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Testing, calibrating, advising.

Title:

Global Fire Resistance Assessment of:

Westag & Getalit AG

HALSPAN®

30 Optima Doorsets

Valid From: 29th March 2016

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WF Report No:

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Prepared for:

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Exova Warringtonfire – the new name for BM TRADA

On December 1st 2015, Chiltern International Fire Limited (trading as BM TRADA) commenced trading under the name Exova Warringtonfire.

To coincide with this change, our Technical Reports, Test Reports, Product Assessments, company stationery and marketing collateral have been updated to reflect the Exova Warringtonfire branding.

The validity of all documents previously issued by Chiltern International Fire Limited including certificates, test reports and product assessments is unaffected by this change. A letter to this effect is available upon request by e-mailing globalfire@exova.com

About Exova Warringtonfire

Exova Warringtonfire is part of the Exova Group one of the world's leading laboratory-based testing groups, trusted by organisations to test and advise on the safety, quality and performance of their products and operations. Headquartered in Edinburgh, UK, Exova operates 143 laboratories and offices in 32 countries and employs around 4,500 people throughout Europe, the Americas, the Middle East and Asia/Asia Pacific. With over 90 years' experience, Exova specialises in testing across a number of key sectors from health sciences to aerospace, transportation, oil and gas, fire and construction.

Be assured that whilst the name will change, your service provision and primary contacts have not. What will be available to you is a wider team of testing experts and an extended range of testing capabilities including structural steelwork testing, ventilation duct and damper testing, ASTM testing, water mist system testing and smoke toxicity testing and covering additionally both the rail and marine sectors.

If you have any questions, please do not hesitate to contact a member of the team and we will do our best to answer them. We appreciate your business to date and we look forward to working with you in the future.

Kind regards

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Contents

1 Introduction

This document constitutes a global assessment relating to Halspan® 30 **Optima**, fire resisting doorsets, for Westag & Getalit AG. 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 construction for door leaves of this design comprises a solid sheet of 44mm thick Halspan® 30 **Optima** three layered particleboard (nominal density 630kg/m³ +/- 10%). Where specified, the leaves are lipped with hardwood.

3 Leaf Sizes

The approval for increased leaf dimensions is based on the tests listed in appendix D and takes into account the margin of over performance above 30 minutes integrity for the design and the characteristics exhibited during test. Data sheets specifying the maximum approved leaf sizes and graphs showing the permitted gradient between maximum height and width are contained in appendix G.

Doorsets with reduced dimensions are deemed to be less onerous. Therefore, doors manufactured with dimensions that are less than those tested and stated in appendix G, are covered by this assessment.

4 Configurations

Based on the test evidence listed in appendix D, this assessment covers the following doorset configurations:

Abbreviation	Description
LSASD & ULSASD	Latched & unlatched single acting single doorset
DASD	Double acting single doorset
LSASD+OP & ULSASD+OP	Latched & unlatched single acting single doorset + overpanel
DASD + OP	Double acting single doorset + overpanel
LSADD & ULSADD	Latched & unlatched single acting double doorset
DADD	Double acting double doorset
LSADD+OP & ULSADD+OP	Latched & unlatched single acting double doorset + overpanel
DADD + OP	Double acting double doorset + overpanel

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

5 Leaf Size Adjustment

Door leaves to this design may be altered as follows:

Element	Reduction
Leaf	The manufactured size of the leaf may be reduced in height or width without restriction
Timber lippings	The dimensions stated in section 9.1 may be reduced by 20% for fitting purposes

6 Overpanels

6.1 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). Timber door frame and transom construction must comply with the specification contained in section 8.

Overpanels must be fixed by either:

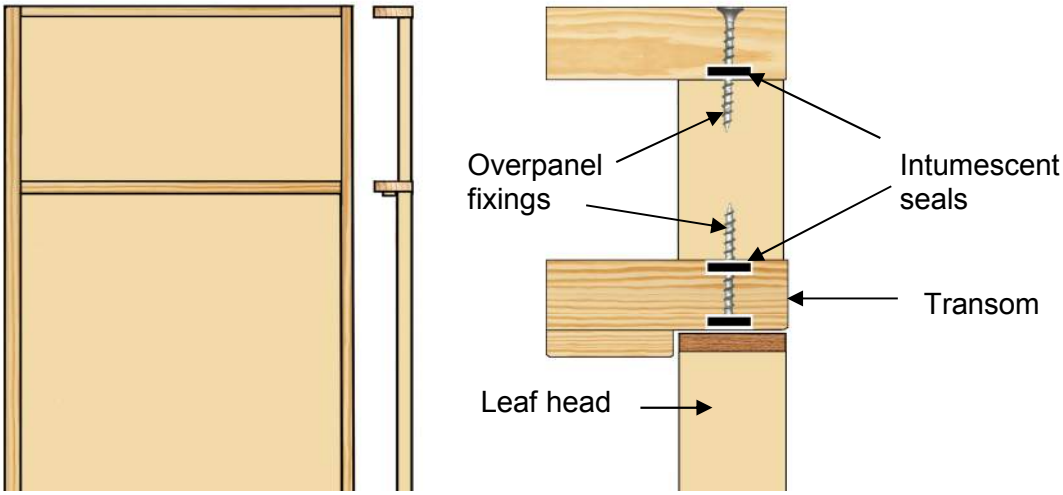
- screwing through the rear of the frame with steel screws passing at least 30mm into the centre line of the overpanel. Fixings must be no more than 100mm from each corner and a maximum of 250mm centres in between, or,
- using 75mm long x 8mm diameter steel dowels fitted centrally in the frame reveal across the head of the overpanel no closer than 150mm from each corner of the overpanel and the remainder equispaced at a maximum of 450mm centres. A minimum of four dowels must be used. A further 75mm long screw fixing is required to be inserted at an angle through the bottom corners of the overpanel into the door frame.

A maximum gap of 2mm is permitted between the door frame and overpanel, and the intumescent jambs seals specified in appendix G must be fitted to all edges of the door frame or overpanel.

Maximum overpanel heights are as follows:

Configuration	**Max Overpanel Height** (mm)
Single doorsets	2000
Double Doorsets	1000

The following diagram depicts a typical transomed overpanel arrangement.



6.2 Glazed Fanlights

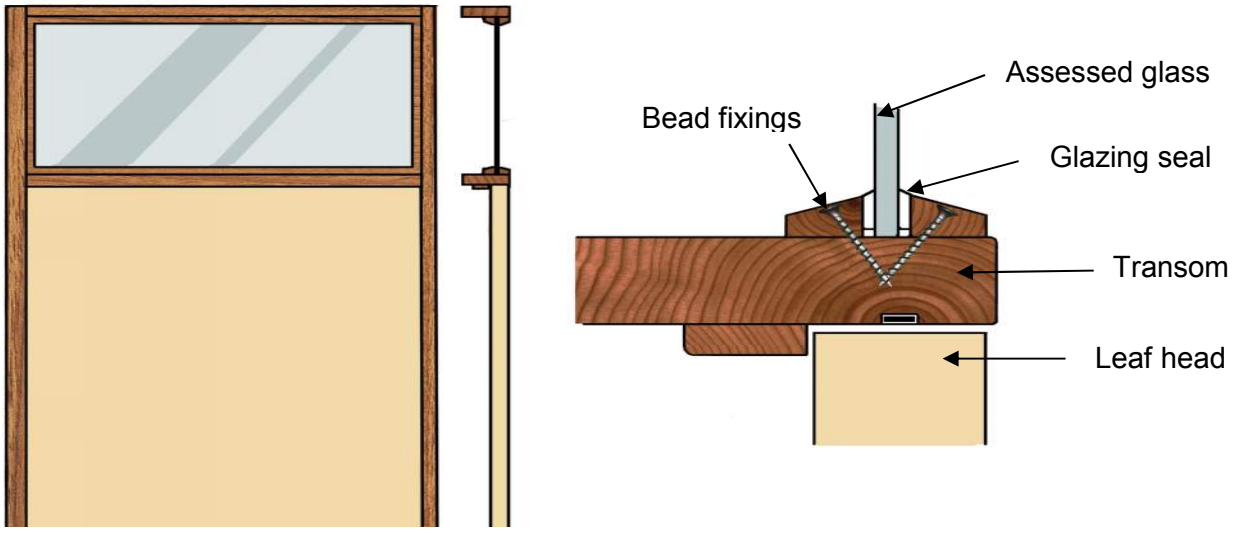
Timber frame doorsets including a transom may include a glazed fanlight. The timber frame and glazing beads must be hardwood with a minimum density of 640 kg/m^3, whilst the frame section must be a minimum of 70mm x 44mm. Timber door frame and transom construction must comply with the specification contained in section 8.

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

The following diagram depicts a typical glazed fanlight arrangement.



Steel, aluminium and MDF frame doorsets are not assessed for glazed fanlights.

7 Glazing

7.1 General

The testing conducted on Halspan® 30 **Optima** 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.

7.2 Assessed Glazing Systems

The glazing system must be one of the following tested proprietary systems:

Glazing System	Manufacturer	Maximum Area (m^2)
1. Fireglaze 30	Sealmaster Ltd	1.75
2. Therm-A-Strip	Intumescent Seals Ltd	1.75
3. Firestrip 30	Hodgsons Sealants Ltd	1.75
4. Flexible Figure 1	Lorient Polyproducts Ltd	1.75
5. System 36 Plus	Lorient Polyproducts Ltd	1.25
6. Pyroglaze 30	Mann McGowan Ltd	1.25
7. 8193	Pyroplex Ltd	1.25
8. Halspan 30	Halspan Ltd	1.25

7.3 Assessed Glass Products

Assessed glass types are as follows:

Glass Type	Manufacturer	Maximum Area (m^2)	Thickness (mm)
1. Pyroshield	Pilkington Group Ltd	1.75	6 & 7
2. Pyroshield 2	Pilkington Group Ltd	1.75	6 & 7
3. Sureglaze clear	Halspan Ltd	0.8	6
4. Sureglaze wired	Halspan Ltd	0.8	6
5. Interglaze E30	Halspan Ltd	1.25	6
6. Pyrostem	Pyroguard UK Ltd	1.75	6
7. Pyrocet[2]	Securiglass Ltd	0.2	6
8. Pyroswiss Classic[3]	Vetrotech St.-Gobain AG	0.8	6
9. Pyrotech 630[4]	Essex Safety Glass Ltd	1.25	6
10. Sureglaze Insul	Halspan Ltd	0.8	7
11. Pyroguard EW30 clear	Pyroguard UK Ltd	1.25	7
12. Pyroguard EW30 wired	Pyroguard UK Ltd	1.25	7
13. Pyrobelite 7	AGC Flat Glass Europe	1.75	7
14. Pyrodur 30-104	Pilkington Group Ltd	1.75	7
15. Pyrodur 60-10	Pilkington Group Ltd	1.75	10
16. Pyroguard EW MAXI	Pyroguard UK Ltd.	1.75	11

Glass Type	Manufacturer	Maximum Area (m^2)	Thickness (mm)
17. Pyrobelite 12	AGC Flat Glass UK	1.75	12
18. Pyrodur 60-20	Pilkington Group Ltd	1.75	13
19. Contraflam Lite	Vetrotech St.-Gobain AG	1.75	14
20. Pyroguard EI 30	Pyroguard UK Ltd	1.75	15
21. Pyrostop 30-10	Pilkington Group Ltd	1.75	15
22. Contraflam Lite	Vetrotech St.-Gobain AG	1.75	16
23. Pyrobel 16	AGC Flat Glass UK	1.75	16

1. All glass types must be fitted fully in accordance with the manufacturers' tested details/installation requirements, particularly with respect to edge cover and expansion tolerances.
2. 6mm Pyrocet may only be used with the Zeroplus Slimport glazing system – see section 7.5.
3. Based on test RF02110, 6mm Pyroswiss manufactured by Vetrotech, may only be used with glazing system 3 (Firestrip 30) listed in section 7.2
4. Based on test RF08169, 6mm Pyrotech 630 manufactured by Essex Safety Glass Ltd, may only be used with the tested glazing system depicted in appendix C
5. Glass types 20-24 are fully insulating for 30 minutes in terms of the criteria set out in BS 476: Part 20: 1987.

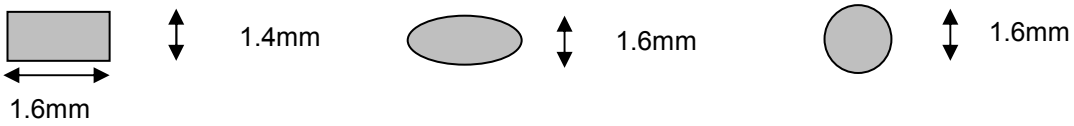
7.4 Glazing Beads & Installation

Glazing beads must be as specified in the following table:

Material	Profile	Permitted Glazing System (section 7.2)	Permitted Glass Type (section 7.3)	Density (kg/m^3)
Hardwood	Chamfer	1-8	1-24	≥640
	Square	2	1-8 & 12-24	≥640
		1-8	15-24	≥640
MDF	Chamfer	1-4	1-24	≥700
	Square	1-4	15-24	≥700

1. Sectional drawings detailing the tested and approved proprietary glazing systems are contained in appendix C.
2. See appendix C for square and splayed bead profile options. A 6-10mm thick hardwood of min density 640 kg/m^3 aperture liner is permitted for use with square beads, providing it is bonded in position using a UF, PVA or PU adhesive.

3. Glazing beads may be manually fixed using 40mm long x 2mm diameter steel pins or 40mm 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. Alternatively, the following pin specification has been tested and assessed for steel round, oval and rectangular shaped gun fired pins:



Pneumatically fired pins must not be used in conjunction with the Halspan® 30 multipane glazing system. Pins with dimensions less than those stated above are not covered by this assessment.

4. Glazed openings must not be less than 90mm from any door edge. Multiple apertures are acceptable within the permitted glazed area, with a minimum dimension of 80mm of Halspan® 30 **Optima** core between apertures. Alternatively, the dimension may be reduced to 20mm using the Halspan® 30 multipane glazing system by inserting 44mm x 20mm hardwood transoms/mullions dividing the apertures (see appendix C for details).
5. Aperture shape is not restricted, providing the glazing system and beads can effectively accommodate the required profile.
6. Hardwood or MDF mouldings may be surface applied to the glass using one of the methods detailed in the table below. Suitable glass for this application is restricted to types 15-24. Alternatively, false timber beads may be applied to the glass face using the Halspan® Cassette system shown in appendix C.

Intumescent mastic or silicone tested for glazing applications to BS 476: Part 22: 1987 or BS EN 1634-1 (e.g. Dow corning Firestop 700, Envirograf product 62)
1-2mm thick acrylic high tack/high shear glazing tape tested for glazing applications to BS 476: Part 22: 1987 or BS EN 1634-1 (e.g. Technibond Ltd T567 HTA self adhesive foam tape)

7 Glazing beads may be clad with 2mm thick PVC provided that the Fireglaze 30 system is used (system 1 in section 7.2) with a 39º chamfer to the top face of the hardwood bead.

8. Timber for glazing beads must be straight grained joinery quality, free from splits, knots and checks.

7.5 Zeroplus Slimport Glazing System

Additional test data ref: Warres 117483 is suitable evidence to allow the use of two alternative glazing methods i.e. Zeroplus Slimport SP250 or SP450 for use with Pyrocet glass only. Installation must be as per the test data. Zero Seal Systems Ltd must be contacted for details on glazing materials and installation.

8 Door Frames

8.1 Door Frame Construction

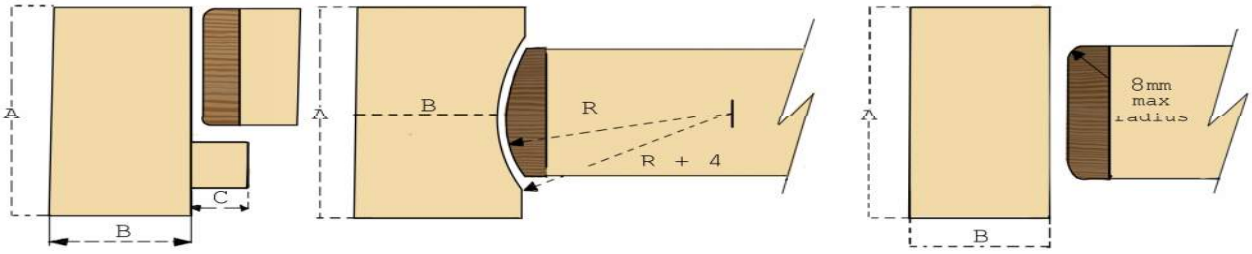
Timber based door frames for Halspan® 30 **Optima** must be constructed to meet the following specification (for steel and aluminium door frame options see appendices A and B):

Material	**Minimum Section Size** (mm)	**Density** (kg/m^3)
Softwood or hardwood	70 x 28[1]	≥ 450
Hardwood	70 x 22[1]	≥ 640
MDF	70 x 30	≥ 700

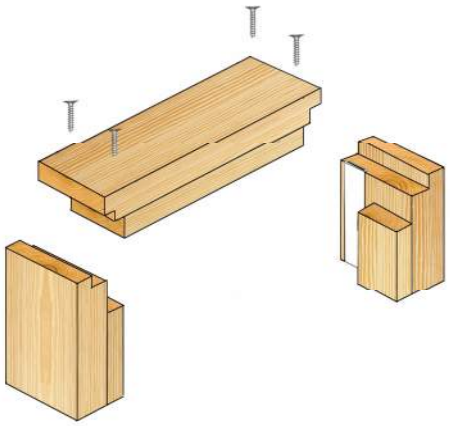
1. If the doorset features a transomed overpanel, the door frame must a minimum section of 70mm x 32mm and from softwood or hardwood.
2. All door frame timber must meet or exceed class J30 as specified in BS EN 942: 2007 (subject to adequate repair of any defects).
3. A 12mm deep planted stop is adequate for single acting frames whilst double acting frames may be scalloped or square (see diagram below).
4. Frame joints may be mortice and tenoned, mitred, half lapped or butted and with no gaps (see section 8.2). All jointing methods require mechanical fixing with the appropriate size ring shank nails or screws.
5. MDF and timber door frames may be entirely clad in 2mm thick PVC sheeting for use with leaves either with or without 2mm thick PVC edge protectors (see section 10) and facing material (see section 11).
6. The following diagram depicts the assessed frame profiles and dimensions:

A = min 70mm B = min 22 - 32mm (see table above) C = min 12mm

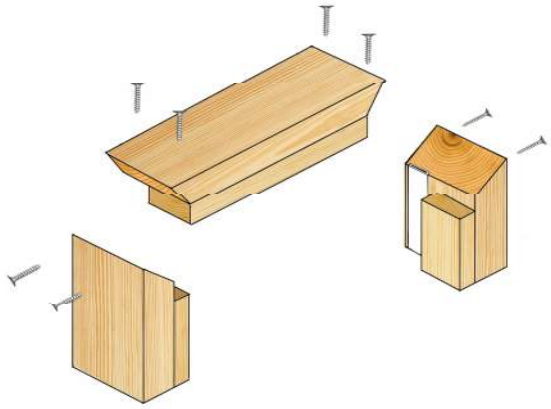
R = radius from floor spring 8mm max radius to create a maximum 2mm edge profiling



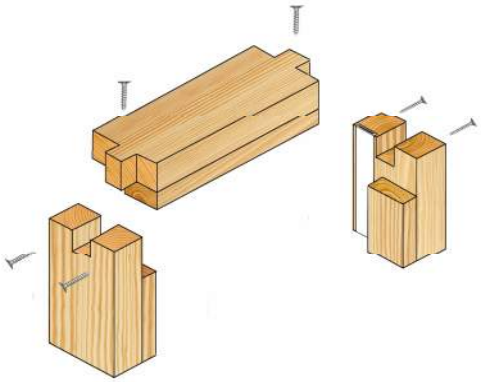
8.2 Door Frame Joints



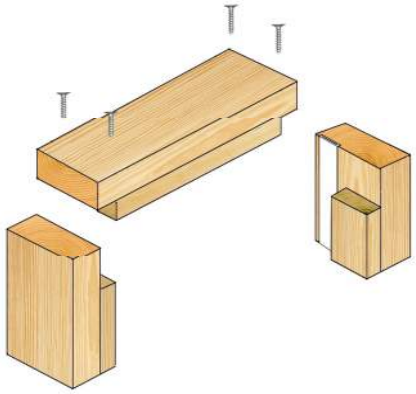
Half Lapped Joint



Mitre Joint



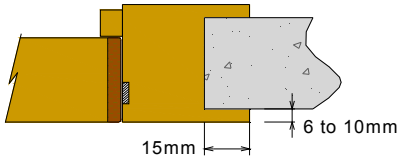
Mortice and Tenon Joint



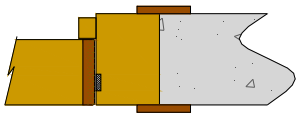
Butt Joint

8.3 Door Frame Installation

The following diagrams indicate acceptable and unacceptable door frame installations:



Permitted



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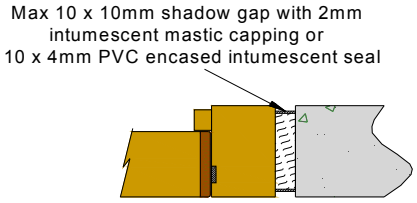
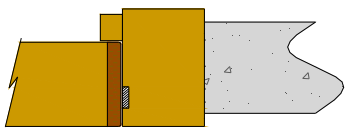
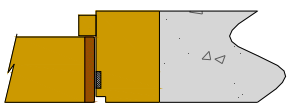


Permitted



Not Permitted



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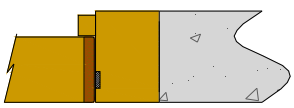


Permitted

9 Lipping Materials

9.1 Timber Lippings

Halspan® 30 **Optima** must be lipped in accordance with the following specification. The lipping specifications for steel and aluminium frame doorsets are contained in appendices A & B.

Material	**Dimensions** (mm)	**Density** (kg/m^3)
Joinery quality straight grained hardwood, free from knots, splits and checks	1. Flat = 6 – 18 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 8.1) 2. Rounded = 8 – 28 thick with a radius matching the distance between leaf edge and floor pivot (see section 8.1) 3. Rebated = 18 – 28 thick with a 13 deep equal rebate	≥ 500

1. Overpanels separated from the leaf heads with a transom do not need to be lipped.
2. Overpanels flush with the leaf heads must be lipped on the bottom edge but may additionally be lipped on all edges if required.
3. Double doorsets without flush overpanels may use square or rebated meeting edges.
4. Double doorsets with flush overpanels may use a rebated overpanel junction and rebated meeting edge junction concurrently.
5. A 2.5^0 chamfer is permitted to the lipping at the leading edge of leaves providing the door gaps meet the requirements of section 18.

9.2 PVC Lippings

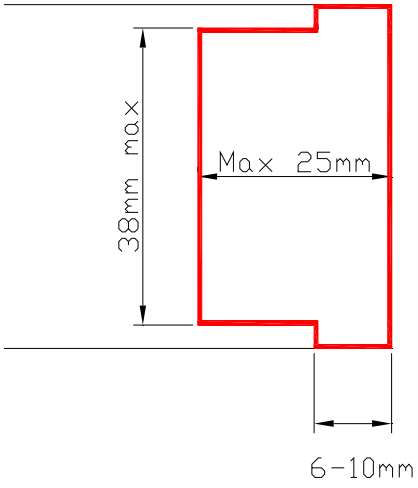
Halspan® 30 **Optima** may be lipped with PVC in accordance with the following specification:

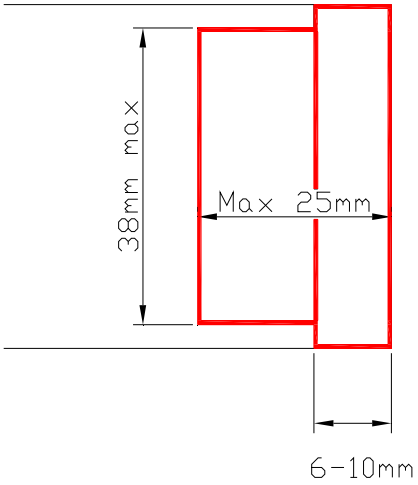
Material	**Dimensions** (mm)
PVC	2 thick

PVC lippings can be fitted directly to Halspan® 30 **Optima** core or on to hardwood lippings in accordance with section 9.1

9.3 T Section Lipping

In certain circumstances, a 'T' section lipping may be required which will be bonded into a groove machined in the edge of the leaf. This option is acceptable providing the tongue is a maximum of 38mm wide and otherwise meets the specification given in section 9.1. The 'T' section lipping may be in two sections with the exposed lipping being within the range of 6 – 10mm thick. All glue lines must be as stated in section 13. See drawings below.





10 Edge Protectors

Fire resistance test RF02048 justifies the use of PVC 2mm thick edge protectors reference 'Type 1, 2, 3, 4' (see appendix F for sketch details) on the vertical edges of the door leaves. The minimum intumescent specification given in appendix G must be maintained and the relevant glue lines specified in section 13 must be used. The edge protectors are suitable for use with leaves installed within both timber based and steel based frames. The PVC protectors may be used on double and single leaf doorsets alike.

The performances obtained and the leaf sizes tested in RF02048, when using the PVC edge protectors, will enable the use of these edge protectors on limited door leaf dimensions albeit on all configurations assessed in this report. The maximum leaf dimensions (whichever are the smaller between the appendix graphs and the table below) are therefore as follows:

Doorset Configuration	Maximum height and width	
	Type 1 and 3	Type 2 and 4
Single leaf doorsets	2185mm high 940mm wide	2440mm high 940mm wide
Double leaf doorsets	2135mm high 915mm wide	2286mm high 915mm wide

11 Door leaf Facings Materials

11.1 General

The basic 44mm thick Halspan® 30 **Optima** leaf construction has integral facings and therefore does not require additional facing materials as standard.

11.2 Grooves

Both sides of Halspan® 30 **Optima** door leaves may be grooved to the following specification. Grooves may coincide with the top and bottom of glazed apertures if desired:

11.2.1 Option A

Element		Details	
Max groove size (mm)		Width as required (to a maximum of 50mm wide) x 3mm deep	
Proximity to door edges (mm)		Horizontal Grooves	May extend full width
		Vertical Grooves	May extend full height
Groove spacing (mm)		No closer than 50mm apart. Vertical and horizontal grooves may intersect each other.	
Orientation		Vertical or horizontal	
Configuration		Latched and unlatched, single and double acting, single and double leaf doorsets	
Leaf size range (mm)	From:	2135 high x 976 wide	
	To:	2525 high x 825 wide	
Intumescent seal dimensions		≥ to 20 x 4mm	

11.2.2 Option B

Element	Details	
Max groove size (mm)	5 wide x 4 deep	
Proximity to door edges (mm)	Horizontal Grooves	≥ 150 from top and bottom
	Vertical Grooves	≥ 150 from sides
Groove spacing (mm)	Max 6 no grooves divided between horizontal and vertical orientations as required and spaced minimum 150mm apart	
Orientation	Vertical or horizontal	
Configuration	Latched and unlatched, single and double acting, single and double leaf doorsets	
Leaf size range (mm)	All	
Intumescent seal dimensions (mm)	All	

11.3 Additional Decorative and 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
Plastic laminates	2
Cellulosic foils	0.5

1. Metallic facings are not permitted (except for push plates and kick plates)
2. The door leaf thickness may be reduced by a maximum of 0.5mm to accommodate the required finish
3. Materials must not conceal intumescent strips
4. Plastic laminates must not be applied to the edges of leaves
5. PVC may be post-formed over the vertical and horizontal edges providing the required intumescent seal specification detailed in appendix G is used. The maximum radius at the corners of the leaf for post formed doors is 8mm, see diagram in section 8.1 for details.

12 Intumescent Materials

The intumescent materials tested and approved for use with this door design are as follows:

Application	Location	Product/Manufacturer
Edge seals	Fitted in the frame jambs or leaf edges	1. PVC encased Therm-A-Seal – Intumescent Seals Ltd 2. PVC encased Type SLS – Halspan Ltd 3. PVC encased Palsuol 100 – Lorient Polyproducts Ltd/Mann McGowan Ltd 4. PVC encased Type 617 – Lorient Polyproducts Ltd 5. PVC encased Pyroplex – Pyroplex Ltd
Hinges	Not required	-
Locks, latches & roller catches	Under forend & keep if the forend or keep exceeds 150mm up to the maximum assessed dimension	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 SLS-PAD-107 – Halspan Ltd
	Under forend and keep for all doorsets in aluminium frames	
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 SLS-PAD-107 – Halspan Ltd

The seal specification for each configuration is contained in appendix G

13 Adhesives

The following adhesives must be used in construction of this doorset design:

Element	Product/Manufacturer
Timber lippings	UF, PF, PVA, PVAC or hotmelt
PVC lippings	Contact adhesive

14 Tested Hardware

The following hardware has been successfully incorporated in the tests on Halspan® 30 **Optima** doorsets:

Element	Manufacturer and Product Reference
Hinges	1. 100 x 30mm standard steel butt hinges 2. 110mm Crompton lift off hinges 3. Royde & Tucker H105 lift off hinges 4. Royde & Tucker H101 lift off hinges 5. Stanley Journal lift off hinges 6. 3No Cairney Hardware SOSS type hinges 7. 114 x 30mm ASSA lift off type butt hinge ref: 3244 8. 115 x 31mm ASSA lift off hinges ref: 3248 9. 102 x 30mm Halspan R30 stainless steel bearing butt hinge (radius) ref: HIN-BSS-104 10. 101 x 30mm Halspan R30 steel bearing butt hinge (square) ref: HIN-BSS-103
Closers	1. Briton 2003 face fixed overhead closer 2. Dorma TS73 face fixed overhead closer 3. Ultra 70 series regular arm face fixed overhead closer 4. Halspan R30 power closer ref: CLR-BSS-100 5. Halspan R30 Eco closer ref: CLR-AGN-100 6. Cairney Hardware Ltd Mitron C2300 concealed overhead closer 7. Dorma BTS75V floor spring assembly
Locks/latches	1. Ingersol Rand latch ref: 5520.60.R.SS 2. Halspan 30 latch ref: LCK-BSS-100 (forend size 155 x 25mm) 3. Henderson Hardware three lever latch/lock 4. Standard tubular mortice latch 5. GU Ferco 3 Deadbolt
Threshold seals	1. Halspan threshold drop seal ref: SLS-DRP-100 range 2. Lorient Polyproducts Ltd IS8010 drop seal

1. The GU Ferco 3 Deadbolt requires a 25 x 4mm thick intumescent strip in the closing edge frame reveal in lieu of the specification detailed in appendix G. The product may only be used with single leaf doorsets to a maximum leaf height of 2231mm, with a hardwood door frame having a density ≥ 640kg/m^3.
2. The Cairney Hardware Mitron C2300 concealed overhead closer must be used with the perimeter intumescent seal specification detailed in appendix G, with the seals fitted in the door frame reveal. The Cairney Hardware 30 minute intumescent gasket pack must also be fitted with this product. The closer is permitted for use with single acting doorsets and the door frame must have a minimum stop depth of 14mm.

15 Additional & Alternative Hardware

15.1 General

The following section details the permitted scope and constraints for fitting hardware to these door designs.

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
- Panic Exit Hardware: Test Standard EN 1125
- Door Co-ordinators: Test Standard EN 1158.

15.2 Hinges

Leaves <2400mm (h) must be hung on 3 hinges. Leaves >2400mm (h) must be hung on 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:		Minimum of 4 No. 30mm long No. 8 or No.10 steel wood screws per blade	
Materials:		Steel, stainless steel or brass (melting point = or > 800^{o}C)	
Hinge positions:	If 3 hinges are required:	Top	100 –180mm from the head to top of hinge
		2nd	Minimum 200mm from top hinge or centrally fitted between top and bottom hinge
		Bottom	150 – 250mm from the foot of leaf to bottom of hinge
	If 4 hinges are required:	Top	100-180mm from the head to top of hinge
		2nd & 3rd	Equispaced between top and bottom or 2nd hinge 200mm from top hinge and 3rd hinge equally spaced between 2nd and bottom hinge
		Bottom	150 – 250mm from the foot of leaf to bottom of hinge

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 and strike plate dimensions:	235mm high by 25mm wide by 4mm thick
Maximum body dimensions:	18mm thick by 100mm wide by 180mm high.
Materials:	All parts essential to the locking/latching action (including the latch bolt, forend and strike) to be steel or stainless steel
Intumescent protection:	See Section 12.

15.4 Roller Catches

Roller catches may be used with this door design in conjunction with a suitable self closing device. Roller catches may be used for the unlatched, single acting, single leaf doorset range defined in appendix G.

The roller catch must meet the specification stated below:

Element	Specifciation
Maximum forend and strike plate dimensions:	80mm (h) x 35mm (w) x 4mm (t)
Maximum body dimensions:	20mm (t) x 50mm (w) x 70mm (h)
Materials:	Components to be steel, stainless steel or brass
Intumescent protection:	See Section 12.

15.5 Automatic Closing

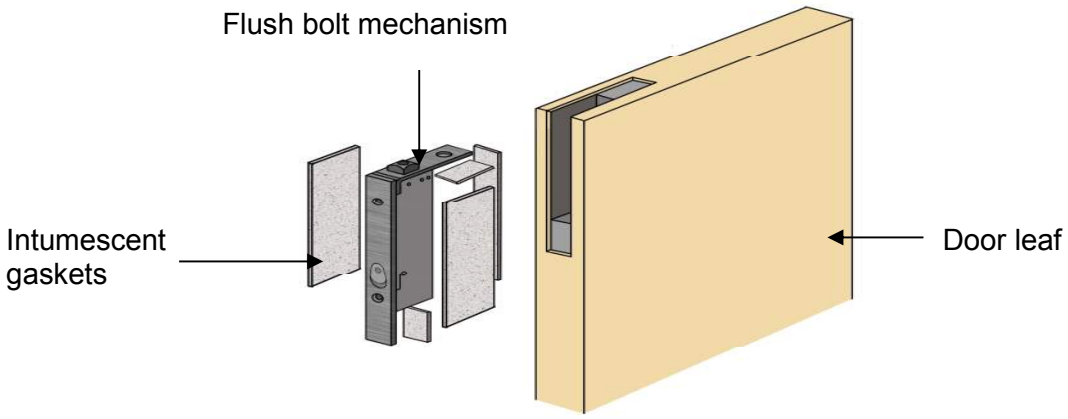
Automatic closing devices, must either be as tested or components of equal specification that have demonstrated contribution to the required integrity performance of this type of doorset design, when tested to BS 476: Part 22: 1987 or BS EN 1634-1. Floor spring top pivots and all mounting plates must be protected with 1mm thick Interdens or 1mm Therm-A-strip gaskets. Alternatively the hardware manufacturers tested gaskets may be used.

15.6 Flush Bolts

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

- 200mm long x 20mm deep x 20mm wide.

Flush bolts must be steel or brass 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 12. Alternatively the hardware manufacturers tested gaskets may be used. See diagram below for example of intumescent protection to flush bolt.



15.7 Pull Handles

Handles may be surface-fixed or bolted through the door leaf, providing they are steel, stainless steel, bronze or brass and the length is limited to 1200 mm between the fixing points. If through fixed, there must be no more than 1mm clearance between the hole and stud.

15.8 Push Plates & Kick Plates

Steel, stainless steel, bronze or brass push plates and kick plates may be fitted to the doorsets provided that their fitting requires the removal of no part of the door leaf. These items of hardware are permitted up to a maximum of 20% of the door leaf area if mechanically fixed and a maximum of 30% if bonded with a thermo-softening contact adhesive. Plates must not return around the door edges.

15.9 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.

15.10 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

15.11 Door Security Viewers

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

15.12 Acoustic, Weather and Dust Seals

Silicon based flame retardant acoustic, weather and dust seals may be fitted to this doorset design without compromising the performance, providing 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 in to the bottom rail of leaves to this design without compromising the performance:

Manufacturer	Product
Halspan	SLS-DRP-100 range
Lorient Polyproducts	IS8010si
Raven	RP8
Athmer	Schall-Ex Duo L-15
Norsound	NOR810

15.14 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.

15.15 Air Transfer Grilles

15.15.1 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 that demonstrates a minimum 30 minutes integrity performance when installed within a timber based doorset of comparable thickness.

Products must be fitted a minimum of 90mm from the vertical or bottom edges and from any other aperture. The height of unit is dictated by the test data (normally below mid height). The area occupied by the air transfer grille must not exceed the area tested and must be deducted from the area of glazing, if both elements are fitted.

The following tested Pyroplex air transfer grilles have been assessed as acceptable for use with the Halspan® 30 **Optima** design.

15.15.2 Pyroplex Air Transfer Grilles

The grilles must be fitted no closer than 100mm from the edge of the door leaf and a minimum of 80mm apart if more than one grille is to be fitted. The area occupied by the air transfer grille(s) must be deducted from the percentage of glazing, if both elements are fitted. The grilles may be fitted up to a maximum height of 2200mm from the threshold.

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

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.

15.16 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 30 minute construction. Test evidence generated in steel doorsets is not acceptable. Any tested intumescent gaskets for the lockset, closing mechanism, receiver plate, cable loops, etc. must be replicated.

16 Supporting Construction

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

17 Fixings

The frame jambs are to be fixed to the supporting construction using steel fixings at 500mm maximum centres. The fixings must be of the appropriate type for the supporting construction and must penetrate to a minimum depth of 50mm. It is not necessary to fix the frame head, although packers must be inserted.

18 Door Gaps

Door edge gaps and alignment tolerances must be set within the range defined in the following table:

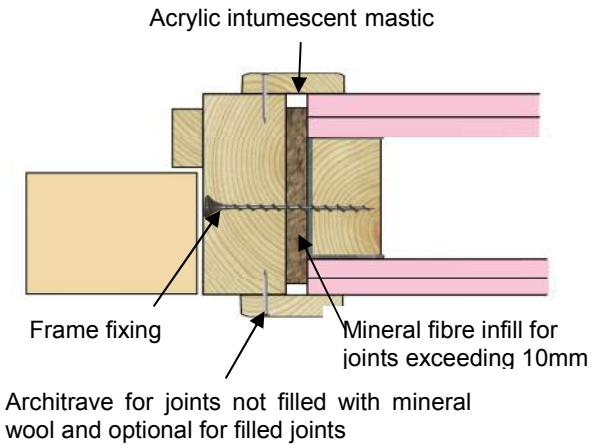
Location	Dimension
Door edge gaps	A minimum of 2mm and a maximum of 4mm.
Alignment tolerances	Leaves must not be proud of from the door frame or from each other by more than 1mm.
Threshold gap	A maximum of 10mm between bottom of leaf and top of floor covering.

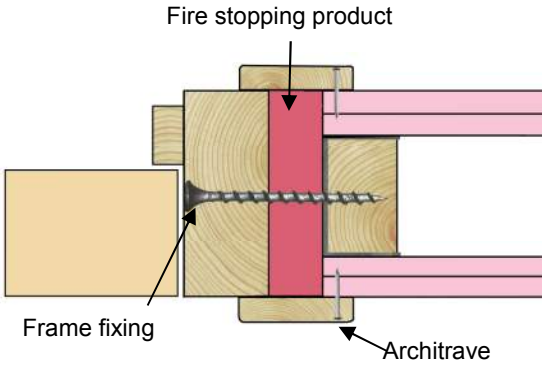
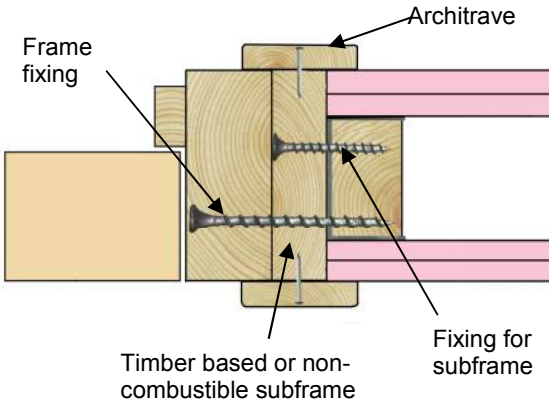
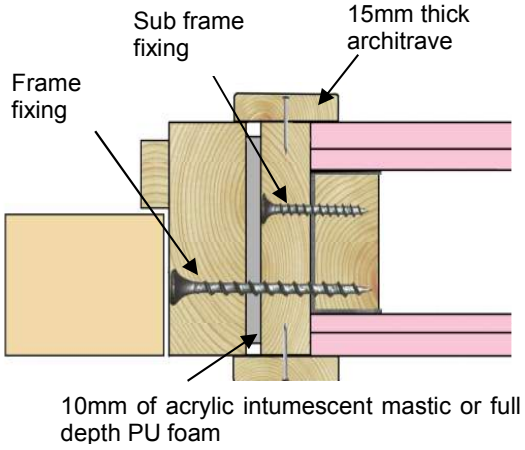
19 Sealing to Structural Opening

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

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.

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.



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.	
4. Timber based or non-combustible subframe up to 50mm thick, with no gaps between the components. Joint must be fitted with 15mm thick architraves overlapping at least 15mm each side.	
5. Timber based or non-combustible subframe 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 doors, which may be referred to where appropriate.

20 Insulation

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

Type		Details
Partially insulating		Doorsets incorporating up to 20% of non-insulating glazing
Fully insulating	Timber frames	Unglazed doorsets or doorsets including 30 minute insulating glazing (e.g. 15mm Fireswiss Foam, 15mm Pyrostop or 16mm Pyrobel)
	Steel frames back filled with mortar/concrete	Unglazed doorsets or doorsets including 30 minute insulating glazing (e.g. 15mm Fireswiss Foam, 15mm Pyrostop or 16mm Pyrobel)

21 Smoke Control

21.1 General

If the doorset design is required to provide a smoke control function to comply with Building Regulations, the doorset must meet one of the following criteria (unless pressurization techniques complying with BS EN 1201-6 are used);

(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

Other guidance is 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. It is the responsibility of the relevant parties to stipulate the precise smoke control specification, prior to commencing manufacture and/or installation.

21.3 Smoke Control Products

The following products may be used for smoke control purposes:

- Halspan Triple Fin (ref: SLS-TRI-100/2) – fitted in the frame reveal in the upstand of the stop
- Halspan Trident Seal (re: SLS-TRI-103/5) – fitted in the leaf edge or frame reveal
- Halspan threshold drop down seal (ref: SLS-DRP-100 range) – fitted in the bottom edge of the leaf
- Norsound NOR810 drop seal – fitted in the bottom edge of the leaf
- Norsound NOR710 perimeter seal – fitted in the frame reveal against the upstand of the door stop
- Norsound NOR720 perimeter seal – fitted in the leaf edge or frame reveal

22 Conclusion

If the Halspan® 30 **Optima** doorset design, constructed in accordance with the specification documented in this global assessment, were to be tested in accordance with BS 476 : Part 22: 1987, it is our opinion that it would provide a minimum of 30 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 Sand Kuhl

Name:

WESTAG & GETALIT
Aktiengesellschaft
Postfach 2629, 33375 Rheda-Wiedenbrück
Hellweg 15, 33378 Rheda-Wiedenbrück

For and on behalf of: Westag & Getalit AG

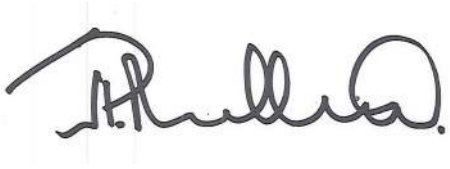
24 Limitations

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, Exova Warringtonfire reserves the right to withdraw the assessment unconditionally but not retrospectively.
3. This assessment has been carried out in accordance with Fire Test Study Group Resolution No 82: 2001.
4. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
5. This assessment relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this assessment, the element is suitable for its intended purpose.

25 Validity

1. The assessment is initially valid for five years after which time it must be submitted to Exova Warringtonfire for technical review.
2. This assessment report is not valid unless it incorporates the declaration given in Section 23 duly signed by the applicant.

Signature:		
Name:	**J P Mullett**	**A M Winning**
Title:	Principal Consultant	Senior Product Assessor

Appendix A
Halspan® 30 Optima Steel Frame Doorsets

1. Introduction

This appendix contains the information relating to Halspan® 30 **Optima** doorsets utilising 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 BS476: Part 22: 1987.

2. General specification of construction

The door leaves for Halspan® 30 **Optima** steel framed doorsets are manufactured in accordance with the design as specified in section 2 of this assessment report. 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 and configurations

The assessed leaf sizes and configurations are based on the constructions and performances obtained from the specimens tested in Warres 111201, RF01073 and RF01074. Data sheets specifying the maximum approved leaf sizes and graphs detailing the permitted gradient between height and width are contained in appendix G.

The maximum assessed overpanel height for steel framed doorsets is 500mm. Doorsets must use a flush overpanel to leaf head junction.

Steel transomed assemblies are not permitted.

4. Lippings

Steel framed Halspan® 30 **Optima** must be lipped on all edges in accordance with the following specification:

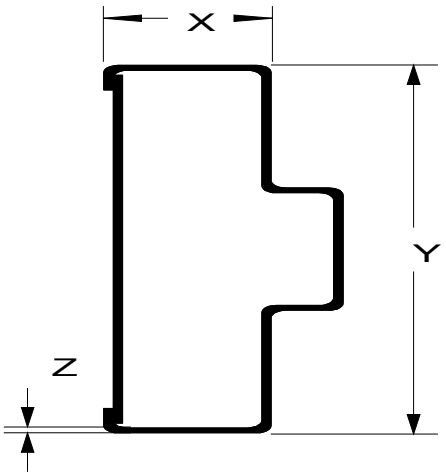
Material	**Size** (mm)	**Density** (kg/m^3)
Joinery quality straight grained hardwood, free from knots, splits and checks	1. Flat = 6 – 13 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 8.1) 2. Rounded = 6 – 13 thick with a radius matching the distance between leaf edge and floor pivot (see section 8.1)	≥ 640

5. Door frames

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

- Material: 1.5mm thick rolled mild steel
- Section: 151mm wide x 62mm thick excluding a 13mm deep x 48mm wide integral stop
- Head to jamb jointing detail

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: + 10% or – 67%
Y: + or – 35% (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, polyurethane expanding foam and ceramic wool must not be used. Appendix G details the different leaf size scopes and intumescent specifications for hollow and backfilled 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 per 600mm of vertical edge, with a fixing no more than 350mm from the top and bottom corners and one fixing across the head of single leaf doors and two fixings equally spaced across the head of double leaf doors.

7. Sealing to Structural Opening

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

8. Structural openings

Halspan® 30 **Optima** 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 B
Halspan® 30 Optima Aluminium Frame Doorsets

1. Introduction

This appendix contains the information relating to Halspan® 30 **Optima** doorsets utilising aluminium 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 BS476: Part 22: 1987.

2. General specification of construction

The door leaves for aluminium framed Halspan® **Optima** 30 doorsets are manufactured in accordance with the design as specified in section 2 of this report. 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 and configurations

The assessed leaf sizes and configurations are based on the constructions and performances obtained from the specimens tested in BTC 5547F and Warres 118289. Data sheets specifying the maximum approved leaf sizes and graphs detailing the permitted gradient between height and width are contained in appendix G.

The maximum assessed overpanel height for aluminium framed doorsets is 500mm. Doorsets must use a flush overpanel to leaf head junction.

Aluminium transomed assemblies are not permitted.

4. Lippings

Aluminium framed Halspan® 30 **Optima** must be lipped on all edges in accordance with the following specification:

Material	**Size** (mm)	**Density** (kg/m^3)
Joinery quality straight grained hardwood, free from knots, splits and checks	1. Flat = 6 – 13 thick with a maximum of 2mm profiling permitted at corners of lipping (see section 8.1)	≥ 640

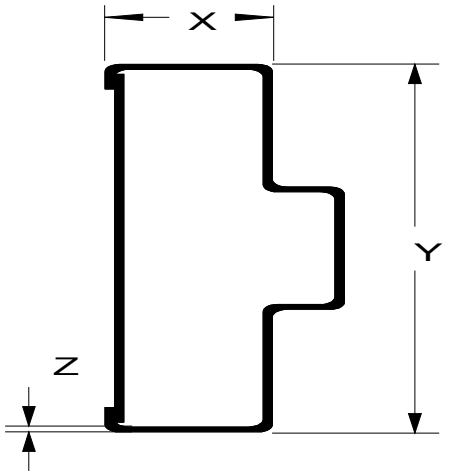
5. Door frames

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

- Material: Aluminium
- Section: Minimum 100mm wide x 35mm wide (including integral architraves covering the partition or structural opening by 20mm) x 2mm thick. Only single acting frames are assessed requiring a minimum 12mm deep stop.

Door frames may be of the wrap around type, enclosing the partition edge and the rear of the frame must be a contact fit with the structural opening. Alternatively frames may sit within the structural opening and be infilled with a minimum of 87mm x 20mm hardwood (min density 640kg/m^3) and aluminium or other suitable architraves fitted on both sides of the frame to partition junction. Frames must be manufactured from grade 6063-16 aluminium, or superior.

The construction of frames may be varied within the following parameters:



X: – 0% + 10%

Y: – 35% + Unlimited providing the frame reveal dimensions are maintained

Z: – 0% + Unlimited

6. Fixings

Fixings must be of the appropriate type and length for the structural opening medium and must include a minimum of 5 fixings per jamb and one fixing across the head of single leaf doors and two fixings equally spaced across the head of double leaf doors.

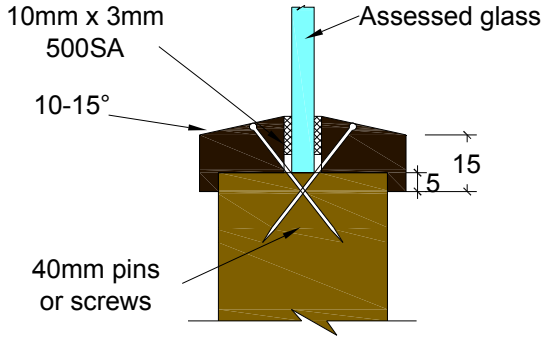
7. Structural openings

Halspan® 30 **Optima** aluminium framed doorsets may be fitted into the following types of structural opening:

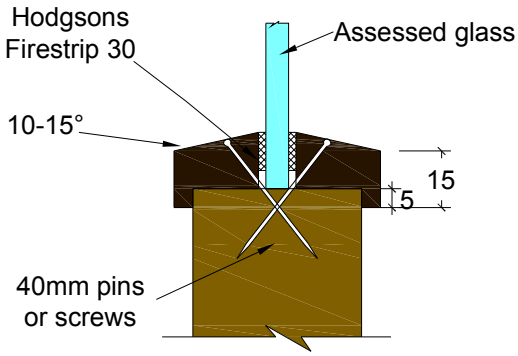
- Cast dense concrete
- Dense concrete blocks or brickwork
- Masonry
- Lightweight concrete
- Lightweight aerated concrete
- Timber stud partition
- Steel stud partition (apertures must be framed by steel studs, which have a minimum of 45 x 25mm softwood stiffeners to the vertical edges)

  Gaps between doorframes and structural openings are not acceptable.

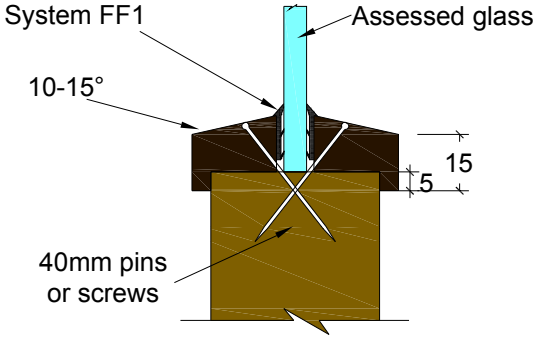
Appendix C
30 Minute Proprietary Glazing Systems



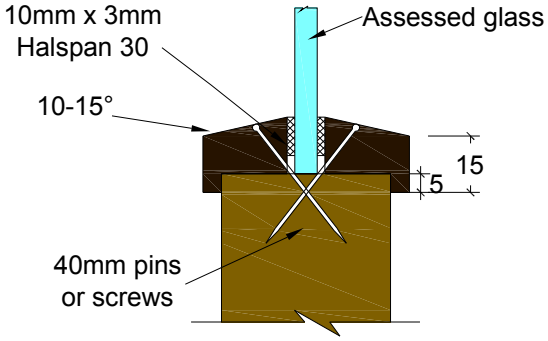
Pyroglaze 30
Mann McGowan Ltd



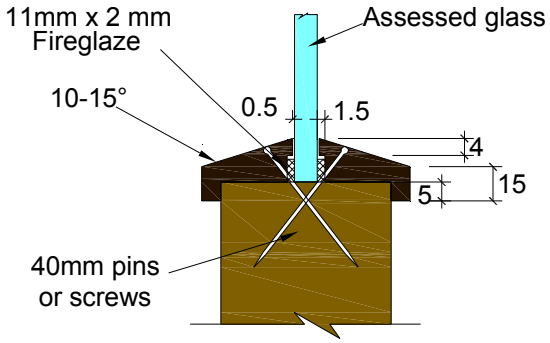
Firestrip 30
Hodgsons Sealants Ltd



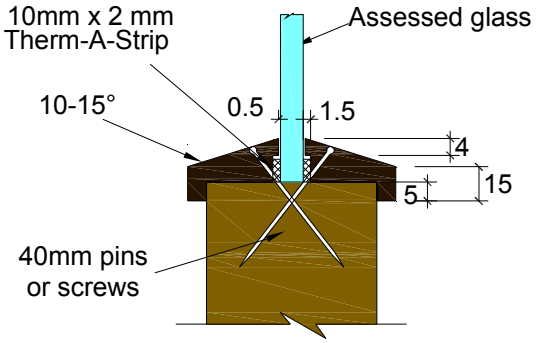
System FF1
Lorient Polyproducts Ltd



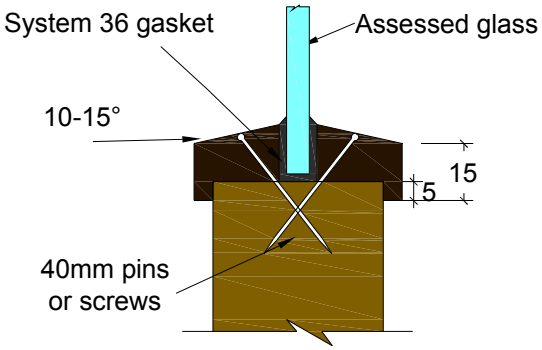
Halspan 30
Halspan Ltd



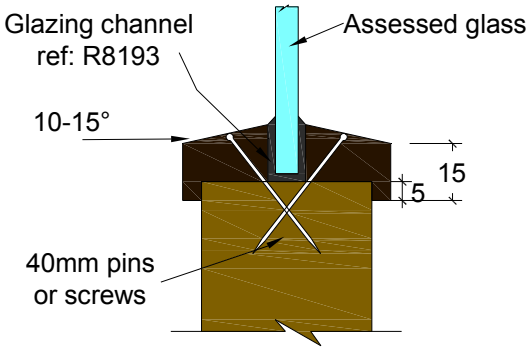
Fireglaze
Sealmaster Ltd



Therm-A-Strip
Intumescent Seals Ltd

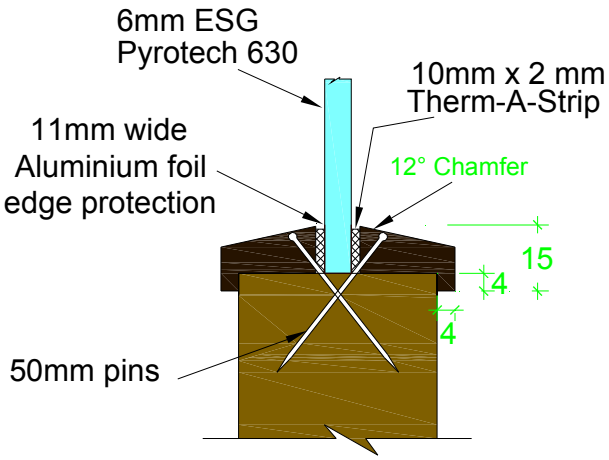


System 36
Lorient Polyproducts Ltd



Pyroplex Ltd

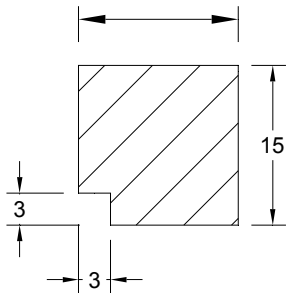
Tested Glazing System for ESG Pyrotech 630 Glass



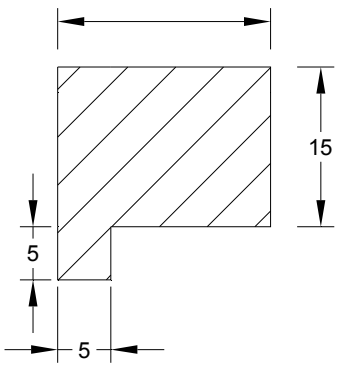
Assessed Square Glazing Bead Profiles

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

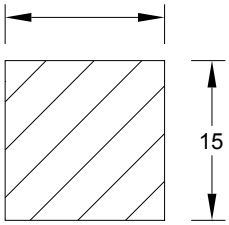
To finish flush with the leaf face



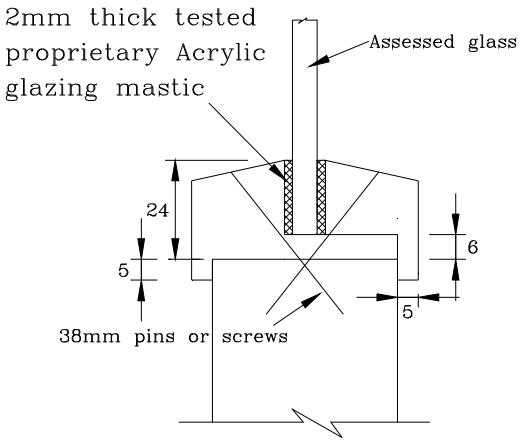
Suited to glass thickness



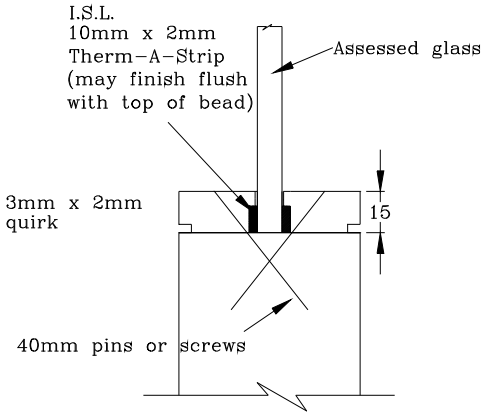
To finish flush with the leaf face



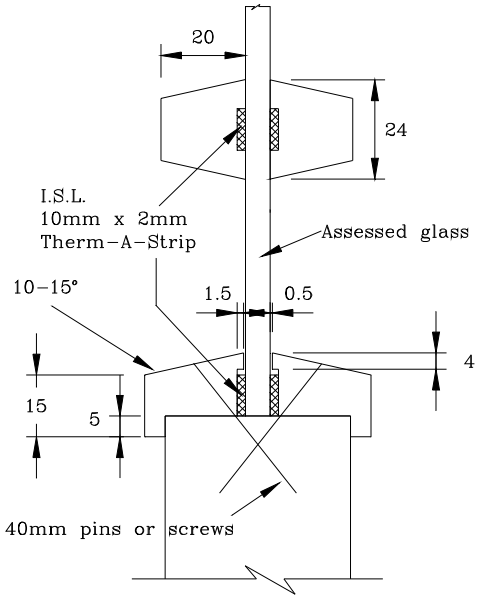
Halspan® 30 Minute Glazing Systems



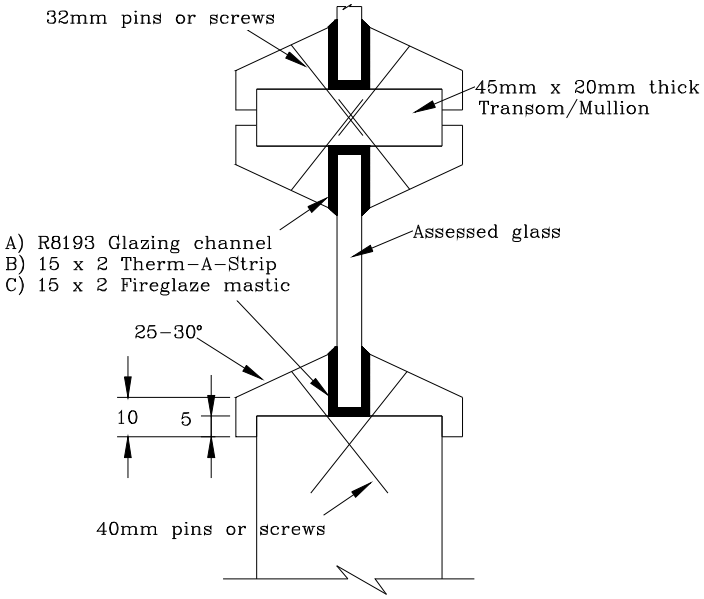
Sureglaze 30 Splayed



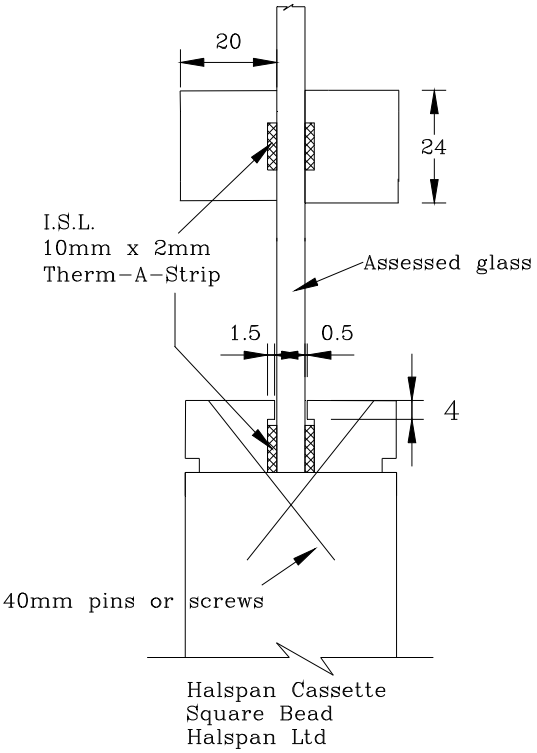
Halspan Square Bead
Halspan Ltd

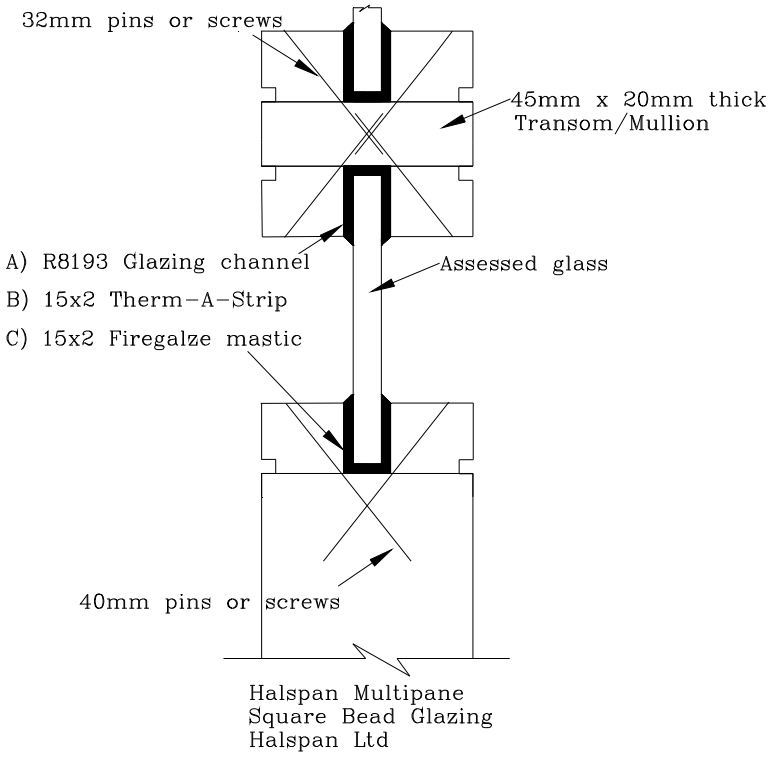


Halspan Cassette
Halspan Ltd



Halspan Multi-Pane Glazing
Halspan Ltd


20
24
I.S.L.
10mm x 2mm
Therm-A-Strip
Assessed glass
1.5
0.5
4
40mm pins or screws
Halspan Cassette
Square Bead
Halspan Ltd


32mm pins or screws
45mm x 20mm thick
Transom/Mullion
A) R8193 Glazing channel
B) 15x2 Therm-A-Strip
C) 15x2 Firegalze mastic
Assessed glass
40mm pins or screws
Halspan Multipane
Square Bead Glazing
Halspan Ltd

Appendix D

Performance Data

Primary Data

Report No	Configuration	Leaf Size (mm)	Test Standard	Performance* (mins)
RF1103A	ULSADD	2085 850 +442 44	BS 476: Part 22:	39
RF06048A	DASD	1980 755 45	BS 476: Part 22	34

* Integrity only unless otherwise stated

Supplementary Data

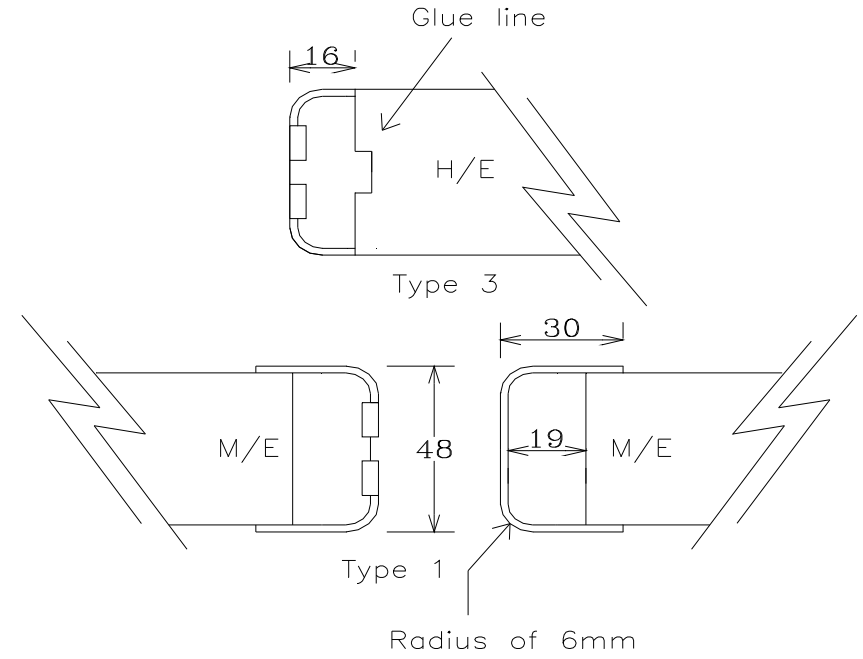
Report No	Test Standard	Performance* (mins)
FEA/F97174 Revision G Halspan 30 Prima	BS 476: Part 22	30

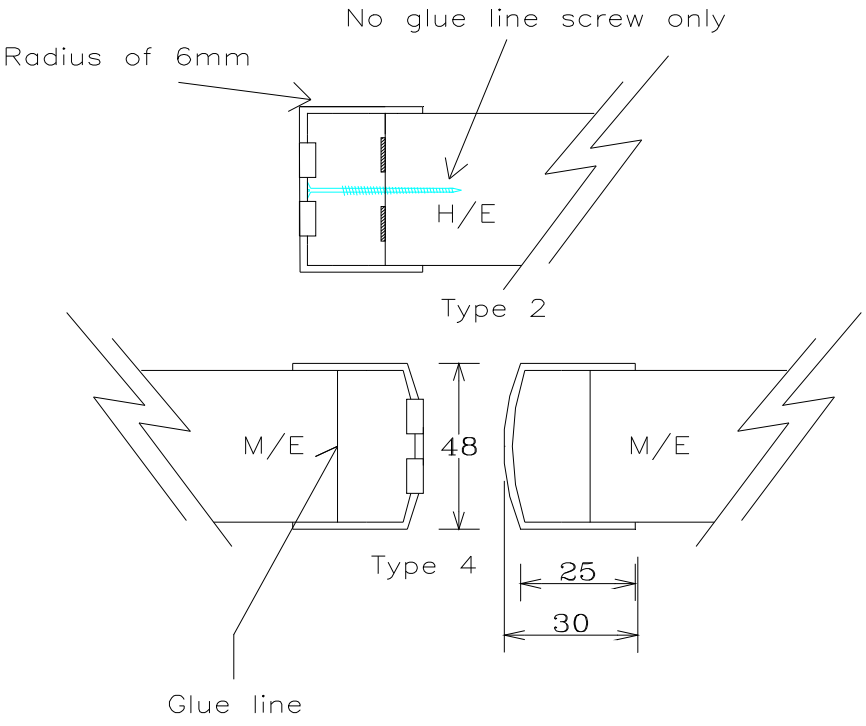
Appendix E

Revisions

Revision No	Ref	Date	Description
A	11006	25.1.11	Technical review update and 5 year revalidation
B	16061	20.3.16	Technical review update and 5 year revalidation

Appendix F
PVC Edge Protectors





Appendix G

Data Sheets for

Westag & Getalit AG

Halspan® 30 Optima

30 Minute Fire resisting Doorsets

Westag & Getalit AG
Halspan® 30 Optima Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Single Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD ULSASD DASD	From: To:	2135 2800	x x	1200 915
Maximum Overpanel height (mm)		Transomed	2000		
Glazing		Maximum Glazed Area:	1.75m² (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification (see section 8)		Material:	Softwood	Hardwood	MDF
		Min. Section (mm):	70 x 28	70 x 22	70 x 30
		Min. Density(kg/m³):	450	640	700

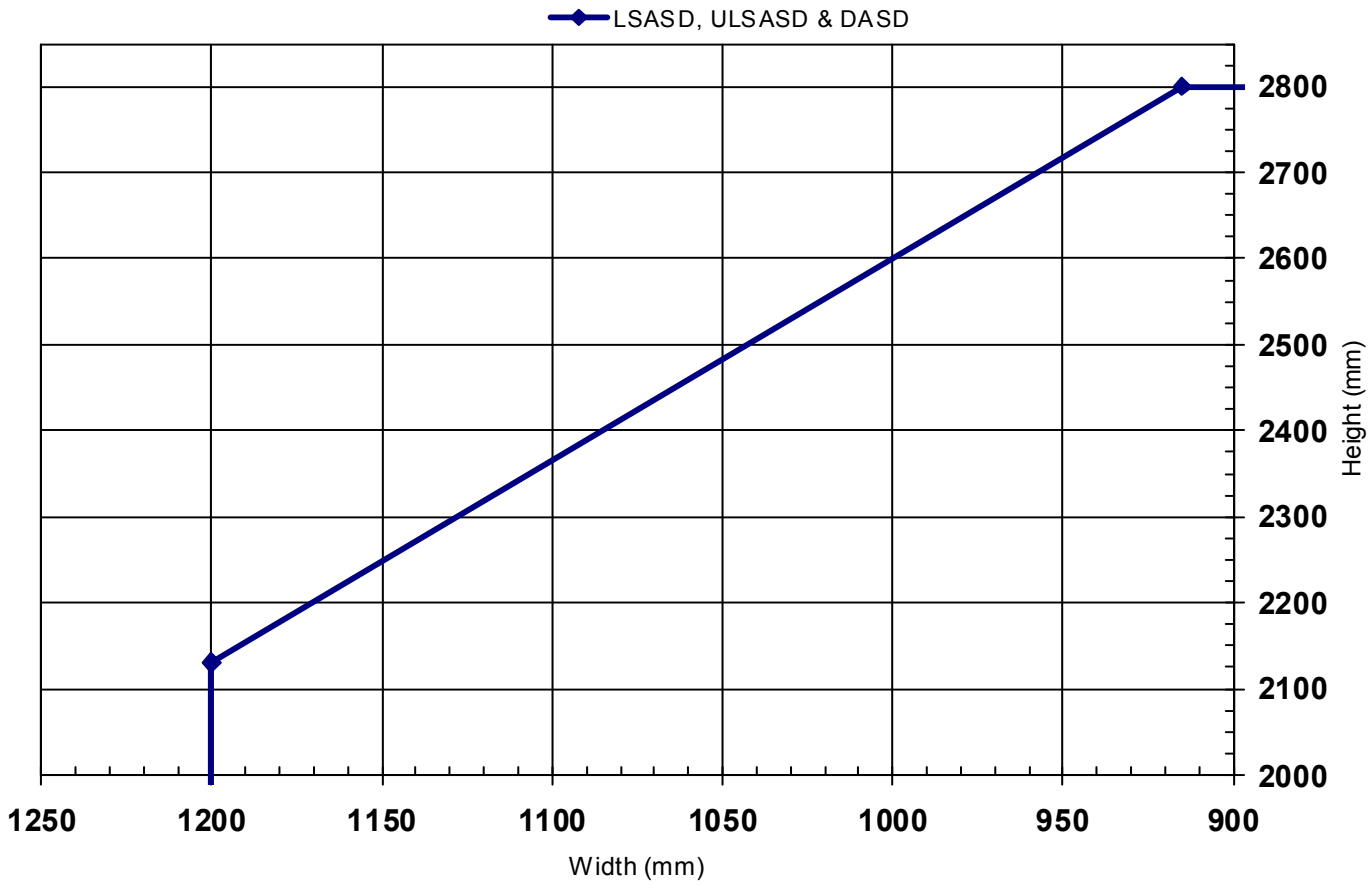
Intumescent Materials: PVC Encapsulated Palusol 100, Type 617, Therm-A-Seal, Pyroplex or Halspan® Type SLS

Head:
Square: 1No 10 x 4mm exposed and fitted centrally in the leaf or frame head. Leaves over 2200mm increase to 20 x 4mm.

Jambs: 1No 10 x 4mm exposed and fitted centrally in the leaf or frame reveal. Leaves over 950mm increase to 15 x 4mm.

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Single Doorsets + Overpanel

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD+OP ULSASD+OP DASD+OP	From: To:	2135 2650	x x	1125 910
Maximum Overpanel height (mm)			2000		
Glazing		Maximum Glazed Area:	1.75m² (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification (see section 8 for details)		Material:	Softwood	Hardwood	MDF
		Min. Section (mm):	70 x 28	70 x 22	70 x 30
		Min. Density(kg/m³):	450	640	700

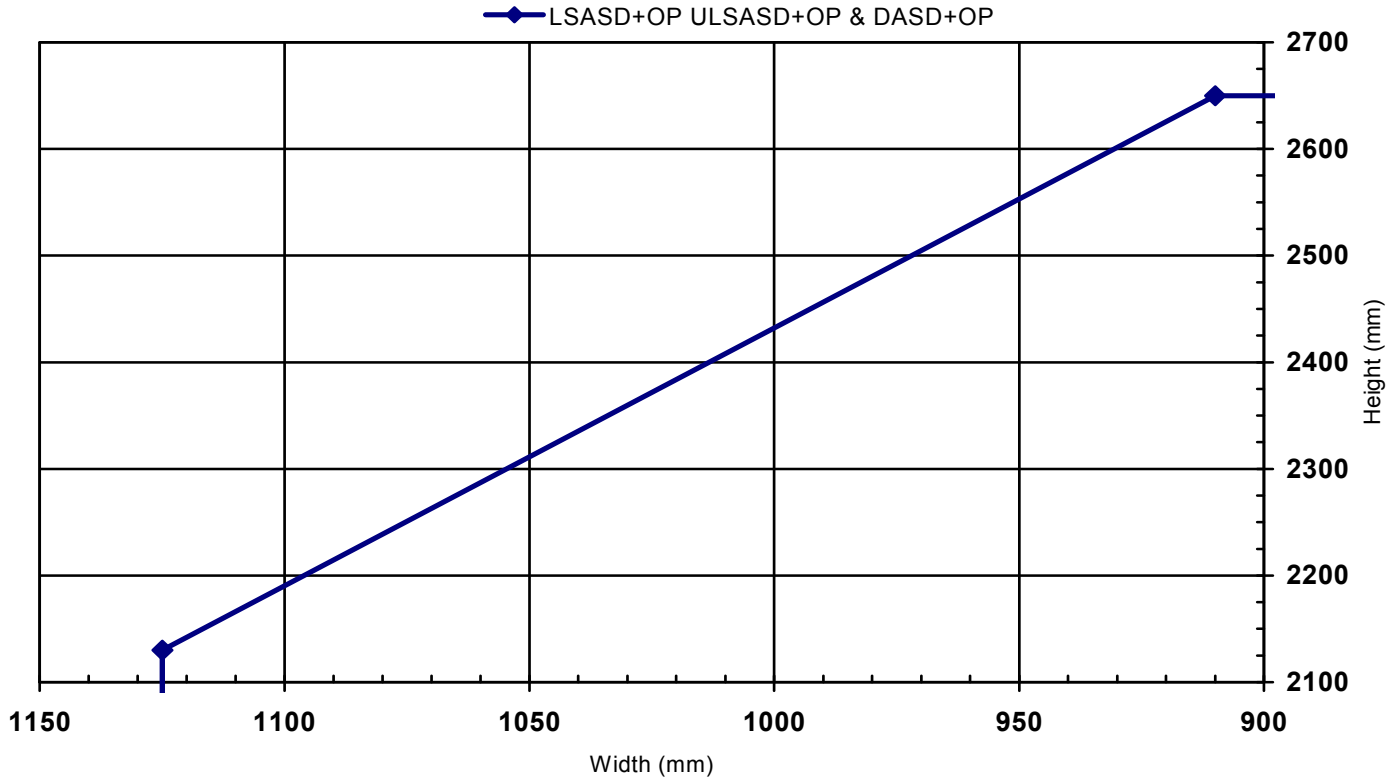
Intumescent Materials: PVC Encapsulated Palusol 100, Type 617, Therm-A-Seal, Pyroplex or Halspan® Type SLS

Head:
Square: 1No 15 x 4mm exposed and fitted centrally in the leaf or bottom of overpanel. Leaves over 2400mm increase to 20 x 4mm.
Rebated: 2 No 10 x 4mm exposed with one seal fitted centrally in the rebate of the leaf and one seal fitted centrally in the bottom of overpanel rebate

Jambs: 1No 10 x 4mm exposed and fitted centrally in the leaf or frame reveal

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Double Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSADD ULSADD DADD	From: To:	2135 2600	x x	1100 910
Maximum Overpanel height (mm)		Transomed	1500		
Glazing		Maximum Glazed Area:	1.75m² (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification (see section 8 for details)		Material:	Softwood	Hardwood	MDF
		Min. Section (mm):	70 x 28	70 x 22	70 x 30
		Min. Density(kg/m³):	450	640	730

Intumescent Materials: PVC Encapsulated Palusol 100, Type 617, Therm-A-Seal, Pyroplex or Halspan® Type SLS

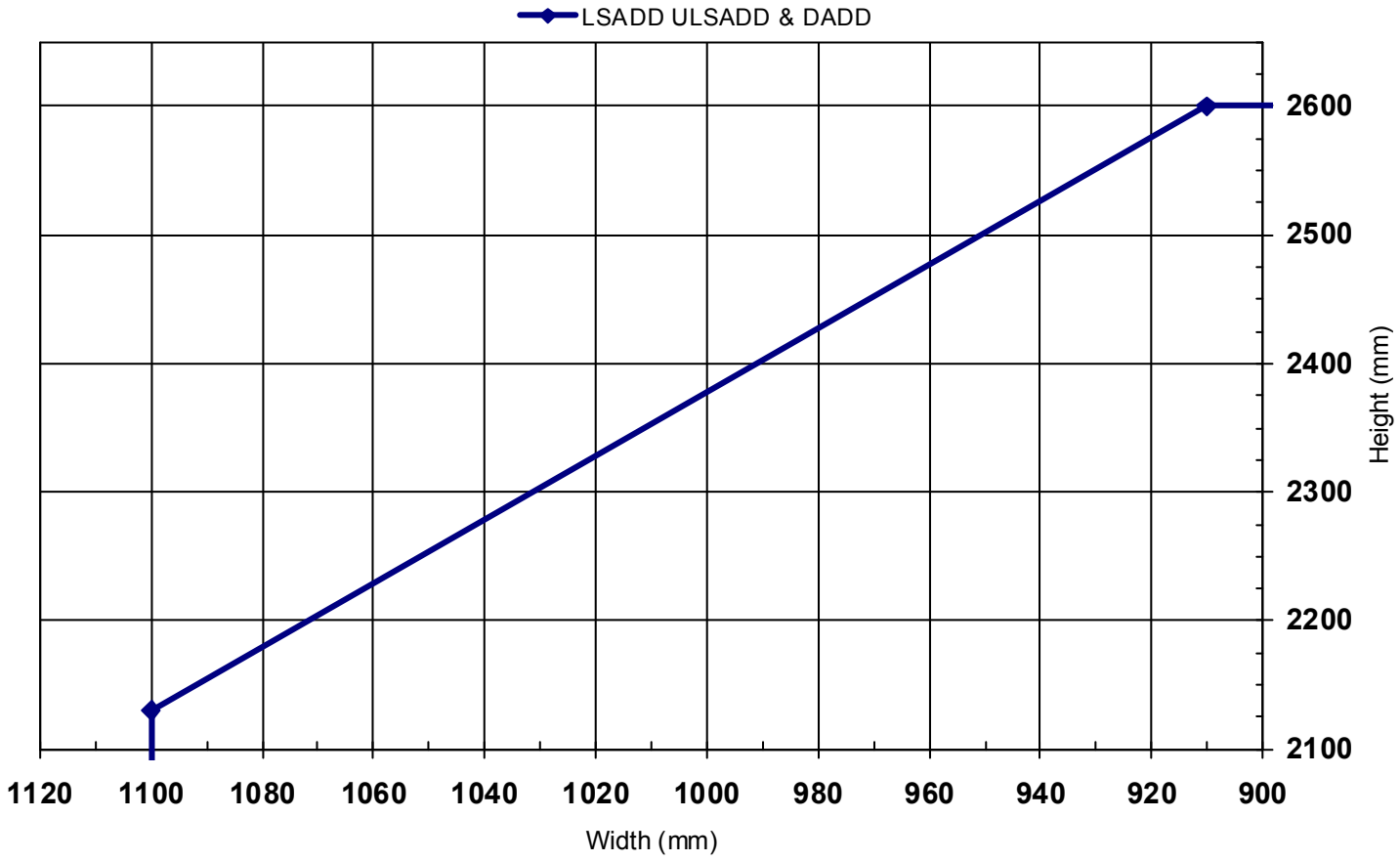
Head:
Square: 1No 10 x 4mm exposed and fitted centrally in the leaf or frame head. Leaves over 2400mm increase to 15 x 4mm.

Meeting Edges:
Square: 2 No 10 x 4mm exposed with each seal fitted centrally in both leaf edges, or 2 No 10 x 4mm exposed and fitted 5mm either side of the centreline in one leaf edge only.
Rebated: 2 No 15 x 4mm exposed with each seal fitted centrally in the rebate of each leaf.

Jambs: 1No 10 x 4mm exposed and fitted centrally in the leaf or frame reveal

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Double Doorsets + Overpanel

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSADD+OP ULSADD+OP DADD+OP	From:	2135	x	1040
		To:	2440	x	915
Maximum Overpanel height (mm)			1500		
Glazing		Maximum Glazed Area:	1.75m^2 (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification (see section 8 for details)		Material:	Softwood	Hardwood	MDF
		Min. Section (mm):	70 x 28	70 x 22	70 x 30
		Min. Density(kg/m^3):	450	640	700

Intumescent Materials: PVC Encapsulated Palusol 100, Type 617, Therm-A-Seal, Pyroplex or Halspan® Type SLS

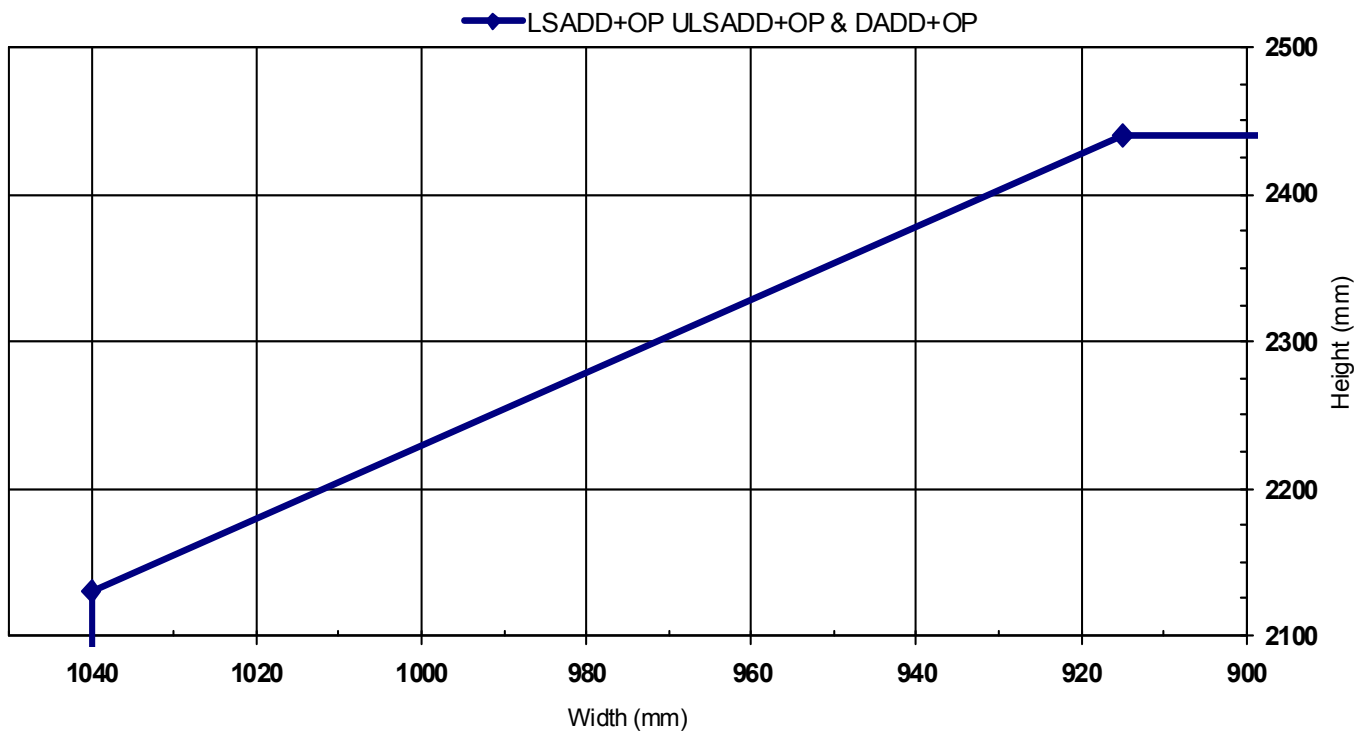
Head:
Square: 1No 15 x 4mm exposed and fitted centrally in the leaf or bottom of overpanel. Leaves over 2400mm increase to 20 x 4mm.
Rebated: 2 No 15 x 4mm exposed with one seal fitted centrally in the rebate of the leaves and one seal fitted centrally in the bottom of overpanel rebate

Meeting Edges:
Square: 2 No 10 x 4mm exposed with each seal fitted centrally in both leaf edges, or 2 No 10 x 4mm exposed and fitted 5mm either side of the centreline in one leaf edge only.
Rebated: 2 No 15 x 4mm exposed with each seal fitted centrally in the rebate of each leaf.

Jambs: 1No 10 x 4mm exposed and fitted centrally in the leaf or frame reveal

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Hollow Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Single Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD	From:	2040	x	1066
		To:	2598	x	826
	ULSASD & DASD	From:	2040	x	1041
		To:	2548	x	826
Maximum Overpanel height (mm)			na		
Glazing		Maximum Glazed Area:	1.75m² (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – See Appendix A		
		Min. Section (mm):	100 x 20		

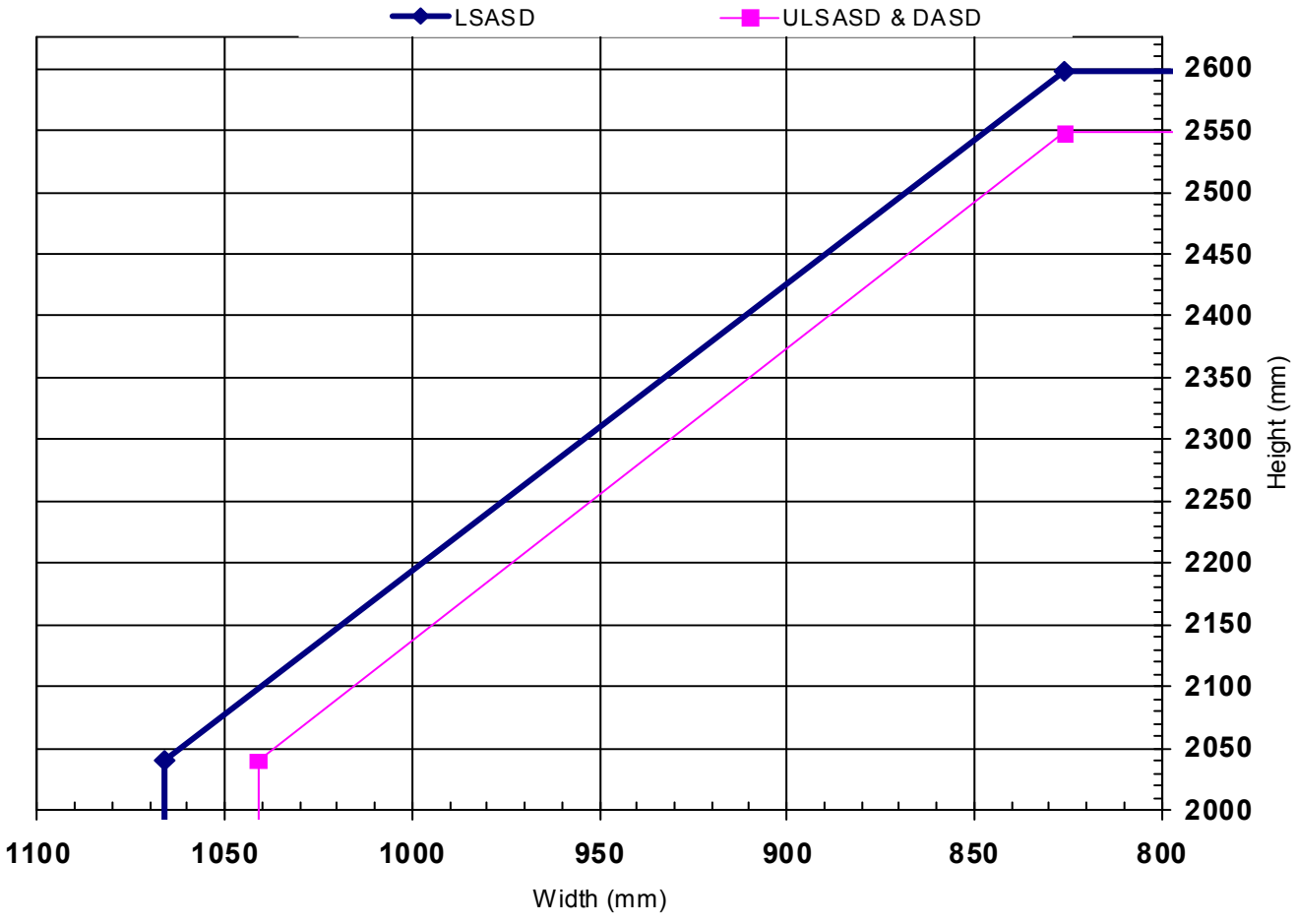
Intumescent Materials:

Head: H30 (details in confidence on file at CIFL)

Jambs: H30 (details in confidence on file at CIFL)

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Hollow Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Single Doorsets + Overpanel

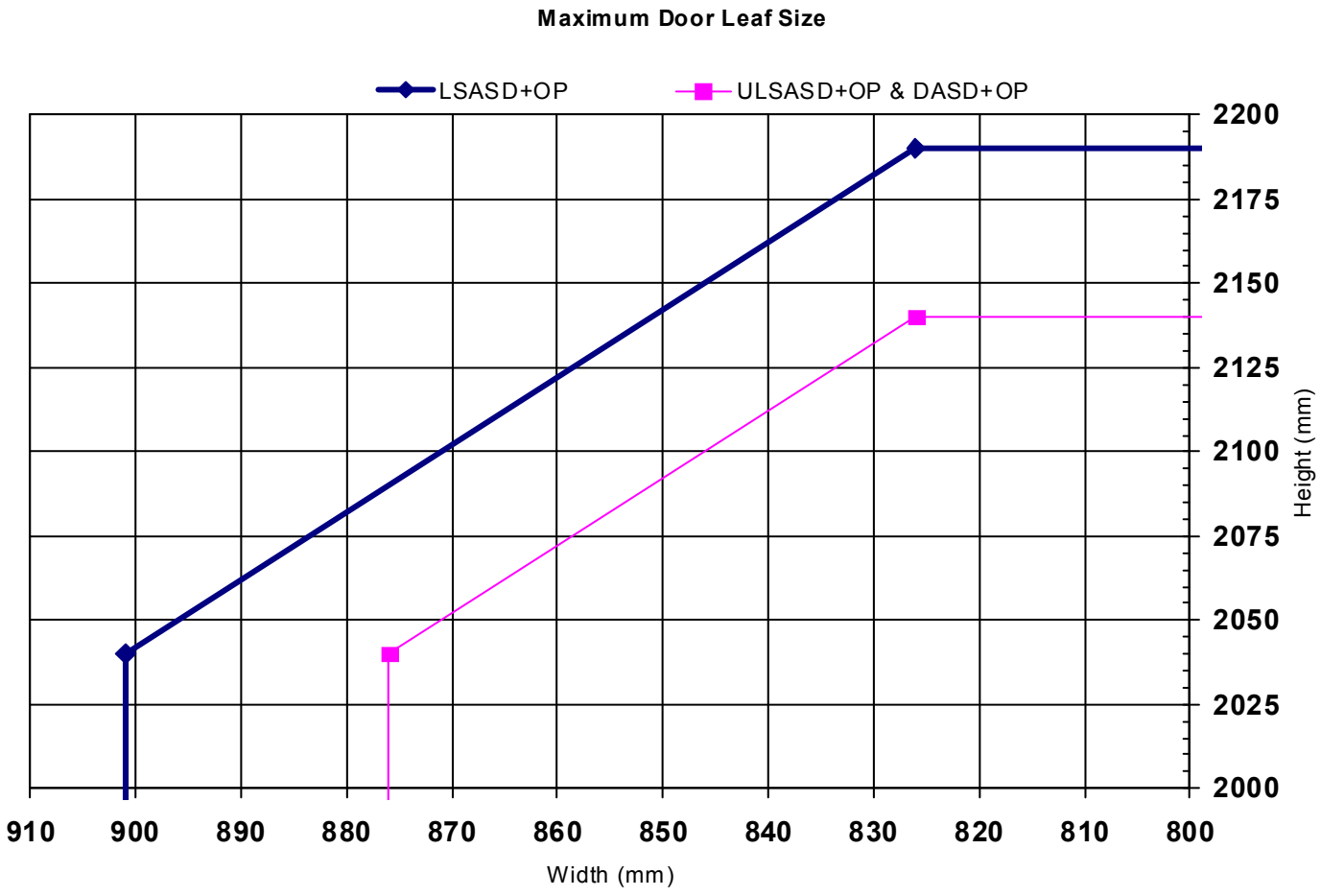
	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD+OP	From:	2040	x	901
		To:	2190	x	826
	ULSASD+OP & DASD+OP	From:	2040	x	876
		To:	2140	x	826
Maximum Overpanel height (mm)			500		
Glazing		Maximum Glazed Area:	1.75m^2 (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – see Appendix A		
		Min. Section (mm):	100 x 20		

Intumescent Materials: PVC Encapsulated Halspan® Type SLS

Head:
Square: 1No 20 x 4mm exposed and fitted centrally in the leaf bottom of the overpanel.
Rebated: 2 No 10 x 4mm exposed with one seal fitted centrally in the rebate of the leaf and one seal fitted centrally in the bottom of the overpanel rebate

Jambs& Overpanel: H30 (details in confidence on file at CIFL).

Hardware Protection: see section 12



Westag & Getalit AG
Halspan® 30 Optima Hollow Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Double Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSADD	From:	2040	x	1016
		To:	2498	x	826
	ULSADD & DADD	From:	2040	x	991
		To:	2448	x	826
Maximum Overpanel height (mm)			na		
Glazing		Maximum Glazed Area:	1.75m^2 (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – see Appendix A		
		Min. Section (mm):	100 x 20		

Intumescent Materials: PVC Encapsulated Halspan® Type SLS

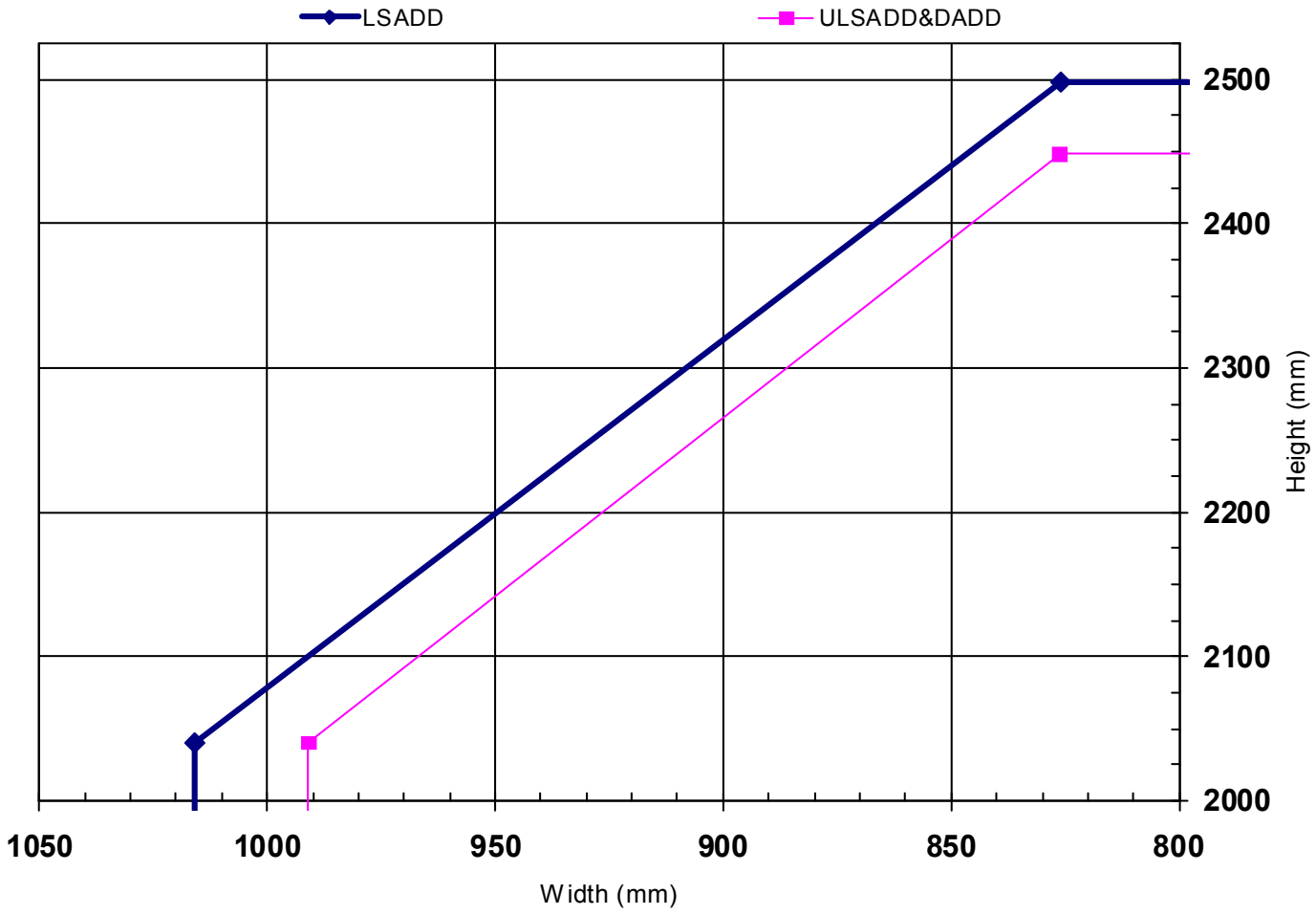
Head:
H30 (details in confidence on file at CIFL).

Meeting Edges:
Square: 2No 10 x 4mm exposed and fitted 5mm either side of the centreline in one leaf edge only.

Jambs: H30 (details in confidence on file at CIFL).

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Hollow Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Double Doorsets + Overpanel

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSADD+OP	From:	2040	x	851
		To:	2090	x	826
	ULSADD+OP & DADD+OP	Max:	2040	x	826
Maximum Overpanel height (mm)			500		
Glazing		Maximum Glazed Area:	1.75m^2 (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – see Appendix A		
		Min. Section (mm):	100 x 20		

Intumescent Materials: PVC Encapsulated Halspan® Type SLS

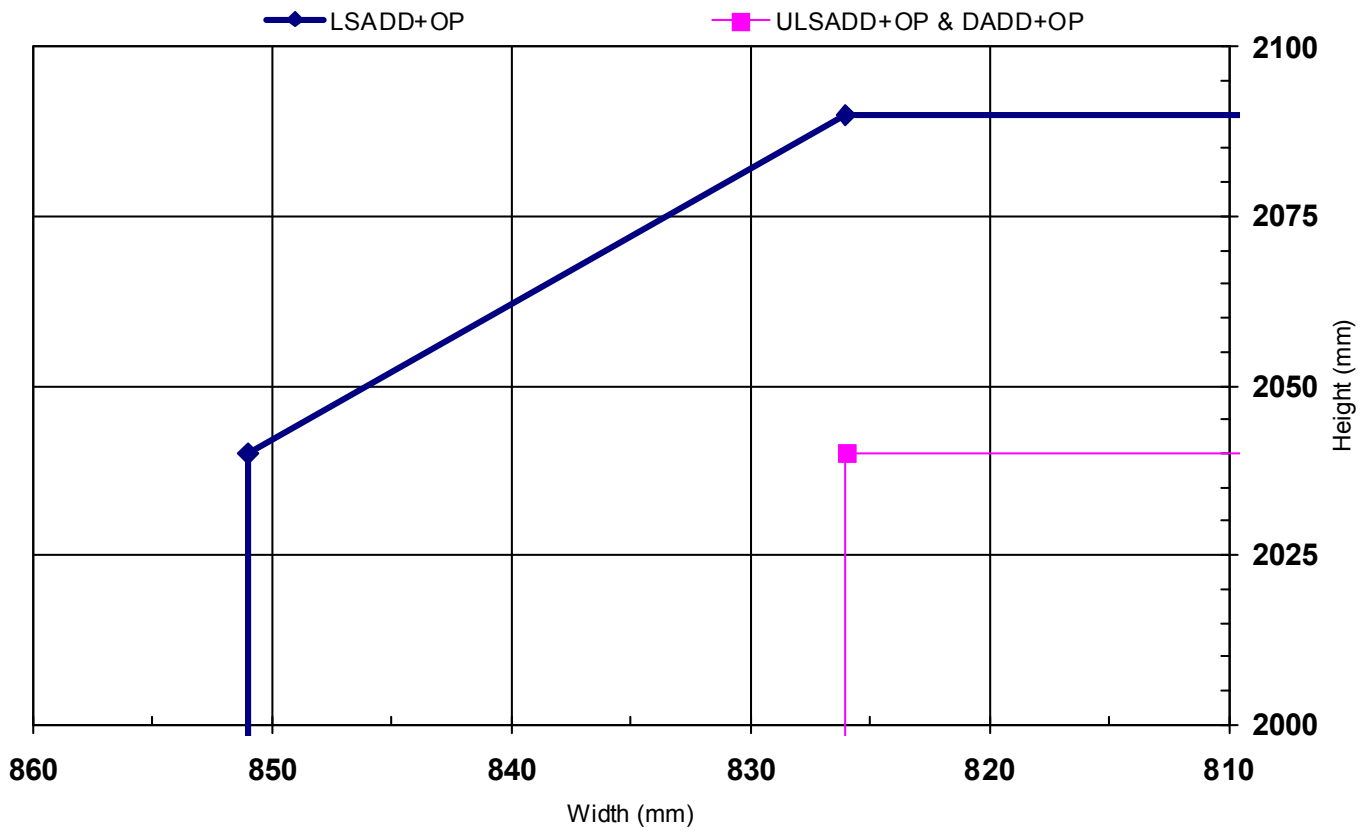
Head:
Square: 1No 20 x 4mm exposed and fitted centrally in the leaf or bottom of the overpanel.
Rebated: 2 No 15 x 4mm exposed with one seal fitted centrally in the rebate of leaves and one seal fitted centrally in the bottom of the overpanel rebate

Meeting Edges:
Square: 2No 10 x 4mm exposed and fitted 5mm either side of the centreline in one leaf edge only.

Jambs & Overpanel: H30 (details in confidence on file at CIFL).

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Backfilled Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Single Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD	From:	2135	x	1638
		To:	3167	x	1105
	ULSASD & DASD	From:	2135	x	1613
		To:	3117	x	1105
Maximum Overpanel height (mm)			na		
Glazing		Maximum Glazed Area:	1.75m² (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – see Appendix A		
		Backfilling:	Concrete or mortar		
		Min. Section (mm):	100 x 20		

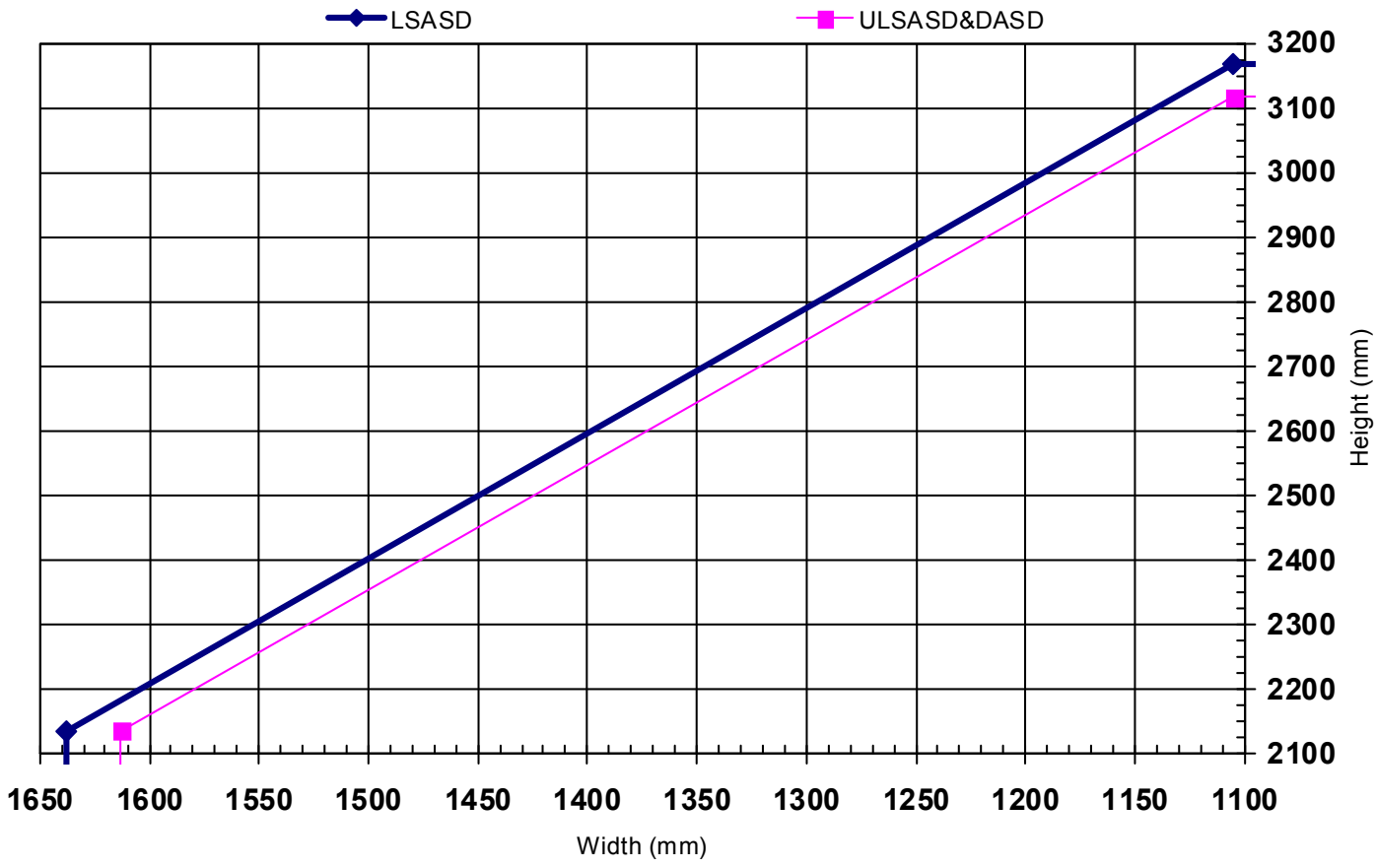
Intumescent Materials: PVC Encapsulated Therm-A-Seal – Intumescent Seals Ltd

Head:
Square: 1No 20 x 4mm exposed and fitted centrally in the leaf head. Leaves over 2300mm increase to 25 x 4mm. Leaves over 2600mm increase to 38 x 4mm

Jambs: 1No 20 x 4mm exposed and fitted centrally in the leaf edge. Leaves over 1300mm increase to 25 x 4mm. Leaves over 1500mm increase to 38 x 4mm.

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Backfilled Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Single Doorsets + Overpanel

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD+OP	From:	2135	x	875
		To:	2285	x	800
	ULSASD+OP & DASD+OP	From:	2135	x	850
		To:	2235	x	800
Maximum Overpanel height (mm)			500		
Glazing		Maximum Glazed Area:	1.75m^2 (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – see Appendix A		
		Backfilling:	Concrete or mortar		
		Min. Section (mm):	100 x 20		

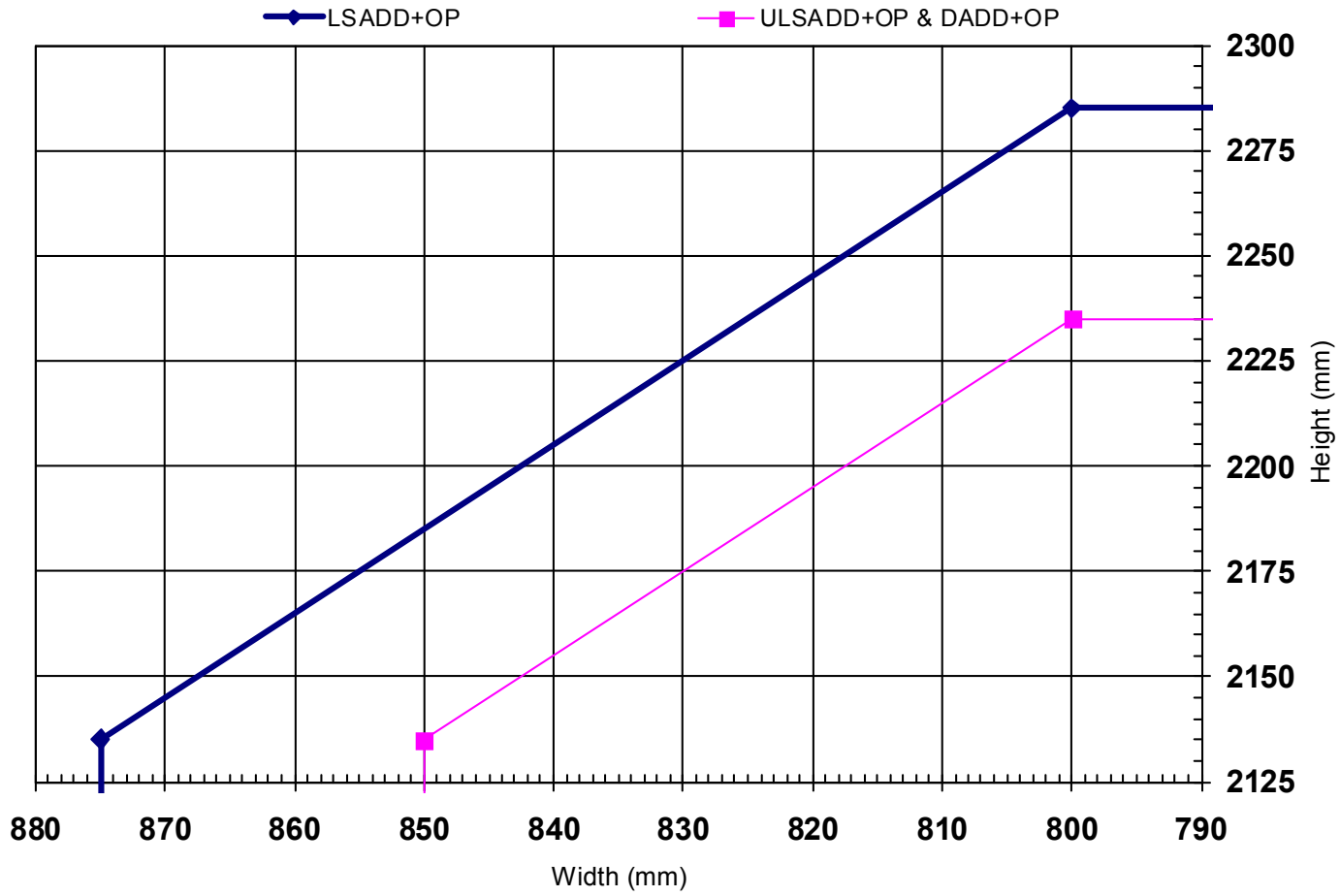
Intumescent Materials: PVC Encapsulated Therm-A-Seal – Intumescent Seals Ltd

Head:
Square: 1No 20 x 4mm exposed and fitted centrally in the leaf or bottom of the overpanel.
Rebated: 2 No 10 x 4mm exposed with one seal fitted centrally in the rebate of leaf and one seal fitted centrally in the bottom of the overpanel rebate.

Jambs & Overpanel: 1No 20 x 4mm exposed and fitted centrally in the leaf and overpanel edge.

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Backfilled Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Double Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSADD	From:	2135	x	929
		To:	2462	x	800
	ULSADD & DADD	From:	2135	x	904
		To:	2412	x	800
Maximum Overpanel height (mm)			na		
Glazing		Maximum Glazed Area:	1.75m² (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – see Appendix A		
		Backfilling:	Concrete or mortar		
		Min. Section (mm):	100 x 20		

Intumescent Materials: PVC Encapsulated Therm-A-Seal – Intumescent Seals Ltd

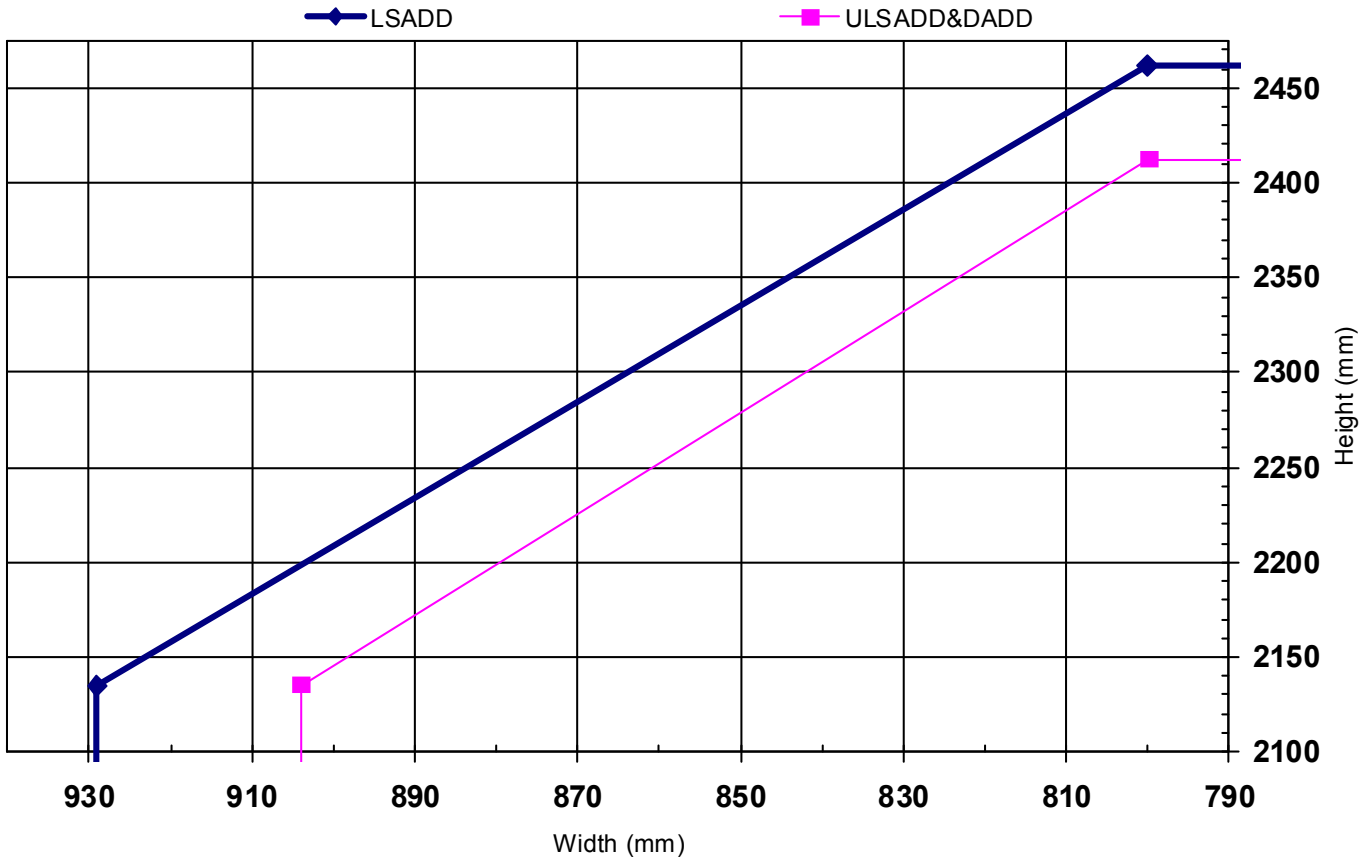
Head:
1No 20 x 4mm exposed and fitted centrally in the leaf.

Meeting Edges:
Square: 2 No 10 x 4mm exposed and fitted 5mm either side of the centreline in one leaf edge only.

Jambs: 1 No 20 x 4mm exposed and fitted centrally in the leaf edge.

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Backfilled Steel Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting & Double Acting Double Doorsets + Overpanel

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSADD+OP	From:	2135	x	825
		To:	2185	x	800
	ULSADD+OP & DADD+OP	Max:	2135	x	800
Maximum Overpanel height (mm)			500		
Glazing		Maximum Glazed Area:	1.75m^2 (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Mild or stainless steel – see Appendix A		
		Backfilling:	Concrete or mortar		
		Min. Section (mm):	100 x 20		

Intumescent Materials: PVC Encapsulated Therm-A-Seal – Intumescent Seals Ltd

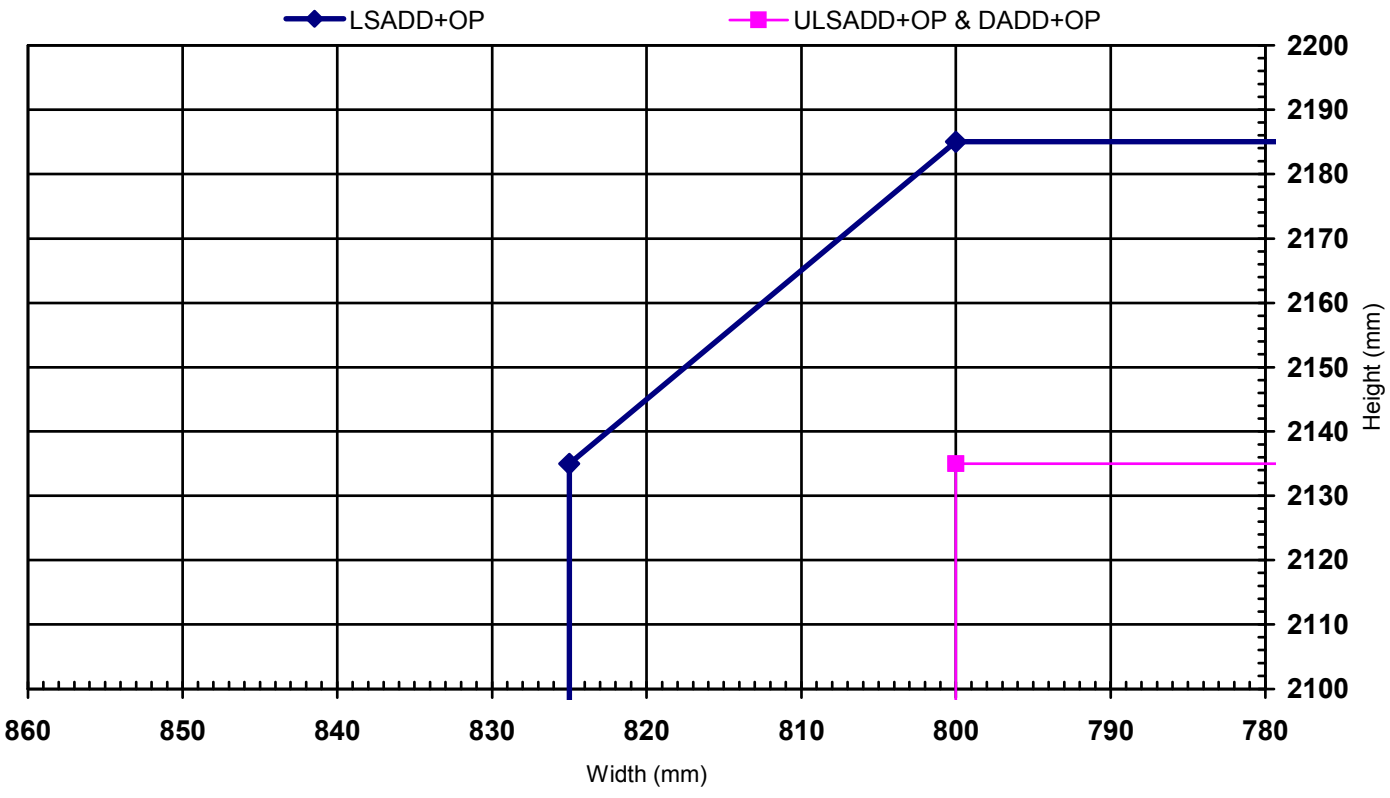
Head:
Square: 1 No 20 x 4mm exposed and fitted centrally in the leaf or bottom of the overpanel.
Rebated: 2 No 15 x 4mm exposed with one seal fitted centrally in the rebate of leaves and one seal fitted centrally in the bottom of the overpanel rebate.

Meeting Edges:
Square: 2 No 10 x 4mm exposed and fitted 5mm either side of the centreline in one leaf edge only.

Jambs & Overpanel: 1 No 20 x 4mm exposed and fitted centrally in the leaf and overpanel edge.

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Aluminium Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting Single Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSASD	From:	2700	x	935
		To:	2931	x	835
	ULSASD	From:	2700	x	910
		To:	2881	x	835
Maximum Overpanel height (mm)			na		
Glazing		Maximum Glazed Area:	1.75m^2 (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Aluminium – See Appendix B		
		Min. Section (mm):	100 x 35		

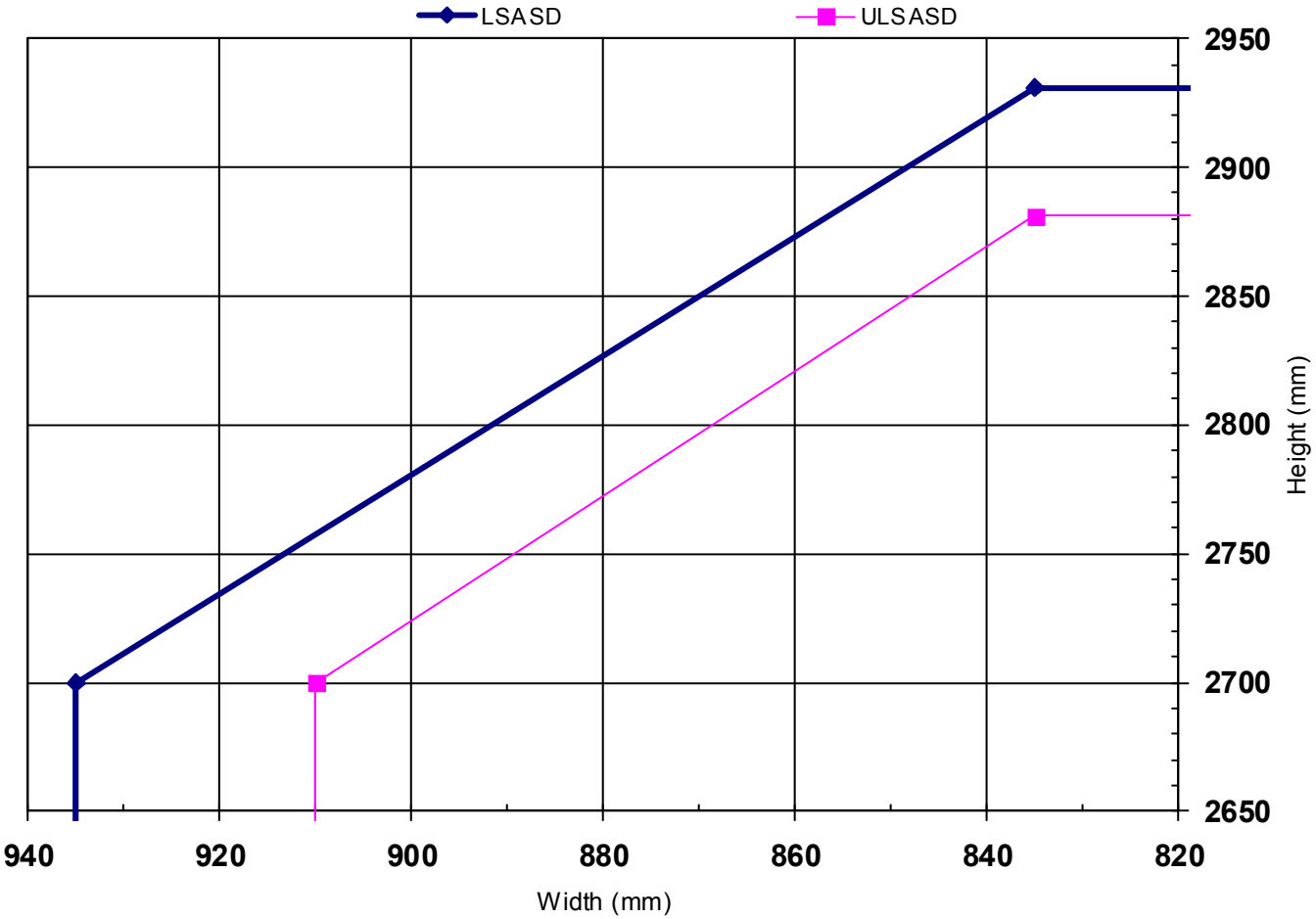
Intumescent Materials: PVC encapsulated Therm-A-Seal – Intumescent Seals Ltd

Head: 1No 30 x 4mm exposed and fitted centrally in a rebate in the leaf head

Jambs: 1No 20 x 4mm exposed and fitted centrally in a rebate in the leaf edge

Hardware Protection: see section 12

Maximum Door Leaf Size



Westag & Getalit AG
Halspan® 30 Optima Aluminium Frame Doorsets – 30 Minutes Fire Resistance
Latched and Unlatched Single Acting Double Doorsets

	Configuration		Height (mm)		Width (mm)
Leaf Sizes	LSADD	From:	2700	x	885
		To:	2831	x	835
	ULSADD	From:	2700	x	860
		To:	2781	x	835
Maximum Overpanel height (mm)			na		
Glazing		Maximum Glazed Area:	1.75m² (see section 7 for details)		
		Approved systems:	See section 7 and appendix C		
Frame specification		Material:	Aluminium – See Appendix B		
		Min. Section (mm):	100 x 35		

Intumescent Materials: PVC encapsulated Therm-A-Seal – Intumescent Seals Ltd

Head: 1No 30 x 4mm exposed and fitted centrally in a rebate in the leaf head or frame reveal.

Meeting Edges:
Square: 2No 10 x 4mm exposed and fitted 5mm either side of the centreline in one leaf edge only.

Jambs: 1No 20 x 4mm exposed and fitted centrally in a rebate in the leaf edge or frame reveal

Doorsets with a latch or lock must fit 1mm thick Interdens or 2mm thick Therm-A-Strip under the forend and keep.

Hardware Protection: see section 12

Maximum Door Leaf Size