

Palusol® SW

Fire resistant panelled doors



MANN McGOWAN

Intumescent Fire Smoke & Acoustic Seals

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Technical

Our technical department can be consulted regarding Palusol®SW door constructions and any other Mann McGowan product.

CPD Services

Palusol®SW forms part of our two certified CPD presentations.

For further details please contact our CPD coordinator.

Palusol®SW is a registered trade mark of BASF SE

Pyrostrip®, Pyroglaze®, Pyrohinge®, Pyromas®, Enviroseal® Pyrospan® are registered trade marks of Mann McGowan

Interdens® and Exterdens® are registered trademarks of Dr. Wolman GmbH

The specifications, drawings and contents of this manual are given in good faith but are liable to change without notice. They are given as general guidance only and do not form part of any contract.



Introducing Palusol®SW

Palusol®SW is a ready made laminated board material that can be used to manufacture both flat and raised and fielded – fire resisting panelled doors.

In a joint development between Mann McGowan® and BASF SE, fire resistance tests have been successfully conducted on both 30 and 60 minute door constructions.

These tests carried out by Chiltern International Fire in accordance with BS 476 Part 22: 1987 have culminated in two global assessments Chiltern A0 9136 and A0 9165.

This Technical Manual provides details of all of the products required to manufacture fire resisting doors without the joinery manufacturer having to go to the expense of fire testing or obtaining project specific assessments.

The Palusol®SW Boards and all the intumescent materials should be obtained direct from Mann McGowan to ensure the fire test evidence is complied with.

We cannot supply SW Panels in isolation, all components must be supplied together.

Benefits

By using Palusol®SW boards manufactured by BASF SE and distributed by Mann McGowan®, specialist joinery producers and OEM's can manufacture flat and raised and fielded panelled fire resisting door-sets. As the boards are pre-manufactured and pressed, this provides savings on production time and negates the need for R + D on the part of the manufacturer.

These tangible benefits equates to lower production costs as well as allowing the producer to tender for work in this increasing market sector.

Other benefits include;

- Global Fire Assessments from Chiltern International Fire
- 10mm thick panels can be used on FD30 and FD30(S) constructions
- A double layer of 10mm thick panels can be used on FD60 and FD60(S) constructions
- Customised raised and fielded decorative panels can be utilised
- Commercially available wood adhesives can be used
- Up to 10 panels per door leaf can be accommodated
- Glazing apertures can be incorporated
- Acoustically tested in accordance with BS EN ISO 10140-2: 2010
- Allows for the use of Softwood at minimum density of 510kg/m³



Quality Assurance

Mann McGowan and BASF SE are a quality assured companies in accordance with ISO 9001:2008

BASF SE Implements and maintains an environmental system in accordance with ISO 14001: 2004

Palusol® SW4 Boards

Product Code:
Palusol®SW4

Standard Dimensions:
2160mm x 1110mm x 10mm*

Weight Per Sheet:
27kg per sheet

Cutting and Working

*The raw edges of the board should be trimmed 5mm all around.

Palusol®SW can be cut and processed using standard woodworking machinery.

Carbide tipped cutting tools are recommended for longer usage.

Cut edges which arise during processing must be coated and adequately protected

Safety Precautions during Processing

Sodium silicate dust is created during the cutting, drilling or milling of Palusol®SW. It must not get into the eyes or respiratory passages and the use of appropriate extraction facilities and wearing of safety glasses and dust masks are strongly advised.

Storage and Transport

Palusol®SW should be protected from water, high atmospheric humidity and sustained temperatures above 40°C. The boards should be stored horizontally and supported over their entire area. Protective gloves should be worn.

Construction FD 30 + FD30(S)

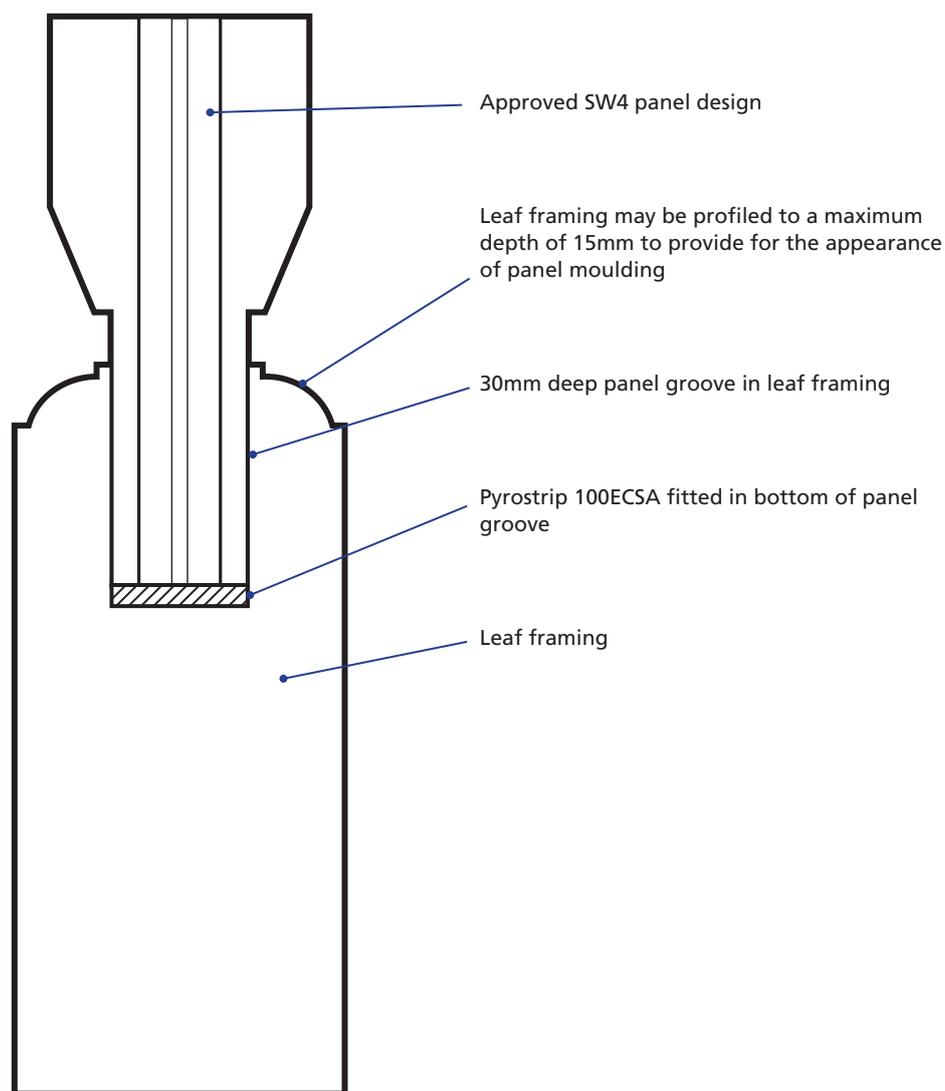
Design A Raised and Fielded Panels

Element		Species/type	Dimensions mm	Density kg/m ³
Head Rails + Stiles		Softwood or Hardwood	95mm wide x 44mm thick with 18mm wide x 30mm deep groove	510
Rails	Middle	Softwood or Hardwood	190mm wide x 44mm thick with 18mm wide x 30mm deep groove	510
Rails	Intermediate		80mm wide x 44mm thick with 18mm wide x 30mm deep groove	
Rails	Bottom		190mm wide x 44mm thick with 18mm wide x 30mm deep groove	
Panel	Core	Palusol [®] SW HDF Laminated Board	10mm thick	1000kg/m ³
Panel	Facing	MDF Chipboard Plywood Timber	12mm thick reducing to 4mm thick at fielded areas <i>See note 6 on page 5</i>	600 kg/m ³ 600 kg/m ³ 500 kg/m ³ 500kg/m ³

Design B Flat Panels

Element		Species/type	Dimensions mm	Density kg/m ³
Head Rails + Stiles		Softwood or Hardwood	95mm wide x 44mm thick with 10mm wide x 30mm deep groove	510
Rails	Middle	Softwood or Hardwood	190mm wide x 44mm thick with 10mm wide x 30mm deep groove	510
Rails	Intermediate		80mm wide x 44mm thick with 10mm wide x 30mm deep groove	
Rails	Bottom		190mm wide x 44mm thick with 10mm wide x 30mm deep groove	
Panel	Core	Palusol [®] SW HDF Laminated Board	10mm thick	1000kg/m ³
Panel	Facing	MDF Chipboard Plywood Timber	0-17mm thick <i>See note 6 on page 5</i>	600 kg/m ³ 600 kg/m ³ 500 kg/m ³ 500kg/m ³

Leaf Framing and Panel Construction



1. A minimum of 1 and maximum of 10 panels can be used;
2. Panels must be retained in a minimum of 30mm deep grooves in the leaf framing;
3. The leaf framing may be profiled at the perimeter to replicate one of the tested profiles. The profile must be no deeper than 15mm (see diagram);
4. Pyrostrip 100ECSA must be fitted into the bottom of the panel groove, see spec on page 11;
5. Additional planted beads/ mouldings may be fitted as required;
6. The panel thickness housed into the framing must not exceed 18mm;
7. Flat panels are not required to have additional facings to the core. If additional facings are required they must meet the stated specification in Design B on page 4;
8. Additional fixings to retain the panels are not required;
9. The following additional facing materials are permitted for this doorset design since these elements would degrade rapidly under test conditions without significant effect; Timber veneers, foils and plastic laminates up to 2mm thick;
10. Metallic facings are not assessed.

Key to abbreviations on following pages

LSASD & ULSASD Latched and unlatched single acting single doorset

DASD Double acting single doorset

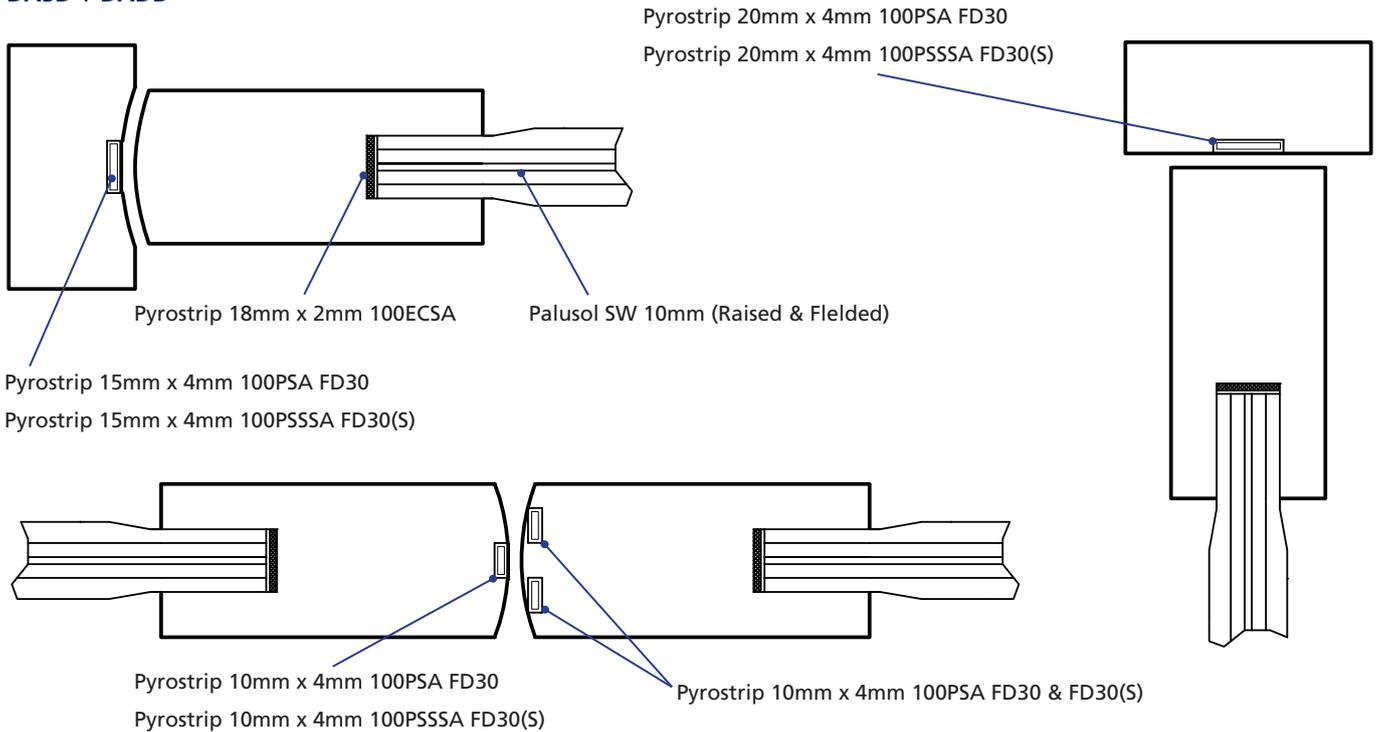
LSADD & ULSADD Latched and unlatched single acting double doorset

DADD Double acting double doorset

Palusol®SW Doorset Configurations

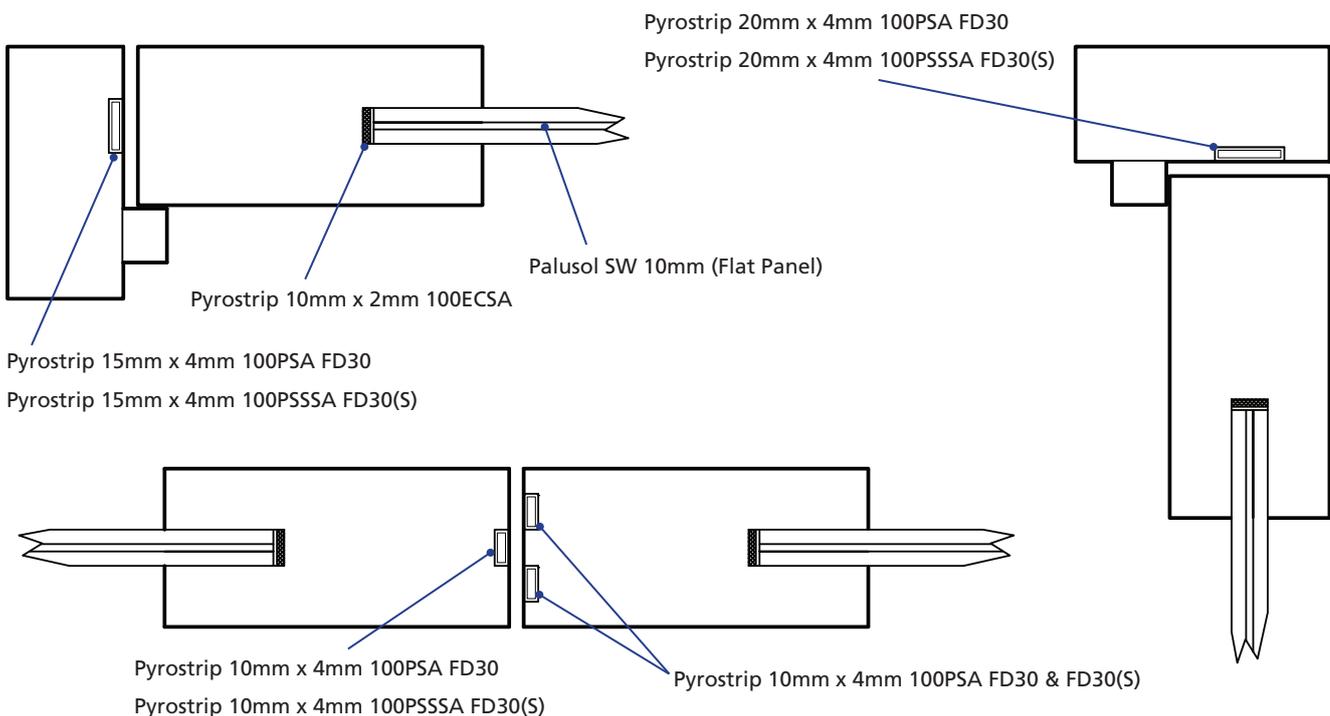
Intumescent Detail for Raised & Fielded Doorsets

DASD + DADD



Intumescent Detail for Flat Panelled Doorsets

LSASD + ULSASD + LSADD + ULSADD

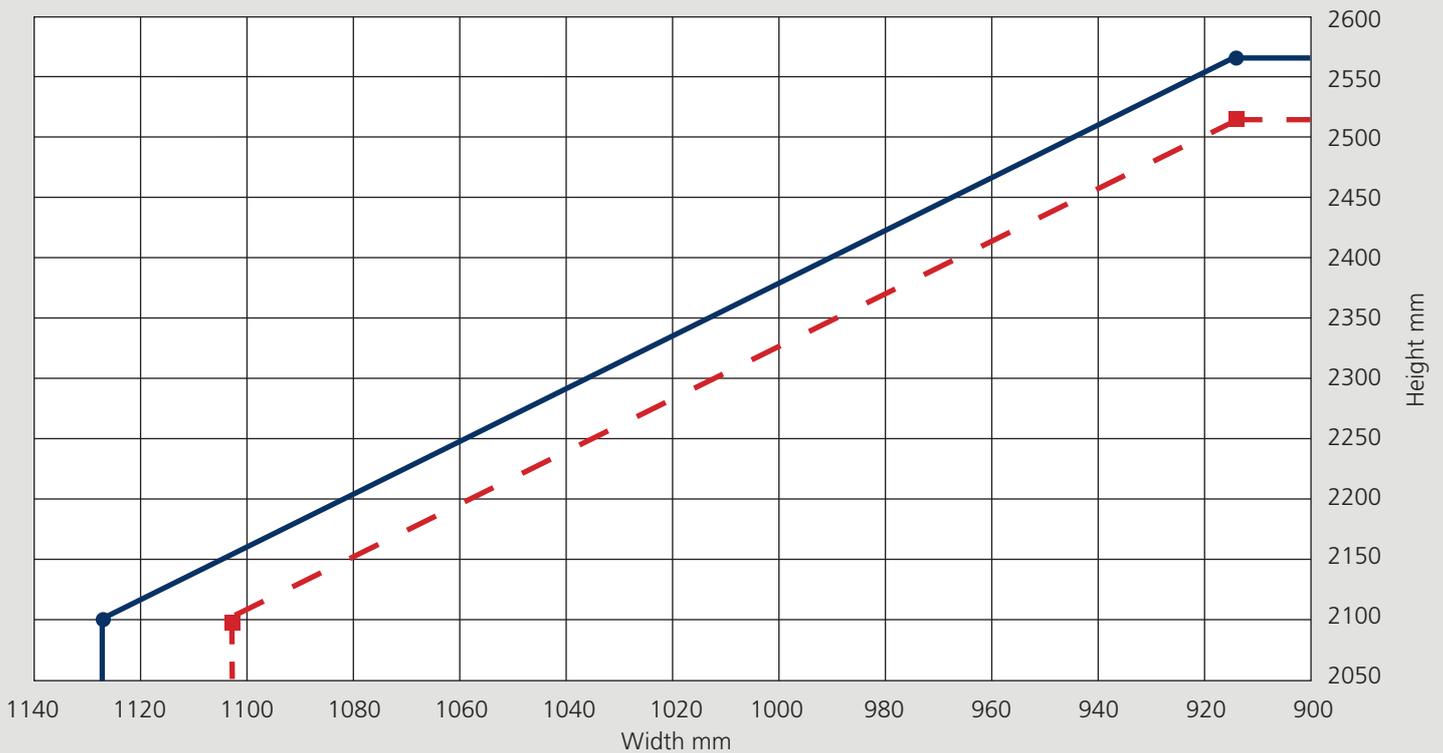


Raised & Fielded Panelled Doorsets

Latched & Unlatched Single & Double Acting **Single** Doorset

Leaves over 2350mm high increase the head Intumescent Seal to 25mm x 4mm

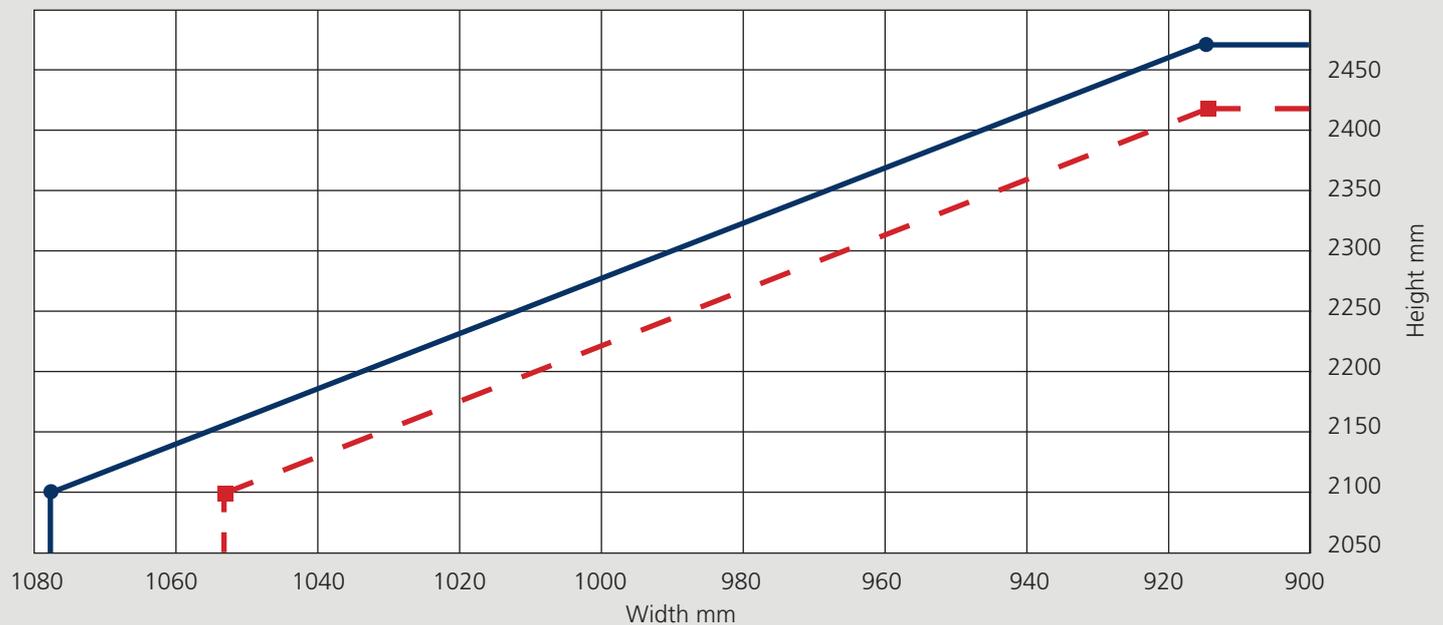
- LSASD
- -■- - ULSASD & DASD



Raised & Fielded Panelled Doorsets

Latched & Unlatched Single & Double Acting **Double** Doorset

Leaves over 2350mm high increase the head Intumescent Seal to 25mm x 4mm

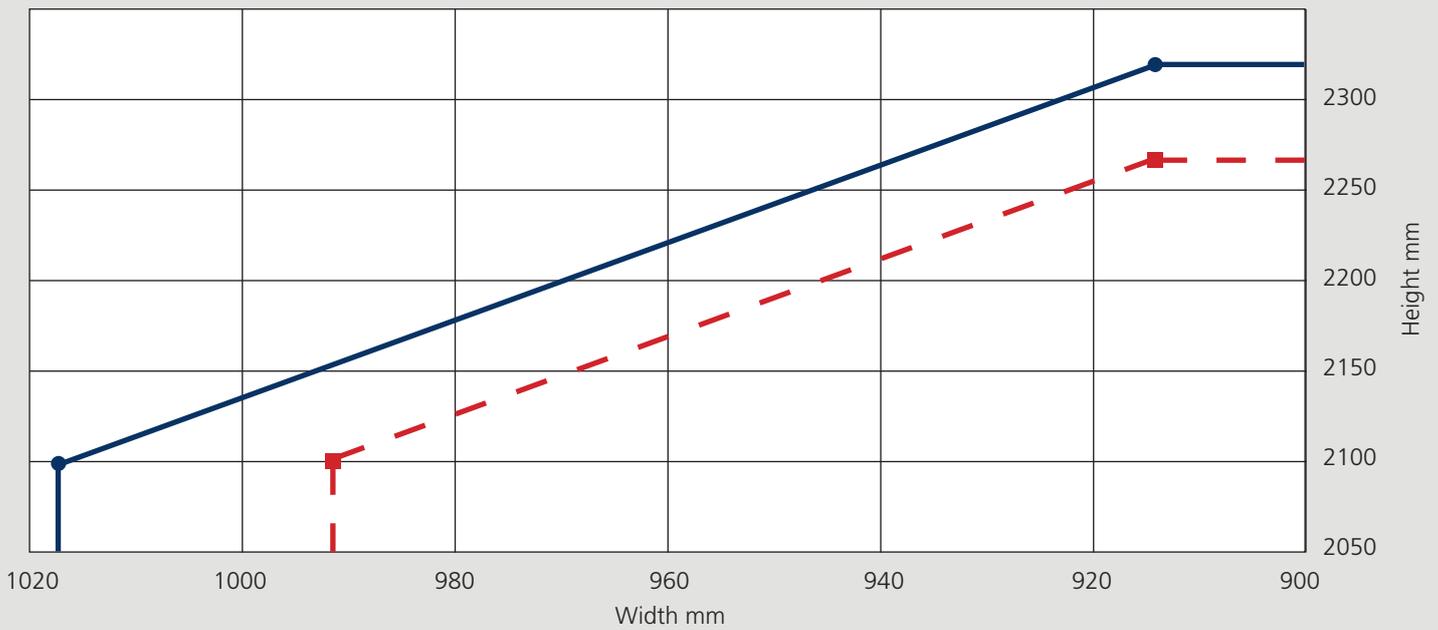


Maximum Doorleaf Dimensions

Flat Panelled Doorsets

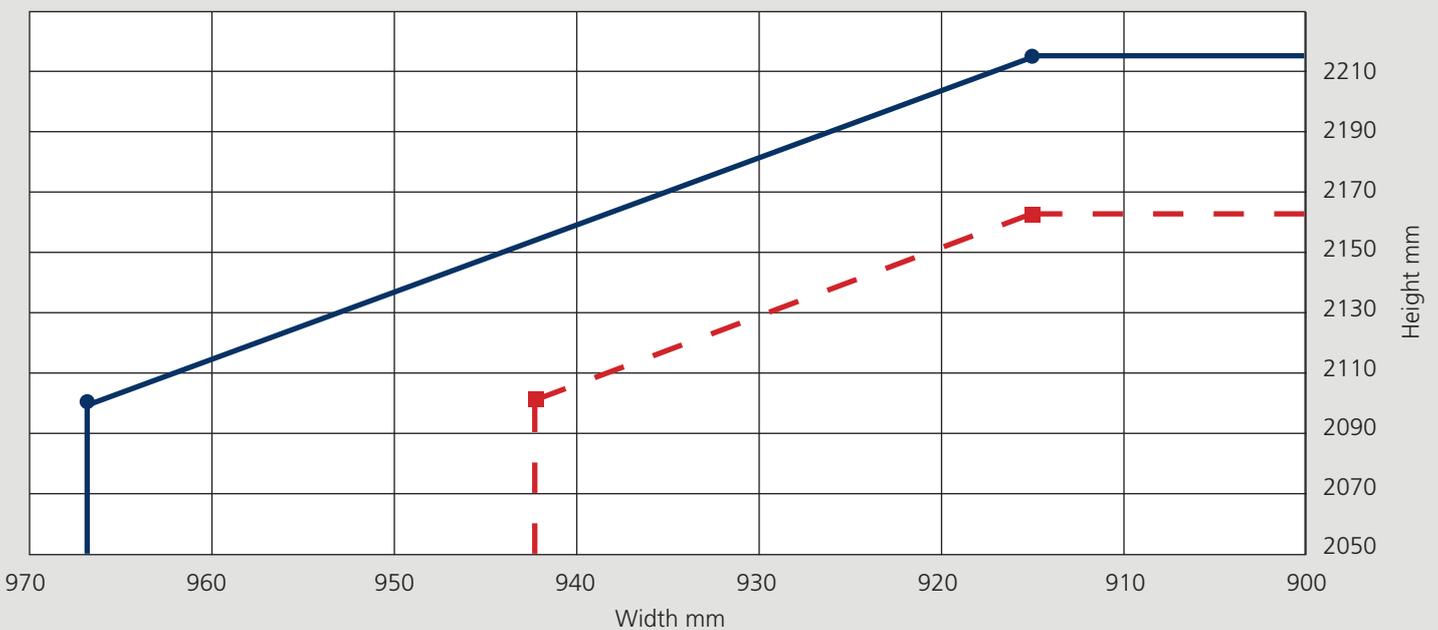
Latched & Unlatched Single & Double Acting **Single** Doorset

—●— LSASD
- - -■- - ULSASD & DASD



Flat Panelled Doorsets

Latched & Unlatched Single & Double Acting **Double** Doorset



Door Frames and Overpanels

Door frames can be manufactured from timbers with a minimum density of 510kg/m³, the minimum dimension of the frame should be 70mm x 32mm.

Frame jambs are to be fixed to the supporting structure using steel fixings at 500mm \varnothing . They must be compatible with the supporting structure and penetrate to a minimum depth of 50mm. Packers must be used at the frame head but no fixings are necessary.

Sealing to Structural Openings

Gaps < 20mm

1. Mineral Fibre capped with 10mm depth Pyromas®A both sides
2. Pyrospan® intumescent foam

Smoke Control

If the door-set is to provide smoke resistance in accordance with BS 476 Part 31 the following seals should be fitted.

1. Pyrostrip® Flexifin Twin
2. Pyrostrip® 100PSSSA
3. Enviroseal® ACS-1 and TD 5

Solid

Overpanels of the same construction as the door leaves may be used. A transom of the same section and material as used for the door frames must separate the leaf heads from the Overpanel. They must be mortice housed jointed with no gaps or butt jointed, screwed to the jambs and bonded with urea formaldehyde.

Overpanels must be fixed by steel screws through the rear of the frame penetrating at least 30mm centrally into all edges of the Overpanel. Fixing must be no more than 100mm in from each corner and at a maximum \varnothing of 250mm. The Intumescent Seals specified for the Jambs (see pg 11) must also be fitted to all concealed edges of the overpanel. The seals may be fitted in the overpanel edges or alternatively in the frame reveal.

Maximum overpanel heights are as follows:

- Single doorsets-800mm
- Double doorsets-500mm

Glazed Overpanels

Timber frame door-sets including a transom may have the overpanel section glazed in lieu of a section of door. 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: 2000. The timber frame must have a density of 640kg/m³ and the frame section must be 70mm x 44mm.

The glazing system employed must be Mann McGowan Pyroglaze® 30.

Maximum glazed overpanel height for both single & double doorsets is 600mm by the overall width of the door.

Adhesives

Panel facings and leaf framings require PVA adhesives to be used.

Glazing information – Vision Panels

Glazing

The maximum glazed area is 0.7m² and must meet the following criteria.

Glazing System

Pyroglaze 30 & Pyrostrip 300 as manufactured by Mann McGowan Ltd.

Glazing Beads

Manufactured from timber with a minimum density of 640kg/m³.

Splayed (chamfered) glazing beads must be used with glass types 1-4.

Assessed square hardwood beads may be substituted for splayed beads for use with glass types 5-16. Typical bead dimensions are shown in the drawings below.

Glazing Mouldings

Glazing mouldings may be used to match panel mouldings, providing they are hardwood, equal or greater in overall dimensions to that required by

the glazing system and have no more than 3mm of the top edge at 90 degrees to the glass face. The intumescent glazing material must protect the entire depth of the rear face and finish level with the top edge of the mouldings.

Glazing Bead Fixings

40mm x 2mm diameter steel pins or 40mm-No.8 woodscrews inserted at 35-40° to the vertical no more than 50mm from each corner and @ 150mm centres.

False Timber Beads

False timber beads may be bonded to the glass face with Pyromas®A or a fire rated silicone or a 2mm thick Pyrostrip®300 I SA self adhesive intumescent strip. Suitable glass for this application is restricted to types 5-16.

Glass Products

Glass Name	Manufacturer	Thickness mm
1 Pyroshield	Pilkington Group Ltd.	6 + 7
2 Pyroshield 2	Pilkington Group Ltd.	6 + 7
3 Pyran S	Schott UK Ltd.	6
4 Pyrostem	CGI Ltd.	6
5 Pyroguard EW 30	CGI Ltd.	7
6 Pyrobelite 7	AGC Flat Glass UK	7
7 Pyrodur 30 – 104	Pilkington Group Ltd.	7
8 Pyrodur 60-10	Pilkington Group Ltd.	10
9 Pyroguard EW Max	CGI Ltd.	11 **
10 Pyranova 15 – S2.0	Schott UK Ltd.	11
11 Contraflam Dr Lite	Vetrotech Saint-Gobain Int. AG	11
12 Pyrobelite 12	AGC Flat Glass UK	12
13 Pyrodur 60 – 20	Pilkington Group Ltd.	13
14 Pyroguard EI 30	CGI Ltd.	15
15 Pyrostop 30 -10	Pilkington Group Ltd.	15
16 Pyrobel 16	AGC Flat Glass UK	16

** The maximum glazed area is 0.52m²

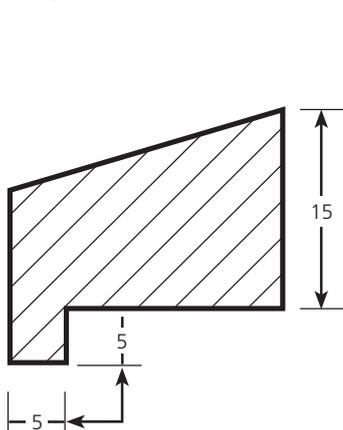
All the above glasses are available from Mann McGowan.



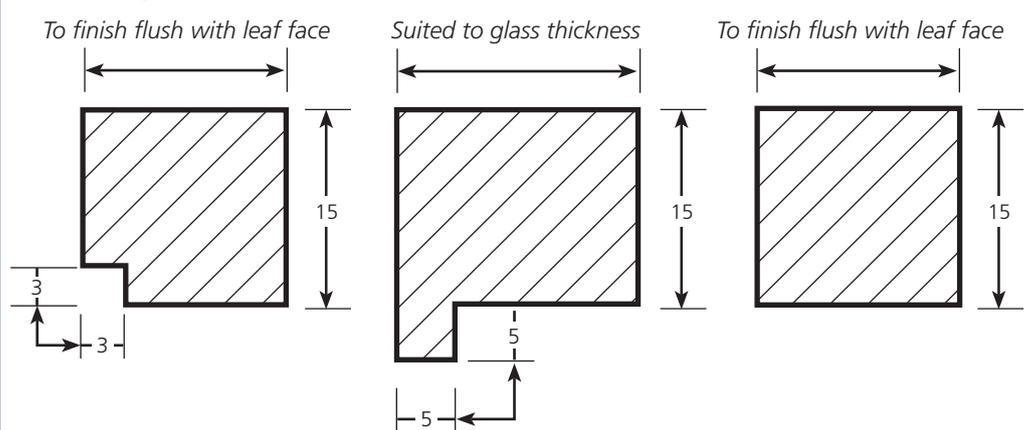
Image shows a chamfered glazing bead with Pyroglaze 30 positioned between the bead and glass, Pyrostrip 300ISA is also fitted around the lockcase.

Glazing Bead Profiles.

Splayed (chamfered) Beads



Square edged Beads



Intumescent Materials

It is important that the type, size and fitting detail for the Intumescent seals remains as tested. These products often exhibit significantly different characteristics, which could alter the performance obtained during test, and therefore they must not be considered interchangeable, irrespective of whether the product has been tested and the seal dimensions are maintained.

The following Mann McGowan Fabrications Ltd, Intumescent materials were tested for this door-set design.

FD30 (Fire only) Specification

<i>Element</i>	<i>Product</i>	<i>Size mm</i>	<i>Location</i>
Door frame head	Pyrostrip 100PSA	20 x 4	Fitted centrally in the frame reveal
Door frame jambs	Pyrostrip 100PSA	15 x 4	As above
Double Doorsets			
One meeting edge	2no. Pyrostrip 100PSA	10 x 4	Fitted 8mm apart, 8mm from the exposed face
Opposite meeting edge	1no. Pyrostrip 100PSA	10 x 4	Centrally fitted in the Meeting edge of the leaf

FD30(S) (Fire & Smoke control) Specification

<i>Element</i>	<i>Product</i>	<i>Size mm</i>	<i>Location</i>
Door frame head	Pyrostrip 100PSSSA	20 x 4	Fitted centrally in the frame reveal
Door frame jambs	Pyrostrip 100PSSSA	15 x 4	As above
Double Doorsets			
One meeting edge	2no. Pyrostrip 100PSA	10 x 4	Fitted 8mm apart, 8mm from the exposed face
Opposite meeting edge	1no. Pyrostrip 100PSSSA	10 x 4	Centrally fitted in the Meeting edge of the leaf

Common specification to both FD30 & FD30(S)

Around hinges	Fully interrupted		Hinge blade fully interrupts seal on frame jamb
Under hinge blade	None fitted		
Encasing latch body	None fitted		
Around latch forend	Fully interrupted		Latch forend fully interrupts seal on leaf edge
Under latch forend	None fitted		
Around latch keep	None fitted		
Under latch keep	Fully interrupted		Latch forend fully interrupts seal on leaf edge

Panel Perimeter

Flat	Pyrostrip 100ECSA	10 x 2	Fitted around panel perimeter
Raised + Fielded	Pyrostrip 100ECSA	18 x 2	Fitted around panel perimeter

Ironmongery and Hardware FD30

Hinges

Door leaf <2299mm high	3 hinges must be used
Door leaf >2300mm high	4 hinges must be used
Blade height	90-120mm
Blade width (excl. knuckle)	30-35mm
Fixings	Minimum of 4No- 30mm long-No steel woodscrews per blade
Materials	Steel, stainless steel or brass
Hinge Positions (to top of blade)	Top:120-150mm from the head Bottom:180mm-200mm from the foot 3rd and 4th; Equally spaced between the top and bottom
Intumescent	Pyrohinge® gaskets

Latches and Locks

Latches and locks must either be Eurospec tubular mortice latch (57mm high x 26mm wide) or alternatively components with the following specification are acceptable:

Maximum forends and strike plates	200mm high x 28mm wide x 4mm thick
Maximum body dimensions	18mm thick x 100mm wide x 160mm high
Intumescent Protection	Locks with face plates over 60 x 25mm must have the forend and keep fitted on to 1mm thick Pyrohinge® 300 I SA gaskets
Materials	All parts essential to the locking/latching action to be steel or stainless steel
Automatic Closing	Automatic closing devices must demonstrate contribution to the required integrity performance to this type of door-set design when tested to BS 476: Part 22: 1987 or BSEN 1634-1: 2000 <i>NB Concealed head mounted closers are not acceptable with Palusol®SW Panel doorsets.</i>
Intumescent Protection	The top pivots to floor-springs assemblies must be protected by lining all sides with 1mm thick Pyrohinge®300 I SA gaskets.
Flush Bolts	Flush bolts may be incorporated into the top and bottom of the meeting edge of the inactive leaf of a double doorset provided the following maximum dimensions are not exceeded; 200mm long x 20mm deep x 20mm wide.

Intumescent Protection	Pyrohinge®300 I
Pull Handles	These may be surface-fixed to the door leaf provided that they are steel or brass and length is limited to 1200mm between fixing points.
Push Plates/Kick Plates	These may be fitted to Palusol®SW Panelled doors provided that their fitting does not remove any part of the door leaf. Maximum area per door leaf 10%
Door Selectors	These may be freely used provided that they are not invasive in the leaf edges or door frames.
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. Lenses must be bedded in Pyromas®A intumescent sealant. The viewers must be fitted through solid framing members.
Acoustic Weather and Dust Seals	Mann McGowan Enviroseal® ACS 1 Mann McGowan Enviroseal® Flexifin Twin Mann McGowan Pyrostrip® Flexifin Twin
Threshold Seals	Mann McGowan Enviroseal® DD1
Letter Boxes/Plates	Mann McGowan Pyropost fitted through a 200mm wide mid rail and the margin of the leaf edges must be a minimum of 150mm. Alternatively Pyrostrip® Letter plate liner kits can be used with suitable letter plate flaps

Construction FD 60 + FD60(S)

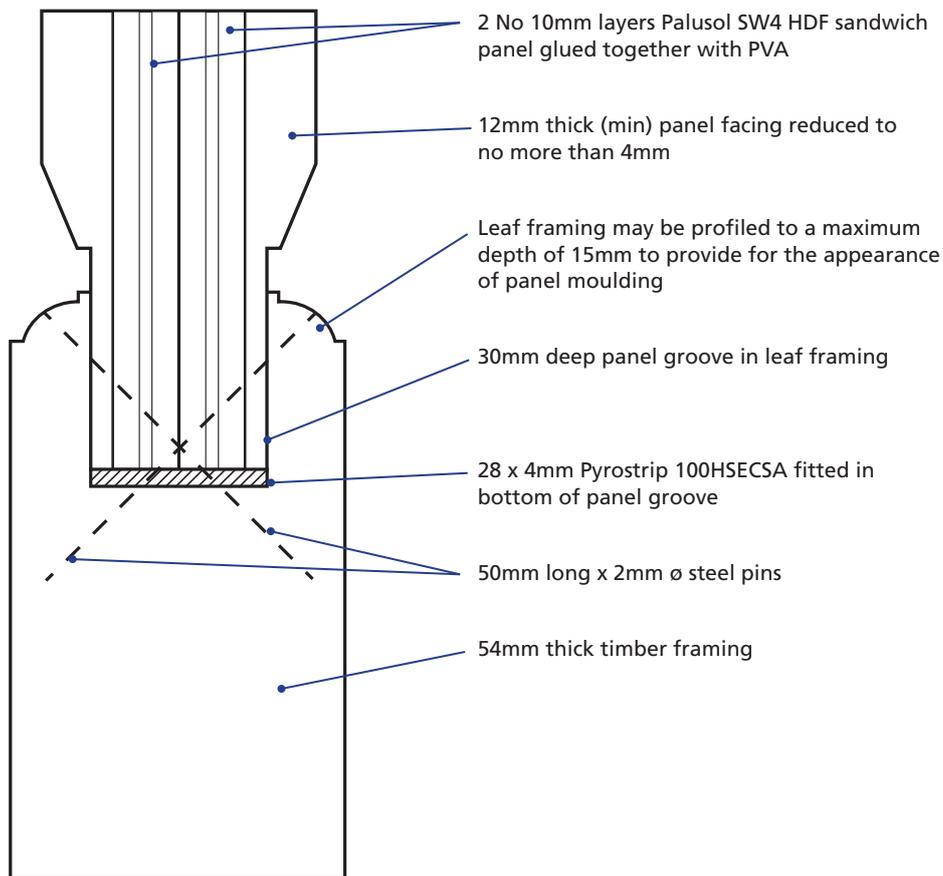
Raised and Fielded Panels – Design A. A minimum of 1 and maximum of 10 panels per doorleaf

Element		Species/type	Dimensions mm	Density kg/m ³
Stiles		Softwood or Hardwood	95mm wide x 54mm thick with 28mm wide x 34mm deep groove	510
Rails	Top	Softwood or Hardwood	95mm wide x 54mm thick with 28mm wide x 34mm deep groove	510
Rails	Middle Bottom		190mm wide x 54mm thick with 28mm wide x 34mm deep groove	
Rails	Intermediate		80mm x 54mm	
Panel	Core	2no.Palusol®SW HDF Laminated Boards glued together with PVA	20mm thick	1000kg/m ³
Panel	Facings	MDF Chipboard Plywood Timber	12mm thick reducing to 4mm thick at fielded areas	750 kg/m ³ 700 kg/m ³ 600 kg/m ³ 600 kg/m ³
Adhesive	Panel Facing	PVA	-	-
Panel Fixings	Core	50mm steel pins fitted 35-40° to the vertical fitted 40mm from corners + 145mm ϕ	50mm long	-

Flat Panels – Design B. A minimum of 4 and maximum of 10 panels per doorleaf

Element		Species/type	Dimensions mm	Density kg/m ³
Stiles		Softwood or Hardwood	95mm wide x 54mm thick with 28mm wide x 34mm deep groove	510
Rails	Top	Softwood or Hardwood	95mm wide x 54mm thick with 28mm wide x 34mm deep groove	510
Rails	Middle Bottom		190mm wide x 54mm thick with 28mm wide x 34mm deep groove	
Rails	Intermediate		80mm x 54mm	
Panel	Core	2no.Palusol®SW HDF Laminated Boards glued together with PVA	20mm thick	1000kg/m ³
Panel	Facings	MDF Chipboard Plywood Timber	4mm thick on both faces	750 kg/m ³ 700 kg/m ³ 600 kg/m ³ 600 kg/m ³
Adhesive	Panel Facing	PVA	-	-
Panel Fixings	Core	50mm steel pins fitted 35-40° to the vertical fitted 40mm from corners + 145mm ϕ	50mm long	-

Leaf Framing and Panel Construction



1. Panels must be retained in a minimum of 34mm deep grooves in the leaf framing;
2. The leaf framing may be profiled at the perimeter to replicate one of the tested profiles. The profile must be no deeper than 15mm (see diagram);
3. Pyrostrip 100HSECSA must be fitted into the bottom of the panel groove, see spec on page 10;
4. Additional planted beads/mouldings may be fitted as required;
5. The panel thickness housed into the framing must not exceed 28mm;
6. Flat panels are required to have additional facings to the core. See panel facings in Design B on page 14 for detail.
7. Panels must be fixed with 50mm long steel pins inserted at 35-40° to the vertical, fitted 40mm from the corners and at 145mm centres.
8. The following additional facing materials are permitted for this doorset design since these elements would degrade rapidly under test conditions without significant effect; Timber veneers, foils and plastic laminates up to 2mm thick;
9. Metallic facings are not assessed.

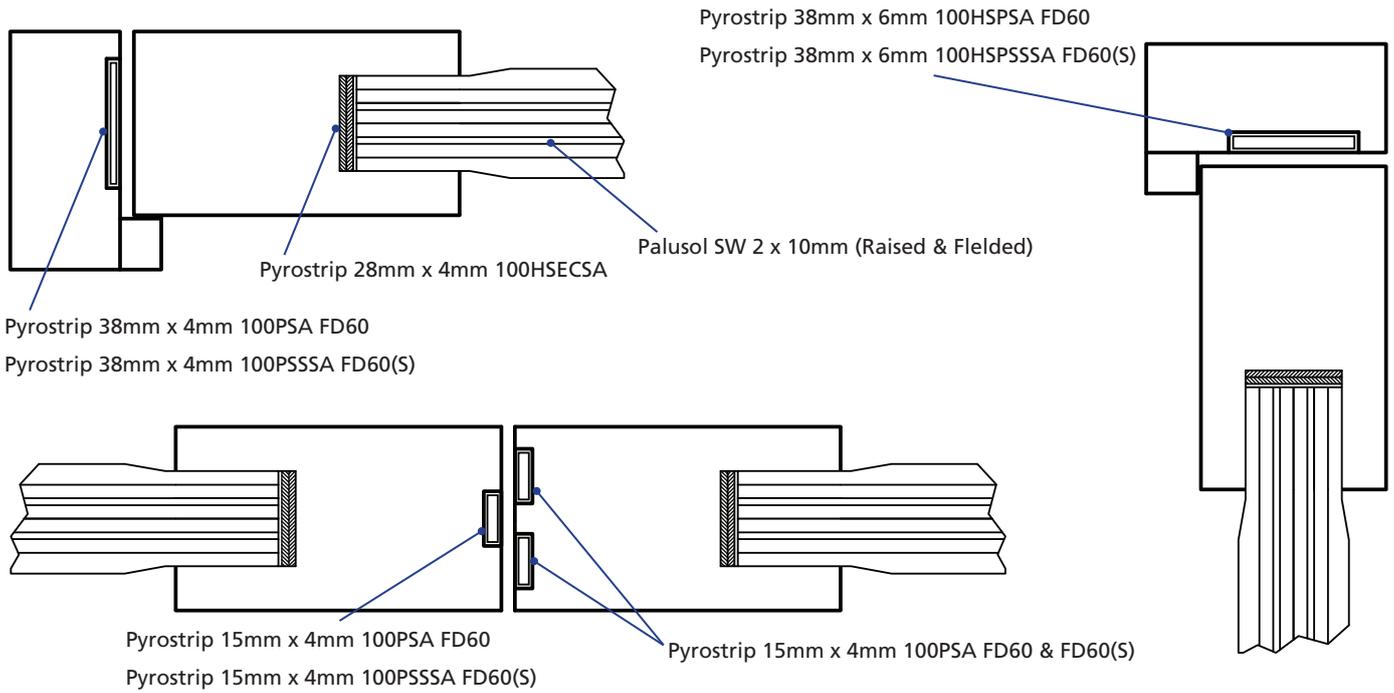
Key to abbreviations on following pages

LSASD & ULSASD	Latched and unlatched single acting single doorset
DASD	Double acting single doorset
LSADD & ULSADD	Latched and unlatched single acting double doorset
DADD	Double acting double doorset

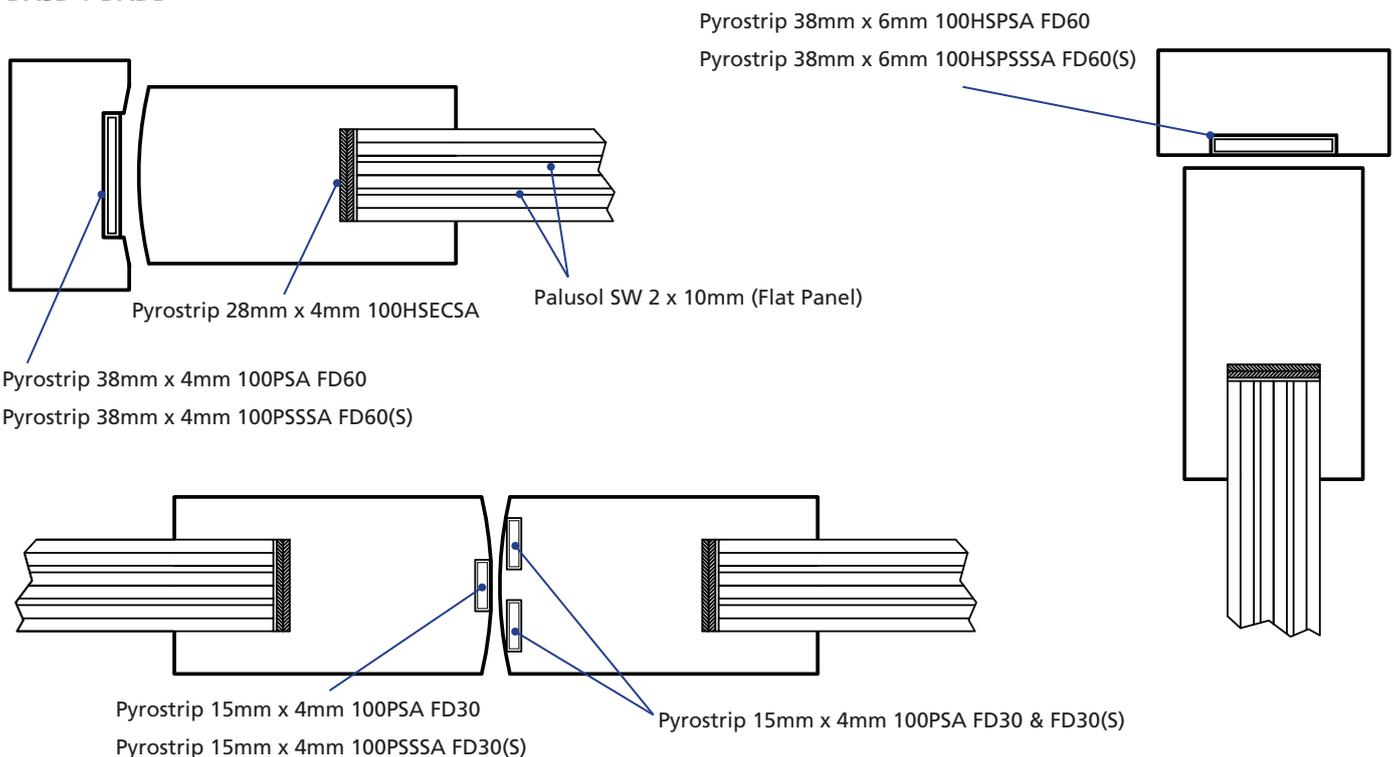
Palusol®SW Doorset Configurations

Intumescent Detail for both Raised & Fielded Doorsets and Flat Panelled Doorsets

LSASD + ULSASD + LSADD + ULSADD



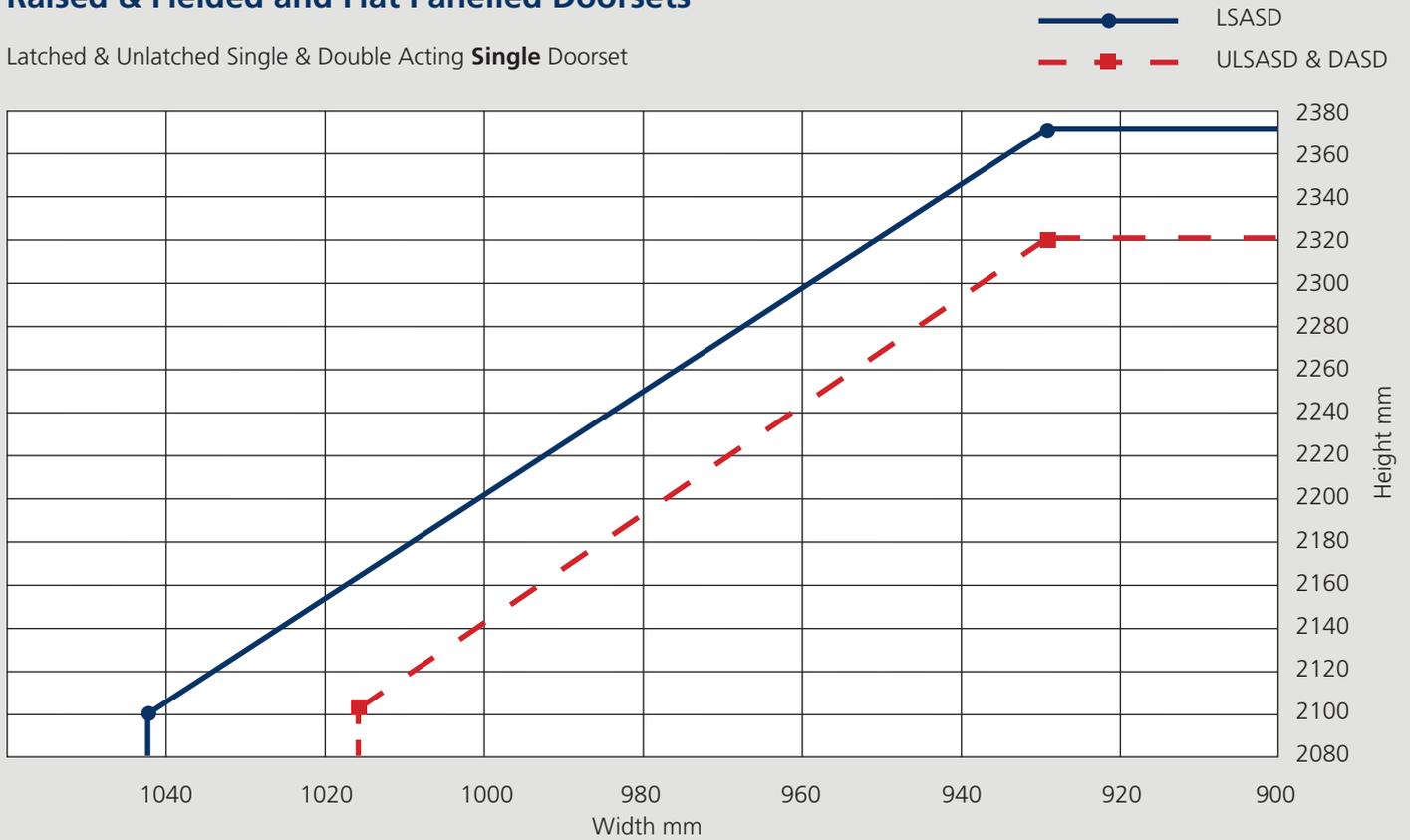
DASD + DADD



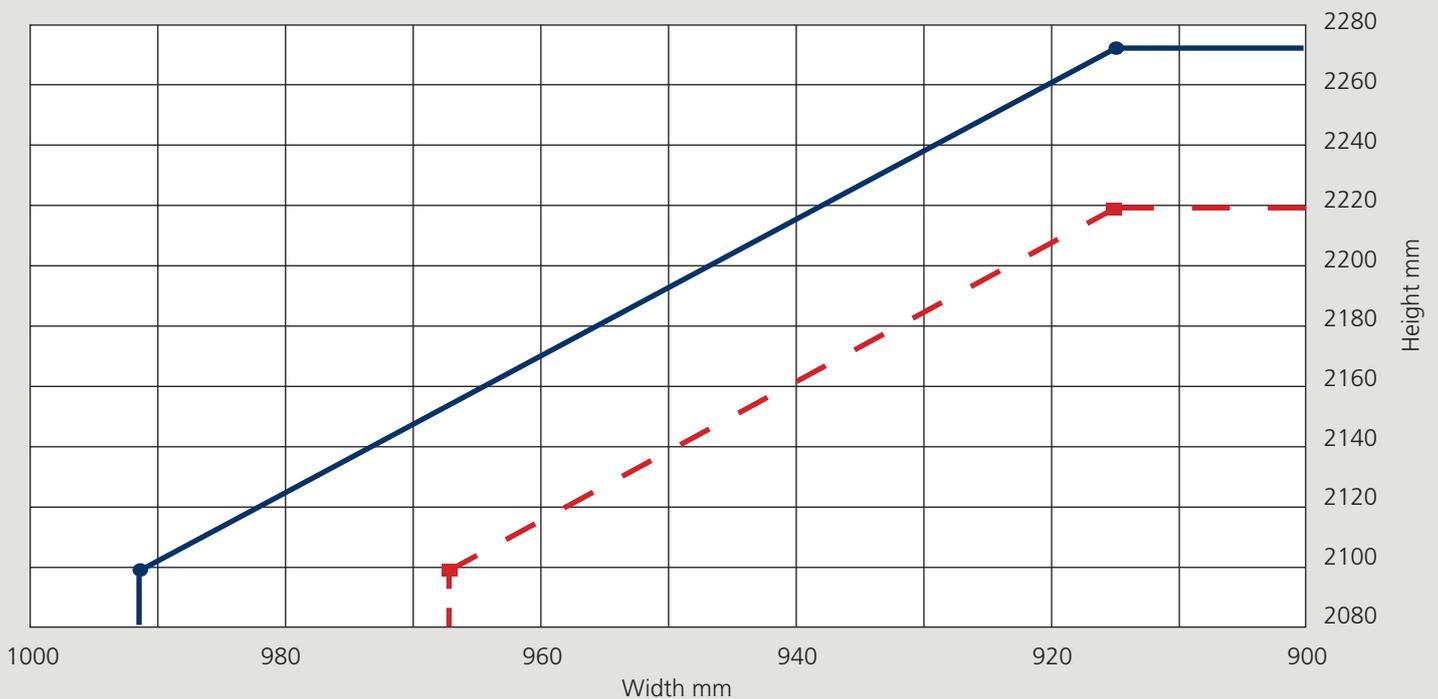
Maximum Doorleaf Dimensions

Raised & Fielded and Flat Panelled Doorsets

Latched & Unlatched Single & Double Acting **Single** Doorset



Latched & Unlatched Single & Double Acting **Double** Doorset



Door Frames and Overpanels

Door frames can be manufactured from timbers with a minimum density of 510kg/m³. The minimum dimension of the frame should be 70mm x 32mm.

Frame jambs are to be fixed to the supporting structure using steel fixings at 500mm \varnothing . They must be compatible with the supporting structure and penetrate to a minimum depth of 50mm. Packers must be used at the frame head but no fixings are necessary.

Sealing to Structural Openings

Gaps < 20mm

1. Mineral Fibre capped with 10mm depth Pyromas®A both sides
2. Pyrospan® intumescent foam

Smoke Control

If the door-set is to provide smoke resistance in accordance with BS 476 Part 31 the following seals should be fitted.

1. Pyrostrip® Flexifin Twin
2. Pyrostrip® 100PSSSA
3. Enviroseal® ACS-1 and TD 5

Solid

Overpanels of the same construction as the door leaves may be used. A transom of the same section and material as used for the door frames must separate the leaf heads from the Overpanel. They must be mortice housed jointed with no gaps or butt jointed, screwed to the jambs and bonded with urea formaldehyde.

Overpanels must be fixed by steel screws through the rear of the frame penetrating at least 30mm centrally into all edges of the Overpanel. Fixing must be no more than 100mm in from each corner and at a maximum \varnothing of 250mm. The intumescent Seals specified for the jambs (see page 20) must be fitted to all concealed edges of the overpanel. The seals may be fitted in the overpanel edges or alternatively in the frame reveal.

Maximum overpanel heights are as follows:

- Single doorsets-800mm
- Double doorsets-500mm

Glazed Overpanels

Timber frame door-sets including a transom may have the overpanel section glazed in lieu of a section of door. 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: 2000. The timber frame must have a density of 640kg/m³ and the frame section must be 70mm x 44mm. The glazing system employed must be Mann McGowan Pyroglaze® 60. Please consult our technical department for maximum sizes permissible.

Adhesives

Panel facings and leaf framing requires PVA adhesive to be used .

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Glazing information – Vision Panels

Glazing

The maximum glazed area is 0.1m² and must meet the following criteria.

Glazing System

Pyroglaze 60 as manufactured by Mann McGowan

Glazing Beads

Manufactured from timber with a minimum density of 640kg/m³

Splayed (chamfered) glazing beads must be used when glazing with the following glass types: -

6 + 7mm Pyroshield

6mm Pyran S

7mm Pyroguard

12mm Pyrobelite

Typical bead dimensions are shown in the drawings below.

Assessed square hardwood beads maybe substituted for splayed beads when glazing with glass types 5-7.

Glazing Bead Fixings

60mm x 2mm diameter steel pins or 60mm-No.8 woodscrews inserted at 35-40° to the vertical no more than 50mm from each corner and @ 150mm centres.

Glazing Mouldings

Glazing mouldings maybe used to match panel mouldings, providing they are hardwood, equal or greater in overall dimensions to that required by the glazing system and have no more than 3mm of the top edge at 90 degrees to the glass face. The intumescent glazing material must protect the entire depth of the rear face and finish level with the top edge of the mouldings.

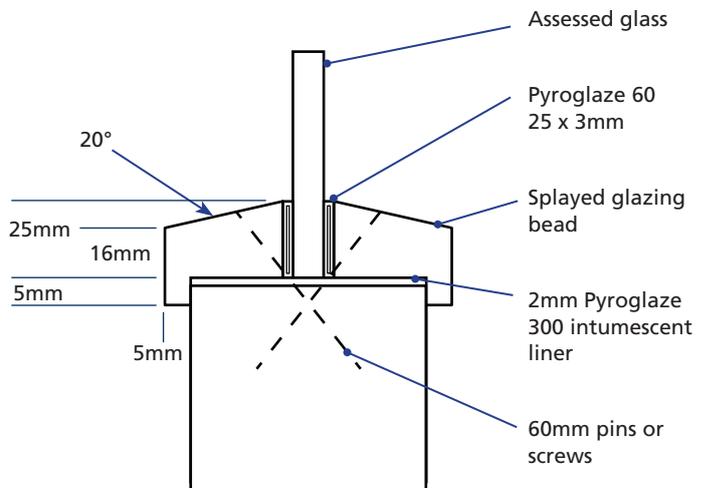
False Timber Beads

False timber beads maybe bonded to the glass face with Pyromas[®]A or a fire rated silicone or a 2mm thick Pyrostrip[®]300 I SA self adhesive intumescent strip. Suitable glass for this application is restricted to types 5-16.

Glass Products

Glass Name	Manufacturer	Thickness mm
1. Pyroshield	Pilkington Group Ltd.	6 + 7
2. Pyran S	Schott UK Ltd.	6
3. Pyroguard	CGI Ltd.	11
4. Pyrobelite 12	AGC Flat Glass UK	12
5. Pyrobel 16	AGC Flat Glass UK	16
6. Pyrostop 30 -10	Pilkington Group Ltd.	15
7. Swissflam Lite	Vetrotech Saint-Gobain Int. AG	15

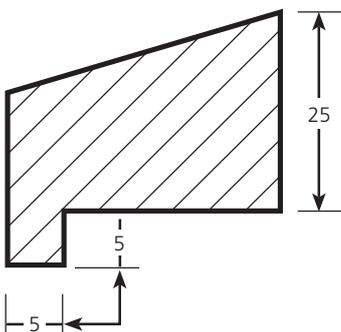
All the above glasses available from Mann McGowan



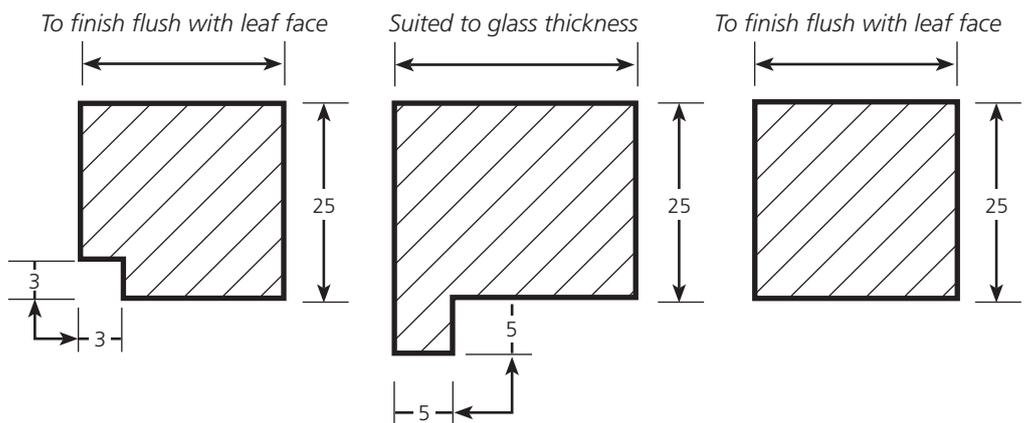
Mann McGowan Pyroglaze 60

Glazing Bead Profiles.

Splayed (chamfered) Beads



Square edged Beads



Intumescent Materials

Intumescent Materials

It is important that the type, size and fitting detail for the Intumescent seals remains as tested. These products often exhibit significantly different characteristics, which could alter the performance obtained during test, and therefore they must not be considered interchangeable, irrespective of whether the product has been tested and the seal dimensions are maintained.

The following Mann McGowan Fabrications Ltd, Intumescent materials were tested for this doorset design.

FD60 (fire only) Specification

Element	Product	Size mm	Location
Door frame head	Pyrostrip 100HSPSA	38 x 6	Fitted centrally in the frame reveal
Door frame jambs	Pyrostrip 100PSA	38 x 4	Fitted centrally in the frame reveal
Double Doorsets			
One meeting edge	2No. Pyrostrip 100PSA	15 x 4	Fitted 10mm apart, 7mm from the exposed face
Opposite meeting edge	1no. Pyrostrip 100PSA	15 x 4	Fitted centrally in the meeting edge of the leaf

FD60(S) (fire and smoke control) Specification

Door frame head	Pyrostrip 100HSPSSSA	38 x 6	Fitted centrally in the frame reveal
Door frame jambs	Pyrostrip 100PSSSA	38 x 4	Fitted centrally in the frame reveal
Double Doorsets			
One meeting edge	2No. Pyrostrip 100PSA	15 x 4	Fitted 10mm apart, 7mm from the exposed face
Opposite meeting edge	1no. Pyrostrip 100PSSSA	15 x 4	Fitted centrally in the meeting edge of the leaf

Common Specification to both FD60 and FD60(S)

Around hinges	Partially interrupted		Hinge blade partially interrupts seal on frame with 12mm left continuous
Under hinge blade	Pyrostrip 300ISA	1mm thick	Fitted under the hinge blade on frame and jamb
Encasing latch body	Pyrostrip 300ISA	1mm thick	Fitted around the body of the latch
Around latch forend	Fully interrupted		Latch forend fully interrupts seal on edge of right leaf
Under latch forend	Pyrostrip 300ISA	1mm thick	Fitted under the latch forend
Around latch keep	Partially interrupted		Latch keep fully interrupts first seal and leaves 7mm of second seal continuous
Under latch keep	Pyrostrip 300ISA	1mm thick	Fitted under the latch keep
Panel Perimeter			
Flat Panels	Pyrostrip 100HSECSA	28 x 4	Fitted around panel perimeter
Raised and Fielded	Pyrostrip 100HSECSA	28 x 4	Fitted around panel perimeter

Ironmongery and Hardware

Hinges

Door leaf <2299mm high	3 hinges must be used.
Door leaf >2300mm high	4 hinges must be used.
Blade height	90-120mm.
Blade width (excl. knuckle)	30-35mm.
Fixings	Minimum of 4No- 30mm long-No steel woodscrews per blade.
Materials	Steel, stainless steel or brass.
Hinge Positions (to top of blade)	Top:120-150mm from the head Bottom:180mm-200mm from the foot 3rd and 4th; Equally spaced between the top and bottom
Intumescent	Pyrohinge®300 I gaskets.

Latches and Locks

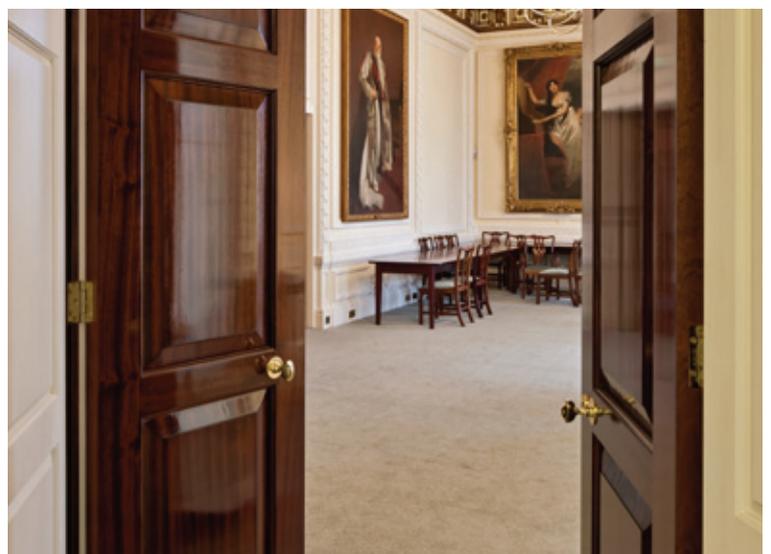
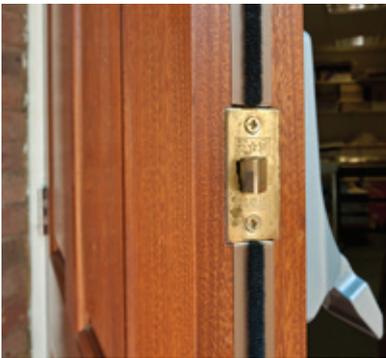
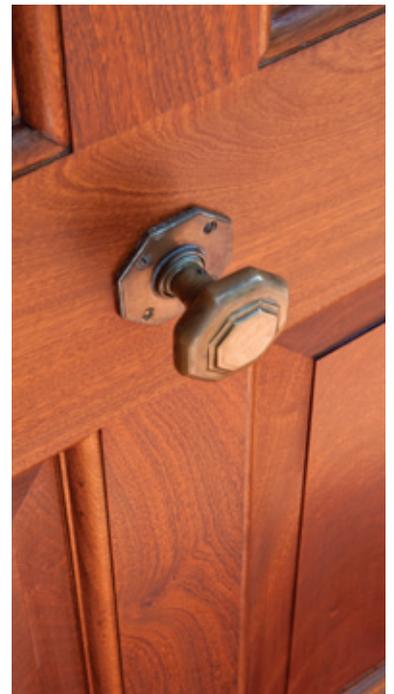
Maximum forends and strike plates	200mm high x 28mm wide x 4mm thick.
Maximum body dimensions	18mm thick x 100mm wide x 160mm high.
Materials	All parts essential to the locking/latching action to be steel or stainless steel.
Intumescent Protection	Pyrohinge®300 I 1mm thick encasing the body and under the forend and keep in addition to 7mm of edge seal remaining continuous.
Automatic Closing	Automatic closing devices must demonstrate contribution to the required integrity performance to this type of doorset design when tested to BS 476: Part 22: 1987 or BSEN 1634-1: 2000. <i>NB Concealed head mounted closers are not acceptable with Palusol®SW Panel doorsets.</i>
Intumescent Protection	The top pivots to floor-springs assemblies must be protected by lining all sides with 1mm thick Pyrohinge®300 I SA gaskets.

Continues overleaf...

Ironmongery and Hardware, cont'd

Flush Bolts	Flush bolts may be incorporated into the top and bottom of the meeting edge of the inactive leaf of a double doorset provided the following maximum dimensions are not exceeded; 200mm long x 20mm deep x 20mm wide.
Intumescent Protection	Flush bolts must be steel or brass and the mortice must be tight to the mechanism as is compatible with its operation. All edges of the mortice must be lined with 2mm thick Pyrohinge 300 I SA intumescent gaskets.
Pull Handles	These must be surface-fixed to the door leaf provided they are steel or brass and the length is limited to 1200mm between fixing points. No additional intumescent protection is required provided that the hole for the bolt through the leaf is tight.
Push Plates/Kick Plates	These may be fitted to Palusol®SW Panelled doors provided that their fitting does not remove any part of the door leaf. Maximum area per door leaf 10%.
Door Selectors	These may be freely used provided that they are not invasive in the leaf edges or door frames.
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. Lenses must be bedded in Pyromas®A intumescent sealant. The viewers must be fitted through solid framing members.
Acoustic Weather and Dust Seals	Mann McGowan Enviroseal® ACS 1 Mann McGowan Enviroseal® Flexifin Twin Mann McGowan Pyrostrip® Flexifin Twin When these are fitted they must not hinder the self closing function of the door leaves.
Threshold Seals	Mann McGowan Enviroseal® DD1.
Letter Boxes Plates	Use Mann McGowan Pyrostrip® letter plate liners. The top of the letter plate must be located 1000mm from the threshold. Other letter boxes/plates may be fitted. Please contact our technical department on T 00 44 (0) 1252 333601 or technical@mannmcgowan.co.uk

Sample Projects Gallery





MANN McGOWAN

Intumescent Fire Smoke & Acoustic Seals

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