
Title:

Field of Application for:
Strebord[®] 35 Doorsets
for:
30 Minutes Fire Resistance

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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 Panel Products Ltd and relates to the fire resistance of the Strebord® 35, 30 minute doorset designs.

The report is for National Application and has been written in accordance with the general principles outlined in BS EN 15725: 2010; *Extended application reports on the fire performance of construction products and building elements*.

This field of application (scope) uses established empirical methods of extrapolation and experience of fire testing similar door assemblies, 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 performance, if the variations specified herein were to be tested in accordance BS 476 Part 22:1987 and therefore can neither be considered for a CE marking application nor can the conclusion be used to establish a formal classification against EN 13501-2.

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 designs 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; they are not intended to be the sole criterion for considering the potential fire 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) guidelines to undertaking assessments. 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 PFPF guidelines are produced by the UK Fire Test Study Group (FTSG) an association of the major fire testing laboratories in the UK and are published by the PFPF, the representative body for the passive fire protection industry in the UK.

2 Proposal

It is proposed to consider the fire resistance performance of the doorset designs described in the technical specification in section 4 of this assessment report, for 30 minutes fire resistance, if the designs were to be tested to the requirements of BS 476 Part 22:1987, *Fire tests on building materials and structures – Part 22: Method for determination of the fire resistance of non-load bearing elements of construction*.

The field of application defined in this report is based on the fire resistance test evidence for the doorset designs, 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.

3 Test Data

The test evidence summarised below has been generated to support the fire resistance performance of the door designs that are the subject of this Field of Application.

Notes:

1. Dimensions are in mm unless otherwise stated.
2. Abbreviations: (h) = height; (w) = width; (t) = thickness; depth = (d).

3.1 Test Report RF11161

The referenced test report, the essential details of which are summarised below, is primary data for the door design being considered for assessment in this report. This test supports the design, in latched and unlatched single acting, single and double leaf doorsets.

Date of test	21 st November 2011
Identification of test body	Chiltern International Fire (now trading as Warringtonfire Testing) UKAS ref: 1762
Sponsor	Falcon Panel Products Ltd
Tested Product	Unlatched, single acting, double leaf, timber based doorset with glazing.
Summary of test specimen	<p>Leaf dimensions: 2135 (h) x 915/915 (w) x 35 (t). Both leaves comprised a Falcon Strebord® 35 core, vertical edges of the leaves were lipped with 8 (t) Sapele of nominal density 770kg/m³.</p> <p>Door frame: 70 (w) x 25 (t) European Redwood, density 465 kg/m³ with 12 (t) planted stop.</p> <p>1No. 15 x 4 Pyroplex PVC encased intumescent seal ref: FO8700 was fitted centrally into the frame head and jambs and in one leaf meeting edge.</p> <p>No intumescent protection was installed to protect hardware.</p> <p>The specimen was hung in a European Redwood frame on 3No. steel bearing lift off type hinges per leaf, together with a lever operated mortice latch, disengaged for the test. A surface mounted overhead door closer, was fitted to the exposed face of the leaves.</p> <p>A pane of 7mm thick Pilkington Pyroshield glass of size 690 x 690mm was protected with Sapele beads and ISL Therm-A-Strip seals.</p> <p>The doorset was oriented to open in towards the furnace.</p>
Test Standard	BS 476 Part 22:1987
Performance	<p>*In accordance with the note to clause 7.6.1.1 of BS 476 Part 22:1987, the glazing was not evaluated for insulation.</p> <p>Integrity: 32 Insulation: 32*</p>

3.2 Test Report RF11172

The referenced test report, the essential details of which are summarised below, is supporting test data for the door design being considered for assessment in this report when mounted into MDF door frames.

Date of test	19 th March 2012
Identification of test body	Chiltern International Fire (now trading as Warringtonfire Testing) UKAS ref: 1762
Sponsor	Falcon Panel Products Ltd
Tested Product	Unlatched, single acting, double leaf, timber based doorset with glazing
Summary of test specimen	<p>Leaf dimensions: 2135 (h) x 915/915 (w) x 43 (t). Both leaves comprised a Falcon Strebord[®] 35 core with applied 4mm thick MDF facings, vertical edges of the leaves were lipped with 8 (t) Sapele of nominal density 640kg/m³. 1No. 15 x 4 Pyroplex PVC encased intumescent seal ref: FO8700 was fitted centrally into the frame head and jambs and in one meeting edge. No intumescent protection was installed to protect hardware.</p> <p>The specimen was hung in a 25mm thick MDF frame on 3No. steel bearing lift off type hinges per leaf, together with a lever operated mortice latch, disengaged for the test. A surface mounted overhead door closer, was fitted to the exposed face of the leaves.</p> <p>A pane of 7mm thick Pilkington Pyroshield glass of size 685 x 685mm was protected with Sapele beads and ISL Therm-A-Glaze seals.</p> <p>The doorset was oriented to open in towards the furnace.</p>
Test Standard	BS 476 Part 22:1987
Performance *In accordance with the note to clause 7.6.1.1 of BS 476 Part 22:1987, the glazing was not evaluated for insulation.	Integrity: 39 Insulation: 39*

3.3 Test Report RF08125

The referenced test report, the essential details of which are summarised below, this test further supports assessment of door frames constructed using MDF.

Date of test	28 th November 2011
Identification of test body	Chiltern International Fire (now trading as Warringtonfire Testing) UKAS ref: 1762
Sponsor	Falcon Panel Products Ltd.
Tested Product	Unlatched, single acting, double leaf, timber based doorset.
Summary of test specimen	<p>Leaf dimensions: 2442 (h) x 915/915 (w) x 44 (t). Both leaves comprised a Falcon Strebord® 44 core, vertical edges of the leaves were lipped with 8 (t) Sapele of nominal density 640kg/m³. 2No. 15 x 4 Pyroplex PVC encased intumescent seals ref: CF355 were fitted centrally 10mm apart into the frame head and jambs and in one meeting edge. 1mm thick Interdens protection was installed to protect hardware. The specimen was hung in an MDF frame on 4No. steel bearing lift off type hinges per leaf, together with a lever operated mortice latch, disengaged for the test. A surface mounted overhead door closer, was fitted to the exposed face of the leaves. The doorset was oriented to open in towards the furnace.</p>
Test Standard	BS 476 Part 22:1987
Performance	Integrity: 49 Insulation: 49

3.4 Test Report IF12011 Revision A

The referenced test report, the essential details of which are summarised below, this test supports assessment of the Norsound 30 glazing system.

Date of test	20 th February 2013
Identification of test body	Chiltern International Fire (now trading as Warringtonfire Testing) UKAS ref: 1762
Sponsor	Falcon Panel Products Ltd.
Tested Product	A section of 44mm thick Falcon Strebord® 44 door core
Summary of test specimen	<p>Leaf dimensions: 1052 (h) x 1020 (w) x 44 (t). The leaf comprised a Falcon Strebord® 44 core, head and vertical edges of the leaf were lipped with 10 (t) Sapele of nominal density 640kg/m³. 1No. 15 x 4 Pyroplex PVC encased intumescent seals ref: FO87002 was fitted centrally into the frame head and jambs.</p> <p>A pane of 7mm thick Pilkington Pyroshield glass of size 820 x 820mm was protected with European Redwood beads and Norsound Ltd Norglaze30 seals.</p> <p>The specimen was hung in a European Redwood frame on 2No. steel hinges. The leaf was wired shut until positive pressure was achieved after 10 minutes.</p> <p>The doorset was oriented to open in towards the furnace.</p>
Test Standard	Principles of BS 476 Part 22:1987
Performance	Integrity: 39, test terminated with no failures recorded.

4 Technical Specification

4.1 General

The technical specification for the proposed door types 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 Doorset Configurations & Maximum Leaf Sizes.

4.3.1 General

The evaluation of the leaf size for each door leaf option and frame option is based on the test listed in Section 3 and takes into account:

1. The margin of over performance above 30 minutes integrity for the designs
2. The characteristics exhibited during test and
3. The doorset configuration tested.

The evaluation of the permitted configuration included in this field of application is based on the configuration tested. The principle is that the more components i.e. door leaves and overpanel – the harder it becomes to pass a test. This is because the junction between door leaves or door leaf and overpanel introduces a discontinuity into the doorset which can cause failures.

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

Doorsets with reduced dimensions are deemed to be less onerous, as the leaves deflect less in fire test conditions, which reduces the potential for differential leaf movement and perimeter integrity failure. Therefore, doorsets with dimensions that are less than those tested and stated in Appendix C may be manufactured.

4.3.2 Permitted Configurations

Based on the test evidence listed in section 3, this report covers the following doorset configurations.

Doorset Configurations	
Abbreviation	Description
LSASD & ULSASD	Latched & unlatched, single acting, single doorsets
LSADD & ULSADD	Latched & unlatched, single acting, double doorsets

Unequal leaf double doorsets are covered by this assessment, the smaller leaf must be no narrower than 300mm wide.

4.3.3 Orientation

The primary fire resistance tests for these designs were all conducted with the doorset hung such that the door leaf opened towards the fire, which is considered the most onerous orientation in terms of fire resistance performance, for timber based door leaves hung in timber door frames (see Annex C of BS EN 1634-1: 2014 + A1: 2018 for justification). Based on this testing, assessment is made that doorsets to these designs may be hung to open either away from or towards the fire risk side of the doorset.

4.3.4 Envelopes for each Configurations

Data sheets including door leaf envelopes which indicate the permitted leaf sizes for the listed configurations based on the intumescent, door leaf option and door frame are given in appendix C.

5 General Description of Leaf Construction

The primary construction for door leaves of this design comprises:

- A homogenous solid sheet of 35mm thick Strebord® 35 particleboard (min density 560kg/m³). Where required, the leaves are lipped with hardwood.

6 Leaf Size Adjustment – Prior To Hardware Machining

The Falcon Panel Products Ltd. Strebord® 35 door leaf design may be altered as follows.

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 12.
Lipping	On-site adjustment of the lippings by a maximum of 3mm for fitting purposes is permitted, providing the minimum dimensions stated in section 12 are maintained.

7 Glazing

The testing conducted on the Falcon Panel Products Ltd. Strebord® 35 has demonstrated that the design is capable of tolerating glazed apertures whilst providing a margin of over-performance.

Testing within the 35mm thick Strebord® 35 core is limited to the Therm-A-Strip system and non-insulating glass. The recorded result within RF1161 is used as the basis for permitting the use of glazed apertures. Alternative glazing systems are permitted within the following sections based on their performance within other timber based door leaf designs, subject to the limitations stated below.

Glazing is therefore acceptable within the following parameters.

- The maximum assessed glazed area for all leaf configurations is 0.85m² using the ISL Therm-A-Strip system as tested in RF11161
- The maximum assessed glazed area for all leaf configurations is 0.48m² using any of the other proprietary glazing systems in section 7.1
- The glazing system must be one of the proprietary systems listed in section 7.1 and detailed in appendix B
- The glass type must be one of the proprietary glasses detailed in section 7.2
- Glazing beads and fixings must be as specified in section 7.3
- False glazing beads may be utilised as specified in section 7.3.

7.1 Assessed Glazing Systems

The glazing system must be one of the following proprietary systems. The following glazing systems have all been tested for a minimum of 30 minutes fire resistance in timber based door cores and have been deemed as suitable alternatives to the Therm-A-Glaze 30 glazing system tested by Falcon Panel Products Ltd in the Strebord® 35 design.

Glazing System	Maximum Permitted Glazed Area (m ²)	Manufacturer
1. Fireglaze 30	0.48	Sealmaster Ltd.
2. Therm-A-Strip	0.85	Intumescent Seals Ltd.
3. Firestrip 30	0.48	Hodgsons Sealants Ltd.
4. Pyroglaze 30	0.48	Mann McGowan Ltd.
5. System 36 Plus	0.48	Lorient Polyproducts Ltd.
6. Flexible Figure 1	0.48	Lorient Polyproducts Ltd.
7. R8193	0.48	Pyroplex Ltd.
8. 30049	0.48	Pyroplex Ltd.
9. 30054	0.48	Pyroplex Ltd.
10. Therm-A-Bead ¹	0.48	Intumescent Seals Ltd.

Note:

¹ Intumescent Seals Ltd. Therm-A-Bead glazing system must only be used with glass types 4 – 6 from the table in section 7.2 below.

7.2 Assessed Glass Products

Assessed glass types are as follows. The following glass types have all been tested for a minimum of 30 minutes fire resistance in timber based door cores and have been deemed suitable alternatives to the 7mm Pyroshield glass tested by Falcon Panel Products Ltd.

Glass Type	Manufacturer	Thickness (mm)	Max. Area (m ²)
1 Pyroshield 2	Pilkington Group Ltd.	6 & 7	0.85
2 Pyran S	Schott UK Ltd.	6	0.85
3 Pyrostem	Pyroguard UK Ltd	6	0.85
4 Pyroguard EW 30	Pyroguard UK Ltd	7	0.85
5 Pyrobelite 7	AGC Flat Glass UK	7	0.85
6 Pyrodur 30-104/30-105	Pilkington Group Ltd.	7	0.85

Notes:

- All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion clearance.

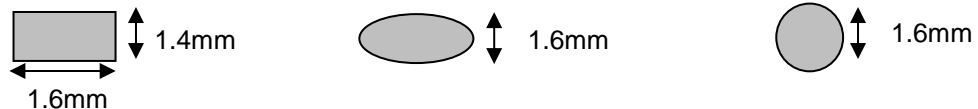
7.3 Glazing Beads & Installations

Glazing beads must be as specified in the following table.

Material	Profile	Min. Density (kg/m ³)	Application
Hardwood	Splayed	640	All proprietary systems detailed in 7.1 and Appendix B
Hardwood	Square	640	Proprietary systems 1, 2 & 3 as specified in 7.1 and glass types 4 -6 as specified in 7.2

Notes:

1. Glazing beads must be retained in position with 40mm long steel pins or 40mm long No. 6-8 screws, inserted at 35 - 40° to the vertical, at 150mm maximum centres and no more than 50mm from each corner, or see below for bead fixings using gun (pneumatically) fired applications
2. Timber for glazing beads must be straight grained joinery quality hardwood, free from knots, splits and checks with a minimum density of 640kg/m³
3. Alternatively, the following pin specification has been tested and assessed for steel round, oval and rectangular shaped gun fired pins



4. Pins with dimensions less than those stated above are not covered by this assessment
5. See Appendix B for square bead profile options, square beads must incorporate bolection returns. A 6 - 10mm thick square aperture liner is permitted for use with square beads providing it is constructed from hardwood of minimum density 640kg/m³ and glued in position using a UF, PVA or PU type adhesive
6. Glazed opening must not be less than 110mm from any leaf edge. Multiple apertures are not acceptable
7. Aperture shape is not restricted, providing the glazing system and beads can effectively accommodate the required profile
8. False timber beads may be applied to glass types 4 - 6 using one of the following intumescent glazing products.

Glazing System	Manufacturer
1. Therm-A-Strip 30	Intumescent Seals Ltd
2. Fireglaze 30	Sealmaster Ltd
3. Firestrip 30	Hodgson Sealants Ltd
4. Envirograf Product 77 - G10/10	Intumescent Systems Ltd

All seals must be a minimum of 10mm wide x 0.5 - 3mm thick. Preformed strip systems 1 - 4 may be self-adhesive and grooved into the rear of the glazing bars.

8 Overpanels

8.1 Solid

Given the integrity performance and stability of the door core tested and summarised in section 3, overpanels of the same construction as the door leaves may be used with this doorset design, only when a transom is fitted and the panel is fixed on all edges to the frame.

The transom must of the same section and material assessed for the door frames (see note under the table in section 9) must separate the leaf head(s) from the overpanel and the overpanel must be fully contained by the door frame (see following diagram).

Joints between the transom and frame jambs must utilise one of the following methods; mortice and tenon or butt joints (see section 9.2).

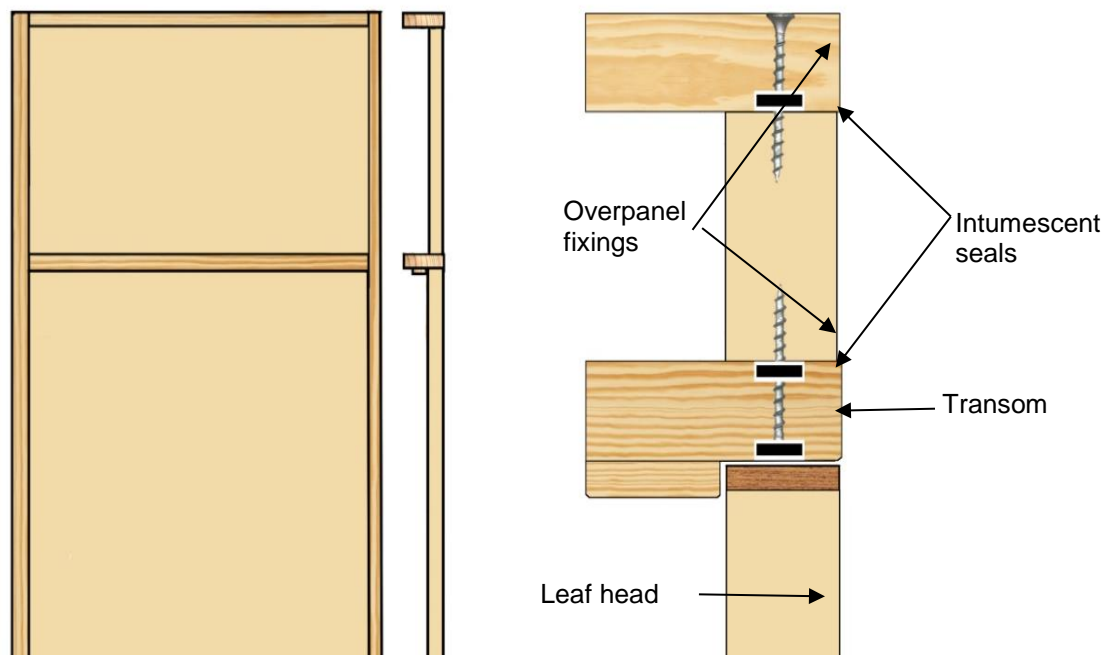
Either method requires joints to be tight, with no gaps, and require mechanical fixing with the appropriate size ring shank nails or screws. Butt joints must be additionally bonded with PVA/PU/UF or equivalent adhesive.

The overpanels must be fixed by screwing through the rear of the frame with steel screws passing at least 30mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between.

The intumescent seals specified for the jambs in Appendix C, must also be fitted to all concealed edges of the overpanel. The seals may be fitted in the overpanel edges or alternatively in the frame reveal. A maximum 2mm gap is permitted between the edge of the overpanel and the frame reveal.

Maximum overpanel heights are as follows.

Configuration	Maximum Overpanel Height (mm)
Single doorsets	2000
Double doorsets	1500



Note: Drawing is representative of doorset construction only, actual construction must be as the text within this document specifies.

9 Door Frames

9.1 Timber Based Door Frame Construction

Timber based door frames for the door leaf designs referred to herein must be constructed to meet the following specification.

Material	Section Size* (mm)	Min. Density (kg/m ³)
Softwood or hardwood	70 x 25 (excluding the stop)	510
Streframe E	70 x 32 (excluding the stop)	510
MDF	70 x 25 (excluding the stop)	700

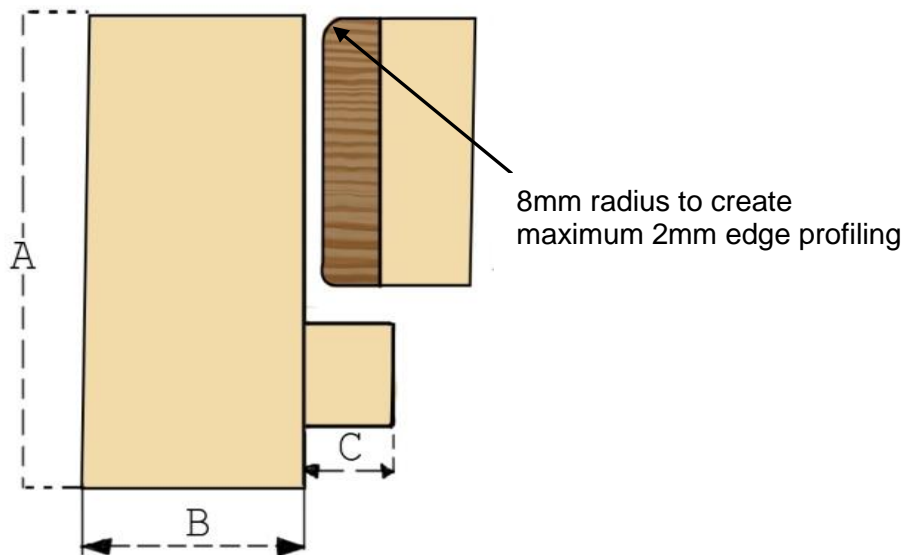
*If the doorset features a transomed overpanel, the door frame must be softwood or hardwood with a minimum section of 70mm x 32mm.

All door frame timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects).

A 12mm deep planted stop is adequate for single acting leaf configurations.

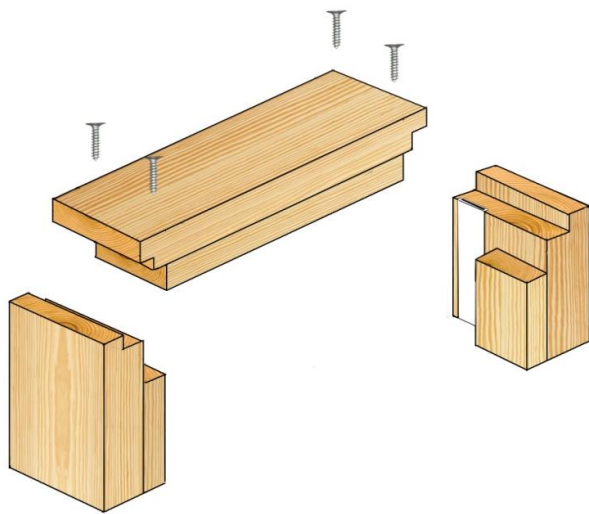
Frame joints may be mortice and tenoned, mitred, half lapped or butted and with no gaps (see section 9.2). All jointing methods require mechanical fixing with the appropriate size ring shank nails or screws.

The following diagram depicts the assessed frame profiles and dimensions.

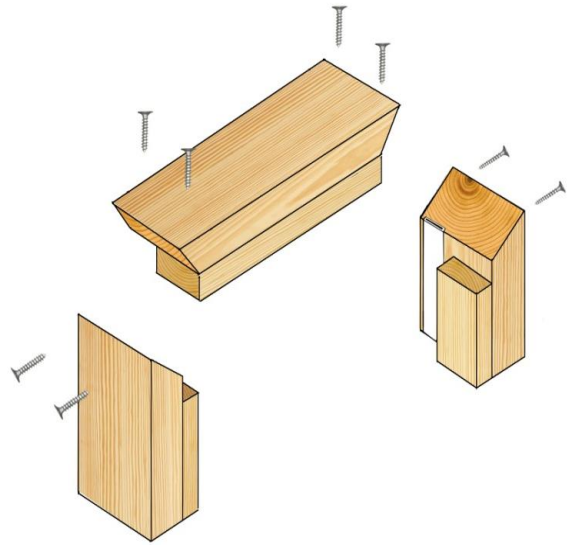


A = min. 70mm B = min. 25mm (see table above) C = min. 12mm

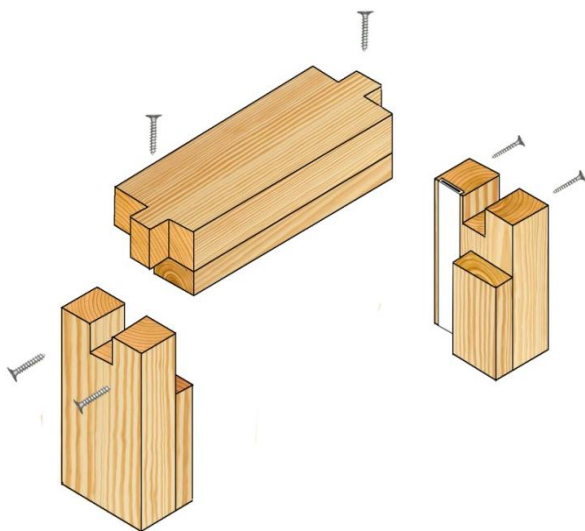
9.2 Door Frame Joints



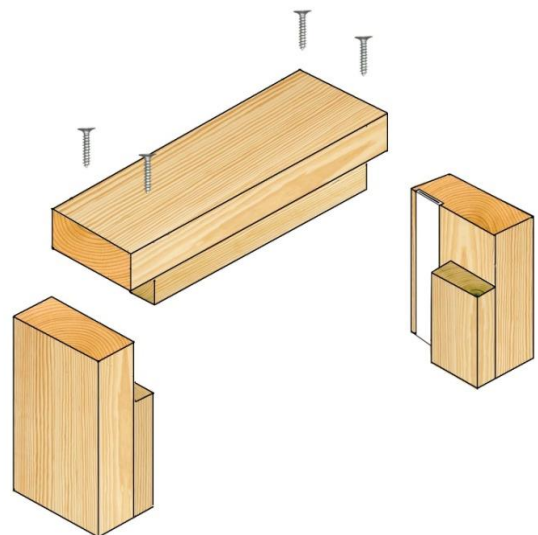
Half Lapped Joint



Mitre Joint



Mortice & Tenon Joint



Butt Joint

10 Facings

10.1 General

The facings for Falcon Panel Products Ltd. Strebord® 35 design are integral with the core construction and therefore alternative materials are not required.

The following sections give options for additional protective, decorative and alternative outer facing materials.

10.2 Decorative & Protective Facings

The following additional facing materials are permitted for this door design since they would degrade rapidly under test conditions without significant effect.

Facing Materials	Maximum Permitted Thickness (mm)
Paint	0.5
Timber veneers	2
PVC/Plastic laminates	2
Decorative paper/non-metallic foil	0.5

Notes:

1. Metallic facings are not permitted except for push plates and kick plates
2. The door leaf thickness may be reduced by a total maximum of 0.5mm to each face (a maximum of 1mm in total) for calibration purposes, only in order to accommodate one of the additional facings shown in the table above. The finished thickness of the leaf must be at least 35mm
3. Materials must not conceal intumescent strips
4. PVC/Plastic laminates must not return around leaf edges.

10.3 Timber Substrate Facings

The materials below may be applied as an additional facing material to the core using PVA/PU/UF adhesive. The additional material will act as a sacrificial facing in the event of fire and will protect the core for the time it remains in positions, the material will therefore provide additional stability to the core in fire test conditions and has been deemed acceptable. The 35mm thick core must not be reduced in thickness prior to the application of MDF facings.

Facing Materials	Maximum Permitted Thickness (mm)
MDF	6

Notes:

1. Facings may be fixed to the core before or after hardwood edges/lippings are applied
2. Facings must be balanced (i.e. the same thickness and material applied to both faces)
3. Decorative facings in section 10.2 may be applied in addition to timber substrate facings
4. Hardware incorporated into doorset must be capable of accommodating the adjusted weight after additional facings are applied

- Timber substrate facings may be routed, recessed or machined in any location provided the grooves or routing does not cut into the Strebord® 35 core material.

11 Intumescent Materials

The leaf edge seal specification for each configuration is contained in appendix C.

11.1 Hardware Protection

The intumescent materials tested and assessed are as follows.

Application	Location	Product/Manufacturer
Hinges	Not required	-
Lock/latches	Under forend and keep	1. 1mm Interdens – Dufaylite Developments Ltd. 2. 1mm MAP paper – Lorient Polyproducts Ltd. 3. 1mm Pyrostrip 300 – Mann McGowan Fabrications Ltd. 4. 1mm Therm-A-Strip – Intumescent Seals Ltd. 5. 1mm STS Graphite – Sealed Tight Solutions Ltd

12 Lippings

Falcon Panel Products Ltd. Strebord® 35 doors must be lipped in accordance with the following specification.

Material	Size (mm)	Min. Density (kg/m ³)
Timber must be straight grained, joinery quality, hardwood free from knots, splits and checks of minimum density 640kg/m ³	1. Flat = 8 – 13 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 9.1). 2. Rounded = Not permitted. 3. Rebated = Not permitted.	640

- Single and double doorsets must be lipped on the vertical edges only
- A 2.5° chamfer is permitted to the lipping at the leading edge of leaves providing the door gaps meet the requirements of section 16.7.

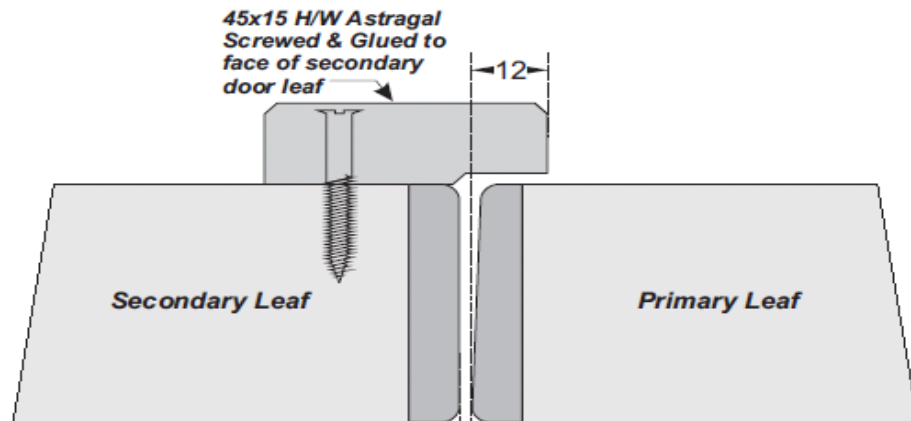
12.1 Meeting Stile Astragals

Generally fire doors should be able to open simultaneously. However, where additional performances are required (e.g. acoustic performances) it may be necessary to provide for sequential opening.

An astragal detail may be used where these conditions apply, without adverse influence on existing fire test/assessment data. An astragal as detailed below will provide protection to the gap at the meeting edges from direct impingement by fire and restrict the passage of hot gases.

Astragals can be applied to both door leaves provided a suitable door selector is fitted and may be profiled for aesthetic effect providing they meet the minimum specification given below.

The hardwood for the astragal must be hardwood of the same minimum density being used for the lipping material. See following diagram.



13 Adhesives

The adhesives used in construction are as follows.

Element	Product
Core	Manufacturers specification
Lipping	Urea formaldehyde, polyurethane or PVA

14 Hardware

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 CE Mark.

- Latches & locks: Test Standard EN 12209
- Single axis hinges: Test Standard EN 1935
- Controlled door closing devices: Test Standard EN 1154
- Electrically powered hold-open devices: Test Standard EN 1155
- Emergency exit hardware: Test Standard EN 179
- Panic exit hardware: Test Standard EN 1125.

The following sections also consider what alternative items of essential hardware can be used on these doorsets.

Each item of hardware is considered in each section giving the items of hardware which:

- Have been tested
- Can be used as a result of an assessment of the appropriateness of the item of hardware, based on proprietary test evidence
- Can be used as a result of the CERTIFIRE approval of the item of hardware
- Can be used based on the generic guidance or CE marking but final approval will be with another approving body.

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

- Leaf size
- Configuration
- Intumescent seals
- Intumescent protection
- Frame
- No item of hardware should be within 200mm of another item of hardware unless there is test evidence to demonstrate they can be closer.

14.1 Tested Hardware

The following hardware has been successfully incorporated in the tests on the Falcon Panel Products Strebord® 35 design.

Element	Make/Type	Dimensions (mm)	Location
Hinges	Royde & Tucker H105 lift off type	100 x 35 (blade size)	3 No. fitted
Closers	Rutland TS3204 overhead face fixed	220 x 59 (footprint size)	Fitted on the exposed face as per the manufacturer's instructions
Latches & Locks	Euro*Spec tubular steel mortise latch	57 x 26 (forend) 57 x 26 (keep size)	Fitted 1000 from threshold of the leaf
Furniture	Aluminium lever type handle	100 x 38 (footprint size)	Fitted appropriate to the latch

15 Additional & Alternative Hardware

15.1 General

The following sections detail a generic specification for hardware assessed for use with this doorset design.

15.2 Certifire

The Certifire third party certification scheme approves various items of hardware for different door types and different fire ratings and has its own set of requirements relating to that item of hardware.

Where the alternative hardware sections in this report allow alternatives to the tested hardware, Certifire approved hardware may be used as an alternative, subject to the following provisos:

- In all cases, the requirements of this report must take precedence.
- The hardware must comply with the requirements of the relevant section e.g. hinges.
- The hardware must comply with the limitations specified in terms of design, materials and dimensions.
- The hardware must be supported in the Certifire certificate for use in 35mm thick ITT cores.

15.3 Automatic Closing

Automatic face fixed overhead closing devices must either be as tested or components of equal specification that have demonstrated contribution to the required performance of these types of 30 minute doorset designs, when tested to BS 476 Part 22:1987 or BS EN 1634-1 or BS EN 1634-2.

Top pivots and floorspring assemblies are not assessed for use with the Strebord® 35 design.

Concealed overhead closers are not assessed for use with the Strebord® 35 design.

15.4 Latches & Locks

Latches and locks must either be as tested, or alternatively Certifire approved latches and locks with the following specification are acceptable.

Element	Specification
Maximum forend & strike plate dimensions	105mm high by 25mm wide by 4mm thick
Maximum body dimensions	85mm high by 100mm wide by 18mm thick
Intumescent protection	See section 11.1
Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel, stainless steel or brass (melting point $\geq 800^{\circ}\text{C}$)
Location	Bottom of lock body from 750mm above the threshold to top of lock body 1200mm above the threshold

The increase in forend/strike plate and body dimensions for the latch/locks beyond that tested is based on the integrity performance of the door core and the minimum requirement for fitting intumescent gaskets under forend and keep.

15.5 Hinges

Falcon Panel Products Ltd. Strebord® 35 doors must be hung on a minimum of 3 hinges.

Hinges must either be as tested, or alternatively Certifire approved hinges with the following specification are acceptable

Element	Specification	
Blade height	90 - 120mm	
Blade width (excluding knuckle)	30 - 35mm	
Blade thickness	2.5 - 4mm	
Fixings	Minimum of 4No. fully threaded 'twinfast' or chipboard screws per blade	
Materials	Steel, stainless steel or brass (melting point $\geq 800^{\circ}\text{C}$)	
Hinge positions	Top	120 - 180mm from the head of the leaf to the top of the hinge
	2 nd	Minimum 200mm from top hinge to central between top and bottom hinge
	Bottom	150 - 250mm from the foot of the leaf to the bottom of the hinge
Intumescent protection	Not required	

It is also permitted to use screw fixings as tested and supplied with the hinges approved for the Falcon Panel Products Ltd. Strebord® 35 design at 30 minutes fire resistance. All screw fixings should penetrate the frame by a minimum of 25mm.

The increase in dimensions for the hinges beyond that tested is based on the perimeter performance of the door design.

15.6 Pull Handles

Steel, stainless steel or brass (with a melting point greater than 800°C) handles may be fixed or bolted through the door leaf, providing the length is limited to 1200mm between the fixing points. No additional intumescent protection is required provided that the hole for the bolt through the leaf is tight.

Providing the handles are limited in height and are fitted as described, the handle will have negligible influence on the deflection of the leaf and integrity performance of the door core.

15.7 Push Plates/Kick Plates

Steel, stainless steel or brass (with a melting point greater than 800°C) plates 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.

It is necessary to limit the area of the metal push/kick plate to limit the influence of the plate on the distortion of the leaf as the plate begins to heat in fire test conditions.

It is not permitted to recess push plates into the Strebord® 35 core.

15.8 Door Selectors

These may be freely applied, provided that they are not invasive in the leaf edges or door frames and they do not interfere with the self-closing action of the door leaf. Products that are invasive will require fire resistance test/assessment evidence to support their use.

15.9 Door Security Viewers

Given the integrity performance of the door core designs, 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 +1mm). Lenses must be glass and the item must be bedded into a tested intumescent material/mastic.

15.10 Panic Hardware

Panic hardware may be fitted, provided that its installation does not require the removal of any timber from the leaf, stop or frame reveal and it in no way interferes with the self-closing action of the door leaf.

15.11 Face Fixed Bolts

Face fixed bolts may be fitted at the top edge of an inactive leaf of a double doorset, providing their installation does not require the removal of any material from the leaf, stop or frame reveal and the following maximum dimensions are not exceeded.

- 300mm long x 20mm wide.

15.12 Environmental Seals

Silicon based flame retardant acoustic, weather and dust seals (e.g. Lorient LAS1007, LAS1206, LAS1206K, LAS1010, LAS1212, LAS1212K, LAS1215, IS1511, IS7025, IS7060, Norseal NOR710, NOR720, NOR510; Fire & Acoustic Seals Ltd. FAS35, FAS39, FAS Trident, FASragal or Sealed Tight Solutions ST1009) may be fitted to this doorset design without compromising the performance, providing their fitting does not interfere with the activation of the intumescent seals or hinder the self-closing function of the leaves.

15.13 Identification Plates

Plastic or metal fire safety signs may be glued or screwed to the face of the door leaves. The signage must comply with BS 5499-5: 2002 according to whether the door is.

1. To be kept closed when not in use (Fire Door Keep Shut)
2. To be kept locked shut when not in use (Fire Door Keep Locked Shut)
3. Held open by an automatic release mechanism or free swing device (Automatic Fire Door Keep Clear).

It is also permitted to fit aluminium (max. thickness 2mm) or PVC (max. thickness 3mm) identification plates, complying with HTM 58 – Internal Doorsets, HTM Building Component Series, NHS Estates. The signage must not exceed 45mm diameter and can be fitted flush with the leaf face a minimum of 50mm from any edge.

16 Installation

16.1 General

This section considers the installation of direct door frames and doorsets. This section considers:

- the door frame and architrave installation position relative to the wall
- the fire stopping between the frame and the wall and the use of shadow gaps
- the fixing requirements including packers
- the requirements for door edge gaps
- the trimming of door edges.

16.2 Door Frame Installation


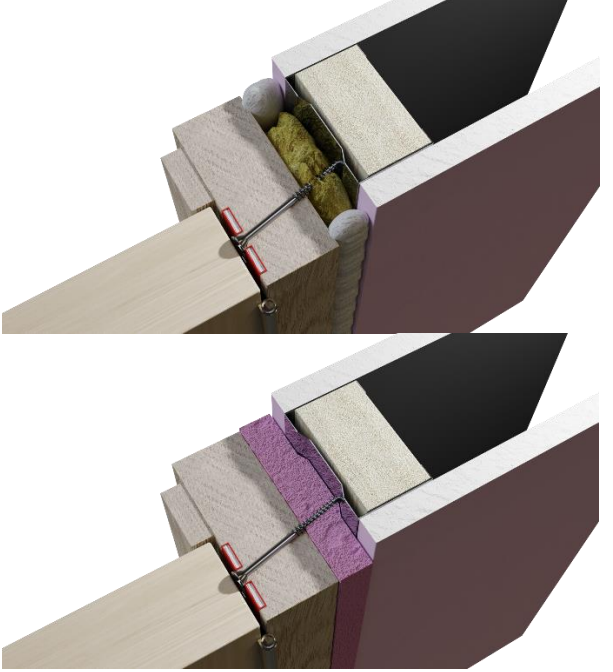
The following figures indicate the acceptable door frame installations. Please note that the fire-stopping element is provided in the below 3D models as a generic red or pink coloured seal. For further clarification of approved fire-stopping systems see section 16.3.

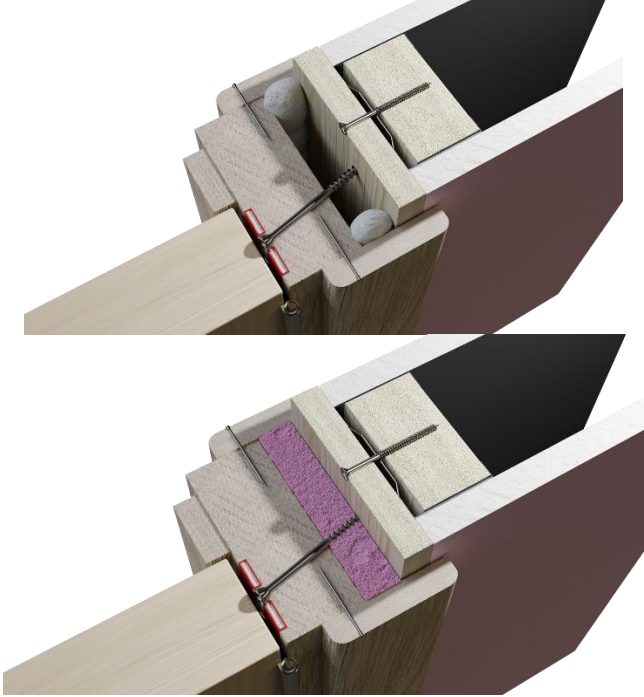
Permitted Installations	
	<p>Instances where the door frame and the wall are of the same depth such that architraves are fitted flush to both faces. Note that the minimum door frame section size (width and depth) must be as per the requirements noted in this report – see door frame section. Architraves requirements are documented in the fire-stopping section of this report.</p>
	<p>Instances where the wall thickness is greater than the door frame depth. In this scenario timber architraves of minimum 18mm thick must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap, other than when the architrave abuts the wall.</p>
	<p>Split frames are permitted providing that both frame sections are secured to the wall in accordance with section 16.5. 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 door frame section. The extension piece must be constructed using the same timber species as the main frame section.</p>
	<p>Shadow gaps are permitted as shown, providing the frame to structural surround is infilled with timber of the same density as the door frame or a non-combustible material such as plasterboard. Other shadow gap dimensions and installation details will require specific test evidence or assessment. The door frames must be a minimum of 32mm thick.</p>

Note: 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.

16.3 Firestopping

The fire-stopping 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 gaps size. Please note that in the 3D depictions below show the application where a door frame is of the same depth as the overall wall thickness.

Gap (mm)	Requirement	3D model depiction
0 – 2	This should not occur as it is practically not possible to apply a fire-stopping material into a gap of this size.	N/A
3 – 10	Gap must be sealed on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476 Part 22:1987 or BS EN 1634-1. Timber architraves of a minimum 18mm thick must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap.	
10 – 20	Gap must be tightly packed with mineral fibre capped on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476 Part 22:1987 or BS EN 1634-1 or full depth expanding PU foam, fire tested for this application to BS 476 Part 22:1987 or BS EN 1634-1. Sealed Tight Solutions STS90 and Fire and Acoustic Seals Ltd expanding foam have been successfully tested for this application. Timber architraves of a minimum 18mm thick must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap.	

Gap (mm)	Requirement	3D model depiction
Over 20	<p>This would be considered a poor preparation of the structural opening. A timber based or non-combustible subframe up to 50mm thick can be inserted and fixed to the wall and the gap between subframe and wall filled as follows:</p> <p>Gaps 5 to 10mm filled on both sides with 10mm depth of acrylic intumescent mastic or full depth expanding PU foam, fire tested for this application to BS 476 Part 22:1987 or BS EN 1634-1.</p> <p>Timber architraves of a minimum 18mm thick must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap.</p>	

Note:

Guidance for methods of sealing the frame to structural opening gap is also given in BS 8214: 2016, "Timber-based fire door assemblies. Code of practice" which may be referred to and implemented where appropriate.

16.4 Packers

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

16.5 Wall types, Structural Opening and Fixity

For walls that remain rigid during fire exposure (brickwork or blockwork, for example) the opening should 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.

The supporting construction must provide at least the required level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

It must therefore be capable of staying in place and intact for a minimum of 30 minutes. For single leaf doorset without sidepanels, the frame jambs must be fixed to the supporting construction using steel fixings at 600mm maximum centres and maximum of 150mm from corner. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 40mm. It is not necessary to fix the frame head for single leaf doorsets without overpanels, although packers must be inserted.

For all other configurations of doorset, the upper horizontal framing section abutting the structural opening must also be secured to the wall using steel fixings at 600mm maximum centres and maximum of 150mm from corner. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 40mm.

In all instances the fixing position must be such that it provides adequate restraint to the element of construction throughout the exposure to fire. This may therefore sometimes necessitate a twin line of fixings.

16.6 Post Production (Onsite) Leaf Size Adjustment

The Falcon Panel Products Ltd. Strebord® 35 design may be altered as follows.

On-site adjustment of the lippings by a maximum of 3mm for fitting purposes is permitted, providing the minimum dimensions stated in section 12 are maintained.

16.7 Door Gaps

For fire resistance applications, door gaps and alignment tolerances must fall within the following range.

Location	Dimension
Door edge gaps	A minimum of 2mm and a maximum of 4mm
Alignment tolerances	Leaves must not be proud of each other or from the door frame by more than 1mm.
Threshold	10mm between bottom of leaf and top of floor covering. This is the maximum tolerance for fire resistance only. Where smoke control is required refer to section 18.

17 Insulation

Insulation performance may be claimed for the Falcon Panel Products Ltd. Strebord® 35 doorset design meeting the following criteria.

Type	Details
Partially insulating	Doorsets incorporating up to 20% of non-insulating glazing
Fully insulating	Unglazed doorsets

18 Smoke Control

18.1 General

If the doorset design is required to provide a smoke control function to comply with Building Regulations, in the absence of a suitable pressurisation system, the doorset must meet one of the following criteria:

- (a) have a leakage rate not exceeding $3\text{m}^3/\text{m}/\text{hour}$ (head and jambs only) when tested at 25Pa under BS 476 *Fire tests on building materials and structures*, Section 31.1 - *Methods for measuring smoke penetration through doorsets and shutter assemblies, Method of measurement under ambient temperature conditions*; or
- (b) meet the additional classification requirement of Sa when tested to BS EN 1634-3: 2004 - *Fire resistance tests for door and shutter assemblies*, Part 3 – *Smoke control doors*.

Smoke seals (i.e. NOR710 or Sealed Tight Solutions ST1009 among others) or combined intumescent/smoke seals that are fitted to the door to achieve the performance requirements specified above, must have been tested in accordance with the associated test method. Providing the smoke seals, any interruptions, door gaps, and the type/configuration of the doorset are consistent with the detail tested, the doorset will comply with current smoke control legislation under Approved Document B; and a suffix 'S', may be added to the designation. Any other components installed where smoke leakage may occur must also be taken into account.

Note: The incorrect specification and fitting of smoke seals may impair the operation of a doorset and therefore compromise the fire resistance performance. Advice should be sought from the seal manufacturers regarding the correct specification and installation of smoke seals or combined smoke and intumescent seals.

18.2 Further Considerations

Note that there is other guidance available, including BS EN 9999-2017 - *Code of practice for fire safety in the design, management and use of buildings*, which may impose different or additional requirements, such as consideration of the gap between door leaf and threshold.

Responsibility for the appropriate smoke sealing specification and performance of the doors should be agreed between the relevant parties (i.e. specifier, manufacturer, contractor) prior to commencing manufacture and/or installation.

19 Conclusion

If the Falcon Panel Products Ltd. Strebord® 35 door leaf design, constructed in accordance with the specifications documented in this global assessment, were to be tested in the appropriate configuration in accordance with BS 476 Part 22:1987, it is our opinion that they would provide a minimum of 30 minutes integrity and insulation, subject to section 17.

20 Declaration by the Applicant

- 1) We the undersigned confirm that we have read and comply with obligations placed on us by FTSG Resolution No. 82: 2001.
- 2) We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which this assessment is being made.
- 3) We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.
- 4) We are not aware of any information that could adversely affect the conclusions of this assessment.
- 5) If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment.

Signed:

Name:

For and on behalf of: Falcon Panel Products Ltd.



21 Limitations

The following limitations apply to this assessment:

- 1) This assessment addresses itself solely to the elements and subjects discussed and does not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
- 2) This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, Warringtonfire reserves the right to withdraw the assessment unconditionally, but not retrospectively.
- 3) This assessment has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.
- 4) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
- 5) This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance 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 assessment, the element is suitable for its intended purpose
- 6) This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS 476 Part 22:1987, on the basis of the evidence referred to in section 3. We express no opinion as to whether that evidence, and/or this assessment, would be regarded by any Building Control authority as sufficient for that or any other purpose. This assessment is provided to the client for its own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any 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.

22 Validity

- 1) The assessment is initially valid for 5 years from the date of issue, after which time it must be submitted to Warringtonfire for technical review and revalidation.
- 2) This assessment report is not valid unless it incorporates the declaration given in Section 20, duly signed by the applicant.

Signature:		
Name:	A M Winning	S Bailey
Title:	Senior Product Assessor	Senior Product Assessor

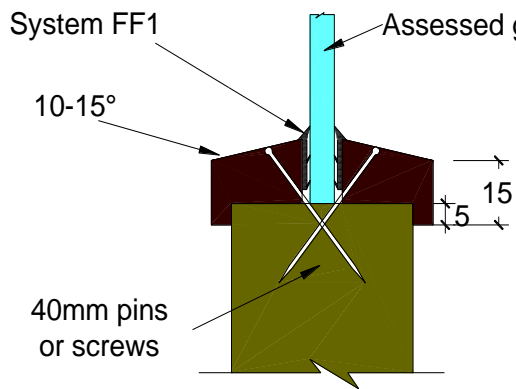
Appendix A

Revisions

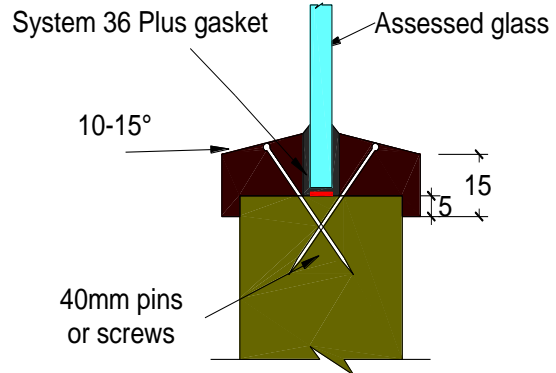
Revision	Warringtonfire Reference	Date	Description
A	WF406135	21.08.20	Assessment revalidated & updated to EN15725 and Warringtonfire formats. Remove option to use flush bolts, amend latch and glazing options and remove option for use of drop seals.

Appendix B

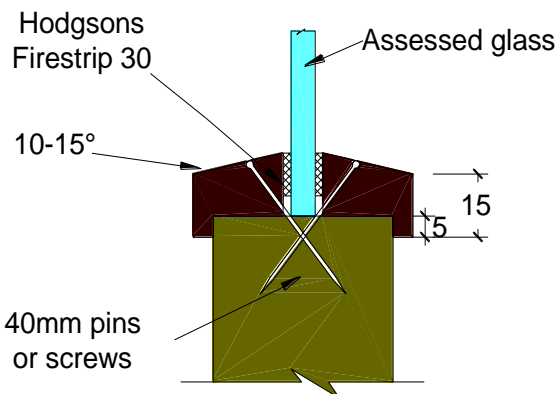
Proprietary 30 Minute Glazing Systems



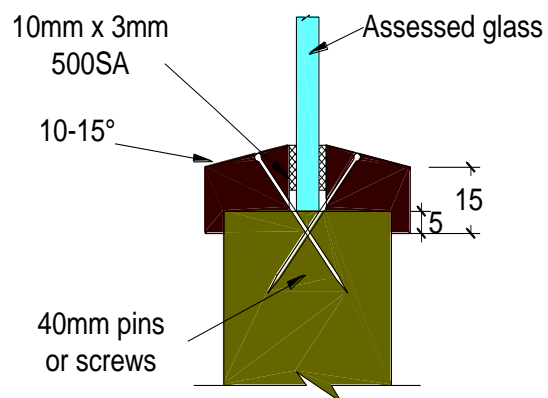
System FF1
 Lorient Polyproducts Ltd



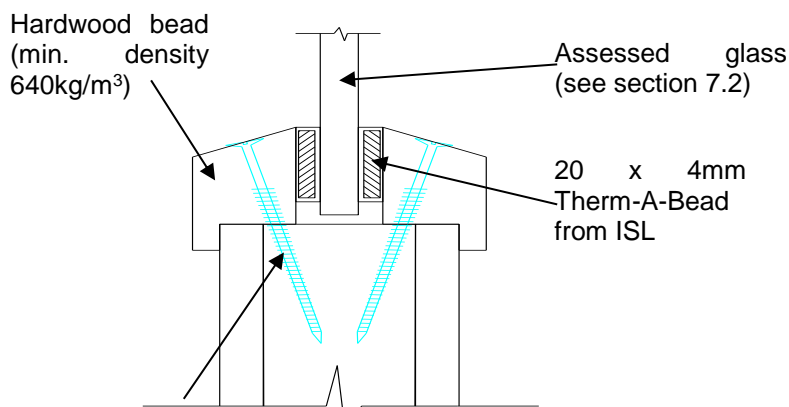
System 36 Plus
 Lorient Polyproducts Ltd



Firestrip 30
 Hodgsons Sealants Ltd

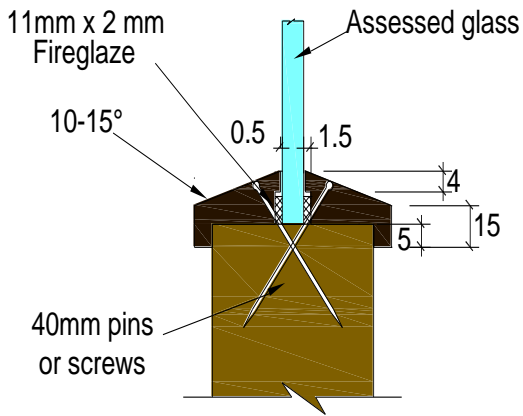


Pyroglaze 30
 Mann McGowan Ltd

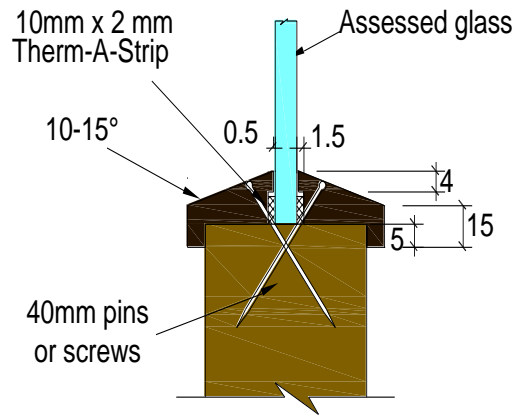


See section 7.3 for fixing details

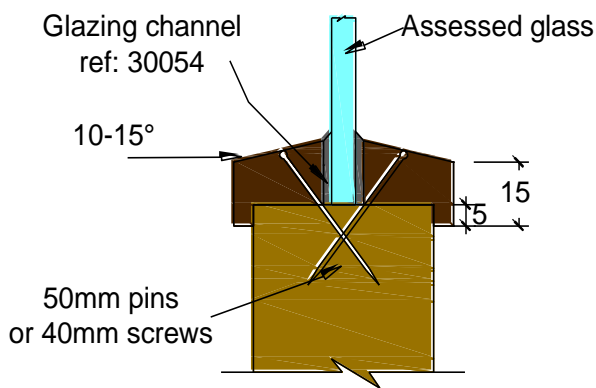
Therm-A-Bead – Intumescent Seals Ltd.



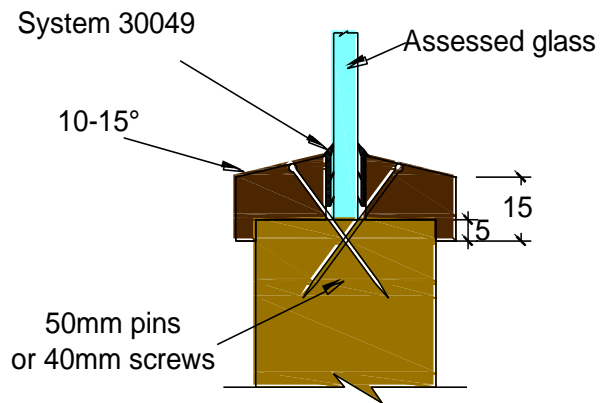
Fireglaze
Sealmaster Ltd



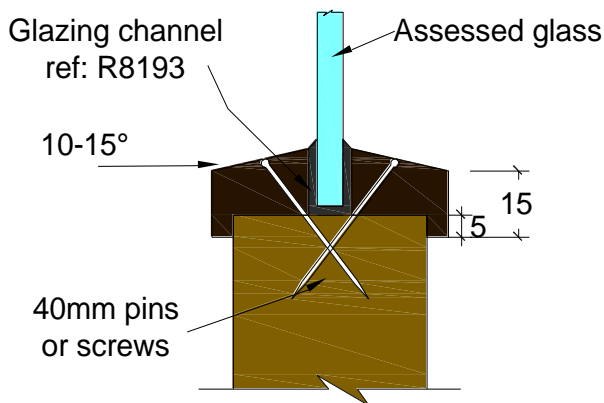
Therm-A-Strip
Intumescent Seals Ltd



Pyroplex Ltd



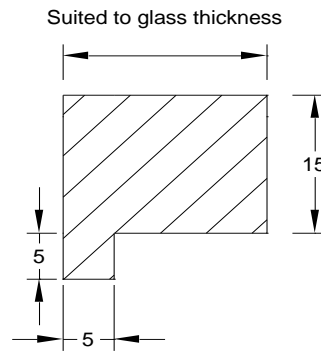
Pyroplex Ltd



Pyroplex Ltd

Assessed Square Glazing Bead Profiles

The following square bead profile may be used as an alternative to the splayed beads detailed in the glazing system diagrams above - refer to section 7 for glazing system and glass restrictions.



Appendix C

Data Sheets for:

Falcon Panel Products Ltd.

Strebord® 35

30 Minute Fire Resisting Doorsets

Falcon Panel Products - Strebord® 35 - 30 Minute Fire Resisting Doorsets
Latched & Unlatched, Single Acting, Single Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD	From:	2135	x	1017
		To:	2349	x	915
	ULSASD	From:	2135	X	992
		To:	2299	x	915

Intumescent Materials: PVC Encapsulated Pyroplex Rigid Box Seal FO8700

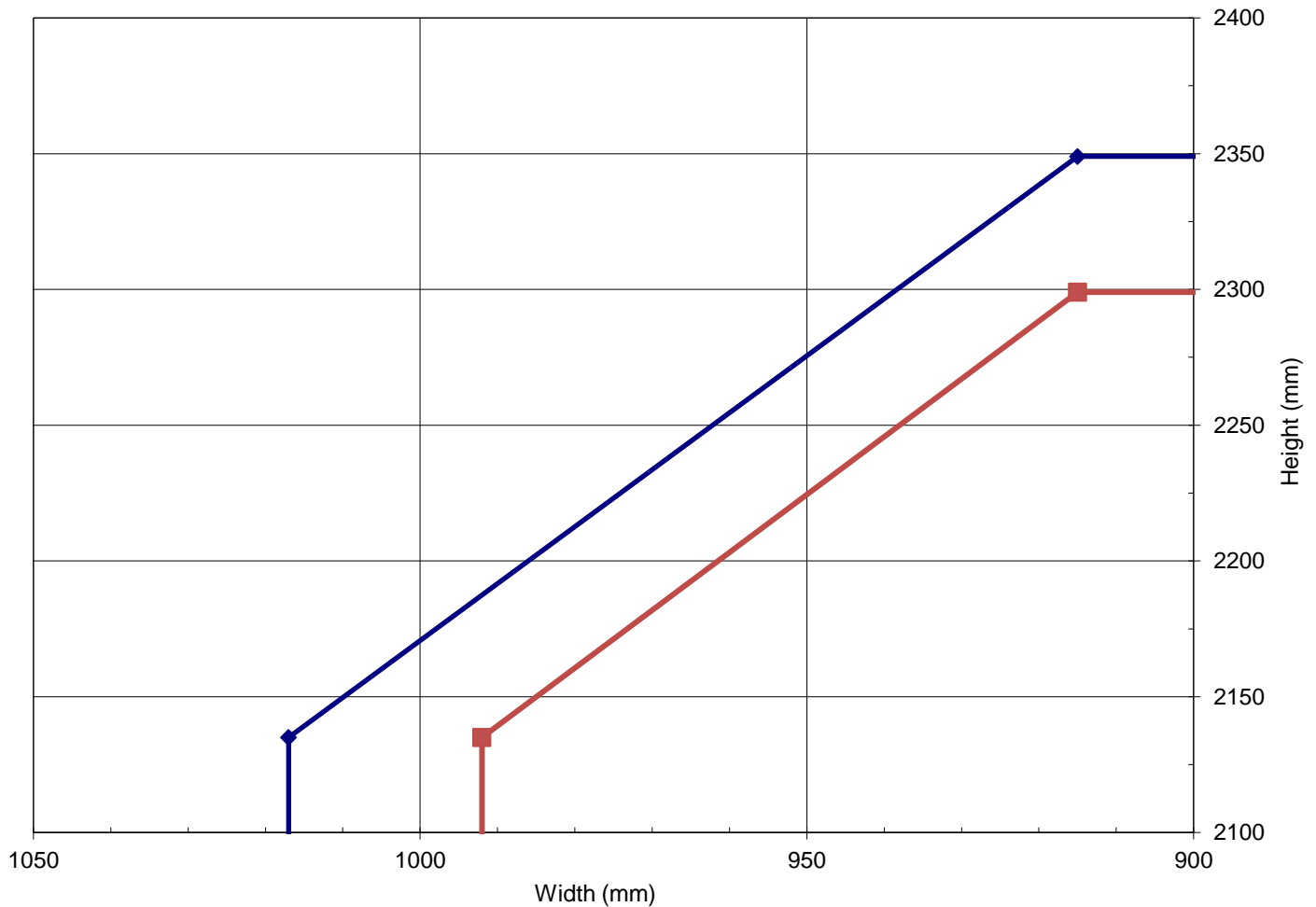
Head: 1 No. 15 x 4mm exposed strip, fitted centrally in the frame reveal or leaf edge. Leaves over 2300mm increase to 20 x 4mm.

Jambs and overpanel: 1 No. 15 x 4mm exposed strip, fitted centrally in the frame reveals or leaf edges. Leaves over 1000 increase to 20 x 4mm.

Hardware Protection: see section 11.1

Maximum Door Leaf Size

—◆— LSASD —■— ULSASD



Falcon Panel Products - Strebord® 35 30 Minute Fire Resisting Doorsets
Latched & Unlatched, Single Acting, Double Doorsets

	Configuration		Height (mm) (mm)	Width
Leaf Sizes	LSADD	From:	2135	x 967
		To:	2249	x 915
	ULSADD	From:	2135	X 942
		To:	2199	x 915

Intumescent Materials: PVC Encapsulated Pyroplex Rigid Box Seal FO8700

Head: 1 No. 15 x 4mm exposed strip, fitted centrally in the frame reveal or leaf edge.

Jams and overpanel: 1 No. 15 x 4mm exposed strip, fitted centrally in the frame reveals or panel edges.

Meeting Edges 1 No. 15 x 4mm exposed strip, fitted centrally in the edge of one leaf only.

Hardware Protection: see section 11.1

Maximum Door Leaf Size

