BM TRADA

Global Fire Resistance Assessment

CONFIDENTIAL

Report: Chilt/A02067 Revision H
Contract: CNA/F15077

Strebord 54® Doorsets for 60 Minutes Fire Resistance

Valid From: 22nd July 2015
Valid Until: 22nd July 2020

Sponsor:
Falcon Panel Products Ltd.
Clock House
Station Approach
Shepperton
Middlesex
TW17 8AN

FALCON
PANEL PRODUCTS LTD

Contents

1 Introduction

This document constitutes a fire resistance assessment relating to Strebord 54® 60 minute fire resisting doorsets, for Falcon Panel Products Ltd. The assessment uses established extrapolation and interpretation techniques in order to extend the scope of application by determining the limits for the design, based on the tested constructions and performances obtained. The assessment 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 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). Where specified the leaves are lipped with hardwood.

3 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.

4 Configurations

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

Abbreviation	Description
LSASD & ULSASD	Latched & unlatched, single acting, single doorsets
DASD	Double acting, single doorsets
LSASD+OP & ULSASD+OP	Latched & unlatched, single acting, single doorsets + overpanels
DASD+OP	Double acting, single doorsets + overpanels
LSADD & ULSADD	Latched & unlatched, single acting, double doorsets
DADD	Double acting, double doorsets
LSADD+OP & ULSADD+OP	Latched & unlatched, single acting, double doorsets + overpanels
DADD+OP	Double acting, double doorsets + overpanels

Unequal leaf double doorsets are covered by this assessment with no restriction on the smaller leaf dimension.

5 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.
Lipping	Lippings 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.

6 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 for all configurations is 1.50m². The glazing system must be one of the following tested proprietary systems:

6.1 Assessed Glazing Systems

Glazing System	Manufacturer	Max. Area (m^2)
1. Therm-A-Glaze 60	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 6.8 for additional scope)	Norsound Ltd.	0.72
10. Norsound Universal 60 (see section 6.9 for additional scope)	Norsound Ltd.	0.72
11. ST105GT (see section 6.9 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.

6.2 Assessed Glass Products

Assessed glass types are as follows:

Glass Type	Manufacturer	Thickness (mm)	Max. Area (m^2)
1. Pyran S	Schott Glass Ltd.	6	1.00
2. Pyrostem	CGI Ltd.	6	0.60
3. Pyroclear[1]	Pilkington Glass Ltd.	6	0.72
4. Pyroshield	Pilkington Group Ltd.	6 & 7	1.00
5. Pyroshield 2[2]	Pilkington Group Ltd.	6 & 7	0.72
6. Pyrodur 60-10	Pilkington Group Ltd.	10	1.00
7. Pyroguard EW MAXI	CGI Ltd.	11	0.54
8. Pyrobelite 12	AGC Flat Glass Europe	12	1.00
9. Pyrodur 60-20	Pilkington Group Ltd.	13	1.00
10. Pyroguard EI 30	CGI Ltd.	15	1.00
11. Pyrostop 30-10	Pilkington Group Ltd.	15	1.50
12. Contraflam EW 60	Vetrotech Saint Gobain Ltd.	16	1.00
13. Pyrobel 16	AGC Flat Glass Europe	16	1.00
14. Pyrostop 60-101[3]	Pilkington Group Ltd.	23	1.50
15. Pyroguard EI 60[4]	CGI Ltd.	23	1.00
16. Pyrobel 25[5]	AGC Flat Glass Europe	25	0.72

Notes:

1. Pilkington Pyroclear is limited to 0.72m^2 and may only be utilised with the tested glazing system as described in section 6.5 below.
2. Pilkington Pyroshield 2 is limited to 0.72m^2 and may only be utilised with the tested glazing system and maximum dimensions described in section 6.4 below.
3. Pilkington Pyrostop 60-101 may only be utilised with the glazing system described in section 6.6 below (see Appendix D for drawing of Firestrip 60 glazing system).
4. CGI Ltd. Pyroguard EI 60 is limited to 1.00m^2 and may only be utilised with the tested glazing system as described in section 6.7 below.
5. AGC Flat Glass Pyrobel 25 is limited to 0.72m^2 and may only be utilised with the tested glazing system as described in section 6.8 below.
6. 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.

6.3 Glazing Beads & Installations

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

Material	Profile	Min. Density (kg/m^3)	Application
Hardwood	Splayed	640	All proprietary systems detailed in 6.1 and Appendix D
Hardwood	Square	640	Proprietary systems 1-3 as specified in 6.1 and glass types 8-16 as specified in 6.2

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 6.3.1 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 straight grained, joinery quality hardwood, free from knots, splits and checks.
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 of minimum density 640kg/m^3 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.

6.3.1 Gun (Pneumatically) Fired Pins

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

6.3.1.1 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^2.
- 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:

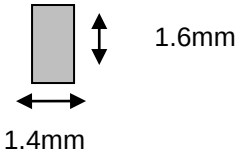
6.3.1.2 Option 2 – Rectangular Pins

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:

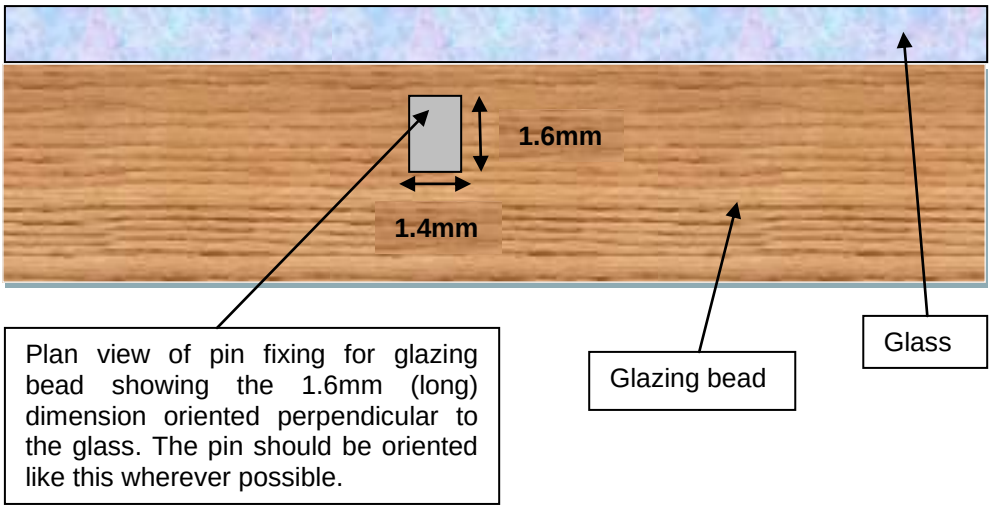
- Minimum Standard Wire Gauge (SWG) 16.
- Minimum cross section area of 2.24mm^2.
- Minimum linear dimension of 1.4mm.

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:



Plan view of pin fixing for glazing bead showing the 1.6mm (long) dimension oriented perpendicular to the glass. The pin should be oriented like this wherever possible.

6.3.1.3 Note of Caution

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

6.4 Pyroshield 2

The following table details the maximum pane sizes and approved glazing systems permitted for Pyroshield 2:

Glass Type	Glazing System (see section 6.1)	Max. Pane Size[1] (height x width – mm)	Max. Area (m^2)
Pyroshield 2	1	1300 x 550	0.72
	4	1300 x 310	0.40

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.
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 63mm long steel pins or 60mm long No 6-8 screws, inserted at 35-40º 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 6.3.1 above.
4. Timber for glazing beads must be straight grained, joinery quality hardwood, free from knots, splits and checks.
5. False timber beads must not be applied across the glass face without specific test evidence to justify the system used.
6. Sectional drawings detailing the tested and approved proprietary glazing systems are contained in Appendix D.

6.5 Pilkington 6mm Pyroclear Glazing System

The following system must be used with the Pilkington Pyroclear 6mm thick glass type listed in section 6.2:

1. Hardwood (min. density 640kg/m^3) glazing beads 25mm high x 25mm deep including a 5mm x 5mm bolection return and a 20º chamfer.
2. Beads must be retained in position with 50mm long steel pins or 50mm long No. 6-8 steel screws, inserted at 45º 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 6.3.1 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 straight grained, joinery quality hardwood, free from knots, splits and checks.
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.

6.6 Pilkington 23mm Pyrostop Glazing System

The following system must be used with the Pilkington 23mm Pyrostop glass type listed in section 6.2, for glazed apertures up to 1.50m^2.

1. Hardwood (min. density 640kg/m^3) 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 30º 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 straight grained, joinery quality hardwood, free from knots, splits and checks.
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.

6.7 CGI Ltd. 23mm Pyroguard

One of the following two systems must be used with the CGI Ltd. 23mm Pyroguard glass type listed in section 6.2:

6.7.1 Lorient Polyproducts Ltd. Flexible Figure 1 Glazing System

1. Hardwood (min. density 640kg/m^3) 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 30-45º 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 straight grained, joinery quality hardwood, free from knots, splits and checks.
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.

6.7.2 Mann McGowan Ltd. Pyroglaze 60 Glazing System

1. Hardwood (min. density 640kg/m³) 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 30-45º 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 straight grained, joinery quality hardwood, free from knots, splits and checks.
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.

6.8 AGC Flat Glass Europe 25mm Pyrobel Glazing System

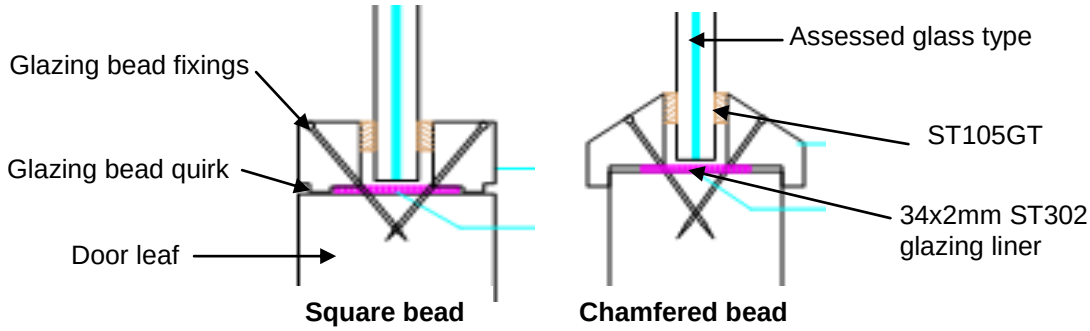
The following system must be used with the AGC Flat Glass Europe 25mm Pyrobel glass type listed in section 6.2:

1. Hardwood (min. density 640kg/m³) 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 30º 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 straight grained, joinery quality hardwood, free from knots, splits and checks.
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.

6.9 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:

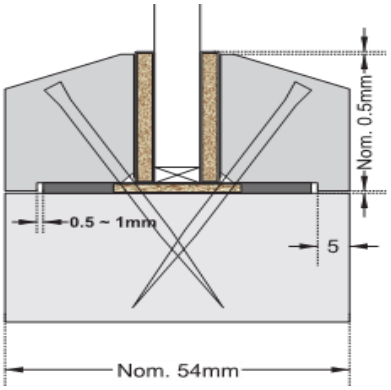


1. It is permitted to use square or chamfered glazing beads providing the beads are constructed in accordance with either point 2 or 3 below.
2. Square glazing beads must be constructed from hardwood (minimum density 640kg/m³) and must be a minimum of 25mm high by a depth to suit the glass thickness, 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^3) 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 35º 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 6.3.1 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 8 - 13 given in the table in section 6.2 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 straight grained, joinery quality hardwood, free from knots, splits and checks.
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.

6.10 Norsound Ltd. – Norsound Vision 60B & 60T

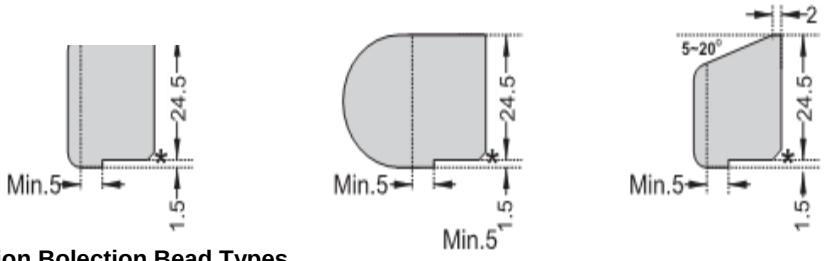
The Norsound Ltd. glazing system assessed in Chilt/A12161 has the following scope of application in addition to that described in sections 6.1 - 6.3.

The Norsound Vision 60B is illustrated below:

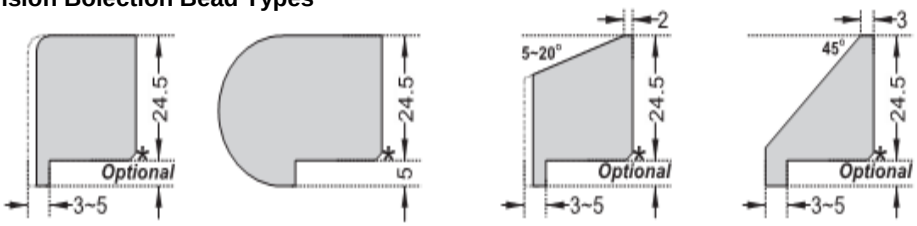


NOTE 1: ∗ = 2mm Splay applies to all bead profile types.

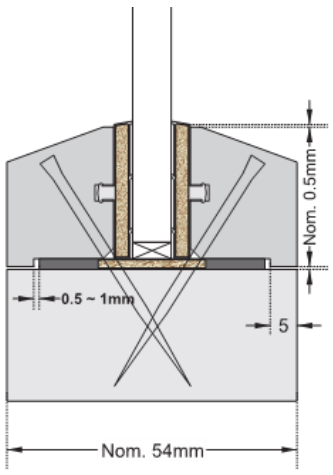
Norsound Vision Flush Bead Types



Norsound Vision Bolection Bead Types

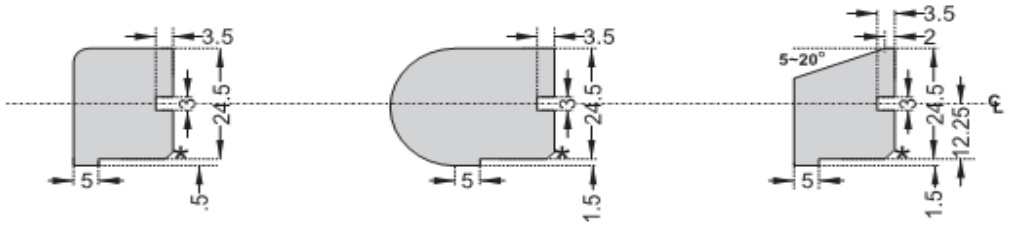


The Norsound Vision 60T is illustrated below:

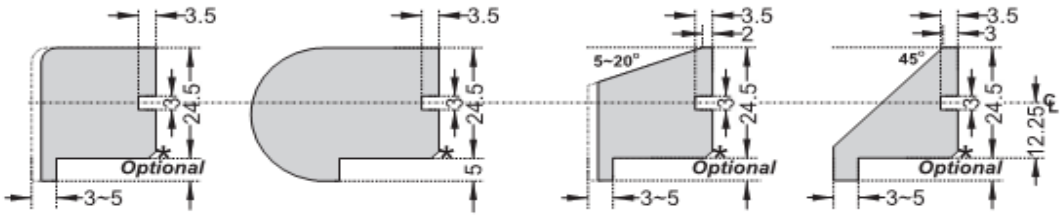


Norsound Vision Flush Bead Types

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 35-40º 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 6.3.1 above.

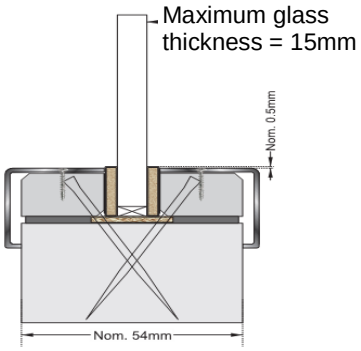
The bead material must meet the following specification and can be used with glass types 1-2 and 4-11 listed in section 6.2.

Material	**Min. Density** (kg/m^3)
Straight grained, joinery quality hardwood, free from knots, splits & checks	640

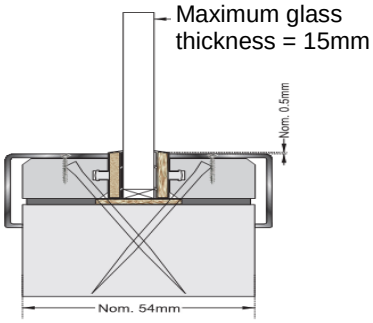
6.11 Norsound Ltd. – Norsound Universal 60B & 60T

The Norsound Ltd. Universal glazing system has the following scope of application in addition to that described in sections 6.1 - 6.3:

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 6.1 - 6.3. 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 35-40º 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 6.3.1 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 4-11 listed in section 6.2.

Material	**Min. Density** (kg/m^3)
Straight grained, joinery quality hardwood, free from knots, splits & checks	640

6.12 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 25º chamfer and a 7mm x 13mm bolection return.
2. Streframe glazing beads must be retained in position with 60mm long steel pins, inserted at 45º 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 6.3.1 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 6 – 13 given in the table in section 6.2 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. Aperture shape is not restricted, providing the glazing system and beads are compatible with that shape.
9. Glazed openings must not be less than 100mm from any edge, with a minimum dimension of 80mm between apertures.
10. Multiple apertures are permitted, subject to point 9 above.

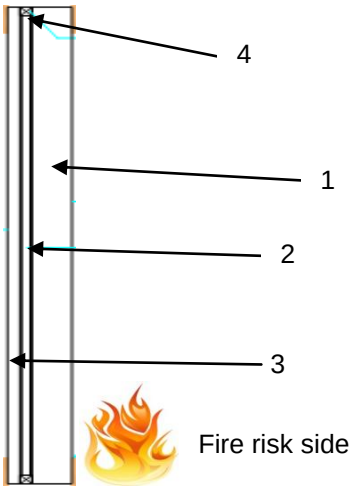
6.13 Vistamatic VS1 Secure Vision Panel

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:

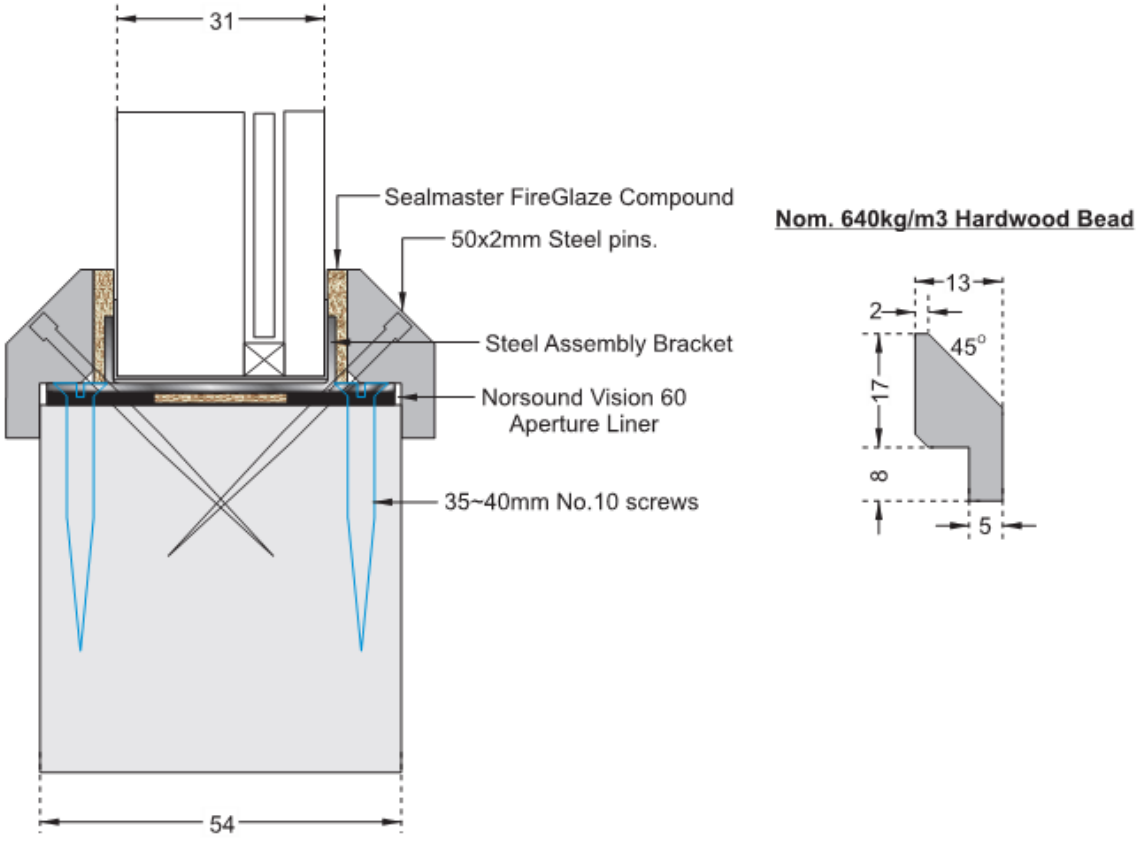
Key:
1. 19mm thick Pyro-EX Toughened Glass
2. 4mm thick Annealed Glass
3. 6mm thick Pyro-EX Toughened Glass
4. 5.5mm thick Stainless Steel Spacer



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

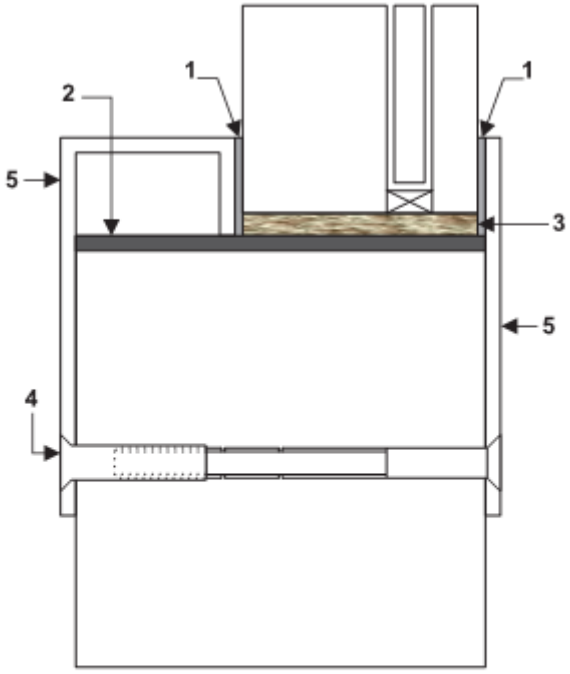
6.13.1 Timber Beads

Element	Specification
Timber bead material	Hardwood (min. density 640kg/m^3)
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^2)	0.32
Additional information	See section 6.13



6.13.2 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^2)		0.32
Additional information		See section 6.13



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 Overpanels

7.1 Solid

Overpanels of the same construction as the door leaves may be used either flush with the leaf heads 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 2 under the table in section 9.1).

Door frame joints must utilise one of the following methods: mortice & tenon joints or butt joints (see section 9.2).

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.

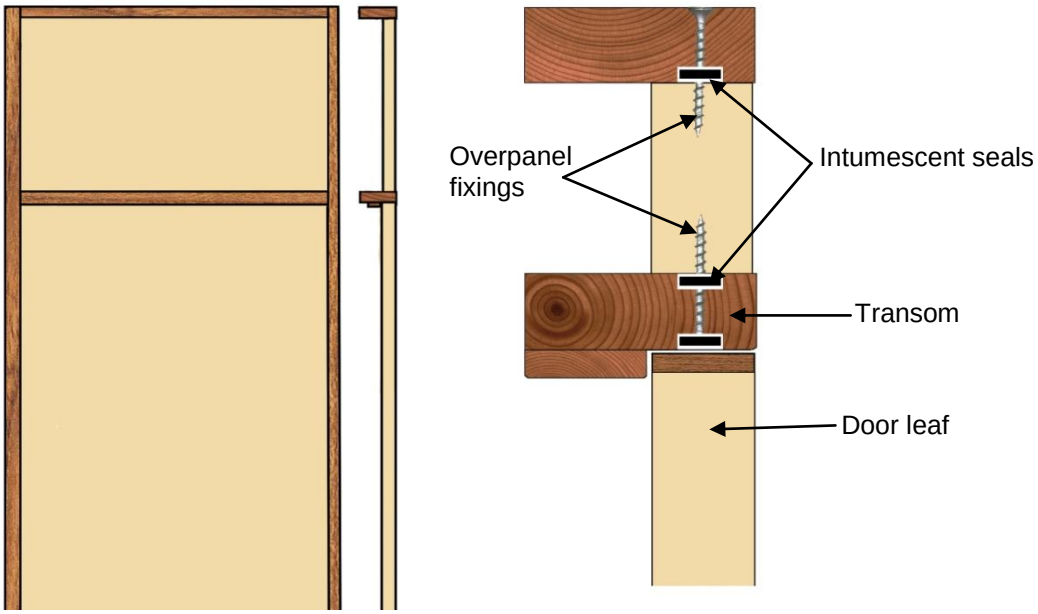
The overpanels must be fixed by screwing through the rear of the frame with steel screws passing at least 30mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between.

It is permitted to include a glazed aperture within the overpanel providing the glazing is within the parameters given in section 6 and the overpanel is fitted with a transom.

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



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

8 Fanlights & Side Screens

8.1 Glazed Fanlights

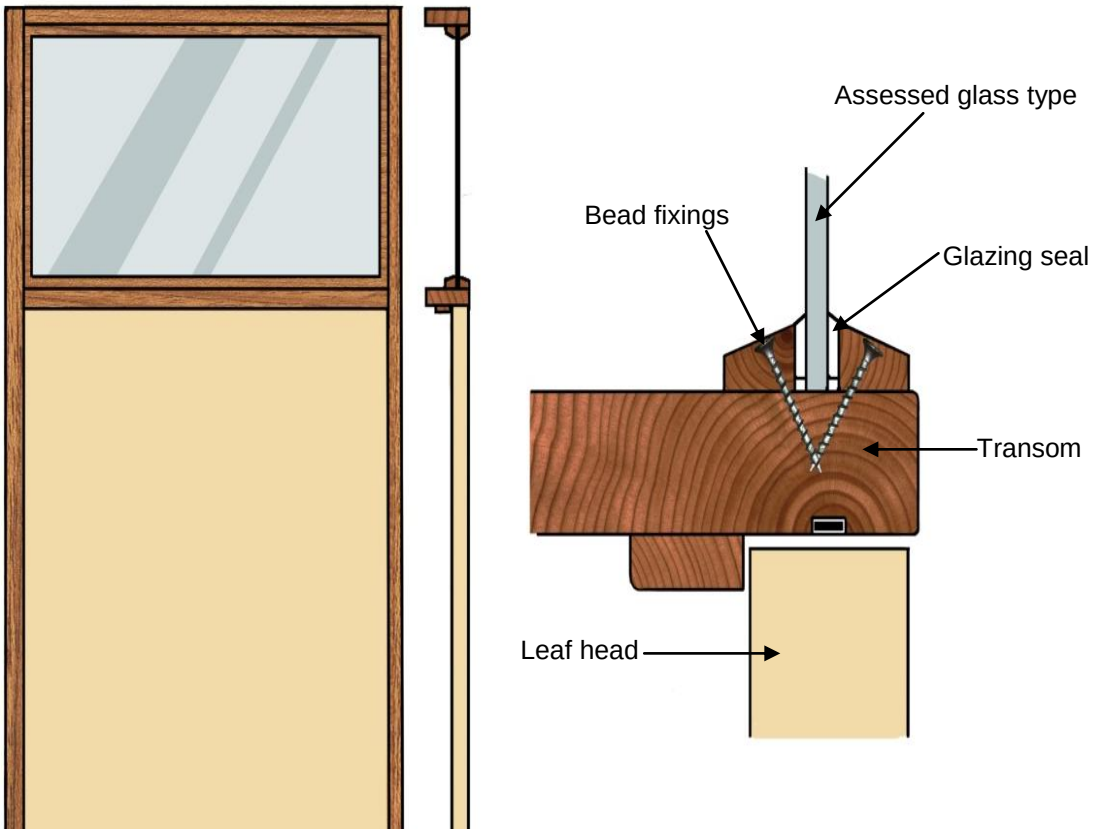
Timber frame doorsets including a transom may include a glazed fanlight. The timber frame and glazing beads must be hardwood with a minimum density of 640kg/m^3, whilst the frame section for the transom must be a minimum of 70mm x 44mm. Timber door frame and transom construction must comply with the specification contained in section 9.

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

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.

8.2 Norsound Vision Glazing Systems – Fanlights & Side Screens

8.2.1 General

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

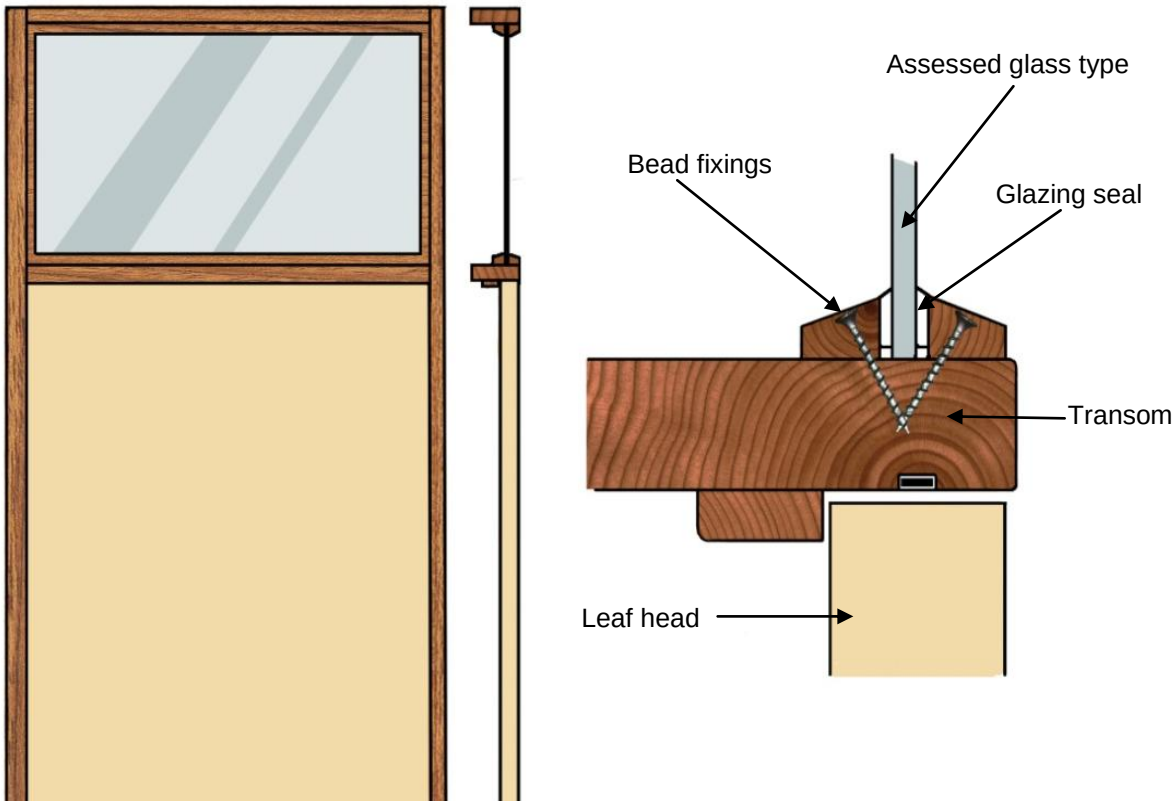
The glazing system and beads must meet the specifications shown in sections 8.2.4, 8.2.5 and 8.2.6.

The door frame and screen framing construction must comply with the specification shown in section 8.2.2 and 8.2.7.

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

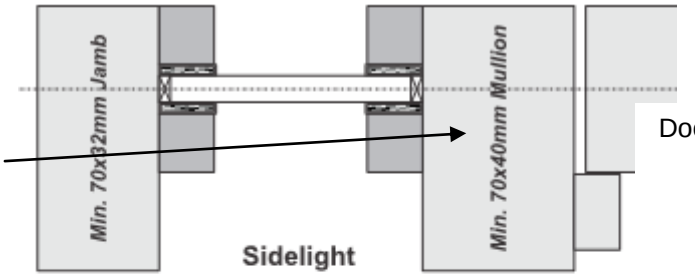


Note: Drawing is representative of doorset construction only, actual construction must be as the text within this document specifies.

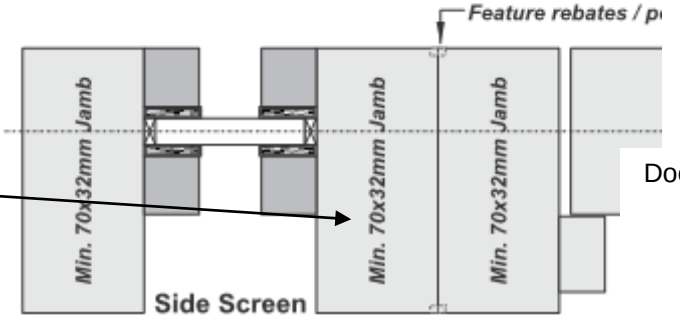
8.2.2 Common Frame Sections

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

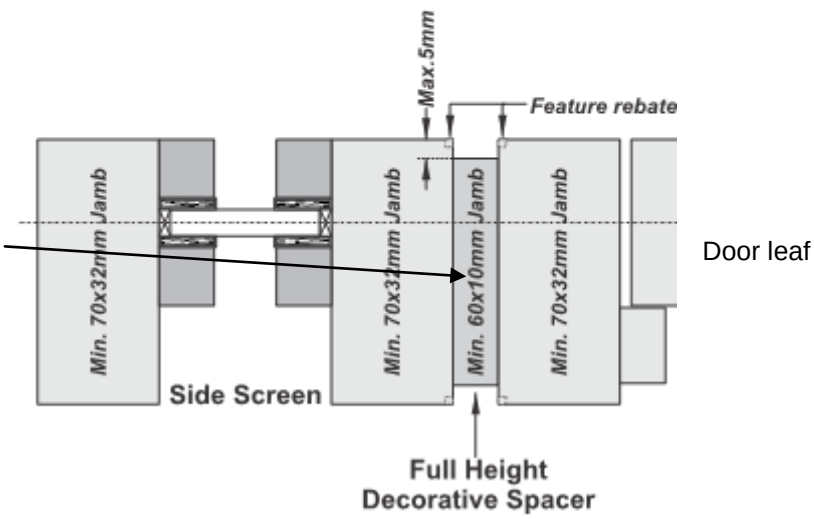
Option 1 - One frame section



Option 2 - Back to back frame section



Option 3 - Back to back frame section with separating post, which may be rebated a maximum of 5mm as shown



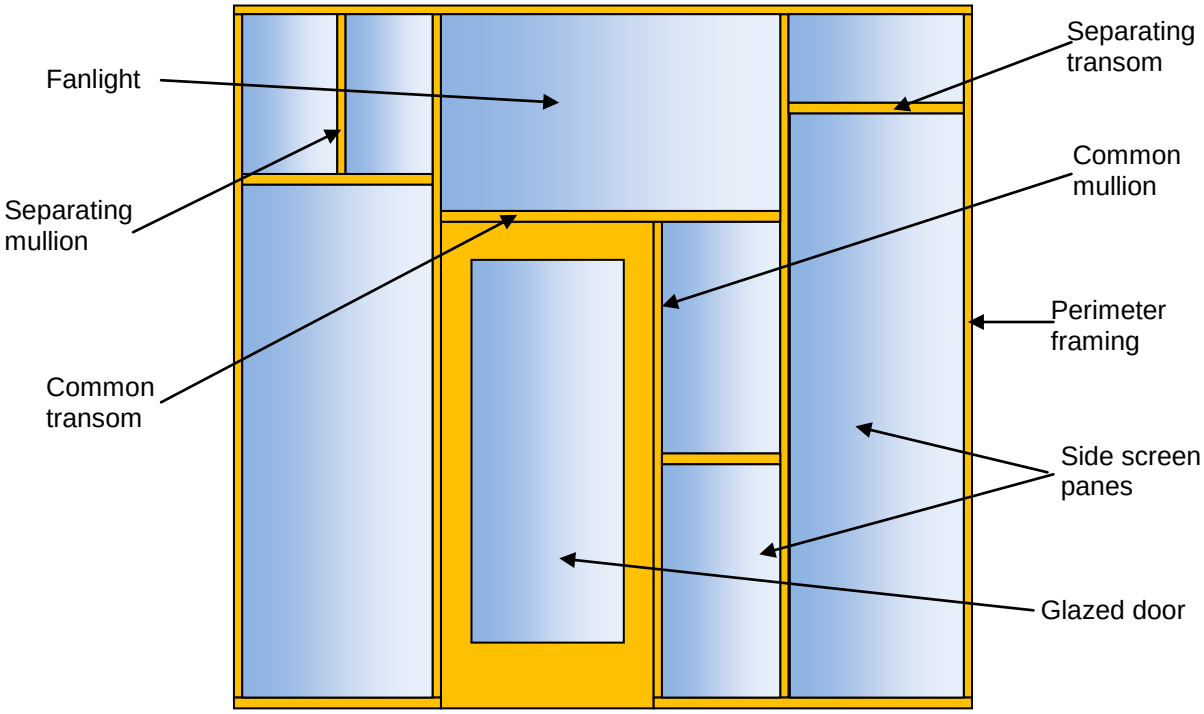
When using separate sections of timber, as shown above (options 2 and 3), each section must be suitably fixed to one-another using appropriate steel screw fixings and glued using Urea Formaldehyde or polyurethane. Screws must be fixed at 600mm centres and locate to approx 2/3 depth of the adjacent timber 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.

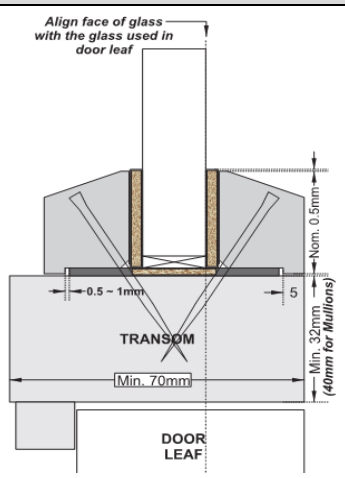
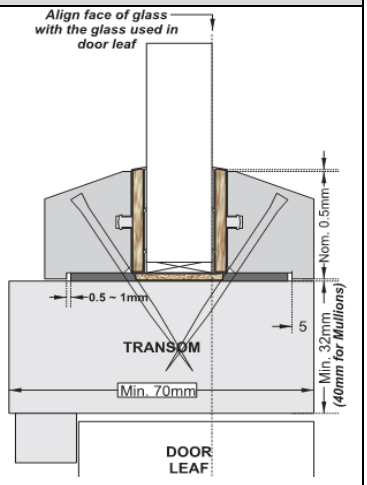
8.2.3 Screen Elevation

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:



8.2.4 Glazing Beads & Installation

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

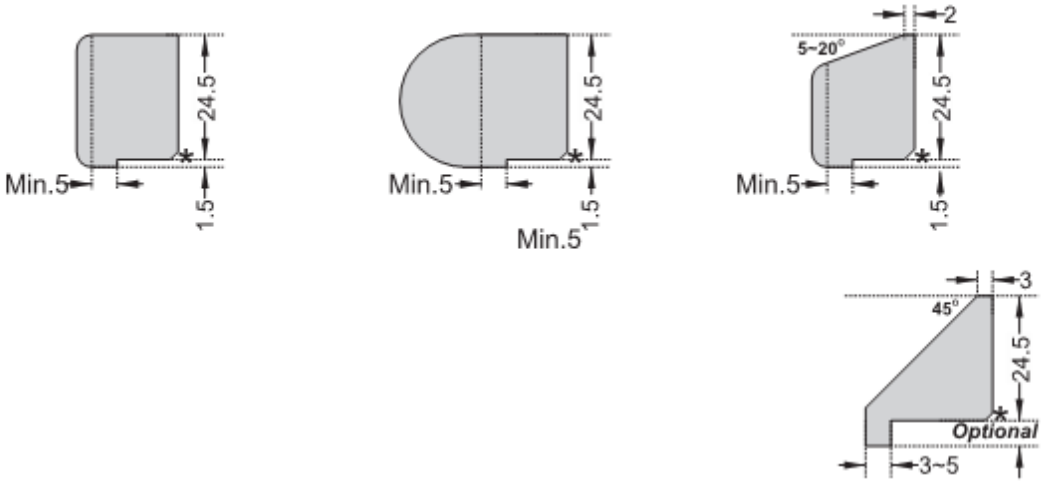
System Name		Norsound Vision 60B	Norsound Vision 60T
Typical Installation			
Dimensions	Bead height	Nominally 24.5mm	Nominally 24.5mm
	Intumescent seal(s)	25mm high x 3mm thick	25mm high x 3mm thick plus 'plug'
Aperture Liner		Nominally 2mm thick x minimum 42mm wide	

8.2.5 Norsound Vision 60B & 60T Applications

Norsound Vision 60B:

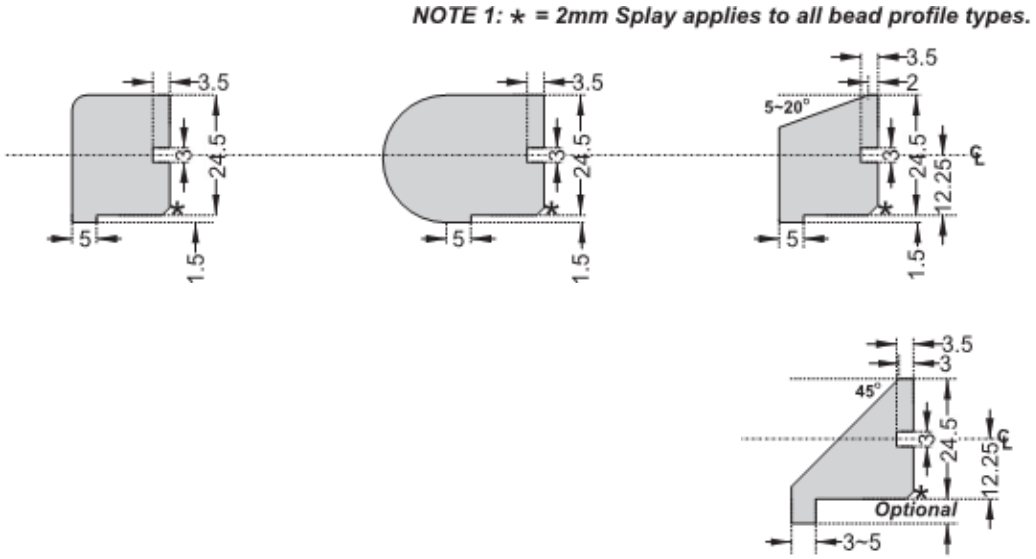
The following bead designs are assessed as acceptable for Norsound Vision 60B:

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:



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 35-40º 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 6.3.1 above.

8.2.6 Glazing Bead Material

All timber for glazing beads must be joinery quality hardwood timber (as specified in the table below), free from knots, splits and checks.

Bead Profile	**Material**	**Min. Density** (kg/m^3)
All in section 8.2.5	Hardwood	640

8.2.7 Timber Screen Framing

Timber used for constructing framing elements comprising screen assemblies as illustrated in section 8.2.3 must meet the following specification:

Element	Material	Min. Section (mm)	Min. Density (kg/m^3)
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 straight grained joinery quality hardwood, free from knots, splits and checks.
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.

9 Door Frames

9.1 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):

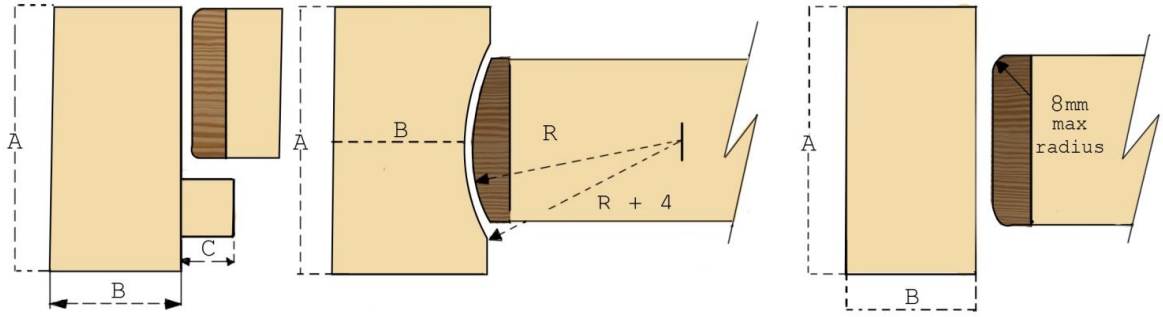
Material	**Min. Section Size** (mm)	**Min. Density** (kg/m^3)
Hardwood	70 x 32	640
MDF[1]	70 x 30	700

Notes:

1. See data sheets in Appendix E for assessed coverage.
2. If the doorset features a transomed overpanel, the door frame must be hardwood with a minimum section of 70mm x 32mm.
3. All door frame timber must be straight grained, joinery quality, free from knots, splits and checks.
4. A 12mm deep planted stop is adequate for single acting frames, whilst double acting frames may be scalloped or square.
5. 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).
6. 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.

The following diagram depicts the assessed frame profiles and dimensions:

A = Min. 70mm B = Min. 30mm (see table above) C = Min. 12mm
R = Radius from floor spring 8mm radius to create maximum 2mm edge profiling



Standard **Scalloped** **Profiled Edges**

9.1.1 CS Group Acrovyn

Based on the evidence generated in IF13095, timber and MDF door frames may be encapsulated in CS Group Acrovyn meeting the following specification. All other details must remain as required in section 9.1 above, as appropriate.

1. The intumescent detail as specified in section 11 and the relevant (CS Group headed) data sheets contained in Appendix E of this assessment must be replicated.
2. CS Group Acrovyn must be bonded to the door frame using 3M Scotch-Grip cement 10 contact adhesive.
3. See relevant (CS Group headed) data sheets in Appendix E of this assessment for maximum permitted leaf sizes.
4. The maximum thickness of CS Group Acrovyn used must be 2mm, as per test evidence.

9.2 Streframe 60

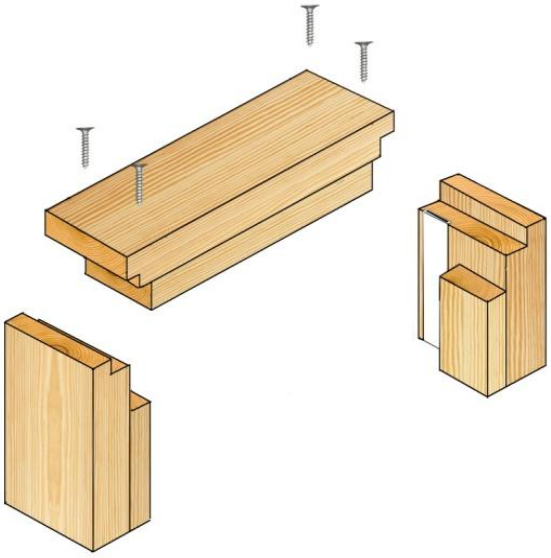
The following table summarises the scope of application of Streframe with the Strebord 54® doorset design:

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)

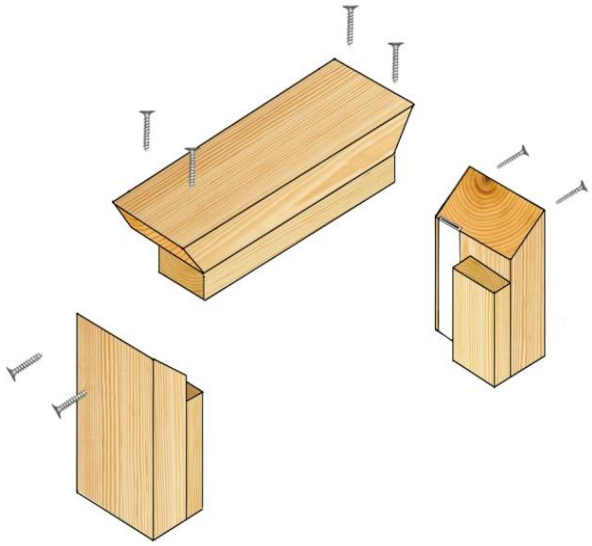
Notes:

1. All other hardware must be protected as per section 11 in this assessment.
2. Streframe must be straight grained, joinery quality, free from knots, splits and checks, with a minimum density of 450kg/m^3.
3. Streframe must be used with a minimum 2No. 15x4mm intumescent seals fitted in the frame reveal or leaf edge.
4. All other details to remain as per the specification contained within this assessment.

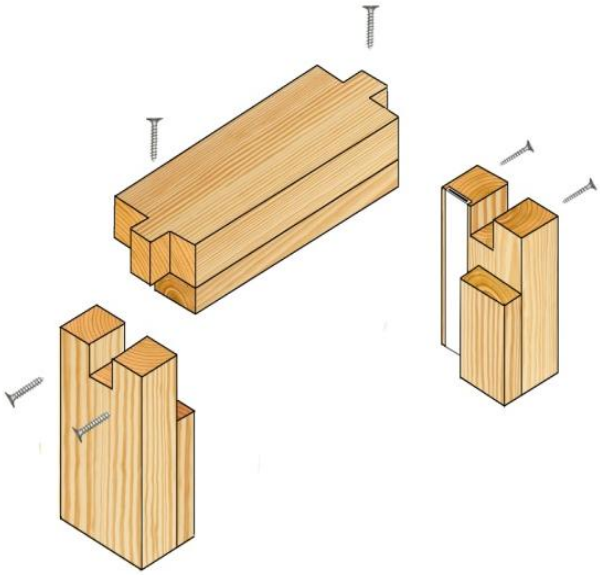
9.3 Door Frame Joints



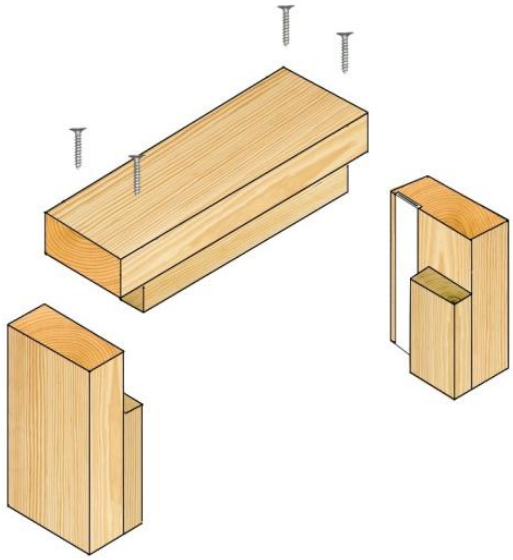
Half Lapped Joint



Mitre Joint



Mortice & Tenon Joint

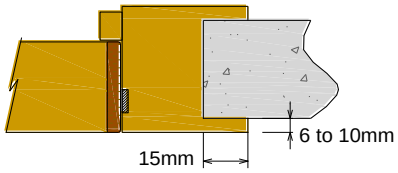


Butt Joint

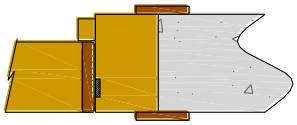
Note: Drawing is representative of each type of door frame joint only; actual construction in terms of intumescent seal location and material, etc. must be as the text within this document specifies.

9.4 Door Frame Installation

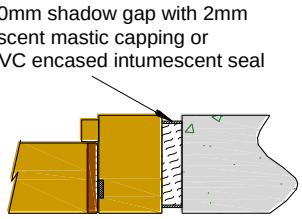
The following diagrams indicate acceptable and unacceptable door frame installations:



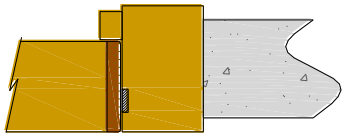
Permitted



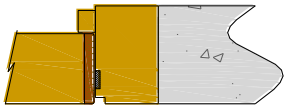
Permitted



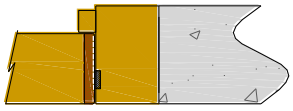
Permitted



Not Permitted



Not Permitted



Permitted

Notes:

1. Drawing is representative of door frame installation only; actual installation must be as the text within this document specifies. See section 19 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 ≥450kg/m^3
   - Plywood with a density ≥600kg/m^3
   - MDF with a density ≥700kg/m^3
   - Particleboard with a density ≥600kg/m^3
   - Non-combustible board.

10 Leaf Facing Materials

10.1 General

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

10.2 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	0.5
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.
4. PVC/plastic laminates may only be applied to leaf edges meeting the specification given in section 12.2.

10.3 Grooves

10.3.1 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.

10.3.2 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 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	1. PVC encapsulated Palusol 100 – Mann McGowan Fabrications Ltd. or Lorient Polyproducts Ltd. 2. Therm-A-Seal - Intumescent Seals Ltd. 3. Pyroplex - Pyroplex Ltd. 4. Type 617 – Lorient Polyproducts Ltd.
Hinges	Under all hinge blades (for detail see section 11.1)	1. 1mm Interdens - Dufaylite Developments Ltd. 2. 1mm MAP paper - Lorient Polyproducts Ltd. 3. 1mm Pyrostrip 300 - Mann McGowan Fabrications Ltd. 4. 1mm Therm-A-Strip - Intumescent Seals Ltd. 5. 1mm NOR910 – Norsound Ltd.
Lock/latches	Under forend & keep	1. 1mm Interdens - Dufaylite Developments Ltd. 2. 1mm MAP paper - Lorient Polyproducts Ltd. 3. 1mm Pyrostrip 300 - Mann McGowan 4. 1mm Therm-A-Strip - Intumescent Seals Ltd. 5. 1mm NOR910 – Norsound Ltd.[1] (see note 1 below for restrictions)
Multi-point lock/latch[2]	Encasing latch body & under latch keep for all doorsets	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)
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 14: 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.
3. The seal specification for each configuration is contained in Appendix E.

11.1 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 Global Assessment report.

12 Edging Materials

12.1 Timber Lippings

Strebord 54® must be lipped in accordance with the following specification (for steel framed doorset lipping specification see Appendices A1 and A2):

Material	**Size** (thk - mm)	**Min. Density** (kg/m^3)
Hardwood must be straight grained, joinery quality, free from knots, splits and checks	1. Flat = 6 - 15 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 9.1). 2. Rounded = 10 - 17 thick with a radius matching the distance between leaf edge and floor pivot (see section 9.1). 3. Rebated = 20 - 25 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.	640

Notes:

- Single and double doorsets without overpanels only require lipping on the vertical edges.
- Doorsets with overpanels must be lipped on the vertical edges and additionally at the bottom edge of the overpanel and top edge of the doors.
- Double doorsets without overpanels must use square edges.
- Double doorsets with overpanels may use a square or rebated overpanel junction but only in conjunction with square meeting edges.
- A 2.5° chamfer is permitted to the lipping at the leading edge of leaves providing the door gaps meet the requirements of section 16.

12.2 PVC Edge Protectors & Post-Formed CS Group Acrovyn

12.2.1 General

It is possible to fit proprietary edge protectors to this doorset design providing they have suitable supporting test evidence to BS 476: Part 22: 1987 or BS EN 1634-1, when fitted to timber doorsets of similar construction to this design. The end user must satisfy themselves that the test evidence supports the proposed end use application.

12.2.2 CS Group Edge Protectors

The Falcon Strebord 54® design has been assessed for use with CS Group edge protectors. CS Group edge protectors are supplied pre-formed with the approved intumescent material. The CS Group edge protectors must be used as part of a complete intumescent system and the required intumescent specification and leaf sizes are given in the relevant data sheets in Appendix E. CS Group must be contacted for precise installation and fixing details (www.c-sgroup.co.uk).

12.2.3 Post-Formed CS Group Acrovyn

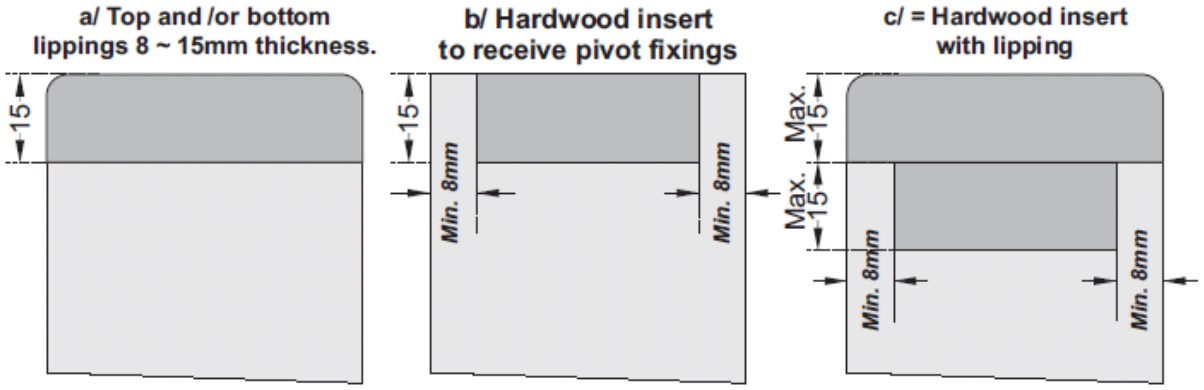
It is possible to encapsulate the Falcon Strebord 54® design by post-forming the leaf in CS Group Acrovyn, based on the supporting test evidence in Chilt/RF11061 and IF13095 and the following specification:

1. CS Group Acrovyn may be wrapped around the vertical edges of the leaf, or the leaf can be fully encapsulated on all four edges.
2. The vertical edge detail prior to post-forming must either be lipped with 8mm thick PVC adhered to the leaf edge using WC127 PVC weld cement, or hardwood as detailed in this assessment (see sections 12.1 & 12.2). Rebated timber lippings are not permitted.
3. The horizontal edge detail prior to post-forming does not require lipping but may be lipped with 8mm thick PVC adhered to the leaf edge using WC127 PVC weld cement, or hardwood as detailed in this assessment (see sections 12.1 & 12.2). Rebated timber lippings are not permitted.
4. The maximum radius of the lipping at the corners of the vertical edges before post-forming must be 9mm, which provides for 11mm external radius after the CS Group Acrovyn has been applied.
5. The intumescent detail as specified in section 11 and the relevant (CS Group headed) datasheets contained in Appendix E of this assessment must be replicated.
6. CS Group Acrovyn must be bonded to the leaf using 3M Scotch-Grip cement 10 contact adhesive.
7. See relevant (CS Group headed) datasheets in Appendix E of this assessment for maximum permitted leaf sizes.
8. The maximum thickness of CS Group Acrovyn used must be 2mm, as per test evidence.
9. The CS Group Acrovyn can be provided as pre-formed trays with dimensions to suit the proposed leaf sizes, as well as sheets for post-forming by the door manufacturer.
10. It is permitted to hang leaves fitted with CS Group Acrovyn in timber or MDF door frames meeting the specification given in section 9.1 (not encapsulated with CS Group Acrovyn) or section 9.1.1 (encapsulated with CS Group Acrovyn).

12.3 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 13).



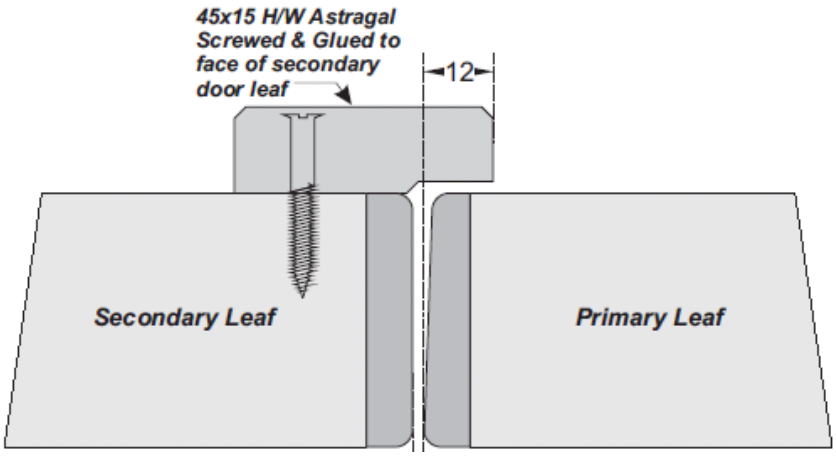
12.4 Meeting Stile Astragals

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:



13 Adhesives

The following adhesives must be used in construction:

Element	Product
Core	Manufacturers specification
Lipping	Urea formaldehyde or polyurethane

14 Tested Hardware

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

Element	Manufacturer & Product Reference
Hinges	1. Royde & Tucker H101 lift-off type hinges 2. Royde & Tucker H105 lift-off type hinges 3. Eclipse BB type Gatcliff hinges 4. Pyroplex stainless steel butt hinges – Grade 201
Closers	1. SS Bower overhead face-fixed type closer 2. Dorma TS83V overhead face-fixed type closer
Locks/latches	1. Winkhaus AV2 espagnolette multi-point lock* 2. Henderson Hardware mortice latch
Furniture	1. Aluminium lever type handles 2. Tuscan Hardware flush pull handle**

Notes:

* The Winkhaus multi-point lock/latch can only be installed with the manufacturer's tested intumescent protection, as detailed in section 11 above.

** The Tuscan Hardware flush pull handle can only be installed with the manufacturer's tested intumescent pack, as detailed in section 11 above.

15 Additional & Alternative Hardware

The following section details the permitted scope and constraints for fitting hardware to this door design.

The following items of hardware must also bear the CE Mark:

- Latches & Locks: Test Standard EN 12209
- Single Axis Hinges: Test Standard EN 1935
- Controlled Door Closing Devices: Test Standard EN 1154
- Door Co-ordinators: Test Standard EN 1158
- Panic Exit Hardware: Test Standard EN 1125
- Electro-Mechanically Operated Locks: Test Standard EN 14846.

15.1 Hinges

Strebord 54® leaves must be hung on a minimum of 3 hinges. Leaves over 2400mm high must fit 4 hinges. Hinges with the following specification are acceptable:

Element		Specification	
Blade height		90 - 120mm	
Blade width (excluding knuckle)		30 - 35mm	
Blade thickness		2.5 - 4mm	
Fixings		Min. of 4No. 38mm long fully threaded 'twinfast' or chipboard screws per blade	
Materials		Steel or stainless steel	
Hinge positions	**Leaf dimensions <2400mm**	Top	150 - 180mm from the head of leaf to top of the hinge
		2nd	Minimum 200mm from top hinge to central between top and bottom hinges
		Bottom	180 - 250mm from the foot of the leaf to bottom of the hinge
	Leaf dimensions >2400mm	Top	150 - 180mm from the head of leaf to top of the hinge
		2nd & 3rd	Equispaced between top and bottom hinges
		Bottom	180 - 250mm from the foot of leaf to bottom of the hinge
Intumescent protection		See section 11	

Note: It is also permitted to use screw fixings as tested and supplied with the hinges approved for the Strebord design at 60 minutes fire resistance.

15.2 Safehinge™

It is possible to fit the Safehinge™ product to the Falcon Strebord 54® design. The end user must satisfy themselves that the test evidence supports the proposed end use application. Distributors of the Safehinge™ product can provide supporting test evidence for this doorset design and must be contacted to confirm exact requirements.

15.3 Latches & Locks

Latches and locks must either be as tested, or alternatively components with the following specification are acceptable:

Element	Specification
Maximum forend & strike plate dimensions	235mm high by 25mm wide by 4mm thick
Maximum body dimensions	165mm high by 100mm wide by 18mm thick
Intumescent protection	See section 11
Materials	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel

15.4 Automatic Closing

Automatic closing devices must either be as tested or components of equal specification that have demonstrated a contribution to the required performance of these types of 60 minute doorset designs, when tested to BS 476: Part 22: 1987 or BS EN 1634-1.

Notes:

1. The top pivots to floorspring assemblies must be protected with 2mm thick intumescent gasket (see section 11) or alternatively the manufacturers' tested intumescent pack.
2. Concealed overhead closers are not permitted with flush overpanels unless there is specific test evidence for this door design to one of the above test standards.

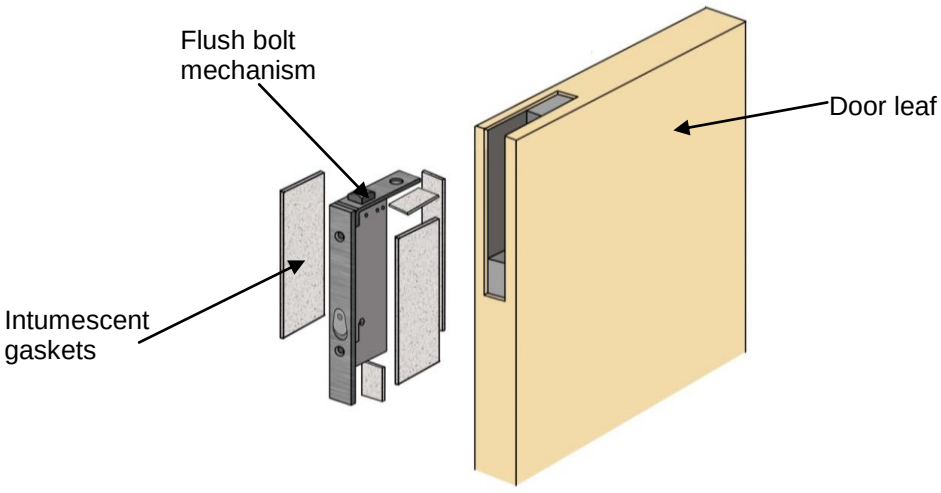
15.5 Flush Bolts

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:

- 200mm long x 20mm deep x 20mm 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 must be protected with intumescent gaskets as specified in section 11. Alternatively the hardware manufacturers' tested gaskets may be used.

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



15.6 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.

15.7 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.

15.8 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.

15.9 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.

15.10 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.

15.11 Air Transfer Grilles

15.11.1 General

Air transfer grilles may be fitted providing the product has suitable test evidence to BS 476: Part 22: 1987 or BS EN 1634-1, demonstrating a minimum 60 minutes integrity performance when installed within a timber based doorset of comparable thickness. Margins to leaf edges are as detailed for glazing and the position of the unit will be dictated by the pressure regime tested for the grille (normally below mid-height). The area occupied by the grille must not exceed 0.2m^2 and must be deducted from the assessed glazing area, if both elements are fitted.

15.11.2 Pyroplex Air Transfer Grilles

The following Pyroplex air transfer grilles have been considered acceptable for use with the Strebord 54® product:

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 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.

15.12 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.

15.13 Threshold Seals

The following types of automatic threshold drop seals may be recessed into the bottom rail of leaves to this design without compromising the performance:

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.

15.14 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.

15.15 Letter Boxes/Plates

Letter boxes/plates may be fitted providing the product has demonstrated contribution to the required integrity performance of this type of doorset design, when tested to BS 476: Part 22: 1987 or BS EN 1634-1, when installed in a timber based doorset of comparable thickness. Products may be fitted up to 1200mm from floor level and no closer than 100mm to any leaf edge.

16 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.

17 Structural Opening

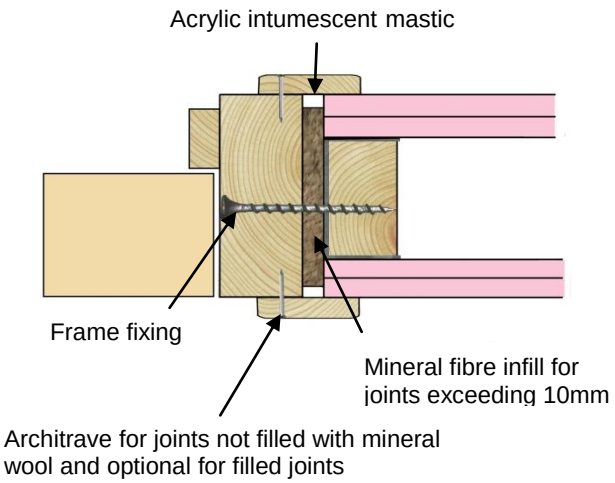
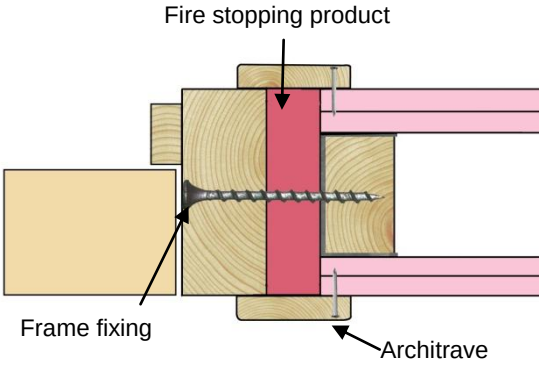
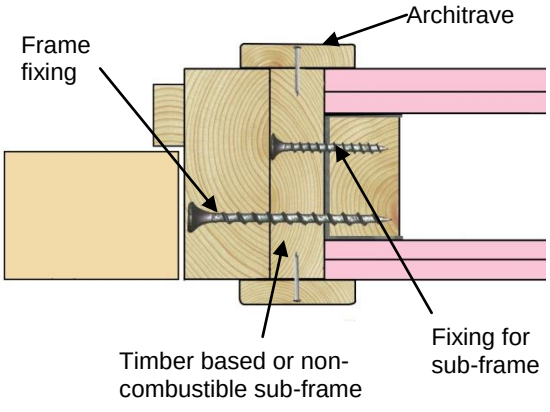
The supporting construction must provide the level of fire resistance designated for the doorset design and be a suitable medium to permit adequate fixity.

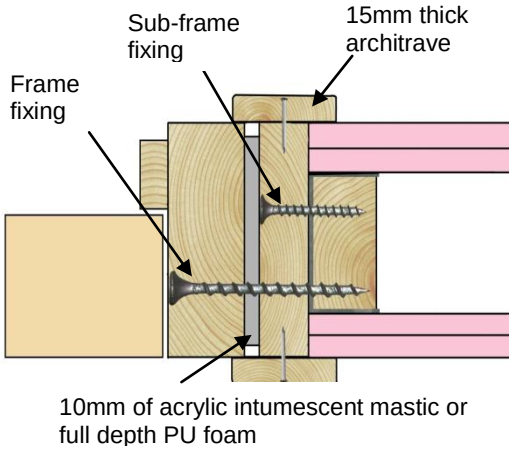
18 Fixings

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.

19 Sealing to Structural Opening

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

<table>
<tr><td>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.</td><td rowspan="2"> 
</td></tr>
<tr><td>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.</td></tr>
<tr><td>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.</td><td> 
</td></tr>
<tr><td>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.</td><td> 
</td></tr>
</table>

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.	

Guidance for various methods of sealing the frame to structural opening gap is also given in BS 8214: 2008, “Code of practice for fire door assemblies”, 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.

20 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.

21 Smoke Control

21.1 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 $3m^3$/m/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.

21.2 Further Considerations

Note that there is other guidance available, including BS EN 9999-2008 - *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.

22 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 20.

23 Declaration by the Applicant

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

Signed:

Name:

For and on behalf of: **FALCON PANEL PRODUCTS LTD.**

24 Limitations

The following limitations apply to this assessment:

1) This assessment addresses itself solely to the elements and subjects discussed and does not cover any other criteria. All other details not specifically referred to should remain as tested or assessed.
2) This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available, BM TRADA reserves the right to withdraw the assessment unconditionally, but not retrospectively.
3) This assessment has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.
4) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
5) This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this assessment, the element is suitable for its intended purpose.

25 Validity

1) The assessment is initially valid for five years from the date of issue, after which time it must be submitted to BM TRADA for re-appraisal.
2) This assessment report is not valid unless it incorporates the declaration given in Section 23, duly signed by the applicant.

Signature:		
Name:	**J Godfrey**	**A M Winning**
Title:	Product Assessor	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 2 of this 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 overpanels.

4. Lippings

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

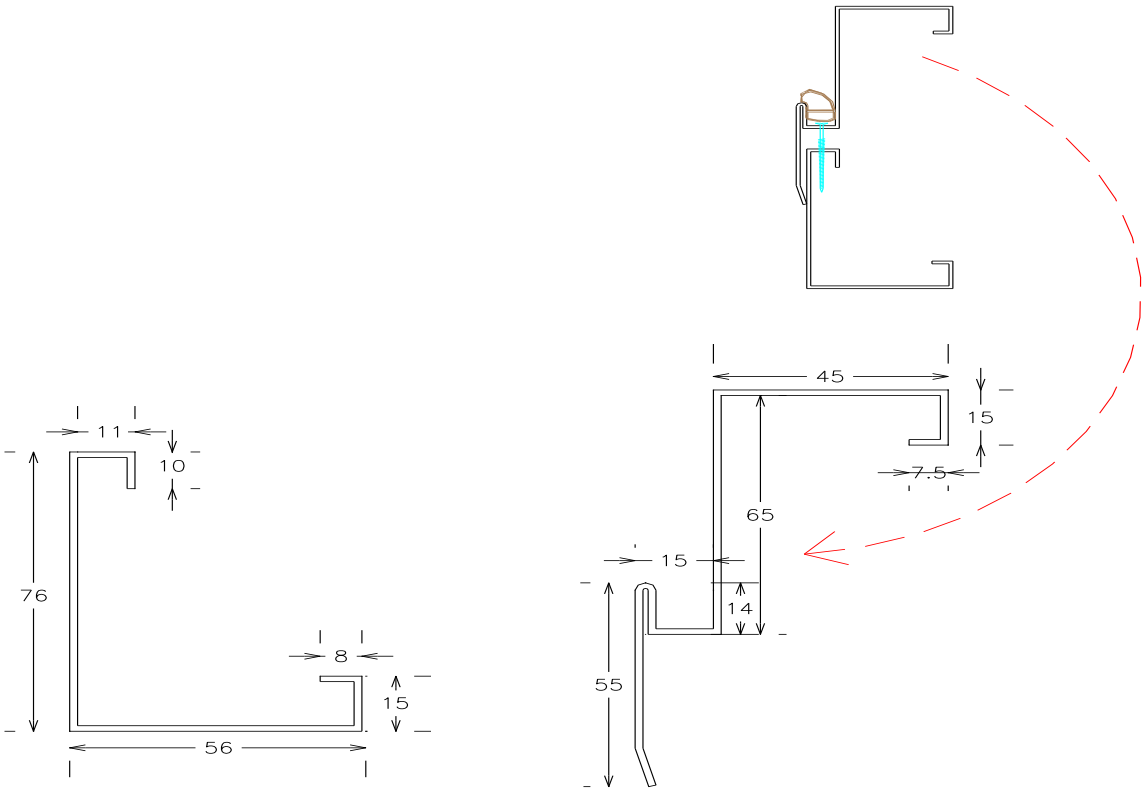
Material	**Size** (mm)	**Min. Density** (kg/m^3)
Timber must be hardwood, straight grained, joinery quality and free from knots, splits and checks.	1. Flat = 8 – 15 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 9.1) 2. Rebated = Not permitted	640

5. Door Frame Construction & Installation

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

Element	**Material**	**Dimensions** (mm)
Head & jambs	Profiled steel sections Nordform Product Ref. A01-A02	1.5 thick
Head to jamb jointing detail	Mitred – screwed	-
Stops	Integral	15 deep
Frame to supporting construction fire stopping detail	Tenmat Firefly lining the partition aperture	3 thick
Frame to supporting construction fixing detail	8No. steel wood screws per jamb used in pairs at each fixing point	80 long
Architrave	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).

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 2 of this 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 overpanels.

4. Lippings

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

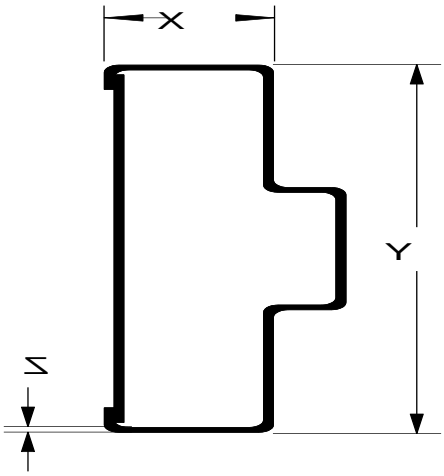
Material	**Size** (mm)	**Min. Density** (kg/m^3)
Timber must be hardwood, straight grained, joinery quality and free from knots, splits and checks.	1. Flat = 8 – 13 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 9.1) 2. Rebated = Not permitted	640

5. Door Frames

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

Material	**Size** (mm)	**Min. Density** (kg/m^3)
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.

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

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
A11130 Rev. A (CS Group Acrovyn & Edge Protectors)	Various	Various	BS 476: Pt 22: 1987	60
RF11061 (CS Group Acrovyn & Edge Protectors)	A: ULSADD	2100 x 900/300 x 54	BS 476: Pt 22: 1987	66
	B: ULSADD	2100 x 900/300 x 54		68
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[1]
	B: ULSASD	2135 x 915 x 54		53[2]
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[3]
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[4] / Insulation 53
PF15035 (STS glazing system)	ULSADD	2900 x 1000/1000 x 54	BS 476: Part 20/22: 1987	Integrity: 50[5]
CFR1405071 (Sealmaster 2712S threshold seal)	ULSADD	2440 x 931 x 54	BS EN 1634-1	Integrity: 58[6]
IF13037 (Vistamatic VS1 Secure Vision Panels)	Indicative sample	1250 x 1230 x 54	BS 476: Part 20/22: 1987	65

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.
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.
3. None of the failures witnessed prior to 60 minutes were attributable to the flush pull handle.
4. None of the failures witnessed prior to 60 minutes were attributable to the Streframe glazing beads.
5. None of the failures witnessed prior to 60 minutes were attributable to the STS glazing system.
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.

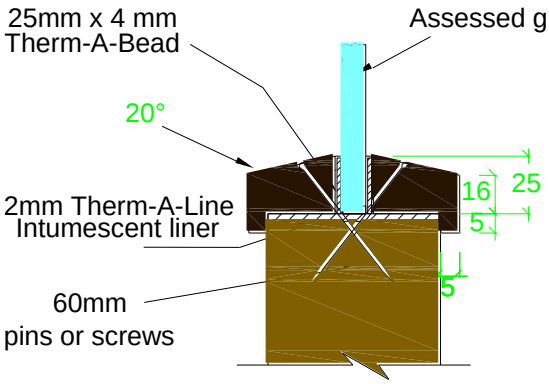
Appendix C

Revisions

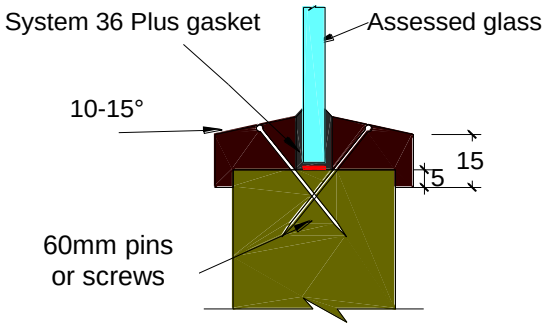
Rev.	BM TRADA Ref.	Date	Description
A	A07067	25.04.07	5 year revalidation and update.
A	A07080	10.05.07	Inclusion of evidence from RF07035 – ISL seals.
B	A08041	02.05.08	5 year revalidation and update into new format. Inclusion of data from RF04002 (steel frames), RF06028 (hardware). Data sheet revised 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.

Appendix D

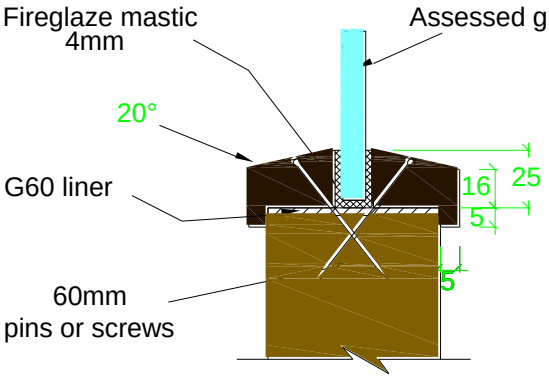
Proprietary 60 Minute Glazing Systems



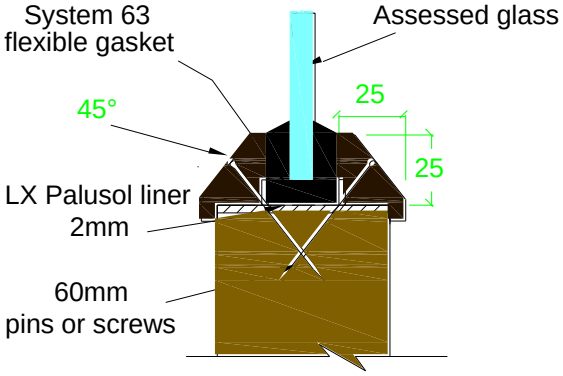
Therm-A-Glaze 60
Intumescent Seals Ltd



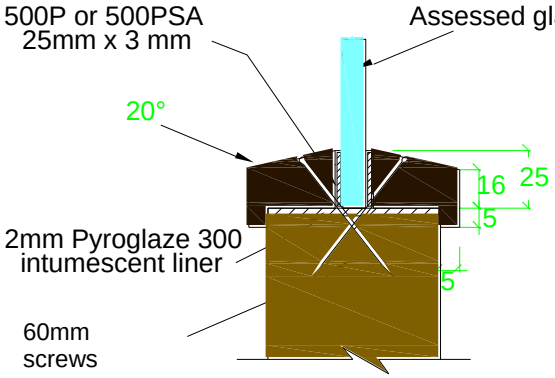
System 36 Plus
Lorient Polyproducts Ltd



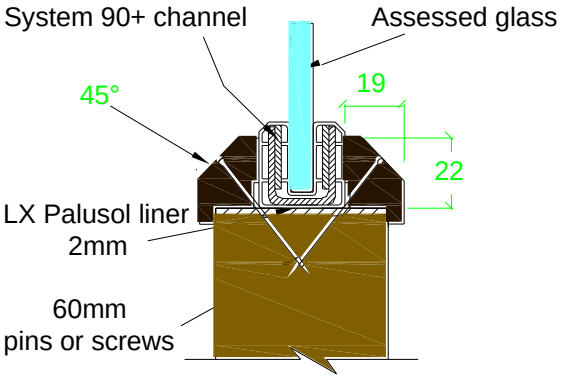
Fireglaze Mastic
Sealmaster Ltd



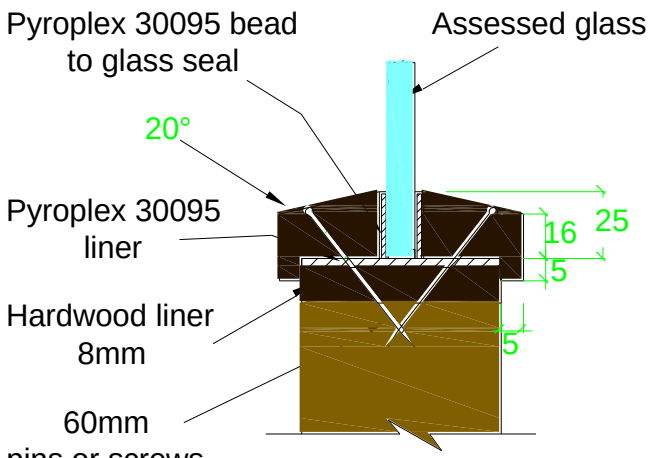
System 63
Lorient Polyproducts Ltd



Pyroglaze 60
Mann McGowan Ltd

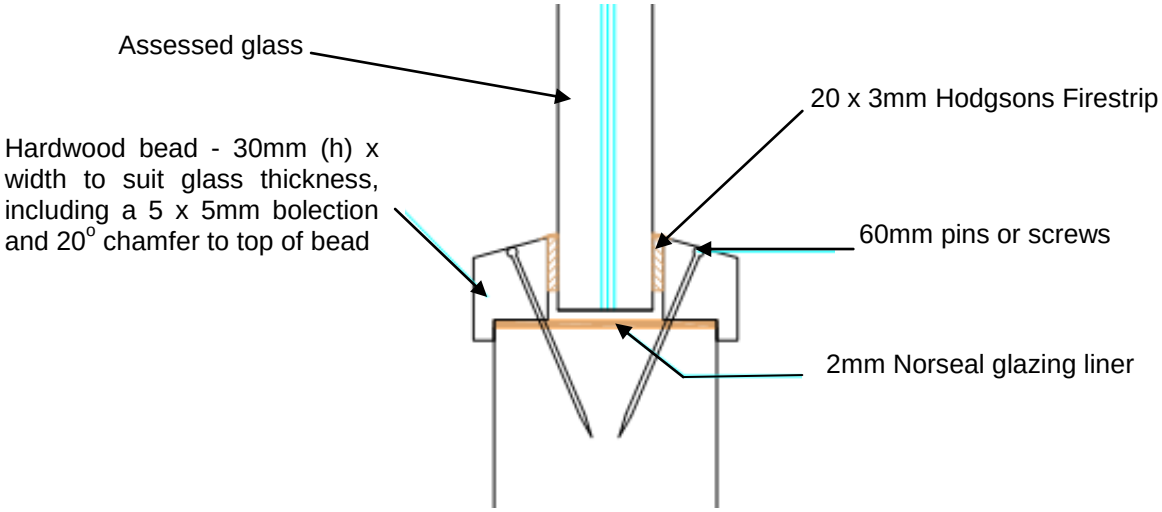


System 90+
Lorient Polyproducts Ltd



System FG60
Pyroplex Ltd

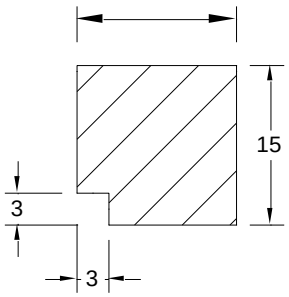
Firestrip 60 – Hodgsons Sealants Ltd.



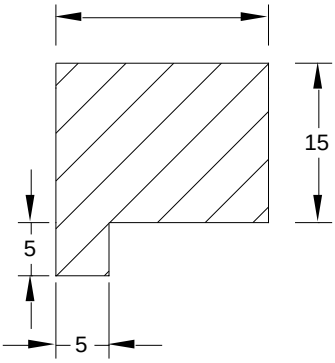
Assessed Square Glazing Bead Profiles

The following square bead profiled may be used as an alternative to the splayed beads detailed above - refer to section 6 for glazing system and glass restrictions.

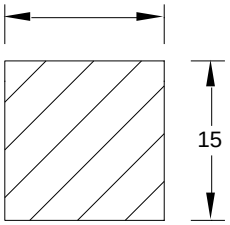
To finish flush with the leaf face



Suited to glass thickness



To finish flush with the leaf face



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	1105
		To:	2505	x	915
	ULSASD & DASD	From:	2120	x	1080
		To:	2455	x	915
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

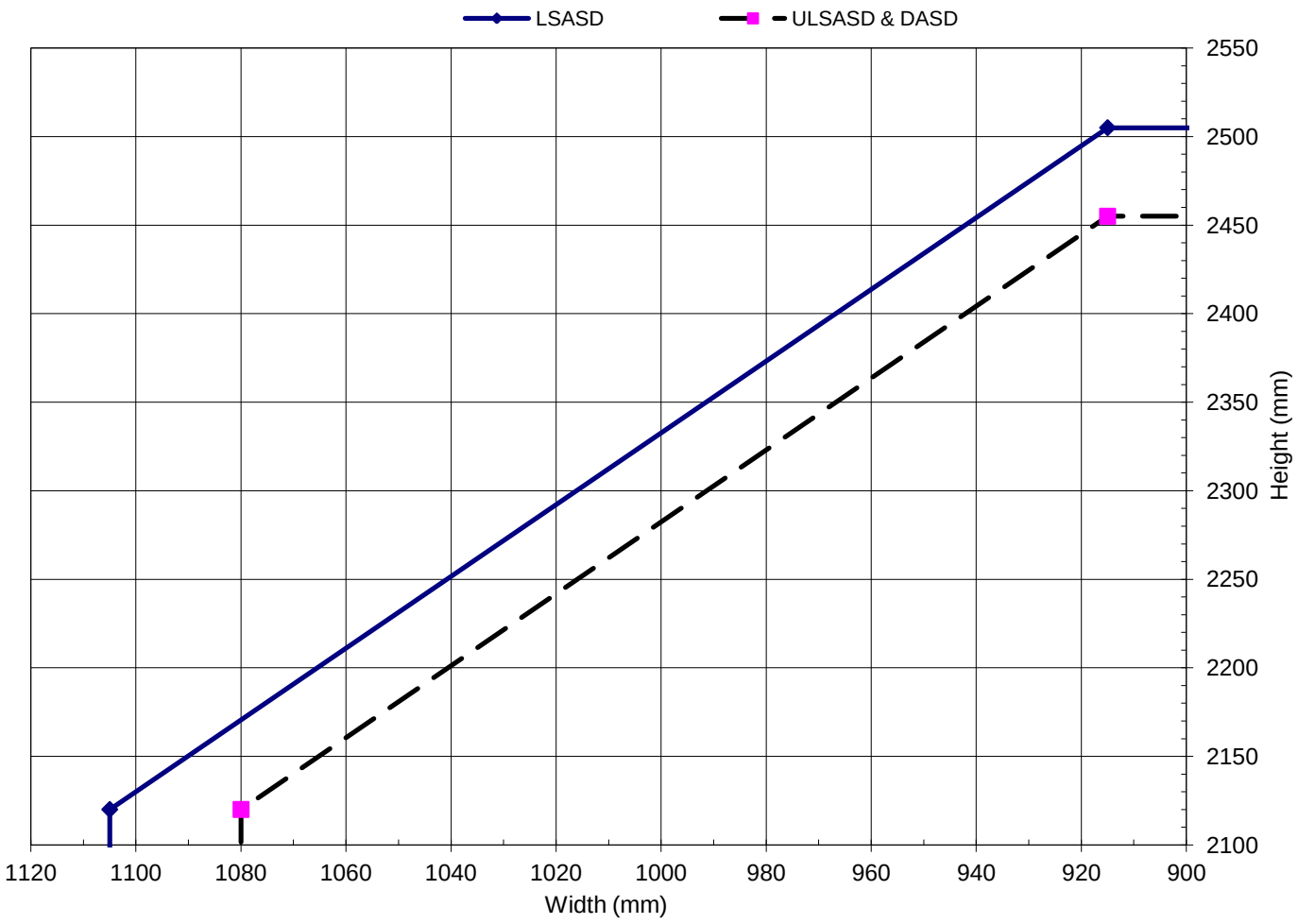
INTUMESCENT MATERIALS: PVC encased Palusol 100

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

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

HARDWARE PROTECTION: See section 11.

Maximum Door Leaf Size



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

Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD & ULSASD & DASD	From:	2120	x	1026
		To:	2300	x	915
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

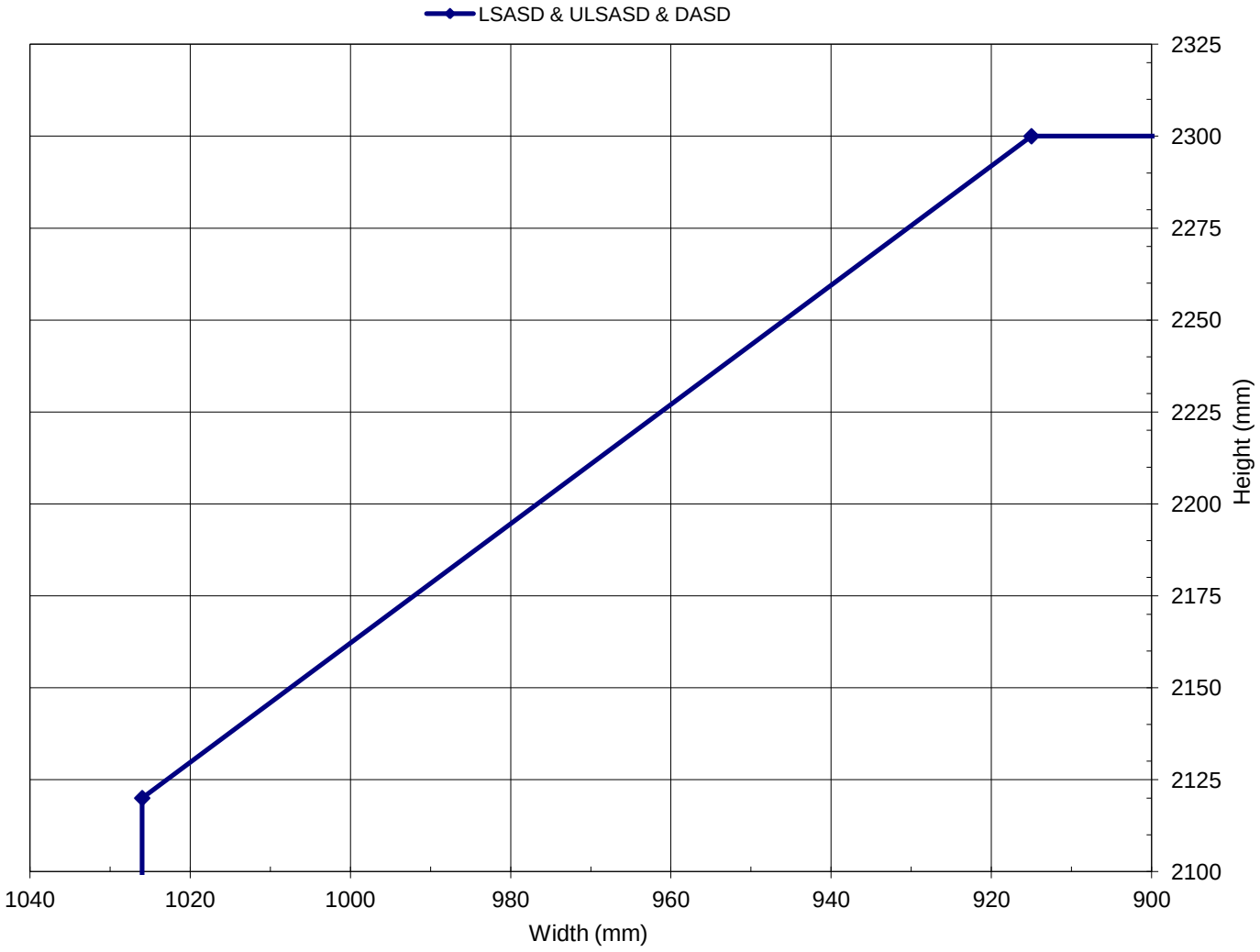
INTUMESCENT MATERIALS: Type 617

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

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

HARDWARE PROTECTION: See section 11.

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		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

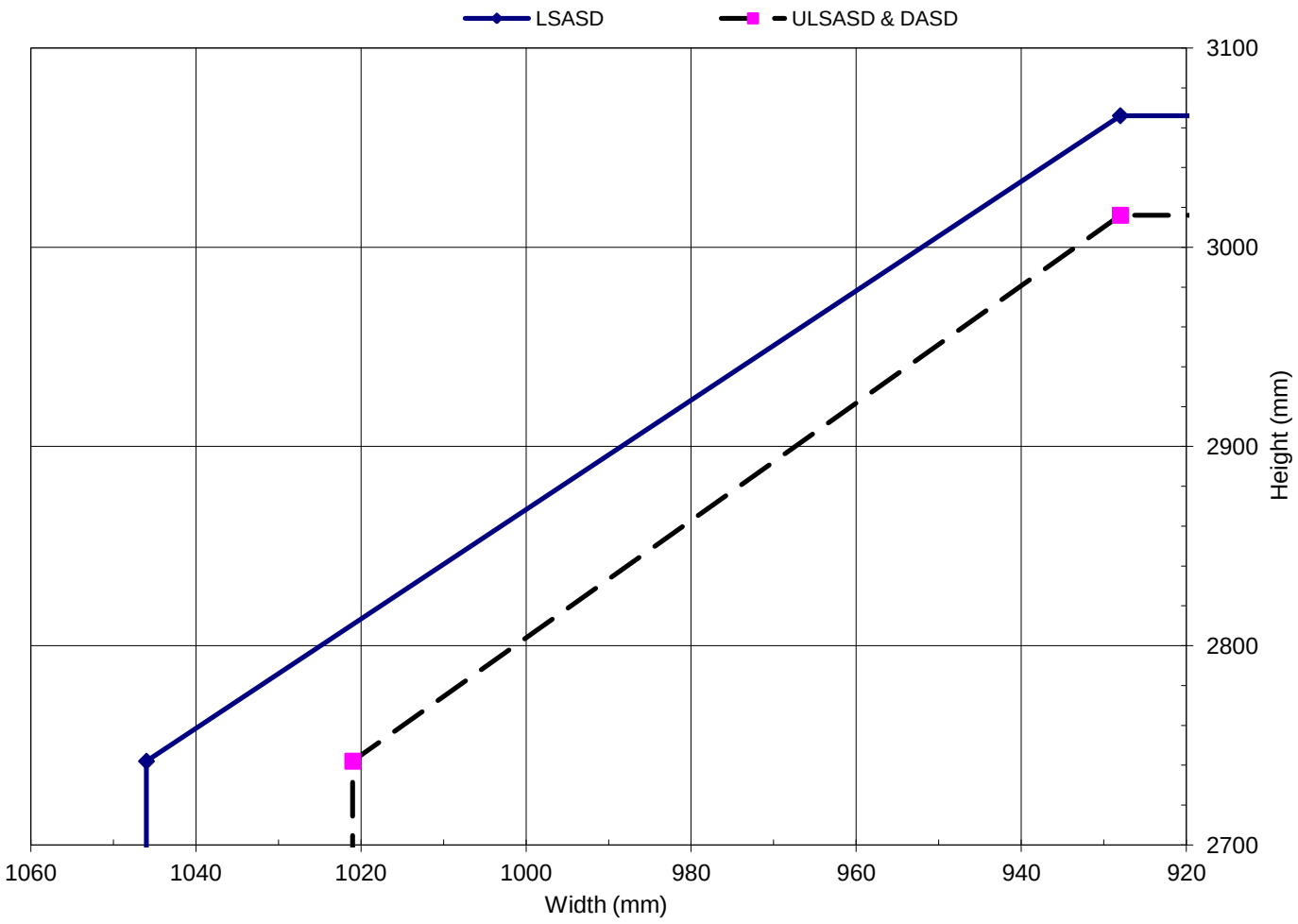
INTUMESCENT MATERIALS: Pyroplex

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

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

HARDWARE PROTECTION: See section 11.

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	1271
		To:	2528	x	1234
	ULSASD & DASD	From:	2454	x	1246
		To:	2478	x	1234
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

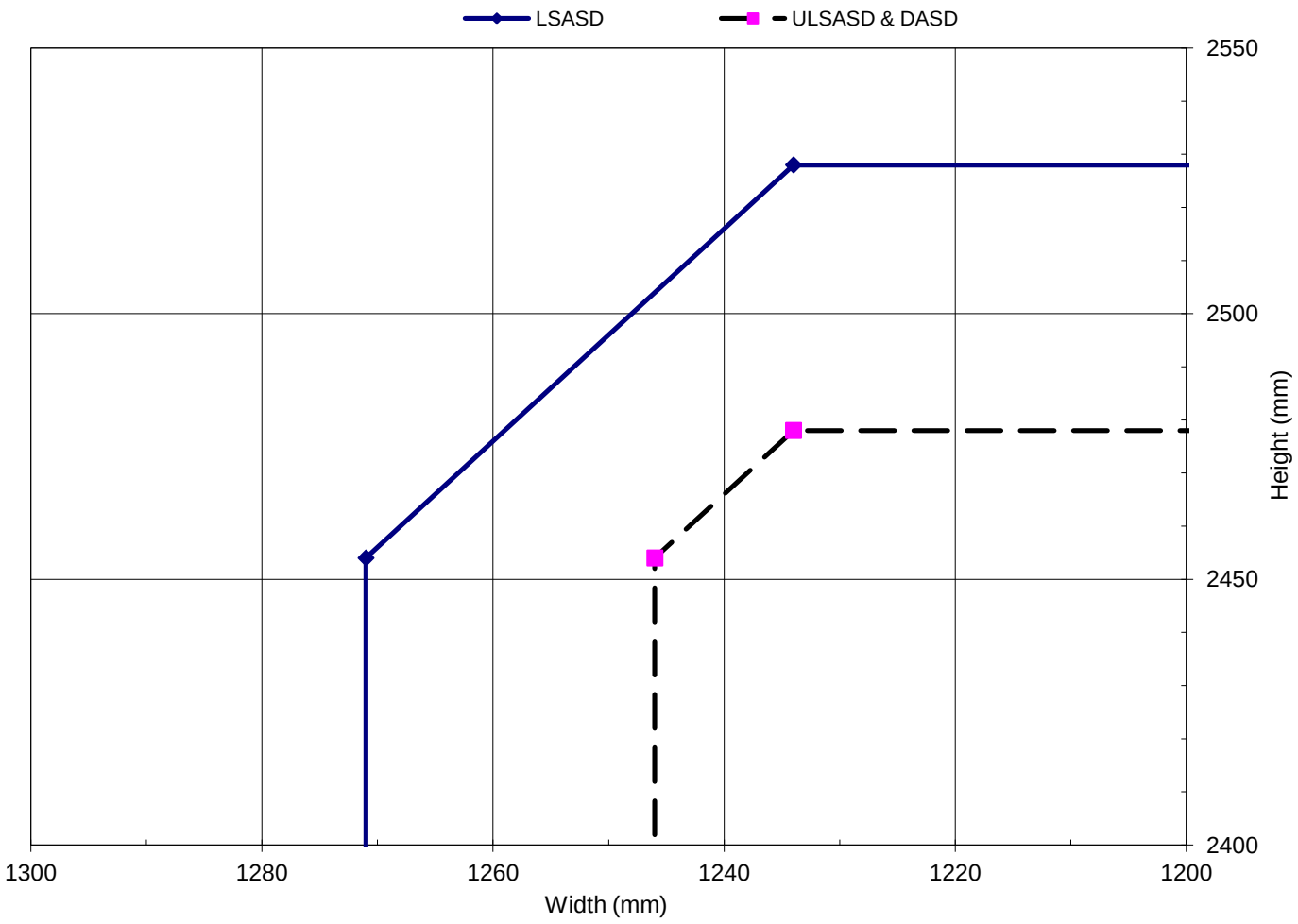
INTUMESCENT MATERIALS: Pyroplex

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

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

HARDWARE PROTECTION: See section 11.

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	1050
		To:	2310	x	925
	ULSASD & DASD	From:	2040	x	1025
		To:	2260	x	925
Maximum Overpanel Height (mm)		N/A	Not permitted		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

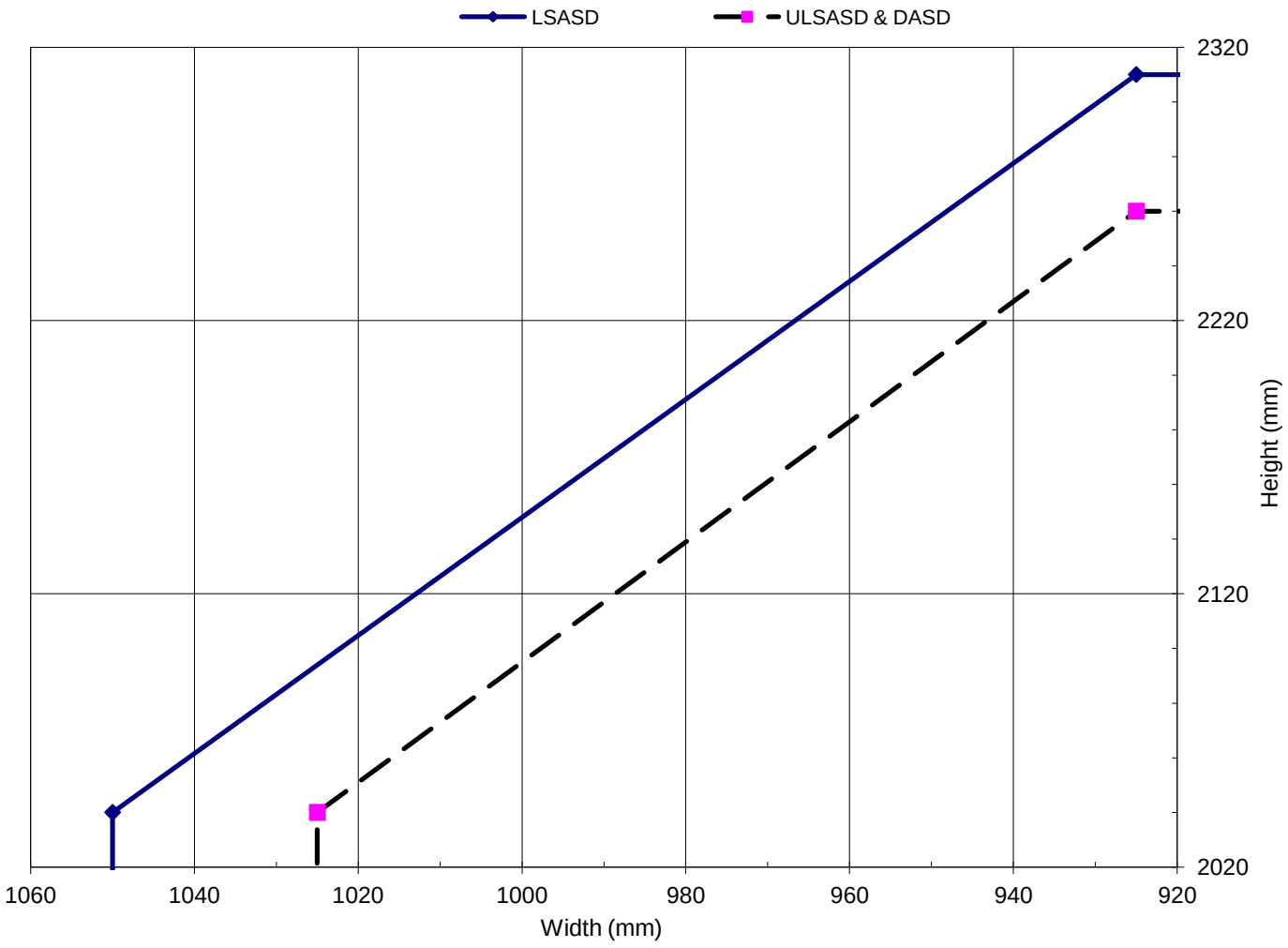
INTUMESCENT MATERIALS: PVC encapsulated Pyroplex

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

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

HARDWARE PROTECTION: See section 11.

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	1085
		To:	3155	x	927
	ULSASD & DASD	From:	2757	x	1060
		To:	3105	x	927
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

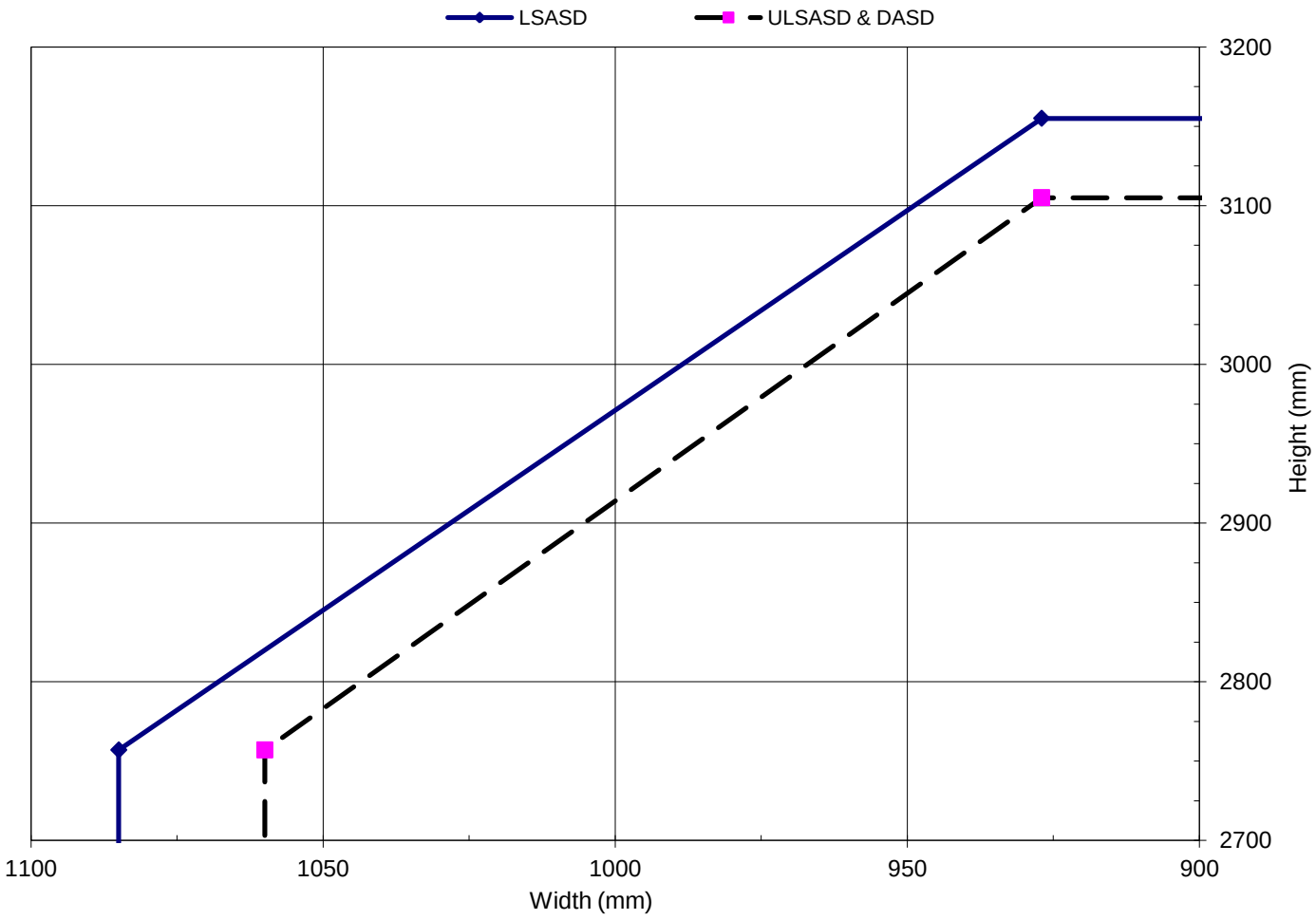
INTUMESCENT MATERIALS: Pyroplex Rigid Box Seal FO8700

HEAD: 2No. 15x4mm exposed and fitted 5mm either side of the centreline 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 in the frame reveal.

HARDWARE PROTECTION: See section 11.

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	1022
		To:	2319	x	932
	ULSASD & DASD	From:	2132	x	997
		To:	2269	x	932
Maximum Overpanel Height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

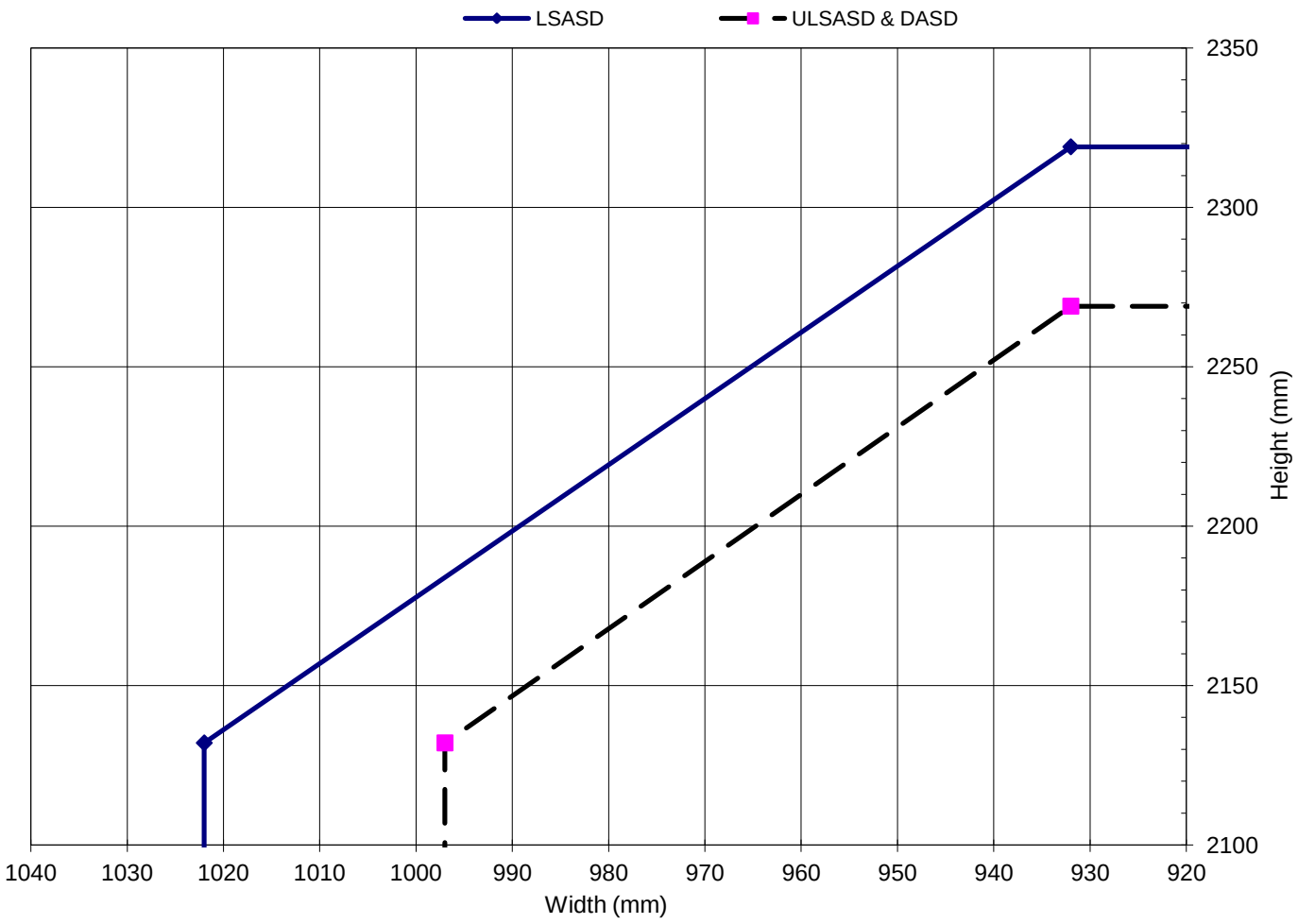
INTUMESCENT MATERIALS: Therm-A-Seal

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

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

HARDWARE PROTECTION: See section 11.

Maximum Door Leaf Size



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

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

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD+OP	From:	2120	x	1055
		To:	2405	x	915
	ULSASD+OP & DASD+OP	From:	2120	x	1030
		To:	2355	x	915
Maximum Overpanel Height (mm)			2000		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

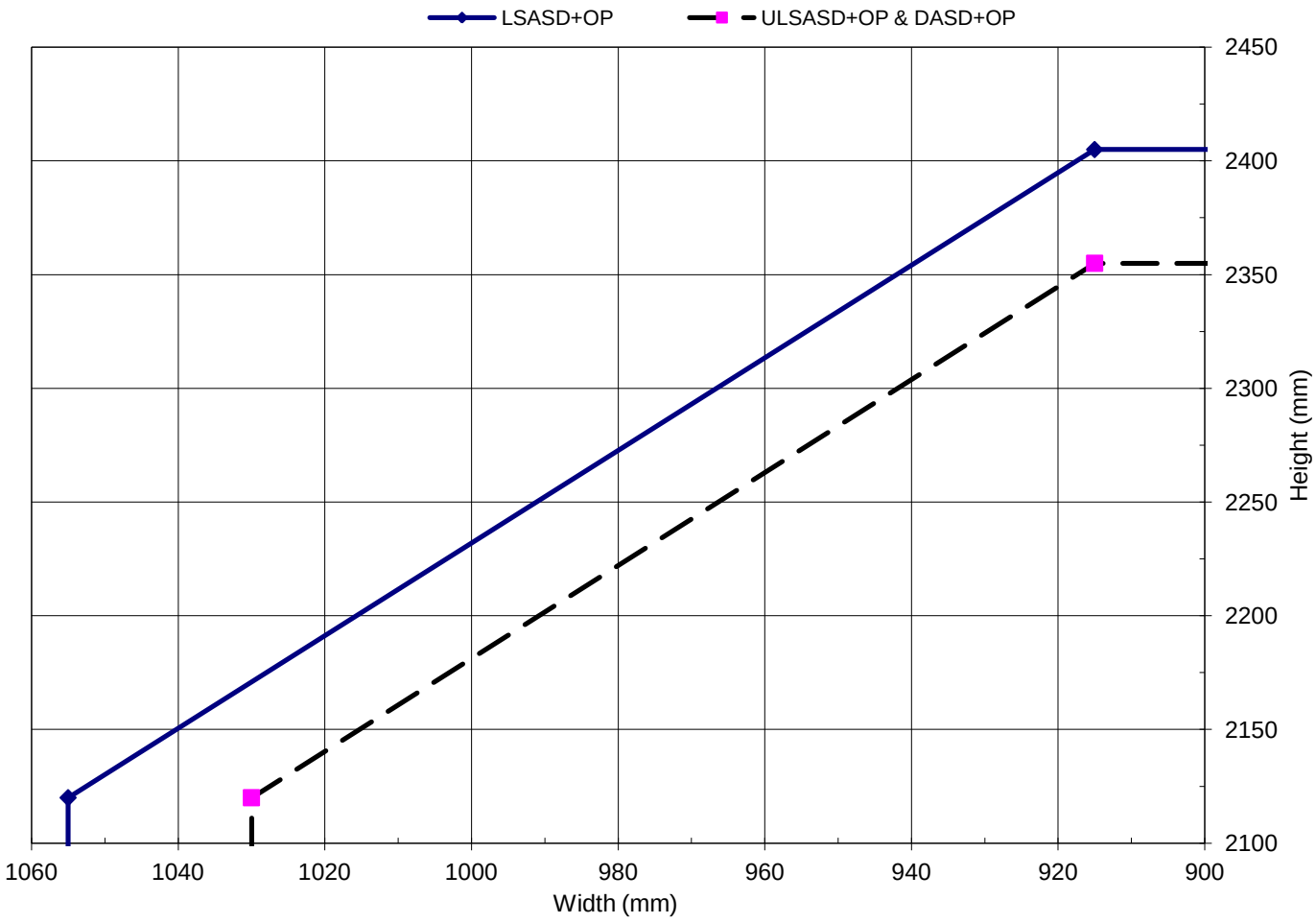
INTUMESCENT MATERIALS: PVC encased Palusol 100

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 in the leaf edge or frame reveal.

HARDWARE PROTECTION: See section 11.

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	1050
		To:	2310	x	925
	ULSADD & DADD	From:	2040	x	1025
		To:	2260	x	925
Maximum Overpanel Height (mm)		Transomed	N/A		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

INTUMESCENT MATERIALS: Pyroplex

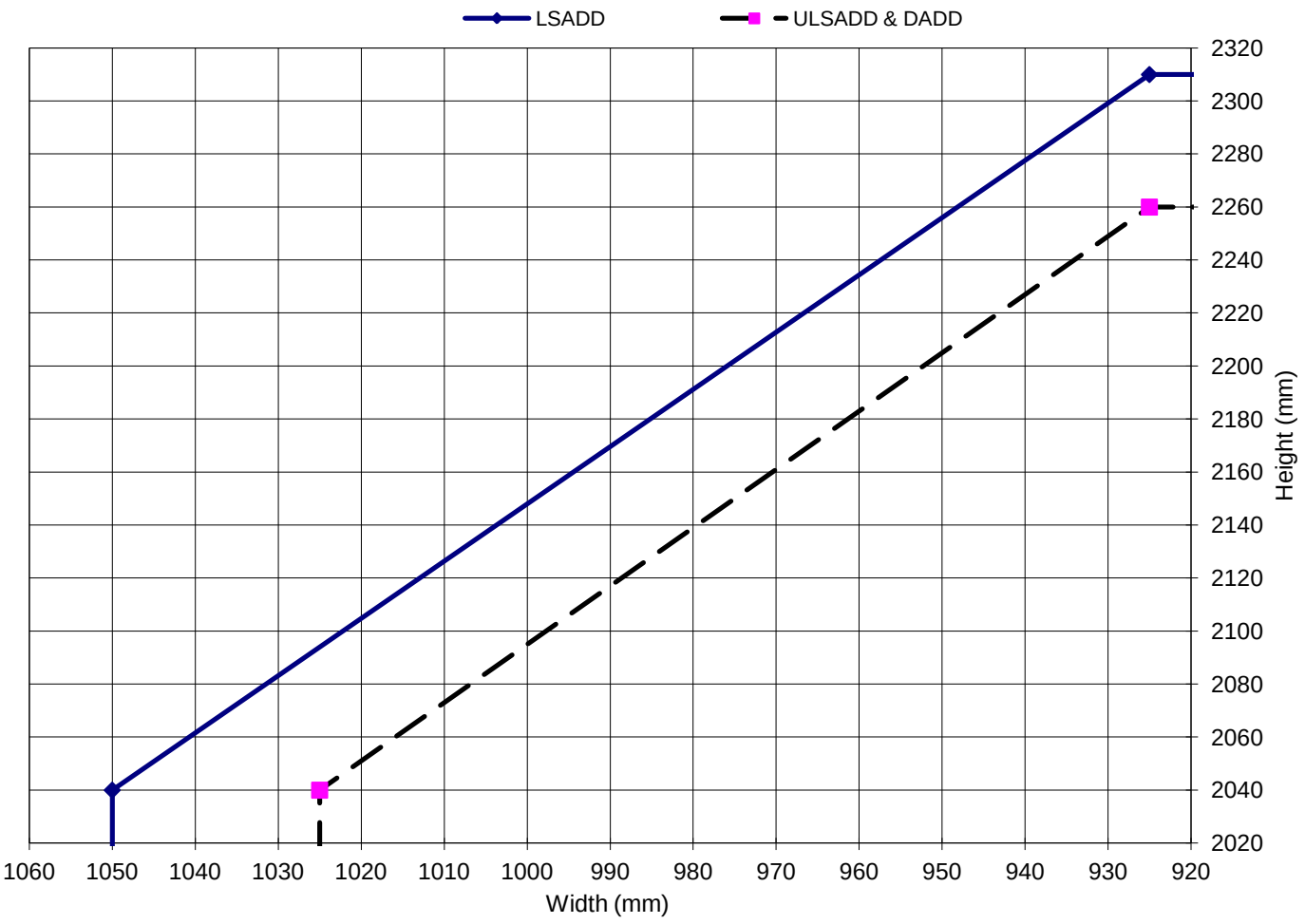
HEAD: 2No. 15x4mm exposed and fitted 5mm either side of the centreline in the leaf edge or frame reveal.

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

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

HARDWARE PROTECTION: See section 11.

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	1035
		To:	3055	x	927
	ULSADD & DADD	From:	2757	x	1010
		To:	3005	x	927
Maximum Overpanel Height (mm)		Transomed	1500		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

INTUMESCENT MATERIALS: Pyroplex Rigid Box Seal FO8700

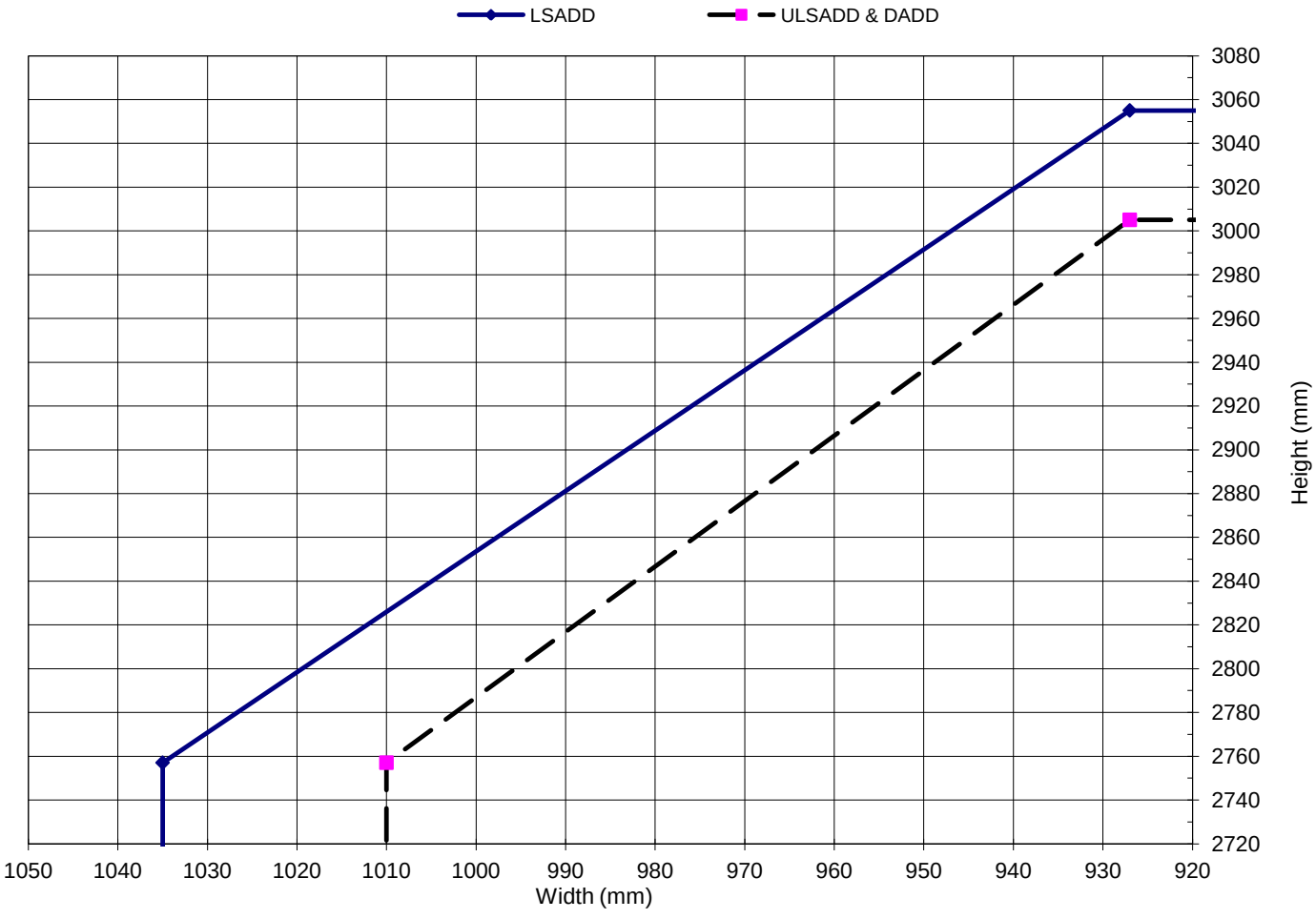
HEAD: 2No. 15x4mm exposed and fitted 5mm either side of the centreline in the frame reveal, plus 1No. 15x4mm exposed and fitted centrally in the leaf edge.

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

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

HARDWARE PROTECTION: See section 11.

Maximum Door Leaf Size



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	1005
		To:	2305	x	915
	ULSADD & DADD	From:	2120	x	980
		To:	2255	x	915
Maximum Overpanel Height (mm)		Transomed	1500		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

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

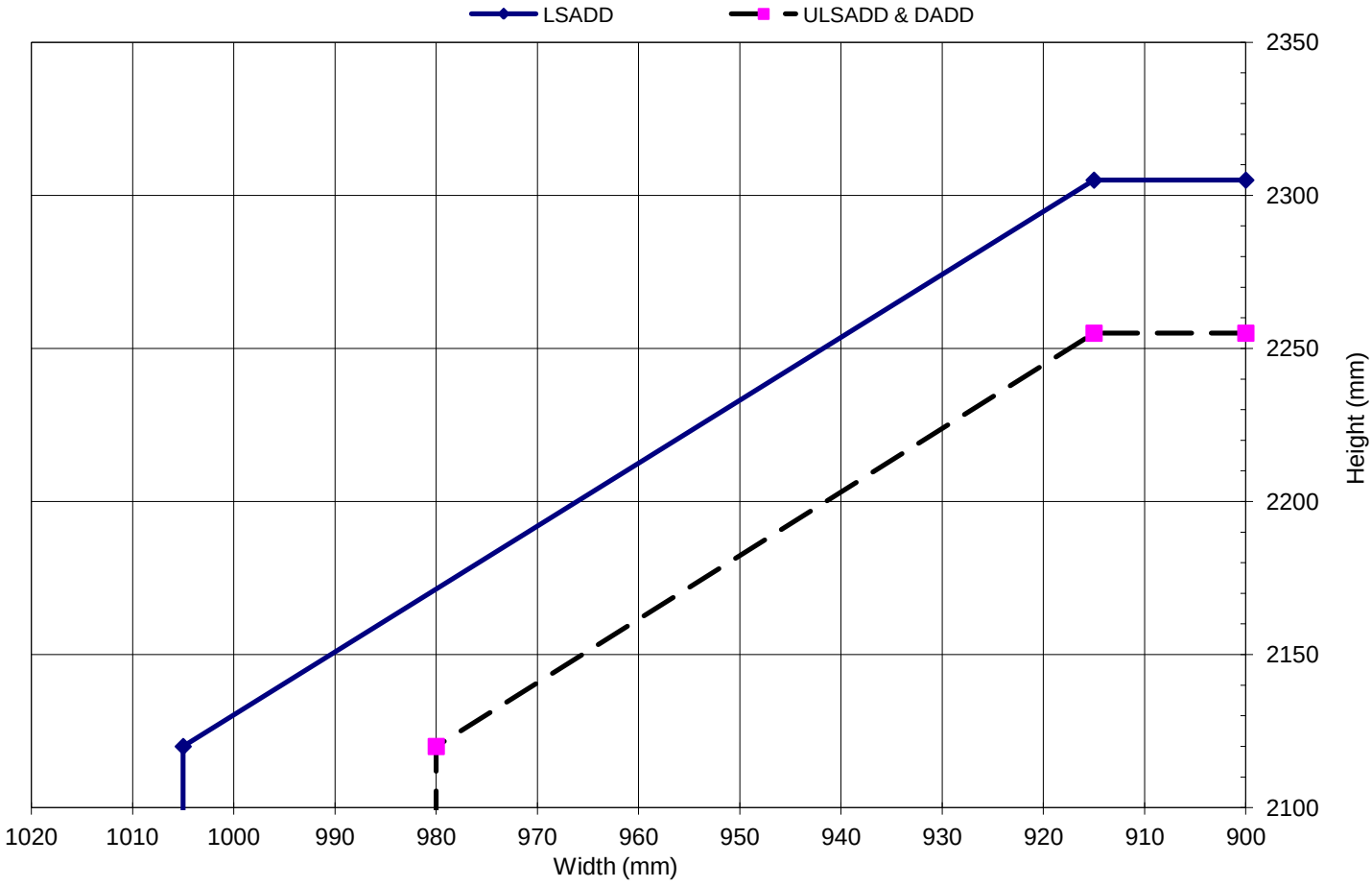
HEAD: 2No. 15x4mm exposed and fitted 5mm either side of the centreline in the leaf edge or frame reveal.

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

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

HARDWARE PROTECTION: See section 11.

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	926
		To:	2300	x	915
	ULSADD & DADD	From:	2120	x	926
		To:	2255	x	915
Maximum Overpanel Height (mm)		Transomed	1500		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

INTUMESCENT MATERIALS: Type 617

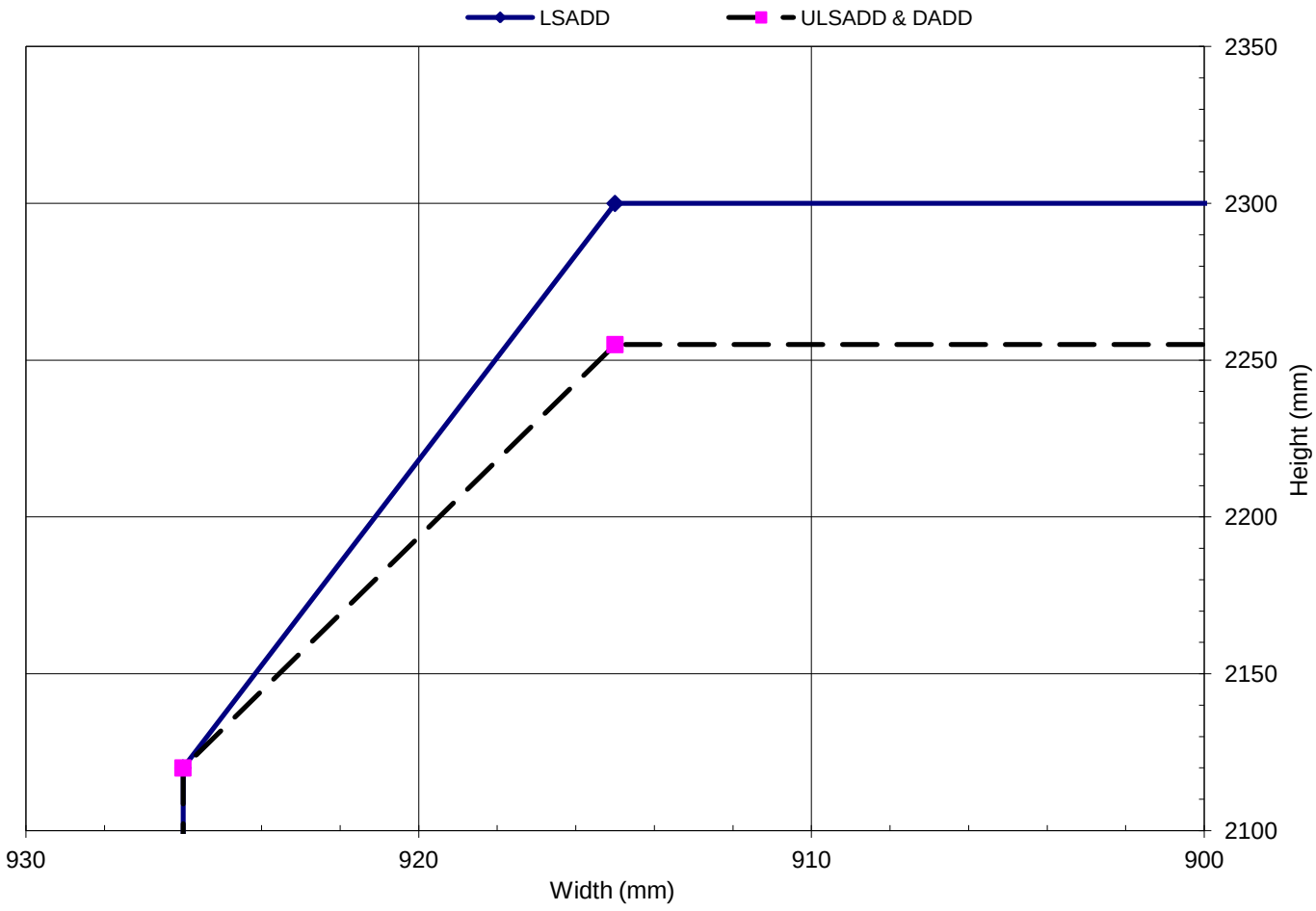
HEAD: 2No. 15x4mm exposed and fitted 5mm either side of the centreline in the leaf edge or frame reveal.

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

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

HARDWARE PROTECTION: See section 11.

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	1042
		To:	2380	x	932
	ULSADD & DADD	From:	2135	x	1017
		To:	2330	x	932
Maximum Overpanel Height (mm)		Transomed	1500		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

INTUMESCENT MATERIALS: Pyroplex

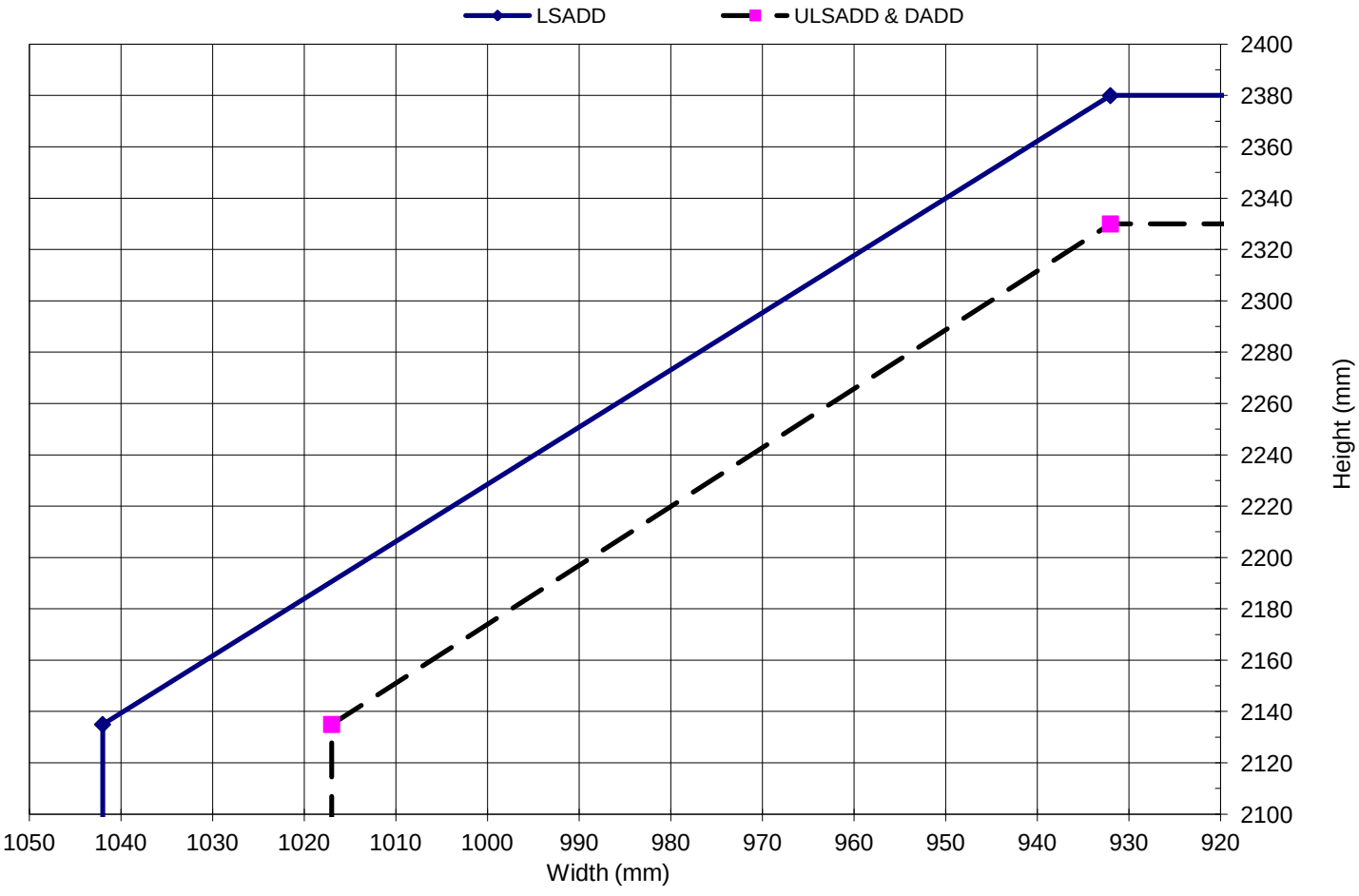
HEAD: 2No. 15x4mm exposed and fitted 5mm either side of the centreline in the leaf edge or frame reveal.

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

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

HARDWARE PROTECTION: See section 11.

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	972
		To:	2219	x	932
	ULSADD & DADD	From:	2132	x	947
		To:	2169	x	932
Maximum Overpanel Height (mm)		Transomed	1500		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

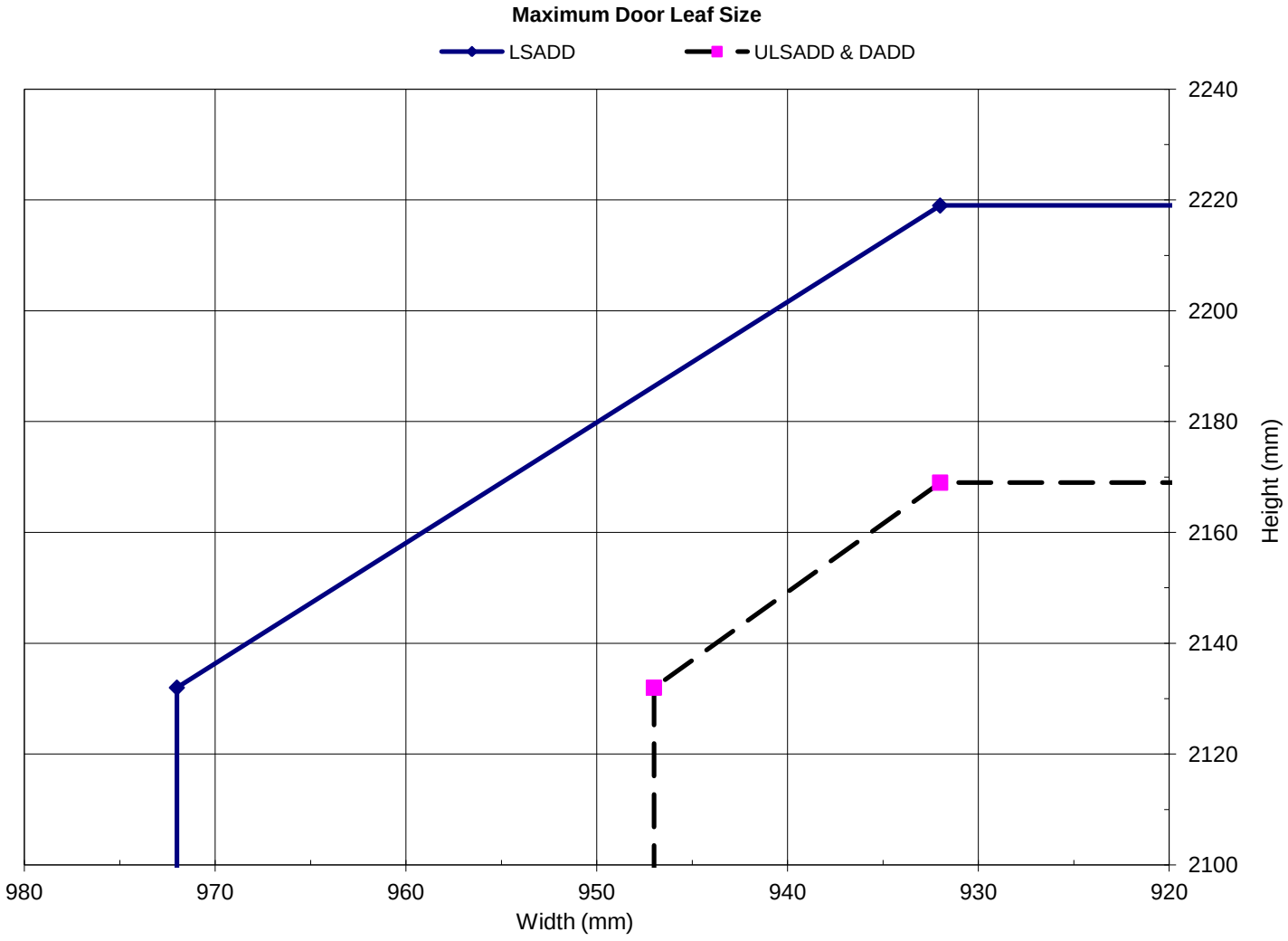
INTUMESCENT MATERIALS: Therm-A-Seal

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

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

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

HARDWARE PROTECTION: See section 11.



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

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

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD+OP	From:	2120	x	955
		To:	2205	x	915
	ULSADD+OP & DADD+OP	From:	2120	x	930
		To:	2155	x	915
Maximum Overpanel Height (mm)			1500		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

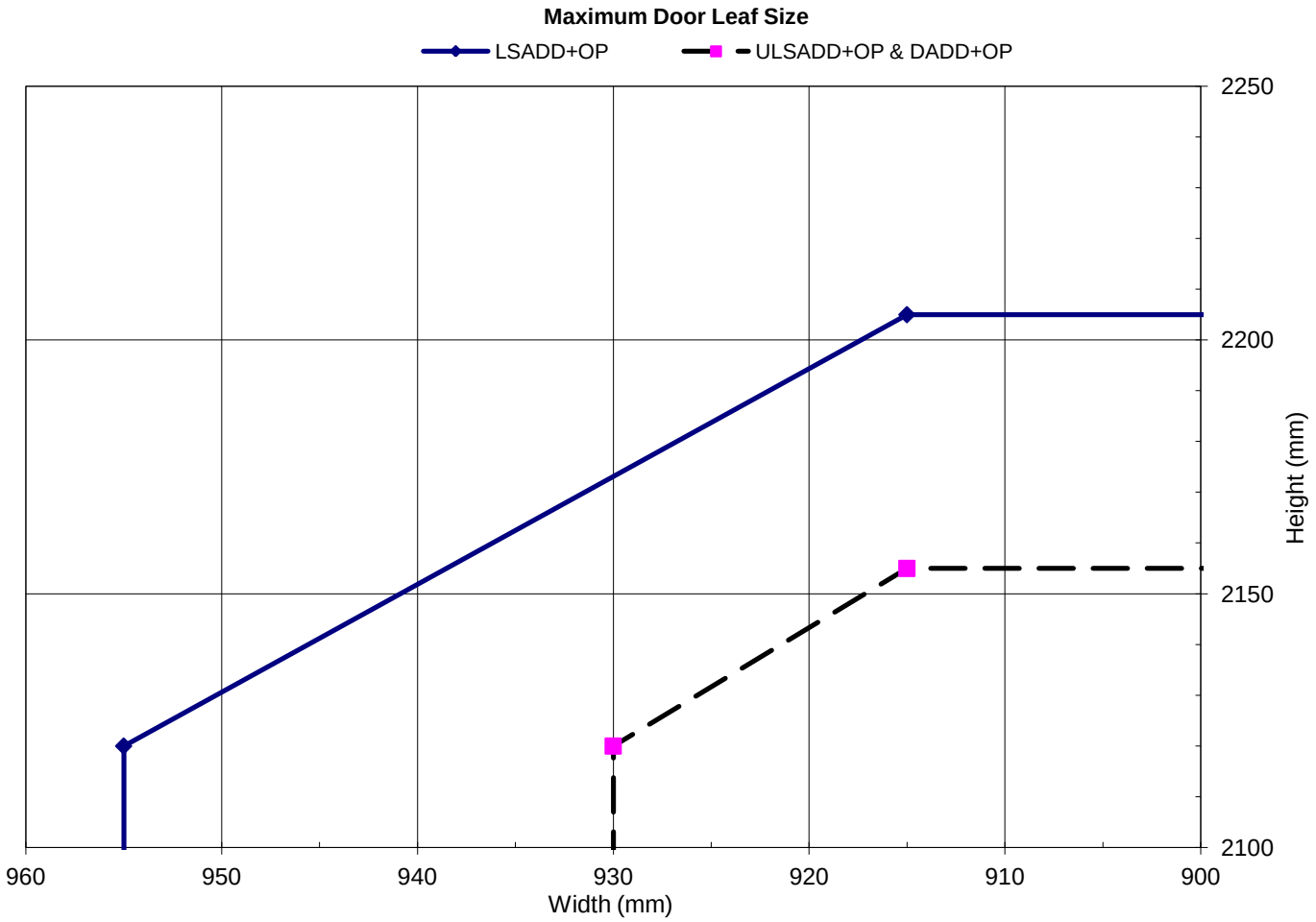
INTUMESCENT MATERIALS: PVC encased Palusol 100

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 in one leaf only.

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

HARDWARE PROTECTION: See section 11.



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	x	1006
		To:	2300	x	931
	ULSASD	From:	2150	x	981
		To:	2250	x	931
Maximum Overpanel Height (mm)			N/A		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See Appendix A1		

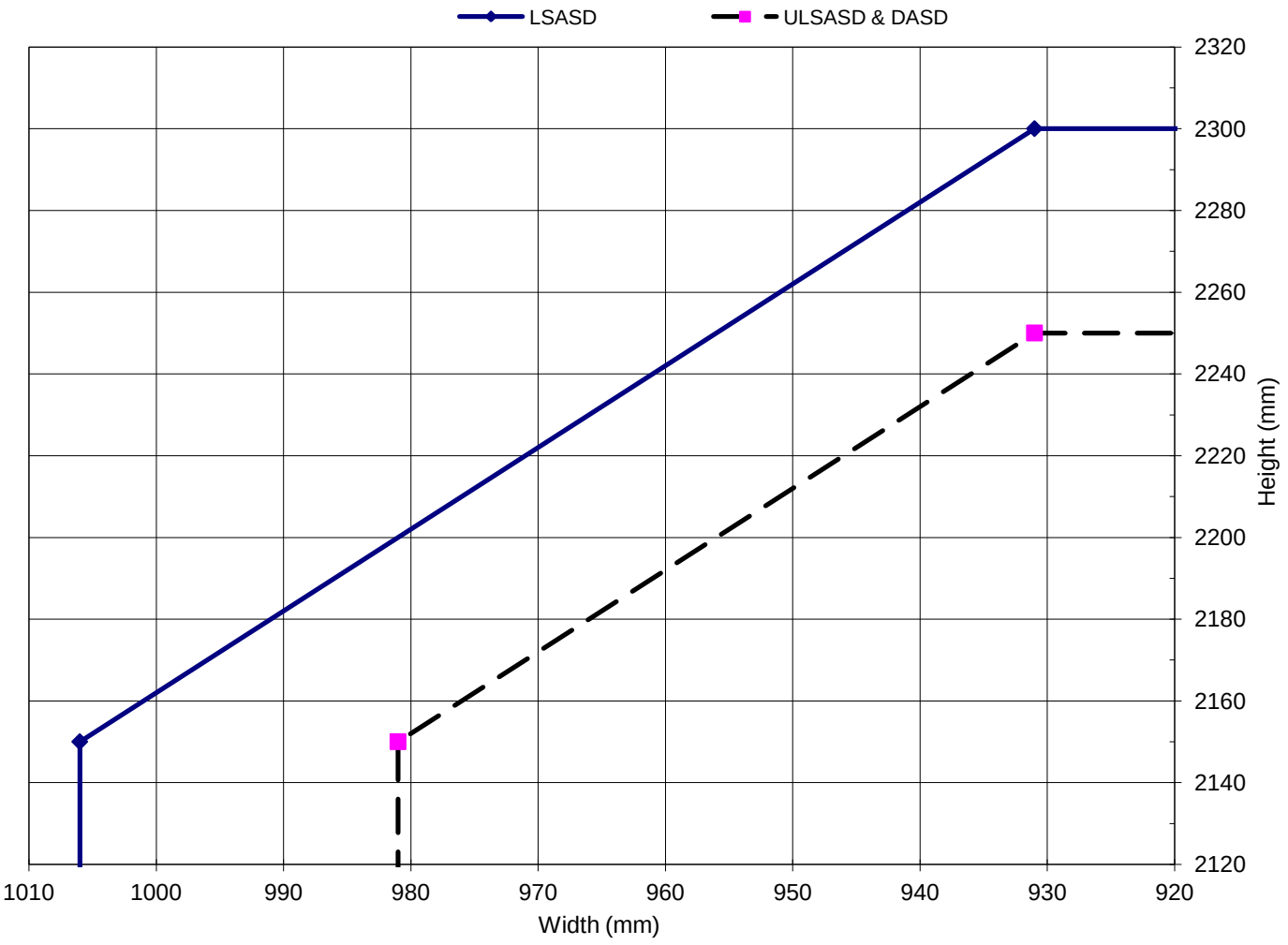
INTUMESCENT MATERIALS: Pyroplex & Interdens – Pyroplex Ltd. & Dufaylite Developments Ltd.

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 1st seal 8mm from the exposed face.

HARDWARE PROTECTION: See section 11.

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	956
		To:	2200	x	931
	ULSADD	Max:	2150	x	931
Maximum Overpanel Height (mm)			N/A		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See Appendix A1		

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

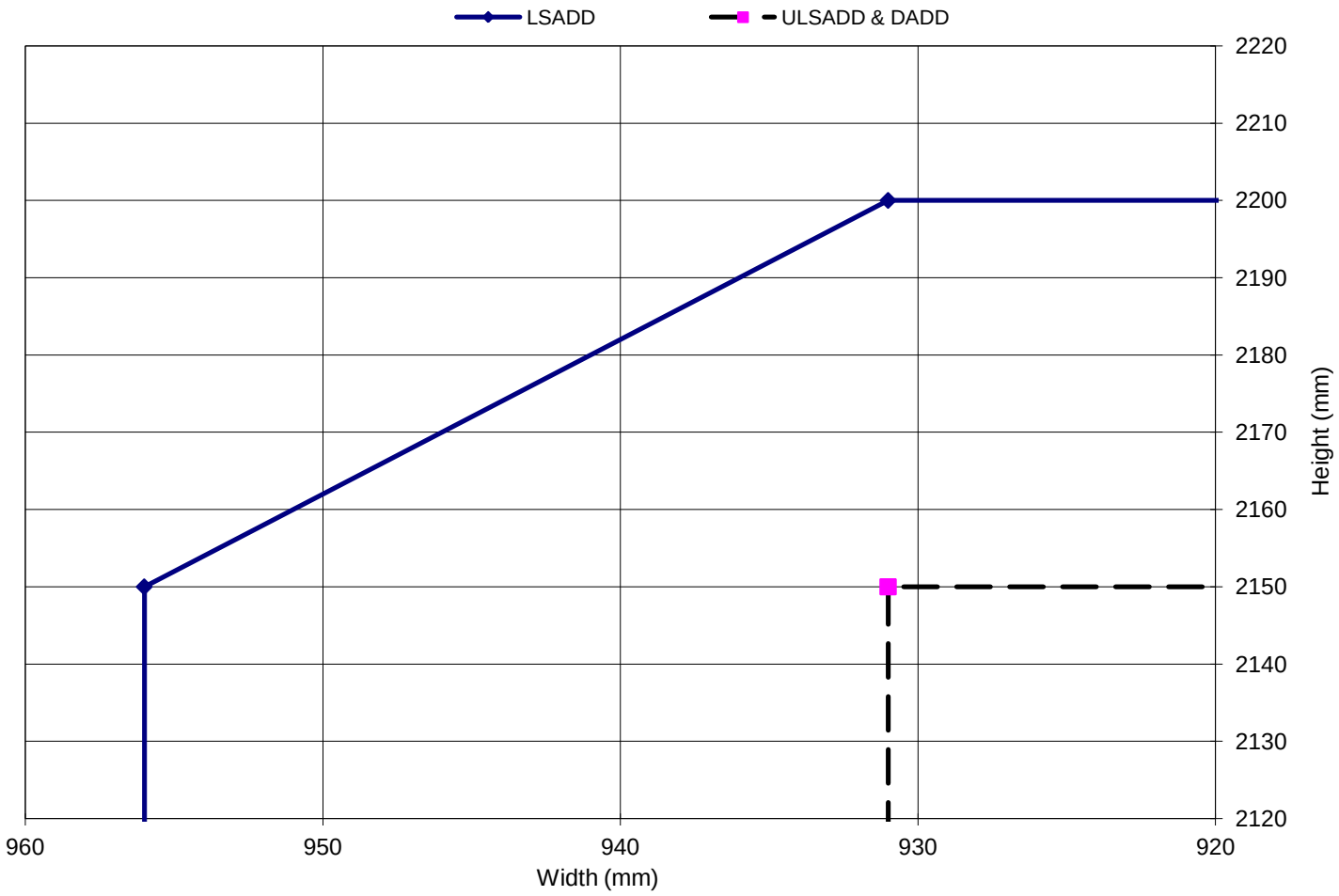
HEAD: 38x4mm Pyroplex flat seal on top of 38x2mm Interdens, fitted centrally in the leaf head.

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

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

HARDWARE PROTECTION: See section 11.

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	1038
		To:	2515	x	896
	ULSASD	From:	2200	x	1013
		To:	2465	x	896
Maximum Overpanel Height (mm)			N/A		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See Appendix A2		

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

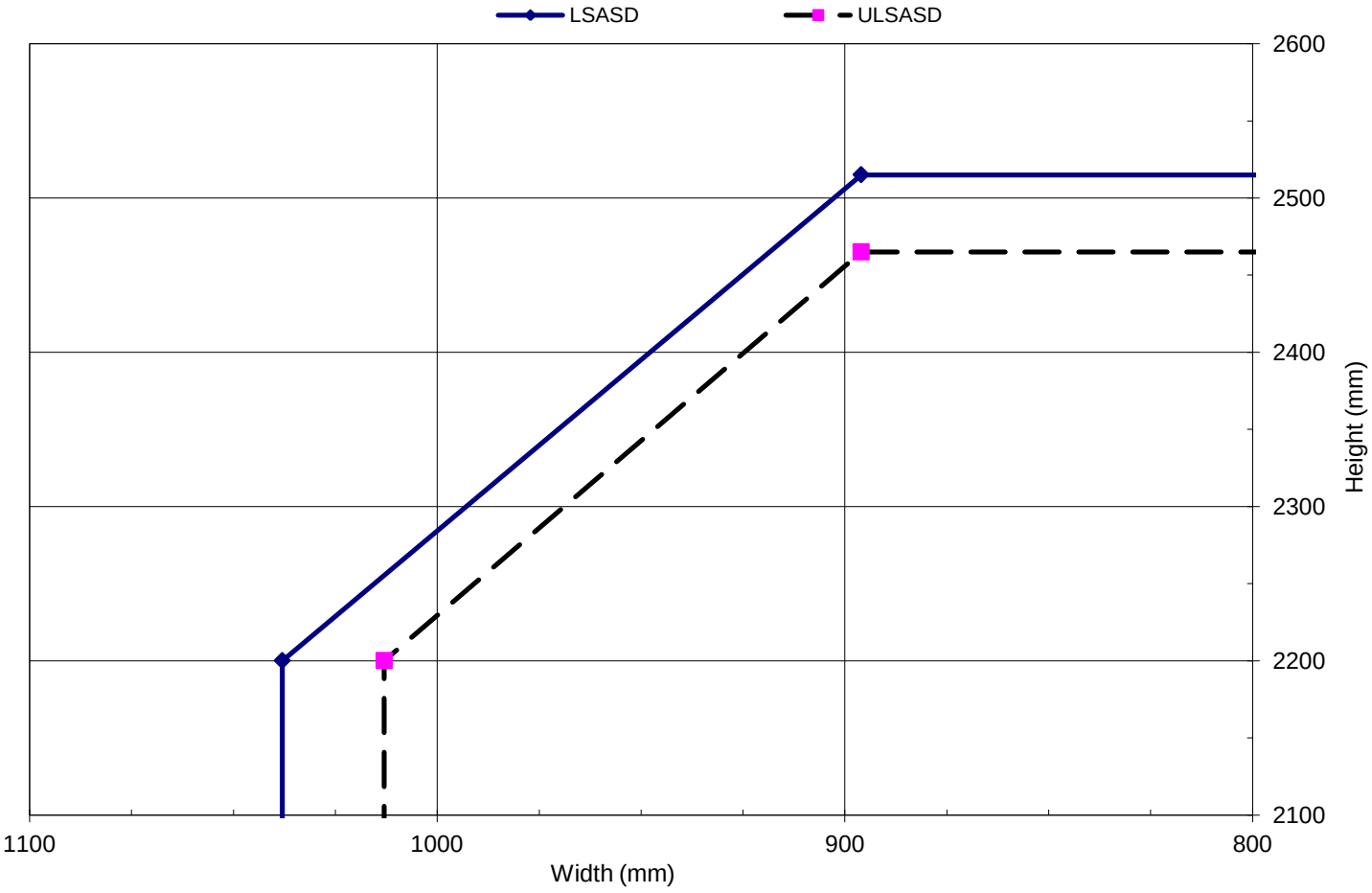
HEAD: 1No. 25x4mm Therm-A-Seal exposed & fitted centrally in the leaf head & 2No. 10x2mm Therm-A-Flex fitted centrally, spaced 15mm apart & concealed behind the lipping.

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 11.

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	1219
		To:	2507	x	1078
	ULSASD	From:	2218	x	1194
		To:	2457	x	1078
Maximum Overpanel Height (mm)			N/A		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See Appendix A2		

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

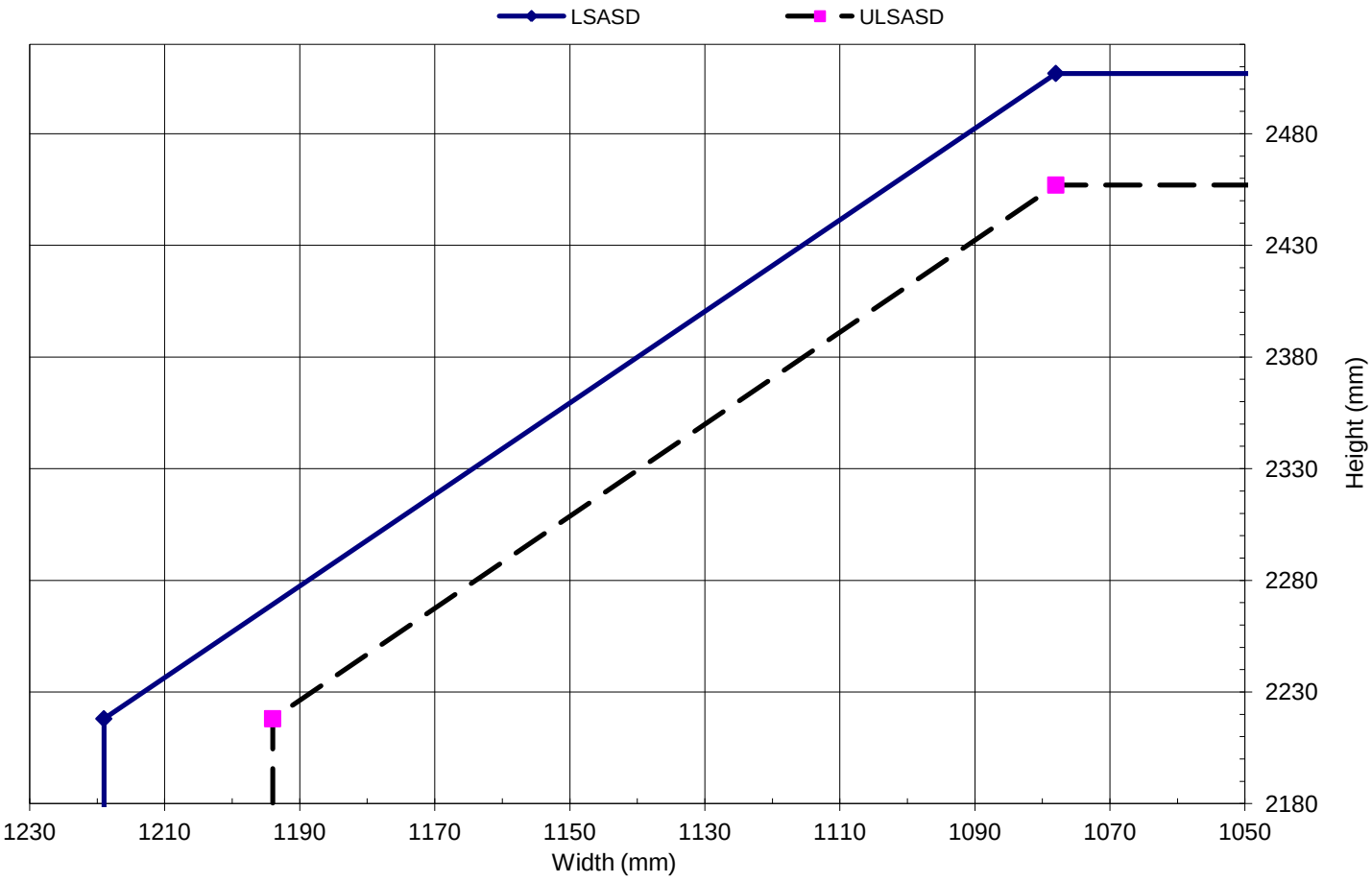
HEAD: 25x4mm Therm-A-Seal exposed and centrally fitted in the leaf head & 25x2mm Therm-A-Flex centrally fitted underneath the Therm-A-Seal.

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 11.

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	988
		To:	2415	x	896
	ULSADD	From:	2200	x	963
		To:	2365	x	896
Maximum Overpanel Height (mm)			N/A		
Glazing		Maximum Glazed Area	1.50m^2 - see section 6 for restrictions		
		Approved Systems	See section 6 and Appendix C		
Door Frames		Frame Specification	See Appendix A2		

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

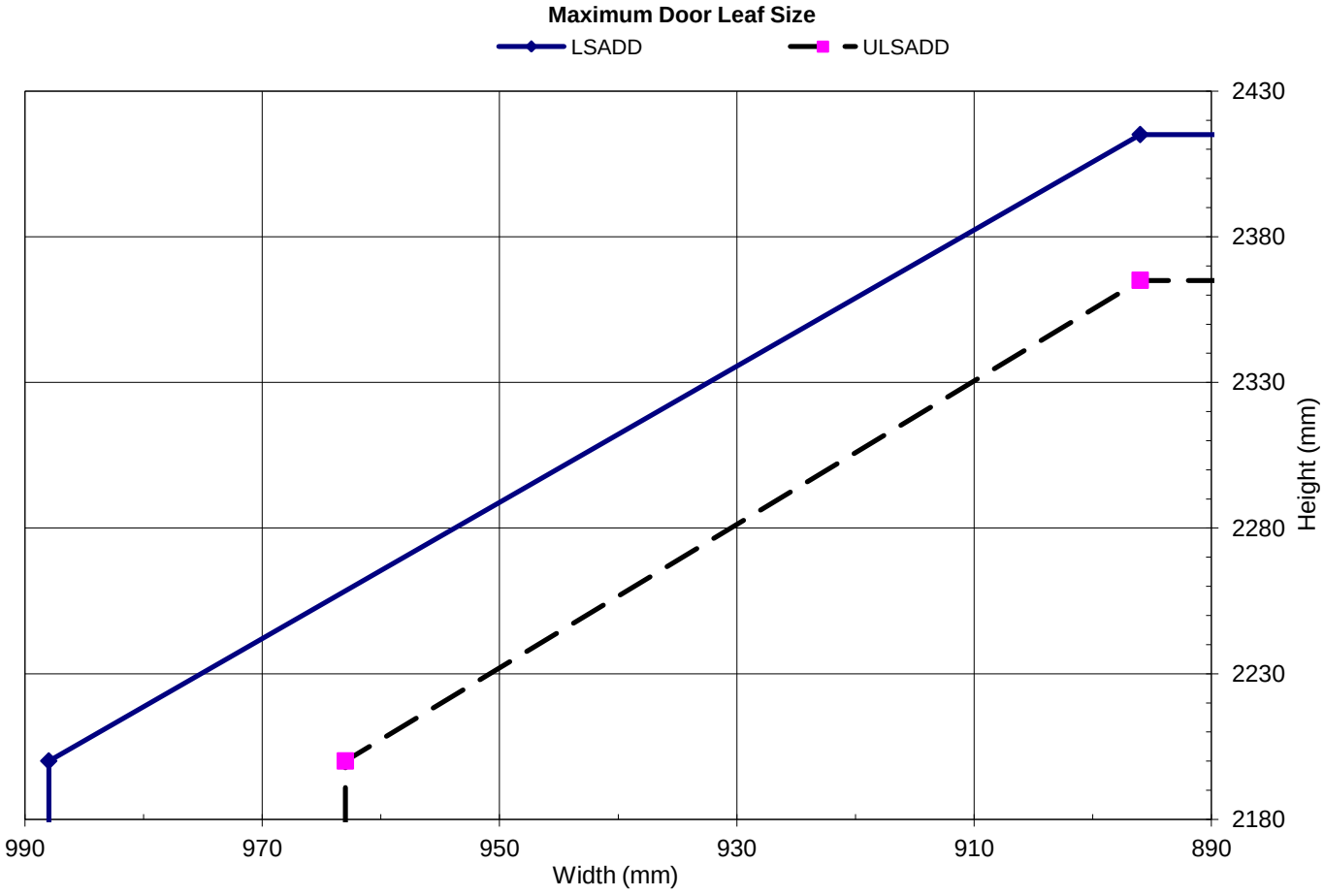
HEAD: 25x4mm Therm-A-Seal exposed and centrally fitted in the leaf head & 2No. 10x2mm Therm-A-Flex centrally fitted, spaced 15mm apart and concealed behind the lipping.

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 11.



Falcon Panel Products – Strebord 54® - CS Edge Protectors/Acrovyn Wrap

Latched & Unlatched, Single & Double Acting, Single Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSASD & ULSASD & DASD	From:	2100	x	970
		To:	2255	x	900
Maximum Overpanel Height (mm)		2000	Transomed		
Glazing		Maximum Glazed Area:	1.50m^2 - see section 6 for restrictions		
		Approved Systems:	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

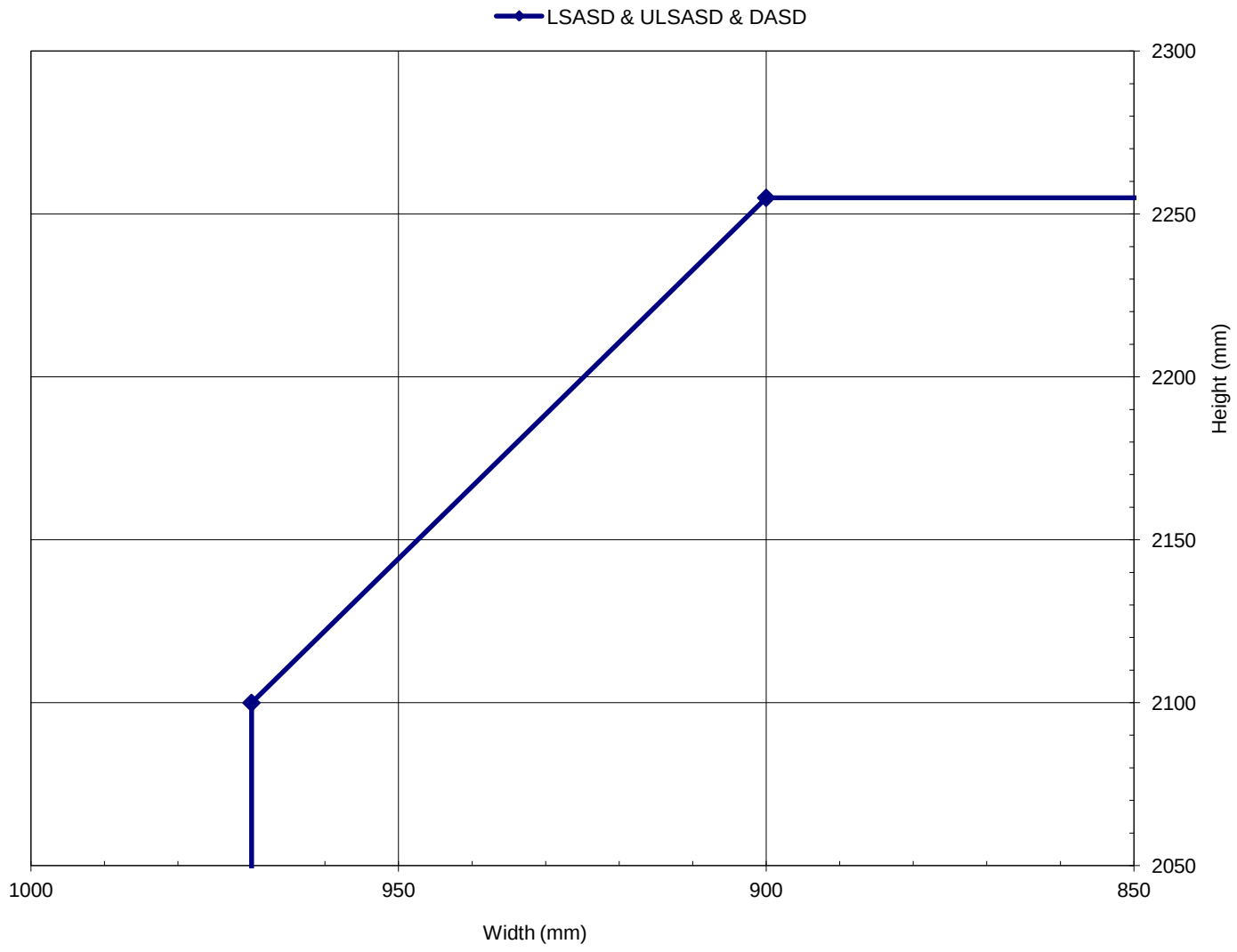
INTUMESCENT MATERIALS: Type 617 – Lorient Polyproducts Ltd.

HEAD:
Square: 2No. 15x4mm fitted 5mm either side of the centreline in the leaf edge or frame reveal.

JAMBS & OVERPANELS: 2No. 15x4mm fitted 5mm either side of the centreline in the leaf edge or frame reveal.

HARDWARE PROTECTION: See section 11.

Maximum Door Leaf Size



Falcon Panel Products – Strebord 54® - CS Edge Protectors/Acrovyn Wrap

Latched & Unlatched, Single & Double Acting, Double Doorsets

Leaf Sizes	Configuration		Height (mm)		Width (mm)
	LSADD & ULSADD & DADD	From:	2100	x	945
		To:	2205	x	900
Maximum Overpanel Height (mm)		1500	Transomed		
Glazing		Maximum Glazed Area:	1.50m^2 - see section 6 for restrictions		
		Approved Systems:	See section 6 and Appendix C		
Door Frames		Frame Specification	See section 9		

INTUMESCENT MATERIALS: Type 617 – Lorient Polyproducts Ltd.

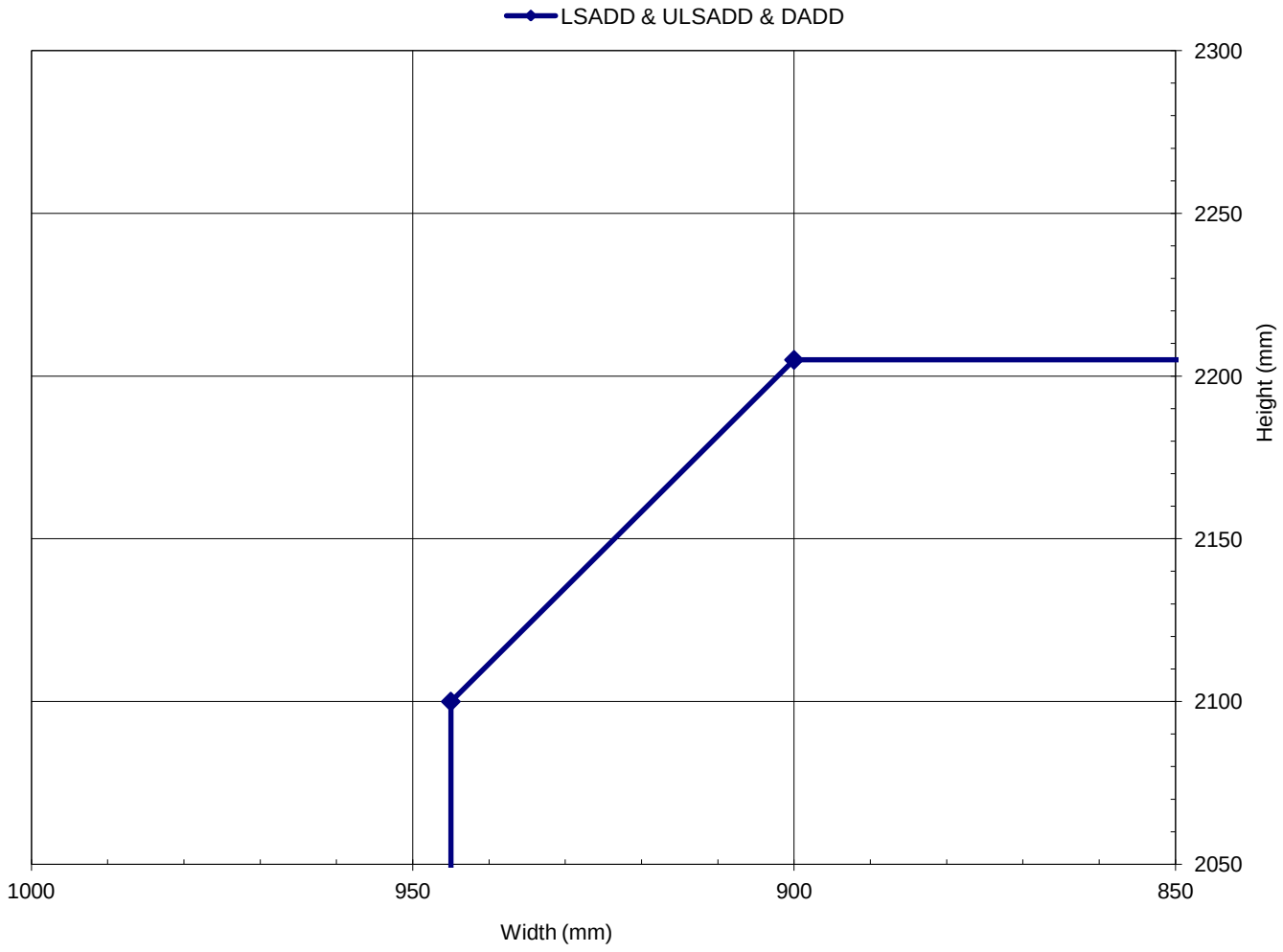
HEAD:
Square: 2No. 15x4mm fitted 5mm either side of the centreline in the leaf edge or frame reveal.

MEETING EDGES:
Square: 1No. 15x4mm fitted centrally in the meeting edge of both leaves.

JAMBS & OVERPANELS: 2No. 15x4mm fitted 5mm either side of the centreline in the leaf edge or frame reveal.

HARDWARE PROTECTION: See section 11.

Maximum Door Leaf Size



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