	0.644m
Width	0.939m
Area	0.604m^2

The above maximum dimensions have been permitted based on the referenced test reports as summarised within section 3 (WF432578 & WYC432787). It has been possible to consider the performance of fanlight tested with the other door sealing systems contained herein based on the fact that this assessment is made to the lowest common performance of the doorset designs tested.

8.3 Fanlight Framing

The framing details for modular glazing permitted for use with the Falcon Timber Ltd doorset design as detailed below are the minimum size which has been successfully tested and subsequently assessed by this report. The frame must be constructed to meet the following specification.

Frame Specification	
Material	**Minimum Section Size (mm)**
Softwood or Hardwood (≥545kg/m^3):	Frame: 80 (d) x 44 (w) Overall with a 15 (w) x 47 (d) rebate to create an integral upstand for the glazing system.

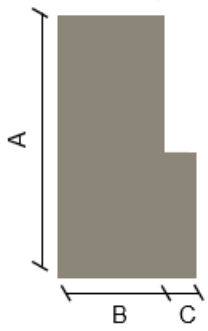
Note:

1. Beading information is given within subsequent sections.
2. Frame jointing may be achieved as per the jointing methods detailed within section 7.2 for door frames and shall be bonded with adhesive as detailed within section 9.
3. The head of the fanlight frame shall include 2No. grooves 15mm wide x 4mm deep across the width of the fanlight, they shall be positioned centrally to the depth of the frame 20mm apart. These grooves machined in the rear of the frame, against the wall shall facilitate the installation of 2No. fire only intumescent strips matching those used for the perimeter sealing for the doorset assembly which shall measure 15mm wide x 4mm thick.

8.3.1 Modular unit frame detail

The diagram below shows detail of the minimum frame construction dimensions for modular units permitted by this assessment.

Vertical Jambs and Bottom Member:

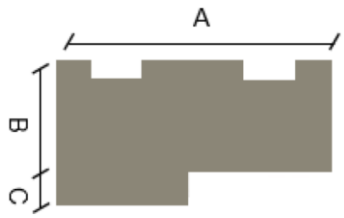


A: Frame depth = 80mm minimum

B: Frame width = 29mm minimum

C: Stop width = 15mm minimum

Head:



A: Frame depth = 80mm minimum

B: Frame width = 29mm minimum

C: Stop width = 15mm minimum

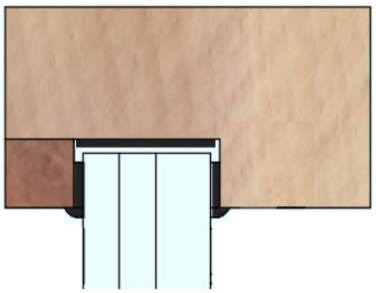
8.3.2 Modular Unit Jointing to Door Frame

Modular unit framing constructed in accordance with section 8.3.1 must be jointed to the associated door frame as detailed below:

1. The depth of the modular unit shall be equal to the depth of the associated door frame.
2. The modular framing is to be fixed with two sets of Steel wood screws (50mm long and 70mm long respectively). The 70mm long screws are to be applied through the door frame stop vertically into the modular fanlight frame and the 50mm screws are to be applied through the frame reveal into the modular frame. Fixings shall be at 150mm from corners and no greater than 625mm centres.
3. 2No. beads of sealant shall be applied between the modular fanlight frame and the door frame prior to fixing. The beads shall be continuous across the width and nominally Ø3mm.

8.4 Permitted Glass and Glazing System

The below detailed glazing system was tested as summarised within section 3.1 & 3.2 and achieved a leakage rate below 3m^3/m/h and a fire resistance performance in excess of 30 minutes and is therefore permitted within the following parameters:

Details of permitted glazing arrangement:	
Glass	Fireglass UK, Double Glazed Unit Consisting Of: Pyrobelite 12, 12mm thick / 8mm thick stainless steel spacer / Low E Laminated Glass 6.8mm thick
Sealing Arrangement	Sealed Tight Solutions Ltd, STS 302 Liner, 30mm wide x 2mm thick Applied lining the entire aperture. Sealed Tight Solutions Ltd, STS104, 10mm wide x 4mm thick Applied to the upstand of the integral stop & Glazing Bead (both faces of the glass)
Fixing Technique and Frequency	Ø2mm x 50mm long steel pins, fixed at 45 degrees to the face of the glass at 45mm from corners and no greater than 140mm centres.
Beading Details	Hardwood, density ≥640kg/m^3 15mm wide x 15mm high square section.
Expansion Allowance (mm)	3mm to all edges.
Cross-sectional drawing of the above detailed glazing system	
	

Notes:

1. The above referenced glass type and thickness shall not be changed from the tested arrangement. An increase or decrease in the thickness of the glass installed will affect the interaction of the sealing arrangement and influence the potential fire resistance and smoke control performance.
2. The above detailed sealing arrangement, fixing technique and frequency and beading details must be replicated as tested, no change to these elements is permitted.
3. The glass must be fitted fully in accordance with the tested details & installation requirements, particularly with respect to edge cover and expansion tolerances.
4. Based on the testing it is permitted to include a 2mm x 2mm quirk to the glazing bead.

9 Adhesives

The following adhesives must be used in the construction of the doorsets. These may be hand applied or may be applied using an edge bander, as appropriate. With either method it must be ensured that sufficient glue is applied across the entire surface area between the 2No substrates being adhered to guarantee a robust bond. Other manufacturers guidance should be followed, for either installation application used.

Element	Product/Material Type
Door blank core	As per manufacturing specification
Feature Grooves	PVA
Decorative Facings & Mouldings	UF, PUR or hotmelt EVA or PUR
Frame Jointing	D4 PVA (Hand Applied)
Timber lipping	Norbord Caberfix D4 PU (Hand Applied) Henkel Technomelt 270/7 PUR (Edge-banded) Kleiberit Hot Melt 707.9 PUR (Edge-banded)

10 Hardware

10.1 General

The following section details the permitted scope and constraints for fitting hardware to this door design. The following items of hardware must also bear the UKCA or CE Mark in addition to the requirements outlined in the following sections. The UKCA or CE mark must indicate that the hardware is suitable for fire doors in the classification code and declaration of performance issued by the hardware manufacturer:

- Latches & locks: Test Standard EN 12209
- Single axis hinges: Test Standard EN 1935
- Controlled door closing devices: Test Standard EN 1154

The following sections consider what tested and assessed alternative items of essential and non-essential hardware can be used on the doorset range.

Items of hardware have been considered and approved via the following means:

- The component has been successfully tested to BS 476: Part 22: 1987 or BS EN 1634-1 and BS 476: Part 31.1: 1983 or BS EN 1634-3: 2004 in a suitably similar type of doorset e.g. timber leaf in timber frame.

Each section will consider the named item of hardware and detail if there are any limitations associated with:

- Leaf size
- Configuration
- Intumescent or smoke control seals
- Intumescent protection
- Frame configuration requirements.

No item of hardware should be within 200mm of another item of hardware unless there is test evidence to demonstrated they can be in closer proximity.

Hardware items should generally be fitted in accordance with the manufacturer's instructions. **However, the parameters and requirements of this assessment always take precedence, including specified protection such as hardware gaskets.**

10.2 Intumescent to Hardware

The intumescent materials used to protect hardware that have been tested and assessed for this doorset design are detailed below. Note that any one of the product/manufacturer options listed in the table may be used in the specific application noted.

The door gap perimeter intumescent seal and ambient temperature smoke control seal specifications are documented in conjunction with the leaf envelope size limitations in section 4.

Hardware Intumescent Specification		
Item	**Location**	**Product/Manufacturer**
Hinges	Under the hinge blade to the leaf and frame.	1mm (t) MAP 1mm (t) Intumescent Seals Ltd, Therm-A-Strip 1mm (t) Sealed Tight Solutions Ltd, Graphite 1mm (t) Rutland, Graphite 1mm (t) Interdens®
Lock/latches	Under forends, keeps & encasing the latch bodies	1mm (t) Sealed Tight Solutions Ltd, Graphite 1mm (t) Interdens® 1mm (t) Intumescent Seals Ltd, Therm-A-Strip

Gaskets must be fitted where required as outlined within the table above.

Where it is stated that 1mm thickness of intumescent is required for a particular element of hardware, it is permitted to use up to 2mm thickness of the permitted gasket [as appropriate for the hardware]. It is the opinion of Warringtonfire that the additional protection will not detract from the fire resistance performance under test conditions. In addition, providing the application of the material does not interfere with the operation of the doorset design or smoke sealing arrangement applied to the upstand of the stop. The application of the material will not detract from the smoke leakage performance of the door design.

10.3 Essential Hardware

The following table details the essential hardware for the various doorset configurations that are referenced in this assessment.

Configuration	Hardware
LSASD	• Latch • Handle • Hinges • Self-closing device (closer)

10.4 Latches & Locks

Unless explicitly detailed within the sections below only 1No. lock or latch shall be applied within any individual doorset. When fitted the lock or latch body shall be installed within the vertical edge of the door leaf in all cases, at a height as detailed within the relevant section below. Refer to specific notes contained within each section for further considerations on lock or latch type.

10.4.1 Multi Point Engagement

The table below details the tested latches and locks that are approved.

Element	Manufacturer & Product Reference	Relevant Fire Resistance & Ambient Temperature Smoke Control Test Evidence (Section 3)
Locks & latches	1. ERA SureFire Classic 2 hook multi-point Door Lock	3.1.1 & 3.3.2
	2. Winkhaus AV2, multi-point lock	3.1.2 & 3.2.1
	3. Winkhaus AV3 Autofire Multipoint lock	3.1.3 & 3.3.3
	4. ERA SureFire Heritage 2 hook multi-point Lock	3.1.6 & 3.3.6
	5. Yale Lockmaster autoengage 2LB Classic 45mm	3.1.8 & 3.3.9
	6. Fullex Locks Ltd, SL16 Crimebeater multi-point lock	3.1.10 & 3.3.10
	7. GU Security Automatic VdS class A, M101313 multi-point lock	3.2.7 – See Note Below

Notes:

1. The top and bottom hook locks need to be engaged for fire resistance and ambient temperature smoke control performance.
2. The centre, top and bottom keep plates must be the same as those tested, as supplied by the manufacturer.

3. In all instances the location of the handle must be between 800–1200mm from the threshold. The multi point latch forend shall not be greater than the largest tested and therefore shall not exceed 1770mm.
4. Item number 7 in the above table has been permitted based on the successful fire resistance test evidence contained within section 3.2.7. No supporting ambient temperature smoke control evidence has been supplied for consideration, however, due to the multi-point locking function of the lockset and the fact that sealing is achieved by the stop mounted seal (which remains uninterrupted when the lock is fitted) it has been permitted as it is the opinion of Warringtonfire that the sealing of the doorset design shall be no worse than demonstrated under test conditions with alternative multi-point locking systems.

10.4.2 Cylinders

The table below details the tested cylinders that are approved.

Element	Manufacturer & Product Reference
Cylinder	1. ERA Fortress 3* cylinder
	2. Access 2, Tigris Premier 3 cylinder
	3. Yale Platinum 3* Cylinder
	4. Glutz GC9991 eurocylinder
	5. Winkhaus XR6 cylinder.
	6. Assa Abloy, KMT3030-NP cylinder
	7. UAP Kinetica 3* (KIN30T/30CAS-HELIX-K4) cylinder

Note:

The listed cylinders have been permitted for use since the door leaf will contain a lock body which is made from steel which is tight fitting within the rebate to which it is applied. The below tolerances on cylinder fitting are considered by Warringtonfire to have little influence in either the fire resistance or ambient temperature smoke control leakage to the overall assembly under test conditions.

Alternatively, based on the tested designs summarised within section 3, components with the following specification are also deemed acceptable.

- The cylinder must be compatible with the lock/latch.
- Cylinders constructed from Brass or Steel with a melting point in excess of 800^0C, 70mm long x 33mm high x 17mm wide at the maximum dimension, providing the hole within the leaf to facilitate the cylinder is no greater than 2mm larger than the cylinder body, the cylinder must be of euro profile.
- Single and double cylinders, along with cylinder & turn are permitted.
- Door preparation for single cylinders shall penetrate only half the door thickness.

10.5 Handles & Escutcheons

The table below details the tested handles that are approved.

Element	Manufacturer & Product Reference
Handles	1. ERA 1X000 Stainless Steel Handle set. 2. Eurospec lever type handle, CSL-1194 3. Serozzetta Plaza Stainless Steel Lever Type Handle 4. Consort Hardware, Lever on Rose, CH100/G4 5. Yale 0757-2003-CH-CH Inline Lever 6. UAP nanocoast 243 aluminium lever type handle 7. Stanza ZPZ090SC 8. Fab & Fix Balmoral Inline lever 1A000 9. Glutz Zurich 5088 handleset 10. Zoo aluminium lever handle Z2L 11. Saphire Hardware ZAA030 lever 12. Winkhaus Palladio handle 13. Hoppe Tokyo M1710RH/3360N handle 14. Rutland RL.RTD.121.55 aluminium lever handle
Escutcheons	1. Eurospec escutcheon CSE1006 2. Smith and Locke Escutcheon ref 4378. 3. Consort Hardware, escutcheon CH311/8/316 4. Glutz 5380C escutcheon 5. Winkhaus escutcheon Z2E 6. Altro S/S Escutcheon E-1 (Steel)

Alternative handles are permitted providing they meet the specification given below:

- Steel, stainless steel, brass, aluminium or bronze are permitted
- Surface fixings or through fixings are permitted. If through fixed there must be no more than 0.5mm clearance between the hole and the fixing.
- The hole through the leaf to facilitate the spindle must be no greater than 20mm diameter.

The design may be either lever on rose or lever on back plate up to the following maximum sizes:

- Lever on rose with a rose diameter up to 52mm
- Lever on back plate with a back plate size up to 240mm high x 35mm wide
- Lever handle length 250mm

The handle must be compatible with the lock/latch, such that the closing action of the doorset is not impeded.

Alternative escutcheons are permitted providing they meet the specification given below:

- Steel, stainless steel, brass, aluminium or bronze are permitted
- Surface fixings or through fixings are permitted. If through fixed there must be no more than 0.5mm clearance between the hole and the fixing.
- The escutcheon may be up to Ø52mm overall and up to 8mm thick.

10.6 Butt Hinges

The table below details the tested butt hinges that are approved.

Element	Manufacturer & Product Reference
Hinges	1. Zoo Ball Bearing Butt Hinges, ZHSS234RS 2. Arrone Bearing Butt Hinges, AR8182 3. Royde and Tucker Hi-Load 207 Bearing Butt Type Hinges 4. Consort, CF5511, Bearing Butt Type Hinges 5. Eurospec Ball Bearing Butt Hinges, HIN 1433/13 6. Rutland, RH.BB.43R.SS Stainless Steel Bearing Butt Type Hinges 7. Royde & Tucker Hi-Load 101 Lift off hinges 8. Royde & Tucker H102 hinges

Alternatively, components with the following specification are also deemed acceptable.

Element	Specification
Blade height:	100 - 102mm
Blade width (excluding knuckle):	35mm
Blade thickness	2.5 - 4mm
Fixings:	Minimum of 4 No. Ø5mm x 30mm long steel wood screws per blade to the frame and a minimum of 4 No. Ø5mm x 50mm long steel wood screws to the leaf. All screw holes shall be filled
Materials:	Steel or stainless steel

In all instances, the hinges must have the following specification.

Element		Specification	
Hinge positions:	3 hinges are required:	Top	100 - 150mm from the head to top of hinge
		2nd	Either: ○ 200mm ±50mm from the head to top of hinge ○ Equidistant between top and bottom hinge
		Bottom	150 - 200mm from the foot of leaf to bottom of hinge
Intumescent protection:		See section 10.2	

10.7 Doorset Self Closing

Doorset automatic self-closing can be provided by:

- Overhead face fixed closers

Automatic doorset self-closing devices such as transom mounted, and offset pivots used with floor springs are not considered acceptable for use with the Falcon Timber Ltd doorset design contained herein.

Concealed overhead closers which are contained within the summarised evidence have not been permitted for the scope contained within this document due to the fact this assessment opines to the lowest common performance of the core types incorporated.

10.7.1 Overhead Face Fixed Closer

The table below details the tested overhead face-fixed closers that are approved.

Element	Manufacturer & Product Reference
Overhead face-fixed closers	1. Hoppe, AR1500 2. Arrow, 324BP 3. Dorma TS 92 4. Dorma TS 93 5. Rutland TS9205 6. Dorma TS 73V

Alternatively, components with the following specification are also deemed acceptable.

- Certifire approved overhead face-fixed closers for 30-minute fire resistance applications on 44mm thick timber door and timber frames and,
- Providing their application does not interfere with the perimeter sealing of the doorset design or remove any material from the door frame or leaf.

Note:

It must be ensured that the closer is of sufficient strength and power to ensure the door leaf/leaves fully engage into the frame reveal.

10.8 Non-Essential Hardware

Only the following items of non-essential hardware are permitted in addition to the prescribed essential hardware as detailed within section 10.3.

10.8.1 Pull Handles

Steel, stainless steel or bronze handles may be surface-fixed or bolted through the door leaf, providing the length is limited to 1200mm between the fixing points. If through fixed, there must be no more than 1mm clearance between the hole and stud and the stud shall be sealed within the aperture with an acrylic intumescent mastic so as to mitigate any potential leakage points at the handle locations.

The above scope of application is provided as in the opinion of Warringtonfire they will not significantly affect the fire resistance performance or the overall smoke leakage of the doorset being considered under test conditions. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame and subsequently the sealing in this area. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under fire test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf under fire test conditions would not be expected.

10.8.2 Push Plates & Kick Plates

Components with the following specification are deemed acceptable as in the opinion of Warringtonfire they will not significantly affect the fire resistance or ambient temperature smoke control performance of the doorset being considered. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame and subsequently the sealing in this area. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf would not be expected.

Approved specification:

- Polymeric or metal face-fixed hardware such as push plates and kick plates up to 2mm thick may be surface fitted to the doorset. These items of hardware are permitted up to a maximum of 20% of the door leaf area if mechanically fixed and a maximum of 30% if bonded with a contact or other thermally softening adhesive. Plates must not return around the door edges and shall finish 10mm before the door stop.

10.8.3 Security Viewers

The table below details the tested security viewers that are approved.

Element	Manufacturer & Product Reference	Intumescent Protection
Security Viewer	1. ERA Fab&Fix Spyhole	0.5mm (t) graphite type intumescent supplied with spyhole.
	2. D & E Architectural Hardware Ltd, D & E 3850 Ultrascope viewer.	0.5mm (t) Sealed Tight Solutions Ltd graphite applied to the viewer.
	3. Jedo Security viewer JV942	Jedo JV942 Kit – Graphite type intumescent 1mm (t)
	4. DESWALAF EI30 viewer	Sealed Tight Solutions Ltd, 1mm (t), graphite.
	5. Sealed Tight Solutions Ltd, 4008 viewer.	1mm (t) Sealed Tight Solutions Ltd, graphite type intumescent.
	6. Rutland HA12338 viewer	1mm (t), graphite type intumescent supplied with spyhole.
	7. Yale DH000768 Viewer	0.5 (t) graphite type intumescent supplied with spyhole.
	8. UAP Firecheck Viewer – SWALF Satin Chrome	1mm (t) graphite type intumescent applied to line the aperture.

Alternatively, components with the following specification are assessed as acceptable:

- Door security viewers with brass or steel bodies of a diameter less than or equal to 15mm may be used provided that the through-hole is bored tight to the case of the viewer (maximum tolerance +1 mm). Lenses must be glass and the item must be protected with a tested acrylic intumescent mastic.
- Must be fitted no closer than 100mm to door edge, glazing or any other hardware component.

This scope has been assessed on the basis that the acrylic intumescent mastic applied will limit the erosion of the leaf local to the aperture under fire resistance test conditions and will equally inhibit further leakage from the viewers location under smoke control test conditions.

10.8.4 Letter Plates

The table below details the tested letter plates that are approved.

Element	Manufacturer & Product Reference	Intumescent Protection
Letter plate	1. ERA Fab&Fix Nu Mail Door Letterplate	2No. wraps of Sealed Tight Solutions Ltd. 40 (w) x 2 (t) Graphite type intumescent
	2. Royde and Tucker LP008 letterplate.	Royde and Tucker LP008 Kit Supplied with Letterplate.
	3. Lorient Polyproducts Ltd, RJ008 letterplate	Intumescent kit supplied with Lorient Polyproducts Ltd RJ008 letterplate
	4. Yale Postmaster Professional Letterplate	As supplied with letterplate assembly.
	5. Lorient / UAP Soterian TS008-SLIM letterplate.	As supplied with letterplate assembly.

Notes:

Alternative letterplates are not permitted with the doorset design considered herein.

Letterplates shall be positioned no higher than 688mm form the bottom edge of the door leaf and no closer than 150mm to any leaf edge.

10.8.5 Knockers, Numerals & Signage

The table below details the tested knockers that are approved.

Element	Manufacturer & Product Reference
Knocker	1. ERA Ingot Door Knocker – 4A550 2. Yale 0716-2001-Contemporary-Knocker-No-Spyhole
Numerals	1. ERA Fab&Fix Door Numerals – FFNUM8BC

Alternatively, components with the following specification are also deemed acceptable as in the opinion of Warringtonfire they will not significantly affect the fire resistance or ambient temperature smoke control performance of the doorset being considered. This is on the basis of the items being surface mounted away from the edge of the door leaf, therefore unlikely to influence the junction between door leaf and frame and subsequently the sealing in this area. Furthermore, they are generally of lightweight construction, meaning that they are unlikely to destabilise the doorset and therefore cause adverse deflection under fire test conditions. Lastly, the surface mounted arrangement of the features means no material is removed in terms of the overall thickness of the door leaf beyond the footprint of the item, therefore burn through of the leaf would not be expected under fire test conditions.

Approved specifications:

Knockers:

- Steel, stainless steel, aluminium or bronze knockers, may be surface fixed or bolted through the door leaf, providing they are fitted no closer than 75mm from the leaf edge, other elements of building hardware or to any glazing and are no greater than 200mm high x 120mm wide. If through fixed, there must be no more than 1mm

clearance between the hole and stud. It is only permitted to fit 1No. knocker to any one doorset.

Numerals & Signage:

- Steel, stainless steel, aluminium or bronze numerals or signage may be surface fixed to the door leaf, providing they are fitted no closer than 35mm from the leaf edge, other elements of building hardware or to any glazing. The dimension of each numeral or sign must be no greater than 200mm high x 100mm wide x 4mm thick. Up to 5No. numerals or signs may be applied to a doorset, numerals and signs may be applied adjacent to each other providing the 35mm from other elements as detailed above is maintained.

11 Installation

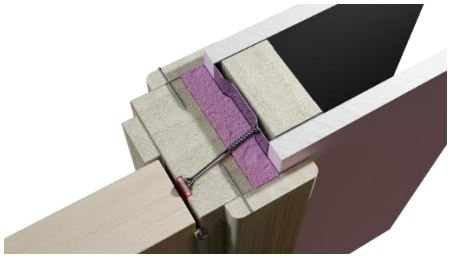
11.1 General

This section considers the installation of the Falcon Timber Ltd doorset design. This section considers:

- the door frame and architrave installation position relative to the wall
- the fire stopping (sealing to structural opening) between the frame and the wall
- the fixing requirement including packers
- the requirements for door edge gaps
- the trimming of door edges

11.2 Door Frame Installation

The following figures indicate the acceptable door frame installations. Please note that the firestopping element is provided in the below 3D models as a generic-coloured seal. For further clarification of the approved firestopping systems see section 11.3.

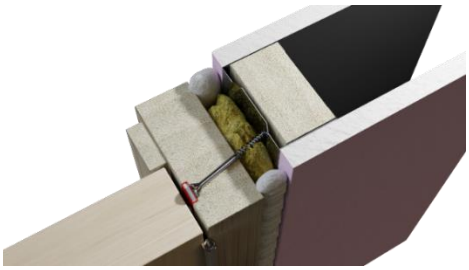
Permitted Installations	
	Instances where the door frame and the wall of the same depth such that architraves are fitted flush to both faces. Note that the minimum door frame section size (width and depth) must be as per the requirements noted in this report – see section 7.
	Instances where the wall thickness is greater than the door frame depth.
	Split frames are permitted providing that both frame sections are secured to the wall in accordance with section 11.5.3. Furthermore, the main frame section (from which the door is hung) must be constructed to at least the minimum door frame section size (width and depth) as per the requirements noted in this report – see section 7. The extension piece must be constructed using the same timber species as the main frame section.

Note:

1. The drawings are provided as a generalised illustration of the door frame installation only; actual installation must be as per the text within this document specifies.
2. Architraves requirements are documented in the firestopping & sealing to structural opening section of this report.

11.3 Firestopping & Sealing to structural opening

The firestopping requirements between the back of frame and wall are dependent on the gap size between the substrates. The table below provides the requirements based upon the gap size. Please note that in the 3D depiction noted below shows a generic application and only details the application where a door frame is of the same depth as the overall wall thickness, architraves though permitted have not been displayed.

Gap (mm)	Requirement	3D model depiction
Up to 19	Gap must be filled to the full depth with tightly packed mineral fibre, and capped on both sides to a depth of 10mm with one of the following tested intumescent mastics: ○ Mann McGowan Pyromas A ○ Everbuild Fire Sealant 300 ○ Sealed Tight Solutions Ltd ST88 Timber architraves of a minimum 15mm thick may be fitted to both faces, fitted with a minimum 15mm overlap to the door frame and wall.	
Up to 11	Gap must be filled to the full depth with Blue 60 Fire Rated Foam and capped on both sides to a depth of 10mm with Norseal Firewizard Fire Rated Intumescent Acrylic Sealant.	

The above tested and demonstrated solutions are permitted without the application of architraves however, it is permitted to apply timber based (softwood, hardwood or MDF) architraves to one or both faces of the doorset without detracting from the fire resistance or ambient temperature smoke control performance of the doorset design as these elements have been tested without architraves present and their application will improve the expected performances achieved.

11.4 Packers

Packers can be timber of equal density to the frame, or plywood or plastic packers if fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1.

Providing the packing material is capped with a minimum of 10mm depth intumescent mastic to both faces any of the above detailed packing materials may be used for ambient temperature smoke control.

Packers must be present at each fixing location.

11.5 Wall Types, Structural Opening & Fixity

11.5.1 Wall Types

The following wall types are approved for this doorset design:

a) Plasterboard clad timber stud partitions
b) Plasterboard clad steel stud partitions including timber lining.
c) Masonry constructions

Wall types a & b above must have supported fire resistance test evidence which demonstrates that it is capable of staying in place and intact for a minimum of 30 minutes supporting a doorset design.

Wall type c above must be determined to be able to provide at least the same level of fire resistance of the doorset design.

All wall types detailed above shall provide a suitable medium to permit adequate fixity, it is anticipated that for:

- Plasterboard clad timber stud partitions, the timber stud will be of sufficient dimensions such that the fixing for the door frame penetrates into solid timber.
- Plasterboard clad steel stud partitions will include a timber lining of sufficient dimensions such that the fixing for the door frame penetrates into solid timber.
- Masonry constructions are anticipated to be constructed of a solid block or brickwork to receive the fixings.

11.5.2 Structural Opening

For all wall types the structural opening shall be square, plumb and provide a flat surface for installation of the doorset.

For flexible wall types such as steel and timber stud partitions the structural opening must be prepared in line with the test evidence provided by the wall manufacturer.

11.5.3 Fixity

In all instances the fixing position must be such that it provides adequate restraint to the element of construction throughout the exposure to test conditions (fire resistance and ambient temperature smoke control). This may therefore sometimes necessitate a twin line of fixings.

For single leaf doorsets without fanlights, the frame jambs only are to be fixed to the supporting construction using steel fixings at 600mm maximum centres and maximum of 150mm from corners. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm. It is not necessary to fix the frame head, although packers must be inserted.

For single leaf doorsets with fanlights, the upper horizontal framing section abutting the structural opening as well as the vertical edges of the fanlight must also be secured to the wall using a minimum of 1No. steel fixings centrally fitted to the height or width of the fanlight, respectively. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm.

11.6 Post Production (Onsite) Leaf Size Adjustment

The Falcon Timber Ltd range of doorsets may be altered as follows:

Leaf Size Adjustment Specification	
Element	**Reduction**
Lipping	The post-production lipping thickness may be reduced by 1mm for fitting purposes, providing that the door gaps, intumescent conditions and smoke control sealing arrangement remain as required by this assessment and the minimum limitation in terms of lipping thickness is still maintained (section 5.4)

11.7 Door Gaps

Door gaps and alignment tolerances must fall either fall within the following range, or be smaller than the below detailed maximum gaps:

Door Gap & Alignment Tolerance Specification	
Location	**Dimension**
Door edge gaps - Head	A minimum of 2mm and a maximum of 4mm
Door edge gaps – Vertical Edges	A minimum of 2mm and a maximum of 4mm
Door edge gaps – Threshold (Complete with Drop-Down Seal or Threshold)	See section 4.5.6 for maximum gaps permitted for each threshold sealing option selected.
Alignment tolerances	The leaf must not be proud of the door frame by more than 1mm and the leaf shall make contact with the ambient temperature smoke control seal within the frame reveal at the entire perimeter.

12 Insulation Performance

Insulation performance may be claimed for a doorset to this design meeting the following:

Insulation Performance Criteria	
Type	**Details**
Fully insulating	All doorset designs without glazing or fanlight arrangements as detailed within this field of application.

13 Conclusion

If the Falcon Timber Ltd doorset design constructed in accordance with the specification documented in this field of application were to be tested in accordance with BS 476: Part 22: 1987 and BS 476: Part 31-1: 1983, it is our opinion that they would provide a minimum of 30 minutes integrity and insulation (subject to section 12) performance as well as achieve a leakage rate less than $3m^3/m/h$ at 25Pa.

14 Declaration by the Applicant

1) We the undersigned confirm that we have read and comply with 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.
2) We confirm that any changes to a component or element of structure which are the subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.
3) 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.
4) 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.
5) 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 No. 82: 2001)

Signed:

Signed by:
6C3251A35814487...

Name: Josh Clare

Position: Technical Manager

Date: 08-Apr-2025

For and on behalf of: Falcon Timber Ltd

15 Limitations

The following limitations apply to this assessment:

1) This field of application addresses itself solely to the elements and subjects discussed and do not cover any other criteria or modifications. All other details not specifically referred to should remain as tested or assessed.
2) This field of application report is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to Warringtonfire, the assessment will be unconditionally withdrawn, and the applicant will be notified in writing. Similarly, the assessment evaluation is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.
3) This field of application has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.
4) Opinions and interpretation expressed herein are outside the scope of UKAS accreditation.
5) This field of application relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions against the ISO 834 time/temperature curve that is stipulated in the standard this assessment concludes to and ambient temperature smoke control test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this field of application, the element is suitable for its intended purpose.
6) This field of application report represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS 476: Part 22: 1987 and BS 476: Part 31.1: 1983, on the basis of the test evidence referred to in this report. We express no opinion as to whether that evidence, and/or this field of application would be regarded by any Building Control authorities or any other third parties as sufficient for that or any other purpose.
7) This report may only be reproduced in full. Extracts or abridgements of reports shall not be published without permission of Warringtonfire. All work and services carried out by Warringtonfire Testing and Certification Limited are subject to, and conducted in accordance with, the Standard Terms and Conditions of Warringtonfire Testing and Certification Limited, which are available at https://www.element.com/terms/terms-and-conditions or upon request.
8) The version/revision stated on the front of this field of application supersedes all previous versions/revisions and must be used to manufacture doorsets from the stated validity date on this front cover. Previous revisions of the Field of Application cannot be used once an updated Field of Application has been issued under a new revision.

16 Validity

1) The assessment is initially valid for five years after which time it is recommended to be submitted to Warringtonfire for re-appraisal.
2) This assessment report is not valid unless it incorporates the declaration given in Section 14 duly signed by the applicant.

Position:	Assessor	Reviewer
Signature:	Signed by: 43935C1A192A419...	Signed by: DE15B987D373423...
Name:	**N Whitelock***	**A Winning***
Title:	Technical Manager, Doors & Smoke Leakage	Senior Product Assessor

* For and on behalf of Warringtonfire

17 Appendix A: Revisions

Rev.	WF Ref.	Date	Description