



# INTERNATIONAL FIRE CONSULTANTS LIMITED

PRIVATE & CONFIDENTIAL

## IFC FIELD OF APPLICATION REPORT

### Field of Application for FD60 Strebord 54<sup>®</sup> Door Leaves Installed in Timber and Steel Frames

Fire Resistance Standard: BS476: Part 22: 1987

IFC Report IFCA/08038 Revision C

Prepared on behalf of: Falcon Panel Products Ltd  
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*NOTE: This report should not be manipulated, abridged or otherwise presented without the written consent of International Fire Consultants Ltd*

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## ISSUE AND AMENDMENT RECORD

Rev	Date	Author	Review	Section	Amendments
-	April 2008	CH	DC		-
A	October 2011	DC	DJI		Revalidation, updating of format, inclusion of additional test evidence and associated revisions
B	June 2016	PP	DC		Inclusion of additional test evidence and associated revisions
C	August 2020	WL	DC		Inclusion of additional test evidence and associated changes

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# FALCON

PANEL PRODUCTS LTD

# FIELD OF APPLICATION

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 Installed in Timber and Steel Frames  
 Prepared for: Falcon Panel Products Ltd

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# 1. INTRODUCTION

This report has been prepared by International Fire Consultants Ltd (IFC), on the instruction of Falcon Panel Products Ltd, to define the field of application for Strebord 54<sup>®</sup> door assemblies, installed in timber and steel frames, that are required to provide 60 minutes fire resistance performance, when adjudged against BS476: Part 22: 1987.

This assessment has been produced using 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, 2019, Industry Standard Procedure'* -.

When establishing the variations in the construction that can achieve the required fire resistance performance, IFC complies with the principles found in the following documents:

- BS ISO/TR 12470-2: 2017 *'Fire resistance tests - Guidance on the application and extension of results from tests conducted on fire containment assemblies and products. Part 2: Non-load bearing elements'*.
- EN 15725: 2010: *'Extended application reports on the fire performance of construction products and building elements.'*

It is proposed that variations to the tested specifications, as described in the following sections, may be accommodated into assemblies, without reducing their potential to achieve a 60 minute integrity rating, if tested in accordance with the method and criteria of BS476: Part 22: 1987. The omission of information on any components or manufacturing methods does not imply a lack of approval of those details but these would need to be the subject of a separate analysis. Only variations specifically mentioned are supported by this assessment document, and all other aspects must otherwise be as proven in tests summarised herein.

It is more onerous to test timber door assemblies, hinged or pivoted, with the specimen installed with the leaf opening in towards the furnace. Testing in this orientation is therefore incorporated into Field of Application Reports to cover doors opening in the opposite direction. The principle is only applicable when the door construction, and any features within the door leaf, such as glazing, are symmetrical. Test evidence exists demonstrating the Strebord 54<sup>®</sup> door leaves tested in both orientations, and this is referenced in the summary of test evidence in Appendix I.

Unless stated otherwise, herein, this Field of Application considers the scope of approval for door assemblies that may be installed in either orientation, that being with either face exposed to fire conditions.

## 2. TEST EVIDENCE

The test evidence used to support this Field of Application Report is summarised in Appendix I of this report.

Some/all of the test evidence referenced in this Engineering Assessment Report is more than 5 years old. In accordance with industry practice, IFC have reviewed this test evidence, and have concluded that the evidence is still valid, and suitable to form the basis of this approval.

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### 3. SCOPE OF APPROVAL

#### 3.1 Door Assembly Configuration

The approved leaf sizes and configurations of door assemblies comprising Strebord 54® door leaves are outlined below:

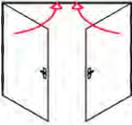
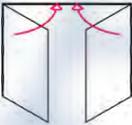
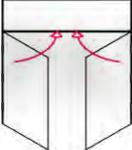
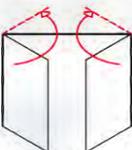
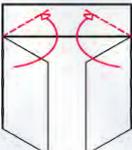
Configuration	Envelope of Approved Leaf Size		
	Timber Frames	Streframe E	Steel Frames
 <ul style="list-style-type: none"> <li>● <b>Latched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Single Door</b></li> <li>● <b>Without Overpanel</b></li> </ul>	Figure 08038BC/C01 in Appendix C	Figure 08038BC/E01 in Appendix E	Figure 08038C/G01 in Appendix G
 <ul style="list-style-type: none"> <li>● <b>Latched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Single Door</b></li> <li>● <b>With Overpanel</b></li> </ul> <p><i>Note 1</i></p>	Figure 08038C/C03 in Appendix C	Not Permitted	Not Permitted
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Single Door</b></li> <li>● <b>Without Overpanel</b></li> </ul>	Figure 08038C/C02 in Appendix C	Figure 08038C/E02 in Appendix E	Figure 08038C/G02 in Appendix G
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Single Door</b></li> <li>● <b>With Overpanel</b></li> </ul> <p><i>Note 1</i></p>	Figure 08038C/C04 in Appendix C	Not Permitted	Not Permitted
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Double Acting</b></li> <li>● <b>Single Door</b></li> <li>● <b>Without Overpanel</b></li> </ul>	Figure 08038C/C02 in Appendix C	Figure 08038C/E02 in Appendix E	Not Permitted
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Double Acting</b></li> <li>● <b>Single Door</b></li> <li>● <b>With Overpanel</b></li> </ul> <p><i>Note 2</i></p>	Figure 08038C/C04 in Appendix C	Not Permitted	Not Permitted

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Configuration	Envelope of Approved Leaf Size		
	Timber Frames	Streframe E	Steel Frames
 <ul style="list-style-type: none"> <li>● <b>Latched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Double Doors</b> <i>Note 3</i></li> <li>● <b>Without Overpanel</b></li> </ul>	Figure 08038C/C05 in Appendix C	Figure 08038C/E03 in Appendix E	Figure 08038C/G03 in Appendix G
 <ul style="list-style-type: none"> <li>● <b>Latched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Double Doors</b> <i>Note 3</i></li> <li>● <b>With Overpanel</b> <i>Note 1</i></li> </ul>	Figure 08038C/C07 in Appendix C	Not Permitted	Not Permitted
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Double Doors</b> <i>Note 3</i></li> <li>● <b>Without Overpanel</b></li> </ul>	Figure 08038C/C06 in Appendix C	Figure 08038C/E04 in Appendix E	Figure 08038C/G04 in Appendix G
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Single Acting</b></li> <li>● <b>Double Doors</b> <i>Note 3</i></li> <li>● <b>With Overpanel</b> <i>Note 1</i></li> </ul>	Figure 08038C/C08 in Appendix C	Not Permitted	Not Permitted
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Double Acting</b></li> <li>● <b>Double Doors</b> <i>Note 3</i></li> <li>● <b>Without Overpanel</b></li> </ul>	Figure 08038C/C06 in Appendix C	Figure 08038C/E04 in Appendix E	Not Permitted
 <ul style="list-style-type: none"> <li>● <b>Unlatched</b></li> <li>● <b>Double Acting</b></li> <li>● <b>Double Doors</b> <i>Note 3</i></li> <li>● <b>With Overpanel</b> <i>Note 2</i></li> </ul>	Figure 08038C/C08 in Appendix C	Not Permitted	Not Permitted

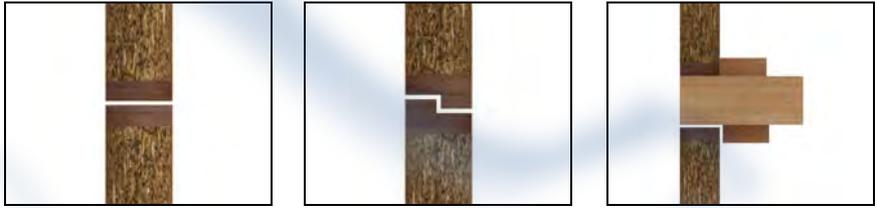
*Note 1* Single acting door assemblies in timber frames which include overpanels may have one of the following configurations:

square leaf/overpanel interface

unequally rebated leaf/overpanel interface

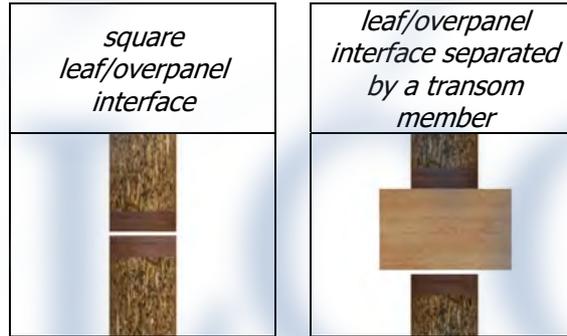
leaf/overpanel interface separated by a transom member

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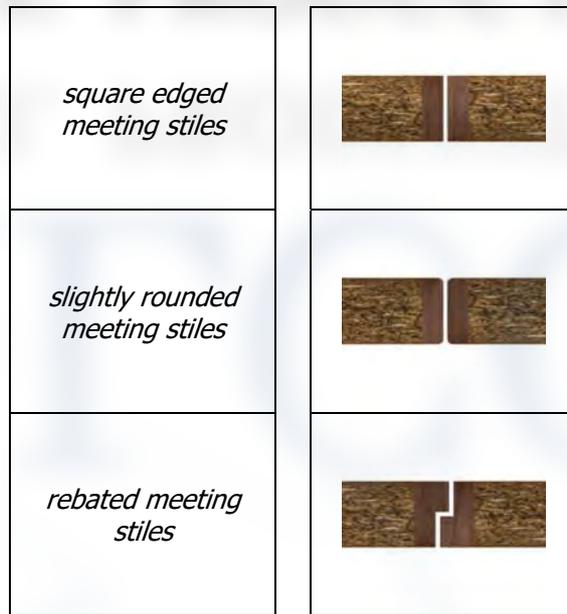


Single leaf doors with over-rebated edges are not permitted with flush overpanels.

Note 2 Double acting door assemblies in timber frames which include overpanels may have one of the following configurations;



Note 3 Double leaf door assemblies may have square edged (or slightly rounded, maximum 2mm radius at corners) or rebated meeting stiles.



Note 4 Some items such as particular frame materials may limit the permitted size of door leaves. Should limitations be stated in the body of this report these shall take precedence over those leave envelopes provided in the Appendices C, E and G.

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### 3.2 Maximum Assessable Door Leaf Sizes

The calculated envelopes of assessed leaf dimensions for each door assembly configuration covered by this field of application report are given in Appendices C, E and G based upon use of the intumescent seal specifications shown in Appendices B, D and F.

Double door assemblies may each be of the same width, up to the maximum width indicated in Appendices C, E and G. For latched/bolted unequal pairs, there is no limit on the ratio of leaf widths, (although the large leaf must still be within the limitations in Appendices C, E and G). For unlatched unequal pairs, the width of the small leaf shall not be more than 200mm smaller than that of the large leaf (although the large leaf must still be within the limitations in Appendices C, E and G). The total width of the small leaf shall not be less than 250mm, since this will affect its vertical stability relative to that of the larger leaf.

### 3.3 Door Leaf and Overpanel Specification

The Strebord 54<sup>®</sup> door leaf and overpanel construction comprise 54mm thick homogeneous solid sheet of particleboard (excluding any decorative facings). No stiles or rails are incorporated in the door leaf design and where specified, the leaves are lipped with hardwood. A detailed constructional specification is given below.

The leaf construction is based upon the test evidence detailed in Appendix I and defines variations and tolerances where it is considered that these will not adversely affect overall fire resistance. The construction details are limited to the information available from the test reports.

For the sake of clarity, this report only approves doors that are rectilinear; i.e. adjacent door edges shall be straight, and at 90 degrees to each other, when viewed in elevation. In **addition, doors shall be "flat"; i.e. not curved, when viewed in plan.**

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3.3.1 Strebord® 54

Component		Material	Minimum Density	Dimensions
Core		Homogenous solid sheet of particleboard	520kg/m <sup>3</sup> <i>Note 5</i>	54mm thick
Lippings <i>Note 6</i>	Square edges	Hardwood	640kg/m <sup>3</sup> <i>Note 7</i>	8-28mm thick Down to 6 in some tests
	Rounded edges			10-28mm thick <i>Note 8</i>
	Rebated edges			20-30mm thick <i>Note 9</i>
	Square edges	Strelip® 60	661kg/m <sup>3</sup>	6-10mm
Adhesive		Urea formaldehyde, melamine-urea formaldehyde, phenol formaldehyde or resorcinol	-	-
Optional additional decorative finishes		Timber veneer or decorative plastic based laminate (to leaf faces only)	-	Maximum 2mm thick
		Paint or varnish	-	Maximum 0.5mm thick
		MDF <i>Note 10</i>	750 kg/m <sup>3</sup>	Maximum 6mm thick

*Note 5* Average density with a ±10% variation permissible. The core for each leaf shall be formed from one single piece.

*Note 6* Lippings to be fitted to vertical edges of each leaf, or can be fitted to all four edges, if required. Lippings to be applied after bonding of faces.

*Note 7* Lippings to be straight grained hardwood, with minimum measured density at 12% moisture content and of appropriate quality in accordance with BS EN 942: 2007. Moisture content to be 11 ± 2% for UK market in heated buildings between 12-21°C (or to suit internal joinery moisture content specification of export countries).

The machining of the core/lipping, and bonding process must be such to ensure that no gaps occur between core and lipping.

*Note 8* The radius formed on the leading edge of double acting doors, or single acting double doors, shall not remove more than 2mm thickness of lippings on the door face, see Note 3 in Section 3.1. The radius of pivot stiles shall suit the pivot/floor spring employed.

The radius of pivot stiles shall suit the pivot/floor spring employed but the opposing door frame profile must be such that the gap at the leaf/frame interface must not exceed 4mm.

*Note 9* Dimensions to suit unequal width rebates of 32mm and 22mm, with a 12mm depth.

*Note 10* MDF facings are required to be installed equally to both faces of the leaf as to not unbalance the leaves in cold state applications

MDF facings shall be adhered to the leaf using a PVA or PU or Urea Formaldehyde type adhesives.

*Note 11* The overall leaf height may be made up of two sections abutted at a horizontal joint, maximum 700mm from the threshold. The joint shall comprise a tongue and groove joint (30-44 x 12mm) and PU adhesive.

### 3.3.2 Adjustment of Door Size

Adjustment of door sizes is permitted subject to the following specifications:

- Where door edges are not lipped, and as the doors do not include stiles and rails, there is no limit on reduction in door height, after fabrication; subject to compliance with all other parameters herein (e.g. aperture margins).
- Where door edges are lipped and have square edges, they may be trimmed from each edge; but the minimum lipping width (defined in the Table above) must be maintained. If a greater adjustment is required, after fabrication, lippings are to be removed and new lippings must be applied, complying with details in the Section 3.3.1 above.

### 3.3.3 Decorative Grooves

The Strebord® 54 door assemblies can be bonded up to a maximum 66mm thick using to 6mm thick MDF facings on both sides of the door leaf. The facing is to be bonded using PVA or PU type adhesive. The additional facing can be grooved/recessed on both faces with the following specification, providing the applied design does not unbalance the door leaf in cold state applications (to be determined by others):

Element	Details
Maximum surface area of grooves/recess on any one face	100% (providing no material is removed from the central Strebord® 54 core)
Maximum depth of groove/recess without additional material applied to bottom of groove/recess	6mm (each face)
Maximum depth of groove/recess prior to applying 3mm (t) timber or MDF to bottom of groove/recess	9mm (each face)

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Element	Details	
Approved infill materials	1. Hardwood (minimum density 640kg/m <sup>3</sup> ) 2. MDF (Minimum density 700kg/m <sup>3</sup> )  <i>Note: It is permitted to groove/recess the infill material applied in the bottom of a groove or recess providing at least 3mm of infill material remains in the bottom of the groove/infill</i>	
Adhesive for infill materials	PVA, Urea Formaldehyde, Polyurethane	
Proximity to door leaf edges	Horizontal Grooves	75mm from top and bottom of door leaf
	Vertical Grooves	75mm from the side of door leaf
Specific requirements	1. The groove/recess must not coincide with any apertures (e.g. glazing, air transfer grilles, letter plates etc.) i.e. the groove or recess must stop 5mm short of the aperture cut out. 2. Grooves and recesses must not coincide with any items of recessed hardware where the body of the hardware is thicker than 20mm (e.g. concealed over and jamb mounted closers)	
Configuration	Latched and Unlatched, single and double acting, single and double leaf door assemblies	
Leaf size range	All	
Intumescent seal dimensions	All	

### 3.4 Frames

#### 3.4.1 Timber Frames

Timber frames, to the specifications given below, may be used across the complete range of approved sizes and configurations outlined in Appendices C and E, utilising the intumescent seal specifications outlined in Appendices B and D.

Material	Density	Minimum Face Width		Minimum Frame Depth	Minimum Stop Depth
		Single Acting	Double Acting		
Hardwood	640kg/m <sup>3</sup> <i>Note 12</i>	32mm, excluding stop <i>Note 14</i>	38mm <i>Note 15</i>	70mm	12mm <i>Note 16</i>
Streframe	450kg/m <sup>3</sup> <i>Note 12</i>	32mm, excluding stop <i>Note 14</i>	38mm <i>Note 15</i>	70mm	12mm <i>Note 16</i>
MDF	750kg/m <sup>3</sup> <i>Note 13</i>	30mm, excluding stop <i>Note 14</i>	38mm <i>Note 15</i>	70mm	12mm <i>Note 16</i>
Beech <i>Note 17</i>	690kg/m <sup>3</sup> <i>Note 12</i>	32mm	Not permitted	140mm	12mm <i>Note 16</i>
Streframe E <i>Note 18</i>	510kg/m <sup>3</sup> <i>Note 12</i>	32mm	33mm at jambs and 47mm at head, excluding stop	105mm	12mm <i>Note 16</i>

*Note 12* Timber must have a minimum measured density at 12% moisture content. The timber must be straight grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be 10 ± 2% for UK market, (or to suit internal joinery moisture content specification of export countries).

*Note 13* MDF to have a minimum measured density at 12% moisture content.

*Note 14* These dimensions assume that the rear of the frame is protected by the adjacent wall, (and firestopping), and that the frame does not project out from the wall. See Section 3.8 regarding projecting frames and shadow gaps.

*Note 15* Frames for double acting doors do not require a stop but must have the stated minimum frame thickness at the scalloped edge which is to suit the radius of the pivot stile of the door and to facilitate the fitment of the top pivot.

*Note 16* The door stop is to comprise the same material as the door frame and may be either planted and pinned using 40mm steel pins, or integral with the main door frame, providing the minimum frame thickness remains as stated. In instances where hardwood frames are used, planted MDF stops are permitted.

Note 17 Timber must have a minimum measured density at 12% moisture content. The timber must be straight grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be  $10 \pm 2\%$  for UK market, (or to suit internal joinery moisture content specification of export countries).

Only the use of steamed beech is permitted to be used as door frames herein.

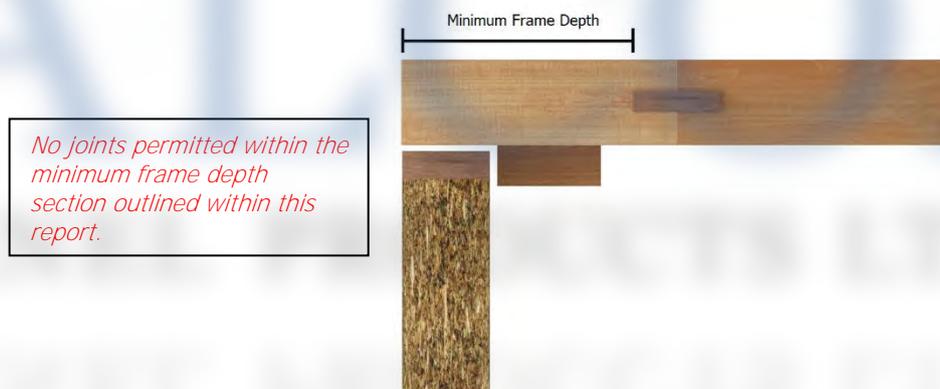
Beech door frames may only be used for LSASD assemblies and may be of maximum envelope sizes of:

Maximum height and associated width: 2777mm high x 1211m wide

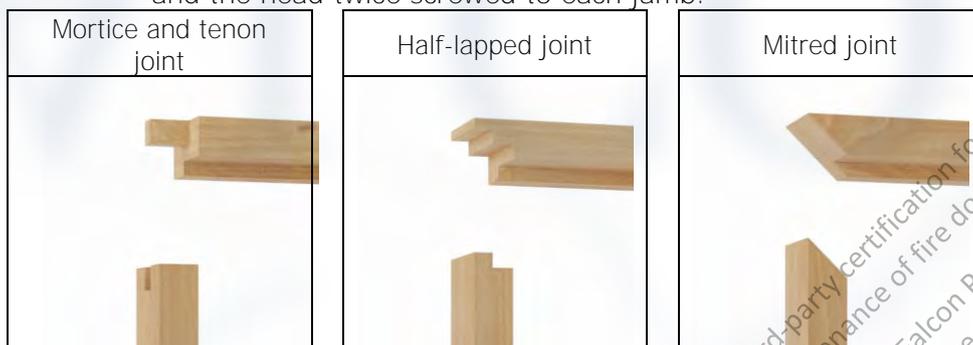
Maximum width and associated height: 2423mm high x 1035mm wide

Note 18 Separate door envelopes are provided within this Field of Application Report for door assemblies installed utilising the Streframe E frame. See Appendices D and E for details.

The overall frame depth may be increased by the use of extension linings, but the joint between the main frame and the extension lining must not intrude in the plane of the door thickness.



Head/jamb joint : Mortice and tenon, or half-lapped joint, head twice screwed to each jamb or mitred joint which is glued with a non-thermally softening adhesive and the head twice screwed to each jamb.



Architraves : Loose Architraves

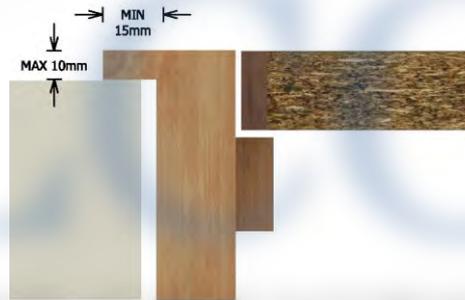
Where the face of the frame, and the door, are flush with the face of the wall, loose architraves are optional, excluding beech frames where 16mm thick architraves are required, and have no fire performance

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requirements, and so can be freely specified, subject to adequate fire stopping. (See Section 3.8 regarding wall/frame gaps).

### Integral Architraves

Where an integral architrave is used, the face of the door may project beyond the face of the wall, providing the thickness of the architrave is no greater than 10mm and it projects at least 15mm beyond the rear face of the door frame. (This 15mm projection shall NOT be formed by machining into the minimum width of frame section, as defined in the Table, above, and the frame width shall be increased accordingly). This assumes that the face of the door leaf is flush with the face of the architrave.



Transom members : When a transom is used between a door and an overpanel, in single acting door assemblies the member shall be at least 70 x 32mm, and shall include minimum 12mm thick door stops on both sides (i.e. making a minimum 70 x 56mm thick overall section). In double acting door assemblies, the transom shall be at least 70 x 44mm. The transom must be fixed to the jambs with a mortice and tenon, or half-lapped joint. The overpanel must always be on the same plane as the door(s) below.

Transom members are not permitted for use with door assemblies installed with Streframe E frames.

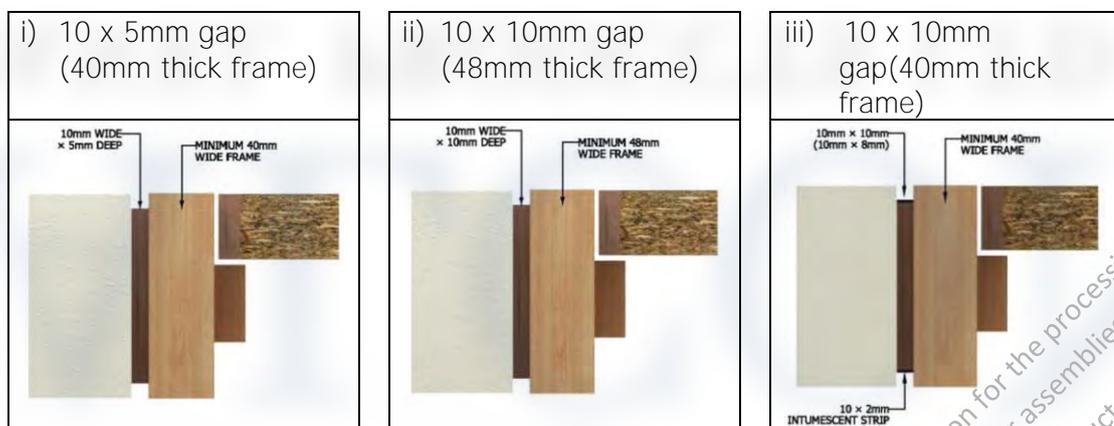
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Shadow gap details may be included at junction between the supporting construction and the door frame, using one of the following methods;

- a) The shadow gap may be created by forming a **maximum 10mm wide "rebate" in the plasterboard/plaster** at the edge of the supporting construction, around the door opening. The exact details will depend upon the construction of the wall/partition;
- b) The shadow gap may be formed by including a maximum 10mm wide timber packer between the wall and the frame, whereby the depth of the packer is less than the depth of the wall/frame;
- c) by increasing the face width of the frame section by a maximum of 10mm, relative to the minimum width defined in the Table above, and forming a rebate in the rear edge of the frame.

The above options are approved, subject to the following restrictions:

- i) Maximum 10mm wide x 5mm deep shadow gaps can be included, without additional **protection, subject to the "main frame section" being at least 40mm wide.**
- ii) Maximum 10mm wide x 10mm deep shadow gaps can be included, without additional **protection, subject to the "main frame section" being at least 48mm wide.**
- iii) **Maximum 10mm wide x 10mm deep shadow gaps can be included where the "main frame section" is less than 40mm, (but at least 32mm),** providing a 10 x 2mm intumescent strip is securely fitted into the bottom of the shadow gap.



- iv) **The term "main frame section", in points i), ii) and iii) above, refers to the basic rectangular frame section, excluding the shadow gap, and excluding any door stops and/or integral architraves.**
- v) If a frame includes an integral architrave AND a shadow gap, the integral architrave must meet the specification given above and the shadow gap must be created using the method described in point a) above with intumescent protection as detailed in point iii) above.

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Note 19 Gaps between the door frame and structural opening including those around timber packers (depending on shadow detail) must be appropriately fire stopped, see Section 3.8 regarding wall/frame gaps.

### 3.4.2 Steel Frames

Steel frames, to the specifications given below, may be used across the complete range of approved sizes and configurations outlined in Appendix G, utilising the intumescent seal specification outlined in Appendix F.

Product		Minimum Face Width	Minimum Frame Depth	Minimum Stop Depth
		Single Acting		
4-Sided	1mm thick steel Ezy-Jamb EZC Concealed Frame	47mm wide including a 12mm high x 41mm wide integral stop and a 35mm wide integral architrave	99mm	12mm
3-Sided	1mm thick galvanised steel Ezy-Jamb (Ref: ISD INSWING)	60mm wide x 106mm deep including a 15mm high x 48mm wide integral stop and a 37mm wide architrave	106mm	15mm

Head/jamb joint : Mitred with welded joints and screw fixed.

Transom members : No transom members are permitted with steel frames.

## 3.5 Glazed Apertures

### 3.5.1 Glass types

The following glass types are approved for use in the doors considered, herein, which are compatible with the identified approved glazing systems given in Section 3.5.2, although some restrictions on size may be given in subsequent sections. See also Section 3.5.6 regarding ladder glazing.

The codes used, below, for the glass types, glazing materials, and bead types, (e.g. G60/1, S60/1 and B60/1), are not those used by the respective manufactures, and are attributed solely by IFC for the purpose of identification and cross-referencing within this assessment.

G60/1	5mm thick Firelite (Southern Ceramics) <i>Note 20</i>
G60/2	6mm thick Pyroshield Fire and Safety (Pilkington) <i>Notes 21 &amp; 22</i>
G60/3	6mm thick Pyran S (Schott Glass)
G60/4	10mm thick Pyrodur (Pilkington)
G60/5	11mm thick Pyroguard Clear (CGI)
G60/6	12mm thick Pyrobelite (AGC Flat Glass)
G60/7	13mm thick Pyrodur (Pilkington)
G60/12	13mm thick Pyroguard T-EW60/6.VF RV
G60/13	23mm thick DGU comprising; 13mm thick Pyroguard T-EW60/6.VF RV, 6mm spacer, 4mm thick toughened glass <i>Note 23</i>

*Note 20* Limitations apply to the pane size of glass type G60/1, 5mm thick Firelite, as it does not satisfy the requirements of BS6206. Panes are restricted to a smaller dimension not exceeding 250mm and an area not exceeding 0.5m<sup>2</sup>, each measured between glazing beads, in accordance with the requirements of Approved Document N.

*Note 21* Approval of Pyroshield Fire and Safety glass does not permit the substitution of Pyroshield 2.

*Note 22* Glass type G60/2, 6mm thick Pyroshield Fire and Safety, has not been proven at larger sizes in all glazing systems considered here, and, due to its potential to soften and slump in the later stages of a 60 minute fire test, the approval for this glass in apertures with an area exceeding 0.25m<sup>2</sup> and/or longer than 1100mm is restricted to use with seal S60/2.

*Note 23* The double glazed unit (G60/13) has been tested with the pane of non-fire resisting glass at the exposed face of the test specimen. Glass G60/13 is therefore approved for use only in this orientation.

Where assemblies require 30 minutes insulation, the following glass types are approved:

G60/8	15mm thick Pyroguard Insulation (Pyroguard)
G60/9	15mm thick Pyrostop (Pilkington)
G60/10	16mm thick Pyrobel (AGC Flat Glass)
G60/11	18mm thick Pyrostop (Pilkington)

Expansion allowances for all glass types shall be as recommended by the glass manufacturer.

### 3.5.2 Glazing materials and systems

The following glazing materials are approved for use in the doors considered, herein, which are compatible with the identified approved glass types listed above, although some restrictions on size may be given in subsequent sections. (See also Figures 08038C7A01, A03 and A05 in Appendix A for limitations).

S60/1	25 x 3mm Pyroglaze 60 and Pyroglaze 300 liner by Mann McGowan (use with G60/1 – G60/7) <i>Note 24</i>
S60/2	25 x 4mm Therm-A-Glaze 60 and Therm-A-Line liner by Intumescent Seals (use with G60/1 – G60/7) <i>Note 24</i>
S60/3	25 x 4mm Fireglaze and Therm-A-Line liner by intumescent Seals (use with G60/1 – G60/7)
S60/4	25 x 4mm Fireglaze 2000 and Therm-A-Line liner by Intumescent Seals (use G60/1 – G60/7)
S60/5	18 x 5mm Closed cell foam by various suppliers and Therm-A-Line liner by Intumescent Seals (use with G60/8 – G60/11)
S60/6	18 x 4mm Ceramic fibre tape by various suppliers and Therm-A-Line liner by Intumescent Seals (use with G60/8 – G60/11)
S60/7	System 36 to suit glass thickness by Lorient Polyproducts and Therm-A-Line by Intumescent Seals or Palusol by Lorient liner (use with G60/8 – G60/11)
S60/8	System 90 Plus and Palusol liner by Lorient Polyproducts (use with G60/1 – G60/3)
S60/9	23 x 2.5mm Sealmaster Fireglaze intumescent tape perimeter with 20 x 5mm ISL 60 Plus bead and 54 x 2mm ISL Therm-A-Sol sodium silicate based intumescent liner (use with G60/13)
S60/10	Lorient Polyproducts RF1 54 x 2mm sodium silicate glazing liner and 27 x 4mm glazing seal RG2704 (use with G60/8-G60/11)
S60/11	54 x 2mm ISL Therm-A-Seal with 15 x 5mm Sealmaster Fireglaze tape and 20 x 5mm ISL 60 Plus between bead and glass (use with G60/12)
S60/12	10 x 2mm STS 104SG glazing tape between bead and glass with 30 x 2mm STS 302 GL around perimeter of aperture (use with G60/1 – G60/7)

*Note 24* Glazing systems S60/1 and S60/2, Pyroglaze 60 and Therm-A-Glaze 60, have not been tested in long apertures and their ability to contribute to successful performance is not proven. The use of these systems is thus restricted to panes no longer than 1000mm, irrespective of the glass type.

### 3.5.3 Bead profiles and installation

The approved bead sizes and profiles, and relevant fixing details, are shown on the Figures 08038C/A01 to A03 and A05 in Appendix A, which also define any limitations upon options of interchangeability with glass types, glazing systems and bead profiles.

B60/1	25mm deep, 20° chamfered top, with bolection moulding not less than 4mm deep.
B60/2	27mm deep, 20° chamfered top, flush with leaf face, with or without 4 x 4mm quirk.
B60/3	18mm deep, flat top, flush with leaf face, with or without 4 x 4mm quirk.
B60/4	18mm deep, flat top, with bolection moulding not less than 4mm deep in hardwood $\geq 640 \text{ kg/m}^3$ .
B60/5	Bead as per Lorient recommendations and materials supplied as part of S60/7.
B60/6	Bead as per Lorient recommendations and materials supplied as part of S60/8.

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Glazing beads formed from timber with a minimum measured density at 12% moisture content. The timber must be straight grained and of appropriate quality in accordance with BS EN 942: 2007. The moisture content shall be  $10 \pm 2\%$  for UK market, (or to suit internal joinery moisture content specification of export countries).

Glazing beads B60/1 and B60/2 may be clad with 2mm thick PVC, subject to the utilisation of glazing systems S60/1–S60/4, and associated glasses.

### 3.5.4 Assessed aperture sizes

Apertures are created by cutting directly into the door slab, with beads fitted directly to the **particleboard 'core'**. **Alternatively, where a quirk bead (bead type B60/2 or B60/3) is employed,** an 8 – 12mm thick hardwood lipping may be applied to the aperture perimeter, using the specification for lippings defined in Section 3.3.

Based upon the size of apertures tested, and subsequent analysis, the following limitations apply to glazed apertures in the door leaves considered herein;

Maximum area of apertures	-	1.15m <sup>2</sup> <i>Notes 25 &amp; 26</i>
Maximum vertical length of aperture	-	2200mm <i>Note 25</i>
Maximum horizontal length of aperture	-	600mm <i>Note 25</i>
Minimum distance from leaf edge (top)	-	145mm
Minimum distance from leaf edge (sides)	-	145mm
Minimum distance between apertures	-	150mm
Minimum distance from bottom of leaf	-	200mm

Apertures may be included in door leaves with a minimum distance to the leaf edge and head of 130mm subject to the following limitations;

Maximum area of apertures	-	0.49m <sup>2</sup> <i>Notes 25 &amp; 26</i>
Maximum vertical length of aperture	-	1750mm <i>Note 25</i>
Maximum horizontal length of aperture	-	280mm <i>Note 25</i>
Minimum distance between apertures	-	150mm
Minimum distance from bottom of leaf	-	200mm

Use of certain hardware items may impose further limits upon margins; refer to Appendix F.

*Note 25 Refer to Section 3.5.1 for restrictions in size of apertures with specific glass panes and Section 3.5.2 for restrictions in size of apertures with specific glazing systems.*

*Note 26 Any aperture(s) for intumescent air transfer grilles, (see Section H.11.4), must also be included in the total area permitted for apertures given above. Margins between apertures apply whether for glazing or grilles.*

*Note 27 Any aperture(s) used in a door assemblies that includes concealed closers (see Section H.6) must include a minimum of 145mm between the top edge of the aperture and rebate housing the body of the closer.*

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### 3.5.5 Circular glazing

The leaves are approved for the incorporation of circular glazing up to aperture dimensions of 500mm diameter, subject to the parameters for margins and total area of glazing per leaf, described in Section 3.5.4. The method of forming the curved beads shall be as tested.

Bead profiles with a bolection moulding are approved (bead types B60/1 and B60/4) with an approved glazing system which can be suitably modified, and associated glasses.

Apertures with some straight and some curved edges (such as full semi-circles or rectangular openings with semi-circular top and bottom ends) are also approved, subject to incorporation of the glazing system, bead type and fixing details as outlined above for circular glazing. Parameters for aperture margins, total area per leaf, and maximum dimensions are described in Section 3.5.4.

### 3.5.6 Ladder glazing

To create the effect of narrow glazing bars separating multiple apertures within a door leaf, it is permitted to include a single aperture, with mock glazing bars applied to either face of a single pane of glass. In all cases, the sizes and margins of the aperture(s) must be in accordance with Section 3.5.4.

Figure O8038C/A04 in Appendix A shows the approved detail for perimeter bead and mock glazing bars.

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### 3.5.7 Glazing Summary

Glazing Summary				Permitted Glazing Systems (S60/_)											
IFC Glass Ref	Glass Thickness	Glass Type	Insulation (minutes)	1	2	3	4	5	6	7	8	9	10	11	12
G60/1	5mm	Firelite	0	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y
G60/2	6mm	Pyroshield Fire and Safety	0	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y
G60/3	6mm	Pyran S	0	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y
G60/4	10mm	Pyrodur	0	Y	Y	Y	Y	N	N	N	N	N	N	N	Y
G60/5	11mm	Pyroguard	0	Y	Y	Y	Y	N	N	N	N	N	N	N	Y
G60/6	12mm	Pyrobelite	0	Y	Y	Y	Y	N	N	N	N	N	N	N	Y
G60/7	13mm	Pyrodur	0	Y	Y	Y	Y	N	N	N	N	N	N	N	Y
G60/8	15mm	Pyroguard Insulation	30	N	N	N	N	Y	Y	Y	N	N	Y	N	N
G60/9	15mm	Pyrostop	30	N	N	N	N	Y	Y	Y	N	N	Y	N	N
G60/10	16mm	Pyrobel	30	N	N	N	N	Y	Y	Y	N	N	Y	N	N
G60/11	18mm	Pyrostop	30	N	N	N	N	Y	Y	Y	N	N	Y	N	N
G60/12	13mm	Pyroguard T-EW60/6.VF RV	0	N	N	N	N	N	N	N	N	N	N	Y	N
G60/13	23	Pyroguard T-EW60/6.VF RV in DGU	0	N	N	N	N	N	N	N	N	Y	N	N	N

### 3.6 Overpanels

Overpanels may have square or unequally rebated junctions with the door head or be separated by a transom member. Intumescent seals at the panel/frame interface shall be as defined in Appendix B. Transom members shall be in accordance with Section 3.4.1. The installation shall be as defined in Section 3.8.

The size of overpanels is limited to the full width of the leaf/leaves contained within the door assembly and the following maximum height:

Single leaves: 2000mm high  
 Double leaves: 1500mm high

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In all cases, the overpanel must be a single piece panel across the frame width; i.e. a “double door” overpanel shall not be used above double door leaves. Approval of an overpanel size by IFC does not indicate that such a size can be fabricated, this should be checked with the manufacturer, and will be subject to the ability of the supporting construction providing adequate restraint/support. The overpanel must always be on the same plane as the door(s) below.

### 3.7 Hardware

Some of the various items of hardware to be used with the proposed door assemblies will **have a positive contribution to the overall performance ('essential hardware') and others are classed as 'non-essential'.** However, in all cases it must be ensured that choice of items, or their installation within the assemblies, does not have a detrimental effect upon their achievement of the required period of fire resistance.

General guidance for all items of hardware is outlined in Appendix H, based upon the range of items tested. All hardware beyond the scope of the general guidance must have been subjected to fire resistance testing, and/or assessed by a notified body to support its use in doors of a similar construction to that proposed.

### 3.8 Installation, Supporting Construction and Door Edge Gaps

Timber frames must be fixed back to the supporting construction with steel fixings at centres not exceeding 600mm on the vertical edges (minimum 200mm from the top and bottom), and a minimum of one fitted centrally across the width of the frame head of double doors. Screws shall be of sufficient length to penetrate the wall by at least 40mm and shall be positioned such that they are not exploited by charring of the frame, irrespective of the direction of test exposure; (this may necessitate a twin line of screws). Packers shall be used at all fixing positions, although if combustible packers are employed, these must be protected by a layer of firestopping (see below) aligned near to each face of the door frame.

4-Sided Ezy-Jamb EZC concealed steel frames must be fixed back to the supporting construction with the bespoke fixings utilised in fire resistance test WF 415618.

3-Sided Ezy-Jamb (Ref: ISD INSWING) steel frames must be fixed back to the supporting construction with the bespoke fixings utilised in fire resistance test WF 391940.

The supporting construction may be timber or steel stud plasterboard partition, blockwork, brickwork or concrete walls, but shall be of a type that has been tested or assessed to provide in excess of 60 minutes fire resistance, at the required size, when incorporating door openings. If fitted into timber or steel stud partitions, the method of forming the door assembly aperture must be as tested by the partition and/or door assembly manufacturer.

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*Note 28 Reference to steel stud partitions is in the context of permanent elements, such as those designed and proven by the plasterboard manufacturers, with plasterboard on both faces of the studs. This report does not approve use of the proposed door assemblies in proprietary 'demountable' partitions, which must be subject to a full and independent appraisal of the particular system and door assemblies therein.*

No part of the rear of the frame section shall be exposed once installed, (except for integral architraves) and leaves must not project beyond the exposed face of the door frame.

There shall be no feature rebates or shadow gaps at the junction of the frame and wall with steel frames (such features could, however, be assessed on an individual basis).

Shadow gap details may be included at the interface of timber frames and wall – see Section 3.4.1 herein.

This report only applies to scenarios where the frame is fully aligned within the plane of the fire-resisting wall/partition. The approval in this report does not apply where the wall/partition **includes decorative 'cladding' on the face of the fire-resisting construction**, (e.g. timber panelling on battens, or plasterboard on studs/dabs), such that any part of the frame is aligned within the plane of this decorative cladding. This detail is likely to adversely affect the fire resistance of the door assembly, and IFC should be consulted for specific advice, to determine upgrading measures that will be required in such cases.

The gap sealing between the supporting construction and timber frames should follow the recommendations given in Section 9.4 of BS8214: 2016, **'Timber-based fire door assemblies – Code of practice'**, using a product proven in such timber applications. Alternatively, tested, assessed or Third Party Certificated solutions may also be utilised using a product proven in such timber applications, and with reference to the correct depth of seal to suit the width of gap between wall and frame.

Fire stopping expanding products may be used to seal behind the timber frames as detailed herein, whereby they have been proven in such timber applications, and with reference to the width of the gap between the wall and frame.

Test evidence, Appendix I, demonstrates the fire resistance performance of ST99 FR Foam, manufactured by Sealed Tight Solutions Ltd. This product may be used to seal between the rear of the frame and the supporting construction when installed in accordance with the following parameters;

- Gaps shall be a maximum of 15mm wide
- ST99 shall be used to completely fill the gap for the full depth of the frame or capped with 15mm deep STS88 mastic at both faces
- A minimum 102mm deep frame may be used with this sealing system
- Architrave must be installed and shall be a minimum of 15mm thick
- ST99 may be installed between the frame and approved supporting constructions as detailed herein

Alternatively frame gaps, 5-25mm wide, may be sealed using Fire and Acoustic Seals Ltd's Fire Door Foam. Fire and Acoustic Seals Ltd's Fire Door Foam may be used to seal door frame gaps when installed in accordance with the current issue of IFC's Engineering Assessment Report PAR/18385/01 'Engineering Assessment of Door Frame Installation Using the Fire and Acoustic Seals Ltd 'Fire Door Foam; for FD30 and FD60 Timber and Composite Door Assemblies'. The installation of architraves when using Fire and Acoustic Seals Ltd's Fire Door Foam is optional for the installation of door assemblies using Hardwood frames and mandatory when using MDF frames, in accordance with this report. Specifications detailed within PAR/18385/01, that differ from those herein, shall not be taken to provide approval and all specifications detailed herein shall take priority.

The gap between the door and the frame or between meeting stiles (and between double doors and overpanel, where applicable) should be 1.5–4mm. Gaps under the door(s) shall not exceed 6mm for fire performance, although, if smoke control is also required, these gaps shall only be 3mm, or smoke seals shall be included (see also Section 3.10 regarding suitability of smoke seals).

The door assembly design shall be such that, when closed, single acting leaves are fully flush within the frame and double acting doors should be centred on the frame depth. The face of leaves in double door assemblies shall be flush with each other at meeting stiles, when closed.

Overpanels shall be secured into the frame using steel screws fixed through the rear of the frame members, passing at least 40mm into the centre line of the overpanel thickness. (Screws must not be fixed through the overpanel into the stops, or vice versa). Screws must be no more than 100mm from each corner of the overpanel, and at maximum 400mm centres, with a minimum of 2no screws per overpanel edge. This specification applies to overpanels used with or without a transom. The gap between overpanel and frame should not exceed 3mm.

### 3.9 Intumescent Seals

Graphite based, Palusol or Lorient 617, pvc encased, seals manufactured by Mann McGowan Fabrications Ltd, Lorient Polyproducts Ltd, Intumescent Seals Ltd, Sealed Tight Solutions Ltd, Pyroplex, Kilargo or Odice may be employed across the complete range of door sizes and configurations approved herein. It is recommended that the intumescent seals are manufactured or supplied by members of the Intumescent Seals Association (IFSA) or that the product is included in a Third Party Certification scheme, such as that provided by IFC Certification, to ensure product quality and consistency.

If a Palusol specification is chosen, the seal(s) at the head of double door assemblies must be fitted into the frame reveal, or overpanel, as appropriate. Where the specification is a multiple seal arrangement, it is acceptable to use Palusol, subject to maintaining at least one strip in the frame/overpanel to be continuous across the meeting stile joint.

The intumescent seal specifications, widths, and positions are shown in Appendices B, D and F, based upon tested details.

Intumescent protection is required for specific items of building hardware and this is detailed in Appendix H based upon details tested.

### 3.10 Ambient Temperature Smoke Seals

Smoke seals, or combined intumescent/smoke seals (using the specification approved in Section 3.9), that have been tested in accordance with BS EN 1634-3: 2004 (ambient temperature) or BS476: Part 31: Section 31.1: 1983 and shown not to leak by more than  $3\text{m}^3/\text{m}/\text{hr}$  at 25Pa may be used in conjunction with the proposed door assemblies to provide smoke control.

The orientation of the seals, door edge gaps, degree of hardware interruption, and leaf configuration, will need to be as tested in accordance with BS EN 1634-3: 2004 (ambient temperature) or BS476: Part 31: Section 31.1: 1983 to achieve the desired level of smoke control, unless these conflict with the intumescent seal widths and positions as described in Appendices B, D and F, in which case, the latter shall take precedence; and smoke sealing may not be effected.

Test evidence to BS476: Part 22: 1987 (or EN1634-1) shall be available to demonstrate that the smoke seals will not adversely affect the overall fire resistance of timber door assemblies, of similar design and thickness, when fitted in the proposed arrangements.

## 4. CONCLUSION

Based upon the available test evidence, and subsequent analysis performed by International Fire Consultants Ltd, if the proposed door assemblies utilising Strebord 54<sup>®</sup> door leaves installed in timber or steel frames were manufactured and installed in accordance with the limitations of this Field of Application Report and tested for fire resistance, they would satisfy the integrity criteria of BS476: Part 22: 1987 for 60 minutes.

Partially insulating door assemblies are determined using the criteria given in section 7 of BS476: Part 22: 1987. These assemblies are evaluated as partially insulating door assemblies **on the basis that the 'solid' part of the leaf satisfies the temperature criteria given in section 10.4 of BS 476: Part 20: 1987** and any non-insulating features, such as glazing, are less than 20% of the surface area of the leaf. The assemblies outlined, herein, are permitted to have glazed areas and air transfer grilles, and so could, therefore, be evaluated to this standard if the maximum total aperture area is less than 20% of the leaf size.

The leaves may include small apertures, up to a maximum of 20% of the leaf size, and can be evaluated to Section 7 in BS 476: Part 22: 1987 as partially insulating door assemblies for 60 minutes fire resistance.

The doors can also be assessed to Section 6 of BS476: Part 22: 1987 for a 60 minute performance rating for both integrity and insulation (providing the steel frame, if included, has been considered), without apertures in the leaves (unless fully insulating glass is included in the assessment).

This Field of Application Report considers that the door assemblies within the scope approval, herein, may be installed in either orientation and so be exposed to fire conditions from either face.

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## 5. DECLARATION BY THE APPLICANT

Reference: IFC Field of Application Report I FCA/08038 Revision C

We the undersigned confirm that we have read and complied with the obligations placed on us by the

Passive Fire Protection Forum (PFPF)  
Guide to undertaking technical assessments of the fire performance  
of construction products based on fire test evidence  
2019  
Industry Standard Procedure

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.

We confirm that the change which is the subject of this assessment has not to our knowledge been tested to the standard against which this assessment has been made.

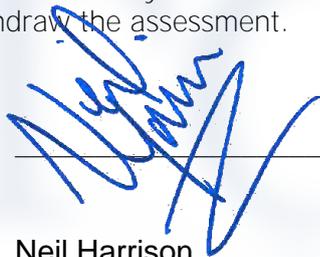
We agree to withdraw this assessment circulation should the component or element of structure be the subject of a fire test to the standard against which this assessment is being made.

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

We are not aware of any information that could affect the conclusions of this assessment.

If we subsequently become aware of any such information, we agree to ask International Fire Consultants Ltd (IFC) to withdraw the assessment.

Signature:



Name:

Neil Harrison

Position:

Door Technical Manager

Company:

Falcon Panel Products Ltd

Date:

August 18th 2020

Field of Application for FD60 Stebord 54® Door Leaves  
Installed in Timber and Steel Frames

IFC Field of Application Report  
I FCA/08038 Revision C

Prepared for: Falcon Panel Products Ltd

Page 29 of 60

International Fire Consultants Ltd

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## 6. LIMITATIONS

This report addresses itself solely to the ability of the proposed assemblies described to satisfy the criteria of the fire resistance test and does not imply any suitability for use with respect to other unspecified criteria.

This document only considers the door assemblies described, herein, and assumes that the surrounding construction will provide no less restraint than the tested assembly and that it will remain in place and be substantially intact for the full fire resistance period.

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to International Fire Consultants Ltd (IFC) 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.

As per the guidance 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, 2019, Industry Standard Procedure'*, appropriate action has been taken to mitigate the risk of a conflict of interest arising during the preparation of this report. All individuals involved in the production, or subsequent review, of this assessment have declared any perceived conflicts of interest, with regards to the sponsor or subject(s) of this report, prior to working on this project.

The assessor and reviewer have been deemed suitable for involvement in the production of this assessment in accordance with the guidance 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, 2019, Industry Standard Procedure'*.

Where the constructional information in this report is taken from details provided to International Fire Consultants Ltd (IFC) and/or from fire resistance test reports referenced herein, it is, therefore, limited to the information given in those documents. It is necessarily dependent upon the accuracy and completeness of that information. Where constructional or manufacturing details are not specified, or discussed, herein, it should not, therefore, be taken to infer approval of variation in such details from those tested or otherwise approved.

The analysis and conclusions within this report are based upon the likely fire resisting performance of a complete door assembly that is manufactured and installed in accordance with this document, and **offered for fire resistance testing in 'perfect' condition**. In practice, management procedures must be in place in any building where the door assemblies are installed, to ensure that no parts of the assembly are damaged or faulty. Further, the doors must open and close without the use of undue force. The edge gaps/alignment of door leaves must be in accordance with the tolerances defined, herein, when the doors are closed. Any such shortfalls in respect to the condition of the assemblies will invalidate the approval by IFC and may seriously affect the ability of the assemblies to provide the required level of fire resistance performance. Determination of what constitutes wear or damage, and any corrective actions in order to return assemblies to the required condition, should only be carried out following consultation with the manufacturer and IFC.

Field of Application for FD60 Stebord 54® Door Leaves  
Installed in Timber and Steel Frames

IFC Field of Application Report  
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Prepared for: Falcon Panel Products Ltd

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This report applies to fire door assemblies that are evaluated to BS476: Part 22: 1987; which is an applicable test method currently referenced within guidance to Building Regulations in the United Kingdom, and in building codes in some other countries. However, IFC have a duty of care to advise that introduction of CE Marking may become compulsory for fire doorsets marketed in the EU, during the validity period of this report; in which case, users should contact IFC for further details/advice.

Where the assessed constructions have not been subject to an on-site audit by International Fire Consultants Ltd, it is the responsibility of anyone using this report to confirm that all aspects of the assemblies fully comply with the descriptions and limitations, herein.

Any materials specified in this report have been selected and judged primarily on their fire performance. IFC do not claim expertise in areas other than fire safety. Whilst observing all **possible care in the specification of solutions, we would draw the reader's attention to the fact** that during the construction and procurement process, the materials used should be subjected to more general examination regarding the wider Health and Safety, and CoSHH Regulations. Designers, manufacturers and installers are reminded of their responsibilities under the CDM Regulations; but particularly with regard to installation and maintenance of heavy or inaccessible items.

This assessment considers the fire resistance performance of the door assemblies when tested with the leaves in the closed position, within the frame reveal; either retained by the latch, or self-closing device, or locked shut, as applicable. The door assemblies will only provide the assessed fire performance when in a similar configuration; and it is the responsibility of the building occupants/owner to ensure that this is the case.

This Report is provided to the sponsor on the basis that it is a professional independent engineering evaluation as to what the fire performance of the construction/system would be **should it to be tested to the named standard. It is IFC's experience that** such an evaluation is normally acceptable in support of an application for building approvals, certainly throughout the UK and in many parts of Europe and the rest of the world.

However, unless IFC have been commissioned to liaise with the Authorities that have jurisdiction for the building in question for the purpose of obtaining the necessary approvals, IFC cannot assure that the document will satisfy the requirements of the particular building regulations for any building being constructed.

It is, therefore, the responsibility of the sponsor to establish whether this evidence is appropriate for the application for which it is being supplied and IFC cannot take responsibility for any costs incurred as a result of any rejection of the document for reasons outside of our control. Early submittal of the Report to the Authorities will minimise any risks in this respect.

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## 7. VALIDITY

This Field of Application Report has been prepared based on International Fire Consultants Ltd's present knowledge of the products described, the stated testing regime and the submitted test evidence. For this reason, anyone using this document after August 2025 should confirm its ongoing validity.

This Field of Application Report is not valid unless it incorporates the declaration by the applicant given in Section 6 duly signed by the applicant.

Prepared by:



Will Lightfoot  
BEng (Hons) AIFireE  
Senior Fire Safety Engineer  
International Fire Consultants Ltd (IFC)

Reviewed by:



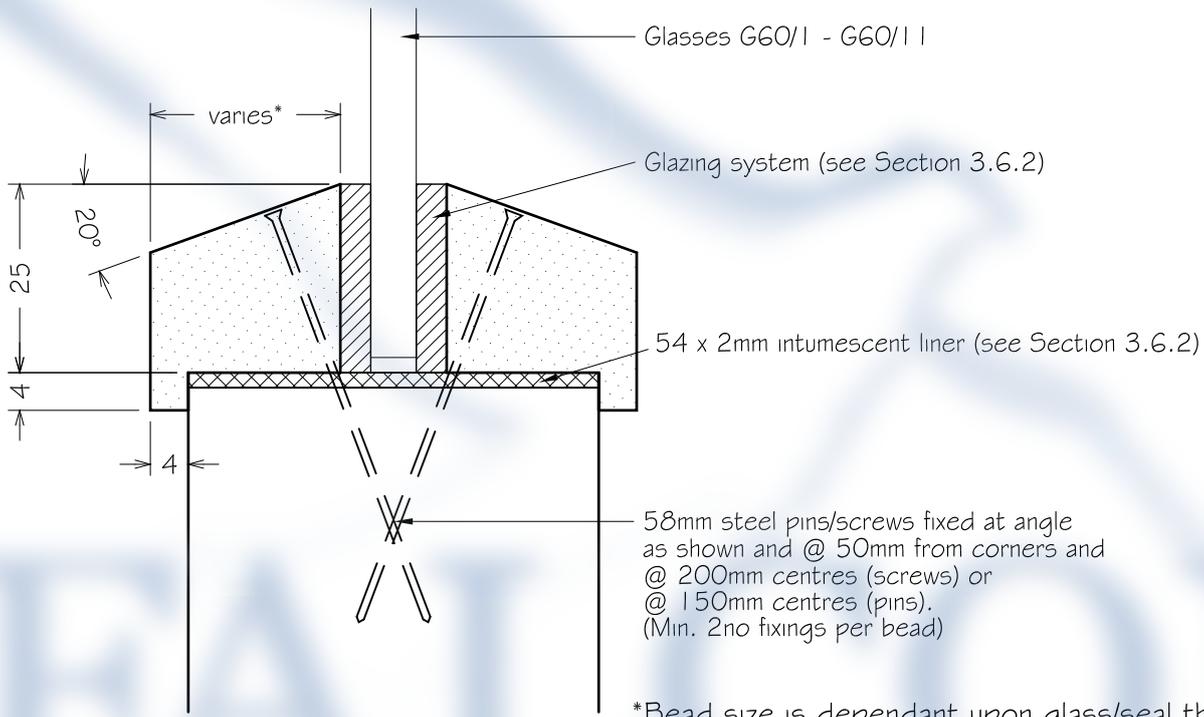
David Cooper  
BEng (Hons) AIFireE AIMMM  
Associate Director  
International Fire Consultants Ltd (IFC)

## APPENDIX A

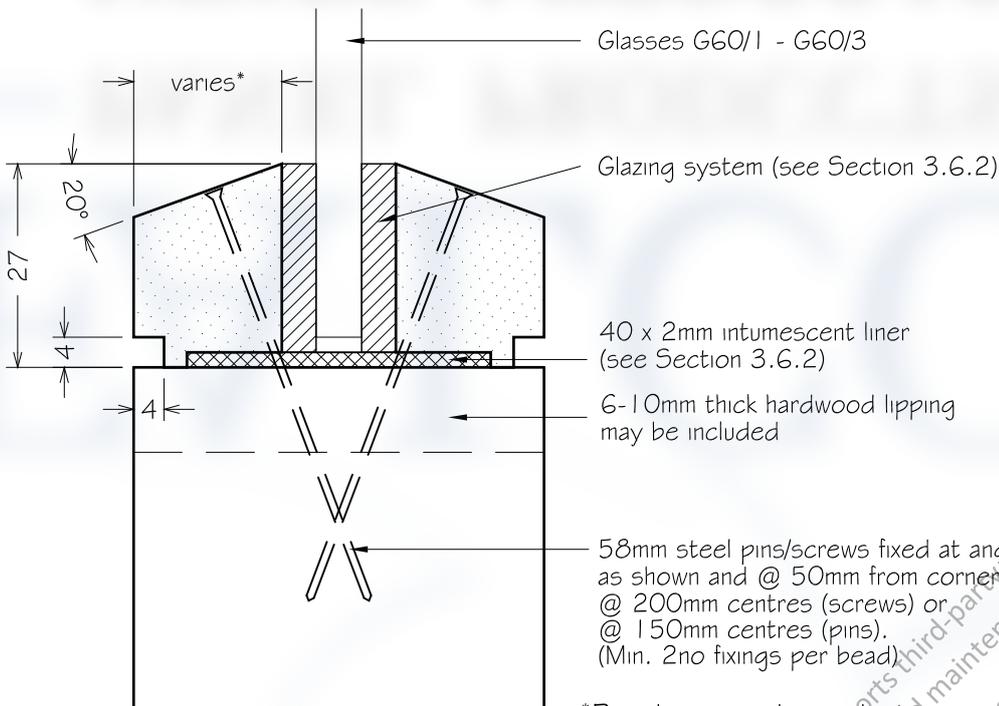
Figures 08038C:A01 to A05

Construction Details

*The figures in this Appendix are not included  
in the sequential page numbering of this report*



**BEAD DETAIL B60/1**



**BEAD DETAIL B60/2**

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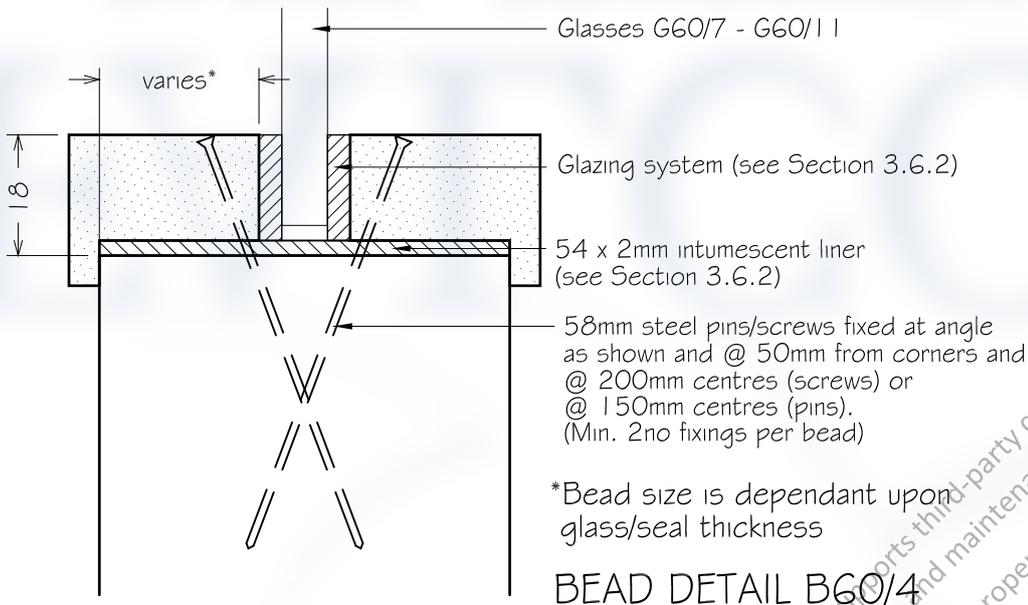
Field of Application Report  
IFCA/08038 Revision C  
Falcon Panel Products Ltd  
FD60 Strebord 54@ Door Leaves  
Installed in Timber and Steel Frames

Glazing Bead Details  
Sheet 1 of 3

Job number: 17583  
Drawn by: CSP Checked by: DJC  
Not To Scale Drawn: Jul 2020

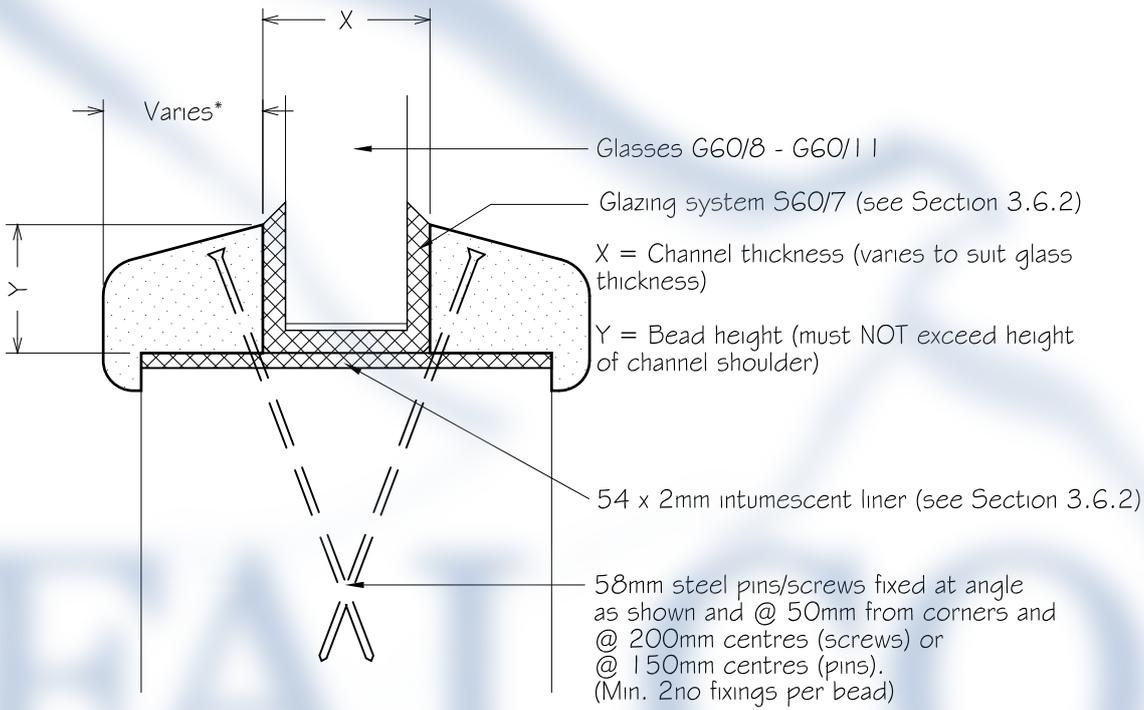
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This document details a subset of the evidence required for the product to be certified under the current fire door testing regime covering a wide range of fire door products.  
Further documentation can be found on the website at <https://www.falconpanel.co.uk/knowledgebase/>



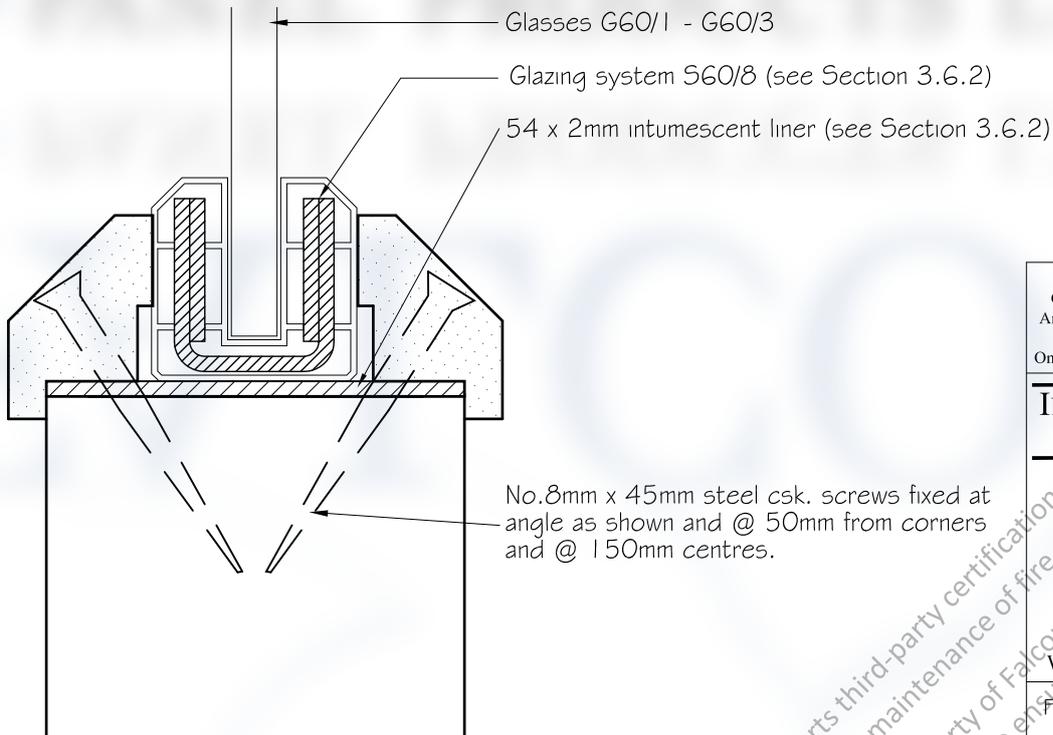
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<p>Field of Application Report IFCA/O8038/Revision C Falcon Panel Products Ltd FD60 Strebord 54@ Door Leaves Installed in Timber and Steel Frames</p>	
<p>Glazing Bead Details Sheet 2 of 3</p>	
<p>Job number: 17583</p>	
<p>Drawn by: CSP</p>	<p>Checked by: DJC</p>
<p>Not To Scale</p>	<p>Drawn: Jul 2020</p>
<p><b>08038C/A02</b></p>	

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This document details a subset of the evidence required for a wide range of products.  
Further documentation can be found on the website at <https://www.falconpanel.co.uk/knowledgebase>



**BEAD DETAIL B60/5**

\*Bead size is dependant upon glass/seal thickness



**BEAD DETAIL B60/6**

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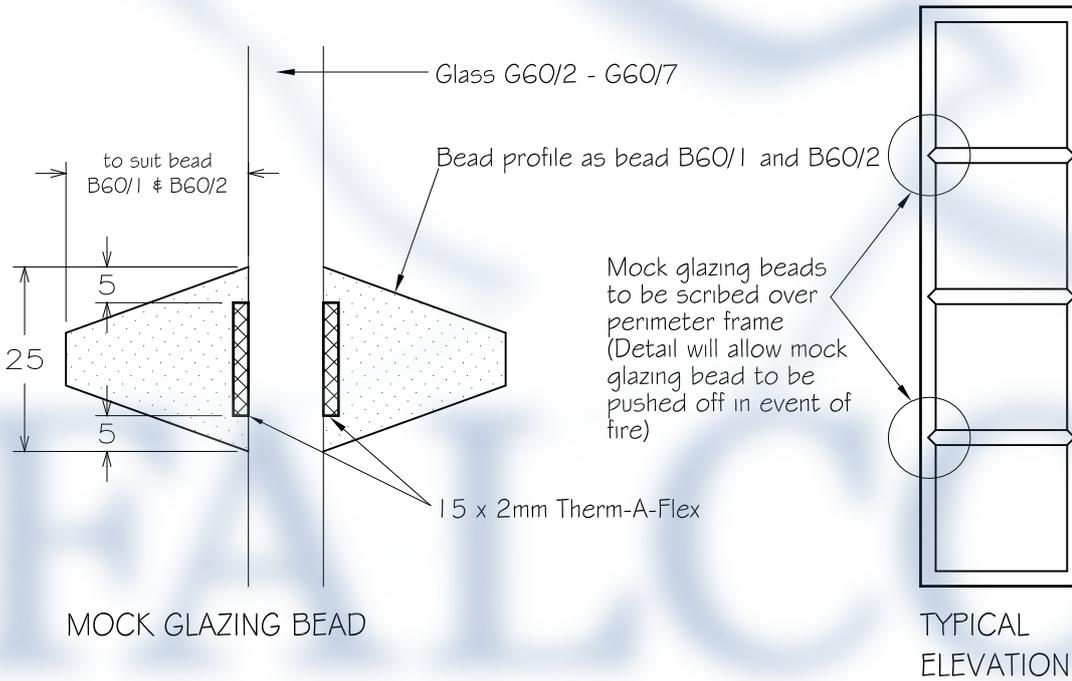
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Glazing Bead Details  
Sheet 3 of 3

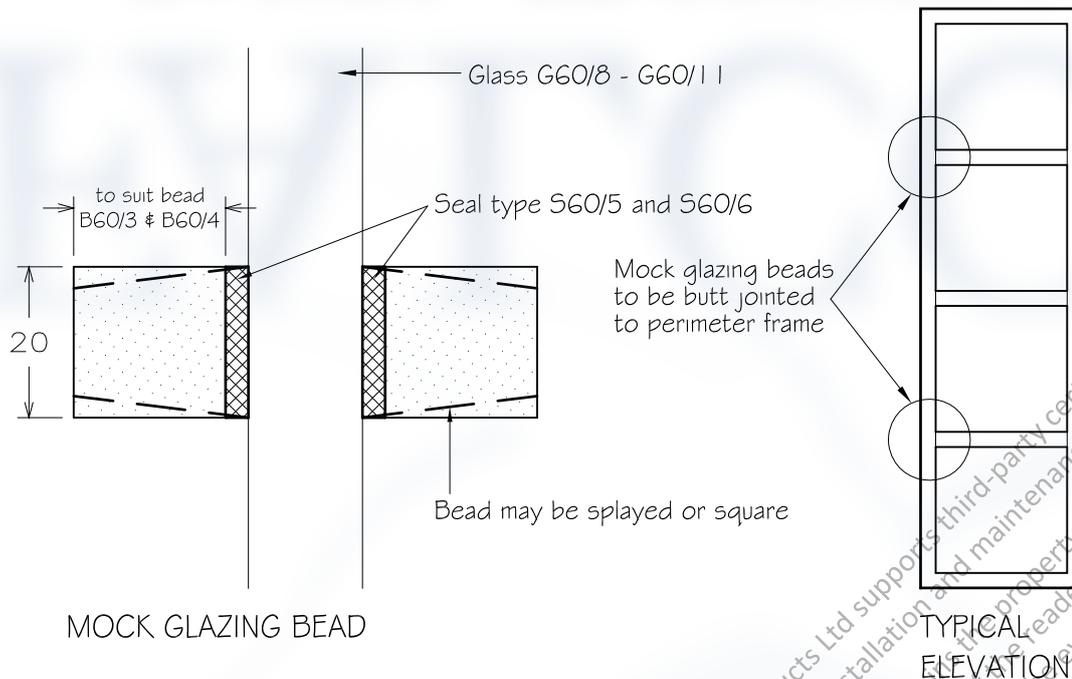
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LADDER DETAIL for use with bead detail B60/1 & B60/2



LADDER DETAIL for use with bead detail B60/3 & B60/4

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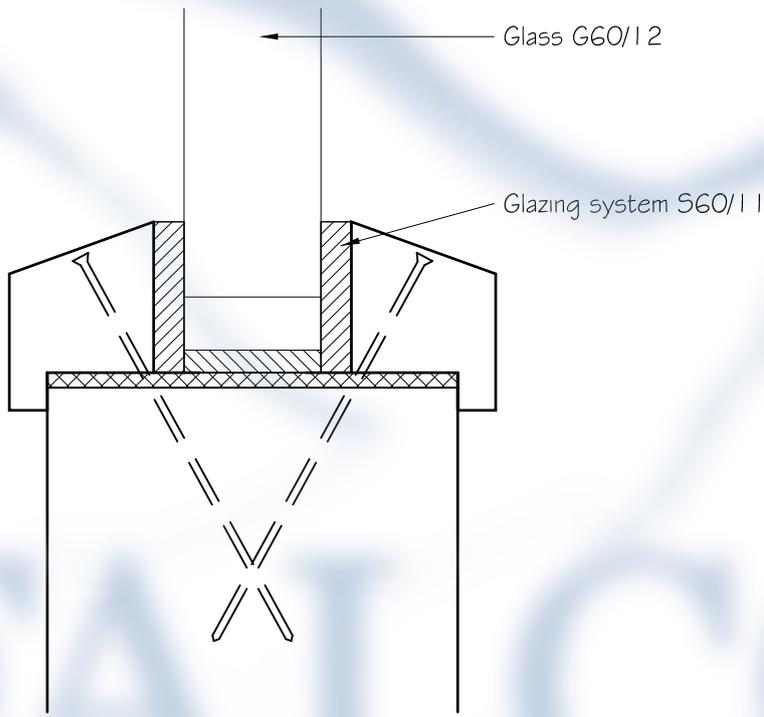
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Installed in Timber and Steel Frames

Ladder Glazing  
Details

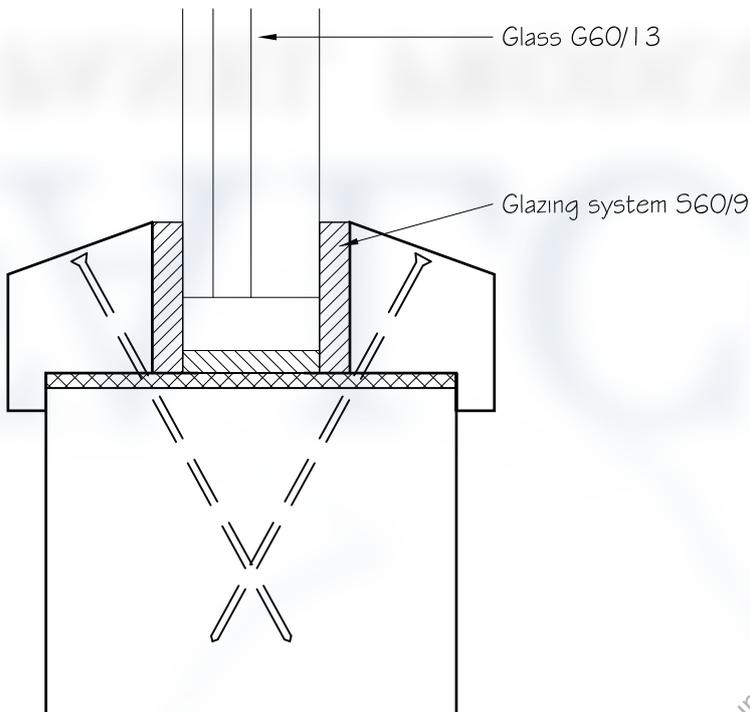
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This document details a subset of fire door products  
testing regime covering a wide range of fire door products  
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GLAZING DETAIL G60/I 2



GLAZING DETAIL G60/I 3

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Glazing Details

Job number: 17583  
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**08038C/A05**

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## APPENDIX B

### Assessed Intumescent Seal Specifications for Strebord 54® Door Leaves Installed in Timber Frames

Location	Standard Specification	Enhanced Specification
Stiles/ jambs	2no 15 x 4mm seals fitted 10mm apart centrally in the leaf edge or frame reveal	2no 15 x 4mm seals fitted 10mm apart centrally in the leaf edge or frame reveal
Head	2no 15 x 4mm seals fitted 10mm apart centrally in the leaf edge or frame reveal	2no 15 x 4mm seals fitted 10mm apart centrally in the frame reveal <u>and</u> 1no 15 x 4mm seal fitted centrally in the leaf head
Square overpanel junction	1no 38 x 4mm seal fitted centrally in the leaf or overpanel edge	1no 38 x 4mm seal <u>and</u> 1no 15 x 4mm seal fitted opposing each other; one in the leaf edge and one in the overpanel edge
Unequal rebated overpanel junction	1no 25 x 4mm seal fitted centrally in the 32mm rebate and 1no 15 x 4mm seal fitted centrally in the 22mm rebate	1no 25 x 4mm seal fitted centrally in the 32mm rebate and 1no. 15 x 4mm opposing, and 1no 15 x 4mm seal fitted centrally in the 22mm rebate
Square meeting stiles	2no 15 x 4mm seals fitted 10mm apart centrally in the main leaf edge only	2no 15 x 4mm seals fitted 10mm apart centrally in the main leaf edge only
Interface between overpanel and frame/ transom	2no 15 x 4mm seals fitted 10mm apart centrally in the overpanel edge or frame reveal	2no 15 x 4mm seals fitted 10mm apart centrally in the overpanel edge or frame reveal

*Notes:*

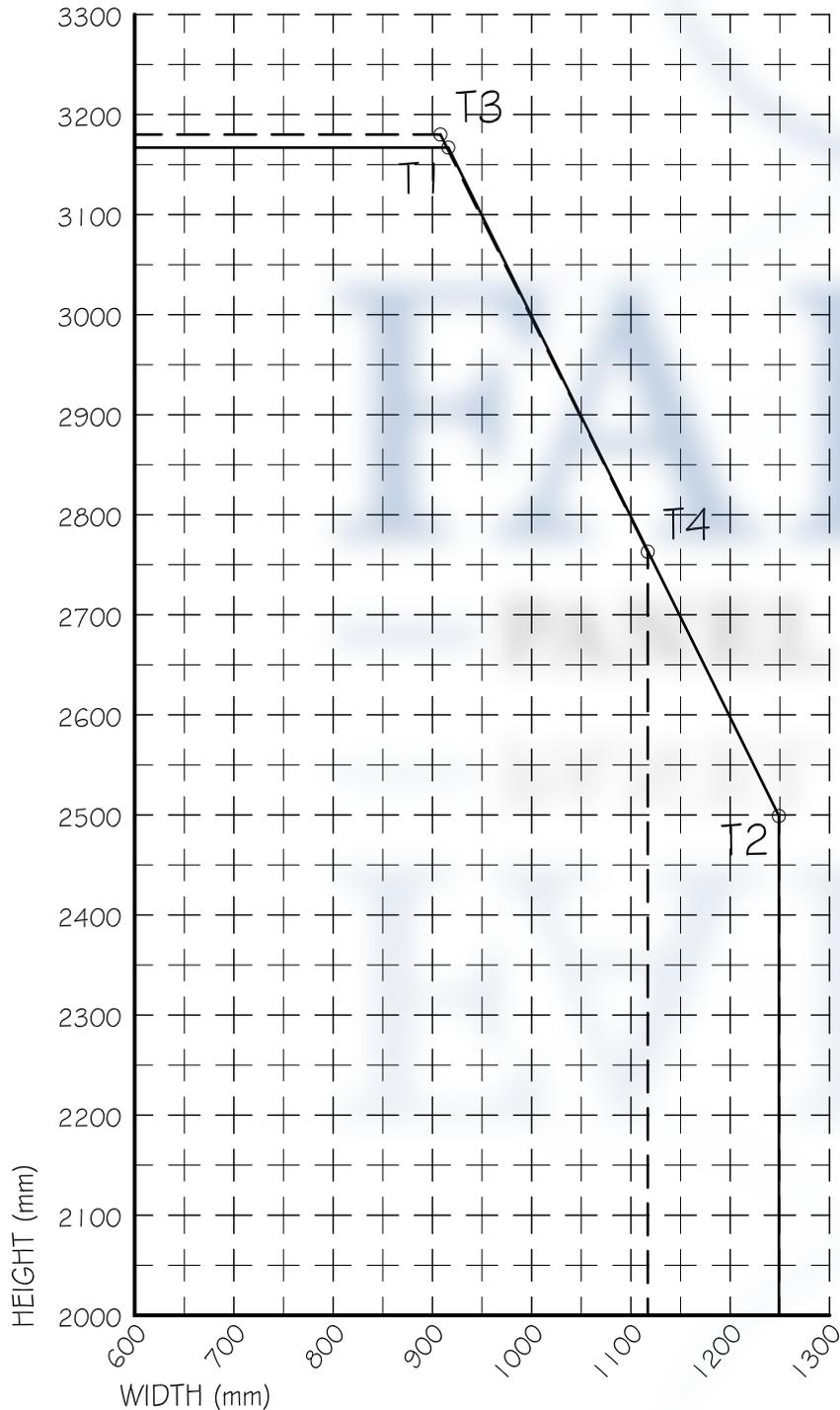
- i) *The 4mm thick seals are graphite based, Palusol or Lorient 617 type in a pvc case. (see Note ii). Seals should be obtained from Mann McGowan Fabrications Ltd, Lorient Polyproducts Ltd, Intumescent Seals Ltd, Pyroplex, Sealed Tight Solutions Ltd, Kilargo or Odice. Combined intumescent/smoke seals may be used, maintaining the widths specified above (and subject to the conditions outlined in Section 3.10).*
- ii) *Intumescent seals may generally be fitted in door/overpanel edges or frame reveals. However, in head locations of double door assemblies, where the intumescent strips specified are solely fitted in the leaf, those strips must be graphite based or Lorient 617 type. If a Palusol specification is chosen, the seal(s) at the head of double door assemblies must be fitted into the frame reveal, or overpanel, as appropriate (see, also, Section 3.9).*

## APPENDIX C

Figures 08038C:C01 to C08

Assessed Leaf Size Envelopes for Strebord 54®  
Door Leaves Installed in Timber Frames

*The figures in this Appendix are not included  
in the sequential page numbering of this report*



Standard		
	T1	T2
Width	916	1249
Height	3167	2499

Enhanced		
	T3	T4
Width	908	1117
Height	3180	2763

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 LATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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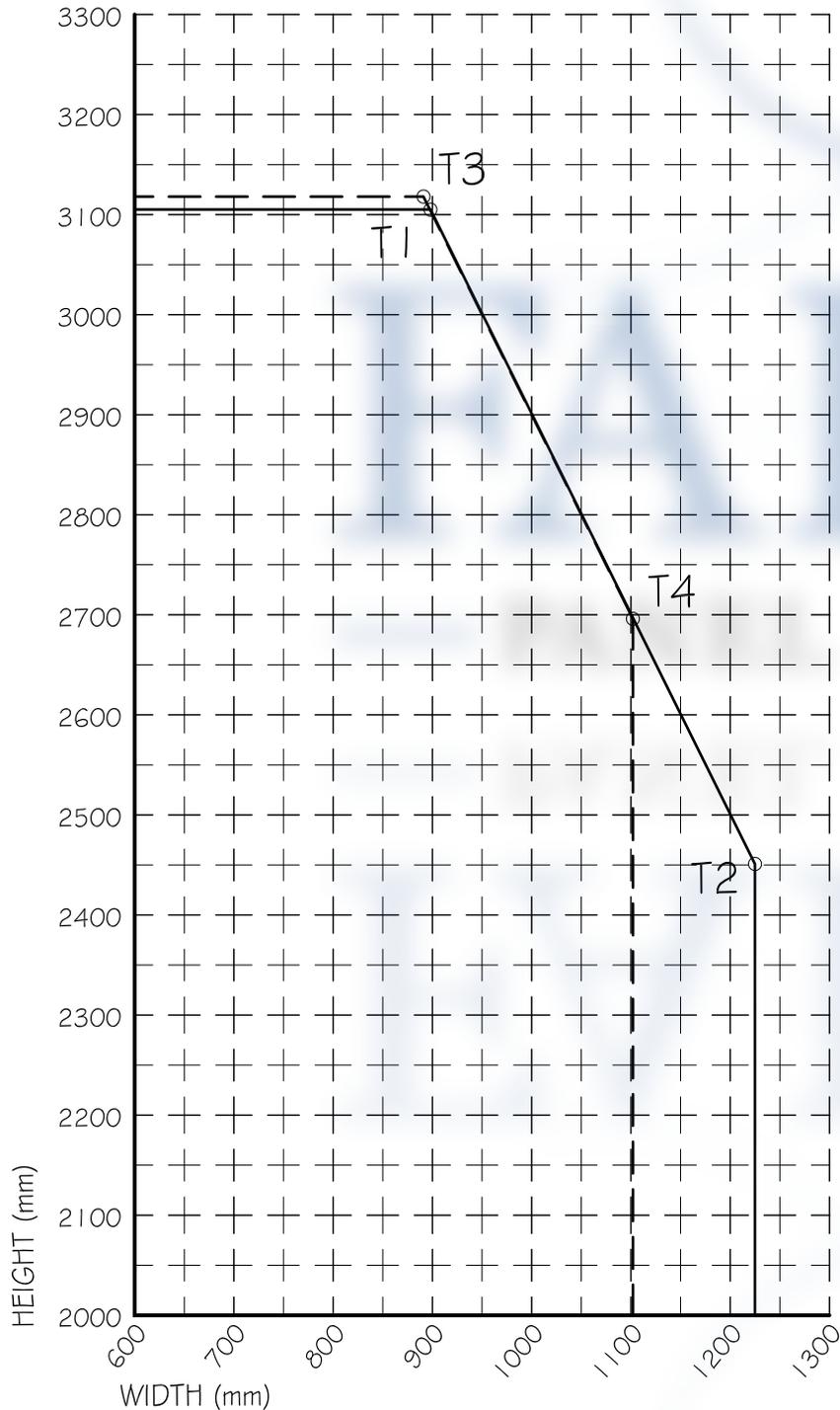
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 IFCA/O8038 Revision C  
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 FDGO Strebord 54® Door Leaves  
 Installed in Timber and Steel Frames

Envelope of Approved  
 Door Leaf Sizes  
 In Timber Frames

Job number: 17583  
 Drawn by: CSP | Checked by: DJC  
 Not To Scale | Drawn: Jul 2020

08038C/C01



Standard	
Width	898
Height	3105

Enhanced	
Width	891
Height	3118

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 UNLATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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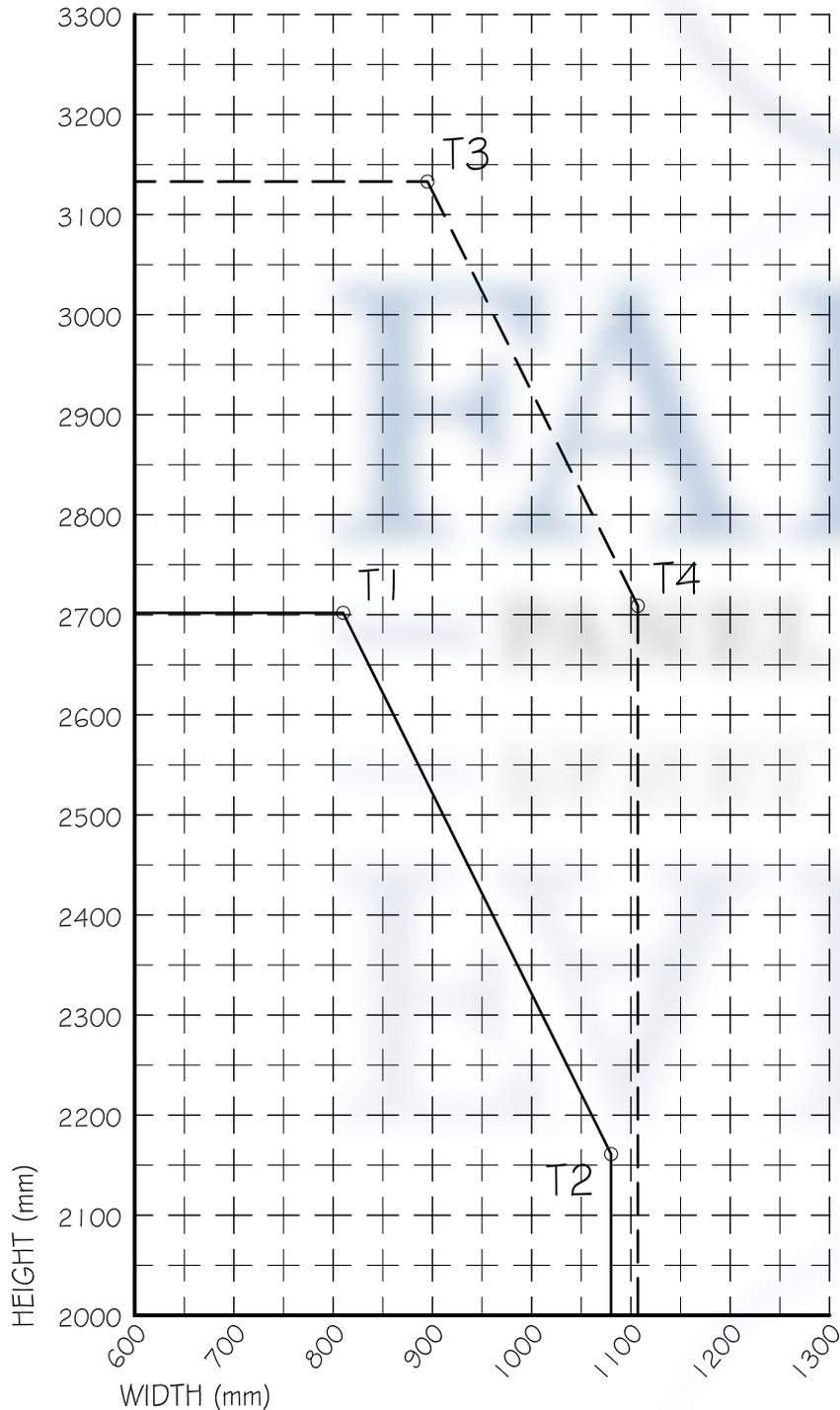
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Envelope of Approved  
 Door Leaf Sizes  
 In Timber Frames

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08038C/C02



Standard		
	T1	T2
Width	810	1080
Height	2702	2161

Enhanced		
	T3	T4
Width	895	1107
Height	3133	2709

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 LATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITH OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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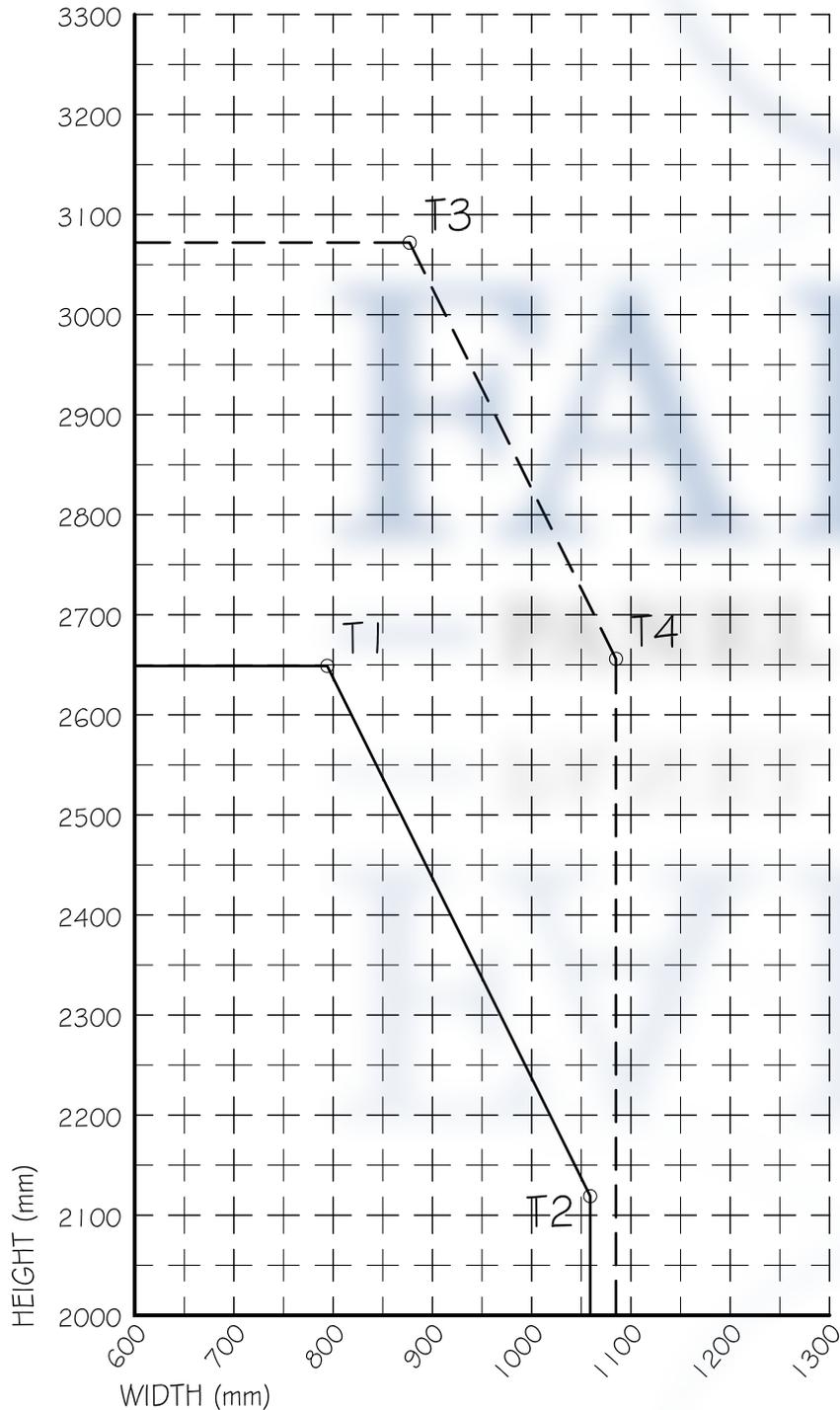
Envelope of Approved  
 Door Leaf Sizes  
 In Timber Frames

Job number: 17583

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08038C/C03



Standard	
Width	794
Height	2649

Enhanced	
Width	877
Height	3072

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 UNLATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITH OVERPANEL  
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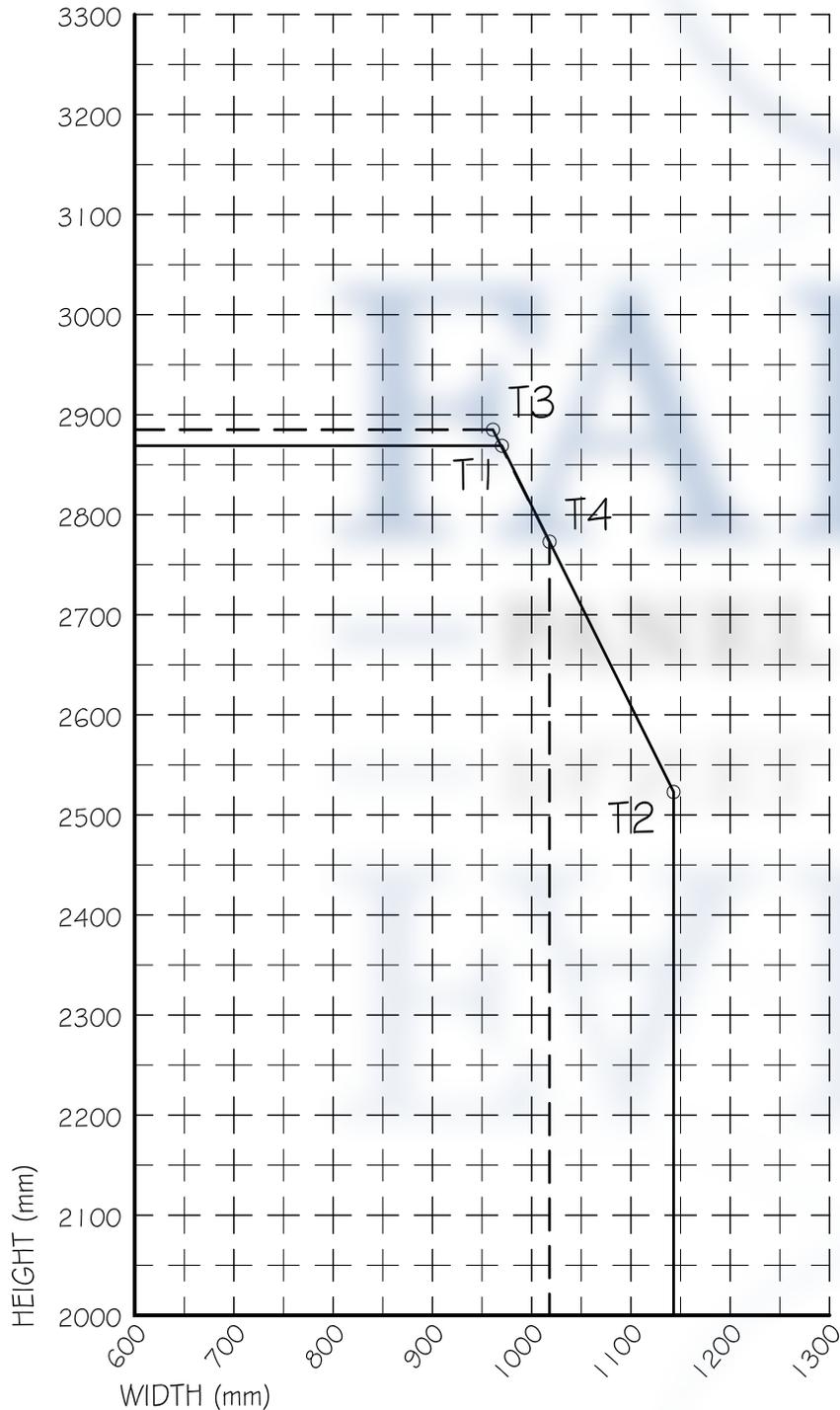
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 Door Leaf Sizes  
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Job number: 17583

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08038C/C04



Standard		
	T1	T2
Width	970	1143
Height	2869	2523

Enhanced		
	T3	T4
Width	961	1018
Height	2885	2773

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 LATCHED  
 SINGLE ACTING  
 DOUBLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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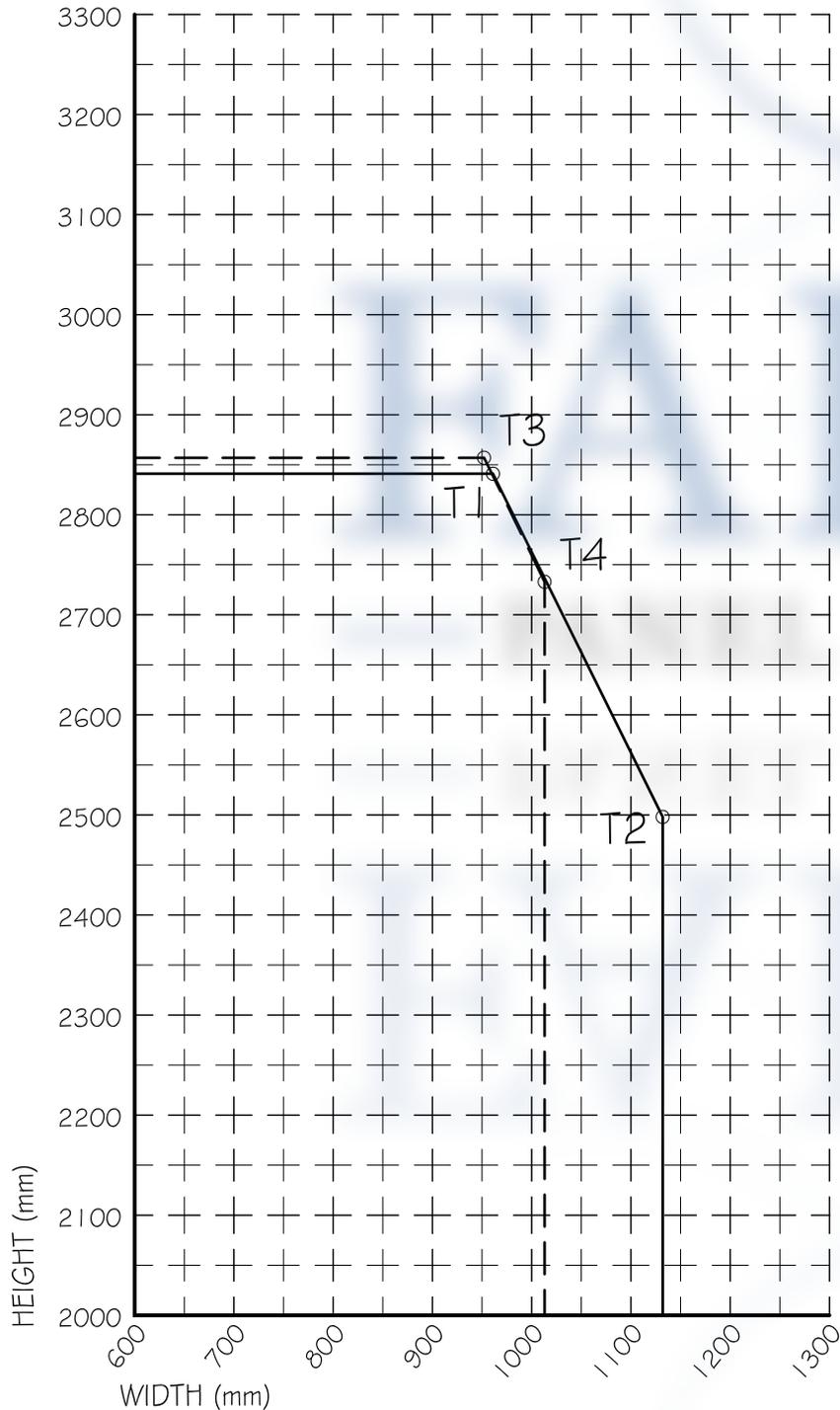
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 Installed in Timber and Steel Frames

Envelope of Approved  
 Door Leaf Sizes  
 In Timber Frames

Job number: 17583  
 Drawn by: CSP | Checked by: DJC  
 Not To Scale | Drawn: Jul 2020

08038C/C05



Standard		
	T1	T2
Width	961	1132
Height	2841	2498

Enhanced		
	T3	T4
Width	952	1013
Height	2857	2733

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 UNLATCHED  
 SINGLE ACTING  
 DOUBLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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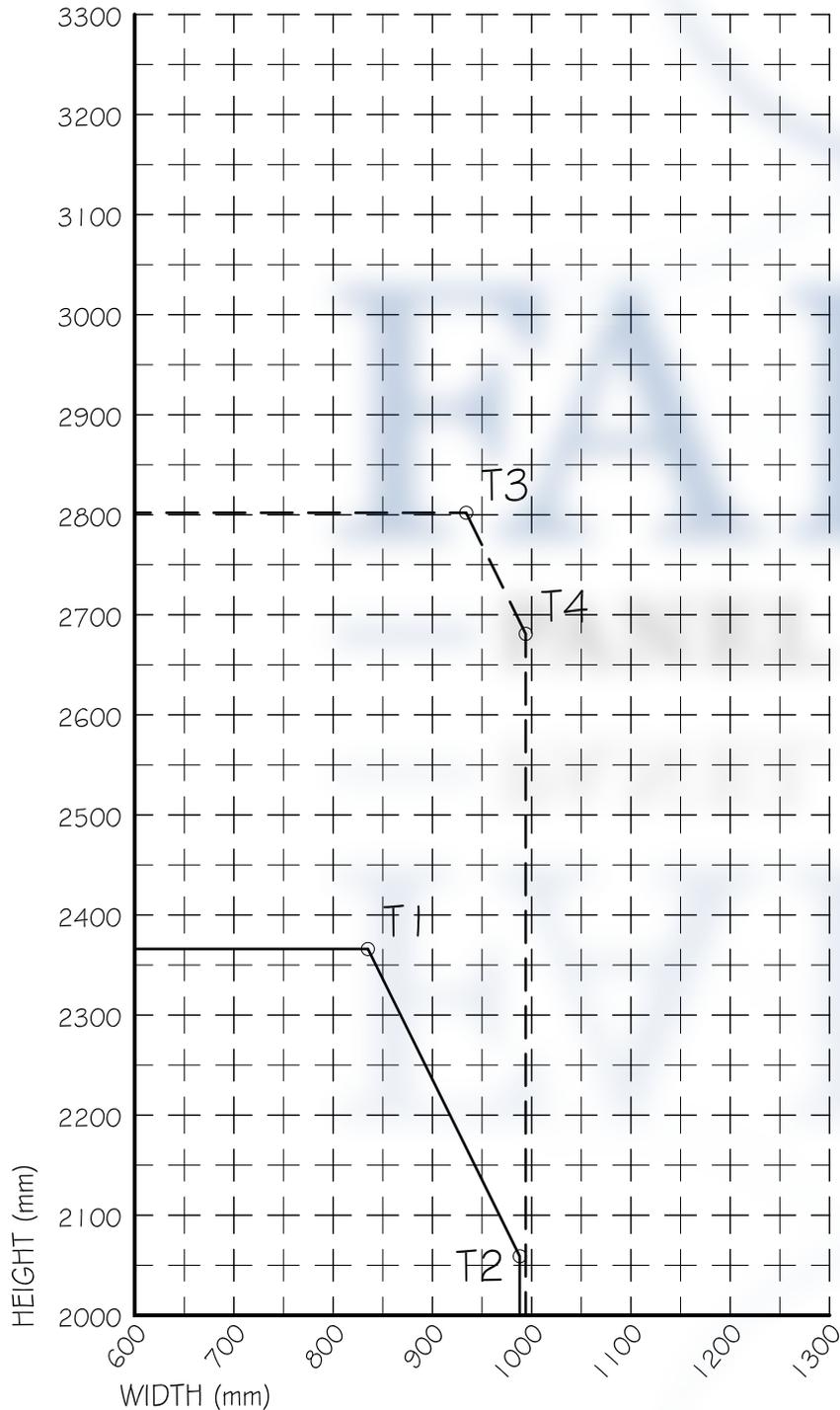
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**08038C/C06**



Standard	
Width	835
Height	2366

Enhanced	
Width	934
Height	2802

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 LATCHED  
 SINGLE ACTING  
 DOUBLE LEAF  
 WITH OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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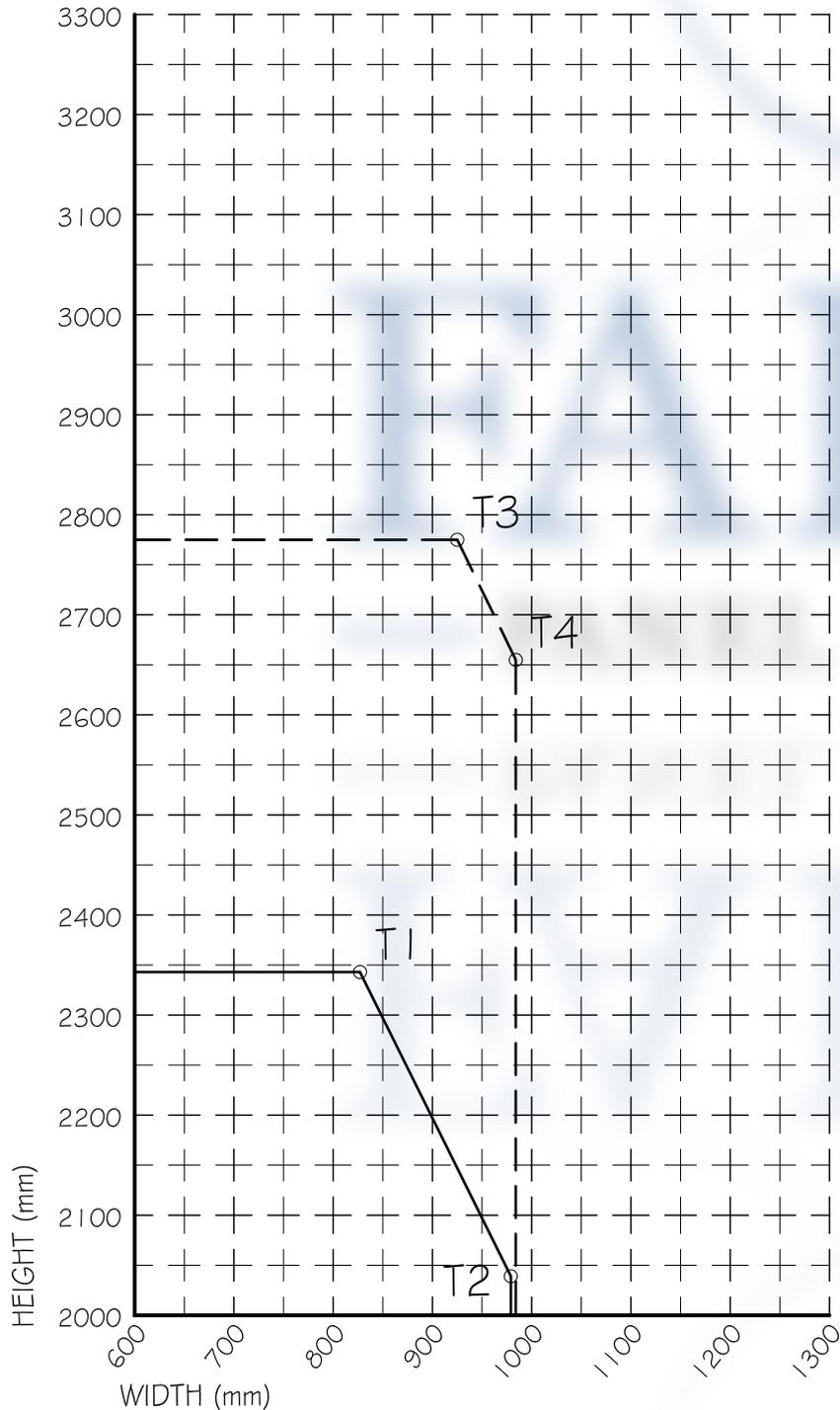
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08038C/C07



Standard	
Width	827
Height	2343

Enhanced	
Width	925
Height	2775

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS T1 & T2 represent the maximum height and width of a door leaf with standard intumescent specification

POINTS T3 & T4 represent the maximum height and width of a door leaf with enhanced intumescent specification

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Timber Frames  
 UNLATCHED  
 SINGLE ACTING  
 DOUBLE LEAF  
 WITH OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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08038C/C08

## APPENDIX D

### Assessed Intumescent Seal Specifications for Strebord 54® Door Leaves Installed in Streframe E Frames

Location	Standard Specification
Stiles/ jambs	2no 15 x 4mm seals fitted 10mm apart centrally in the leaf edge or frame reveal
Head	2no 15 x 4mm seals fitted 10mm apart centrally in the leaf edge or frame reveal
Square overpanel junction	1no 38 x 4mm seal fitted centrally in the leaf or overpanel edge
Unequal rebated overpanel junction	1no 25 x 4mm seal fitted centrally in the 32mm rebate and 1no 15 x 4mm seal fitted centrally in the 22mm rebate
Square meeting stiles	2no 15 x 4mm seals fitted 10mm apart centrally in the active leaf edge only
Interface between overpanel and frame/ transom	2no 15 x 4mm seals fitted 10mm apart centrally in the overpanel edge or frame reveal

*Notes:*

- i) The 4mm thick seals are graphite based, Palusol or Lorient 617 type in a pvc case (see Note ii). Seals should be obtained from Mann McGowan Fabrications Ltd, Lorient Polyproducts Ltd, Intumescent Seals Ltd or Pyroplex. Combined intumescent/smoke seals may be used, maintaining the widths specified above (and subject to the conditions outlined in Section 3.10)*
- ii) Intumescent seals may generally be fitted in door/overpanel edges or frame reveals. However, in head locations of double door assemblies, where the intumescent strips specified are solely fitted in the leaf, those strips must be graphite based or Lorient 617 type. If a Palusol specification is chosen, the seal(s) at the head of double door assemblies must be fitted into the frame reveal, or overpanel, as appropriate (see, also, Section 3.9).*

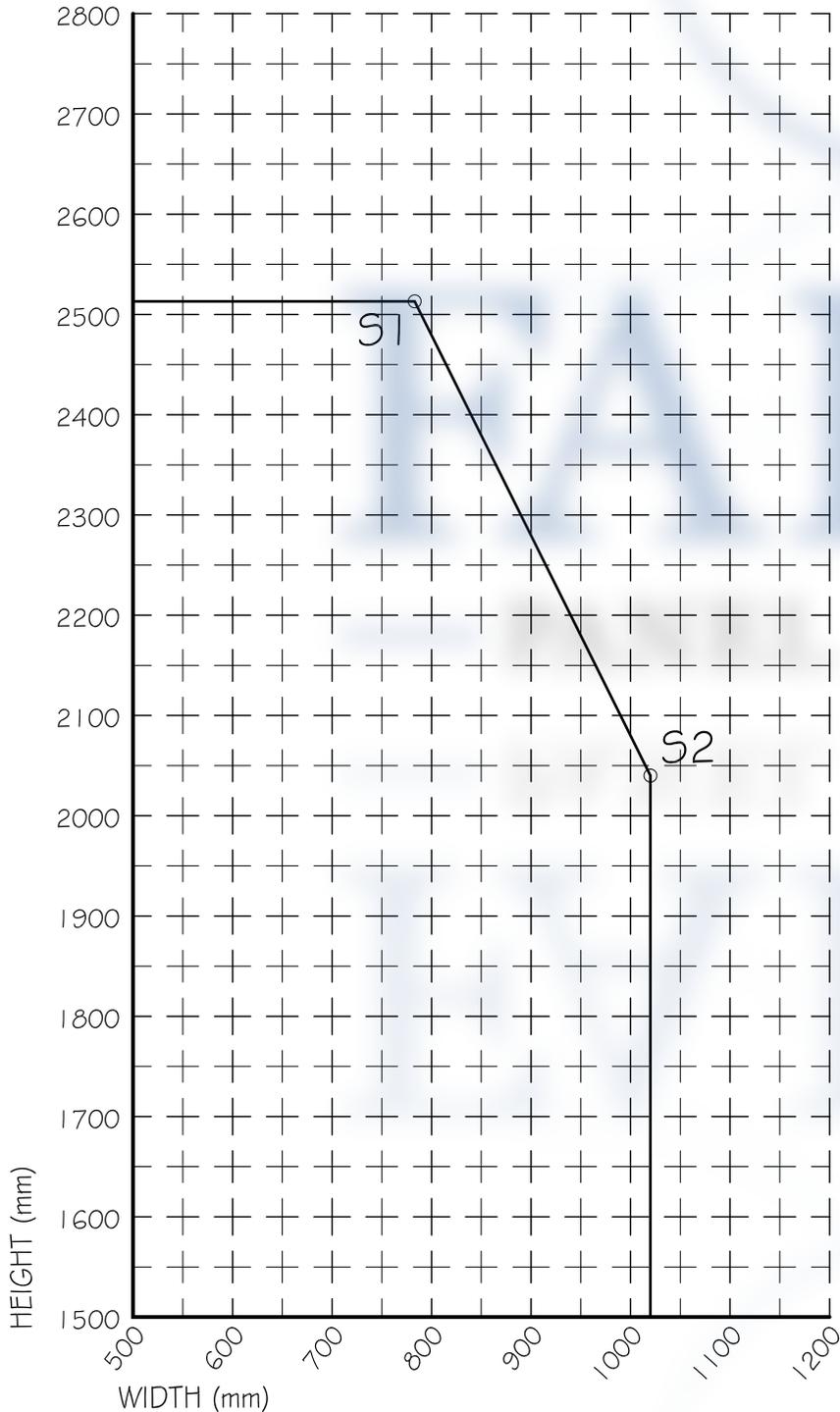
Falcon Panel Products Ltd supply the door and window frames for the processing,  
 manufacture, installation and fitting of door and window assemblies.  
 This document remains the property of Falcon Panel Products Ltd.  
 It is the responsibility of the reader to ensure that the product  
 manufactured using the evidence submitted for this purpose,  
 is a subset of evidence submitted for an extensive  
 testing regime covering a wide range of products.  
 Further documentation can be found on our website at  
<https://www.falconpanel.co.uk/doorinfo>

## APPENDIX E

Figures 08038C:E01 to E04

Assessed Leaf Size Envelopes for Strebord 54®  
Door Leaves Installed in Streframe E Frames

*The figures in this Appendix are not included  
in the sequential page numbering of this report*



	S1	S2
Width	783	1020
Height	2513	2040

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Streframe E Frames  
 LATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 60 Minutes

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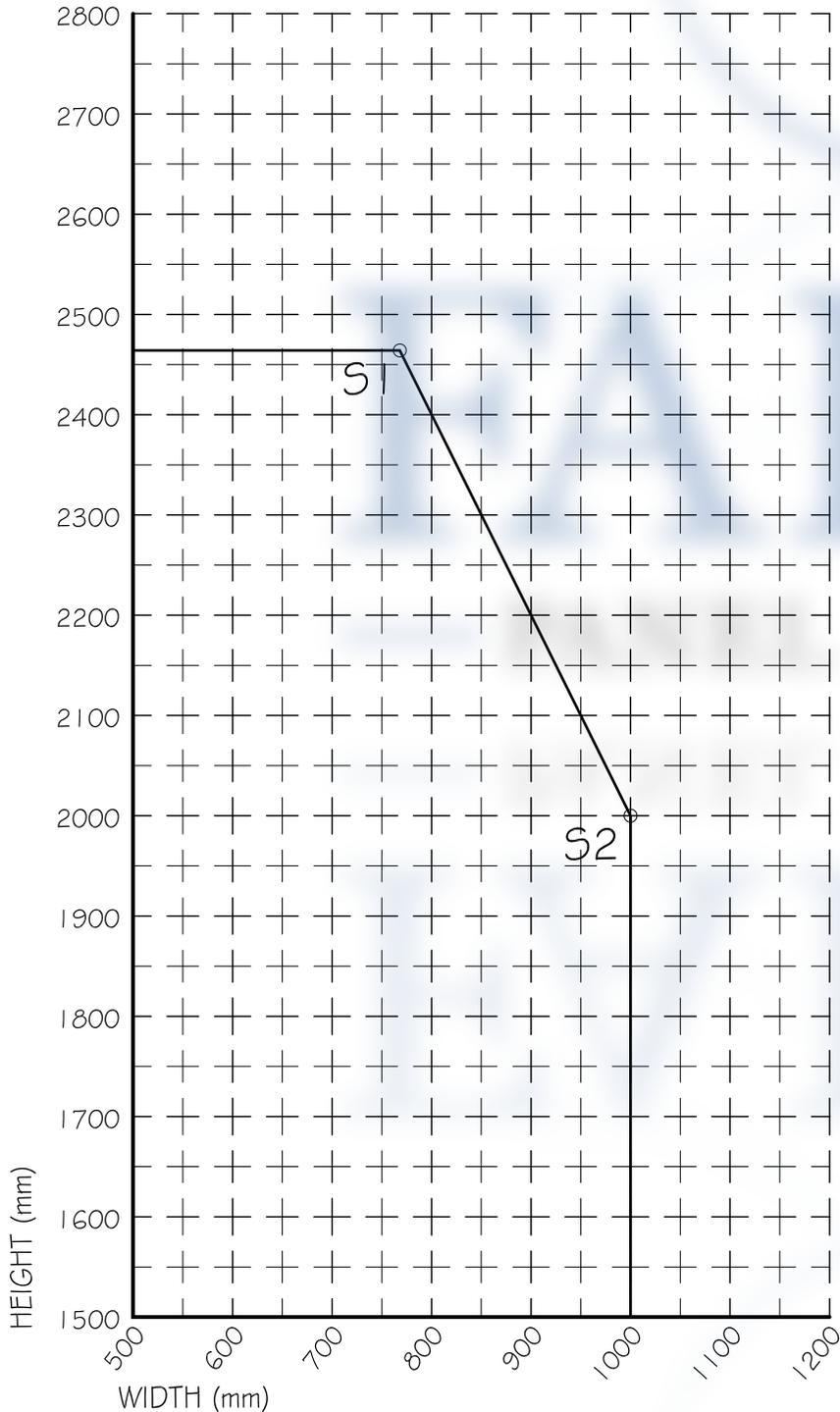
Envelope of Approved  
 Door Leaf Sizes  
 In Streframe E Frames

Job number: 17583

Drawn by: CSP      Checked by: DJC

Not To Scale      Drawn: Jul 2020

08038C/EO1



	S1	S2
Width	768	1000
Height	2464	2000

## ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

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Configuration  
 Streframe E Frames  
 UNLATCHED  
 SINGLE or DOUBLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 60 Minutes

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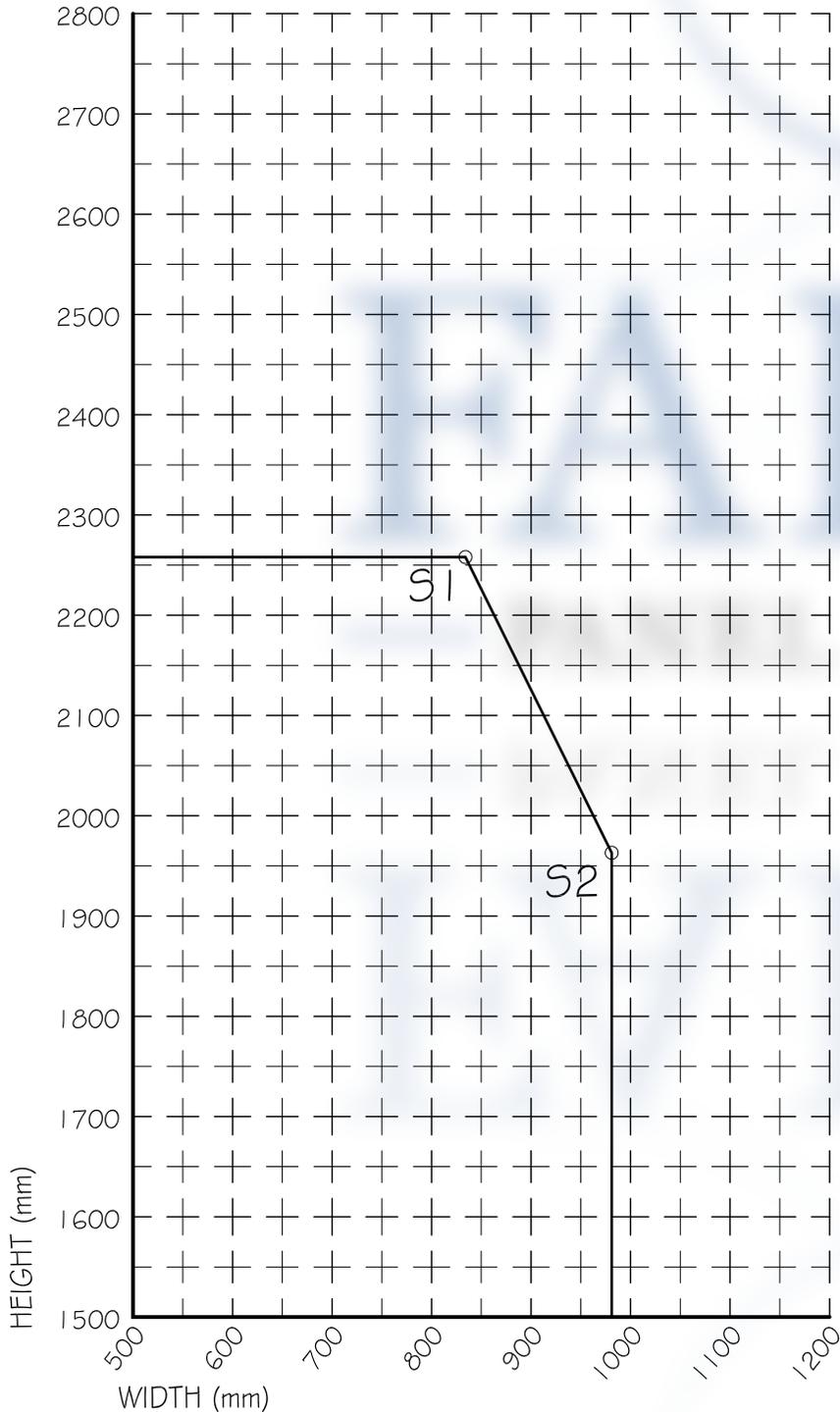
Envelope of Approved  
 Door Leaf Sizes  
 In Streframe E Frames

Job number: 17583

Drawn by: CSP Checked by: DJC

Not To Scale Drawn: Jul 2020

08038C/E02



	_____	
	S1	S2
Width	834	981
Height	2258	1963

## ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Streframe E Frames  
 LATCHED  
 SINGLE ACTING  
 DOUBLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 60 Minutes

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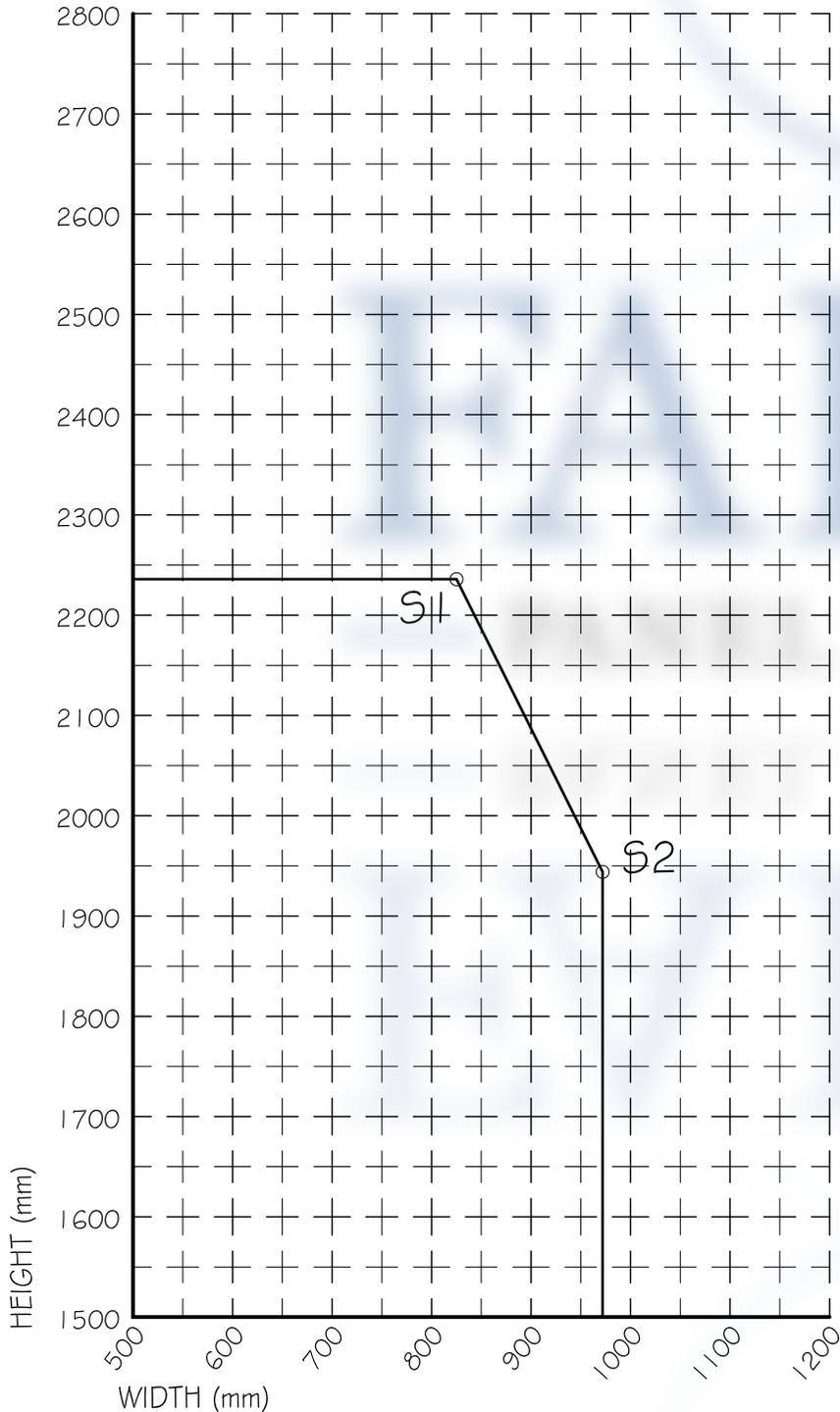
Envelope of Approved  
 Door Leaf Sizes  
 In Streframe E Frames

Job number: 17583

Drawn by: CSP      Checked by: DJC

Not To Scale      Drawn: Jul 2020

08038C/E03



	S1	S2
Width	825	972
Height	2236	1944

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Streframe E Frames  
 UNLATCHED  
 SINGLE or DOUBLE ACTING  
 DOUBLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 60 Minutes

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Envelope of Approved  
 Door Leaf Sizes  
 In Streframe E Frames

Job number: 17583

Drawn by: CSP    Checked by: DJC

Not To Scale    Drawn: Jul 2020

**08038C/E04**

## APPENDIX F

### Assessed Intumescent Seal Specifications for Strebord 54® Door Leaves Installed in Steel Frames

Location	Frame Specification	Specification
Stiles and Jamb	Ezy -Jamb (four sided)	2no 20 x 4mm seals fitted 5mm apart centrally in leaf edge
	Ezy -Jamb (three sided)	1no 40 x 6mm Sealed Tight Solutions STS-P406, fitted centrally in the leaf edge
Head	Ezy -Jamb (four sided)	2no 20 x 4mm seals fitted 5mm apart centrally in leaf edge
	Ezy -Jamb (three sided)	1no 40 x 6mm Sealed Tight Solutions STS-P406, fitted centrally in the leaf edge
Threshold	Ezy -Jamb (four sided)	2no 20 x 4mm seals fitted 5mm apart centrally in leaf edge
Square meeting stiles	Ezy -Jamb (four sided)	2no 20 x 4mm seals fitted 5mm apart centrally in the main leaf edge only
	Ezy -Jamb (three sided)	1no 40 x 6mm Sealed Tight Solutions STS-P406, fitted centrally in the main leaf edge
Intumescent Coatings	Ezy -Jamb (three sided)	0.1mm thick coating of Envirograf intumescent paint ref: Bollom Brosteel Ultra 60, applied to the back of the frame.

**Notes:**

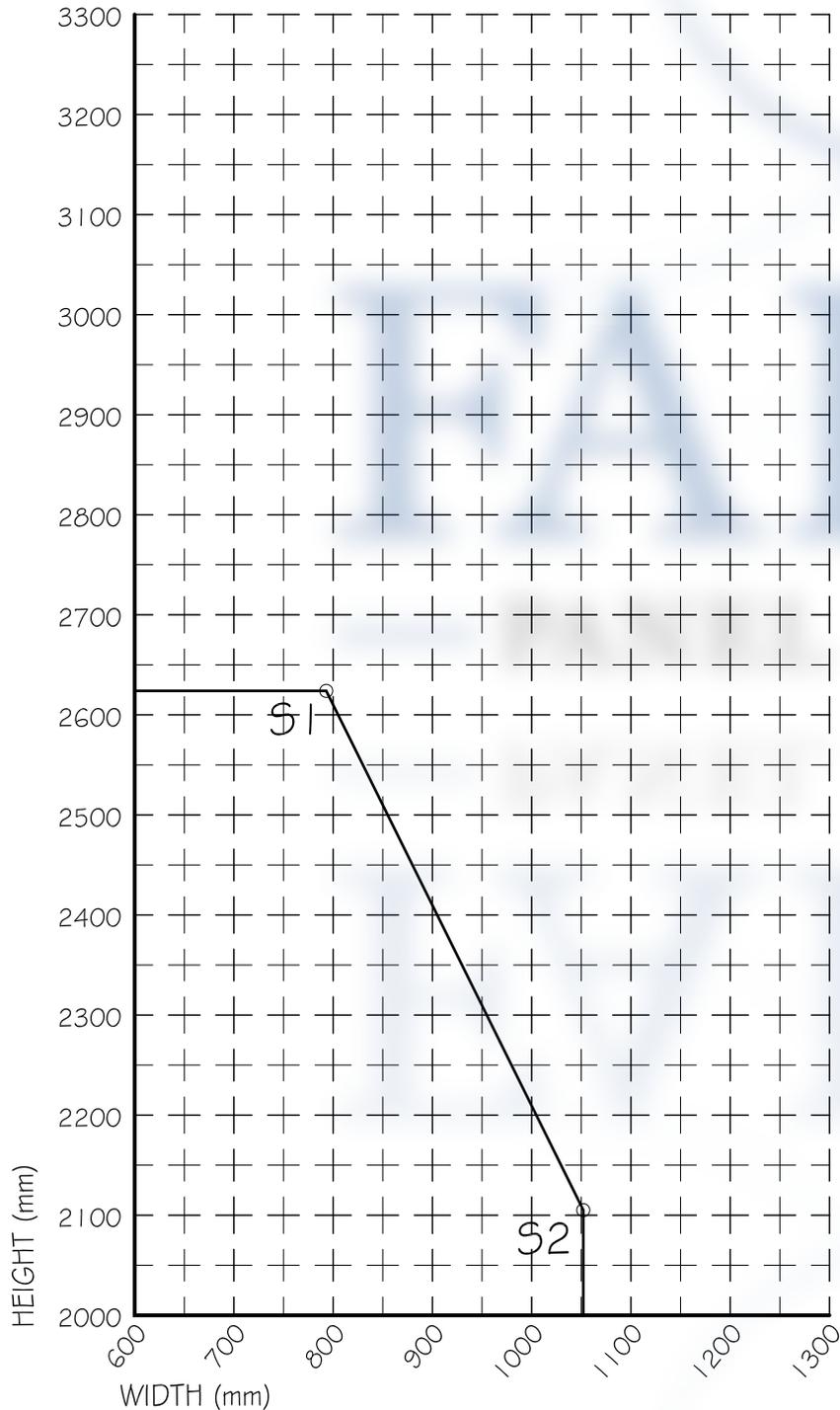
- i) *The 4mm thick seals are graphite based, Palusol or Lorient 617 type in a pvc case, unless stated above. The 6mm thick intumescent seals must have a base of 2mm thick non-pressure forming material (e.g. Interdens or Therm-A-Strip) with a 4mm thick pvc encased graphite based seal on top. Seals should be obtained from Mann McGowan Fabrications Ltd, Lorient Polyproducts Ltd, Intumescent Seals Ltd, Pyroplex, Sealed Tight Solutions Ltd, Kilargo or Odice. Combined intumescent/smoke seals may be used, maintaining the widths specified above (and subject to the conditions outlined in Section 3.10).*

## APPENDIX G

Figures 08038C:G01 to G04

Assessed Leaf Size Envelopes for Strebord 54®  
Door Leaves Installed in Steel Frames

*The figures in this Appendix are not included  
in the sequential page numbering of this report*



	S1	S2
Width	793	1052
Height	2624	2105

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
**Steel Frames**  
 LATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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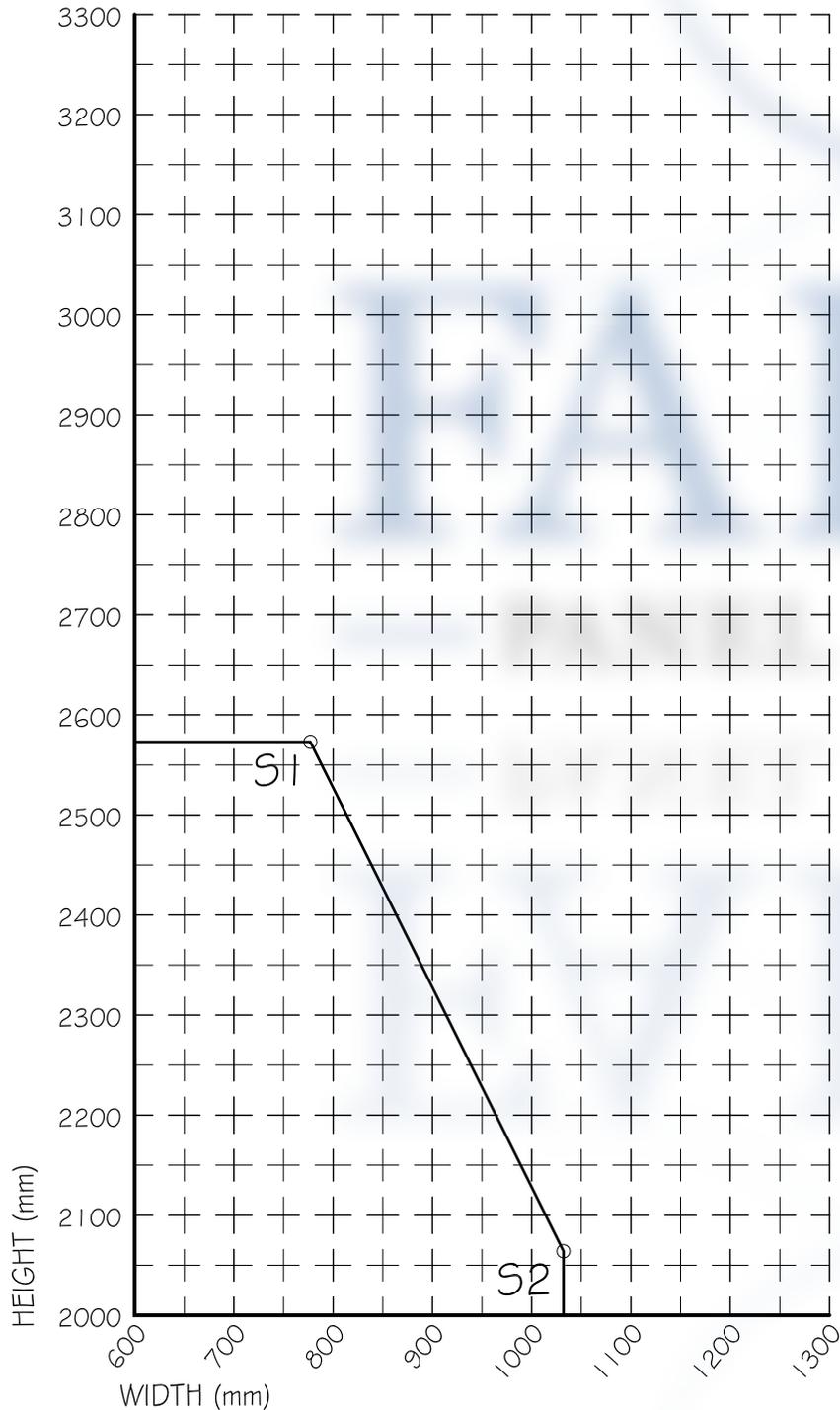
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 In Steel Frames

Job number: 17583  
 Drawn by: PDB Checked by: WL  
 Not To Scale Drawn: Aug 2020

**08038C/G01**



	S1	S2
Width	777	1032
Height	2573	2064

### ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
**Steel Frames**  
 UNLATCHED  
 SINGLE ACTING  
 SINGLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY: 60 Minutes

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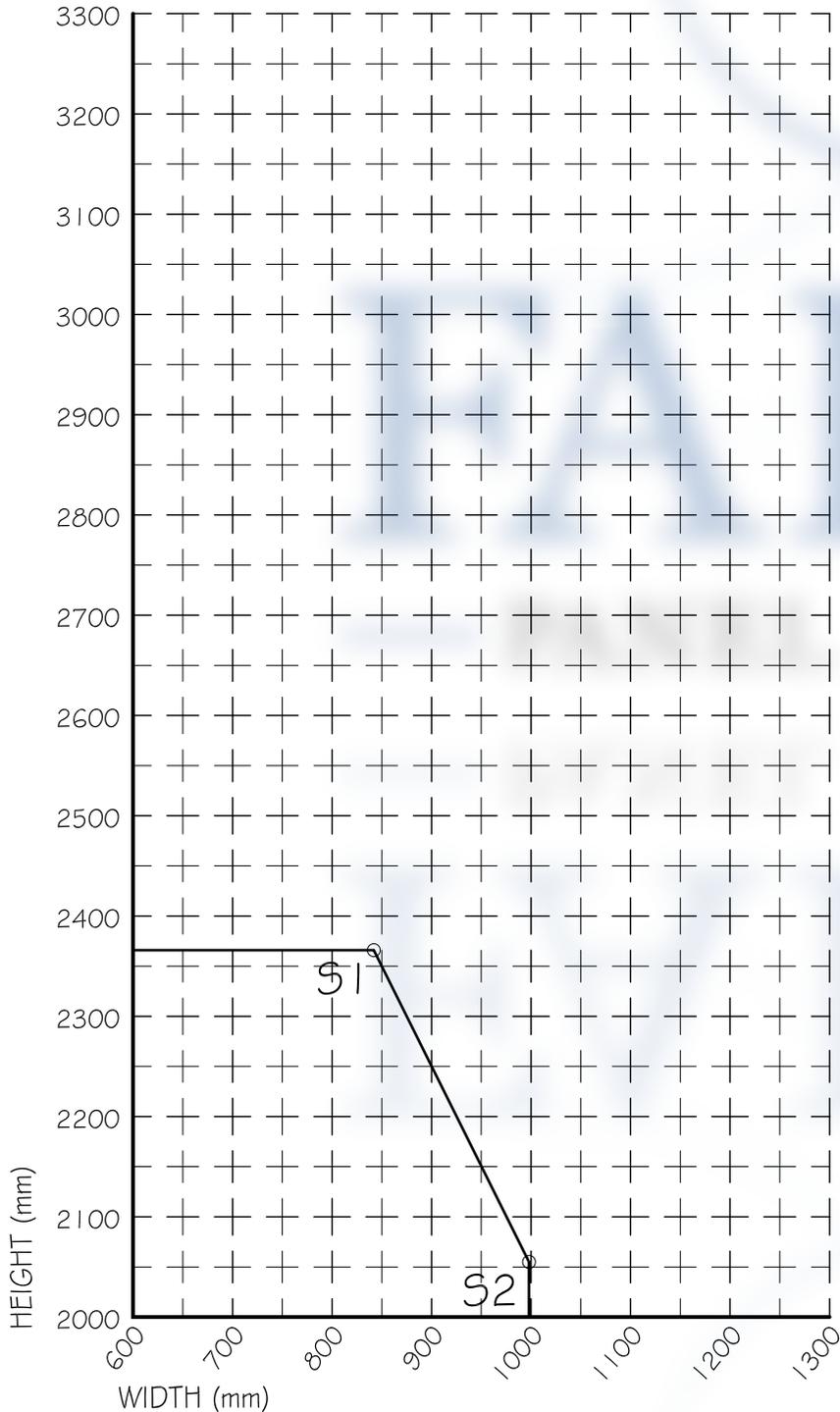
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**08038C/G02**

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	S1	S2
Width	842	998
Height	2366	2055

## ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Steel Frames  
 LATCHED  
 SINGLE ACTING  
 DOUBLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 60 Minutes

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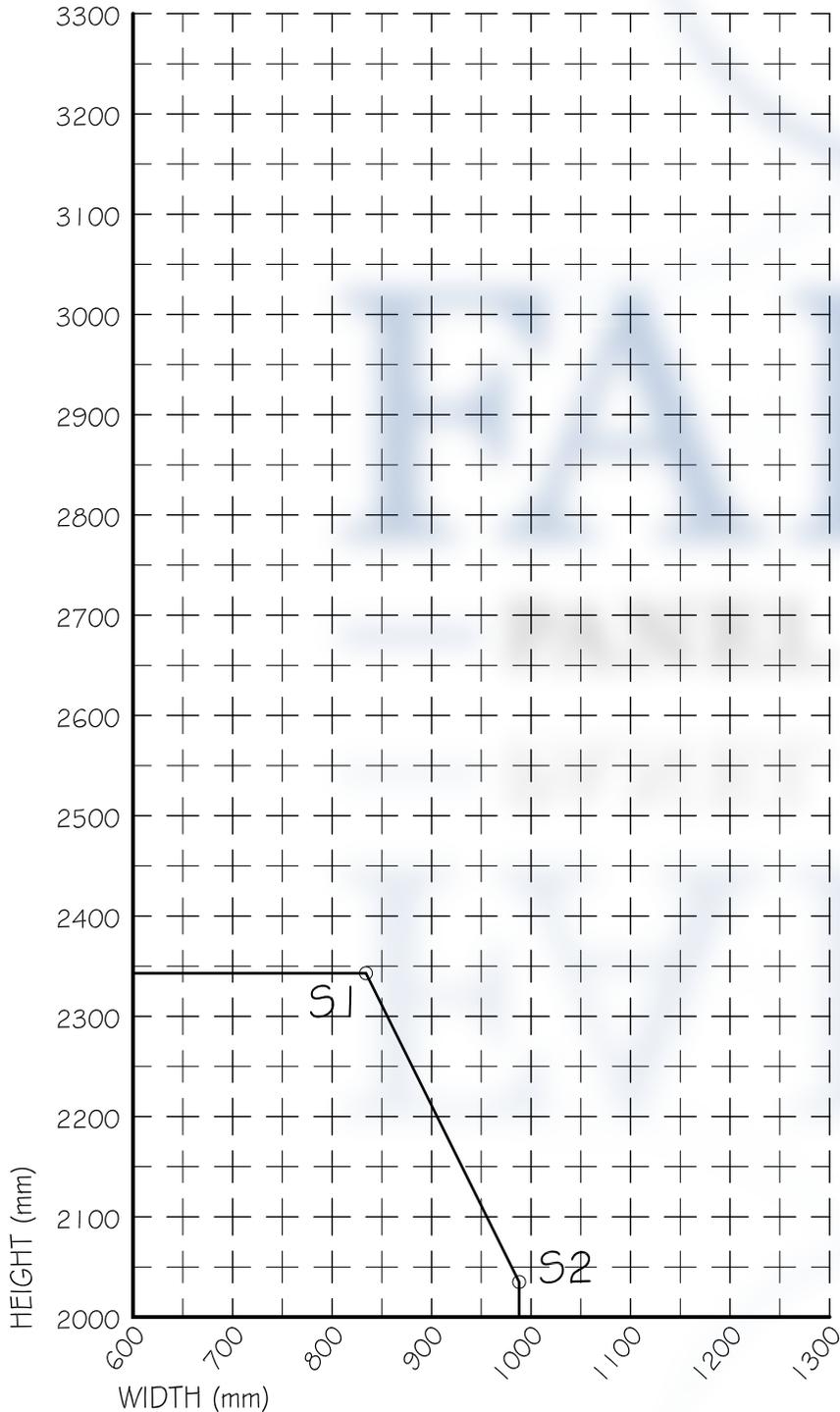
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 Door Leaf Sizes  
 In Steel Frames

Job number: 17583  
 Drawn by: PDB    Checked by: WL  
 Not To Scale    Drawn: Aug 2020

**08038C/G03**



	_____	
	S1	S2
Width	834	988
Height	2343	2035

## ENVELOPE OF APPROVED DOOR LEAF SIZES

The above graph represents the envelope of approved leaf sizes for the proposed door leaf configuration. Any combination of leaf width and height that falls within the graph axes and the connecting line on the graph are approved.

POINTS S1 & S2 represent the maximum height and width of a door leaf

This figure forms part of International Fire Consultants Ltd's Field of Application Report IFCA/O8038 Revision C, which contains full details of the assessed doorset construction.

Configuration  
 Steel Frames  
 UNLATCHED  
 SINGLE ACTING  
 DOUBLE LEAF  
 WITHOUT OVERPANEL  
 REQUIRED INTEGRITY : 60 Minutes

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**08038C/G04**

# APPENDIX H

## General Guidance on Installation of Hardware

### H.1 Hinges

The following hinges may be used with the Strebord® 54 door design for 60 minutes fire resistance:

- Royde & Tucker (ref: H207 HI-LOAD)
- Royde & Tucker (ref: H105)
- Royde & Tucker (ref: H101 HI-LOAD)
- Royde & Tucker (ref: H102)
- Royde & Tucker (ref: Lift off)
- Dorma 3090F
- Zoo ZHSS243RS3
- Allgood 8064NCB
- Eurospec Enduro (ref: HIN1433/13SSS/R)
- Smith & Locke Butt Hinge
- Arrone bearing hinge

Hinges shall comply with the following specifications:

Hinge types: Fixed pin, washered butt, ball bearing butt, lift-off type or journal supported hinges may be used.

Number of hinges: 3no (1½ pairs) per leaf. (4no per leaf should be used on leaves greater than 2300mm high).

Positions: The top hinge must be positioned 150mm down from the head of the leaf to the top of the hinge and the bottom hinge positioned 200mm up from the foot of the leaf to the bottom of the hinge. The middle hinge must be either equispaced between the top and bottom hinge, or 200–250mm below the top hinge. (All positions ±25mm).

Fixings: Steel screws, as recommended by the hinge manufacturers, but in no case smaller than No 8 (3.8mm diameter) by 32mm long, and having thread for the full length. Position of screws (in relation to the door face) in blades of alternative hinge types shall be similar to hinges tested with the proposed door type.

Hinge blade sizes: 2.5–3.5mm thick x 100–110mm high x 29–36mm width. (These dimensions refer to the blade size, i.e. the part of the hinges that are recessed into the edge of the leaves/frame).

Hinge materials: Phosphor Bronze, Steel or Stainless Steel. **(Aluminium, Nylon or 'Mazac' are not permitted).** No combustible or thermally softening materials to be included.

Additional protection: The hinge blades must be bedded on non-pressure forming or graphite based intumescent material at least 1mm thick.

Rising butt, cranked butts and spring hinges (single or double action) are not suitable for use on doors approved within the scope of this Field of Application Report.

## H.2 Pin Hinges

The following pin hinges may be used with the Strebord® 54 door design for 60 minutes fire resistance:

- AGB 3D Adjustable Hinge

Pin hinges shall comply with the following specifications:

Number of hinges: 3no (1½ pairs) per leaf. (4no per leaf should be used on leaves greater than 2300mm high).

Positions: The top hinge must be positioned 115mm down from the head of the leaf to the top of the hinge and the bottom hinge positioned 155mm up from the foot of the leaf to the bottom of the hinge. The middle hinge must be equispaced between the top and bottom hinge. (All positions ±25mm).

Fixings: Steel screws, as recommended by the hinge manufacturer.

Hinge size: 82mm high x 16mm diameter barrel (excluding pin dimensions)

Hinge materials: Steel or Stainless Steel. No combustible or thermally softening materials to be included.

Additional protection: None required

## H.3 Concealed Hinges

The following concealed hinges may be used with the Strebord® 54 door design for 60 minutes fire resistance, installed in timber frames:

- Tectus TE527FR
- SDS Ref: 3D

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The following concealed hinges may be used with the Strebord® 54 door design for 60 minutes fire resistance, installed in steel frames:

- Atomika Karakter

The material of the hinges must remain the same as tested.

The door frame material and specification (e.g. quality and construction) must meet the requirements of Section 3.4, excluding beech, however, the thickness of the frame hanging jamb must be a minimum of 40mm thick excluding stop depth.

Concealed hinges are only permitted with frames that sit fully within the supporting construction (i.e. not proud from the supporting construction at any point or frames that incorporate shadow details between the rear of the frame and supporting construction).

The mortice must be as tight to the hinge body as is compatible with its operation.

Number of hinges : It must be ensured that the correct number of hinges are fitted, to ensure that the door leaf is supported for the full fire resistance period.

Positions : The top hinge must be positioned 200mm down from the head of the leaf to the top of the hinge and the bottom hinge positioned 200mm up from the foot of the leaf to the bottom of the hinge. The middle hinge(s) must be either equispaced between the top and bottom hinge, or a hinge may be positioned 300mm below the top hinge (All positions  $\pm 25$ mm)

Concealed hinges installed in leaves that include glazed apertures must include a minimum of 150mm wide stiles into which the hinges are installed.

Fixings Fixings must be as tested and supplied by the hinge manufacturer i.e. stainless steel counter sunk head wood screws; 4no per hinge blade and 40mm long x 5.2mm diameter

Additional protection *Tectus TE527FR*  
Tectus 8820 1mm thick graphite kit fitted under hinge blade in frame and leaf

*Atomika Karakter*  
1mm Lorient Polyproducts MAP fitted under the hinge blade in the leaf

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## H.4 Mortice Latches/Locks

### H.4.1 Latch Body, Forend and Strikeplate

A number of locks/latches have been successfully tested in Strebord 54<sup>®</sup> doorsets;

- Zoo (ref: ZDL 7260R SS)
- Dorma 281 Sash
- AGB 60mm Polaris Maglock 2XT
- Gridlock tubular Ref: 51.01
- Zoo Tubular mortice latch
- E&S tubular latch
- Vier Mortice
- Eurospec tubular latch
- Assa Abloy Union mortice latch
- Allgood 7204 steel mortice
- Eurospec Easi-Exit DLS7260ESC
- Eurospec 514709
- Henderson Hardware tubular latch

Other mortice latches/locks may be used, subject to compliance with the specifications below.

Where mortice latches or locks are fitted, they should be centred at 1000mm ( $\pm$  200mm), above the bottom of the door leaf, and should comply with the following specifications:

Latch/lock types: Mortice latches, tubular mortice latches, sashlocks, deadlocks

Maximum dimensions: Forend plate: 310mm long x 20mm wide, or, 235mm long x 25mm wide or 60mm long x 26mm wide

Latch body: 20mm thick x 165mm high x 100mm wide, or, 17mm thick x 185mm high x 70mm wide or 25mm thick x 108mm high x 76mm wide

Strikeplate: 275mm high x 45mm wide

Materials: Latches must have no essential part of their structure made from polymeric or other low melting point (<800°C) materials, and should not contain any flammable materials.

Additional protection: The latch body must be encased in and the strikeplate and forend must be bedded on 1mm thick non-pressure forming or graphite based intumescent material.

Enhanced specifications for locks with a forend greater than 235mm:  
2mm thick STS302 installed at the back of the lock body  
1mm thick STS raw graphite fitted fully covering the cheeks of the body  
2mm thick SSTS302 fitted under the latch forend  
1mm thick STS raw graphite fitted encasing the latch keep

Over-morticing is to be avoided; mortices shall be as tight as possible to the latch. If gaps around the case exceed 2mm, then these must be made good with intumescent mastic or sheet material. Holes for spindles or cylinders should be kept as small as is compatible with the operation of the hardware.

Where glazing apertures are also incorporated, and are positioned such that locks/latches are included in the margin between the aperture and door edge, care must be taken to ensure **that the effective door 'stile' is not weakened by the mortice. It is** a condition of this assessment that, except where tubular latches are employed, the margin must be at least **75mm wider than the lock/latch mortice. If the mortice latch/lock is fitted in line with a 'rail'** between two apertures, no part of the lock mortice shall be closer than 50mm to the edge of any aperture.

#### H.4.2 Cylinder

- Eurocylinder Ref: V5EP80CTPBE
- Union J2X28 – euro double and thumbturn
- Assa Abloy Ref: 259283
- ERA 3\* double/thumbturn

Any cylinder may be used subject to the following limitations;

- The cylinder shall comprise the same materials as approved in Section H.4.1, for the latch body, forend and Strikeplate.
- The cylinder shall be fully compatible with the latch bodies approved herein, without requiring any adjustment to that tested.

## H.5 Multipoint Locks

The following multi point locks have been successfully tested with Strebord® 54 assemblies for 60 minutes fire resistance:

- Glutz 1893 MINT
- Winkhaus AV2
- ERA Surefire Classic

Multipoint locks must be subject to the following limitations and specifications:

- Only to be installed in single acting, single leaf assemblies
- Door frames to be hardwood, as outlined in Section 3.4
- For each of the respective locks permitted, above, the appropriate intumescent kit shall be used as detailed below

### *Glutz MINT*

- 1mm thick Lorient Polyproducts Ltd MAP intumescent kit for Glutz 1893 MINT fitted around the latch body and under the latch keeps
- 20mm wide x 2mm thick Lorient Polyproducts Ltd graphite intumescent kit for Glutz 1893 MINT fitted under the latch forend
- Perimeter intumescent specification to be installed such that there is a minimum of 5mm of each seal continuous past top and bottom latch keeps and minimum of 5mm of one seal continuous past central keep.

### *Winkhaus AV2*

- 14mm width of intumescent continuous past the keeps and 18mm width of intumescent continuous past the strike
- Intumescent Seals Therm-A-Strip to the perimeter of the eurocylinder opening in leaf 51mm x 17.5mm x 2mm
- Intumescent Seals Ltd Therm-A-Strip 1mm thick installed to the front of the latch
- Intumescent Seals Ltd Therm-A-Strip 1mm thick installed to the rear of the strike and keeps

### *ERA Surefire Classic*

- 6mm width of intumescent continuous past the keeps
- STS Raw Graphite, 10mm wide x 1mm thick, fitted under the latch forend
- 1mm thick STS Raw Graphite encasing the latch body and under latch keep

## H.6 Door Closers

### *Face-Fixed Overhead Closers*

Hinged door leaves must be fitted with a self-closing device unless they are normally kept locked shut and labelled as such with an appropriate sign which complies with the BS 5499 series of standards.

Surface mounted overhead door closers (and accessories such as soffit brackets) may be used if they have been tested, assessed or otherwise approved for use on unlatched FD60 cellulosic door leaves in timber frames. Any accessory that is located within the door reveal must have appropriate test or assessment evidence. In addition, where areas of uninsulated glazing are adjacent to the closer, the selected closer type must have been tested on the unexposed face of an uninsulated steel door, or a fully glazed door fitted with uninsulating glass, to demonstrate that the closer does not emit flammable fluids onto the glass face that would otherwise cause integrity failure before the required period of fire resistance.

It is essential that all closers are of the correct power rating for the width and weight of the doors (minimum **power size 3**). **They must be fitted according to the manufacturer's** instructions and be adjusted so that they are capable of fully closing the door leaf, against any friction imposed by the latch (and smoke seals, if fitted), from any position of opening.

It is essential that all closers fulfil the requirements of BS EN 1154: 1997 and are of the correct power rating for the width and weight of the doors (minimum power size 3). They must be **fitted according to the manufacturer's** instructions and be adjusted so that they are capable of fully closing the door leaf, against any friction imposed by the latch (and smoke seals, if fitted), from any position of opening.

A variety of closers have been successfully tested with Strebord 54<sup>®</sup> door assemblies but other closers may be used, subject to compliance with the specifications below.

- Face-fixed overhead door closers (and accessories such as soffit brackets) that have been tested, assessed or otherwise approved for use on unlatched FD60 cellulosic door leaves in timber frames may be used.
- Any accessory that is located within the door reveal must have appropriate test or assessment evidence.
- In addition, where areas of uninsulated glazing are adjacent to the closer, the selected closer type must have been tested on the unexposed face of an uninsulated steel door, or a fully glazed door fitted with uninsulating glass, to demonstrate that the closer does not emit flammable fluids onto the glass face that would otherwise cause integrity failure before the required period of fire resistance.

### *Concealed Overhead Closers*

The following concealed overhead closers have been successfully tested and is approved for use with the Strebord<sup>®</sup> 54 door core:

- Geze Boxer 2-4
- Hoppe Ref: AR7383

The closer must be fitted in accordance with the following specifications:

- The intumescent seal(s) at the head of the assembly should be fitted in the frame reveal.
- The closer is approved for use in the leaf head (i.e. not approved as a transom mounted closer).
- The closer is approved for single acting single and double leaf assemblies, without overpanels.
- When installed in door assemblies containing apertures the concealed overhead closer shall be installed such that the top rail has a minimum width of 150mm.
- For the installation of the Geze Boxer 2-4 concealed closer
  - Minimum 8mm thick square hardwood lipping at the head of the door leaf (See Section 3.3 for approved lipping details)
  - A minimum of 8mm of intumescent of each seal shall remain continuous past the closer arm.
  - 1mm thick Lorient Polyproducts Ltd MAP intumescent material shall be fitted around the closer body and on top of the closer body

#### *Concealed Jamb Mounted Closers*

The following concealed jamb mounted closer has been successfully tested and is approved for use with the Strebord® 54 door core:

- Astra 4000 series

The closer must be fitted in accordance with the following specification:

- Only to be installation in single acting, single leaf assemblies
- Only to be installed in door leaves fitted with Strelip lippings as detailed in Section 3.3
- Door frames to be hardwood as outlined in Section 3.4
- 2no 15 x 4mm PVC encapsulated intumescent strips (See Appendix B for approved types) spaced 10mm apart and centrally fitted within frame reveal
- The closer is to be installed in the hanging jamb and must be located a maximum 1200mm above the threshold
- When installed in door assemblies containing apertures the jamb mounted closer shall be installed such that the stile has a minimum width of 150mm

## H.7 Bolts

Some of the tests referenced in this report include double leaf doors with the following flush bolts fitted;

- Eurospec FBT1008/R
- Allgood 48800
- Zoo ZAS03RSS

Proven in testing when disengaged; bolts are not therefore, necessary for the doors to achieve 60 minutes fire resistance (subject to an appropriate self-closing device being fitted). The extra restraint provided by flush bolts, in association with latches, does, however, have a beneficial effect on leaf size envelopes; see Appendices C, E and G.

Unless specific fire test evidence is available, all bolts shall be steel. The following limitations and protection apply;

- Maximum size of flush bolt is 250mm long x 20mm wide and 19mm deep, see figure below;



- The head of the leaf and/or frame should contain a minimum 10mm width of intumescent material local to the bolt/keep plate;
- The body of the bolt should be bedded on non-pressure forming intumescent material at least 1mm thick (or as tested);
- Edge fixed bolts shall be positioned centrally in the leaf thickness (the intumescent seals defined in Appendices B and D shall be fitted in the active leaf);
- Flush bolts are not approved on doors with rebated overpanels, since this will clash with the rebate alignment. Surface mounted bolts may be used; see below;
- Face fixed flush bolts shall be fixed so that there is a minimum of 50mm between the bolt and the door edge, and any aperture;
- Surface mounted barrel bolts shall not exceed 400mm in length, but there is no limitation on their width. Screws for fixing bolts must be at least 25mm long, and have thread for the full screw length.

## H.8 Floor Springs and Accessories

Floor springs and accessories (straps and top pivots) are necessary for double acting assemblies.

The following floor springs and accessories have been successfully tested and are approved for use with the door assemblies detailed herein:

- Rutland TS7104

Alternative floor springs and accessories may be used, subject to having appropriate fire test or assessment evidence for use on timber door assemblies of similar construction to that proposed, and the following limitations;

- Incorporation of any intumescent gasketry used in the test;
- Continuation of at least 20mm (total width) of the intumescent edge seals in leaf or frame head (as applicable); either 10mm along both sides of the top strap/pivot for double acting straps, or 20mm on one side for single acting straps;
- Minimum 1mm thick intumescent sheet must line the mortise of the top strap and pivot in both the door leaf and frame head (or as supplied by the floor spring manufacturer);
- No removal of the timber or intumescent strip at the leaf stile (except for a 6-8mm diameter access hole for the top strap adjustment screw).

## H.9 Electromechanical Strikes

The following electromechanical strike has been successfully tested with the Strebord® 54 design and is therefore approved for use for door assemblies approved herein, subject to the limitations and specification given in the following section:

- Gem GK700
- Salto E9150 (XS4 Mini)

The Gem GK700 electric strike is approved for use in latched, single acting, single and double leaf door assemblies in hardwood timber door frames.

The Gem GK700 electric strike must be used with the following intumescent specification:

- 2no 15 x 4mm PVC encapsulated intumescent (See Appendix B for approved types) spaced 7mm apart and centrally fitted within the leaf edge; at least 17mm total width of intumescent, of both strips, must remain continuous past the forend of the lock in the leaf edge (i.e. the electric strike is to be fitted opposite the leaf edge fitted with intumescent strips)
- The lock fitted in the leaf must also be protected with
  - 2mm STS 302 at the back of the latch body and underneath the latch forend.
  - 1mm STS raw graphite lining the cheeks of the latch body.

- The electric strike (whether fitted in the frame of a single leaf or meeting edge of a double leaf door) requires 1mm (t) STS graphite (or a low-pressure, high volume intumescent gasket such as Interdens) encasing the body of the electric strike and 2mm (t) STS raw graphite (or a low-pressure, high volume intumescent gasket such as Interdens) lining the strike plate
- The frame jamb that the strike is fitted into must be a minimum of 44mm (t).
- For single leaf doors, the hole in the rear of the frame for the wireway needs to be kept as small as possible to the diameter of the wire. For electric strikes fitted in the meeting edge of double leaf doors, see Section H.10 for approved wire way solutions.

Alternative electric strikes are permitted for use providing they have the same or smaller dimensions as the Gem GK700 strike (dimensions of strike: 175mm (h) x 44mm (w) x 27mm (d)) and comprise the same materials and same basic design as the Gem GK700. All other details must comply with this specification given above.

## H.10 Cableways and Cable Loops for Electromechanical Hardware

The following cableway details are approved for use with the Strebord® 54 door cores:

### H.10.1 Cableway Method 1

- Maximum 11mm diameter hole drilled through the door core, horizontally, central to the door core thickness
- The hole shall be lined with STS Cable Pro
- The hole is to be positioned maximum 1150mm above the threshold

### H.10.2 Cableway Method 2

- Maximum 10mm wide x 42mm deep channel routed out centrally in the leaf edge. Starting 1120mm from the bottom of the hanging edge and terminating at the lock position, only to accept a cable.
  - A 10mm wide sapele insert shall be installed into this cable channel (on top of the cable and flush with the leaf edge), glued using non-thermally softening adhesive along with a pre applied 10mm x 2mm Sealed Tight Solutions Raw Graphite.
    - The sapele insert shall be of a depth that leaves a maximum 12mm deep channel into which the cable is fitted.
- The cable way shall be positioned a minimum of 150mm from any aperture cut into the door core.

### H.10.2 Concealed Cable Loop

The following concealed cable loop may be used in conjunction with the above detailed installation;

- Abloy EA280 cable loop

The cable loop must be installed with 2mm thick Sealed Tight Solutions Liner STS302 fitted under the cable loop under the forend and lining the cut out.

## H.11 Non-Essential Hardware Items

### H.11.1 Letter plates

These must be tested, assessed or otherwise approved for use in 54mm thick (or less) cellulosic FD60 doors. **They must be fitted in accordance with the manufacturer's instructions**, including all intumescent liners and flaps. Plates must not be less than 100mm away from the leaf edge, or any other aperture. Positioning above floor level will depend upon the test evidence for the letter plate.

*Note H1 The installation of such items in a door leaf may compromise its performance as a smoke control door assembly.*

### H.11.2 Push plates, kick plates, etc

Plastic, pvc or metal plates may be surface-mounted to the doors, but, if more than 800mm in length by nominally 200mm wide, they must be attached in a way that would prevent them distorting the door leaf, e.g. glued with thermally softening adhesive or screwed with short aluminium screws and fitted in such a way so they will not be prevented from falling away by being trapped under door stops, glazing beads or handle escutcheons etc.

### H.11.3 Pull handles

Face fixed pull handles may be fixed to the face of doors, provided that the fixing points are no greater than 800mm apart. Pull handles that are fixed through the leaf should use clearance holes as close fitting as possible to the bolt; and fixings passing through the leaf shall be steel. Handles/fixings shall be at least 40mm away from the door edge, and from any aperture.

### H.11.4 Intumescent air transfer grilles

The following intumescent air transfer grill has been tested and demonstrated its contribution to the approved assemblies herein, in achieving 60 minutes fire resistance;

- LVV40 by Lorient Polyproducts
  - Bedded on 8mm thick Lorient sealant at each face and at the junction between the liner and transfer grill

Alternative products may be used subject to having been tested, assessed or otherwise approved for use with 54mm thick (or less) cellulosic FD60 doors. They must be fitted fully **in accordance with the manufacturer's instructions, including all intumescent liners and cloaking grilles/beads.** They must be no larger than that for which test or assessment evidence exists. See Section 3.5, for restrictions on maximum size and placement of any apertures; these apply to those for grilles, which must also be included in the total area permitted for apertures given in Section 3.5.

*Note H2 The installation of such items in a door leaf may compromise its performance as a smoke control door assembly.*

#### H.11.5 Security viewers

The following security viewers have been successfully tested with the Strebord® 54 cores and are approved for use with the door assemblies approved herein subject to the following limitations;

- UAP (ref: SWALF14BRASSUP)
- Glutz GY3504 Brass viewer
- Sealed Tight Solutions STS4008
- Holes bored through the door must be no greater than 1mm larger than the bore of the viewer and must be lined with a non-pressure forming intumescent mastic/sheet;
- The viewer must include an effective shutter/cover plate.
- Viewers shall be at least 40mm away from the door edge, and from any aperture.

Alternative security viewers may be fixed into the proposed doors, subject to the following limitations, unless specific fire test evidence exists to the contrary;

- Viewers must not exceed 15mm outer diameter, and be made from brass or steel;
- Holes bored through the door must be no greater than 1mm larger than the bore of the viewer and must be lined with a non-pressure forming intumescent mastic/sheet;
- The viewer must include an effective shutter/cover plate.
- Viewers shall be at least 40mm away from the door edge, and from any aperture.

#### H.11.6 Door selectors

These are used on double leaf door assemblies with rebated meeting stiles, to ensure that the leaves close in sequence. Only face fixed items are approved. Door selectors must not be recessed into the leaf or frame and must not intrude into the door edge interface or interrupt any intumescent strips. When fixing components to the face of doors, care must be taken to ensure that screws do not cause delamination of lippings and/or splitting of timber.

### H.11.7 Lever Handles

The following lever handles have been tested and demonstrated their contribution to the approved assemblies herein, in achieving 60 minutes fire resistance;

- Carlisle Steelwork Scimitar lever type handle
- Zoo Hardware Ltd lever handle Ref: ZCS030SS
- Olivari Conca lever type handle
- Altro 19mm straight tee bar lever handle
- Zoo Hardware Ref: Stanza ZPZ909SC

Alternative lever handles may be used subject to compliance with the following specification;

Element	Specification
Material	Metal/alloy – should not contain any flammable materials
Specific Installation Requirements	Holes through the leaf shall be as close fitting as possible to the spindles and/or fixing screws; which must be steel.
Intumescent protection	None required
Additional Notes	<b>This generic approval only applies to traditional 'mechanical' lever handles and does not apply to electro-mechanical handlesets (with security functions); which must be the subject of independent fire testing, and further analysis by IFC</b>

# APPENDIX I

## Summary of Primary Fire Test Evidence

Test Laboratory and Report No	Test Date	Configuration Tested	Leaf Size Tested	Test Standard	Integrity
RF98020	30/03/1998	ULSADD Opening in	2130 x 935 + 935 x 54mm	BS476: Part 22: 1987	62 minutes
RF99113	24/11/1999	ULSADD Opening in	2130 x 935 + 935 x 54mm	BS476: Part 22: 1987	61 minutes
RF00169	18/12/2000	ULSADD Opening in	2130 x 935 + 935 x 54mm	BS476: Part 22: 1987	62 minutes
RF02020	26/03/2002	ULSADD.OP Opening in	2135 x 915 + 915 x 44mm	BS476: Part 22: 1987	62 minutes
RF07035	26/04/007	ULSADD Opening in	2135 x 932 + 932 x 54mm	BS476: Part 22: 1987	62 minutes
RF08051	28/05/2008	ULSADD Opening in	2135 x 932 + 932 x 54mm	BS476: Part 22: 1987	61 minutes
RF08113	15/08/2008	ULSADD Opening in	2135 x 932 + 932 x 54mm	BS476: Part 22: 1987	63 minutes
RF08161	26/11/2008	ULSADD Opening in	2135 x 936 + 936 x 54mm	BS476: Part 22: 1987	63 minutes
RF09140	26/082009	LSASD Opening in	2100 x 927 x 54mm	BS476: Part 22: 1987	72 minutes
RF10011	24/02/2010	ULSASD Opening in	2040 x 925 x 54mm	BS476: Part 22: 1987	73 minutes
RF11143	10/10/2011	ULSADD Opening in	2054 x 928 + 928 x 54mm	BS EN 1634-1: 2008	61 minutes

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Test Laboratory and Report No	Test Date	Configuration Tested	Leaf Size Tested	Test Standard	Integrity
RF11171	30/11/2011	ULSADD Opening in	2135 x 915 + 915 x 54mm	BS EN 1634-1: 2008	60 minutes
RF13082	01/05/2013	ULSASD Opening in	2130 x 935 + 935 x 54mm	BS476: Part 22: 1987	60 minutes
RF13242	18/11/2013	LSADD Opening in	2757 x 927 + 927 x 54mm	BS476: Part 22: 1987	71 minutes
WF416691 Door A	22/07/2019	ULSASD Opening in	2250 x 868 x 54mm	BS476: Part 22: 1987	62 minutes
WF416691 Door B		ULSASD Opening out	2250 x 868 x 54mm		70 minutes
WF414533 Door A	13/06/2019	LSASD Opening in	2510 x 1045 x 54mm	BS476: Part 22: 1987	67 minutes
WF414533 Door B		LSASD Opening out	2510 x 1045 x 54mm		80 minutes
WF408989 Door A	21/01/2019	ULSASD Opening out	2033 x 925 x 54mm	BS476: Part 22: 1987	78 minutes
WF408989 Door B		ULSASD Opening in	2033 x 925 x 54mm		71 minutes
WF413865	13/05/2019	ULSADD Opening in	2135 x 935 + 935 x 54mm	BS476: Part 22: 1987	70 minutes
CFR1902142	14/02/2019	LSASD Opening in	2186 x 1050 x 54mm	BS476: Part 22: 1987	63 minutes
BMT/FEB/F16113	29/03/2016	ULSADD Opening in	2500 x 1018 + 1018 x 54mm	BS476: Part 22: 1987	73 minutes

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Test Laboratory and Report No	Test Date	Configuration Tested	Leaf Size Tested	Test Standard	Integrity
WF415618 Door A	11/07/2019	LSASD Opening in	1900 x 825 x 54mm	BS476: Part 22: 1987	71 minutes
WF415618 Door B		ULSADD Opening in	2200 x 927 + 300 x 54mm		65 minutes
WF386969A Door B	18/08/2017	LSADD Opening in	2438 x 1050 + 400 x 54mm	BS476: Part 22: 1987	61 minutes
Chilt/RF09140 Door B	26/08/2009	LSASD Opening in	2742 x 928 x 54mm	BS476: Part 22: 1987	72 minutes
CFR1810031	03/10/2018	ULSASD Opening in	2039 x 927 x 54mm	BS476: Part 22: 1987	76 minutes
Chilt/RF10011 Door B	24/02/2010	ULSASD Opening in	2040 x 925 x 54mm	BS476: Part 22: 1987	73 minutes
Chilt/RF13056 Door A	12/03/2013	ULSASD Opening in	2135 x 926 x 54mm	BS476: Part 22: 1987	65 minutes
Chilt/RF13056 Door B		ULSASD Opening in	2135 x 926 x 54mm		68 minutes
WF421509	14/11/2019	LSASD Opening in	2040 x 927 x 54mm	BS476: Part 22: 1987	62 minutes
CFR1905071	07/05/2019	ULSADD Opening in	2349 x 927 + 927 x 54mm	BS476: Part 22: 1987	67 minutes
WF378797	26/01/2017	ULSADD Opening in	2755 x 950 + 950 x 54mm	BS476: Part 22: 1987	64 minutes
WF 414535	10/07/2019	LSADD Opening in	2522 x 970 + 470 x 54mm	BS476: Part 22: 1987	64 minutes

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Test Laboratory and Report No	Test Date	Configuration Tested	Leaf Size Tested	Test Standard	Integrity
WF415618 Door A	11/07/2019	LSASD Opening in	1900 x 825 x 54mm	BS476: Part 22: 1987	71 minutes
WF415618 Door B		ULSADD Opening in	2200 x 300 + 927 x 54mm		65 minutes
BMT/FEP/F15050 Door B	02/04/2015	LSASD Opening in	1502 x 520 x 54mm	BS476: Part 22: 1987	78 minutes
Chilt/RF13060 Door A	18/04/2013	LSASD Opening in	2140 x 920 x 45mm	BS476: Part 22: 1987	76 minutes
Chilt/RF10017 Door A	14/04/2010	LSASD Opening in	2100 x 1008 x 54mm	BS476: Part 22: 1987	89 minutes
Chilt/RF10017 Door B		LSASD Opening in	2100 x 1008 x 54mm		84 minutes
WF386959A Door B	18/08/2017	LSADD Opening in	2438 x 1050 + 400 x 54mm	BS476: Part 22: 1987	61 minutes
WF414535	10/07/2019	LSADD Opening in	2522 x 970 + 470 x 54mm	BS476: Part 22: 1987	64 minutes
WF380214 Door B	24/02/2017	ULSASD Opening in	2052 x 952 x 55mm	BS EN 1634-1: 2014	66 minutes
WF417777	14/08/2019	ULDADD	2040 x 924 + 924 x 54mm	BS476: Part 22: 1987	60 minutes
SF013-10A	29/10/2019	LSASD Opening in	2400 x 1100 x 55.2mm	BS476: Part 22: 1987	79 minutes
CFR1905071	07/05/2019	ULSADD Opening in	2349 x 927 + 927 x 54mm	BS476: Part 22: 1987	67 minutes

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Test Laboratory and Report No	Test Date	Configuration Tested	Leaf Size Tested	Test Standard	Integrity
BMT/FEB/F16012	11/07/2016	LSASD Opening in	2042 x 925 x 54mm	BS476: Part 22: 1987	66 minutes
WF 418106	21/10/2019	LSASD Opening in	2185 x 1048 x 54mm	BS476: Part 22: 1987	66 minutes
RE011	06/05/2017	LSASD Opening in	2400 x 1230 x 56mm	BS476: Part 22: 1987	75 minutes

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## Summary of Secondary Fire Test Evidence

Test Laboratory and Report No	Test Date	Configuration Tested	Leaf Size Tested	Test Standard	Integrity
RF09062		ULSADD	2136 x 937 + 937 x 54mm	BS476: Part 22: 1987	58 minutes
CFR1810311	31/10/2018	ULSASD Opening in	2179 x 1046 x 54mm	BS476: Part 22: 1987	40 minutes
WF391940 Door A	14/11/2017	ULSASD Opening in	2260 x 920 x 54mm	BS476: Part 22: 1987	63 minutes
WF391940 Door B		LSADD Opening in	2255 x 925 + 680 x 54mm		61 minutes
Chilt/RF09140 Door A	26/08/2009	LSASD Opening in	2100 x 927 x 54mm	BS476: Part 22: 1987	58 minutes
WF414534	19/06/2019	ULSADD Opening in	2495 x 1132 + 1132 x 64mm	BS476: Part 22: 1987	73 minutes
RK141-2	18/01/2018	LSADD Opening in	2800 x 1100 + 1100 x 54mm	BS476: Part 22: 1987	60 minutes

LSASD	=	Latched Single Acting Single leaf Doorset
ULSASD	=	Unlatched, Single Acting. Single leaf Doorset
LSADD	=	Latched Single Acting Double leaf Doorset
ULSADD	=	Unlatched, Single Acting, Double leaf Doorset
ULSADD.OP	=	Unlatched, Single Acting, Double leaf Doorset with Overpanel

*Note: Where appropriate, fire test evidence from glass, hardware, and intumescent seal manufacturers has also been considered when preparing this Field of Application Report.*

Some of the test evidence referenced in this Engineering Assessment Report is more than 5 years old. In accordance with industry practice, IFC have reviewed this test evidence, and have concluded that the evidence is still valid, and suitable to form the basis of this approval.

Some of the test evidence is not owned by Falcon Panel Products Ltd; but IFC have written permission from the test sponsor, to use the evidence in support of this assessment.

*Note: Where appropriate, fire test evidence from glass, hardware, and intumescent seal manufacturers has also been considered when preparing this Field of Application Report.*

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