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**Title:**

Field of Application for:

Falcon Strebord© 54 Doorsets

For 60 Minutes Fire Resistance

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**Report No:**

Chilt/A02067 Revision K

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

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## 1 Foreword

This field of application report has been commissioned by Falcon Panel Products Limited and relates to the fire resistance 60 minute fire resisting doorset designs.

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

This Field of Application has been written using appropriate test evidence generated at UKAS accredited laboratories<sup>1</sup>, to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturers stated door design and is summarised in Appendix B.

The scope presented in this report relates to the behaviour of the proposed door design variations under the particular conditions of the test; they are not intended to be the sole criterion for considering the potential fire hazard of the door assembly in use.

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

Valid CERTIFIRE and field of application supporting documentation has been used to increase the scope of application of this report. It is the responsibility of users to check that the cited versions of such supporting documentation remain valid at the time of use. Where new revisions or revalidations of supporting documentation have been issued they must be checked against those referenced in this report and, if their scope has changed, Warringtonfire must be consulted to review and consider the effect of these changes on the scope and conclusions of this report.

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

<sup>1</sup> *Test evidence from overseas laboratories has also been considered as supporting evidence for the designs in this assessment report. The test evidence is from a laboratory that has been accredited by a national accreditation body that is a signatory of the International Laboratories Accreditation Co-operation (ILAC).*

## 2 Proposal

It is proposed to consider the fire resistance performance of the specified proprietary Strebord© 54 doorset designs, when used for 60 minutes fire resistance integrity (and where appropriate insulation performance), if the doorset designs were to be tested to the requirements of BS 476: Part 22: 1987, *Fire tests on building materials and structures – Part 22: Method for determination of the fire resistance of non-load bearing elements of construction*.

The field of application defined in this report is based on the fire resistance test evidence for the doorset design, which is summarised in Appendix B. Analysis of specific construction details that require assessment are given within this report against the relevant element of construction, as appropriate.

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

### 2.1 Assumptions

- All densities referred to in this document are based upon an assumed moisture content of 12%.
- It is assumed that unless otherwise documented in the field of application sections of this report, the doorset subject to this report will be constructed in accordance with the test evidence referred to herein.
- For components created using solid timber sections referred to in this assessment, it is assumed that, for all timbers, they will be of a quality deemed to meet or exceed class J30 as specified in BS EN 942: 2007, subject to adequate repairs, other than glazing beads which must meet a minimum class J10. Note that areas under intumescent seals/gaskets are not considered to be concealed faces and defects must be repaired.
- Where timber is referred to within this document it is assumed that the timber element is made from a continuous solid piece, unless specifically detailed otherwise.
- All dimensions detailed herein may be varied by  $\pm 2\%$  except where minimum, maximum or a range of dimensions are given.

## 3 General Description of Construction

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

- A solid sheet of 54mm thick Strebord© 54 three layered particleboard (density held on file by BM TRADA under Q-Mark). Where specified the leaves are lipped with hardwood.

## 4 Leaf Sizes

Assessment for increased leaf dimensions is based on the margin of the designs' over performance and the characteristics exhibited during test. Data sheets specifying the maximum assessed leaf sizes and graphs showing the permitted gradient between maximum height and width are contained in Appendix E.

Doorsets containing leaves with smaller dimensions than those stated are deemed to be less onerous and are therefore automatically covered.

## 5 Configurations

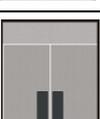
The evaluation of the permitted doorset configurations is based on the tests listed in Appendix B and takes into account:

1. The margin of over performance above 60 minutes integrity for the design
2. The characteristics exhibited during test and
3. The doorset configuration tested

The evaluation of the permitted configurations included in this field of application is based on the configuration(s) tested. The principle is that the more components included in testing, for example, double door leaves and an overpanel – the harder it becomes to pass a test. In this specific example it is because the junction between two door leaves or door leaf and overpanel introduces a discontinuity into the doorset which can be a means of failure. This approach leads to the following statements:

1. A test on a double doorset is more onerous than a test on a single doorset
2. A test on a doorset with a flush overpanel is more onerous than a test on a doorset without an overpanel. A flush overpanel has the same thickness as the door leaf and is flush with the leaf/leaves.
3. A test on an unlatched doorset is more onerous than a test on a latched doorset as the leading edge is unrestrained and will deflect more in fire test conditions
4. A test on an unlatched single acting doorset is considered to be equivalent to a double acting doorset, due to the known deflection of an unlatched single acting doorset towards the furnace conditions i.e. away from the door stop. However, this does not cover doorsets with flush overpanels
5. A doorset with transomed overpanel is considered to perform comparably to a similar doorset without an overpanel. This is because the transom structurally separates the overpanel from the doorset.

Based on the test evidence listed in Appendix B, this assessment covers the following doorset configurations:

Doorset Configurations		
Depiction	Abbreviation	Description
	LSASD	Latched Single Acting Single Doorset
	ULSASD	Unlatched Single Acting Single Doorset
	DASD	Double Acting Single Doorset
	LSASD+OP	Latched Single Acting Single Doorset + Flush Overpanel
	ULSASD+OP	Unlatched Single Acting Single Doorset + Flush Overpanel
	LSADD	Latched Single Acting Double Doorset
	ULSADD	Unlatched Single Acting Double Doorset
	DADD	Double Acting Double Doorset
	LSADD+OP	Latched Single Acting Double Doorset + Flush Overpanel
	ULSADD+OP	Unlatched Single Acting Double Doorset + Flush Overpanel

Unequal leaf double doorsets are covered by this assessment with no restriction on the smaller leaf dimensions providing it does not exceed the relevant leaf size envelope and is not smaller in width than 200mm (leaf width based on test CFR 2112211).

For equal double doorsets both leaves must comply with the door leaf envelope size limitations.

## 5.1 Orientation

The majority of primary fire resistance tests for these designs were conducted with the doorset hung such that the door leaf opened towards the fire, which is considered the most onerous orientation in terms of fire resistance performance. Based on this testing, assessment is made that the doorsets to this design may be hung either away from or towards the fire risk side of the doorset. The rationale behind the direction of fire testing timber based doorsets opening towards the fire test conditions is further explained in Annex C of BS EN 1634-1:2014 +A1:2018.

Test reference WF414533 was undertaken with similar doorsets tested both opening in towards the furnace heating conditions and out away from the heating conditions. The doorset opening in achieved 67 minutes integrity and the doorset opening out achieved 80 minutes integrity performance, therefore validating the point made above.

**NOTE:** The inclusion of Vistamatic units makes the doorset fire resisting from one direction only. The direction of fire resistance will be dictated by the orientation of the unit and not the direction in which the door leaf opens. The Vistamatic unit has been tested for fire resistance from the side fitted with the 19mm thick Pyro-EX Toughened glass. Details are given in section 7.13.

## 6 Leaf Size Adjustment

The Falcon Panel Products Ltd. Strebord© 54 door leaves may be altered as follows:

Element	Reduction
Leaf	The manufactured size of the leaf may be reduced in height or width without restriction providing the edges are re-lipped in accordance with section 13.1
Lipping	Timber lippings in section 13.1 may be adjusted by a maximum of 3mm post-manufacture for on-site fitting purposes, providing a minimum thickness of 6mm of lipping is maintained <sup>1</sup>

**Note:**

1. Some design options may require a specific minimum thickness of lipping, which may limit the amount of adjustment permitted for on-site fitting. Lippings must not be reduced below the minimum stated, where required for specific applications

## 7 Glazing

The testing conducted on Strebord© 54 has demonstrated that the design is capable of tolerating relatively large glazed apertures, whilst providing a margin of over-performance. Glazing is therefore acceptable within the following parameters:

The maximum assessed glazed area is linked to the glass type and glazing system selected. The maximum area given in the following sections for the glass and glazing systems is for a single pane or the maximum total area permitted when using multiple panes. The maximum area stated is per leaf. The maximum area permitted is dictated by the glass type or the glazing system selected, whichever is the smaller.

## 7.1 Assessed Glazing Systems

Glazing System	Manufacturer	Max. Area (m <sup>2</sup> )
1. Therm-A-Glaze 60 <sup>3</sup>	Intumescent Seals Ltd.	0.72
2. Fireglaze 60	Sealmaster Ltd.	1.50
3. Firestrip 60	Hodgsons Sealants Ltd.	1.50
4. System 90+	Lorient Polyproducts Ltd.	0.72
5. System 36 Plus	Lorient Polyproducts Ltd.	0.72
6. System 63	Lorient Polyproducts Ltd. (only suitable for circular apertures with glass types 1 & 2)	0.72
7. Pyroglaze 60	Mann McGowan Fabrications Ltd. (only with 60mm long steel screw fixings)	0.72
8. FG60	Pyroplex Ltd.	0.25
9. Norsound Vision 60 (see section 7.10 for additional scope)	Norsound Ltd.	0.72
10. Norsound Universal 60 (see section 7.11 for additional scope)	Norsound Ltd.	0.72
11. ST105GT (see section 7.9 for additional scope)	Sealed Tight Solutions Ltd.	0.67

### Notes:

1. Glazing system 8, FG60 must be used with an 8mm thick hardwood aperture liner.
2. Sectional drawings detailing the tested and approved proprietary glazing systems are contained in Appendix D.
3. See sections 7.14 for specific requirements when using Pyroguard EW60 (11mm) and section 7.4 when using Pyroshield 2 glass

## 7.2 Assessed Glass Products

Assessed glass types are as follows:

Glass Type	Manufacturer	Thickness (mm)	Max. Area (m <sup>2</sup> )
1. Pyran S	Schott Glass Ltd.	6	1.00
2. Pyrostem	Pyroguard Ltd.	6	0.408
3. Pyroclear <sup>1</sup>	Pilkington Glass Ltd.	6	0.72
4. Pyroshield 2 <sup>2</sup>	Pilkington Group Ltd.	6 & 7	0.408
5. Pyrodur 60-10	Pilkington Group Ltd.	10	1.00
6. Pyroguard EW60 11mm <sup>6</sup>	Pyroguard Ltd.	11	0.68
7. Pyrobelite 12	AGC Flat Glass Europe	12	1.00
8. Pyrodur 60-20	Pilkington Group Ltd.	13	1.00
9. Pyroguard EI 30	Pyroguard Ltd.	15	1.00
10. Pyrostop 30-10	Pilkington Group Ltd.	15	1.50
11. Contraflam EW 60	Vetrotech Saint Gobain Ltd.	16	1.00
12. Pyrobel 16	AGC Flat Glass Europe	16	1.00
13. Pyrostop 60-101 <sup>3</sup>	Pilkington Group Ltd.	23	1.50
14. Pyroguard EI 60 <sup>4</sup>	Pyroguard Ltd.	23	1.00
15. Pyrobel 25 <sup>5</sup>	AGC Flat Glass Europe	25	0.72

### Notes:

- Pilkington Pyroclear is limited to 0.72m<sup>2</sup> and may only be utilised with the tested glazing system as described in section 7.5 below.
- Pilkington Pyroshield 2 is limited to 0.408m<sup>2</sup> and may only be utilised with the glazing system and maximum dimensions described in section 7.4 below.
- Pilkington Pyrostop 60-101 may only be utilised with the glazing system described in section 7.6 below (see Appendix D for drawing of Firestrip 60 glazing system).
- Pyroguard EI 60 is limited to 1.00m<sup>2</sup> and may only be utilised with the tested glazing system as described in section 7.7 below.
- AGC Flat Glass Pyrobel 25 is limited to 0.72m<sup>2</sup> and may only be utilised with the tested glazing system as described in section 7.8 below.
- Pyroguard EW60 (11mm) is limited to 0.68m<sup>2</sup> or 0.575m<sup>2</sup> depending on the glazing system used and may only be used with the glazing systems and maximum dimensions described in sections 7.14 below
- All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion clearance.

### 7.3 Glazing Beads & Installations

Glazing beads must be from hardwood as specified in the following table:

Material <sup>4</sup>	Profile	Min. Density (kg/m <sup>3</sup> )	Application
Hardwood	Splayed	640	All proprietary systems detailed in 7.1 and Appendix D
Hardwood	Square	640	Proprietary systems 1-3 as specified in 7.1 and glass types 7-15 as specified in 7.2

**Notes:**

1. Glazing beads must be retained in position with 60mm long steel pins or 60mm long No. 6-8 screws, inserted at 35-40° (45° for Lorient System 90+ & System 63) to the vertical, at 150mm maximum centres and no more than 50mm from each corner, or see section 7.3.1 below for bead fixings using gun (pneumatically) fired applications.
2. Glazed opening must not be less than 100mm from any leaf edge. Multiple apertures are acceptable within the permitted glazed area, with a minimum dimension of 80mm between apertures.
3. Aperture shape is not restricted, providing the glazing system and beads can effectively accommodate the required profile.
4. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species)
5. A square bead profile may be used as an alternative to the splayed beads subject to the restricted glass types and glazing systems specified in the tables above. See Appendix D for square bead options.
6. A 6–10mm thick square aperture liner is permitted for use with square beads providing it is constructed from hardwood (excluding beech – Fagus species) of minimum density 640kg/m<sup>3</sup> and glued in position using a UF type adhesive. The appropriate intumescent liner required for each glazing system must be used, which may be recessed into the aperture liner and stop a maximum distance of 3mm from each edge.

#### 7.3.1 Gun (Pneumatically) Fired Pins

The following pin specification is permitted and has been considered suitable for gun (pneumatically) fired applications:

##### 7.3.1.1 Option 1 – Round, Oval & Rectangular Pins

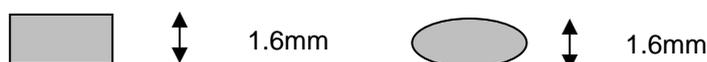
The following dimension of pin has been approved for round, oval and rectangular shaped pins:

- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.03mm<sup>2</sup>.
- Minimum linear dimension of 1.6mm in any direction.

Round pin diameter (mm) = minimum 1.6mm:



Oval/rectangular pin minimum diameter linear dimension = 1.6mm:



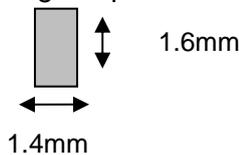
### 7.3.1.2 Option 2 – Rectangular Pins

#### Dimensions

The following dimension of rectangular pin has been deemed suitable for gun (pneumatically) fired applications, providing the 1.6mm dimension is predominately oriented perpendicular to the glass, where possible:

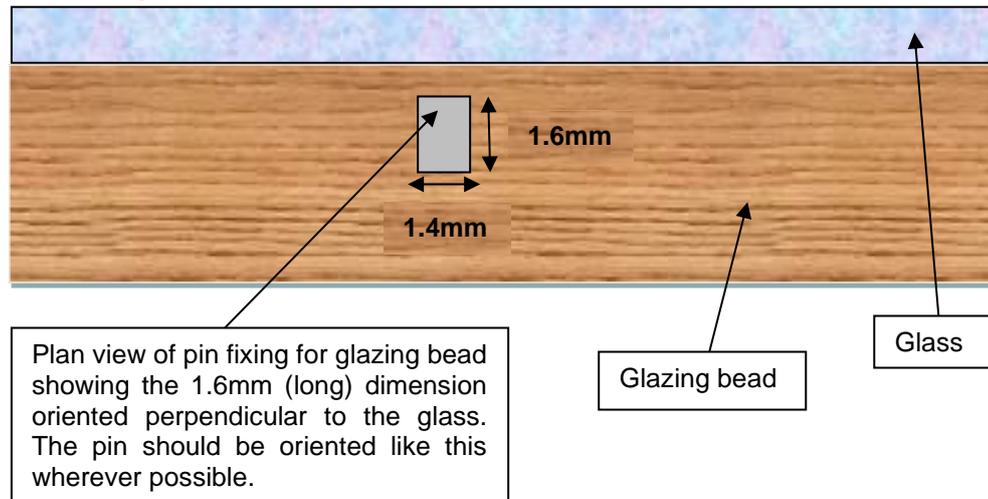
- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.24mm<sup>2</sup>.
- Minimum linear dimension of 1.4mm.

Rectangular pin minimum diameter linear dimension = 1.4mm:



#### Orientation

The following plan view diagram depicts the orientation of the pin in relation to the plane of the glass:



### 7.3.1.3 Note of Caution

Pins with dimensions less than those stated above are not covered by this assessment.

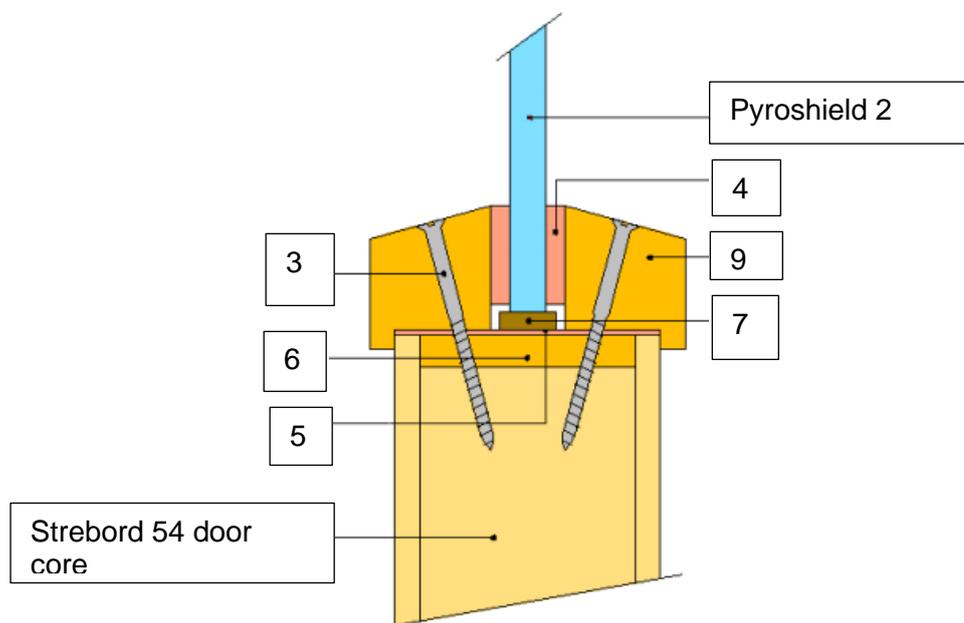
## 7.4 Pyroshield 2

The following table details the maximum pane sizes and approved glazing system permitted for Pyroshield 2. The following specification has been aligned with the scope given for the Pyroshield 2 glass type in Certifire certificate CF284:

Glass Type	Glazing System	Max. Pane Size <sup>1</sup> (mm)	Max. Area (m <sup>2</sup> )
Pyroshield 2	Therm-A-Glaze 60 (see notes below for specification to be used with Pyroshield 2 glass)	1700 (high) at 240 (wide) Or 595 (high) at 632 (wide)	0.408

### Notes:

- The heights and widths listed are the maximum single dimension allowable for an individual pane utilising the relevant glazing system; maximum dimensions may not be increased even if the other dimension for the pane is reduced. The aspect ratio is unlimited within these pane dimensions.
- Glazed openings must not be less than 100mm from any door edge. Multiple apertures are acceptable up to the maximum approved area, with a minimum dimension of 80mm between apertures. The aperture shape is not restricted, providing the intumescent material and beads are proven to be compatible with that shape.
- Glazing beads must be retained in position with 60mm long No 6-8 screws, inserted at 35-40° to the vertical at no more than 50mm from each corner and at 150mm maximum centres.
- 25 x 4mm Therm-A-Bead from Intumescent Seals is to be fitted between the upstand of the glazing bead and the glass on both faces of the glass
- A 54 x 2mm Therm-A-Line liner from Intumescent Seals is to be fitted on top of the hardwood aperture liner described in point 6 below, on all edges of the aperture
- A 16mm thick hardwood liner must be fitted to all edges of the aperture prior to fitting the glass. The hardwood liner is to be glued in position using one of the adhesives types approved for door lipping in section 14
- Non-combustible or hardwood setting blocks are permitted
- Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species). Timber must have a minimum density of 640kg/m<sup>3</sup>
- The glazing beads are to be 30mm (h) x 25mm (w) including a 5mm x 5mm bolection return, with a 20° chamfer
- False timber beads must not be applied across the glass face without specific test evidence to justify the system used.



**Therm-A-Glaze 60 System with Pyroshield 2**

## 7.5 Pilkington 6mm Pyroclear Glazing System

The following system must be used with the Pilkington Pyroclear 6mm thick glass type listed in section 7.2:

1. Hardwood (min. density 640kg/m<sup>3</sup>) glazing beads 25mm high x 25mm deep including a 5mm x 5mm bolection return and a 20° chamfer.
2. Beads must be retained in position with 50mm long steel pins or 50mm long No. 6-8 steel screws, inserted at 45° to the vertical, at no more than 50mm from each corner and at 150mm maximum centres. Pneumatically fired pins are acceptable providing they meet the specification given in section 7.3.1 above.
3. 20mm x 5mm Kerafix Flexit seal compressed to 4mm and fitted between the bead and the glass on both faces.
4. 54mm x 2mm Palusol ELSA 1000 glazing liner must be fitted lining the full width of the glazing aperture.
5. 10mm x 2mm Interdens must be fitted on top of the Palusol glazing liner, underneath the edge of the glass in between the beads.
6. The glass must be fitted with maximum 12mm edge cover and allowing for 8mm expansion on all edges.
7. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
8. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species).
9. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 100mm between apertures.
10. Multiple apertures are permitted, subject to point 9 above.

## 7.6 Pilkington 23mm Pyrostop Glazing System

The following system must be used with the Pilkington 23mm Pyrostop glass type listed in section 7.2, for glazed apertures up to 1.50m<sup>2</sup>.

1. Hardwood (min. density 640kg/m<sup>3</sup>) glazing beads 20mm high x 12.5mm deep including a 5mm x 5mm bolection return.
2. Beads must be retained in position with 60mm long No. 6-8 steel screws, inserted at 30° to the vertical, at no more than 50mm from each corner and at 150mm maximum centres.
3. 20mm x 3mm Hodgsons Sealants Firestrip 60 must be fitted between the bead and the glass on both faces.
4. 50mm x 2mm Norseal flexible glazing liner must be fitted around the perimeter of the glazing aperture.
5. The glass must be fitted with maximum 5mm edge cover and allowing for 5mm expansion on all edges.
6. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
7. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species).
8. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 100mm between apertures.
9. Multiple apertures are permitted, subject to point 8 above.

## 7.7 CGI Ltd. 23mm Pyroguard

One of the following two systems must be used with the CGI Ltd. 23mm Pyroguard glass type listed in section 7.2:

### 7.7.1 Lorient Polyproducts Ltd. Flexible Figure 1 Glazing System

1. Hardwood (min. density 640kg/m<sup>3</sup>) glazing beads 25mm high x 18mm deep including a 5mm x 5mm bolection return and a 16° chamfer.
2. Beads must be retained in position with 70mm long No. 6-8 steel screws, inserted at 30-45° to the vertical, at no more than 50mm from each corner and at 150mm maximum centres.
3. 13mm x 3.5mm Lorient Polyproducts Ltd. Flexible Figure 1 glazing gasket must be fitted between the bead and the glass on both faces.
4. 54mm x 2mm Lorient Polyproducts Ltd. glazing liner must be fitted lining the glazing aperture.
5. The glass must be fitted with maximum 15mm edge cover and allowing for 5mm expansion on all edges.
6. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
7. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species).
8. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 100mm between apertures.

9. Multiple apertures are permitted, subject to point 8 above.

### 7.7.2 Mann McGowan Ltd. Pyroglaze 60 Glazing System

1. Hardwood (min. density 640kg/m<sup>3</sup>) glazing beads 30mm high x 16.5mm deep including a 5mm x 5mm bolection return and a 20° chamfer.
2. Beads must be retained in position with 60mm long x M4 steel screws, inserted at 30-45° to the vertical, at no more than 50mm from each corner and at 200mm maximum centres.
3. 25mm x 4mm Mann McGowan Ltd. Pyroglaze 500PSA must be fitted between the bead and the glass on both faces.
4. 54mm x 2mm Mann McGowan Ltd. Pyroglaze 300 glazing liner must be fitted lining the glazing aperture.
5. The glass must be fitted with maximum 20mm edge cover and allowing for 5mm expansion on all edges.
6. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
7. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species).
8. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 100mm between apertures.
9. Multiple apertures are permitted, subject to point 8 above.

### 7.8 AGC Flat Glass Europe 25mm Pyrobel Glazing System

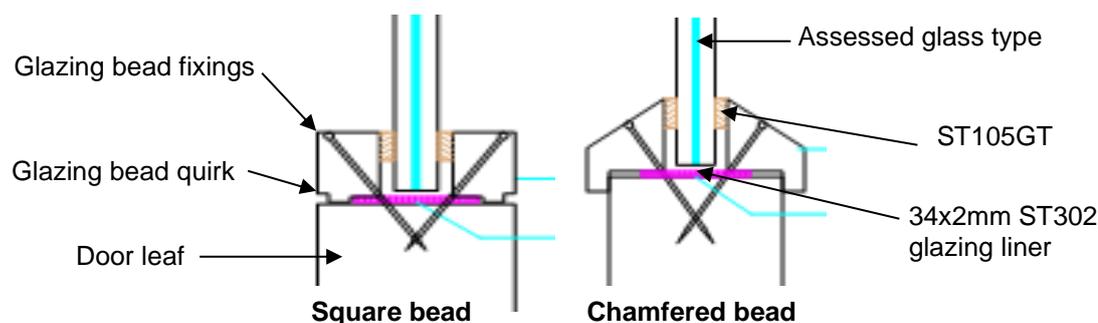
The following system must be used with the AGC Flat Glass Europe 25mm Pyrobel glass type listed in section 7.2:

1. Hardwood (min. density 640kg/m<sup>3</sup>) glazing beads 30mm high x 17.5mm deep including a 5mm x 5mm bolection return and a 20° chamfer.
2. Beads must be retained in position with 60mm long No. 6-8 steel screws, inserted at 30° to the vertical, at no more than 50mm from each corner and at 150mm maximum centres.
3. 25mm x 2mm Superwool X607 must be fitted between the bead and the glass on both faces.
4. 2mm thick Sealmaster GL60 intumescent liner must be fitted around the perimeter of the glazing aperture.
5. The glass must be fitted with maximum 21mm edge cover and allowing for 4mm expansion on all edges.
6. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
7. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species).
8. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 100mm between apertures.
9. Multiple apertures are permitted, subject to point 8 above.

## 7.9 STS Glazing System

The following specification must be followed when using the STS glazing system tested in PF15035.

The STS glazing system is illustrated below:

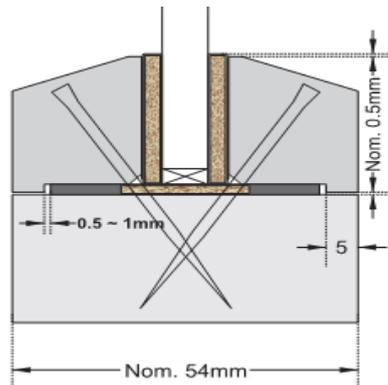


1. It is permitted to use square or chamfered glazing beads providing the beads are constructed in accordance with either point 2 or 3 below.
2. Square glazing beads must be constructed from hardwood (minimum density 640kg/m<sup>3</sup>) and must be a minimum of 25mm high by a depth to suit the glass thickness, including a 3mm x 3mm quirk and an 8mm x 2mm rebate locating the glazing liner.
3. Chamfered glazing beads must be constructed from hardwood (minimum density 640kg/m<sup>3</sup>) and must be a minimum of 32mm high by a depth to suit the glass thickness, including a 7mm x 7mm bolection return and a 32° chamfer.
4. Glazing beads must be retained in position with 50mm long steel pins or 50mm long No. 6-8 steel screws, inserted at 35° to the vertical, at no more than 35mm from each corner and at 150mm maximum centres. Pneumatically fired pins are acceptable providing the pins meet the specification given in section 7.3.1 above.
5. 10mm x 5mm ST105GT must be used between the bead and the glass on both faces.
6. 34mm x 2mm ST302 glazing liner must be fitted lining the glazing aperture.
7. Permitted glass types for use with the STS glazing system are restricted to glass types 7 - 12 given in the table in section 7.2 above.
8. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion clearance.
9. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
10. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species).
11. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 80mm between apertures.
12. Multiple apertures are permitted, subject to point 11 above.

### 7.10 Norsound Ltd. – Norsound Vision 60B & 60T

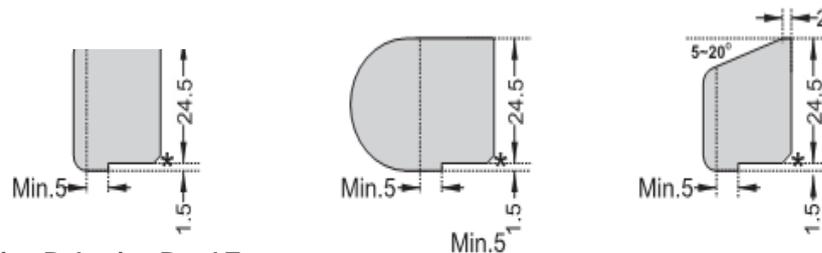
The Norsound Ltd. glazing system assessed in Chilt/A12161 has the following scope of application in addition to that described in sections 7.1 -7.3.

The Norsound Vision 60B is illustrated below:

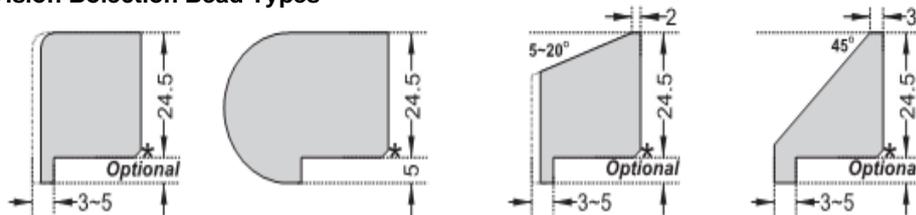


**NOTE 1:** \* = 2mm Splay applies to all bead profile types.

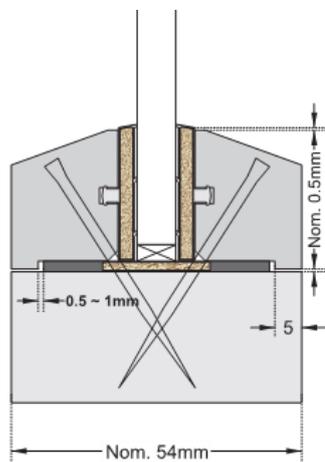
#### Norsound Vision Flush Bead Types



#### Norsound Vision Bolection Bead Types

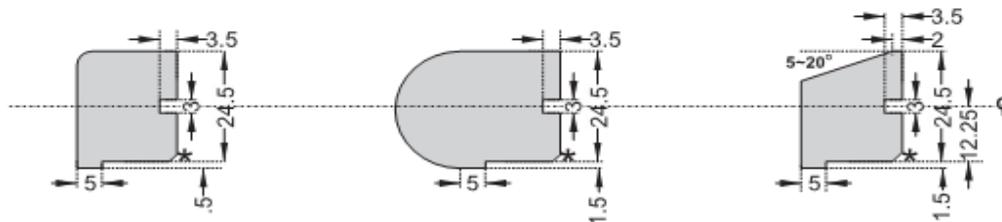


The Norsound Vision 60T is illustrated below:

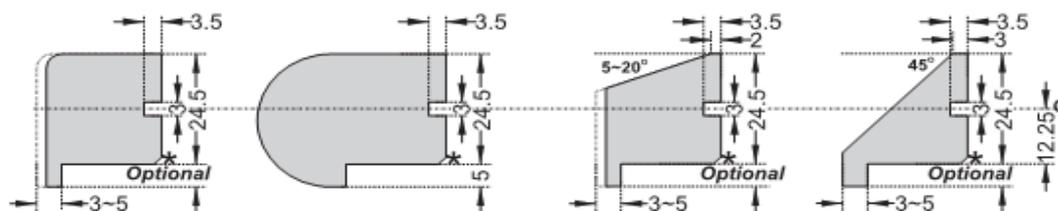


**Norsound Vision Flush Bead Types**

**NOTE 1: \* = 2mm Splay applies to all bead profile types.**



**Norsound Vision Bolection Bead Types**



**Notes:**

1. Bead height must be nominally 24.5mm.
2. The intumescent seal component of Norsound Vision 60B is 25mm high and is required to project 0.5mm above the sightline of the bead.
3. Glazing aperture must be lined with the Norsound 5202LNR; liner is supplied at 52mm wide and may be reduced to a minimum of 42mm wide – liner must be fitted centrally in the glazed aperture.
4. Bolection returns should be a minimum of 5mm high, and a minimum of 3mm thick (projecting from the leaf face).
5. Glazing beads must be retained in position with minimum 50mm long steel pins or 50mm long No. 6-8 screws, inserted at 35-40° to the vertical at no more than 50mm from each corner and at 150mm maximum centres.
6. Pneumatically fired pins are acceptable providing they meet the specification given in section 7.3.1 above.

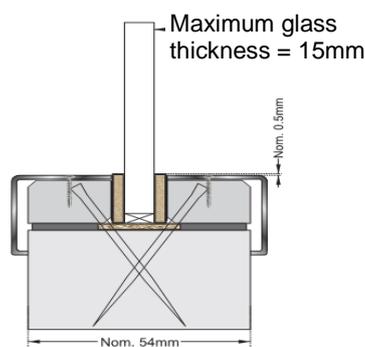
The bead material must meet the following specification and can be used with glass types 1-2 and 4-10 listed in section 7.2.

Material	Min. Density (kg/m <sup>3</sup> )
Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species). Timber must be hardwood.	640

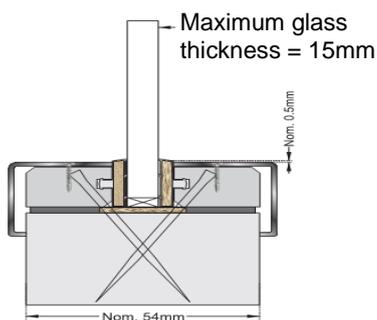
## 7.11 Norsound Ltd. – Norsound Universal 60B & 60T

The Norsound Ltd. Universal glazing system has the following scope of application in addition to that described in sections 7.1 - 7.3:

The Norsound Universal 60B is illustrated below:



The Norsound Universal 60T glazing system has the following scope of application in addition to that described in sections 7.1 - 7.3. The Norsound Universal 60T is illustrated below:



### Notes:

1. Bead height must be nominally 14mm.
2. The intumescent seal component of Norsound Universal 60B & 60T is the Vision Slimline seal & is 15mm high and is required to project 0.5mm above the sightline of the bead.
3. Glazing aperture must be lined with the Norsound 5202LNR; liner is supplied at 52mm wide and may be reduced to a minimum of 42mm wide – liner must be fitted centrally in the glazed aperture.
4. The position of the groove in the rear of the bead is therefore critical for installation of Norsound Universal 60T.
5. Glazing beads must be retained in position with minimum 50mm long steel pins or minimum 50mm long No. 6-8 screws, inserted at 35-40° to the vertical at no more than 40mm from each corner and at 150mm maximum centres.
6. Pneumatically fired pins are acceptable providing they meet the specification given in section 7.3.1 above.
7. The Norsound Universal aluminium section cladding the timber bead must be secured to the core bead by use of 3No. 10-12mm No. 4 grub screws per length.

The bead material must meet the following specification and can be used with glass types 1-2 and 4-10 listed in section 7.2.

Material	Min. Density (kg/m <sup>3</sup> )
Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species). Timber must be hardwood.	640

## 7.12 Streframe Glazing Beads

The Falcon Panel Products Ltd. Streframe glazing bead product has the following scope of application based on the testing conducted in PF14029:

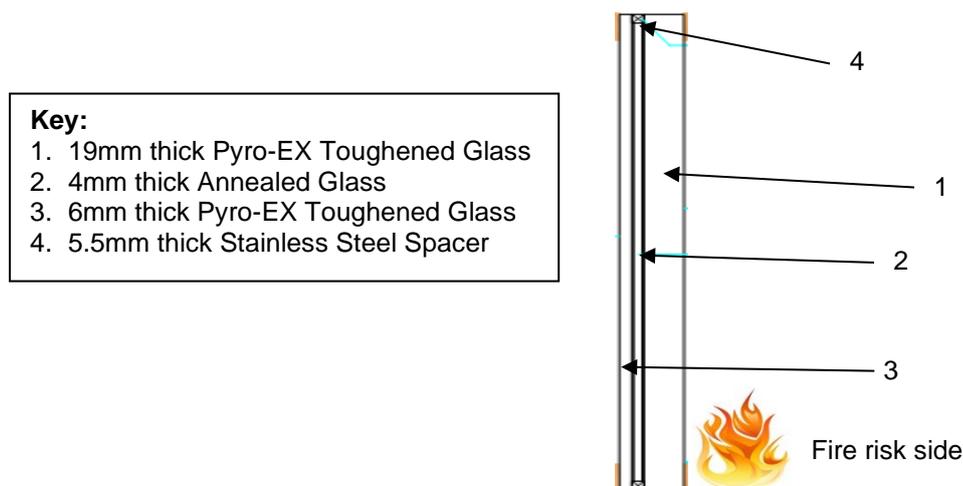
1. Streframe glazing beads must be a minimum of 37mm high by a depth to suit the glass thickness, with a 25° chamfer and a 7mm x 13mm bolection return.
2. Streframe glazing beads must be retained in position with 60mm long steel pins, inserted at 45° to the vertical, at no more than 50mm from each corner and at 120mm maximum centres. Pneumatically fired pins are acceptable providing they meet the specification given in section 7.3.1 above.
3. 25mm x 4mm Intumescent Seals Ltd. Therm-A-Bead must be fitted between the bead and the glass on both faces.
4. 54mm x 2mm Intumescent Seals Ltd. Therm-A-Line must be fitted lining the glazing aperture.
5. Permitted glass types for use with the Streframe glazing beads are restricted to glass types 5 – 12 given in the table in section 7.2 above.
6. The maximum glazed aperture area when using Streframe glazing beads will be dictated by the maximum area permitted for the glass type in use.
7. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion clearance.
8. Streframe for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs.
9. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
10. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 80mm between apertures.
11. Multiple apertures are permitted, subject to point 9 above.

### 7.13 Vistamatic VS1 Secure Vision Panel

The following specification must be followed when using the Vistamatic VS1 secure vision panel tested in IF13037.

The Vistamatic VS1 vision panel comprises a double glazed unit with an additional, movable centre layer of obscure glass. The 19mm thick toughened glass must be orientated to the fire risk side of the doorset.

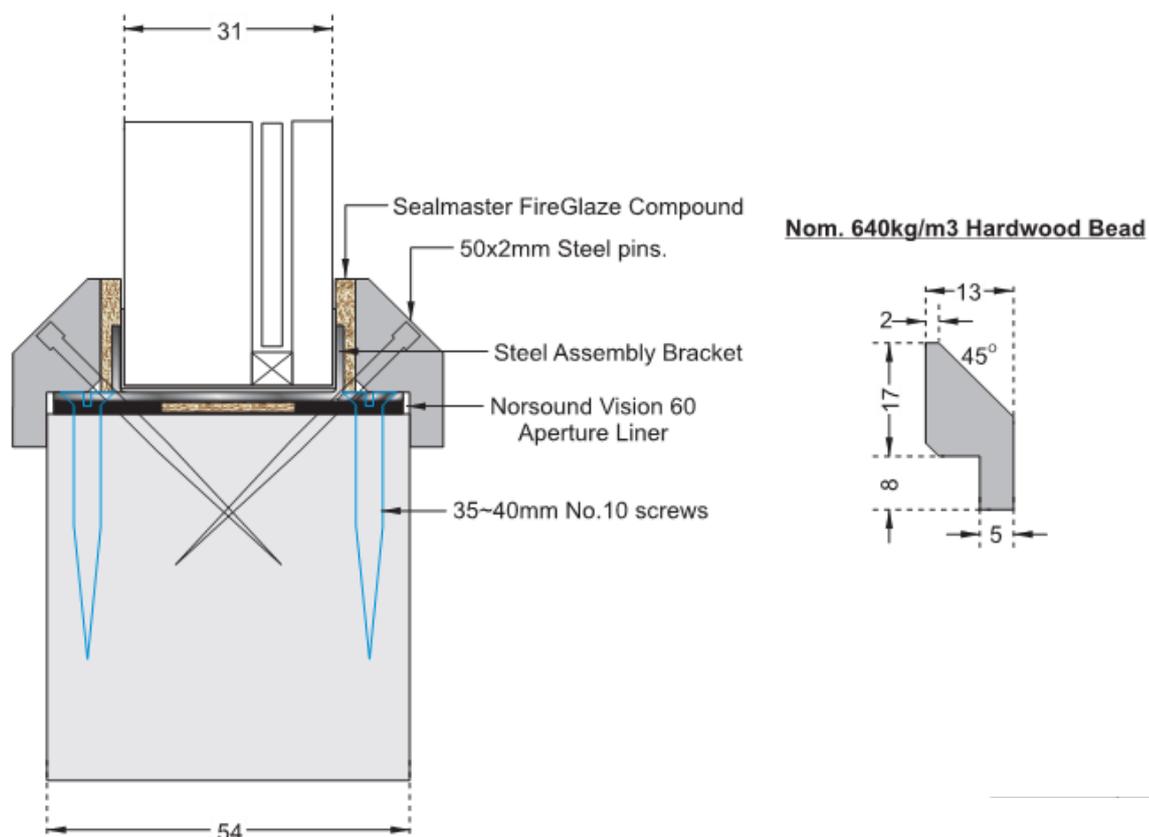
The drawing below shows the essential elements of the double glazed unit:



The vision panel is retained within the door leaf with either timber or steel beads, which must meet the specifications below:

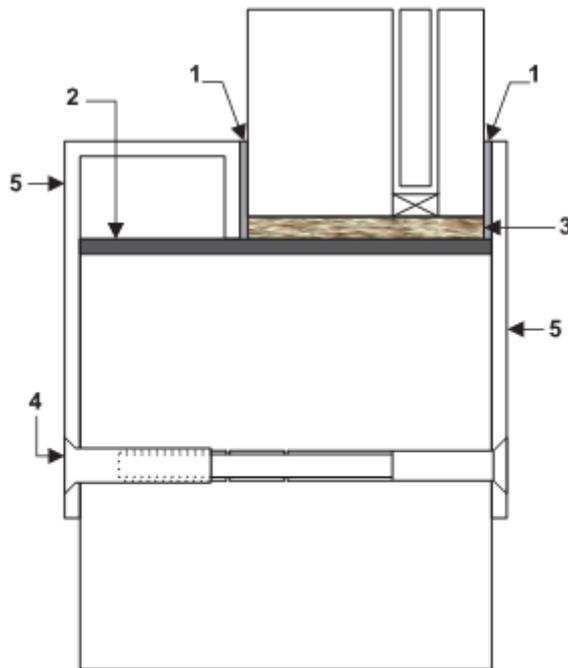
#### 7.13.1 Timber Beads

Element	Specification
Timber bead material	Hardwood (min. density 640kg/m <sup>3</sup> ) excluding beech (Fagus species)
Glazing system	4mm thick Fireglaze Compound – Sealmaster Ltd.
Aperture liner	54x2mm Norsound Vision 60 glazing liner – Norseal Ltd.
Around centre glass actuator spindle	2No. 5mm thick (overall) graphite sheet; Ref: 2.5-390 x 10/SA – Norseal Ltd.
Bead fixings	50mm long x 2mm diameter steel pins located at minimum 100mm centres and 50mm from each corner. Fixings must be inserted at 45° to the face of the glass.
Glazing clips	6No. 1.2mm (t) x 52mm (w) x 11.2mm (h) steel assembly bracket glazing clips fitted around the glazing aperture, fixed with 2No. M8 x 40mm long screws per bracket.
Minimum required bead size	25mm (h) x 13mm (d) including an 8mm high x 5mm wide bolection return and a 45° chamfer.
Maximum glazed area (m <sup>2</sup> )	0.32
Additional information	See section 7.13



### 7.13.2 Steel Beads

Element		Specification
Bead material		2mm thick stainless steel
Glazing system		1mm thick Autostic adhesive
Aperture liner		54x2mm Norsound Vision 60 glazing liner – Norseal Ltd.
Around centre glass actuator spindle		2No. 5mm thick (overall) graphite sheet; Ref: 2.5-390 x 10/SA – Norseal Ltd.
Bead fixings		40mm long M6 machine security screws fixed from the exposed face to 12mm long M5 threaded studs welded to the unexposed face bead. The fixings to be located at minimum 200mm centres and 30mm from each corner.
Bead profile	Exposed face	54mm high x 2mm thick
	Unexposed face	54mm high x 22mm deep x 2mm thick
Maximum glazed area (m <sup>2</sup> )		0.32
Additional information		See section 7.13



- 1- Autostik mastic between metal and glazing to be confirmed
- 2- Graphite sheet
- 3 - 3mm hardwood packer
- 4-Intumescent mastic to be applied to hole before Through bolt
- 5 - Metal bracket

## 7.14 Pyroguard EW60 (11mm)

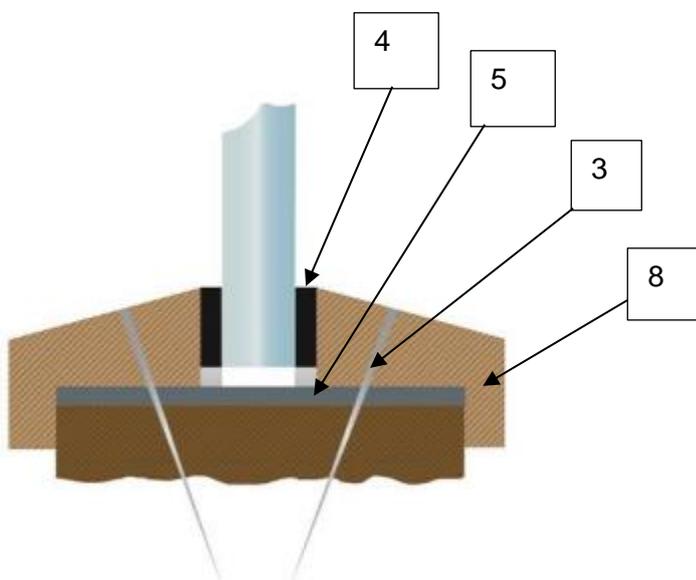
### 7.14.1 Sealmaster Glazing System

The following table details the maximum pane sizes and approved glazing system permitted for Pyroguard EW60 (11mm) when using the Sealmaster glazing system described below. The following specification has been aligned with the scope given for the Pyroguard EW60 (11mm) glass type in Certifire certificate CF257:

Glass Type	Glazing System	Max. Pane Size <sup>1</sup> (mm)	Max. Area (m <sup>2</sup> )
Pyroguard EW60 (11mm)	Sealmaster foam tape and Therm-A- Sol aperture liner	1650 (high) at 414 (wide) Or 1925 (high) at 350 (wide)	0.68

#### Notes:

- The heights and widths listed are the maximum single dimension allowable for an individual pane utilising the relevant glazing system; maximum dimensions may not be increased even if the other dimension for the pane is reduced. The aspect ratio is unlimited within these pane dimensions.
- Glazed openings must not be less than 100mm from any door edge. Multiple apertures are acceptable up to the maximum approved area, with a minimum dimension of 80mm between apertures. The aperture shape is not restricted, providing the intumescent material and beads are proven to be compatible with that shape.
- Glazing beads must be retained in position with 63mm long steel pins or 60mm long No 6-8 screws, inserted at 35-40° to the vertical at no more than 50mm from each corner and at 150mm maximum centres. Pneumatically fired pins are acceptable providing they meet the specification given in section 7.3.1 above.
- 20 x 5mm Sealmaster intumescent foam tape from Sealmaster is to be fitted between the upstand of the glazing bead and the glass on both faces of the glass
- A 52 x 2mm Therm-A-Sol liner from Sealmaster is to be fitted on all edges of the aperture
- Non-combustible or hardwood setting blocks are permitted
- Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species). Timber must have a minimum density of 640kg/m<sup>3</sup>
- The glazing beads are to be 30mm (h) x 22.5mm (w) including a 5mm x 5mm bolection return, with a 20° chamfer
- False timber beads must not be applied across the glass face without specific test evidence to justify the system used.



### Sealmaster Glazing System with Pyroguard EW60 (11mm)

#### 7.14.2 Therm-A-Glaze 60 Glazing System

The following table details the maximum pane sizes and approved glazing system permitted for Pyroguard EW60 (11mm) when using the Therm-A-Glaze 60 glazing system described below. The following specification has been aligned with the scope given for the Pyroguard EW60 (11mm) glass type in Certifire certificate CF284:

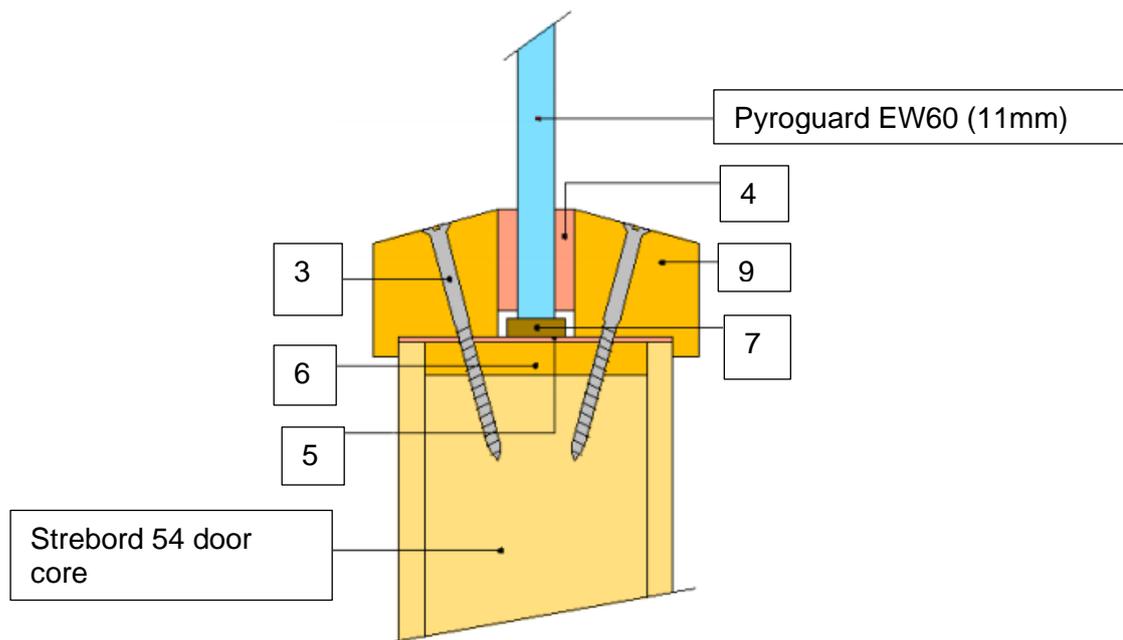
Glass Type	Glazing System	Max. Pane Size <sup>1</sup> (mm)	Max. Area (m <sup>2</sup> )
Pyroguard EW60 (11mm)i	Therm-A-Glaze 60 (see notes below for specification to be used with Pyroguard EW60 (11mm) glass)	1400 (high) at 400 (wide) Or 1250 (high) at 460 (wide)	0.575

**Notes:**

1. The heights and widths listed are the maximum single dimension allowable for an individual pane utilising the relevant glazing system; maximum dimensions may not be increased even if the other dimension for the pane is reduced. The aspect ratio is unlimited within these pane dimensions.
2. Glazed openings must not be less than 100mm from any door edge. Multiple apertures are acceptable up to the maximum approved area, with a minimum dimension of 80mm between apertures. The aperture shape is not restricted, providing the intumescent material and beads are proven to be compatible with that shape.
3. Glazing beads must be retained in position with 60mm long No 8 screws, inserted at 35-40° to the vertical at no more than 50mm from each corner and at 150mm maximum centres.

4. 25 x 4mm Therm-A-Bead from Intumescent Seals Ltd is to be fitted between the upstand of the glazing bead and the glass on both faces of the glass
5. A 54 x 2mm Therm-A-Line liner from Intumescent Seals is to be fitted on all edges of the aperture described in point 6 below, on all edges of the aperture
6. A 16mm thick hardwood liner must be fitted to all edges of the aperture prior to fitting the glass. The hardwood liner is to be glued in position using one of the adhesives types approved for door lipping in section 14
7. Non-combustible or hardwood setting blocks are permitted
8. Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species). Timber must have a minimum density of 640kg/m<sup>3</sup>
9. The glazing beads are to be 30mm (h) x 22.5mm (w) including a 5mm x 5mm bolection return, with a 20° chamfer
10. False timber beads must not be applied across the glass face without specific test evidence to justify the system used.

**Note:** The numbers on the following diagram relate to the list above



**Therm-A-Glaze 60 System with Pyroguard EW60 (11mm)**

## 8 Overpanels

### 8.1 Solid

Overpanels of the same construction as the door leaves may be used either flush with the leaf heads (single acting configurations only) or when separated by a transom. In either case the overpanel must be fully contained within the door frame (see following diagram).

If a transom is required to separate the leaf heads from the overpanel, it must be to the same specification as the door frame (see note 3 under the table in section 10.1).

Door frame joints must utilise one of the following methods: mortice & tenon joints or butt joints (see section 10.3).

All methods require joints to be tight, with no gaps, and require mechanical fixing with the appropriate size ring shank nails or screws. Butt joints must be additionally bonded with urea formaldehyde or equivalent.

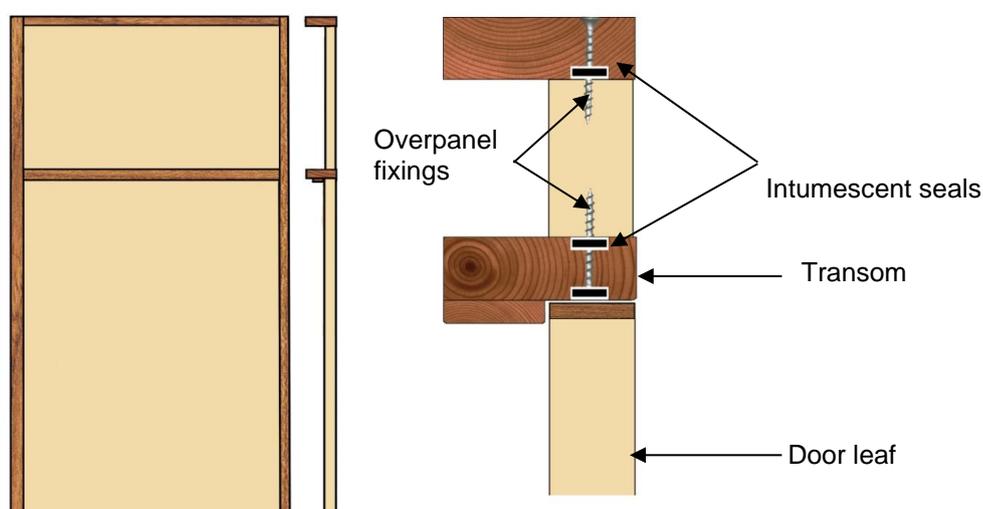
The overpanels must be fixed by screwing through the rear of the frame with steel screws passing at least 30mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between.

The intumescent seals specified for the jambs in Appendix E, must be fitted to all edges of the overpanel. Providing the intumescent seals are fitted to all edges of the overpanel, a 2mm gap tolerance is permitted between the overpanel and frame/transom.

Maximum overpanel heights are as follows:

Configuration	Max. Overpanel Height (mm)
Single doorsets	2000
Double doorsets	1500

Notes: Steel and MDF frame doorsets are not permitted with flush or transomed overpanels



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

## 9 Fanlights & Side Screens

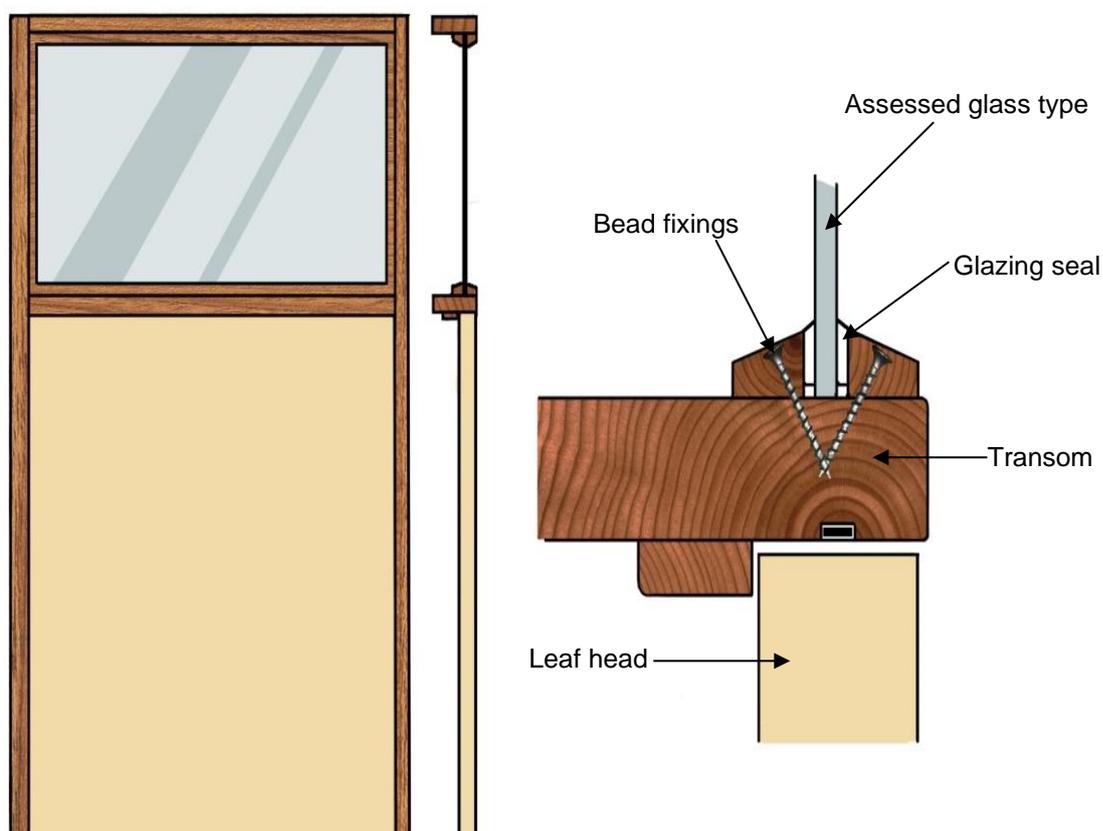
### 9.1 Glazed Fanlights

Timber frame doorsets including a transom may include a glazed fanlight. The timber frame and glazing beads must be hardwood (Excluding beech (*Fagus* species)) with a minimum density of 640kg/m<sup>3</sup>, whilst the frame section for the transom must be a minimum of 70mm x 44mm. Timber door frame and transom construction must comply with the specification contained in section 10.1. The maximum assessed fanlight dimensions are detailed in the table below, subject to the following restriction:

- The glazing system and glass must be able to demonstrate adequate performance when tested as a window or screen in accordance with BS 476: Part 22: 1987 or BS EN 1634-1, at the pane dimensions to be installed.

Configuration	Height (mm)	Width (mm)
Single & double doorsets	≤600	Overall door width

Note: Steel and MDF frame doorsets are not assessed for glazed fanlights.



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

## 9.2 Norsound Vision Glazing Systems – Fanlights & Side Screens

### 9.2.1 General

Timber framed doorsets may include glazed fanlights and/or side screens.

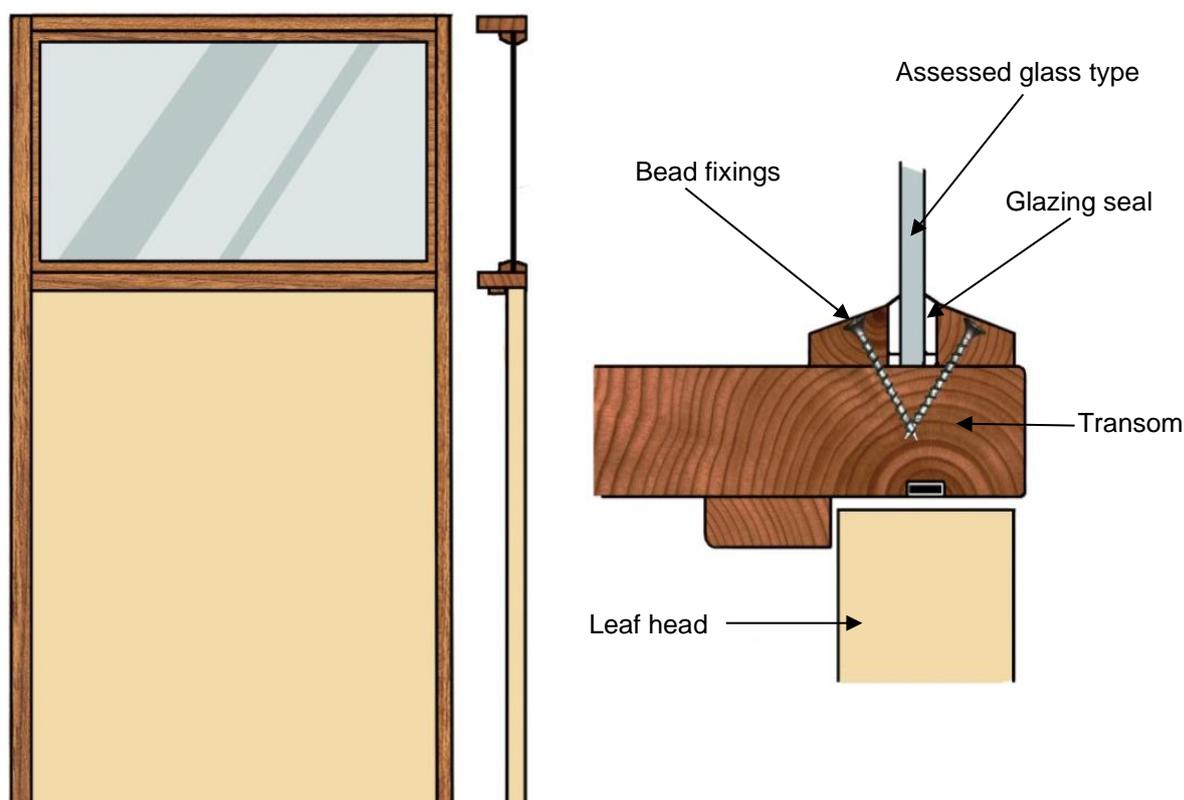
The glazing system and beads must meet the specifications shown in sections 9.2.4, 9.2.5 and 9.2.6.

The door frame and screen framing construction must comply with the specification shown in section 9.2.2 and 9.2.7.

The maximum assessed fanlight and side screen dimensions are detailed in the table below, subject to the following restriction:

- The glass must be able to demonstrate adequate performance when tested as a window or screen in accordance with BS 476: Part 22: 1987 or BS EN 1634-1, at the pane dimensions to be installed.

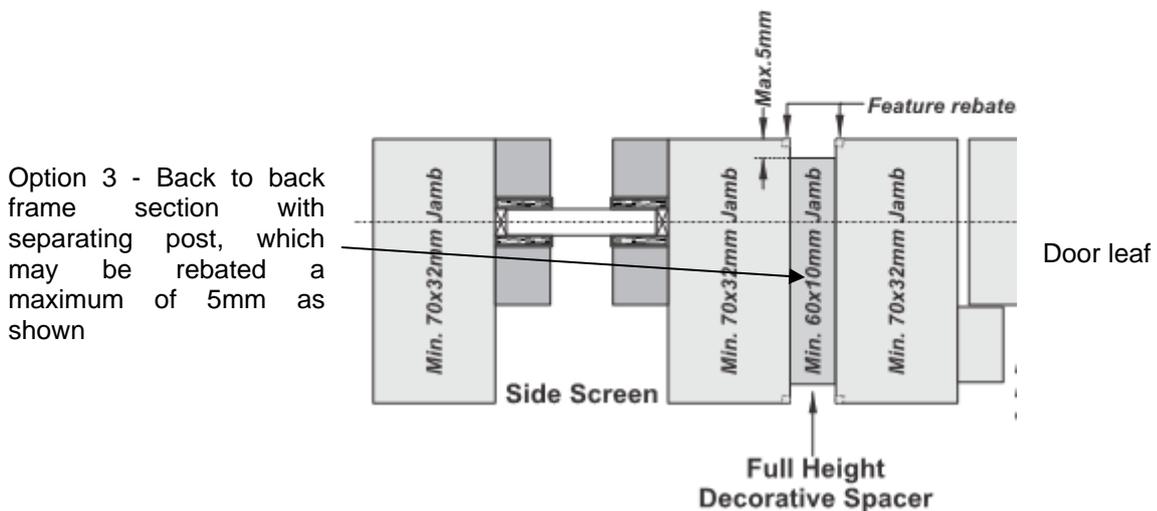
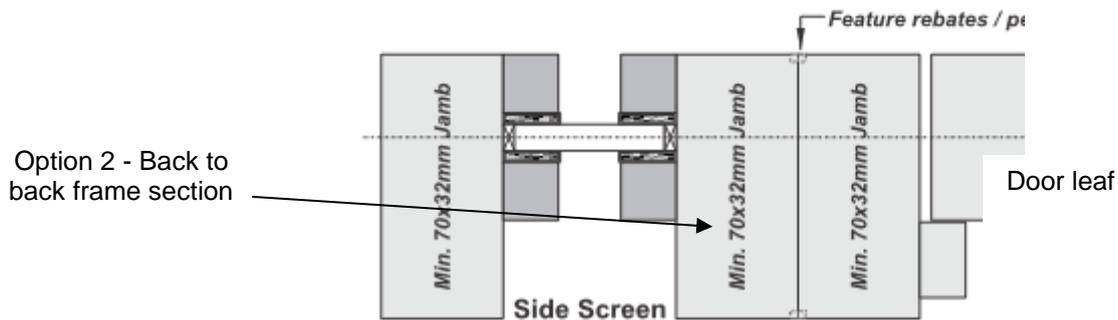
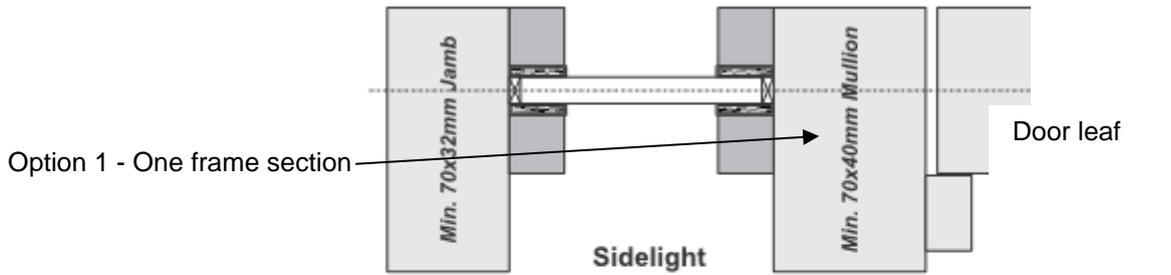
Screen Element	Configuration	Height (mm)	Width (mm)
Fanlight	Single & double doorsets	≤600	Overall door width
Side Screen	Single & double doorsets	Overall door height	≤600



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

### 9.2.2 Common Frame Sections

The following drawings depict possible constructions of common frame sections for screens and door frame jambs:



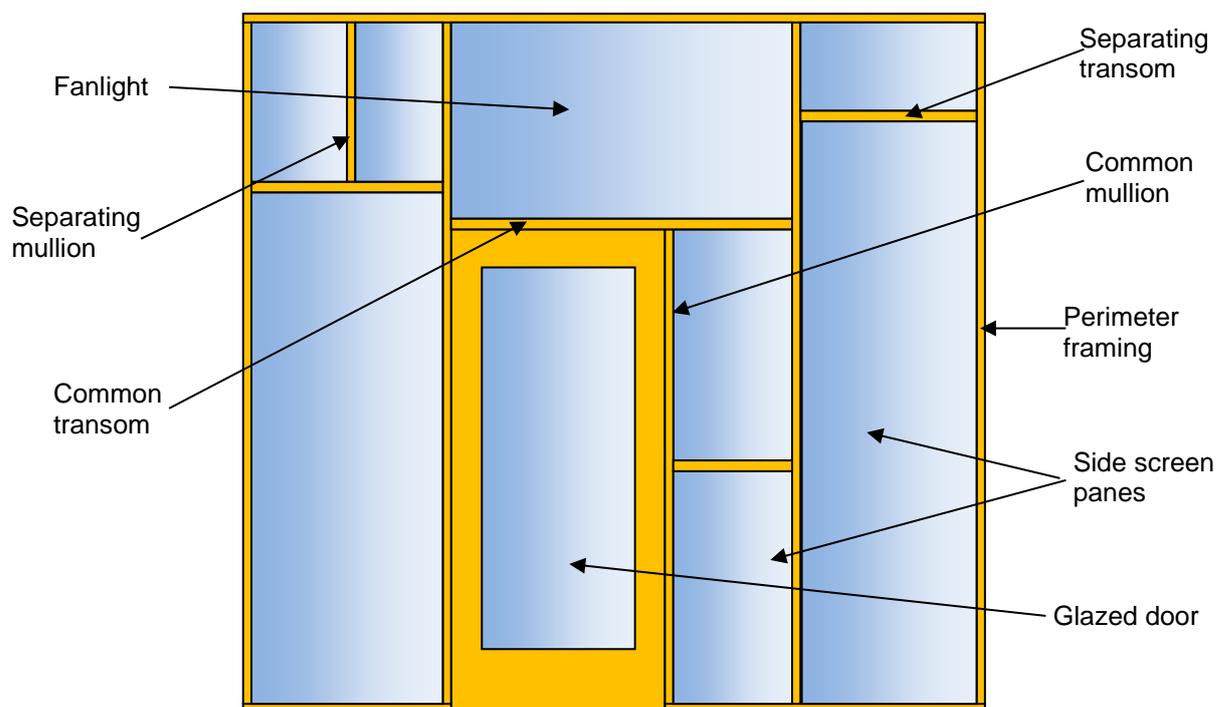
When using separate sections of timber, as shown above (options 2 and 3), each section must be suitably fixed to one-another using appropriate steel screw fixings and glued using Urea Formaldehyde or polyurethane. Screws must be fixed at 600mm centres and locate to approx 2/3 depth of the adjacent timber section. The overall frame section and material must match that given in this assessment for each glass type and glazing specification. Joints must be tight with no gaps.

It is permitted to include maximum 3mm (w) x 3mm (d) quirks/pencil rounds at the junction of each timber section for options 2 and 3.

Drawings are representative of each type of common frame section makeup, actual construction in terms of intumescent seal location and material, etc. must be as the text within this document specifies.

### 9.2.3 Screen Elevation

The following drawing depicts a possible door and glazed screen configuration. The diagram is for information only. All construction details to remain as specified herein:



### 9.2.4 Glazing Beads & Installation

Glazing beads and intumescent materials must be installed in line with the following sections:

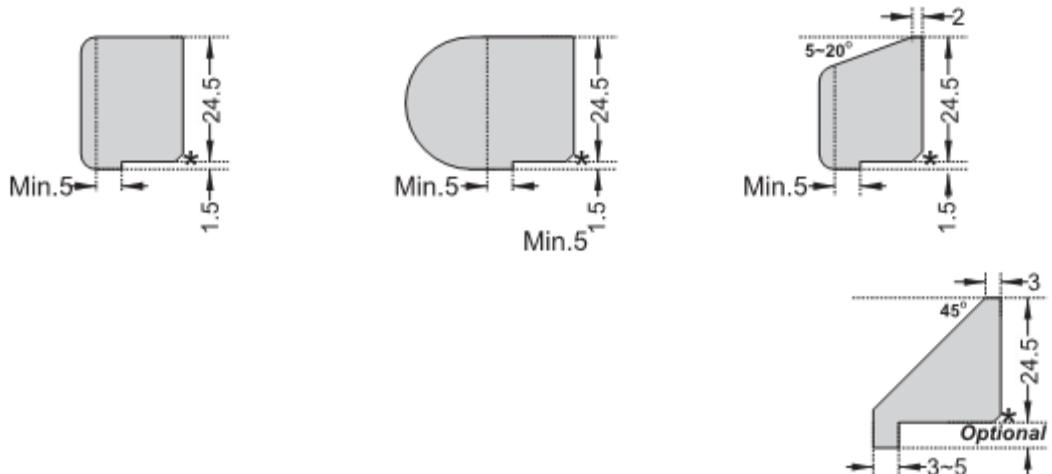
System Name		Norsound Vision 60B	Norsound Vision 60T
Typical Installation			
Dimensions	Bead height	Nominally 24.5mm	Nominally 24.5mm
	Intumescent seal(s)	25mm high x 3mm thick	25mm high x 3mm thick plus 'plug'
Aperture Liner		Nominally 2mm thick x minimum 42mm wide	

### 9.2.5 Norsound Vision 60B & 60T Applications

#### Norsound Vision 60B:

The following bead designs are assessed as acceptable for Norsound Vision 60B:

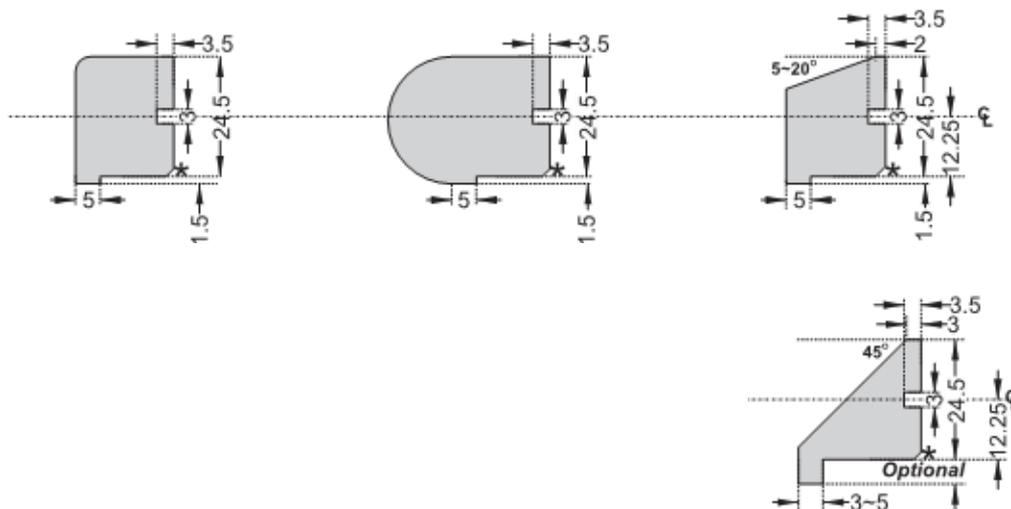
**NOTE 1:** \* = 2mm Splay applies to all bead profile types.



### Norsound Vision 60T:

The following bead designs are assessed as acceptable for Norsound Vision 60T:

**NOTE 1:** \* = 2mm Splay applies to all bead profile types.



#### Notes - Norsound Vision 60B & 60T:

1. Bead height must be nominally 24.5mm.
2. The intumescent seal component of Norsound Vision 60B & 60T is 25mm high and is required to project 0.5mm above the sightline of the bead.
3. Glazing aperture must be lined with the Norsound 5202LNR; liner is supplied at 52mm wide and may be reduced to a minimum of 42mm wide – liner must be fitted centrally in the glazed aperture.
4. Glazing beads must be retained in position with minimum 50mm long steel pins or 50mm long No. 6-8 screws, inserted at 35-40° to the vertical at no more than 50mm from each corner and at 150mm maximum centres.
5. Pneumatically fired pins are acceptable providing they meet the specification given in section 7.3.1 above.

### 9.2.6 Glazing Bead Material

Timber for glazing beads must be a quality deemed to meet or exceed class J10 as specified in BS EN 942: 2007, subject to adequate repairs. Glazing beads must not be manufactured using beech (Fagus species). Timber must have a minimum density of 640kg/m<sup>3</sup>

Bead Profile	Material	Min. Density (kg/m <sup>3</sup> )
All in section 9.2.5	Hardwood (Excluding beech (Fagus species))	640

## 9.2.7 Timber Screen Framing

Timber used for constructing framing elements comprising screen assemblies as illustrated in section 9.2.3 must meet the following specification:

Element	Material <sup>4</sup>	Min. Section (mm)	Min. Density (kg/m <sup>3</sup> )
Perimeter screen framing	Hardwood	70 x 32	640
Mullions & transoms separating glass panes within side screens & fanlights	Hardwood	70 x 32	640
Back to back mullions separating side screens & doorsets (options 2 & 3)	Hardwood	70 x 32	640
Transoms common to doorsets & fanlights	Hardwood	70 x 40	640
Mullions common to doorset jambs & side screens	Hardwood	70 x 40	640

### Notes:

1. Timber for side screens must be a quality deemed to meet or exceed class J30 as specified in BS EN 942: 2007, subject to adequate repairs.
2. The fanlights and side screens may comprise multiple panes of glass providing the total doorset and screen assembly does not exceed 2950mm high and the transom/mullion restrictions above are complied with.
3. Gaps between glass and framing, to permit expansion, should be set according to the glass manufacturer's information, using non-combustible or hardwood setting blocks at the bottom edge.
4. Beech is excluded (Fagus species)

## 10 Door Frames

### 10.1 Timber Based Door Frame Construction

Timber based door frames for Strebord© 54 must be constructed to meet the following specification (for steel door frame options see Appendices A1 & A2):

Material	Min. Section Size (mm) <sup>8</sup>	Min. Density (kg/m <sup>3</sup> )
Hardwood <sup>2</sup>	70 x 32	640
MDF <sup>1</sup>	70 x 30	700

### Notes:

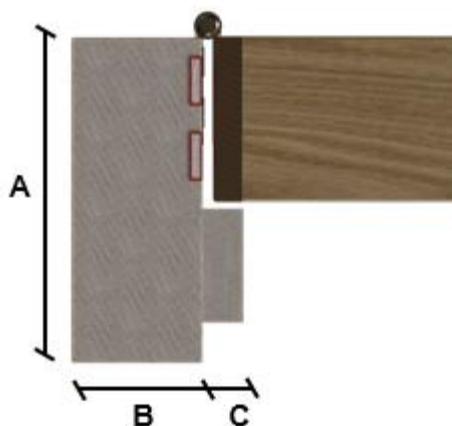
1. See data sheets in Appendix E for assessed coverage.
2. Excluding Beech (fagus species)
3. If the doorset features a transomed overpanel, the door frame must be hardwood with a minimum section of 70mm x 32mm and minimum density of 640kg/m<sup>3</sup>.
4. All door frame timber must be a quality deemed to meet or exceed class J30 as specified in BS EN 942: 2007, subject to adequate repairs.
5. A 12mm deep planted stop is adequate for single acting frames, see sections 10.1.2 and 10.1.3 for double acting frame profiles

- To create a maximum 2mm rounded profile to the edges of square leaves, the maximum radius to the corners of the leaf is 8mm (see diagram below).
- Frame joints may be mortice and tenoned, mitred, half lapped or butted and with no gaps. All jointing methods require mechanical fixing with the appropriate size ring shank nails or screws.
- Specific items require door frame dimensions different to those given above and in the diagrams below, particularly concealed closers. It must be ensured that the specification given for a particular design feature or hardware option in this assessment is complied with, as this will take precedence over that given in the table above.

The following diagrams depict the assessed frame profiles and dimensions:

#### 10.1.1 Standard frame detail

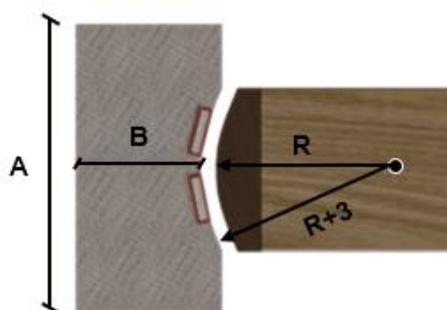
The diagram below shows detail of the standard frame construction



- A: Frame depth = 70mm minimum
- B: Frame width = MDF: 30mm minimum, hardwood: 32mm minimum
- C: Stop width = 12mm minimum

#### 10.1.2 Scalloped frame detail

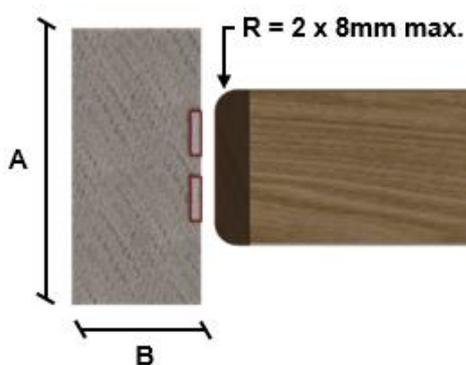
The diagram below shows detail of the scalloped frame construction hanging edge only. When using scalloped frames for double acting doorsets, the groove for the specified intumescent strips must be as shown below and to the correct depth.



- A: Frame depth = 90mm minimum
- B: Frame width = MDF: 30mm minimum, hardwood: 32mm minimum
- R: Radius from floor spring or pivot = 8mm maximum to create a maximum 2mm edge profiling

### 10.1.3 Square frame detail for double acting doorsets

The diagram below shows detail of the square frame construction for the closing edge of a double acting doorset. Where utilising square frames for double acting doorsets, the maximum radius to the corners of the leaf is 8mm.



A: Frame depth = 90mm minimum

B: Frame width = MDF: 30mm minimum, hardwood: 32mm minimum

R: Radius from floor spring = maximum 8mm to create a maximum 2mm edge profiling to each edge.

### 10.2 Streframe 60

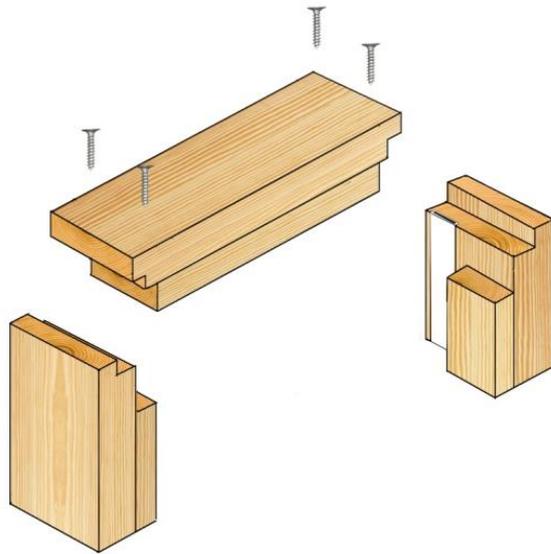
The following table summarises the scope of application of Streframe with the Strebord© 54 doorset design:

Configuration	Min. Frame Size (mm)	Hinge Protection	Leaf Size (mm)
Single leaves	32(t) x 70(w)	1mm(t) MAP or Interdens under both hinge blades	From: 2135(h) x 981(w)
			To: 2263(h) x 926(w)
Double leaves	32 or 45(t) x 70(w)	2mm(t) MAP or Interdens under both hinge blades	Max. dimensions 2130(h) x 935(w)

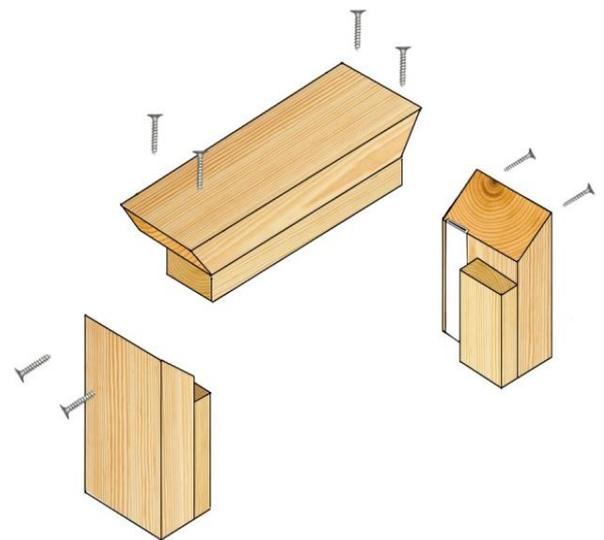
**Notes:**

1. All other hardware must be protected as per section 12 in this assessment.
2. Streframe timber must be a quality deemed to meet or exceed class J30 as specified in BS EN 942: 2007, subject to adequate repairs.
3. Streframe must have a minimum density of 450kg/m<sup>3</sup>.
4. Streframe must be used with a minimum 2No. 15x4mm intumescent seals fitted in the frame reveal or leaf edge.
5. All other details to remain as per the specification contained within this assessment.

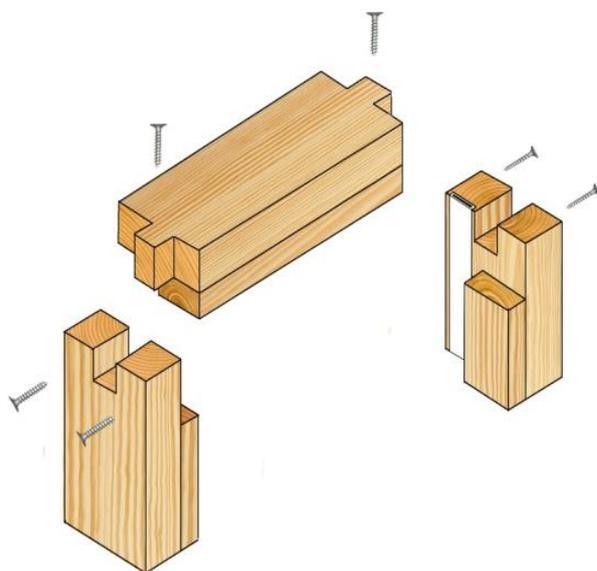
### 10.3 Door Frame Joints



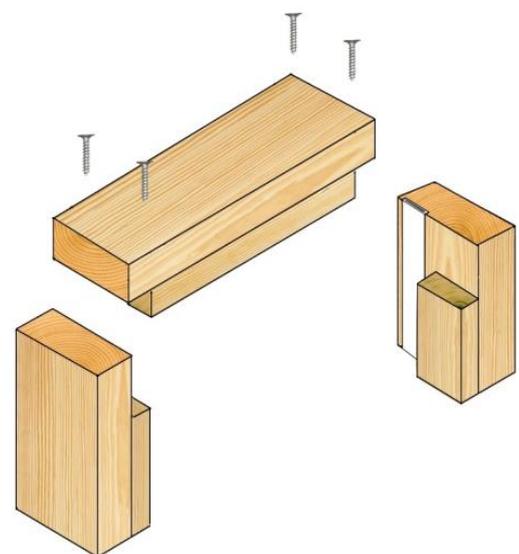
Half Lapped Joint



Mitre Joint



Mortice & Tenon Joint

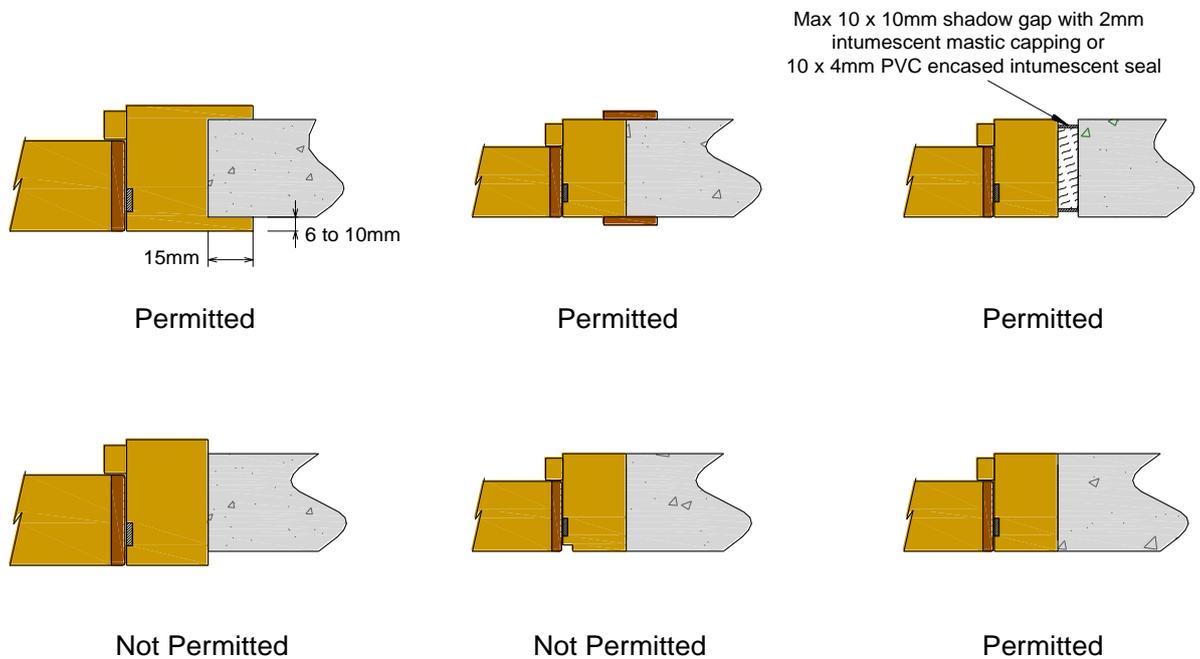


Butt Joint

**Note:** Drawing is representative of each type of door frame joint only; actual construction in terms of intumescent seal location and material, etc. must be as the text within this document specifies.

## 10.4 Door Frame Installation

The following diagrams indicate acceptable and unacceptable door frame installations:



### Notes:

1. Drawing is representative of door frame installation only; actual installation must be as the text within this document specifies. See section 20 for sealing to structural opening specification.
2. For the shadow detail depicted above (top right), the sub-frame material must be manufactured from one of the following materials, tightly fitted and with no gaps:
  - Timber with a density  $\geq 450\text{kg/m}^3$
  - Plywood with a density  $\geq 600\text{kg/m}^3$
  - MDF with a density  $\geq 700\text{kg/m}^3$
  - Particleboard with a density  $\geq 600\text{kg/m}^3$
  - Non-combustible board.

## 11 Leaf Facing Materials

### 11.1 General

The facings for Strebord© 54 are integral with the core construction and therefore alternative materials are not permitted.

### 11.2 Decorative & Protective Materials

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

Facing Material	Maximum Permitted Thickness (mm)
Paint	0.2
Timber veneers	2
PVC/Plastic laminates	2
Decorative paper/Non-metallic foil	0.5

#### Notes:

1. Metallic facings are not permitted.
2. The door leaf thickness may be reduced by a total maximum of 0.6mm to each face (a maximum of 1.2mm in total) for calibration purposes, only in order to accommodate one of the additional facings shown in the table above. The finished leaf thickness must be a minimum of 54mm.
3. Materials must not conceal intumescent strips.

### 11.3 Grooves

#### 11.3.1 General

Strebord© 54 may be grooved to the following specification:

Element	Details	
Max. groove size (mm)	10 wide x 5 deep	
Proximity to door edges (mm)	Horizontal grooves	≥100 from top & bottom
	Vertical grooves	≥100 from sides
Groove spacing (mm)	≥100	
Orientation	Vertical or horizontal	
Configuration	Latched & unlatched, single & double acting, single & double doorsets	
Leaf size range (mm)	2150 high x 926 wide	
Intumescent seal dimensions (mm)	≥ to 2No. 15 x 4	

**Note:** A maximum of 4No. vertical and 4No. horizontal grooves are permitted perpendicular to one another providing all other details meet the specification given in the table above.

### 11.3.2 Strebord Panelled Design

For further Strebord grooved and panelled options, refer to the latest revision of Falcon Panel Products Ltd. Global Assessment referenced Chilt/A10152.

### 11.4 CS Edge Protectors and Acrovyn

For CS Edge Protectors and Acrovyn facing and edging options with Strebord 54, refer to the latest revision of Chilt/A11130.

## 12 Intumescent Materials

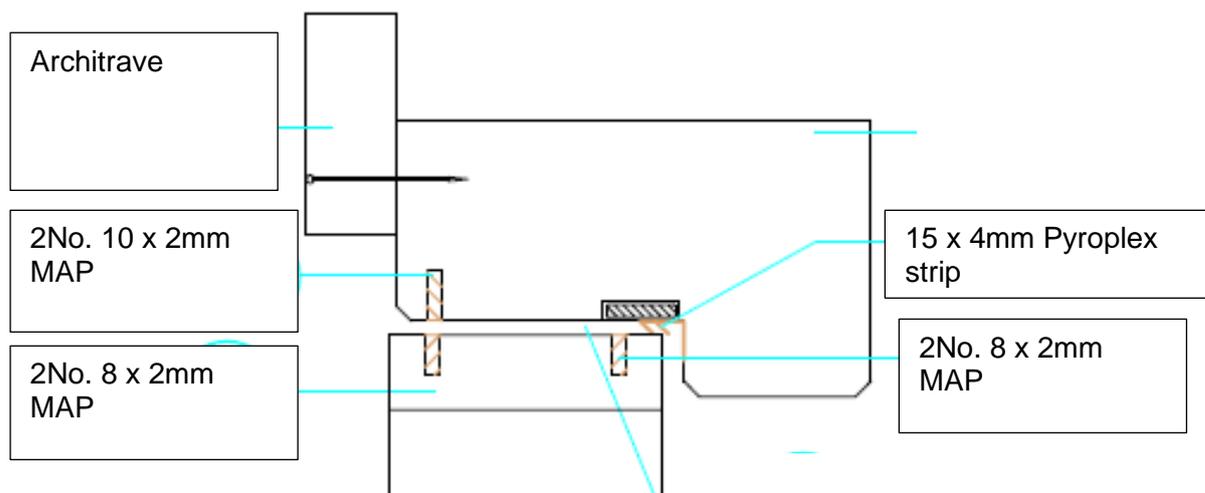
The intumescent materials tested for this doorset design are as follows:

Application	Location	Product/Manufacturer
Edge seals	Fitted in the frame jambs or leaf edges	<ol style="list-style-type: none"> <li>1. PVC encapsulated Palusol 100 – Mann McGowan Fabrications Ltd. or Lorient Polyproducts Ltd.</li> <li>2. Therm-A-Seal - Intumescent Seals Ltd.</li> <li>3. Pyroplex - Pyroplex Ltd.</li> <li>4. Type 617 – Lorient Polyproducts Ltd.</li> </ol>
Hinges	Under all hinge blades (for detail see section 12.1)	<ol style="list-style-type: none"> <li>1. 1mm Interdens - Dufaylite Developments Ltd.</li> <li>2. 1mm MAP paper - Lorient Polyproducts Ltd.</li> <li>3. 1mm Pyrostrip 300 - Mann McGowan Fabrications Ltd.</li> <li>4. 1mm Therm-A-Strip - Intumescent Seals Ltd.</li> <li>5. 1mm NOR910 – Norsound Ltd.</li> </ol>
Lock/latches	Under forend & keep	<ol style="list-style-type: none"> <li>1. 1mm Interdens - Dufaylite Developments Ltd.</li> <li>2. 1mm MAP paper - Lorient Polyproducts Ltd.</li> <li>3. 1mm Pyrostrip 300 - Mann McGowan</li> <li>4. 1mm Therm-A-Strip - Intumescent Seals Ltd.</li> <li>5. 1mm NOR910 – Norsound Ltd.<sup>1</sup> (see note 1 below for restrictions)</li> </ol>
Multi-point lock/latch <sup>2</sup>	Encasing latch body & under latch keep for all doorsets	<ol style="list-style-type: none"> <li>1. 1mm MAP paper – Lorient Polyproducts Ltd. (see note 2 below for the perimeter intumescent specification which must be followed when fitting the multi-point lock/latch)</li> </ol>
Concealed closers (head and jamb mounted) <sup>4</sup>	Fitted to slide channels and closer bodies, as appropriate	<ol style="list-style-type: none"> <li>1. 1 or 2mm Interdens - Dufaylite Developments Ltd.</li> <li>2. 1 or 2mm MAP paper - Lorient Polyproducts Ltd.</li> <li>3. 1 or 2mm Therm-A-Strip - Intumescent Seals Ltd.</li> <li>4. 1 or 2mm Therm-A-Flex - Intumescent Seals Ltd</li> <li>5. 2mm IP.114 intumescent kit – Rutland Ltd</li> </ol>

Application	Location	Product/Manufacturer
Top pivots & flush bolts	Lining all sides of the mortices	1. 2mm Interdens - Dufaylite Developments Ltd. 2. 2mm MAP paper - Lorient Polyproducts Ltd. 3. 2mm Therm-A-Strip - Intumescent Seals Ltd. 4. 2mm Therm-A-Flex - Intumescent Seals Ltd. 5. 2mm NOR920 – Norsound Ltd. (for use with flush bolts only, i.e. must not be used to protect top pivots)
Flush pull handle	Fitted on the back face of the pull handle	1. 1mm Therm-A-Line – Intumescent Seals Ltd.
	Fitted encasing the sides of the pull handle	1. 1mm Therm-A-Flex – Intumescent Seals Ltd.
	Fitted inside the body of the handle	1. 8mm Therm-A-Flex – Intumescent Seals Ltd.

**Notes:**

1. The maximum latch forend size for use with 1mm NOR910 is 155mm high by 25mm wide.
2. The following perimeter intumescent specification must be applied when fitting the multi-point lock/latch detailed in section 16.4.2: 1No. 15x4mm Pyroplex strip fitted 41mm from the exposed face in the head and jambs of the frame reveal & 2x10mm Lorient Polyproducts Ltd. MAP fitted 6mm from the exposed face in the head and jambs of the frame reveal, 10mm deep into the door frame & 2No. 2x8mm Lorient Polyproducts Ltd. MAP fitted 7mm from each leaf face, 8mm deep into the lipping in the leaf head and jambs (see diagram below for intumescent locations).



**Figure to show positioning of intumescent seals when fitting the approved multi-point lock**

3. The seal specification for each configuration is contained in Appendix E.
4. Concealed closers have specific intumescent (gaskets and perimeter specification) requirements depending on the manufacturer and model of closer. See relevant section in hardware for full details

## 12.1 Intumescent Protection to Hinges

Test RF99113 and RF00169 were conducted on the Strebord© 54 design without intumescent protection to the hinges and the doorset provided in excess of 60 minutes. It is therefore permitted to omit intumescent protection to the hinges for the Strebord© 54 design at 60 minutes fire resistance, subject to the following:

1. The perimeter intumescent specification must comprise a minimum of 2No. 15x4mm seals located in the leaf edge or frame reveal.
2. The intumescent must be a type approved for use with the Strebord© 54 design.
3. The perimeter intumescent seals must be centrally fitted and spaced nominally 10mm apart.
4. There must be at least 10mm of seal running past the hinge blade uninterrupted.
5. Maximum leaf height permitted without intumescent protection to hinges (subject to maximum height permitted within the assessment for a particular configuration or intumescent type): 2285mm high.
6. All other details to be as specified in this field of application report.

## 13 Edging Materials

### 13.1 Timber Lippings

Leaves must be lipped on vertical edges. Lippings to horizontal edges are optional unless doorset configuration or hardware type requires otherwise. All lippings must comply with the following specification (for steel framed doorset lipping specification see Appendices A1 and A2):

Lipping Specification		
Material	Size (mm)	Minimum Density (kg/m <sup>3</sup> )
Hardwood (excluding beech (fagus species)) <sup>1</sup>	<b>Flat Lipping</b> = 6–15 thick with a maximum of 2mm profiling permitted at corners of lipping <sup>2</sup>	530
	<b>Rounded Lipping</b> = 8–17 thick with a radius matching the distance between leaf edge and floor pivot <sup>3</sup>	
	<b>Flat Lipping</b> = 6–15 thick with a maximum of 2mm profiling permitted at corners of lipping <sup>2</sup>	640
	<b>Rounded Lipping</b> = 8–17 thick with a radius matching the distance between leaf edge and floor pivot <sup>3</sup>	
<b>Rebated Lipping (offset)</b> = 20 – 25 thick with a 13mm deep x 33mm wide rebate in the leaf head and a 13mm deep x 22mm wide rebate in the bottom of the overpanel. <sup>4,5</sup>		
Strelip® Engineered Hardwood <sup>1</sup>	<b>Flat Lipping</b> = 6–13 thick with a maximum of 2mm profiling permitted at corners of lipping <sup>2</sup>	650

#### Note:

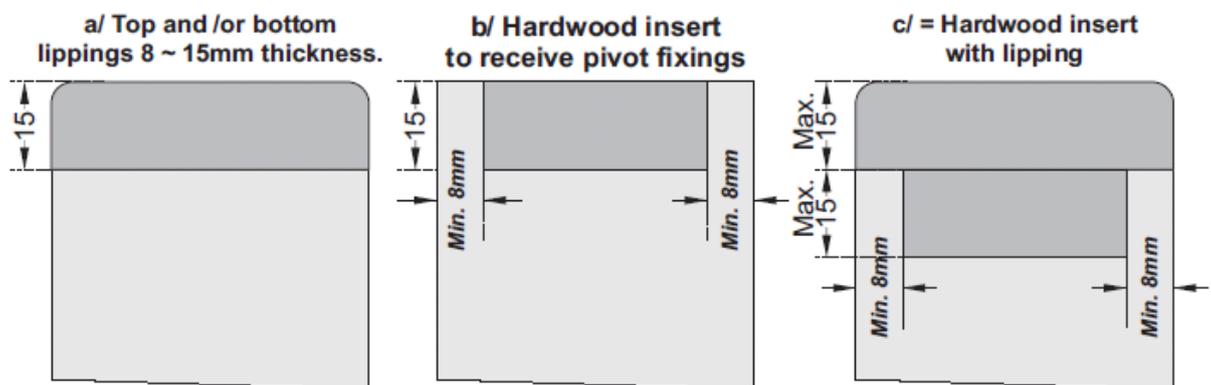
- All door lipping timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects)
- Examples of permissible edge profiling are detailed in Section 10.1.3
- Rounded lippings must only be applied to the hanging edges of door leaves where the door frame jamb has also been profiled to ensure door gaps meet the requirements of section 17. Examples of permissible rounded edges are detailed in Section 10.1.2
- Rebated edges are only permitted between head of leaves and flush overpanel

5. It is not permitted to fit hardware in the head of the leaves when using a rebated junction with overpanel, including flushbolts (face mounted flush bolt would need to be used if required)
6. Doorsets with overpanels must be lipped on the vertical edges and additionally at the bottom edge of the overpanel and top edge of doors
7. Double doorsets with overpanels may use a square or rebated overpanel junction but only in conjunction with square meeting edges
8. Double doorsets without overpanels must use square edges
9. Lippings must not conceal intumescent materials.
10. A 2.5° chamfer (leading edge detail) is permitted to the lipping at the leading edge of leaves providing the door gaps meet the requirements of section 17.

### 13.2 Hardwood Blocking for Pivots

The following option is permitted for lipping the top and bottom of doors that are to receive pivot fixings and are going to be used in a severe duty location (see diagram below).

The hardwood insert needs to be a size suited to the particular item of hardware plus a maximum of 50mm (not full door width) and must be securely adhered to the door core. The hardwood insert should not be greater than 15mm in depth and when fitted should provide for a minimum margin of 8mm on either face. The inserted blocks must be bonded on all contact faces using adhesives approved for the application of lippings (see section 14).



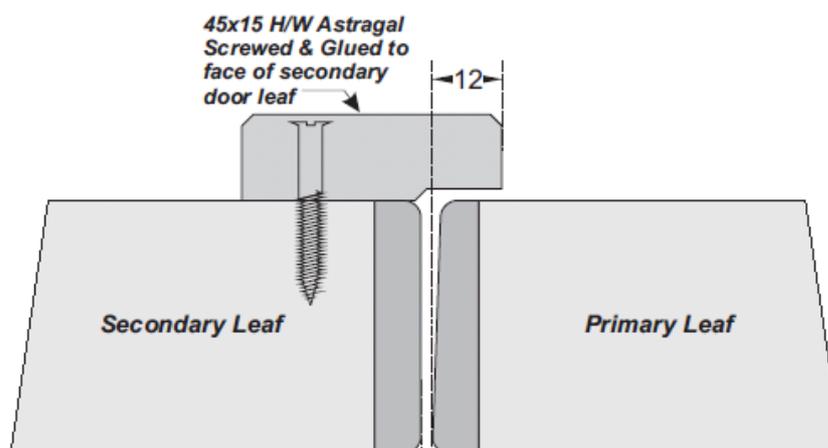
### 13.3 Meeting Stile Astragals

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

The astragal detail may be used where these conditions apply, without adverse influence on existing fire test/assessment data.

Astragals can be applied to both door leaves and may be profiled for aesthetic effect providing they meet the minimum specification given below.

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



## 14 Adhesives

The following adhesives must be used in construction:

Element	Product
Core	Manufacturers specification
Lipping	Urea formaldehyde or polyurethane

## 15 Tested Hardware

The following hardware has been successfully incorporated in the tests on Strebord© 54

Element	Manufacturer & Product Reference
Hinges	<ol style="list-style-type: none"> <li>1. Royde &amp; Tucker H101 lift-off type hinges</li> <li>2. Royde &amp; Tucker H105 lift-off type hinges</li> <li>3. Eclipse BB type Gatcliff hinges</li> <li>4. Pyroplex stainless steel butt hinges – Grade 201</li> </ol>
Closers	<ol style="list-style-type: none"> <li>1. SS Bower overhead face-fixed type closer</li> <li>2. Dorma TS83V overhead face-fixed type closer</li> <li>3. Astra 4000 series concealed jamb mounted closer</li> <li>4. Geze Boxer 2-4 concealed head mounted closer</li> <li>5. Rutland ITS 11204 concealed head mounted closer</li> </ol>
Floor spring/pivot set	<ol style="list-style-type: none"> <li>1. Rutland PS190 pivot set</li> </ol>
Locks/latches	<ol style="list-style-type: none"> <li>1. Winkhaus AV2 espagnolette multi-point lock<sup>2</sup></li> <li>2. Henderson Hardware mortice latch</li> </ol>
Furniture	<ol style="list-style-type: none"> <li>1. Aluminium lever on rose type handles</li> <li>2. Steel lever on rose type handles</li> <li>3. Tuscan Hardware flush pull handle<sup>3</sup></li> </ol>

### Notes:

1. See section 16 for specific installation requirements and scope for hardware
2. The Winkhaus multi-point lock/latch can only be installed with the manufacturer's tested intumescent protection, as detailed in section 12 above.
3. The Tuscan Hardware flush pull handle can only be installed with the manufacturer's tested intumescent pack, as detailed in section 12 above.

## 16 Hardware

### 16.1 General

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

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

- Electrically powered hold-open devices: Test Standard EN 1155
- Door co-ordinators: Test Standard EN 1158
- Emergency exit hardware: Test Standard EN 179
- Panic exit hardware: Test Standard EN 1125.

Where an item of hardware is not covered by the scope of a relevant harmonised or designated standard, and cannot therefore be UKCA or CE Marked, inclusion of the hardware is only permitted with this doorset design, if it meets the specific requirements of the appropriate section within this Field of Application (i.e. supporting test evidence and specification). All items of hardware must be fitted in accordance with requirements of this assessment.

The following sections consider what alternative items of essential hardware can be used on doorsets constructed using the Strebord 54 door blank.

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

- Have been tested
- Can be used as a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Falcon Panel Products
- Can be used as a result of the Certifire approval of the item of hardware

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

- Leaf size
- Configuration
- Intumescent seals
- Intumescent protection
- Frame

No item of hardware at the hanging stile and head should be within 200mm of another item of hardware unless there is test evidence to demonstrate they can be closer.

## 16.2 Essential Hardware

The table of essential hardware is given for each door assembly configuration, as a baseline for the doorset described. Changes to hardware can affect the intumescent specification and frame details which are considered for each item of hardware as listed in the following sections.

The following table details the essential hardware for each permitted door leaf configuration. In some cases, it may be possible to apply hardware to a doorset that is not essential for the doorsets operation or configuration (e.g. fitting a lock into a double acting doorset).

Essential Hardware	
Configuration	Hardware
LSASD	<ul style="list-style-type: none"> <li>• Latch</li> <li>• Hinges</li> <li>• Overhead/jamb mounted closer</li> </ul>
ULSASD	<ul style="list-style-type: none"> <li>• Hinges</li> <li>• Overhead/jamb mounted closer</li> </ul>
DASD	<ul style="list-style-type: none"> <li>• Top pivot/bottom strap</li> <li>• Floor spring/double acting closer</li> </ul>
LSADD	<ul style="list-style-type: none"> <li>• Latch</li> <li>• Hinges</li> <li>• Overhead/jamb mounted closer</li> <li>• Flush bolt</li> <li>• Door selector (if astragal fitted)</li> </ul>
ULSADD	<ul style="list-style-type: none"> <li>• Hinges</li> <li>• Overhead/jamb mounted closer</li> <li>• Flush bolt</li> <li>• Door selector (if astragal fitted)</li> </ul>
DADD	<ul style="list-style-type: none"> <li>• Top pivot/bottom strap</li> <li>• Floor spring/double acting closer</li> </ul>

## 16.3 Hinges and Pivots

### 16.3.1 Butt & Lift Off Hinges

Hinges which have been successfully tested in the Stredor door assembly system for 60 minute applications are detailed in the test evidence cited in Appendix B.

This Field of Application also considers hinges tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor. The evidence is listed as supplementary evidence in Appendix B.

Hinges are permitted for use with all single acting doorset configurations.

Based on the dimensions of the hinges tested in the Strebord doorset design, hinges which meet the following specification are acceptable, providing the hinges have been tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a timber door assembly having a maximum 54mm thick door leaf and achieved a minimum of 60 minutes.

Hinge Specification			
Element		Specification	
Blade height		90 – 120mm	
Blade width (excluding knuckle)		28 – 35mm	
Blade thickness		2.5 – 4mm	
Fixings		Minimum of 4No. steel screws (including fully threaded 'twinfast' screws or chipboard screws) per blade, a minimum of 30mm long, size No. 8 or No. 10 or Tested screw fixings as supplied with the hinge	
Materials		Steel or stainless steel	
Hinge positions	Leaf height: <1200mm	Top	150 – 180mm from head of leaf to top of hinge
		Bottom	150 – 250mm from foot of leaf to bottom of hinge
	Leaf height: 1201-2400mm	Top	150 – 180mm from head of leaf to top of hinge
		2 <sup>nd</sup>	Min - 100mm from top hinge Max - centrally between top and bottom hinge
		Bottom	180 – 250mm from foot of leaf to bottom of hinge
	Leaf height: >2401mm	Top	150 – 180mm from head of leaf to top of hinge
		2 <sup>nd</sup>	Min - 100mm from top hinge Max - centrally between top and 3 <sup>rd</sup> hinge
		3 <sup>rd</sup>	Min – 100mm from bottom hinge Max – centrally between 2 <sup>nd</sup> and bottom hinge
		Bottom	180 – 250mm from foot of leaf to bottom of hinge
Intumescent protection		See section 12	

Alternatively, Certifire approved hinges approved for 60 minutes in an ITT door assembly (i.e. a door assembly containing intumescent, a timber frame and a timber leaf) is acceptable providing all the requirements for intumescent and frame are complied with.

**Notes:**

1 - Additional intermediate hinges may be included within door assemblies in between the hinges required for the leaf as specified in the table above, provided there is a minimum 100mm between hinges. Where intermediate hinges are introduced, their positioning may influence 2nd and 3rd hinge parameters. No more than 5 hinges at the hanging edge of doorsets may be fitted and providing the spacing requirements of this assessment can be met

2 – Rising butt hinges are not assessed for the Strebord 60 minute doorset system.

### 16.3.2 Pivots

Pivots have been tested with is door design and are detailed in the test evidence listed in Appendix B.

Pivots are permitted for use in single and double acting leaf configurations without flush overpanels.

The frame head dimensions must be timber with a minimum of 90mm wide x 32mm deep (excluding the stop if they are to be used with single acting frames) to accommodate the body of the top pivot.

The body of the pivot in the frame head and the top and bottom strap in the leaf must be fitted with a 2mm intumescent gasket lining all sides of the mortice.

The pivots are to be fitted in accordance with manufacturer's instructions taking into account the necessary details for fire resistance as stated above.

Pivots may be used conjunction with their associated double acting floor spring (supplied by the same manufacturer as the pivot set).

In addition to the pivot set listed in section 15, it is permitted to use Certifire approved pivot sets and double acting floor springs with the Strebord 54 door design providing they are approved for 60 minutes in an ITT door assembly (i.e. a door assembly containing intumescent, a timber frame and a timber leaf) and providing all the requirements for intumescent and frame detailed in this assessment are complied with.

For the approved double acting concealed closer and pivot specification see section 16.5.3

**Note:** Offset pivot variations are not allowed by this assessment

### 16.3.3 Safehinge

To use the Safehinge Alumax product with the Strebord 54 door core, refer to the latest revision of Chilt/A12005.

## 16.4 Latches & Locks

### 16.4.1 Single Point

Single point locks and latches which have been successfully tested in the Strebord doorset design for 60 minute applications are detailed in the test evidence listed in Appendix B.

This Field of Application also considers locks and latches tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor. The evidence is listed as supplementary evidence in Appendix B.

Single point locks and latches are permitted for use in all configurations and frame types.

The lock and latch must comply with the following.

Based on the maximum size of locks tested in the Strebord 54 doorset design, locks and latches which meet the following specification are acceptable, providing the lock has been tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a timber door assembly incorporating a maximum 54mm thick door leaf that has achieved a minimum of 60 minutes fire resistance.

Lock & Latch Specification	
Element	Specification
Maximum forend & keep dimensions	235 (h) x 25 (w) x 4mm (t)
Maximum body dimensions	165 (h) x 100 (w) x 18mm (t)
Intumescent protection	See section 12
Materials	All parts essential to the locking/latching action (including the latch bolt, forend & keep) to be steel
Location <sup>1</sup>	Between 750 – 1200mm from the threshold <sup>2</sup>
	Between 1201 – 1400mm from the threshold <sup>2, 3</sup>

Alternatively, Certifire approved locks and latches approved for 60 minutes in an ITT door assembly (i.e. a door assembly containing intumescent, a timber frame and a timber leaf) is acceptable providing all the requirements for intumescent and frame are complied with.

**Notes:**

1 – A maximum of 2 latches or locks may be included within the same leaf provided there is a minimum of 200mm between lock forends or keeps. The locks must be located within the height limitations from the threshold as defined in the table above.

2 – Threshold is defined as finished floor level.

3 – only allowed when lockset has been fitted with intumescent gasket under forend and keep and on all sides of the mortice for the lock

#### 16.4.2 Multi-Point

A multi-point lock has been successfully tested in the Strebord 54 door system for 60 minutes fire resistance. The test report PF14233 is cited in Appendix B.

The multi-point lock is permitted for use in latched single acting single leaf doorsets.

Alternative multi-point locking systems are not considered within this Field of Application report. Therefore multi-point locks included within Strebord 60 minute doorset designs are limited to the following:-

- Winkhaus AV2

The top of the face plate must be no closer than 150mm to the top of the leaf.

Multi-point locks must be used with the intumescent specification (gaskets and perimeter) given in section 12

It is not permissible to use other assessments or Certifire certificates to fit alternative multi-point locksets within the Strebord doorset design.

**Notes:**

1 – The inclusion of multi-point locking systems within this Field of Application considers resistance to fire performance only and does not infer door assemblies fitted with these systems to support any security performance criteria.

2 - For additional multi-point locking options with Strebord 54, refer to the latest revision of WF 427764.

## 16.5 Automatic Closing

### 16.5.1 Overhead Face Fixed Closers: Single Acting

Closers which have been successfully tested in the Strebord 54 doorset design are detailed in the test evidence cited in Appendix B.

This Field of Application also considers closers tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and these items are detailed in the supplementary evidence cited in Appendix B.

These closers are permitted for use in all single acting leaf configurations.

Based on the range of overhead face fixed closers tested in Strebord doorset design, alternative closers are acceptable, providing the closers have been tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a timber door assembly achieving a minimum of 60 minutes.

Alternatively, Certifire approved overhead face fixed closers approved for 60 minutes in the following:

- A closer that is approved with an ITT door assembly is acceptable for use with doorsets in timber based door frames (i.e. a door assembly containing intumescent, a timber frame and a timber leaf), or ITM when steel frame is used

Providing all the requirements for intumescent and frame are complied with.

Note:

1 – Closers with mechanical (i.e. not automatically disengaged through alarm system or similar) back-check/hold-open functionality are not approved for the Strebord 54 minute door assembly system.

### 16.5.2 Overhead Concealed Closers: Single Acting

The following overhead single acting concealed closers have either been directly tested in the Strebord 54 door design, or have been assessed based on test evidence on a fundamentally similar door design. The test evidence is cited in Appendix B of this report.

The following construction requirements (e.g. frame profile, lipping, perimeter intumescent, gaskets) must be followed for each of the closer options and the details take precedence over the specification given for those specific items elsewhere in this report.

Overhead concealed closers are not permitted with steel frames

### 16.5.2.1 Geze Boxer 2-4

The Geze Boxer 2-4 concealed overhead closer has been successfully tested and is detailed in the test report referenced WF414533 summarised in Appendix B of this report.

The Geze Boxer 2-4 closer and slide channel are to be installed in accordance with the manufacturer's instructions, including the tested and approved spindle length as supplied by Geze. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Geze Boxer 2-4 concealed closer and slide channels referenced above may only be used within the following specifications:

Slide channel:

The Geze Boxer 2-4 closer is approved with the following tested slide channel:

- Non-hold open single action guide rail for Boxer with lever arm - 20 x 12mm

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.  
Lipping – the Geze Boxer 2-4 concealed closers must be used with 10-15mm thick lipping at the head of the door leaf Frame:
- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- The frame head must have a minimum thickness of 40mm, excluding the door stop. The frame jambs must have a minimum thickness of 32mm, excluding the doorstop.
- A minimum of 45mm (w) 18mm (d) rebated or 18mm (t) planted door stop is required at the frame head.

**Note:** for the slide channel, a minimum of 10mm thick timber must remain at the back of the mortice in the frame head in order to provide sufficient material for the slide channel fixings.

Door configuration:

- All single acting configurations without flush overpanels.

Door dimensions:

- Maximum leaf size is as for the Type 617 envelopes in Appendix E, where 2No. 15 x 4mm seals are specified at the perimeter. Intumescent location and protection for the closer must be as detailed in this section (see below)

Perimeter intumescent seals:

- 2No. PVC encased Lorient Polyproducts Type 617, 15mm wide x 4mm thick.
- Seals must be fitted centrally, 10mm apart in the frame head and jambs. The seals in the frame reveal head may be partially interrupted by the slide channel with a minimum width of 8mm of both seals running continuous either side of the slide channel

Intumescent protection:

- Closer: 1mm (t) intumescent kit supplied by Geze, covering all concealed faces of the closer body and 1mm (t) gasket to top face plate of closer in leaf head
- Slide channel: 1mm (intumescent kit supplied by Geze, covering all concealed faces of the slide channel).

### 16.5.2.2 Hoppe AR7383

The Hoppe AR7383 concealed overhead closer has been successfully tested and is detailed in the test report referenced BMT/FEB/F16012, summarised in Appendix B of this report.

The Hoppe AR7383 concealed overhead closer and slide channel are to be installed in accordance with the manufacturer's instructions, including the tested and approved spindle length as supplied by Hoppe. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Hoppe AR7383 concealed closer and slide channels referenced above may only be used within the following specifications:

Slide channel:

The Hoppe AR7383 closer is approved with the following tested slide channel:

- Non-hold open single action guide rail - 23 x 15mm

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.
- Lipping – the Hoppe AR7383 concealed closer must be used with lipping between 6-15mm thick at the head of the door leaf

Frame:

- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- The frame head must have a minimum thickness of 44mm, excluding the door stop. The frame jambs must have a minimum thickness of 32mm, excluding the doorstop.
- A minimum of 45mm (w) 12mm (d) rebated or 12mm (t) planted door stop is required at the frame head.

**Note:** for the slide channel, a minimum of 10mm thick timber must remain at the back of the mortice in the frame head in order to provide sufficient material for the slide channel fixings.

Door configuration:

- All single acting configurations without flush overpanels.

Door dimensions:

- Maximum leaf size is as for the Pyroplex envelopes in Appendix E, where 2No. 15 x 4mm seals are specified at the perimeter. Intumescent location and protection for the closer must be as detailed in this section (see below)

Perimeter intumescent seals:

- 2No. PVC encased Pyroplex, 15mm wide x 4mm thick.
- Seals must be fitted 10mm apart in the frame head and jambs. The first seal is to be located 9mm from the closing face. The seals in the frame reveal head may be partially interrupted by the slide channel with a minimum width of 7mm of the first seal (toward closing face) and 10mm width of the second seal running continuous either side of the slide channel

Intumescent protection:

- Closer: 2mm (t) intumescent kit supplied by Hoppe, covering all concealed faces of the closer body
- Slide channel: 2mm (t) intumescent kit supplied by Hoppe, covering all concealed faces of the slide channel.

### 16.5.2.3 Rutland ITS 11204

The Rutland ITS 11204 concealed overhead closer has been successfully tested and is detailed in the test report referenced TA087-910, summarised in Appendix B of this report.

The Rutland ITS 11204 concealed overhead closer and slide channel are to be installed in accordance with the manufacturer's instructions, including the tested and approved spindle length as supplied by Rutland. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Rutland ITS 11204 concealed closer and slide channel referenced above may only be used within the following specifications:

Slide channel:

The Rutland ITS 11204 closer is approved with the following tested slide channel:

- ITS.11204 concealed door closer-to-slide arm - 30 x 19mm

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.
- Lipping – the Rutland ITS 11204 concealed closer must be used with lipping between 6-15mm thick at the head of the door leaf

Frame:

- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- The frame (head and jambs) must have a minimum thickness of 32mm, excluding the door stop.
- A minimum of 45mm (w) x 15mm (d) rebated or 15mm (t) planted door stop is required at the frame head.

**Note:** for the slide channel, a minimum of 10mm thick timber must remain at the back of the mortice in the frame head in order to provide sufficient material for the slide channel fixings.

Door configuration:

- All single acting configurations without flush overpanels.

Door Dimensions:

The following maximum leaf sizes may be used with the Rutland ITS11204 closer and Mann McGowan Seals.

**NB:** It is permitted to construct doors with the following Mann McGowan perimeter intumescent specification and leaf dimensions, with all of the other design options given in this assessment (e.g. glazing, hardware, decorative finishes, lipping), where appropriate

ULSADD – 2403mm (h) x 926mm (w)

LSADD – 2453mm (h) x 951mm (w)

ULSASD – 2503mm (h) x 976mm (w)

LSASD – 2553mm (h) x 1001mm (w)

Perimeter intumescent seals:

- 2No. PVC encased Mann McGowan 500PSA, 15mm wide x 4mm thick.
- Seals must be fitted 10mm apart in the frame head and jambs. The first seal is to be located 7mm from the closing face. The seals in the frame reveal head may be partially interrupted by the slide channel with a minimum width of 5mm of both seals running continuous either side of the slide channel
- For double doors, seals must be fitted 10mm apart with the first seal located 7mm from the closing face, in one meeting edge only

Intumescent protection:

- Closer: 2mm (t) IP.114 intumescent kit supplied by Rutland, covering the top of the closer body in the leaf head
- Slide channel: 2mm (t) IP.114 intumescent kit supplied by Rutland, covering all concealed faces of the slide channel.

#### 16.5.2.4 Synergy Hardware Ltd - Synergy S1000

The Synergy S1000 concealed overhead closer has been successfully tested and is detailed in the test reports referenced WF324426 Issue 2, summarised in Appendix B of this report.

The Synergy S1000 concealed overhead closer and slide channel are to be installed in accordance with the manufacturer's instructions, including the tested and approved spindle length as supplied by Fortress Industrial. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Synergy S1000 concealed closer and slide channel referenced above may only be used within the following specifications:

Slide channel:

The Synergy S1000 closer is approved with the following tested slide channel:

- Synergy S1000 guide rail - 31 x 20mm

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.
- Lipping – the Synergy S1000 concealed closer may be used with leaves without lipping at the head or with lipping between 6-15mm thick at the head of the door leaf

Frame:

- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- The frame head must have a minimum thickness of 37mm, excluding the door stop. The frame jambs must have a minimum thickness of 32mm, excluding the door stop.
- A minimum of 40mm (w) x 20mm (d) rebated or 20mm (t) planted door stop is required at the frame head.

**Note:** for the slide channel, a minimum of 10mm thick timber must remain at the back of the mortice in the frame head in order to provide sufficient material for the slide channel fixings.

Door configuration:

- All single acting configurations without flush overpanels.

Door Dimensions:

- Maximum leaf size is as for the Therm-A-Seal envelopes in Appendix E, where 2No. 15 x 4mm seals are specified at the perimeter. Intumescent location and protection for the closer must be as detailed in this section (see below)

Perimeter intumescent seals:

- 2No. PVC encased Therm-A-Seal, 15mm wide x 4mm thick
- Seals must be fitted 10mm apart and centrally in the frame head and jambs. The first seal is to be located 7mm from the closing face. The seals in the frame reveal head may be partially interrupted by the slide channel with a minimum width of 5mm of both seals running continuous either side of the slide channel

Intumescent protection:

- Closer: 2mm (t) Lorient Polyproducts Interdens sheet, lining all sides of the mortice for the concealed closer
- Slide channel: 2mm (t) Lorient Polyproducts Interdens sheet, lining all sides of the mortice for the slide channel in the frame head

### 16.5.2.5 Synergy Hardware Ltd – Synergy 1036

The Synergy S1036 concealed overhead closer has been successfully tested and is detailed in the test report referenced WF375219 Issue 2, summarised in Appendix B of this report.

The Synergy S1036 concealed overhead closer and slide channel are to be installed in accordance with the manufacturer's instructions, including the tested and approved spindle length as supplied by Fortress Industrial. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Synergy S1036 concealed closer and slide channel referenced above may only be used within the following specifications:

Slide channel:

The Synergy S1036 closer is approved with the following tested slide channel:

- Synergy S1036 guide rail - 31 x 20mm

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.
- Lipping – the Synergy S1036 concealed closer may be used with leaves without lipping at the head or with lipping between 6-15mm thick at the head of the door leaf

Frame:

- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- The frame head must have a minimum thickness of 37mm, excluding the door stop. The frame jambs must have a minimum thickness of 32mm, excluding the door stop
- A minimum of 40mm (w) x 20mm (d) rebated or 20mm (t) planted door stop is required at the frame head.

**Note:** for the slide channel, a minimum of 10mm thick timber must remain at the back of the mortice in the frame head in order to provide sufficient material for the slide channel fixings.

Door configuration:

- All single acting configurations without flush overpanels.

Door Dimensions:

- Maximum leaf size is as for the Pyroplex envelopes in Appendix E, where 2No. 15 x 4mm seals are specified at the perimeter. Intumescent location and protection for the closer must be as detailed in this section (see below)

Perimeter intumescent seals:

- 2No. PVC encased Pyroplex, 15mm wide x 4mm thick
- Seals must be fitted 10mm apart and centrally in the frame head and jambs. The first seal is to be located 7mm from the closing face. The seals in the frame reveal head may be partially interrupted by the slide channel with a minimum width of 5mm of both seals running continuous either side of the slide channel

Intumescent protection:

- Closer: 2mm (t) Lorient Polyproducts Interdens sheet, lining all sides of the mortice for the concealed closer
- Slide channel: 2mm (t) Lorient Polyproducts Interdens sheet, lining all sides of the mortice for the slide channel in the frame head

#### 16.5.2.6 Dorma ITS 96 3-6 with G96 EMF arm & channel

The Dorma ITS 96 3-6 with G96 EMF arm & channel has been successfully tested and detailed in the test report referenced WF379042 summarised in Appendix B of this report.

Based on the tested closer and slide channel, the Dorma ITS 96 2-4 concealed closer option and the alternative slide channels listed below are considered acceptable:

Dorma ITS 96 closer option:

- Dorma ITS 96 2-4
- Dorma ITS 96 3-6 (as tested)

Dorma ITS 96 arm & channel options:

- G96 N
- G96 N20
- G96 EMF (as tested)

The above alternative closer and slide channels are acceptable as they are of smaller dimensions and would therefore require a smaller section of timber material to be removed from the leaf and frame head for their installation, which is considered to be less onerous in terms of fire resistance performance.

The closers and slide channels are to be installed in accordance with the manufacturer's instructions, including the tested and approved spindle length as supplied by Dorma. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Dorma ITS 96 concealed closers and slide channels referenced above may only be used within the following specifications:

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.
- Lipping – the Dorma ITS 96 concealed closers may be used with leaves without lipping at the head or with lipping between 6-15mm thick at the head of the door leaf

#### Frame:

- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- When using the G96 EMF slide channel – the frame head must have a minimum thickness of 44mm, excluding the door stop. The frame jambs must be a minimum thickness of 32mm, excluding the door stop
- When using the G96 N or G96 N20 slide channels – the frame must have a minimum thickness of 32mm, excluding the door stop.
- A minimum of 20mm deep rebated or 20mm thick planted door stop is required at the frame head.

Note: for all slide channels, a minimum of 10mm thick timber must remain at the back of the mortice in the frame head in order to provide sufficient material for the slide channel fixings.

#### Door configuration:

- All single acting configurations without flush overpanels.

#### Door Dimensions:

- Maximum leaf size is as for the Pyroplex envelopes in Appendix E, where 2No. 15 x 4mm seals are specified at the perimeter. Intumescent location and protection for the closer must be as detailed in this section (see below)

#### Perimeter intumescent seals:

- 2No. PVC encased Pyroplex Rigid Box 8700 (Fire Only seal), 15mm wide x 4mm thick. Alternatively one of the two seals may be Rigid Box 8724 which includes a single flipper (per Certifire approval CF355).
- Seals must be fitted centrally, 10mm apart in the frame head and jambs. 1st seal (from the opening face) may only be partially interrupted by the channel with at least 10mm of the seal running continuous. 2nd seal may be fully interrupted by the channel.

Note: If using Rigid Box 8724 as one of the two seals, the 8724 seal must be the 1st seal which is to be only partially interrupted.

#### Intumescent protection:

- Closer: 1mm thick Interdens® intumescent kit supplied by Dormakaba, covering all concealed faces of the closer body and behind the faceplate.
- Slide channel: 2mm thick Interdens® intumescent kit supplied by Dormakaba, covering all concealed faces of the slide channel.

### 16.5.3 Overhead Concealed Closers: Double Acting

The Rutland ITS 11204 concealed overhead closer has been successfully tested in a double acting configuration with Rutland pivot set PS190 and is detailed in the test report referenced CFR 1810231, summarised in Appendix B of this report.

The Rutland ITS 11204 concealed overhead closer, slide channel and pivot set are to be installed in accordance with the manufacturer's instructions, including the tested and approved spindle length as supplied by Rutland. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Rutland ITS 11204 concealed closer, slide channel and pivot set referenced above may only be used within the following specifications:

Slide channel:

The Rutland ITS 11204 closer is approved with the following tested slide channel:

- ITS.11204 concealed door closer-to-slide arm - 30 x 19mm

Pivot set:

- PS190 fitted as per manufacturer's instructions with the bottom strap positioned in the base of the leaf central to leaf thickness to suit spindle. Top pivot and retractable pin set in rebate in head of door frame

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.
- Lipping – the Rutland ITS 11204 concealed closer and PS190 pivot set must be used with 15-18mm (t) hardwood lipping at the top and bottom of the door leaf (jambs are to be lipped according to section 13.1)

Frame:

- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- The frame must have a minimum thickness of 32mm

**Note:** for the slide channel, a minimum of 10mm thick timber must remain at the back of the mortice in the frame head in order to provide sufficient material for the slide channel fixings.

Door configuration:

- All double acting configurations without flush overpanels.

Door Dimensions: Based on the test evidence the maximum size of door is the same as that tested 2005mm (h) x 927mm (w)

Perimeter intumescent seals:

- 1No. Sealmaster N60 21mm x 7.5mm centrally fitted within the frame reveal
- The seal is full interrupted by the slide channel and top pivot in the frame reveal head

Intumescent protection:

- Closer and pivots: 2mm (t) Therm-A-Flex – Intumescent Seals Ltd covers rebate for concealed closer in leaf head and rebate for top pivot in frame reveal. Gasket also fitted to forend and face of top pivot
- Slide channel: 2mm (t) Therm-A-Flex fitted to all sides of mortice of slide channel in frame reveal

#### 16.5.4 Jamb Mounted Concealed Closers: Single Acting

The following jamb mounted concealed closers have been successfully tested with Strebord 54 for 60 minute applications and are detailed in the test evidence cited in Appendix B:

- The Astra 4000 Series

These closers are permitted for use in all single action configurations

The closer may be fitted up to 1000mm from the threshold.

The Astra 4000 series concealed jamb mounted closer, must be installed in accordance with the manufacturer's instructions. The minimum specifications detailed below must also be complied with.

Based on the tested door construction, the Astra 4000 series jamb mounted closer, may only be used within the following specifications:

Leaf:

- The leaf core thickness must be a minimum of 53.5mm excluding facings.
- Lipping – the Astra 4000 series must be used with 8-15mm (t) hardwood lipping at the vertical edges as a minimum (all other lipping details are to be according to section 13.1)

Frame:

- Hardwood timber frames of minimum density of 640kg/m<sup>3</sup>. Beech (Fagus species) is not permitted.
- The frame must have a minimum thickness of 32mm

Door configuration:

- All single acting configurations without flush overpanels.

Door Dimensions:

- Maximum leaf size is as for the Type 617 envelopes in Appendix E, where 2No. 15 x 4mm seals are specified at the perimeter. Intumescent location and protection for the closer must be as detailed in this section (see below)

Perimeter intumescent seals:

- 2No. 15 x 4mm Type 617 – Lorient Polyproducts centrally fitted within the frame reveal spaced 10mm apart
- Both seals are partially interrupted with a minimum of 4mm width of both seals running past the face plate in the frame reveal

- 1mm (t) Therm-A-Strip – Intumescent Seals Ltd must be fitted to encase the closer body in the door leaf and be fitted under the forend and keep

Location:

The closer must be located between 800mm and 1000mm from the threshold

## 16.6 Flush Bolts

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum dimensions are not exceeded and the components are fitted opposite the edge fitted with intumescent strips:

- 210mm long x 22mm deep x 22mm wide

Flush bolts must be steel and the mortice must be as tight to the mechanism as is compatible with its operation. All edges of the mortice in leaf and frame must be protected with intumescent gaskets as specified in section 12. Alternatively the hardware manufacturers' tested gaskets may be used.

See diagram below for example of intumescent protection to flush bolt:



## 16.7 Handles

### 16.7.1 Lever Handles

Various designs and materials of lever handles have been successfully tested with the Strebord door design and are approved for use provided they are manufactured from steel, stainless steel, aluminium, zinc alloy or brass. The handles are to be surface mounted and fitted appropriate to the lock or latch fitted within the door leaf

### 16.7.2 Pull Handles

These may be fixed to the door leaf provided that they are steel and the length is limited to 1200mm between fixing points. Additional intumescent protection is not required, provided the hole for the bolt through the leaf is tight.

## 16.8 Push Plates/Kick Plates

Face-fixed push plates and kick plates may be fitted to the doorsets provided their fitting requires the removal of no part of the door leaf. These items are permitted up to a maximum of 20% of the door leaf area if mechanically fixed and a maximum of 30% if bonded with a contact or thermally softening adhesive and positioned to fall away from the leaf. Plates must not return around the door edges.

## 16.9 Door Selectors

Selectors may be fitted providing the installation does not require the removal of any timber from the leaf, stop or frame reveal, and they do not interfere with the self-closing action of the door leaf.

## 16.10 Door Security Viewers

Door security viewers with steel bodies of a diameter less than or equal to 15mm may be used provided that the through-hole is bored tight to the case of the viewer (maximum tolerance +1mm). Lenses must be glass and the item must be bedded into a tested intumescent mastic.

## 16.11 Panic Hardware

Panic hardware may be fitted, providing the installation does not require the removal of any timber from the leaf, stop or frame reveal, and it does not interfere with the self-closing action of the door leaf.

## 16.12 Air Transfer Grilles

### 16.12.1 General

The following air transfer grilles are permitted based on suitable test evidence to BS 476: Part 22: 1987 or BS EN 1634-1, which is cited in Appendix B.

### 16.12.2 Pyroplex Air Transfer Grilles

The following Pyroplex air transfer grilles have been considered acceptable for use with the Strebord© 54 door design based on the testing conducted in WF148053 and WF146521 (cited in appendix B):

Part No.	Dimensions (mm)	Air Flow (sq. cm)	Compatible Faceplates
ATG 1500	150 x 150	153	FP1500
ATG 1503	150 x 300	307	FP1503
ATG 1300	300 x 300	614	FP1300
ATG 2251*	112 x 225	161	FP2251
ATG 2250*	225 x 225	323	FP2250

\* ATG 2251 & ATG 2250 must only be used above 1000mm height from the leaf threshold.

**Notes:**

1. The Pyroplex air transfer grilles must be installed in accordance with the manufacturer's installation details, which include a 6mm thick hardwood (excluding beech (*Fagus* species)) aperture liner and Pyroplex intumescent mastic applied around the perimeter of the grille. Full details can be obtained from Pyroplex Ltd.
2. The grilles must be fitted 100mm from the edge of the door leaf and 80mm apart if more than one grille is to be fitted. The area occupied by the air transfer grille must be deducted from the area of glazing, if both elements are fitted. The grilles may be fitted up to a maximum height of 2200mm from the threshold unless otherwise stated.

### 16.12.3 Mann McGowan Air Transfer Grilles

The following Mann McGowan air transfer grilles have been considered acceptable for use with the Strebord© 54 door design based on the testing conducted in TA087-910 (cited in appendix B):

Part No.	Dimensions (mm)
Pyrogrille 25*	300 x 300
Pyrogrille 100*	600 x 600

\* Pyrogrille 25 and Pyrogrille 100 may be located between 700mm and 2400mm from the threshold based on the pressure regime used within the supporting test and the location of the grilles within the door.

**Notes:**

1. The Pyrogrille air transfer grilles must be installed in accordance with the manufacturer's installation details, which include 2No. 3.8 diameter x 35mm screws per vertical edge located 35mm (Pyrogrille 25) and 55mm (Pyrogrille 100) from the corners. A steel frame work is to be fitted on both sides of the grille to the face of the door leaf using 2No. 4mm diameter x 35mm long screws per vertical edge located 55mm (Pyrogrille 25) and 140mm (Pyrogrille 100) from the corners. Full details can be obtained from Mann McGowan Ltd.
2. The grilles must be fitted 100mm from the edge of the door leaf and 80mm apart if more than one grille is to be fitted. The area occupied by the air transfer grille must be deducted from the area of glazing, if both elements are fitted.

### 16.12.4 Lorient Polyproduct Air Transfer Grilles

The following Lorient Polyproduct air transfer grilles have been considered acceptable for use with the Strebord© 54 door design based on the testing conducted in WF 380214 (cited in appendix B):

Part No.	Dimensions (mm)
LVV40*	600 x 300

\* LVV40 may be located between 700mm and 2200mm from the threshold based on the pressure regime used within the supporting test and the location of the grilles within the door.

#### Notes:

1. The LVV40 air transfer grilles must be installed in accordance with the manufacturer's installation details, which include a 6mm (t) hardwood lining to all edges of the aperture, fixed in position using polyurethane adhesive. The grille is to be bedded onto 8mm thick bead of Lorient Intumescent Sealant with a fillet of sealant on both faces at the junction between the liner and the air transfer grille. Full details can be obtained from Lorient Polyproducts Ltd.
2. The grilles must be fitted 100mm from the edge of the door leaf and 80mm apart if more than one grille is to be fitted. The area occupied by the air transfer grille must be deducted from the area of glazing, if both elements are fitted.

### 16.13 Environmental Seals

Silicon based flame retardant acoustic, weather and dust seals (e.g. Norseal 710, Lorient IS1212, IS1511, IS7025, IS7060) may be fitted to this doorset design without compromising the performance, providing their fitting does not interfere with the activation of the intumescent seals or hinder the self-closing function of the leaves.

### 16.14 Threshold Seals

When recessed into the bottom of leaves, the use of threshold drop seals is permitted without the requirement for any intumescent protection, unless required by the threshold drop seal manufacturer for 60 minute fire resisting applications in timber based doorsets.

Manufacturer	Product Reference
Norsound Ltd.	810, 810S, 810dB+
Lorient Polyproducts Ltd.	IS8010si
Raven	RP8
Athmer	Schall Ex-Duo L-15
Sealmaster Ltd.	DropSeal 2712s*

\* Sealmaster Ltd. DropSeal 2712s can only be used with latched, single acting, single leaf doorsets.

Cannot be used with flush bolt at bottom of meeting stile

### 16.15 Cable-Way

Based on the integrity performance of the doorset construction, with no burn-through of the core material, we consider it acceptable to allow the provision for a concealed cable-way to facilitate electro-magnetic closing/latching mechanisms. The cable-way must be concealed in the following way:

1. A hole drilled centrally through the leaf of maximum 10mm diameter.
2. The cable for the electronic closing/latching mechanisms must be no more than 2mm smaller in diameter than the hole through the leaf.
3. The cable for the electronic closing/latching mechanism must be PVC encased.
4. Cable ways are only permitted for use with latched, single leaf, single acting doorsets with maximum leaf dimensions of 2100mm (h) x 900mm (w).
5. The hole must be located below 1500mm from the threshold and must be spaced a minimum of 90mm from any apertures within the leaf, e.g. glazing, air transfer grilles or letter plates, etc.

This approval is subject to the hardware manufacturer having the appropriate test evidence for the product for use with this type of 60 minute construction. Test evidence generated in steel doorsets is not acceptable. Any tested intumescent gaskets for the lockset, closing mechanism, receiver plate, cable loops, etc. must be replicated.

### 16.16 Letter Boxes/Plates

Letter boxes/plates with Certifire certification may be fitted providing the product has demonstrated contribution to the required integrity performance of this type of doorset design (i.e. solid timber door), when tested to BS 476: Part 22: 1987 or BS EN 1634-1, when installed in a timber based doorset of comparable thickness.

The product must be fitted in accordance with the supporting Certifire documentation, including the approved intumescent protection and fixing details. The maximum height and proximity from the leaf edges and from other apertures must remain with the limits stated on the supporting Certifire certificate.

## 17 Door Gaps

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

Location	Dimensions
Door edge gaps	Representative of those tested, but as a guideline, a minimum of 2mm & a maximum of 4mm.
Alignment tolerances	Leaves must not be proud of each other, or from the door frame by more than 1mm.
Threshold	10mm between bottom of leaf & top of floor covering.

## 18 Structural Opening

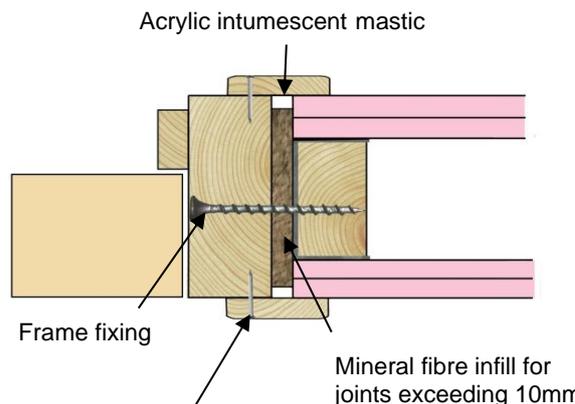
The supporting construction must provide the level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

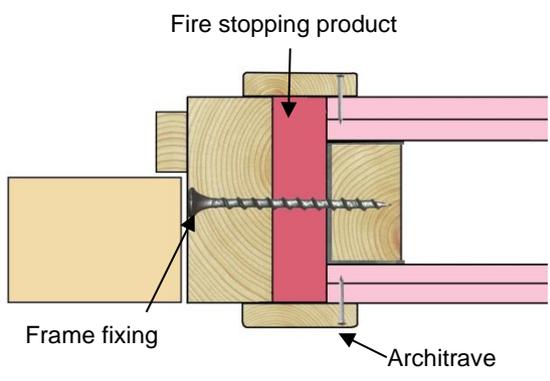
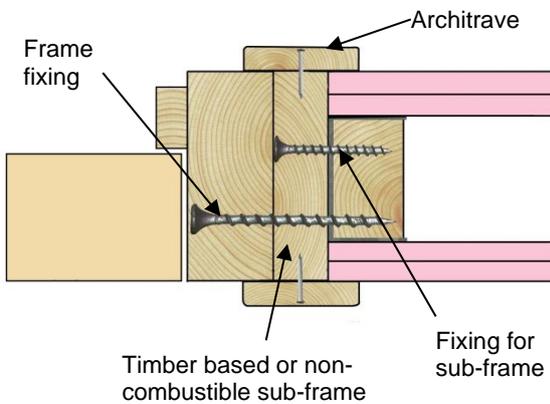
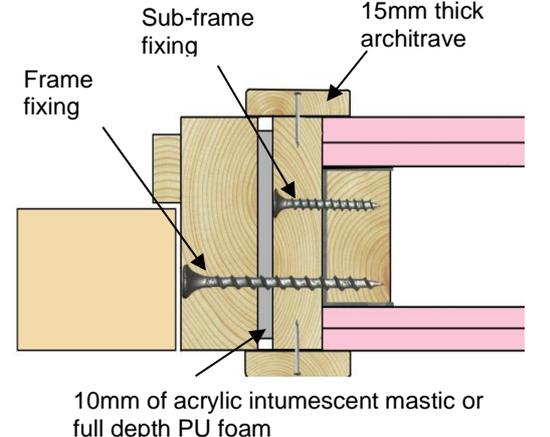
## 19 Fixings

The frame jambs are to be fixed to the supporting construction using steel fixings at 600mm maximum centres. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 40mm. It is not necessary to fix the frame head, although packers must be inserted.

## 20 Sealing to Structural Opening

The door frame to structural opening gap must be protected using one of the following methods:

<p>1. Gaps up to 10mm must be sealed on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side</p>	 <p>Acrylic intumescent mastic</p> <p>Frame fixing</p> <p>Mineral fibre infill for joints exceeding 10mm</p> <p>Architrave for joints not filled with mineral wool and optional for filled joints</p>
<p>2. Gaps between 10mm and 20mm must be tightly packed with mineral fibre capped on both sides with a 10mm depth of acrylic intumescent mastic, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Architraves are optional.</p>	

<p>3. Gaps up to 20mm filled with proprietary fire stopping product (e.g. expanding PU foam or preformed compressible intumescent foam). Products must be tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.</p>	 <p>The diagram shows a cross-section of a door frame joint. A red vertical bar, labeled 'Fire stopping product', is inserted into the gap between the door frame and the wall. The frame is secured with 'Frame fixing' screws. On either side of the frame, there are 'Architrave' pieces that overlap each other by at least 15mm.</p>
<p>4. Timber based or non-combustible sub-frame up to 50mm thick, with no gaps between the components. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.</p>	 <p>The diagram shows a cross-section of a door frame joint. A 'Timber based or non-combustible sub-frame' is shown between the door frame and the wall. The sub-frame is secured with 'Fixing for sub-frame' screws. The door frame is secured with 'Frame fixing' screws. On either side of the frame, there are 'Architrave' pieces that overlap each other by at least 15mm.</p>
<p>5. Timber based or non-combustible sub-frame up to 50mm thick, with gaps up to 10mm between the components filled on both sides with 10mm depth of acrylic intumescent mastic or full depth expanding PU foam, fire tested for this application to BS 476: Part 22: 1987 or BS EN 1634-1. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.</p>	 <p>The diagram shows a cross-section of a door frame joint. A 'Timber based or non-combustible sub-frame' is shown between the door frame and the wall. The sub-frame is secured with 'Sub-frame fixing' screws. The door frame is secured with 'Frame fixing' screws. On either side of the frame, there are '15mm thick architrave' pieces that overlap each other by at least 15mm. The gap between the sub-frame and the wall is filled with '10mm of acrylic intumescent mastic or full depth PU foam'.</p>

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

**Note:** Drawings are representative of doorset installation only; actual installations must be as the text within this document specifies.

## 21 Insulation

For fire resistance applications, insulation performance may be claimed for a doorset to this design meeting the following:

Type	Details
Partially insulating	Doorsets incorporating up to 20% of non-insulating glazing.
Fully insulating	Unglazed doorsets or doorsets fitted with fully insulating glass types, within timber door frames.

## 22 Smoke Control

### 22.1 General

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

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

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

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

### 22.2 Further Considerations

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

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

## 23 Conclusion

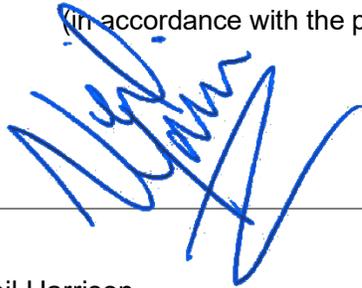
If the Strebord© 54 doorset design, constructed in accordance with the specification documented in this global assessment, were to be tested in the appropriate configuration in accordance with BS 476: Part 22: 1987, it is our opinion that it would provide a minimum of 60 minutes integrity and insulation, subject to section 21.

## 24 Declaration by the Applicant

- 1) We the undersigned confirm that we have read and comply with obligations placed on us by the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments and engineering evaluations based on fire test evidence 2021 Industry Standard Procedure
- 2) We confirm that any changes to a component or element of structure which are the subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.
- 3) We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance test to the standard against which this assessment is being made.
- 4) We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.
- 5) We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment.

(in accordance with the principles of FTSG Resolution No. 82: 2001)

Signed:



Name: Neil Harrison

For and on behalf of: Falcon Panel Products Ltd.

## 25 Limitations

The following limitations apply to this assessment:

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

## 26 Validity

- 1) The assessment is valid until 7<sup>th</sup> February 2023, after which time it must be submitted to Warringtonfire for revalidation and re-appraisal.
- 2) This assessment report is not valid unless it incorporates the declaration given in Section 24, duly signed by the applicant.

<b>Signature:</b>		
<b>Name:</b>	<b>P Barker</b>	<b>Dr K D S Towler</b>
<b>Title:</b>	Technical Manager	Senior Product Assessor

## Appendix A1

### Falcon Panel Products Ltd.

#### Strebord© 54 Nordform Steel Framed Doorsets

##### 1. Introduction

This Appendix contains the information relating to Strebord© 54 doorsets utilising Nordform two piece steel door frames. The assessment uses the same extrapolation and interpretation techniques applied for the main assessment and is an evaluation of the potential fire resistance performance, if the elements were to be tested in accordance with BS 476: Part 22: 1987.

##### 2. General Specification of Construction

The door leaves for Strebord© 54 Nordform steel framed doorsets are manufactured in accordance with the design specified in section 3 of the main assessment. All other aspects of the construction specification are identical to that detailed in the main assessment except where specifically discussed in the following paragraphs.

##### 3. Leaf Sizes & Configurations

The assessed leaf sizes and configurations are based solely on the construction and performance obtained from specimen B tested in Chilt/RF09076. Data sheets specifying the maximum approved leaf sizes and graphs detailing the permitted gradient between height and width are contained in Appendix E.

Steel frame doorsets are not permitted with flush or transomed overpanels or sidelights.

##### 4. Lippings

Steel framed Strebord© 54 must be lipped on all edges in accordance with the following specification:

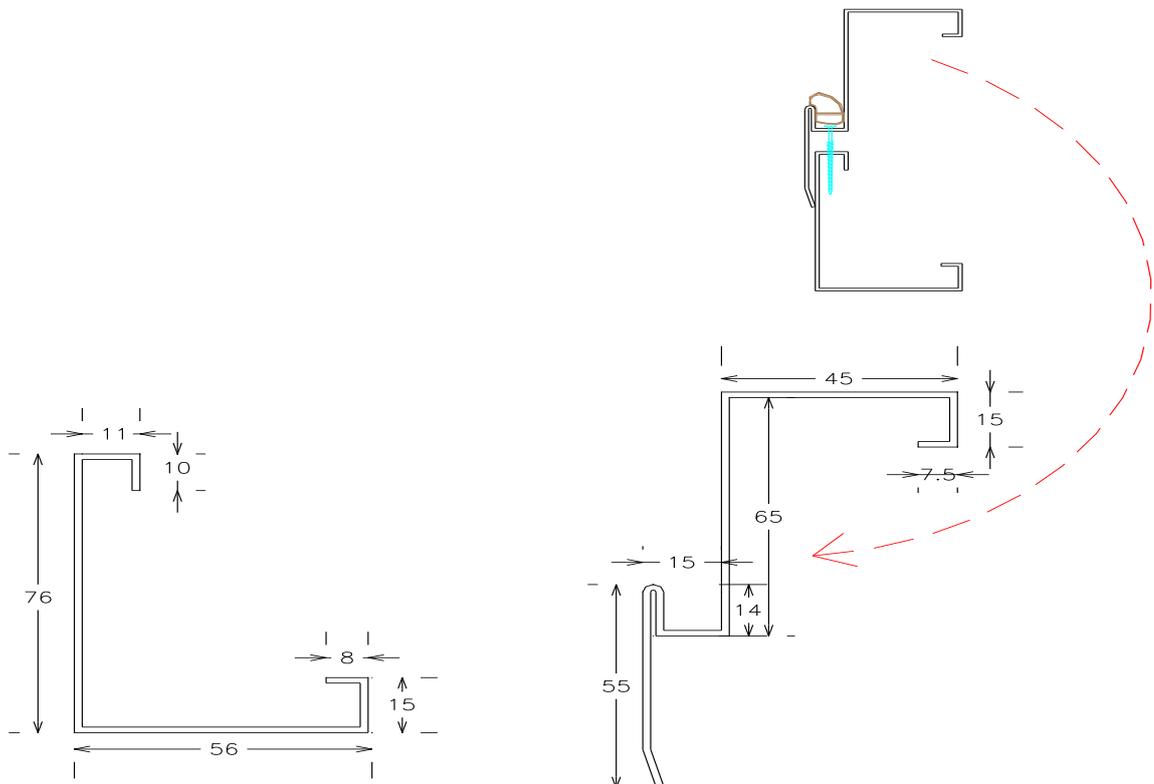
Material	Size (mm)	Min. Density (kg/m <sup>3</sup> )
Hardwood (excluding beech – fagus species). All door lipping timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects)	<ol style="list-style-type: none"><li>1. Flat = 8 – 15 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 13.1 in the main assessment)</li><li>2. Rebated = Not permitted</li></ol>	640

## 5. Door Frame Construction & Installation

The tested frame specification for doorsets to this design comprised the following:

Element	Material	Dimensions (mm)
<b>Head &amp; jambs</b>	Profiled steel sections Nordform Product Ref. A01-A02	1.5 thick
<b>Head to jamb jointing detail</b>	Mitred – screwed	-
<b>Stops</b>	Integral	15 deep
<b>Frame to supporting construction fire stopping detail</b>	Tenmat Firefly lining the partition aperture	3 thick
<b>Frame to supporting construction fixing detail</b>	8No. steel wood screws per jamb used in pairs at each fixing point	80 long
<b>Architrave</b>	None fitted	-

The following diagram depicts the tested Nordform steel door frame design for use with Strebord© 54 doors:



Plasterboard, mineral fibre, glass fibre and ceramic wool must not be used to backfill steel door frames. Appendix E details the leaf size ranges and intumescent seal specifications for steel frame constructions.

## 6. Structural Openings

Strebord© 54 Nordform steel framed doorsets may be fitted into the following types of structural opening:

- Cast dense concrete
- Dense concrete blocks or brickwork
- Masonry
- Lightweight concrete
- Lightweight aerated concrete
- Timber stud partition
- Steel stud partition (apertures must be framed by steel studs, which have a minimum of 45 x 45mm softwood stiffeners to the vertical edges).

## 7. Hardware

It is permitted to use the following hardware with Strebord 54 doorsets hung in steel frames. The section references relate to the main body of the assessment. Please refer to the relevant section in the main body of the assessment for details:

- Hinges – section 16.3.1
- Single point latches and locks – section 16.4.1
- Overhead face fixed closers – section 16.5.1
- Handles – section 16.7
- Push plates/kick plates – section 16.8
- Door security viewers – section 16.10
- Panic hardware – section 16.11
- Air transfer grilles – section 16.12
- Letter boxes/plates – section 16.16

## Appendix A2

### Falcon Panel Products Ltd. Strebord© 54 Steel Framed Doorsets

#### 1. Introduction

This Appendix contains the information relating to Strebord© 54 doorsets utilising steel door frames. The assessment uses the same extrapolation and interpretation techniques applied in the main assessment and is an evaluation of the potential fire resistance performance, if the elements were to be tested in accordance with BS 476: Part 22: 1987.

#### 2. General Description of Construction

The door leaves for Strebord© 54 steel framed doorsets are manufactured in accordance with the design as specified in section 3 of the main assessment. Except where specifically discussed in the following paragraphs, all other aspects of the construction specification are identical to that detailed in the main assessment.

#### 3. Leaf Sizes & Configurations

The assessed leaf sizes and configurations are based solely on the construction and performance obtained from the specimens tested in Chilt/RF04002. Data sheets specifying the maximum approved leaf sizes and graphs detailing the permitted gradient between height and width are contained in Appendix E.

Steel frame doorsets are not permitted with flush or transomed overpanels or sidelights.

#### 4. Lippings

Steel framed Strebord© 54 must be lipped on all edges in accordance with the following specification:

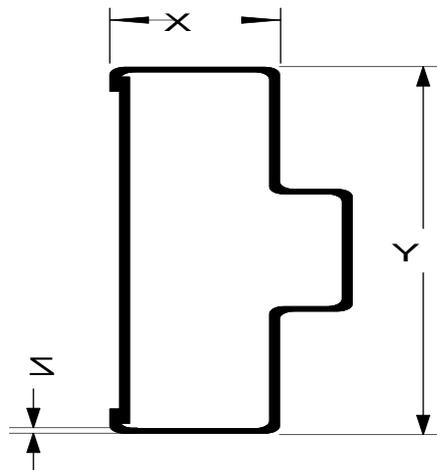
Material	Size (mm)	Min. Density (kg/m <sup>3</sup> )
Hardwood (excluding beech – fagus species). All door lipping timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects)	1. Flat = 8 – 13 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 13.1 of the main assessment) 2. Rebated = Not permitted	640

#### 5. Door Frames

The tested frame specification for doorsets to this design comprised the following:

Material	Size (mm)	Min. Density (kg/m <sup>3</sup> )
1.5mm thick rolled mild steel	171mm wide x 58mm thick including a 20mm deep x 51mm wide integral stop	N/A

The door frames must be manufactured from mild steel as tested or alternatively stainless steel of the appropriate grade, e.g. 304 or 316 may be used. The frame dimensions may be varied within the following parameters:



**X:** + or - 30%

**Y:** + or - 50% (providing the frame reveal dimensions are maintained)

**Z:** + 100 % and – 0%

The frame may be hollow or back filled with mortar or concrete. Plasterboard, mineral fibre, glass fibre and ceramic wool must not be used. Appendix E details the leaf size ranges and intumescent seal specifications for steel frame constructions.

## 6. Fixings

Fixings must be of the appropriate type and length for the structural opening medium and must include a minimum of 1 fixing for no more than 600mm of vertical edge, with a fixing no more than 350mm from the top and bottom corners. Two fixings are required to the frame head.

## 7. Structural Openings

Strebord© 54 steel framed doorsets may be fitted into the following types of structural opening:

- Cast dense concrete
- Dense concrete blocks or brickwork
- Masonry
- Lightweight concrete
- Lightweight aerated concrete
- Timber stud partition
- Steel stud partition (apertures must be framed by steel studs, which have a minimum of 45 x 45mm softwood stiffeners to the vertical edges).

Gaps between door frames and structural openings must be protected with proprietary materials that have been successfully tested for this application.

## 8. Hardware

It is permitted to use the following hardware with Strebord 54 doorsets hung in steel frames. The section references relate to the main body of the assessment. Please refer to the relevant section in the main body of the assessment for details:

- Hinges – section 16.3.1
- Single point latches and locks – section 16.4.1
- Overhead face fixed closers – section 16.5.1
- Handles – section 16.7
- Push plates/kick plates – section 16.8
- Door security viewers – section 16.10
- Panic hardware – section 16.11
- Air transfer grilles – section 16.12
- Letter boxes/plates – section 16.16

## Appendix B

### Performance Data

#### Primary Data

Report No.	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)
RF99113 (No intumescent protection to hinges)	ULSADD	2135 x 935/935 x 54	BS 476: Pt 22: 1987	61
RF00169 (No intumescent protection to hinges)	ULSADD	2135 x 935/935 x 54	BS 476: Pt 22: 1987	62
RF02020	ULSADD + OP	2120 x 915/915 x 54	BS 476: Pt 22: 1987	62
RF04002 (Steel door frames)	A: ULSADD	2200 x 896/401 x 55	BS 476: Pt 22: 1987	69
	B: ULSASD	2200 x 1078 x 55		73
RF06028 (Additional hardware)	ULSASD	2100 x 902 x 44	BS 476: Pt 22: 1987	60
RF07035	ULSADD	2135 x 932/932 x 54	BS 476: Pt 22: 1987	62
RF08051 (Proving test Strebord© 54 produced by Unilin mill)	ULSADD	2135 x 932/932 x 54	BS 476: Pt 22: 1987	61
RF08161 (Proving test Strebord© 54 produced by Linex mill)	ULSADD	2135 x 936/936 x 54	BS 476: Pt 22: 1987	63
A09140 (Tall single leaf Strebord© 54)	B: ULSASD	2742 x 928 x 54	BS 476: Pt 22: 1987	72
RF10011 (MDF door frames)	B: ULSASD	2040 x 925 x 54	BS 476: Pt 22: 1987	73
RF13056 (Angouma door frames)	A: ULSASD	2135 x 926 x 54	BS 476: Pt 22: 1987	65
	B: ULSASD	2135 x 926 x 54		68
RF13082 (Angouma door frames)	ULSADD	2130 x 935/935 x 54	BS 476: Pt 22: 1987	60
RF13111 (Increased single leaf dimensions)	ULSASD	2454 x 1234 x 54	BS 476: Pt 22: 1987	63
RF13242 (Extended height)	ULSADD	2797 x 927/927 x 54	BS 476: Pt 22: 1987	71
WF413865 (Astra Door Controls 4000 series jamb mounted concealed closer, 8mm (t) Strelip, bi-directional test)	A&B ULSADD	2135 x 935 x 54	BS 476: Part 22: 1987	70

Report No.	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)
WF414533 (0.5mm (t) decorative veneer, Geze Boxer concealed overhead closer)	A & B: LSASD	2510 x 1045 x 54	BS 476: Part 22: 1987	A: 67 B: 80
CFR2104282 (Strelip engineered lipping – single leaf doorsets)	LSASD	2040 x 926 x 54	BS 476: Part 22: 1987	65
WF413865 (Strelip engineered lipping – double leaf doorsets)	ULSADD	2135 x 935 x 54	BS 476: Part 22: 1987	70
TA087-9&10 (Pyrogrille 25 and 100 air transfer grilles and Rutland ITS 11204 concealed overhead closer)	LSASD	2400 x 926 x 54	BS EN 1634-1: 2014 + A1: 2018	70
CFR1810231 (Rutland 11204 concealed overhead closer with PS190 double acting pivot set)	DADD	20005 x 927 x 54	BS 476: Part 22: 1987	58 <sup>7</sup>

#### Supplementary Data

Report No.	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)
RF09076 (Nordform split steel door frames)	A: ULSADD	2150 x 931/280 x 54	BS 476: Pt 22: 1987	Integrity: 60 Insulation: 27
IF09145 (Grooves)	A: ULSASD	1010 x 926 x 44	Principles of BS 476: Pt 20: 1987	64
	B: ULSASD	1010 x 926 x 54		72
WF148053 (Pyroplex air transfer grilles)	Indicative	990 x 900 x 54	BS 476: Pt 20: 1987	66 (grille D)
WF146521 (Pyroplex air transfer grilles)	Indicative	990 x 900 x 54	BS 476: Pt 20: 1987	62
WF155385 issue 2 (Pyroplex 30095 glazing system)	Indicative	990 x 900 x 54	BS 476: Pt 20: 1987	64
A07051 Rev B (Lorient Palusol & Type 617)	Various	Various	BS 476: Pt 22: 1987	30 & 60

Report No.	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)	
RF12077 (Pilkington Pyroclear)	A: ULSASD	2050 x 700 x 54	BS 476: Pts 20/22: 1987	79	
	B: ULSASD	2050 x 700 x 54		72	
	C: ULSASD	2050 x 927 x 54		61	
RF05035 (Pilkington Pyrostop)	A: ULSASD	2135 x 1040 x 54	BS EN 1634-1 & BS EN 1363-1	66	
	B: LSASD	2135 x 1036 x 54		55	
RF05126 (AGC Flat Glass Pyrobel)	A: ULSASD	2135 x 915 x 54	BS EN 1634-1 & BS EN 1363-1	59 <sup>1</sup>	
	B: ULSASD	2135 x 915 x 54		53 <sup>2</sup>	
RF11171 (CGI Pyroguard)	ULSADD	2135 x 915 x 54	BS EN 1634-1 & BS EN 1363-1	60	
RF12068 (CGI Pyroguard)	ULSASD	2442 x 917 x 54	BS EN 1634-1 & BS EN 1363-1	66	
PF14168 Rev. A (Tuscan flush pull handle & Winkhaus AV2)	LSASD	2040 x 926 x 46	BS EN 1634-1 & BS EN 1363-1	Integrity: 48 <sup>3</sup>	
PF14233 AR1 (Winkhaus AV2)	B: LSASD	2052 x 915 x 54	BS EN 1634-1 & BS EN 1363-1	Integrity: 67	
PF14029 (Streframe glazing beads)	A: ULSASD	2040 x 926 x 56	BS 476: Part 20/22: 1987	Integrity	53 <sup>4</sup>
				Insulation	53
PF15035 (STS glazing system)	ULSADD	2900 x 1000/1000 x 54	BS 476: Part 20/22: 1987	Integrity: 50 <sup>5</sup>	
CFR1405071 (Sealmaster 2712S threshold seal)	ULSADD	2440 x 931 x 54	BS EN 1634-1	Integrity: 58 <sup>6</sup>	
BF16012 (Hoppe AR7383 concealed overhead closer on Stredor, deemed fundamentally the same for supporting the closer with Strebord)	LSASD	2042 x 925 x 54	BS 476: Part 22: 1987	Integrity: 66 Insulation 66	
WF324426 (Synergy 1000 concealed overhead closers <sup>8</sup> , tested on a GDC core deemed to be fundamentally the same for supporting the closer with Strebord)	B: LSASD	2030 x 936 x 54	BS EN 1634-1: 2008	Integrity:60 Insulation: 60	

Report No.	Configuration	Leaf Size (mm)	Test Standard	Performance (mins)
WF375219 (Synergy 1036 concealed overhead closers <sup>8</sup> )	B: LSASD	2040 x 937 x 54	BS EN 1634-1: 2014	Integrity: 66 Insulation 66
WF379042 (Dorma ITS96 3-6 with different slide channels)	B: LSASD	2038 x 932 x 54	BS EN 1634-1:2014	Integrity: 63 Insulation: 63
WF389552 (Dorma ITS96 2-4 with G96N slide channel)	B: LSASD	1435 x 570 x 54	Principles of BS EN 1634-1 and EN 1363-1	Test terminated at 62 mins with no failure observed at closer
WF380214 (Lorient LVV40 air transfer grilles)	B: LSASD	2052 x 952 x 54	BS EN 1634-1: 2014	Integrity: 66 Insulation: 66
IF13037 (Vistamatic VS1 Secure Vision Panels)	Indicative sample	1250 x 1230 x 54	BS 476: Part 20/22: 1987	65
CF257 (Certifire certificate for Pyroguard EW60 (11mm))	Single and double leaf doorsets	Varies	BS 476: Part 20/22: 1987	60
CF284 (Certifire certificate for Therm-A-Glaze 60 system with Pyroguard EW60 (11mm))	Single and double leaf doorsets	Varies	BS 476: Part 20/22: 1987	60

**Notes:**

Based on test RF10011 MDF frame coverage has been given for both single and double leaf doorsets based on the over-run in performance, limiting the size of the permitted double leaf configurations and restricting the scope for alternative perimeter intumescent seal types.

1. The failure witnessed at 59 minutes was attributable to the leaf to frame junction. No failure witnessed was directly attributable to the glass prior to the test termination at 66 minutes. The test report is being used to support the use of the glass type only. The mode of failure has been addressed and is not relevant to the door designs contained in this report
2. The failure witnessed at 53 minutes was attributable to the leaf to frame junction. No failure witnessed was directly attributable to the glass prior to the test termination at 66 minutes. The test report is being used to support the use of the glass type only. The mode of failure has been addressed and is not relevant to the door designs contained in this report
3. None of the failures witnessed prior to 60 minutes were attributable to the flush pull handle. The test report is being used to support the use of the flush pull handle only. The mode of failure has been addressed and is not relevant to the door designs contained in this report
4. None of the failures witnessed prior to 60 minutes were attributable to the Streframe glazing beads. The test report is being used to support the use of the Streframe glazing beads only. The mode of failure has been addressed and is not relevant to the door designs contained in this report
5. None of the failures witnessed prior to 60 minutes were attributable to the STS glazing system. The test report is being used to support the use of the STS glazing system only. The mode of failure has been addressed and is not relevant to the door designs contained in this report
6. The failure witnessed at 58 minutes may have been partly due to the threshold drop-seal fitted in the right-hand leaf, but due to failures witnessed in other locations at the same time, it is not possible to attribute the failure solely to one element. As this test was conducted to BS EN 1634 Test Standard, whereas this assessment is written to BS 476 Test Standard which is perceived as less onerous, it is the opinion of BM TRADA that cloaking the door gap junction where the end of the

threshold drop-seal is exposed would prevent any issues. Therefore, use of the Sealmaster DropSeal is permitted, but limited to latched, single acting, single leaf doorset applications.

7. The failure observed at 58minutes was at the glazing location and completely remote from the concealed closer being considered for inclusion within this assessment. The test evidence has therefore been deemed suitable to support the tested closer with Strebord 54 door design based on the evidence.
8. The sponsor of the test has stated that the names of the closers within the reports have been rebranded to Synergy 1000 (WF324426) and Synergy S1036 (WF375219) . It is the manufacturers responsibility to demonstrate that the product has not changed from that tested (e.g. manufacturing process and components). On the basis the product is exactly the same as originally tested, changing the brand name of the product will not detract from its fire resistance performance.

## Appendix C

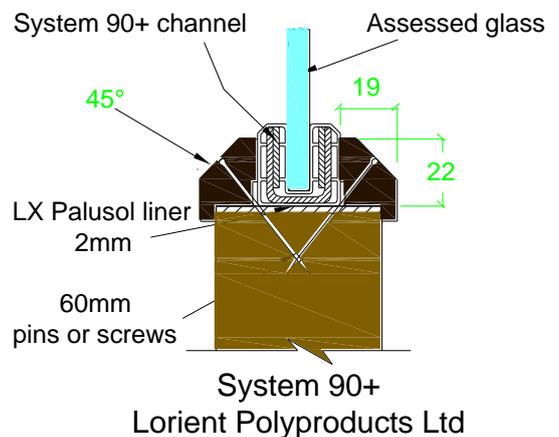
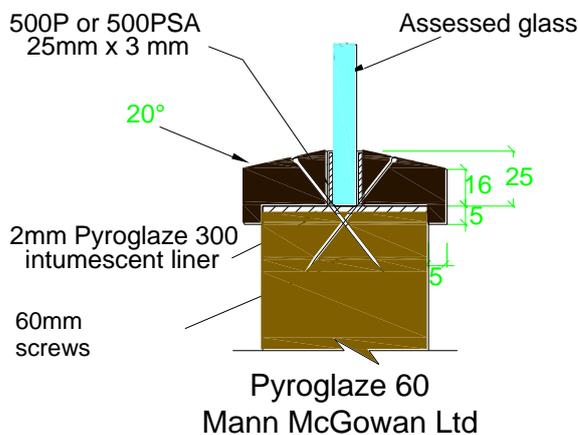
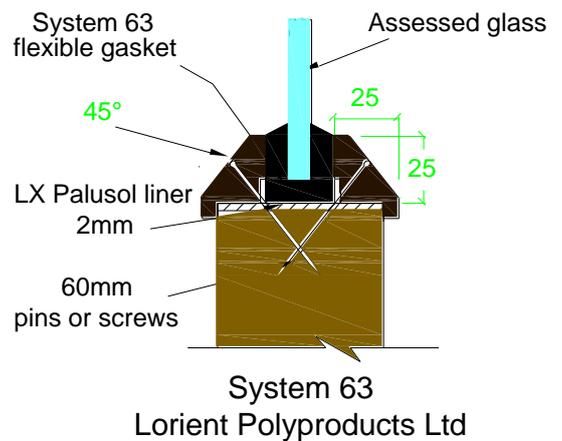
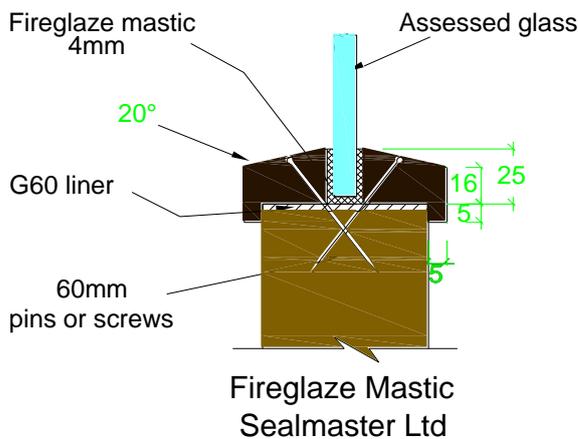
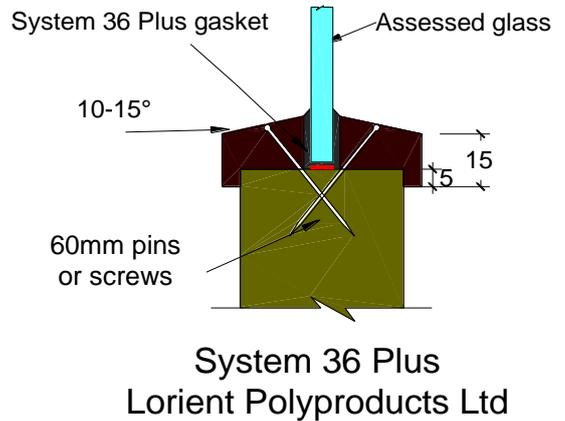
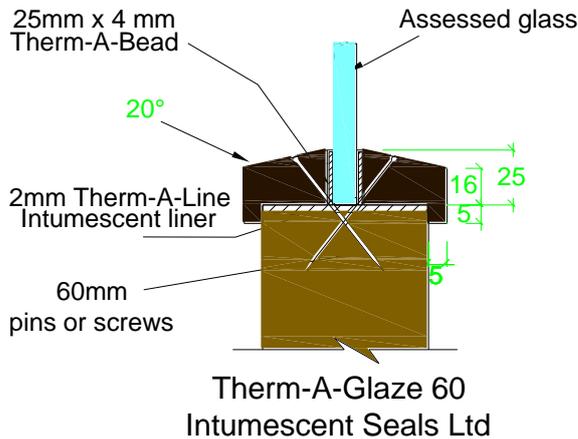
### Revisions

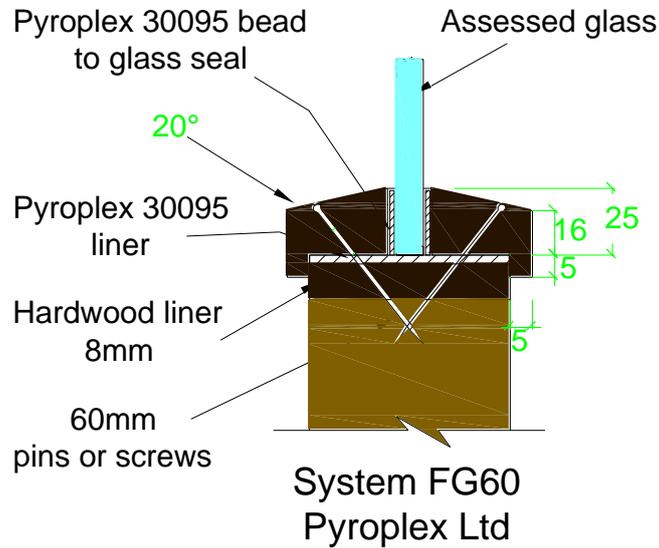
Rev.	BM TRADA Ref.	Date	Description
A	A07067	25.04.07	5 year revalidation and update.
A	A07080	10.05.07	Inclusion of evidence from RF07035 – ISL seals.
B	A08041	02.05.08	5 year revalidation and update into new format. Inclusion of data from RF04002 (steel frames), RF06028 (hardware). Data sheet revised in terms of intumescent seal type and size.
C	A08205	03.10.08	5 year revalidation and update. Inclusion of data from RF08088 (Pyroplex door edge seals), WF148053 and WF146521 (air transfer grilles), WF 155385 Issue 2 (Pyroplex glazing system 30095) and RF08051 (Unilin mill) and RF08161 (Linex mill).
D	A09233	21.12.09	Addition of Nordform steel frame data contained in RF09076, grooves based on IF09145, extension of single door heights based on RF09140 and re-instatement of Type 617 seals, coverage for MDF frames based on RF10011, additional glass types.
E	A13097	12.04.13	Edit to Pyroglaze 60 glazing system diagram to remove pin fixing option.
F	A13156	12.07.13	Addition of CS Group edge protectors and post-formed Acrovyn based on RF11061. Addition of Pilkington Pyroclear based on RF12077. Addition of Pilkington Pyrostop based on RF05035. Addition of AGC Flat Glass Pyrobel based on RF05126. Addition of CGI Pyroguard based on RF11171 and RF12068. Inclusion of Angouma timber for door frames based on RF13056 and RF13082. Included the option to fit the Safehinge™ product. Increased the maximum single leaf dimensions based on RF13111. Addition of Norsound hardware gaskets based on IF13014. Addition of Norsound Universal glazing systems based on IF13061. Addition of Norsound Vision glass based on Chilt/A12161.
G	F14006	03.02.14	Increased glazing apertures and options and increased leaf sizes based on RF13242.
H	F15077	03.07.15	Addition of Streframe glazing beads based on PF14029, a multi-point lock based on PF14233, a flush pull handle based on PF14168 Rev. A, STS glazing system based on PF15035, a Sealmaster drop seal 2712S based on CFR1405071. Also, clarification provided on leaf thickness calibration, amount of lipping trim and screw fixings for hinges.
I	WF 436808	22.12.2020	The assessment has been written into the latest Warringtonfire format and revalidated for a further 6 months based on a review of the evidence contained in Appendix

			A. The use of beech (Fagus species) has been removed as a hardwood option
J	WF 506240	12.07.2021	Review and revalidation of assessment for an additional 1 year validity. Assessment has included updates to the scope for Pyroguard EW60 (11mm) and Pyroshield 2 glass by aligning the glass and glazing systems permitted with the relevant Certifire certificates
K	WF 520759	1.07.2022	Review and revalidation of assessment for an additional 7months validity. The assessment has been updated with additional test evidence to justify specific scope within the assessment (e.g. Strelip engineered hardwood lippings, air transfer grilles and concealed closers). The timber quality requirements have been updated throughout and the configuration scope and section has been clarified (double acting flush overpanels have been removed). Other items that have been removed are CS Edge protectors and encapsulation and Safehinge. The option for installing glazing into solid overpanels has also been removed from this assessment. The use of MDF and steel frames with overpanels has been clarified. Hardware specification for steel frame doorsets has been clarified. The direction of fire risk when fitting the Vistamatic unit has been included in a new section for orientation with respect to fire risk. The assessment has been reviewed and updated as an interim assessment while a larger review takes place with additional test evidence and scope.

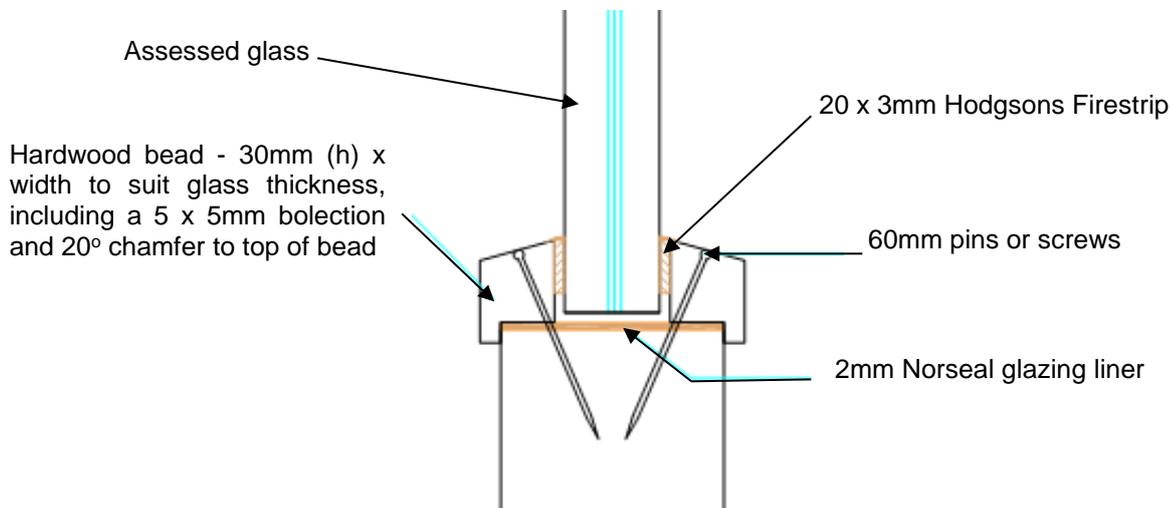
## Appendix D

### Proprietary 60 Minute Glazing Systems



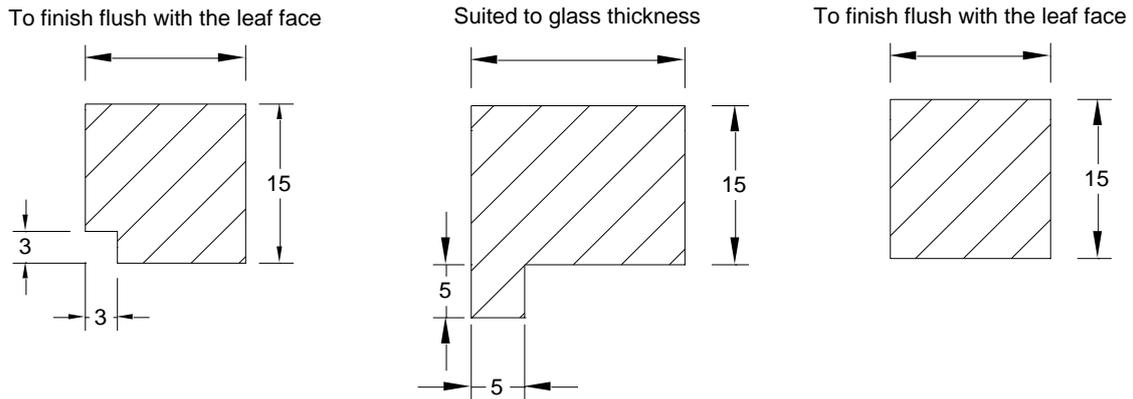


**Firestrip 60 – Hodgsons Sealants Ltd.**



### Assessed Square Glazing Bead Profiles

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



## Appendix E

**Data Sheets for:**

**Falcon Panel Products Ltd.**

**Strebord© 54 60 Minute Fire Resisting Doorsets**

## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Palusol)

### Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:		2120	x
To:			2505	x	915
ULSASD & DASD	From:		2120	x	1080
	To:		2455	x	915
Maximum Overpanel Height (mm)		Transomed	2000		

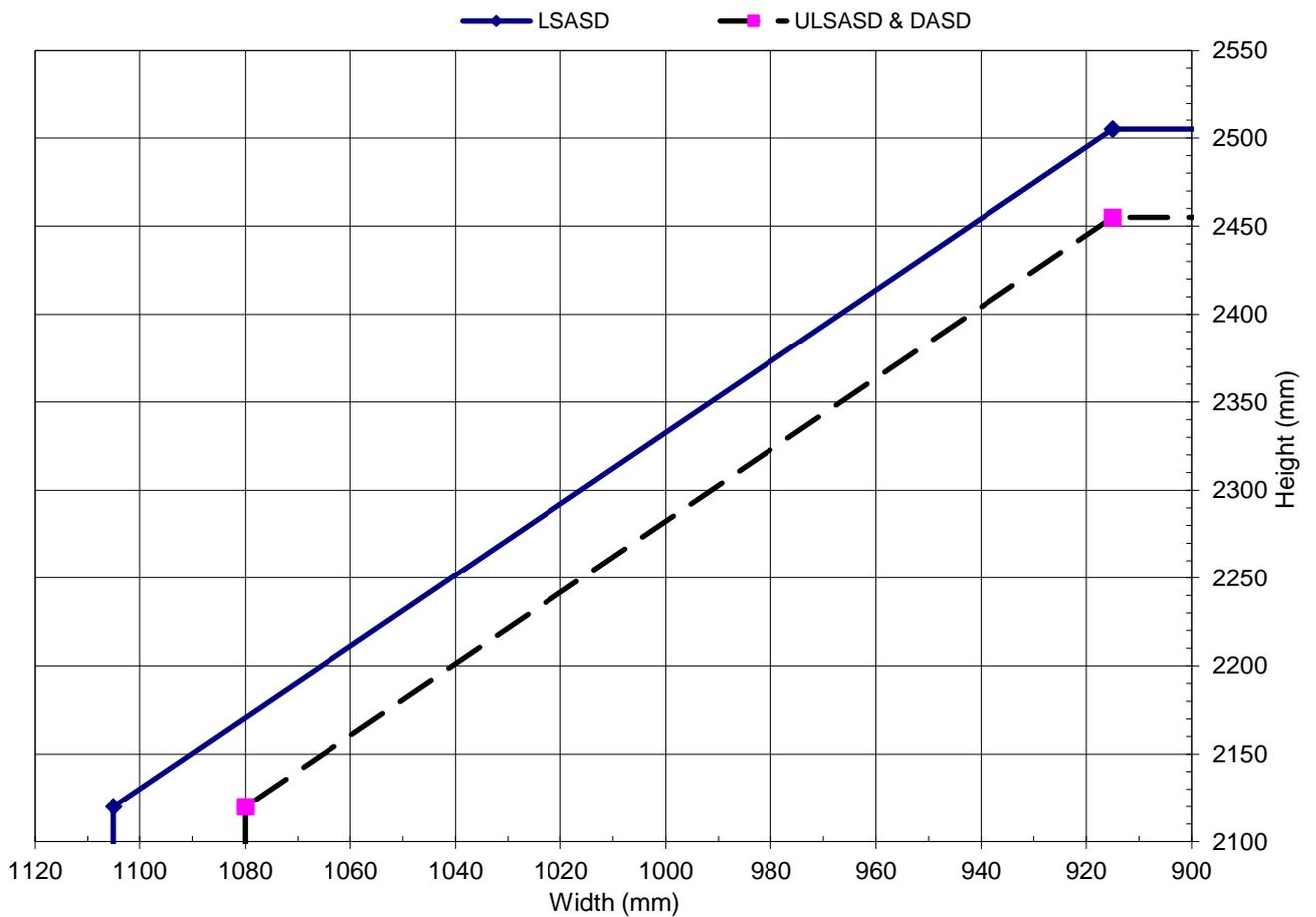
**INTUMESCENT MATERIALS: PVC encased Palusol 100**

**HEAD:** 2No.15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Type 617)

### Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration	From: To:	Height (mm)		Width (mm)	
	LSASD & ULSASD & DASD		2120 2300	x x	1026 915	
Maximum Overpanel Height (mm)		Transomed	2000			

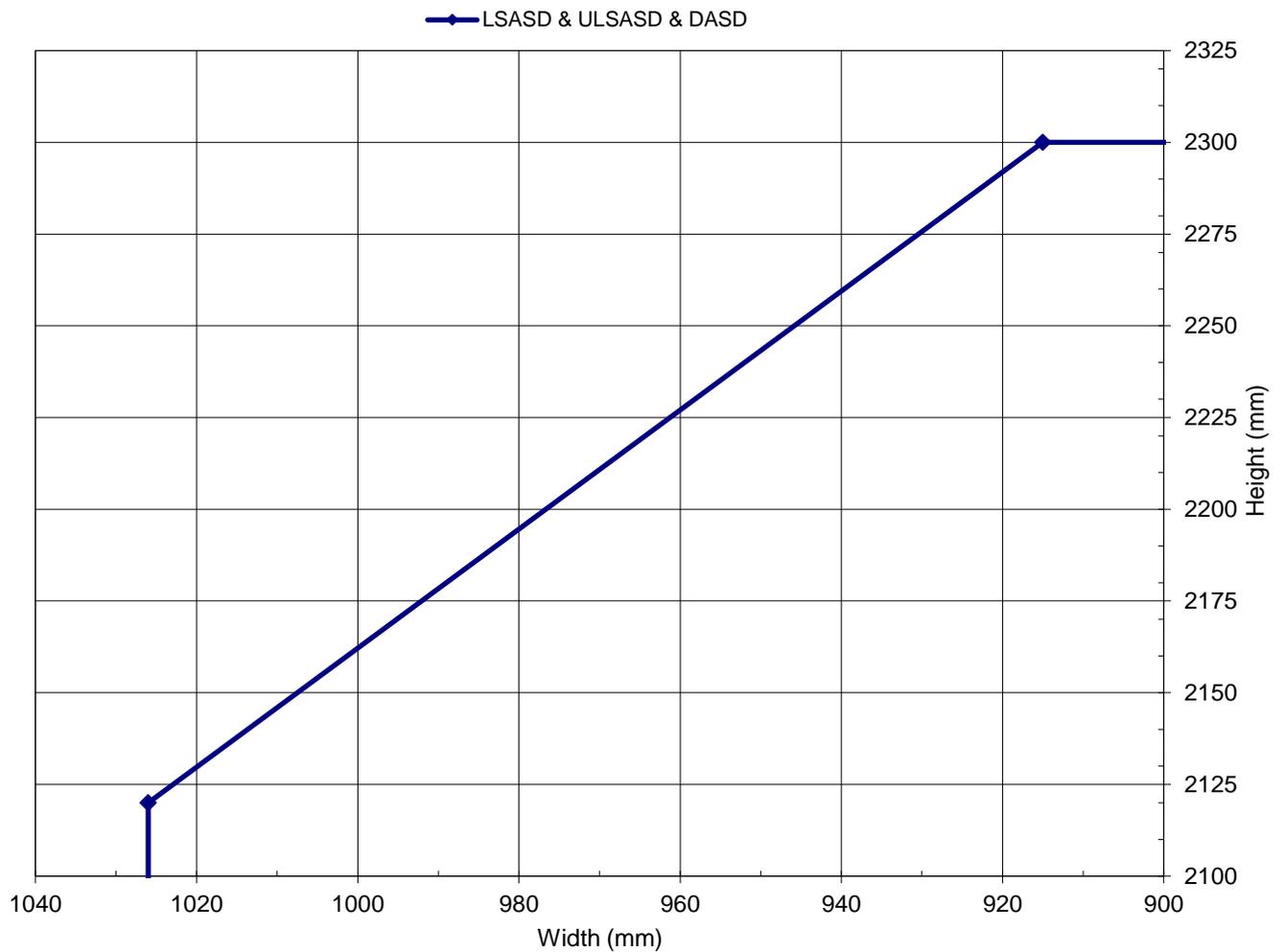
#### INTUMESCENT MATERIALS: Type 617

**HEAD:** 2No.15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Pyroplex)

### Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)	
	LSASD	From:		2742	x	1046
To:			3066	x	928	
ULSASD & DASD	From:		2742	x	1021	
	To:		3016	x	928	
Maximum Overpanel Height (mm)		Transomed	2000			

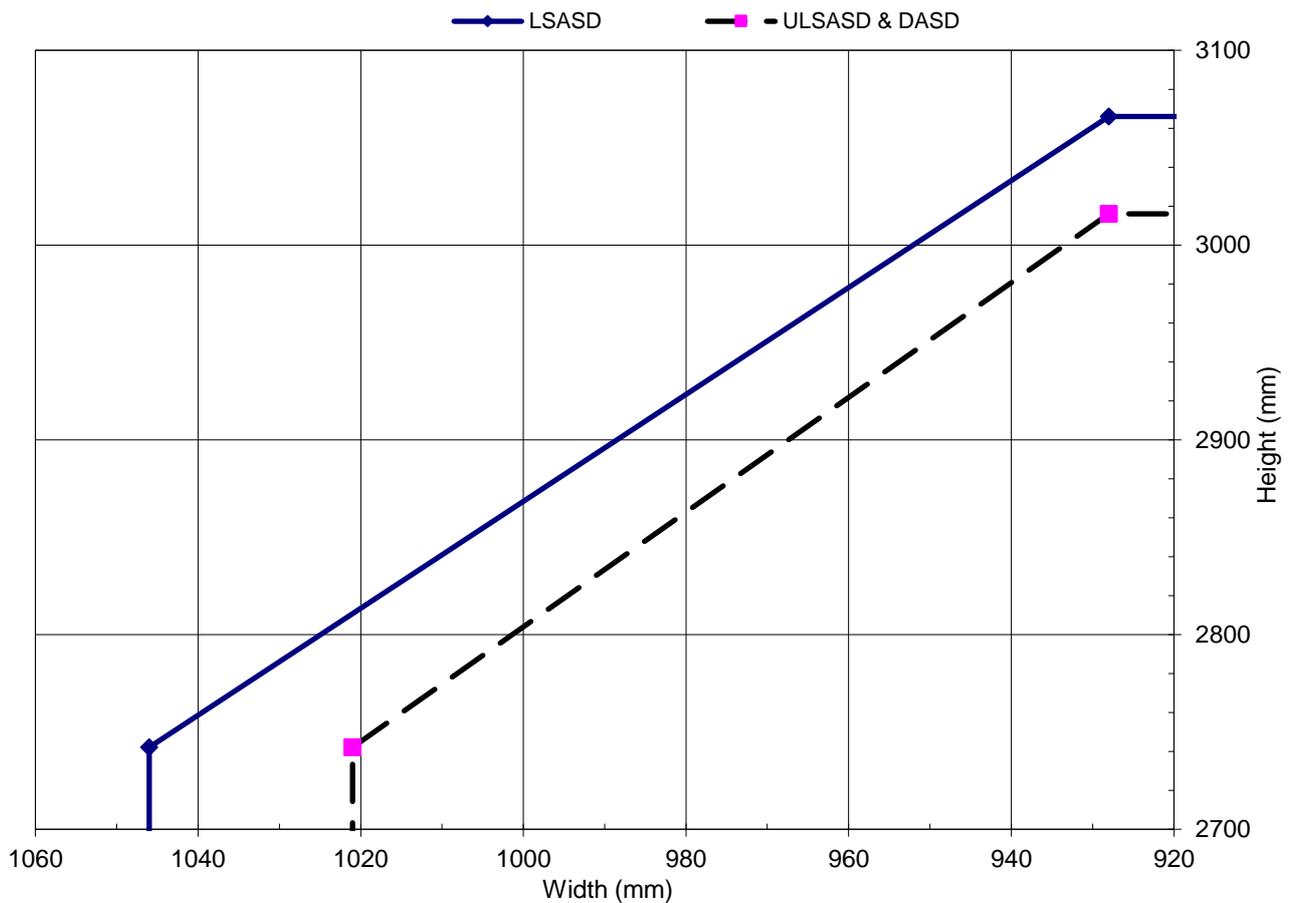
#### INTUMESCENT MATERIALS: Pyroplex

**HEAD:** 2No.15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

Maximum Door Leaf Size



**Falcon Panel Products – Strebord© 54 - Extended Width (Pyroplex)**  
**Latched & Unlatched, Single & Double Acting, Single Doorsets**

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:		2454	x
To:			2528	x	1234
ULSASD & DASD	From:		2454	x	1246
	To:		2478	x	1234
Maximum Overpanel Height (mm)		Transomed	2000		

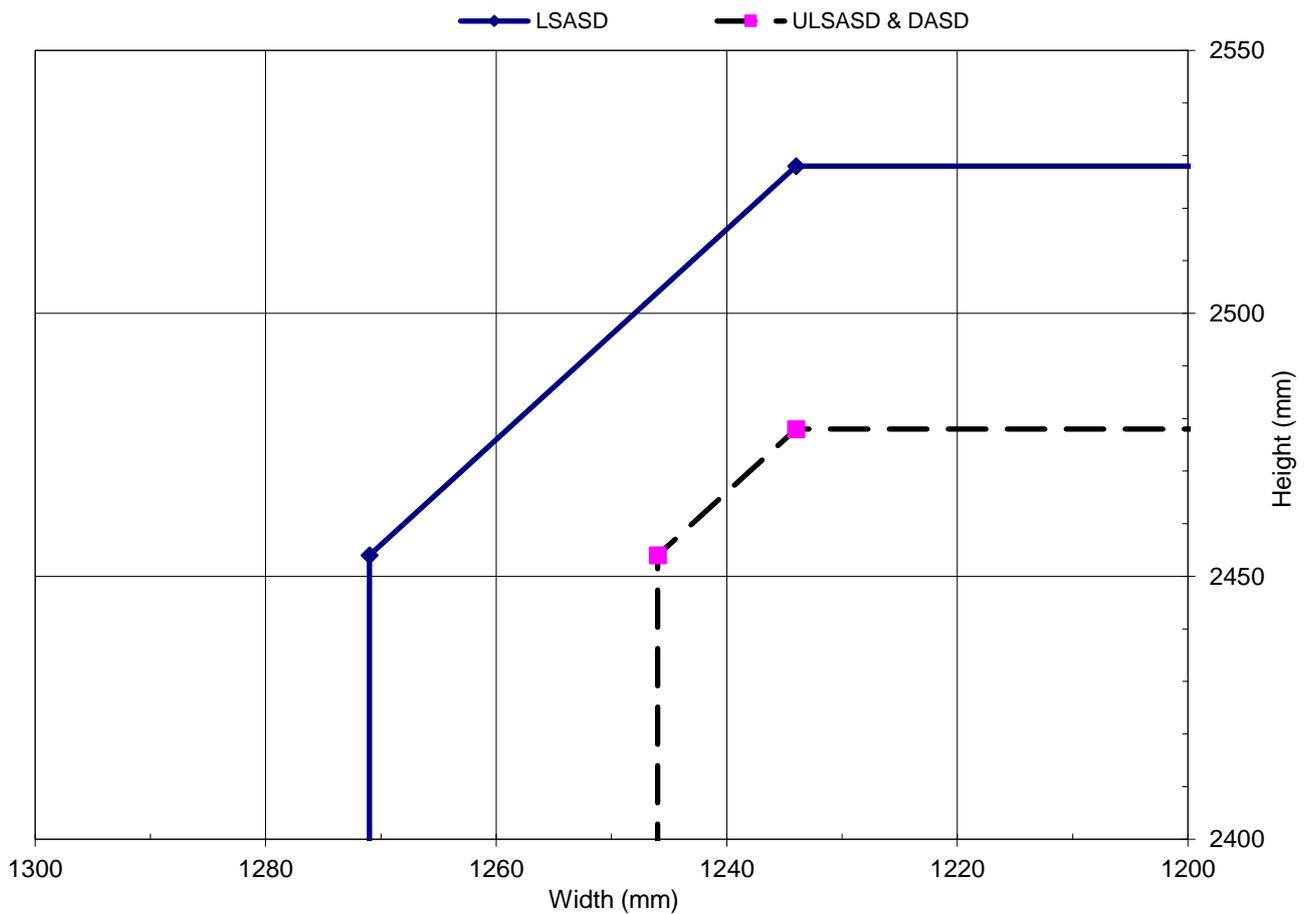
**INTUMESCENT MATERIALS: Pyroplex**

**HEAD:** 2No.15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

**Maximum Door Leaf Size**



## Falcon Panel Products – Strebord© 54 - MDF Door Frames (Pyroplex)

### Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:		2040	x
To:			2310	x	925
ULSASD & DASD	From:		2040	x	1025
	To:		2260	x	925
Maximum Overpanel Height (mm)		N/A	Not permitted		

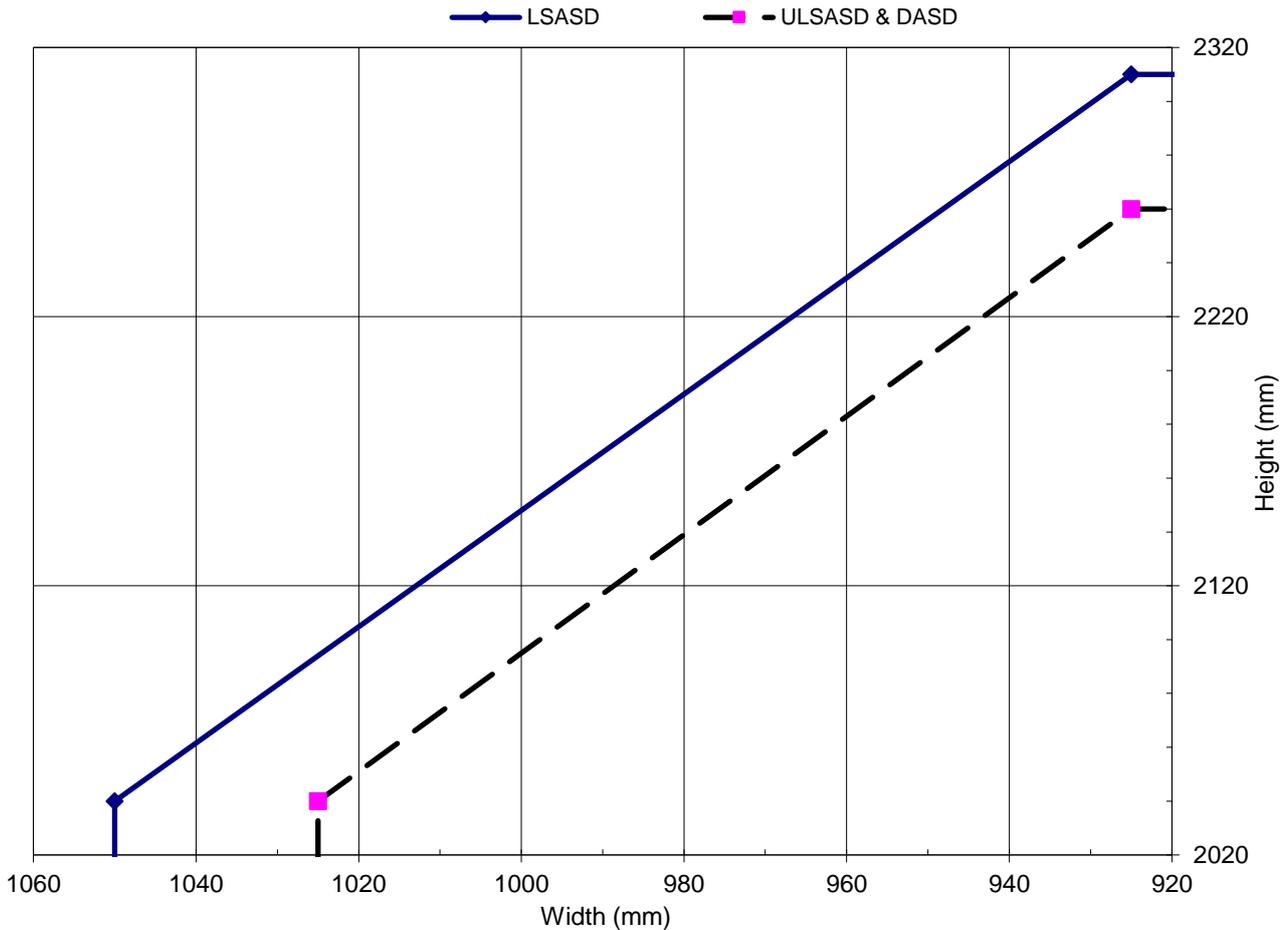
**INTUMESCENT MATERIALS: PVC encapsulated Pyroplex**

**HEAD:** 2No.15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**JAMBS:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Extended Sizes (Pyroplex)

### Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:		2757	x
To:			3155	x	927
ULSASD & DASD	From:		2757	x	1060
	To:		3105	x	927
Maximum Overpanel Height (mm)		Transomed	2000		

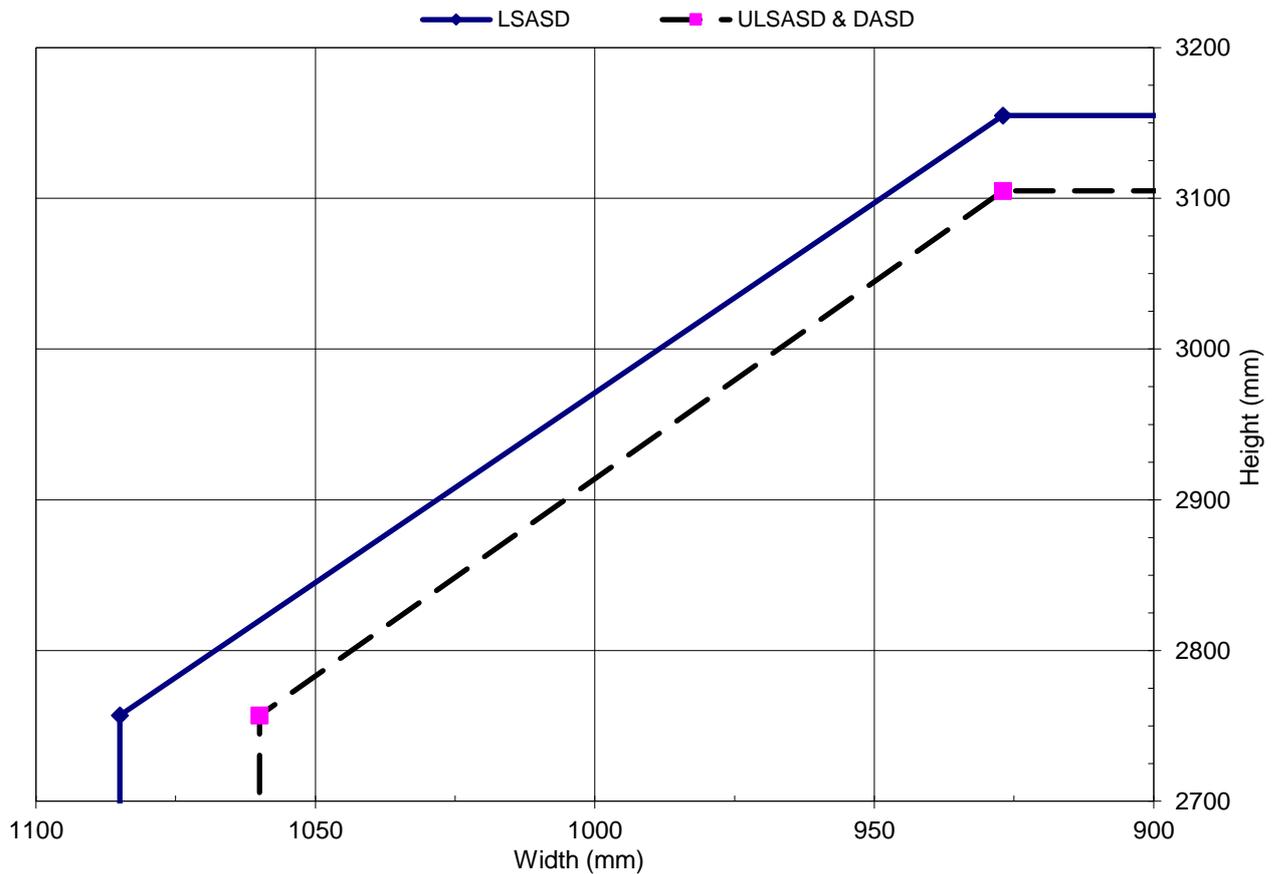
#### INTUMESCENT MATERIALS: Pyroplex Rigid Box Seal FO8700

**HEAD:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the frame reveal, plus 1 No. 15x4mm exposed and fitted centrally in the leaf edge.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the frame reveal.

**HARDWARE PROTECTION:** See section 12.

Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Therm-A-Seal)

### Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:		2132	x
To:			2319	x	932
ULSASD & DASD	From:		2132	x	997
	To:		2269	x	932
Maximum Overpanel Height (mm)		Transomed	2000		

#### INTUMESCENT MATERIALS: Therm-A-Seal

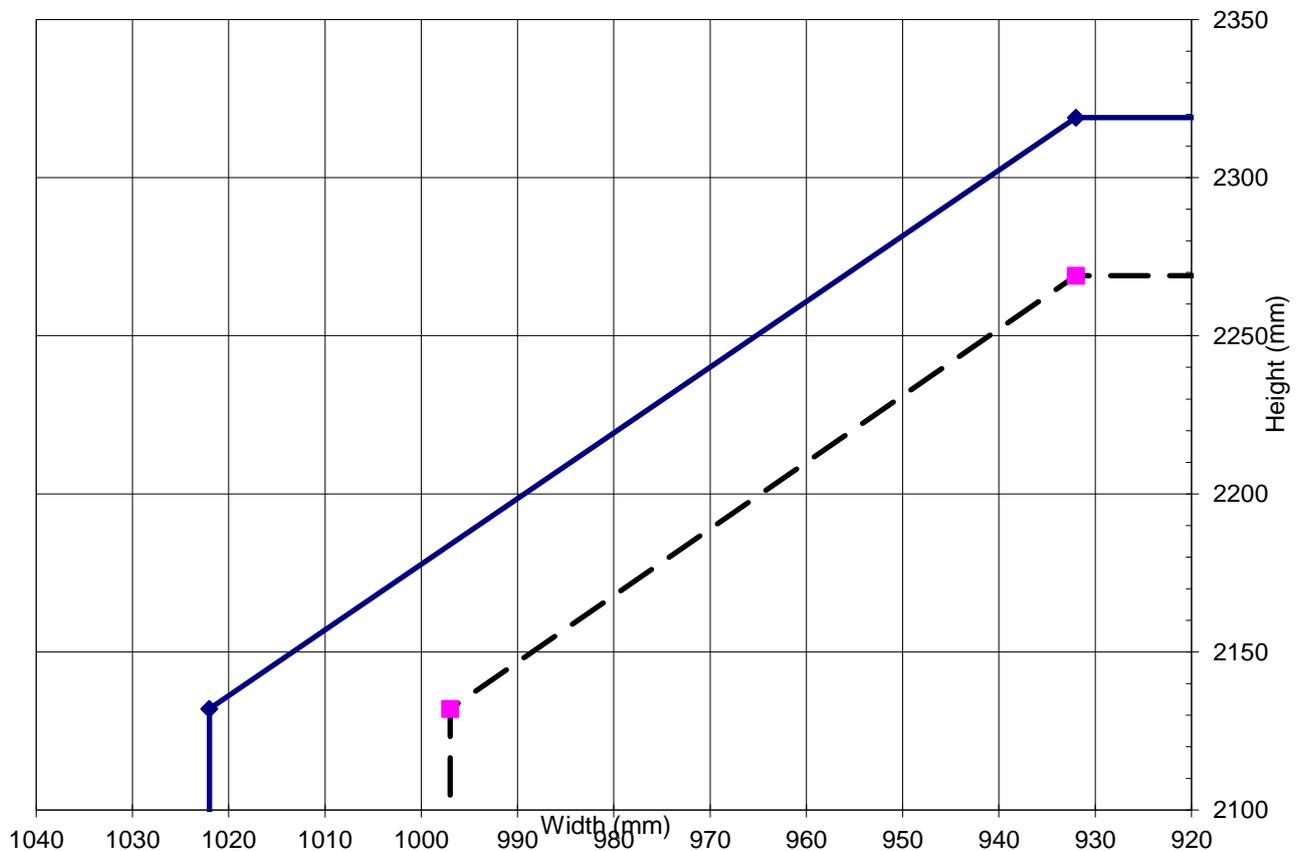
**HEAD:** 2No.15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size

—●— LSASD      -■- ULSASD & DASD



## Falcon Panel Products – Strebord© 54 ® - Timber Door Frames (Palusol)

### Latched & Unlatched, Single Acting, Single Doorsets + Overpanels

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD+OP	From:		2120	x
To:			2405	x	915
ULSASD+OP	From:		2120	x	1030
	To:		2355	x	915
Maximum Overpanel Height (mm)			2000		

#### INTUMESCENT MATERIALS: PVC encased Palusol 100

#### HEAD:

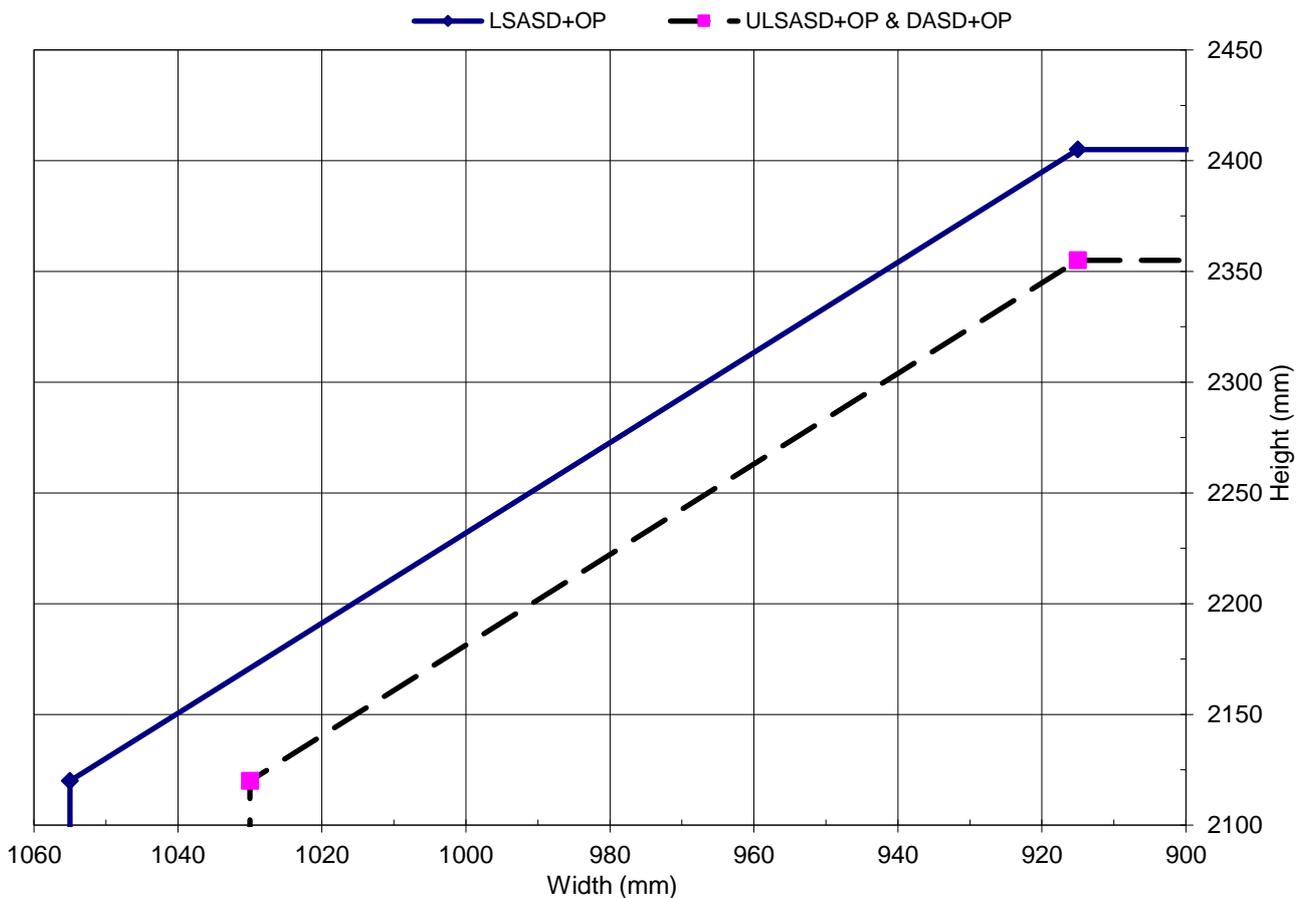
**Rebated:** 25x4mm exposed and fitted centrally in the leaf rebate with a 15x4mm exposed and fitted centrally in the overpanel rebate.

**Square:** 40x4mm fitted centrally in the bottom edge of the overpanel.

**JAMBS & OVERPANEL:** 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - MDF Door Frames (Pyroplex)

### Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:		2040	x
To:			2310	x	925
ULSADD & DADD	From:		2040	x	1025
	To:		2260	x	925
Maximum Overpanel Height (mm)		Transomed	N/A		

#### INTUMESCENT MATERIALS: Pyroplex

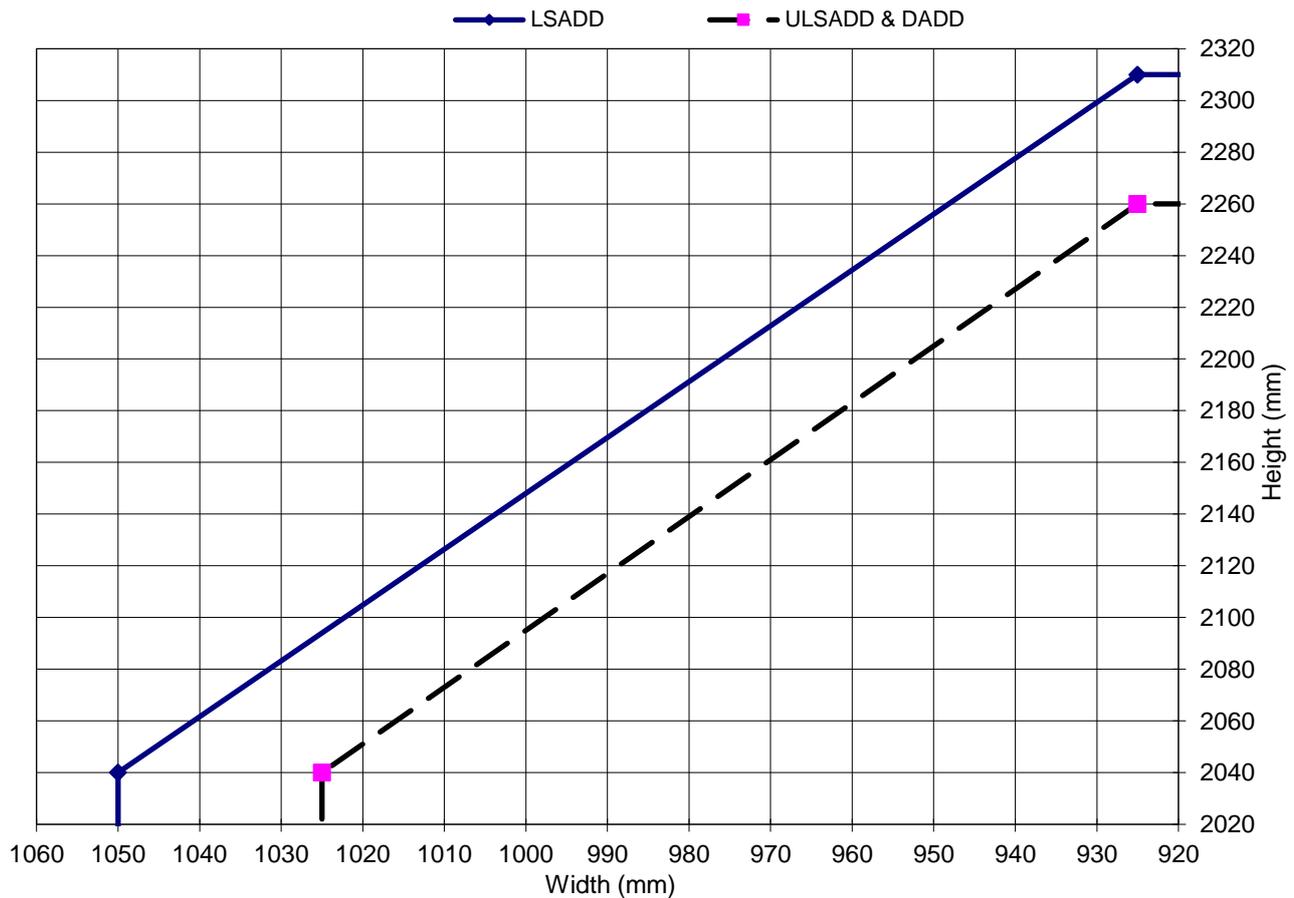
**HEAD:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**MEETING EDGES:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in one leaf only.

**JAMBS:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Extended Sizes (Pyroplex)

### Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:		2757	x
To:			3055	x	927
ULSADD & DADD	From:		2757	x	1010
	To:		3005	x	927
Maximum Overpanel Height (mm)		Transomed	1500		

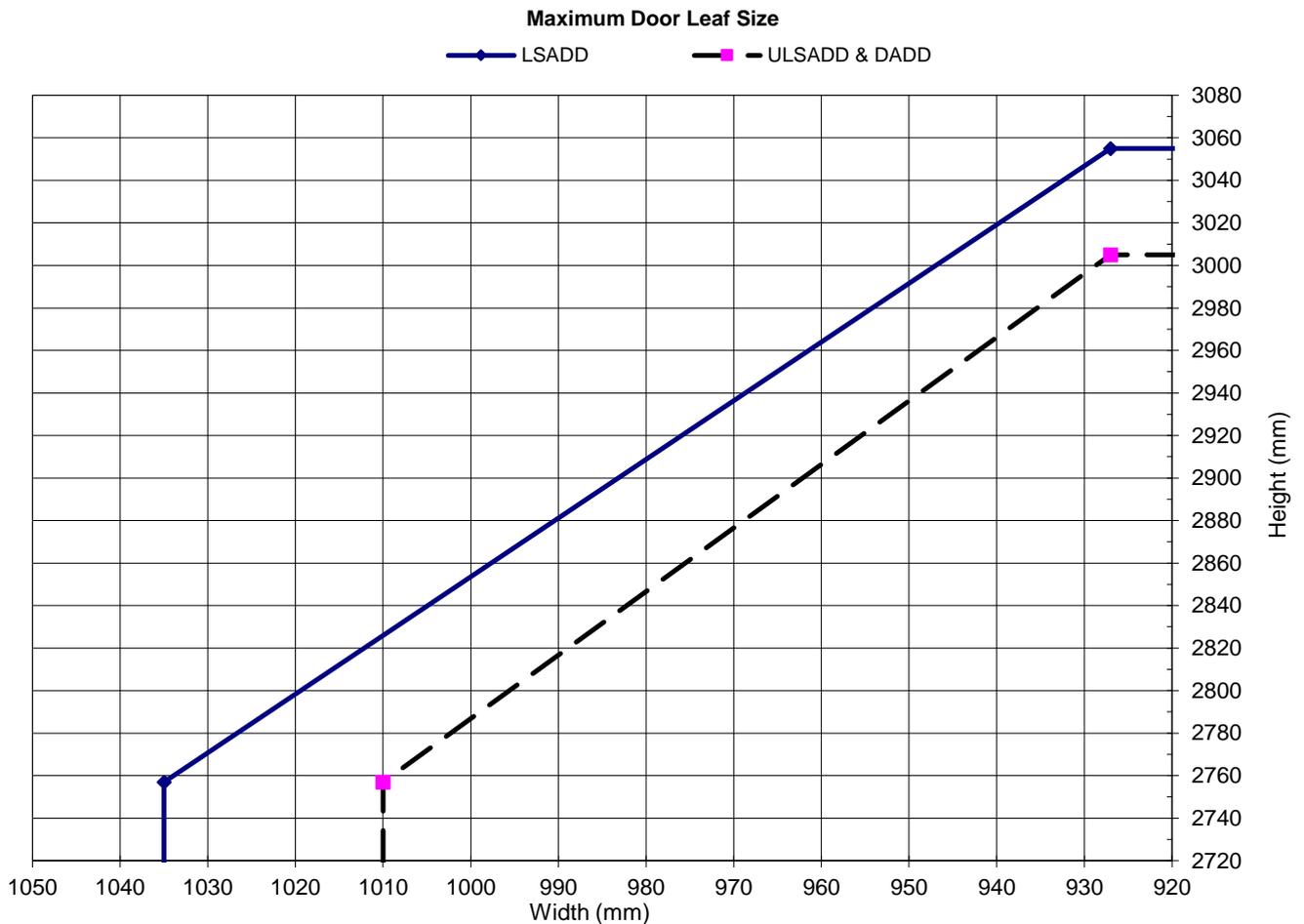
**INTUMESCENT MATERIALS: Pyroplex Rigid Box Seal FO8700**

**HEAD:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the frame reveal, plus 1No. 15x4mm exposed and fitted centrally in the leaf edge.

**MEETING EDGES:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in one leaf only.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the frame reveal.

**HARDWARE PROTECTION:** See section 12.



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Palusol)

### Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:		2120	x
To:			2305	x	915
ULSADD & DADD	From:		2120	x	980
	To:		2255	x	915
Maximum Overpanel Height (mm)		Transomed	1500		

**INTUMESCENT MATERIALS:** PVC encased Palusol 100 (may be combined with manufacturer's smoke/acoustic seals)

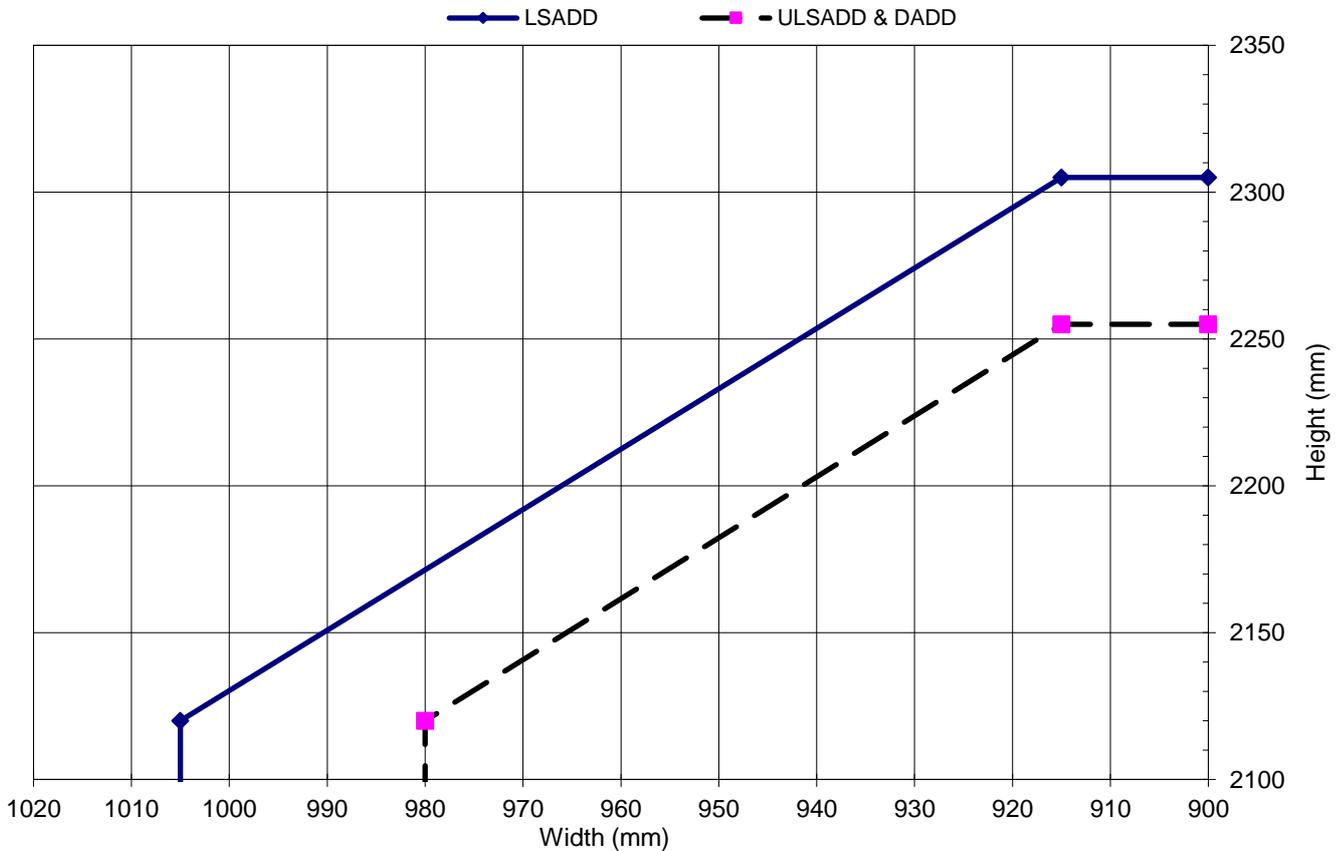
**HEAD:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**MEETING EDGES:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in one leaf only.

**JAMBS & TRANSOMED OVERPANEL:** 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Type 617)

### Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:		2120	x
To:			2300	x	915
ULSADD & DADD	From:		2120	x	926
	To:		2255	x	915
Maximum Overpanel Height (mm)		Transomed	1500		

#### INTUMESCENT MATERIALS: Type 617

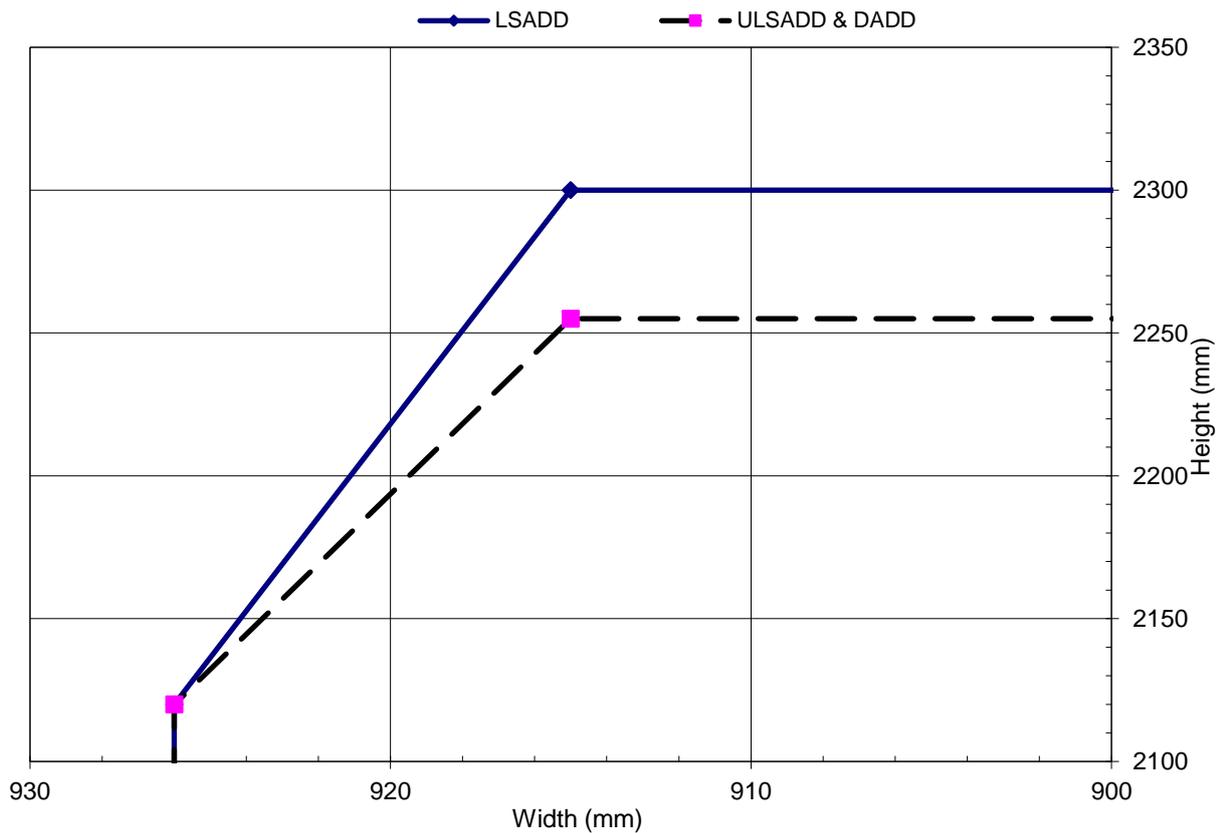
**HEAD:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**MEETING EDGES:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in one leaf only.

**JAMBS & TRANSOMED OVERPANEL:** 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Pyroplex)

### Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:		2135	x
To:			2380	x	932
ULSADD & DADD	From:		2135	x	1017
	To:		2330	x	932
Maximum Overpanel Height (mm)		Transomed	1500		

#### INTUMESCENT MATERIALS: Pyroplex

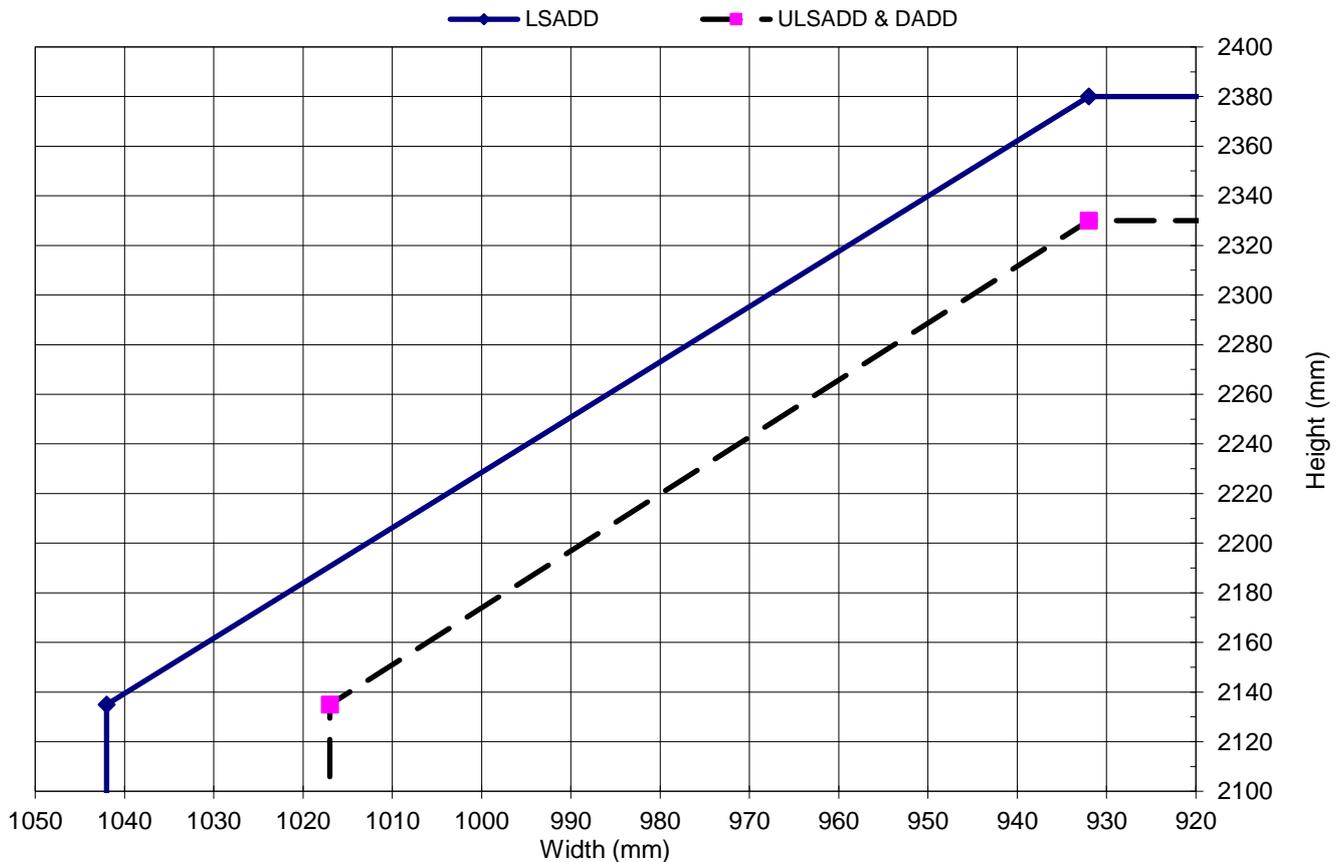
**HEAD:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**MEETING EDGES:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in one leaf only.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Therm-A-Seal)

### Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:		2132	x
To:			2219	x	932
ULSADD & DADD	From:		2132	x	947
	To:		2169	x	932
Maximum Overpanel Height (mm)		Transomed	1500		

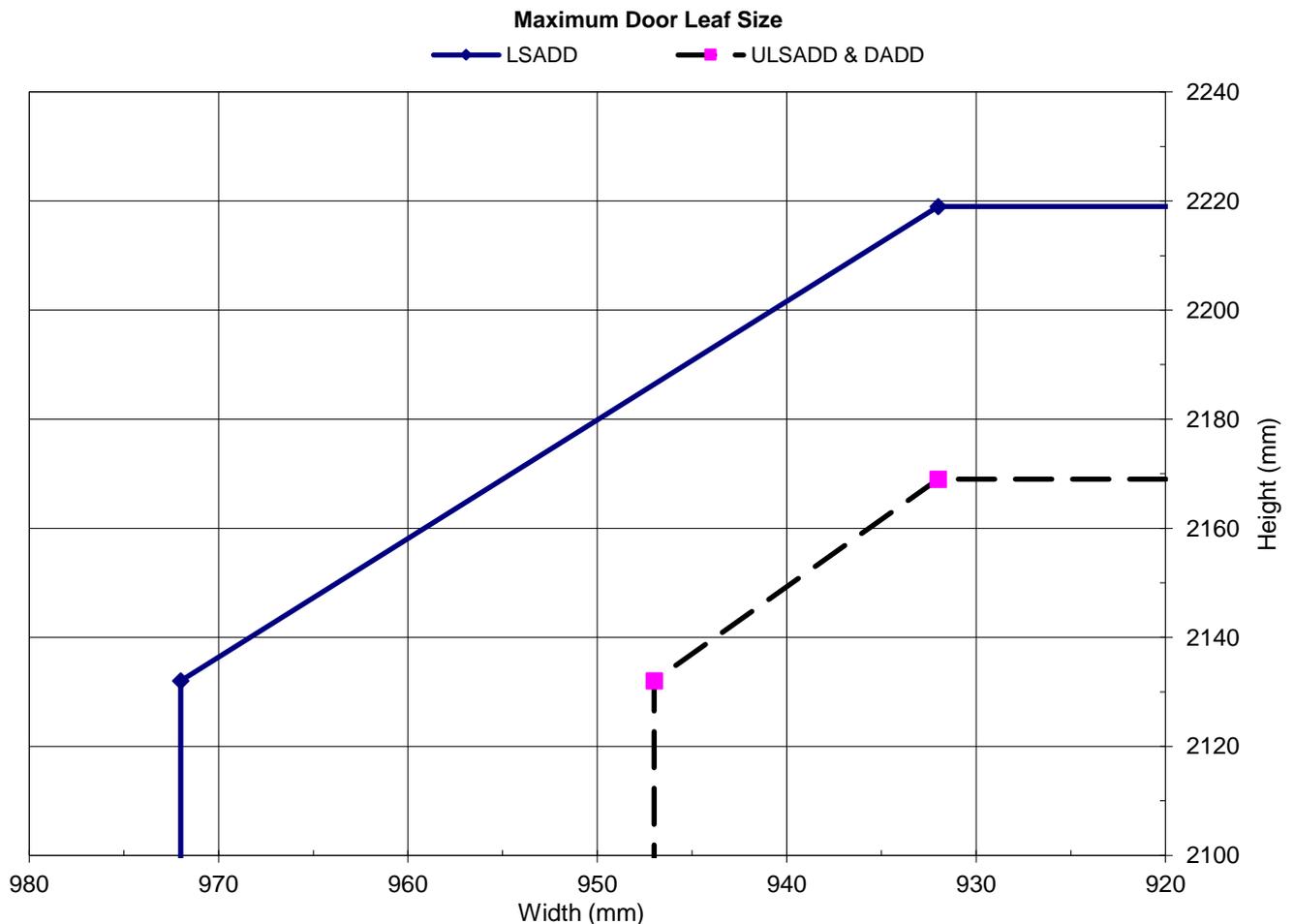
#### INTUMESCENT MATERIALS: Therm-A-Seal

**HEAD:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**MEETING EDGES:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in one leaf only.

**JAMBS & TRANSOMED OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.



## Falcon Panel Products – Strebord© 54 - Timber Door Frames (Palusol)

### Latched & Unlatched, Single Acting, Double Doorsets + Overpanel

Leaf Sizes	Configuration	From: To:	Height (mm)		Width (mm)
	Leaf Sizes		LSADD+OP	From: To:	2120
2205		x			915
ULSADD+OP		From: To:	2120	x	930
			2155	x	915
Maximum Overpanel Height (mm)			1500		

**INTUMESCENT MATERIALS: PVC encased Palusol 100**

**HEAD:**

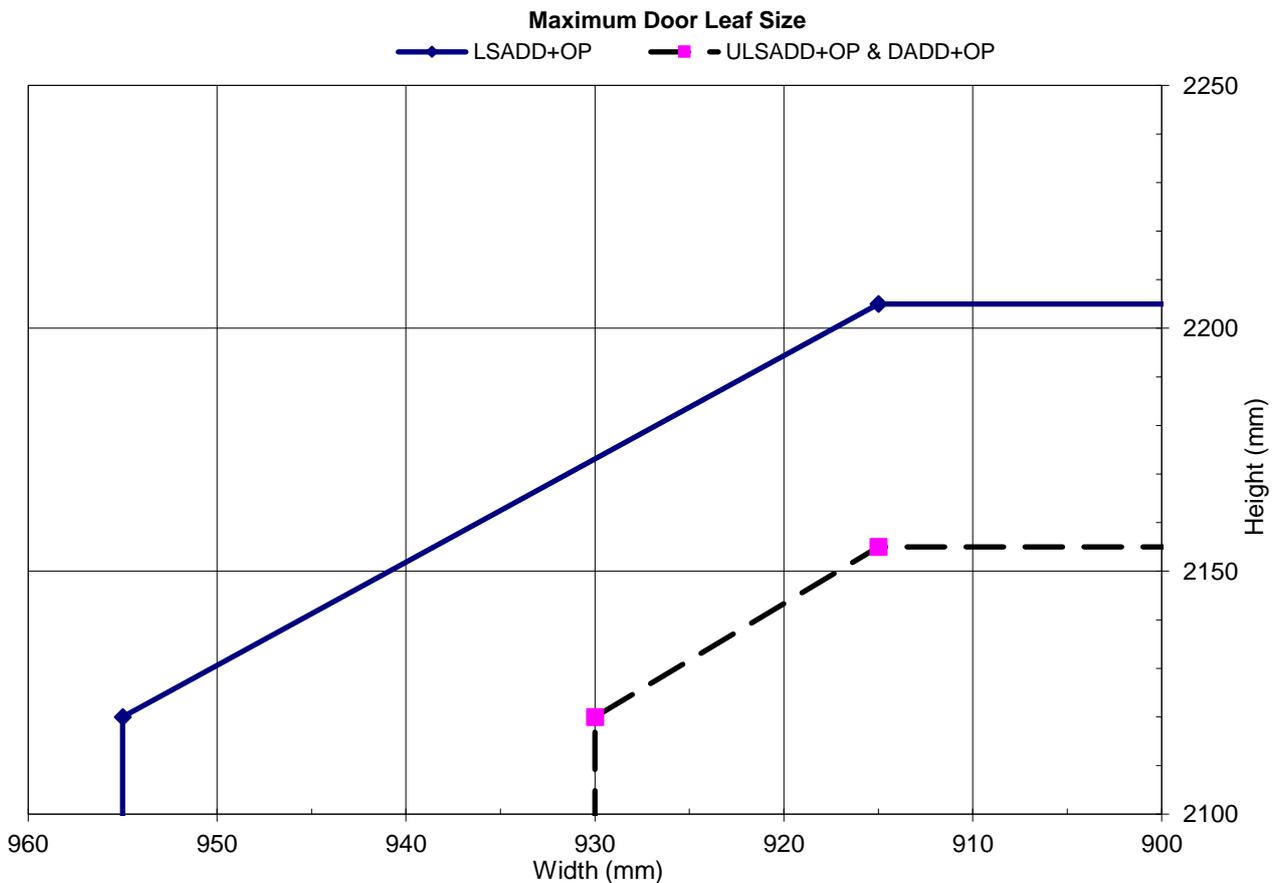
**Rebated:** 25x4mm exposed and fitted centrally in leaf rebate with a 15x4mm exposed and fitted centrally in the overpanel rebate.

**Square:** 40x4mm fitted centrally in the bottom edge of the overpanel.

**MEETING EDGES:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in one leaf only.

**JAMBS & OVERPANEL:** 2No. 15x4mm exposed and fitted 5mm either side of the centreline (10mm apart) in the leaf edge or frame reveal.

**HARDWARE PROTECTION:** See section 12.



## Falcon Panel Products – Strebord© 54 - Nordform Steel Door Frames

### Latched & Unlatched, Single Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)	Width (mm)
	LSASD		From:	2150
To:			2300	x 931
ULSASD		From:	2150	x 981
		To:	2250	x 931
Maximum Overpanel Height (mm)			N/A	

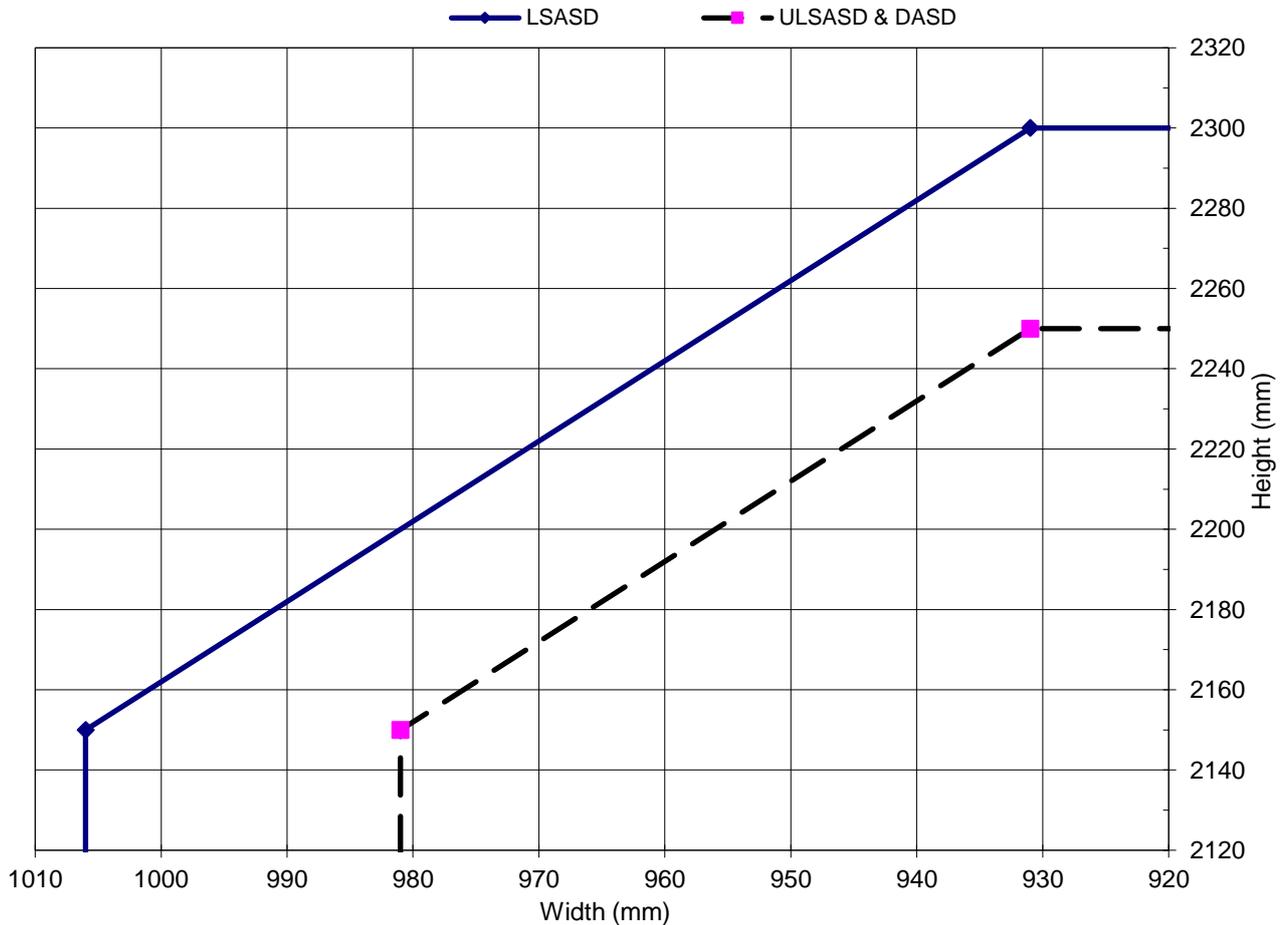
**INTUMESCENT MATERIALS:** Pyroplex & Interdens – Pyroplex Ltd. & Dufaylite Developments Ltd.

**HEAD:** 38x4mm Pyroplex flat seal on top of 38x2mm Interdens, fitted centrally in the leaf head.

**JAMBS:** 2No. 15x4mm Pyroplex Rigid Box seals fitted 8mm apart, with the 1<sup>st</sup> seal 8mm from the exposed face.

**HARDWARE PROTECTION:** See section 12.

**Maximum Door Leaf Size**



## Falcon Panel Products – Strebord© 54 - Nordform Steel Door Frames

### Latched & Unlatched, Single Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD	From:		2150	x
To:			2200	x	931
ULSADD	Max:		2150	x	931
Maximum Overpanel Height (mm)			N/A		

**INTUMESCENT MATERIALS:** Pyroplex & Interdens – Pyroplex Ltd. & Dufaylite Developments Ltd.

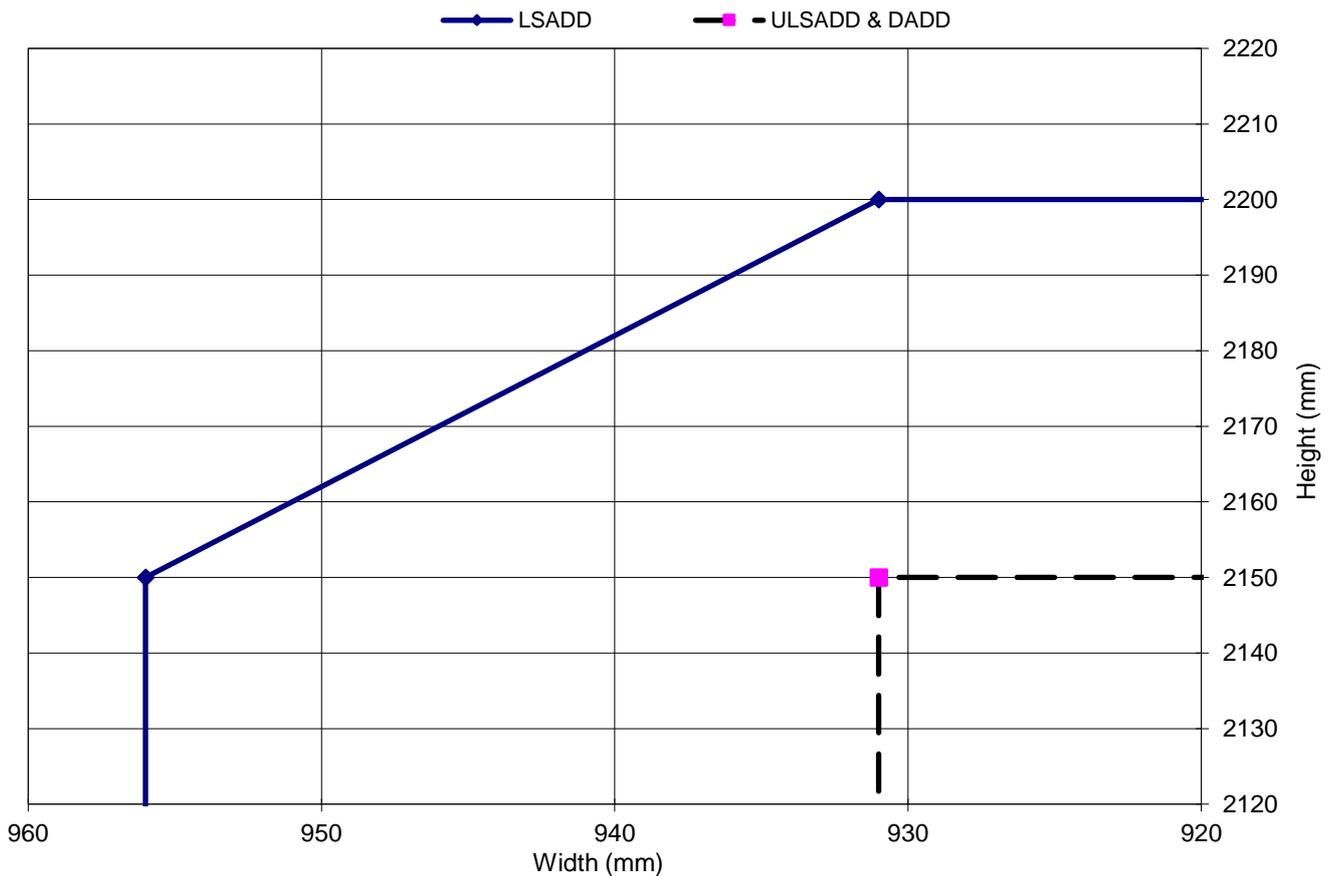
**HEAD:** 38x4mm Pyroplex flat seal on top of 38x2mm Interdens, fitted centrally in the leaf head.

**MEETING EDGES:** 2No. 15x4mm Pyroplex Rigid Box seal fitted 8mm apart, with the 1<sup>st</sup> seal 8mm from the exposed face in one leaf edge only.

**JAMBS:** 2No. 15x4mm Pyroplex Rigid Box seals fitted 8mm apart, with the 1<sup>st</sup> seal 8mm from the exposed face.

**HARDWARE PROTECTION:** See section 12.

**Maximum Door Leaf Size**



## Falcon Panel Products – Strebord© 54 - Steel Door Frames

### Latched & Unlatched, Single Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD	From:		2200	x
To:			2515	x	896
ULSASD	From:		2200	x	1013
	To:		2465	x	896
Maximum Overpanel Height (mm)			N/A		

**INTUMESCENT MATERIALS: Therm-A-Seal & Therm-A-Flex**

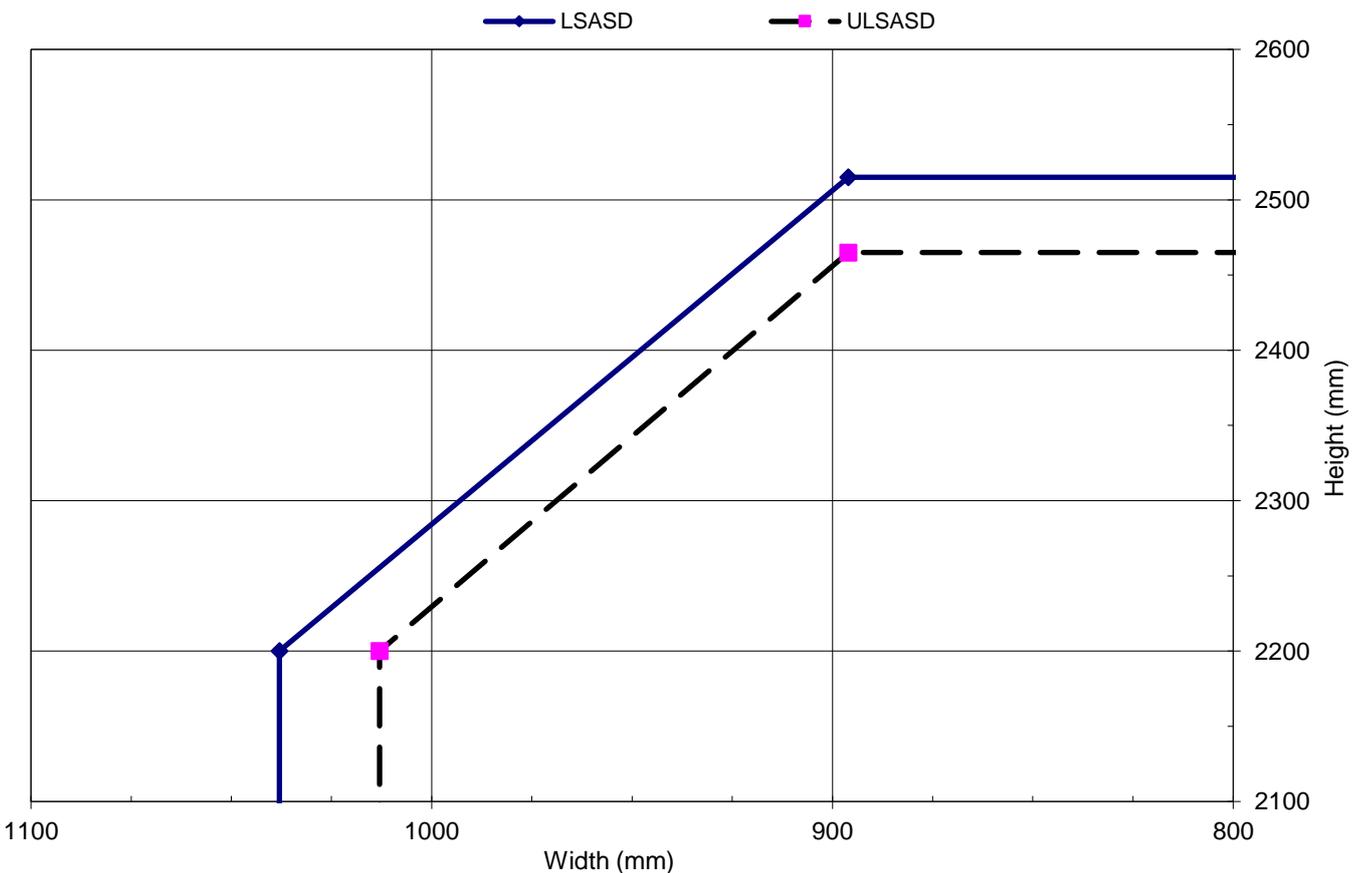
**HEAD:** 1No. 25x4mm Therm-A-Seal exposed & fitted centrally in the leaf head & 2No. 10x2mm Therm-A-Flex fitted centrally, spaced 15mm apart & concealed behind the lipping.

**JAMBS:** 1No. 25x4mm Therm-A-Seal exposed & fitted centrally in the leaf & 2No. 10x2mm Therm-A-Flex fitted centrally, spaced 15mm apart & concealed behind the lipping.

**THRESHOLD:** 1No. 20x2mm Therm-A-Flex fitted centrally in the bottom of the leaf.

**HARDWARE PROTECTION:** See section 12.

#### Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Steel Door Frames (Extended Width)

### Latched & Unlatched, Single Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD		From:	2218	x
To:			2507	x	1078
ULSASD		From:	2218	x	1194
		To:	2457	x	1078
Maximum Overpanel Height (mm)			N/A		

#### INTUMESCENT MATERIALS: Therm-A-Seal & Therm-A-Flex

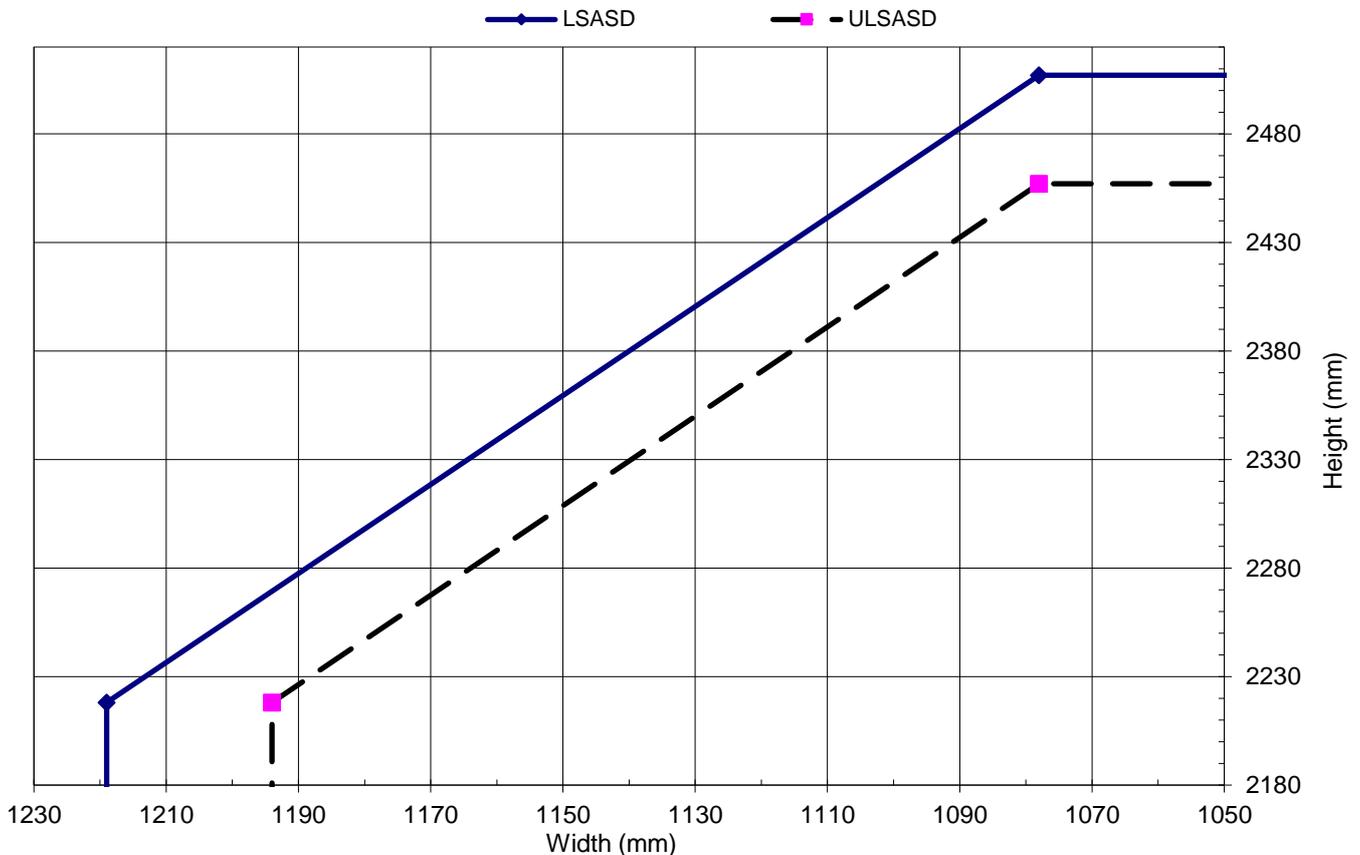
**HEAD:** 25x4mm Therm-A-Seal exposed and centrally fitted in the leaf head & 25x2mm Therm-A-Flex centrally fitted underneath the Therm-A-Seal.

**JAMBS:** 25x4mm Therm-A-Seal exposed and centrally fitted in the leaf & 25x2mm Therm-A-Flex centrally fitted underneath the Therm-A-Seal.

**THRESHOLD:** 20x2mm Therm-A-Flex centrally fitted in the bottom of the leaf.

**HARDWARE PROTECTION:** See section 12.

Maximum Door Leaf Size



## Falcon Panel Products – Strebord© 54 - Steel Door Frames

### Latched & Unlatched, Single Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD		From:	2200	x
To:			2415	x	896
ULSADD		From:	2200	x	963
		To:	2365	x	896
Maximum Overpanel Height (mm)			N/A		

**INTUMESCENT MATERIALS: Therm-A-Seal & Therm-A-Flex**

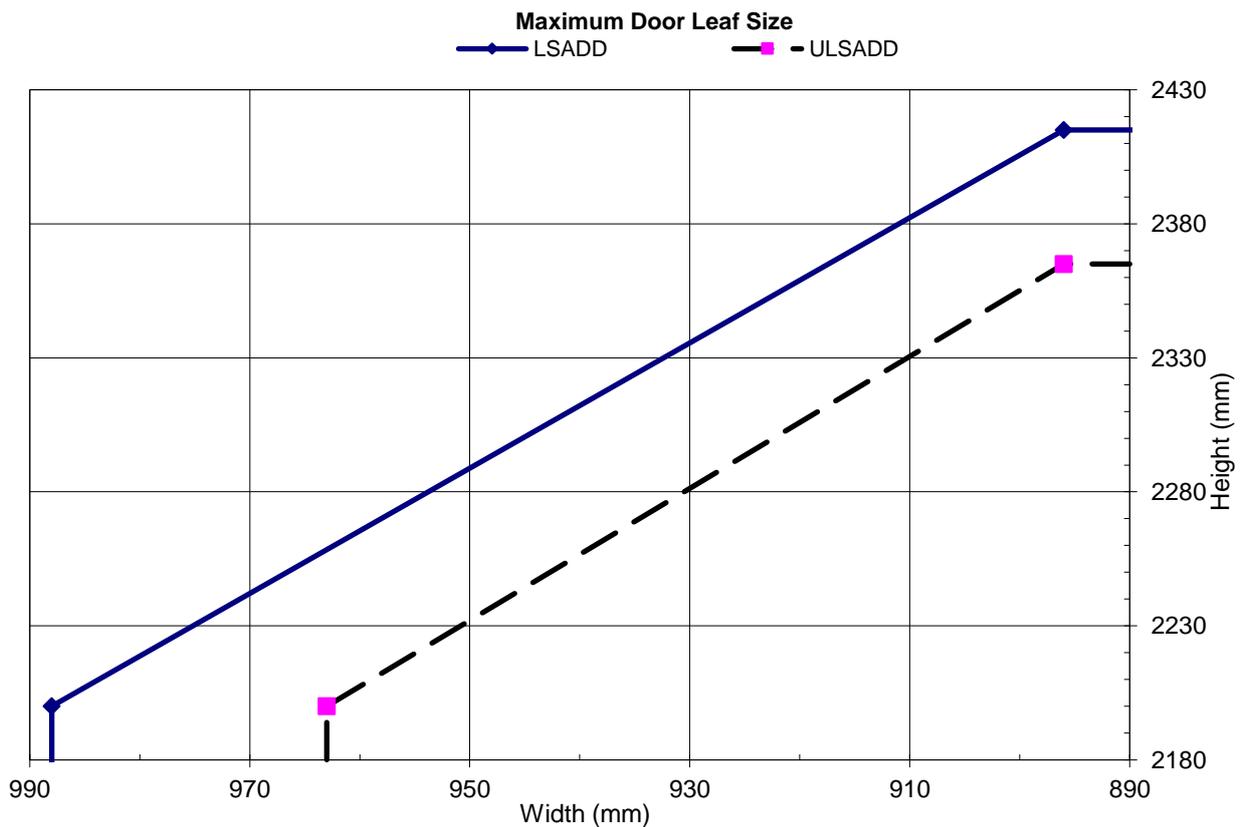
**HEAD:** 25x4mm Therm-A-Seal exposed and centrally fitted in the leaf head & 2No. 10x2mm Therm-A-Flex centrally fitted, spaced 15mm apart and concealed behind the lipping.

**JAMBS:** 25x4mm Therm-A-Seal exposed and centrally fitted in the leaf & 2No. 10x2mm Therm-A-Flex centrally fitted, spaced 15mm apart and concealed behind the lipping.

**MEETING EDGES:** Left leaf – 25x4mm Therm-A-Seal exposed and centrally fitted in the leaf and 2No. 10x2mm Therm-A-Flex centrally fitted, spaced 15mm apart and concealed behind the lipping.  
Right leaf – 2No. 10x2mm Therm-A-Flex centrally fitted, spaced 15mm apart and concealed behind the lipping.

**THRESHOLD:** 20x2mm Therm-A-Flex centrally fitted in the bottom of the leaf.

**HARDWARE PROTECTION:** See section 12.



END OF REPORT