



CERTIFICATE OF APPROVAL

No CF 291

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

SCHOTT Technical Glass Solutions GmbH
Otto-Schott-Straße 13,
D-07745 Jena, Germany
Tel: +49 (0)3641 681 4666

Have been assessed against the requirements of the Technical Schedule(s)
denoted below and are approved for use subject to the conditions
appended hereto:

CERTIFIED PRODUCT
PYRAN S Fire Resisting Glass

TECHNICAL SCHEDULE
TS 25 Fire Resistant Glass,
Glazing Systems and Materials

Signed and sealed for and on behalf of Warringtonfire Testing and Certification Limited

Paul Duggan
Certification Manager



Issued: 9th September 2002
Reissued: 28th November 2023
Valid to: 27th November 2028





CERTIFICATE No CF 291

SCHOTT Technical Glass Solutions GmbH

PYRAN S FIRE RESISTING GLASS

This Certificate of Approval relates to the fire resistance of PYRAN S glass when used in the following applications, as defined in BS 476: Part 22: 1987 subject to the undermentioned conditions.

Application	Fire Resistance Performance Integrity - (mins)	Page No.
Timber Screens	30	5
Timber Screens	60	6
Double Glazed Units in Timber Screens	30 – 60	7-8
Triple Glazed Units in Timber Screens	30	9-10
Timber Doorsets (inc. IGU's)	30	11-14
'Firestile' Doorsets	30	15-18
Timber Doorsets	60	19
Timber Doorsets	90	20
Steel Screens	30 – 60 – 90 – 120	22
Steel Doorsets	30 – 60 – 90 – 120	23-25
Steel Doorsets including IGU's	30 – 60 – 90 – 120	26-28
IGU's in Steel Screens	30 – 60 – 90 - 120	29-32
IGU's incorporating Venetian blinds in Steel Screens	30	33
Stepped Laminated Pyran S in Steel Screens	120	34
Butt-Jointed Screens	30	35-37
Butt-Jointed Screens	60	38-39
Structural Glazing	30	40-42
Horizontal glazing	30	44
Smoke screens	30 - 60	44-46

This product is approved on the basis of:

- i) Initial type testing.
- ii) A design appraisal against TS25.
- iii) Certification of quality management system to ISO 9001: 2008.
- iv) Inspection and surveillance of factory production control.
- v) Audit testing.

This Certificate of Approval must be read in conjunction with CERTIFIRE Technical Schedule TS25, Fire Resistant Glass, Glazing Systems and materials.

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General Requirements

Where the glass is installed in a timber or steel framed screen, the orientation of the screen shall be no more than $\pm 10^\circ$ from the vertical.

There is no restriction to the direction of exposure for the glass i.e. the glass is symmetrical. Orientation may, however, be restricted by the requirements of a non-symmetrical framing system or certain double glazed unit specifications.

The edge cover to each pane shall be 25 mm maximum and 10 mm minimum.

The glass is approved in a nominal thickness of 6, 8, 10 or 12 mm.

Bevelled PYRAN is suitable for timber or steel frames and doors provided the outer thickness remains a minimum of 6 mm thick.

Shaped glass (circles, triangles etc.) is permitted for steel framed systems only.

Multi-paned Systems PYRAN S products may be installed into multi-paned glazed screens incorporating transoms and mullions unless indicated otherwise.

Silk Screening and Sand-Blasting

The PYRAN S glass (6, 8, 10 or 12 mm thick) may be provided with silk screen printing to either face within both single and double glazed systems. A limited range of colours are available. The printing may account for any area of the glass.

Similarly, sand-blasting may be included to either face of the (6, 8, 10 or 12 mm) PYRAN S glass within both single and double glazed systems. The sand-blasting may account for any area of the glass.

Laminated PYRAN S

The PYRAN S glass (6, 8, 10 or 12 mm) may be laminated to float glass having a minimum thickness of 3 mm and a maximum thickness of 12 mm using an interlayer with 0.38mm minimum thickness and 2.28 mm maximum thickness with the laminated glass unit orientated such that the PYRAN glass faces the side of the assembly to be fire protected (i.e PYRAN S to non-fire risk side). Where this side is not known, laminated glass shall not be used.

PYRAN S, when laminated as described above, may be used in any timber framed assemblies for up to 60 minutes or steel framed assemblies for up to 120 minutes as covered by this certificate but subject to a maximum pane size of 4.8 m². Laminated PYRAN S shall not be used in any butt-joint system. There are two versions of laminated PYRAN; conventional laminates as described above or stepped laminates as described on page 30.

Additionally, a silk sheet material may be included within the laminate/interlayer.

Anti-reflective PYRAN S AR

The PYRAN S glass (8 and 10 mm thick) may incorporate an anti-reflective coating.

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Interlayers

PYRAN S may be laminated with LC or SPD SmartGlass interlayer for applications in timber or steel framed assemblies for up to 60 or 120 minutes respectively and as a component within IGU's up to 90 minutes, subject to the conditions specified in this certificate relating to the use of laminated glass (with specific regard to exposure direction).

Other Glass Combinations

The OKALUX range of IGU's may be upgraded to 60/0 fire rated IGU's with the addition of 6mm PYRAN S to the non risk face. OKALUX IGU's should not be used where the fire direction cannot be defined.

Application of Films to Exposed Face of Glass for up to 120 minutes integrity

This supplement covers application of films to 6, 8, 10 and 12 mm thick PYRAN S.

In addition to the scope included within the CF291 Certificate: The glass may have the following films applied to the known fire risk side only:

- 3M Ultra S400
- 3M Safety S 70
- Lintec Graphic E-2200ZC
- Madico LCL 800 XSR

Alternative films of Polyester or Polyurethane material may also be applied to the face of the glass. Maximum film thickness is 1 mm. Therefore total thickness of PYRAN S will increase to 7, 9, 11 or 13mm.

If the fire risk may be from either side, or it cannot be determined which side is the fire risk side, then films shall not be applied.

There is no restriction to pane size, frame type or fire resistance periods imposed in this supplement.

Decorative Metal Rails

Decorative metal rails may be surface bonded to the face of the PYRAN S glass using 3M VHB double sided self-adhesive tape. Bars should be surface mounted only and should not be trapped under beads. Bars may be applied to either/both sides of the glass regardless of exposure direction.

The product development of PYRAN S is ongoing and we recommend that you check the SCHOTT website (www.SCHOTT.com/uk) for the latest version of the CERTIFIRE Certificate.

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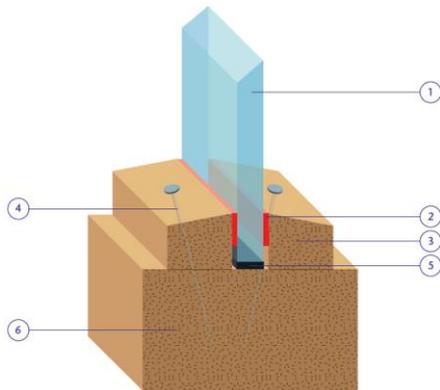
CERTIFICATE No CF 291 SCHOTT Technical Glass Solutions GmbH

PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in timber framed screens for periods of 30 minutes integrity

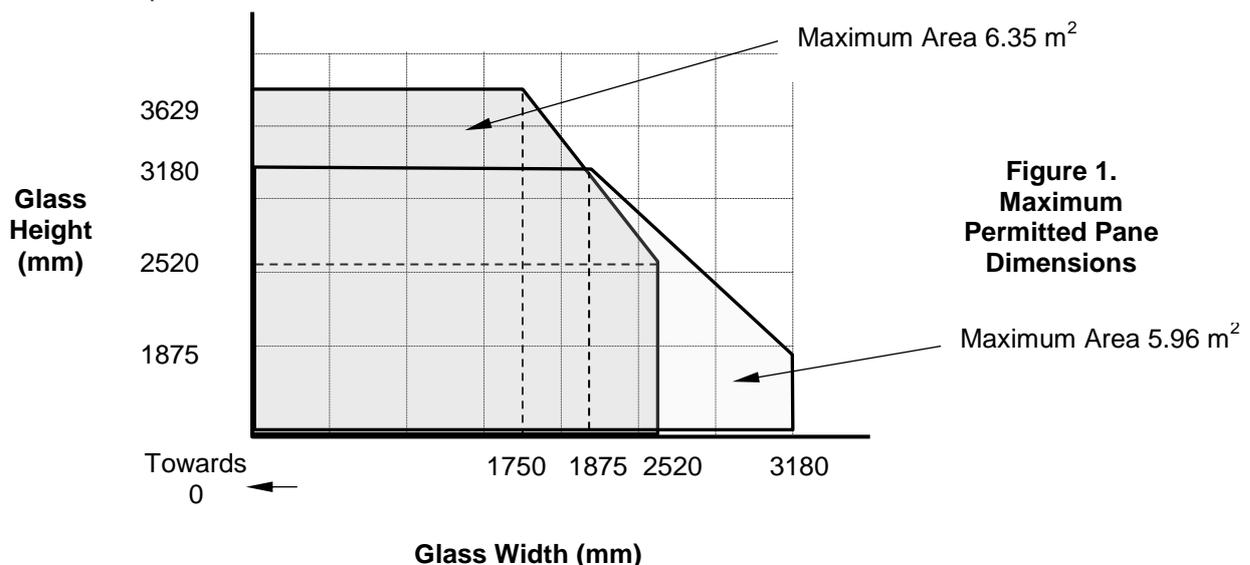
The glass shall be glazed utilising the following basic specification:

The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided.



- 1 PYRAN S
- 2 12 mm by 3 mm Hodgson Sealants 'Firestrip 30' seal
- 3 25 mm wide by 21.5 mm high (with 10° chamfer minimum) hardwood glazing beads, minimum density 650 kg/m³
- 4 50 mm long steel pins or screws at 150 mm centres (30° to glass)
- 5 Setting blocks
- 6 80 mm by 45 mm (minimum) softwood or hardwood frame, minimum density 450 kg/m³

Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 1 below, when used in conjunction with above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



**Figure 1.
Maximum
Permitted Pane
Dimensions**

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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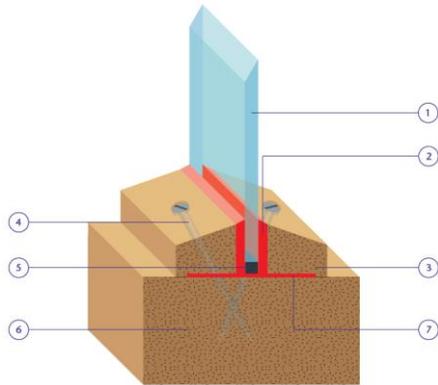
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in timber framed screens for periods of 60 minutes integrity

The glass shall be glazed utilising the following specification:

The screens shall be no greater than 4000 mm high unless suitable intermediate supports and/or fire protected structural supports are provided. Transoms and/or mullions are permitted.



- 1 PYRAN S
- 2 25 mm by 5 mm Sealmaster Fireglaze 2000 strip compressed to nominally 4 mm
- 3 25 mm wide by 27 mm high (with 30° chamfer minimum) hardwood glazing beads, minimum density 710 kg/m³
- 4 63mm long steel screws at 150mm centres (35° to glass)
- 5 Sealmaster Fireglaze compound nominally 6 mm wide by 5 mm thick
- 6 95 mm by 45 mm (minimum) hardwood frame, minimum density 640 kg/m³, (increase depth of frame by 2, 4 or 6 mm for 8,10 and 12 mm glass respectively)
- 7 54 mm wide by 2 mm thick Sealmaster 'GL60' intumescent liner

Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 2 below, when used in conjunction with above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

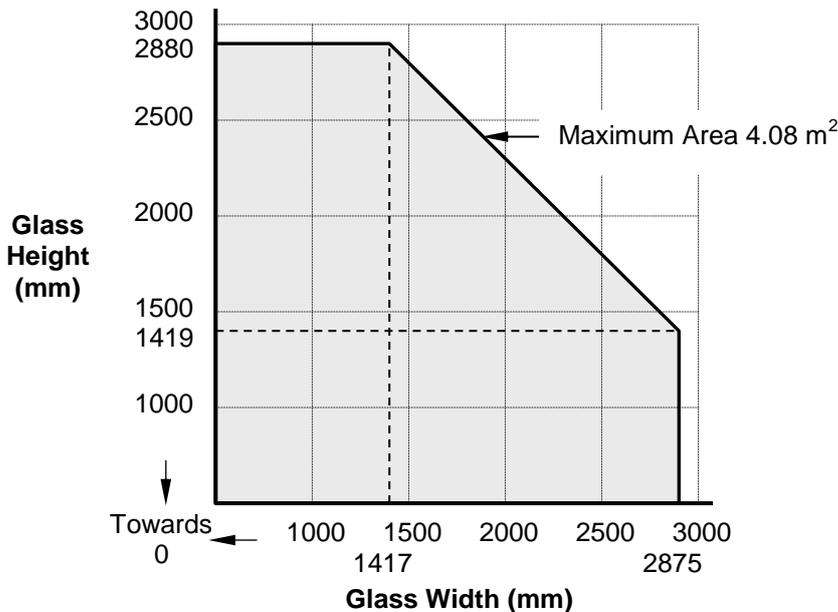


Figure 2.
Maximum Permitted
Pane Dimensions

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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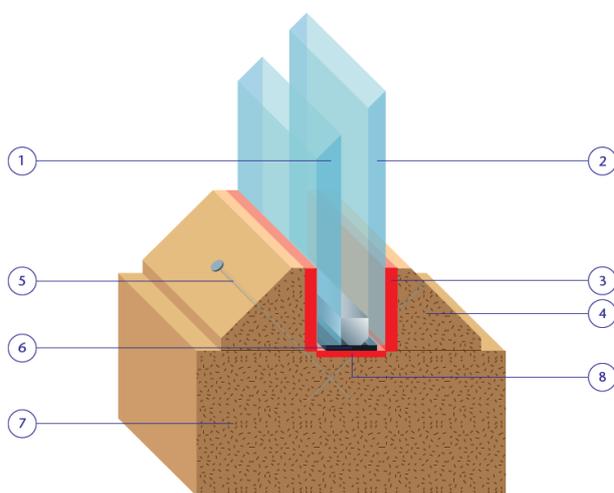
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Double Glazed Units in timber framed screens for periods of 30 and 60 minutes integrity

The glass shall be glazed utilising the following basic specification:

The screens shall not include transom members.



- 1 PYRAN S
- 2 Minimum 4 mm thick glass of any type including toughened, laminated, annealed or Low E glass
- 3 25 mm by 4 mm Mann McGowan Pyrostrip 500 seal
- 4 25 mm wide by 25 mm high (with 45° chamfer minimum) hardwood glazing beads, minimum density 660 kg/m³
- 5 50 mm long steel pins or screws at 100 mm centres (45° to glass)
- 6 Setting blocks
- 7 94 mm by 44 mm (minimum) hardwood frame, minimum density 660 kg/m³
- 8 20 mm by 2 mm Pyrostrip 500 used at perimeter of unit (against edge of glass)

(1) Double glazed units comprising laminated glass should not be used where the fire risk side is unknown or where the fire risk is to the PYRAN S side of the assembly.

(2) 'Low E' coatings may only be utilised within units where the PYRAN S is to the non-fire side of the assembly. The 'Low E' coating shall be applied to 'Surface 3' of the assembly only, i.e the inner face of the secondary/non-PYRAN S pane.

Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figures 3 and 4 (see overleaf), when used in conjunction with above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Double Glazed Units in timber framed screens for periods of 30 and 60 minutes integrity (continued)

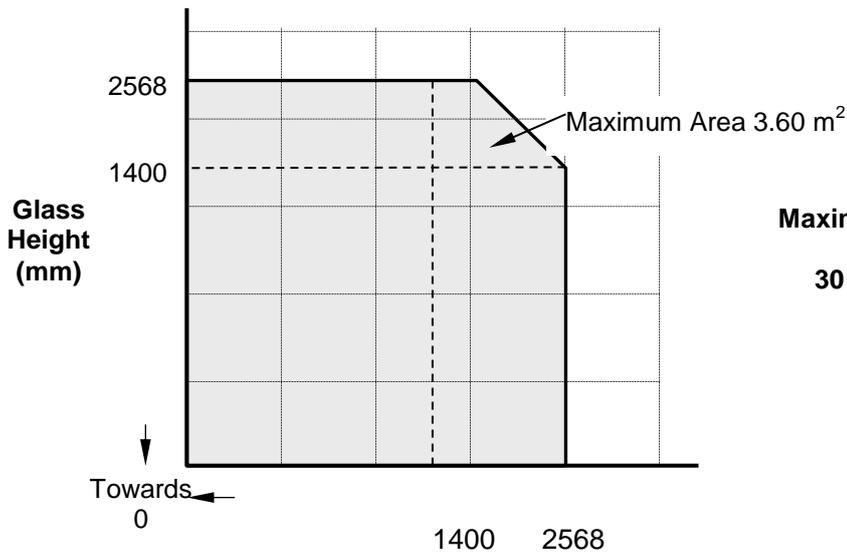


Figure 3.
Maximum Permitted Pane
Dimensions
30 minutes Integrity

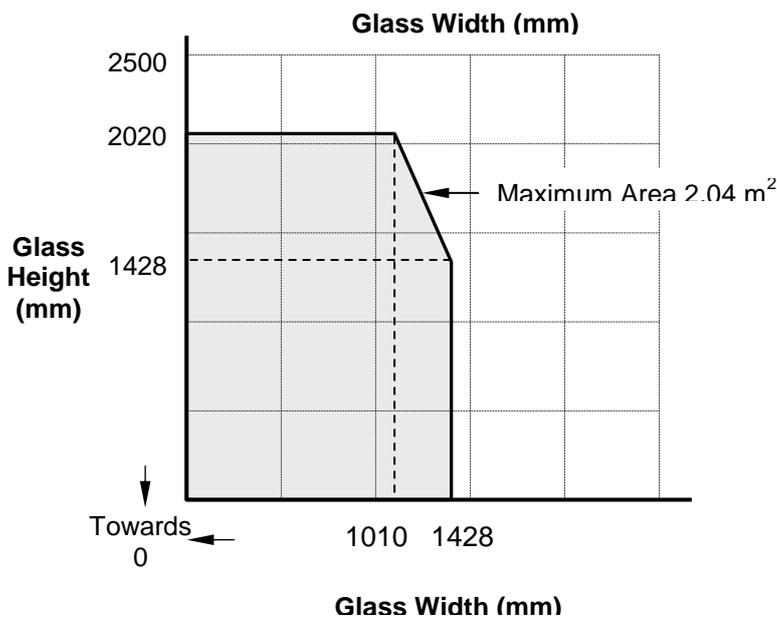


Figure 4.
Maximum Permitted Pane
Dimensions
60 minutes Integrity

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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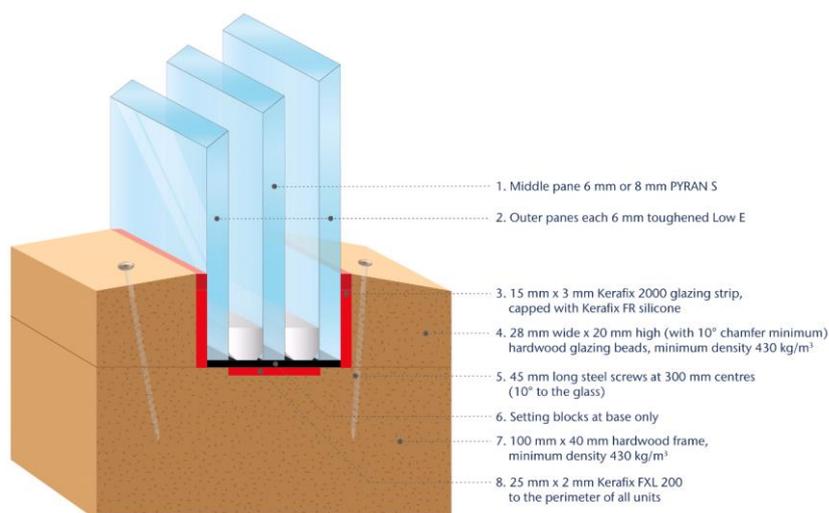
SCHOTT Technical Glass Solutions GmbH

PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Triple Glazed Units in timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:

The screens shall not include transom members.



⁽¹⁾ Double glazed units comprising laminated glass should not be used where the fire risk side is unknown or where the fire risk is to the PYRAN S side of the assembly.

⁽²⁾ The 'Low E' coating shall be applied to the inner face of each secondary/non-PYRAN S pane.

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 5 & 6 (see overleaf), when used in conjunction with above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. NOTE: different pane dimensions are given for 6 mm and 8 mm PYRAN S used as the inner pane.

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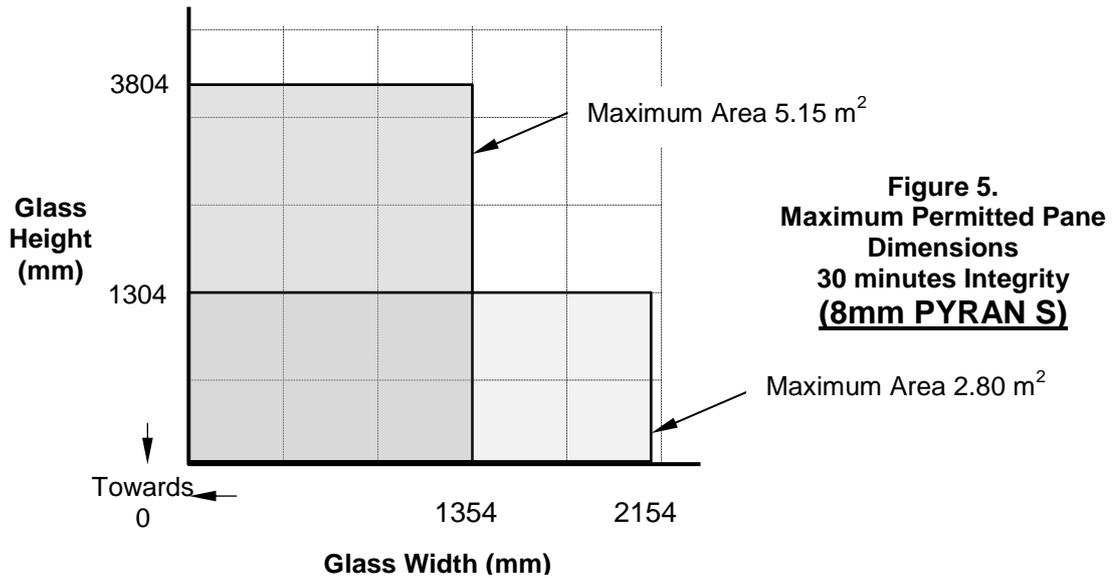
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Triple Glazed Units in timber framed screens for periods of 30 minutes integrity (continued)



PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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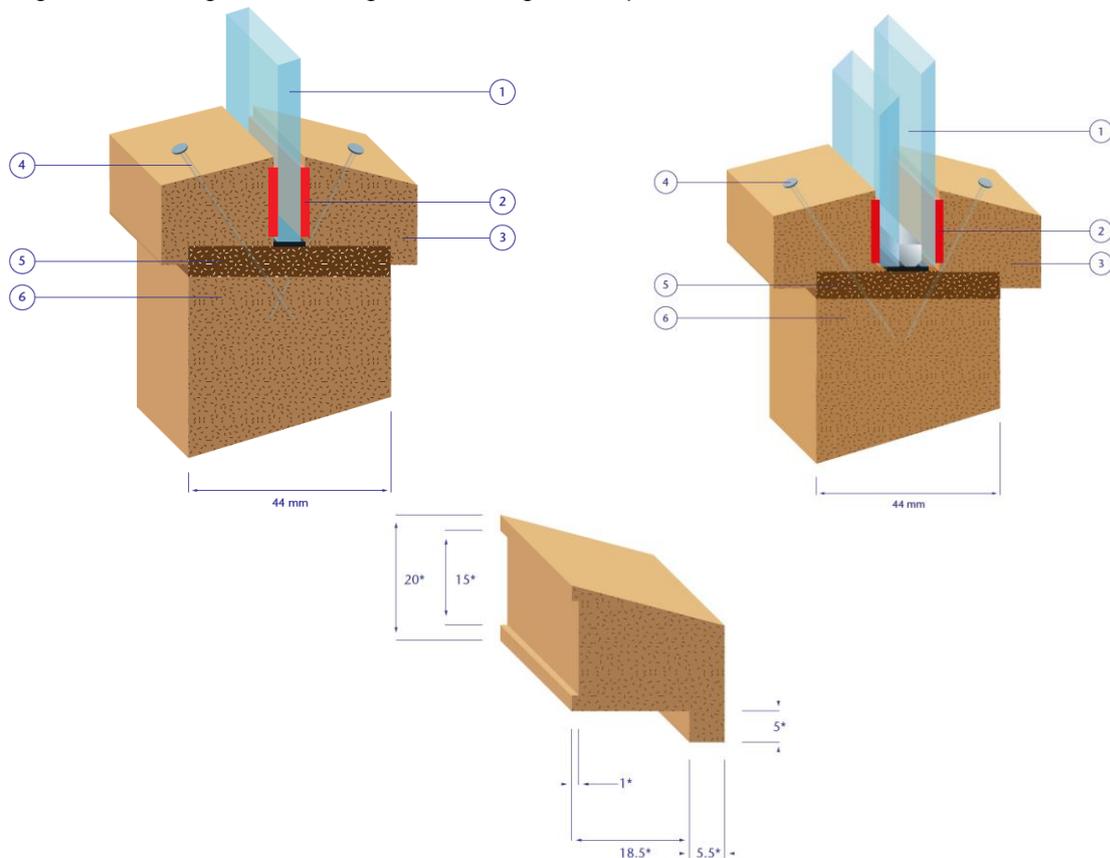
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass, including IGU's, in timber door leaves for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 6 mm PYRAN S (inc. IGU option¹ - minimum 4 mm thick glass of any type including toughened, laminated, annealed or Low E glass)
- 2 15 mm by 2 mm Pyrostrip 300
- 3 Hardwood glazing beads min. density 550 kg/m³ (note: compliance with minimum bead size may necessitate thicker door leaf than typical 44 mm thick FD30 doors)
- 4 40 mm long steel pins or screws at 150 mm centres (30° to glass)
- 5 Minimum 6 mm thick hardwood aperture liner (not required on door leaves with a softwood / hardwood timber core of density > 550 kg/m³)
- 6 FD30 door leaf

⁽¹⁾ Double glazed units comprising laminated glass should not be used where the fire risk side is unknown or where the fire risk is to the PYRAN S side of the assembly.

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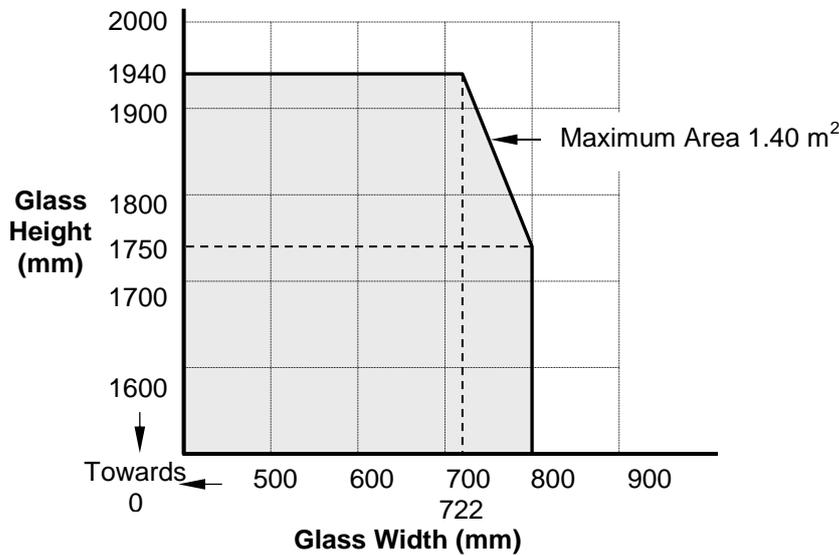
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass, including IGU's, in timber door leaves for periods of 30 minutes integrity (continued)

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 7, when used in conjunction with the system detailed within the preceding figures:



**Figure 7.
Maximum Permitted
Pane Dimensions**

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PYRAN S FIRE RESISTING GLASS

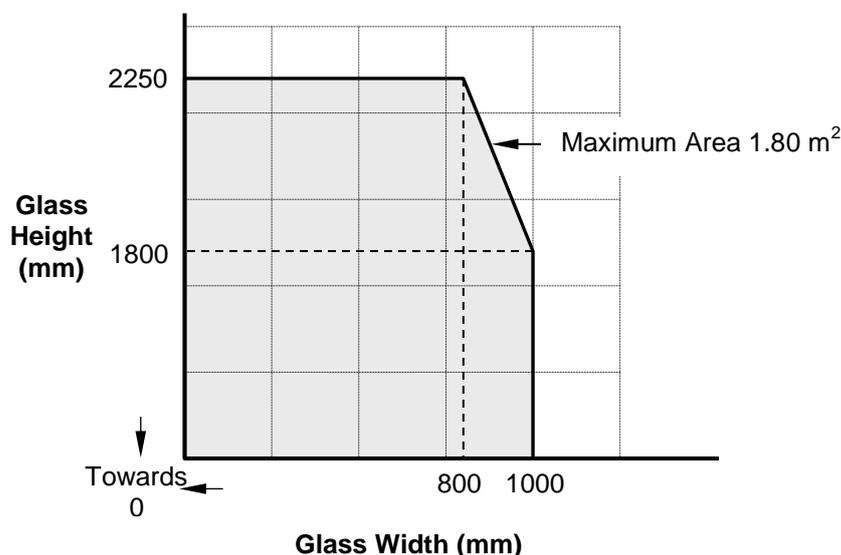
PYRAN S Glass, including IGU's, in timber door leaves for periods of 30 minutes integrity (continued)

Alternative Glazing System (for single glazed units only) – Lorient Flexible Figure 1

When an alternative glazing system is utilised, namely Lorient Figure 1, vision panels of increased dimensions may be approved. The glazing system should follow the following specification (to be read in conjunction with diagram on page 8):

- 1 6 mm PYRAN S
- 2 Lorient Polyproducts Ltd – Flexible Figure 1
- 3 Hardwood glazing beads min. density 650 kg/m^3 , 22 mm by 22 mm
- 4 60 mm long steel pins or screws at 150 mm centres (30° to glass)
- 5 Minimum 6 mm thick hardwood aperture liner (not required on door leaves with a softwood / hardwood timber core of density $> 450 \text{ kg/m}^3$)
- 6 FD30 door leaf

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 8, when used in conjunction with the system detailed within the preceding figures:



The sizes given in Figure 5a above are based on test evidence using lamincore blanks from Moralt Tischlerplatten GmbH & Co KG.

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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in timber door leaves for periods of 30 minutes integrity (continued)

For this application, in addition to any relevant requirements for timber framed screens above, the following conditions shall apply:

1. The doorset, including door frame and associated building hardware, should have achieved at least 30 minutes integrity when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987.
2. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations.
3. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets.
4. The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
5. When used to glaze CERTIFIRE approved doorsets which have smaller apertures than allowed in this certificate, the aperture sizes specified in the doorset certificate shall take precedence.
6. The door leaves shall consist of timber faces coupled with timber or other cellulosic cores of minimum overall leaf thickness, 44 mm.
7. When an alternative CERTIFIRE approved glazing system is used, the system shall have been shown to be capable of including PYRAN S glass. The maximum permitted aperture dimensions shall be as detailed below or included within the relevant CERTIFIRE certificate for the glazing system, whichever is the lesser.
8. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 5 and 5a above, when used in conjunction with above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

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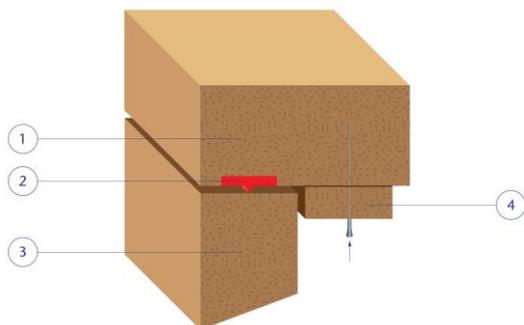
PYRAN S FIRE RESISTING GLASS

PYRAN S Glass, including IGU's, in 'Firestile' timber doorsets for periods of 30 minutes integrity

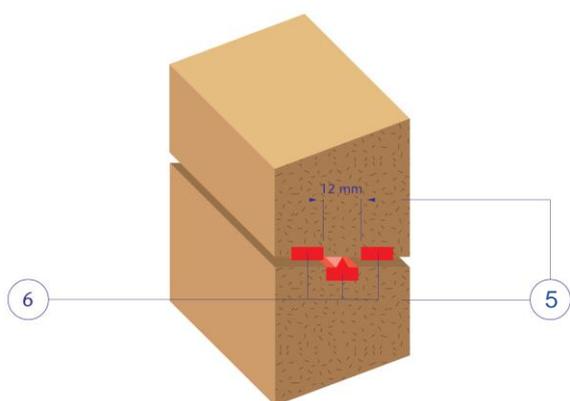
All seals to be produced by Mann McGowan Fabrications Limited.

The doorsets may be single-acting, single or double-leaf and are to be as detailed within the figures below:

Door Leaf to Frame Detail



- 1 95 mm by 45 mm timber door frame minimum density 550 kg/m³ (15 mm deep stop) (note: compliance with minimum timber size may necessitate thicker door leaf)
- 2 Pyrostrip 500 Flexifin intumescent seal, 25 mm by 4 mm within head and 15 mm by 4 mm within jambs
- 3 Minimum 85 mm by 45 mm timber stiles and rails (bottom rail 200 mm minimum). (note: compliance with minimum timber size may necessitate thicker door leaf)
- 4 Door stop, 12 mm deep, minimum density 550 kg/m³ (pinned, screwed or rebated from solid)



- 5 Minimum 85 mm by 45 mm timber stiles and rails (bottom rail 200 mm minimum). Minimum density 550 kg/m³
- 6 Pyrostrip 500 Flexifin intumescent seal 10 mm by 4 mm

Meeting Stile Detail

The door leaves may be provided with a mid-rail (or a number of intermediate rails) of minimum dimensions 85 mm by 45 mm and of minimum density 550 kg/m³.

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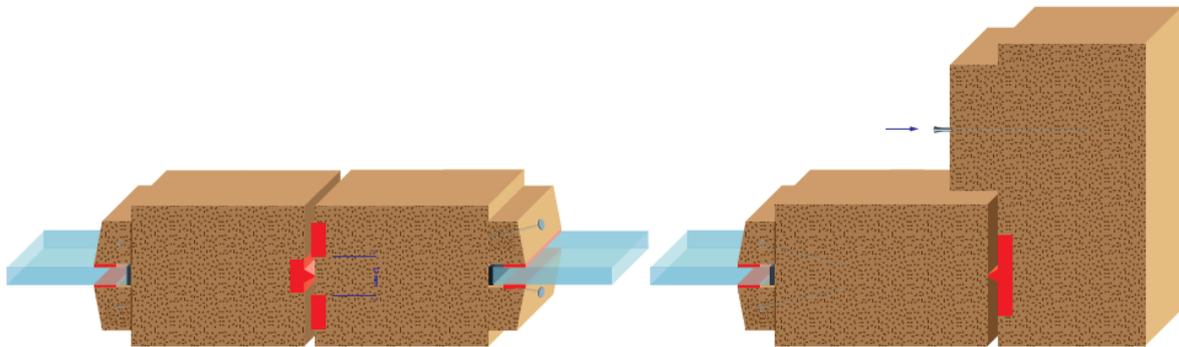
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass, including IGU's, in 'Firestile' timber doorsets for periods of 30 minutes integrity (continued)



Horizontal Section through Frame and Doors

For this application, in addition to any relevant requirements for timber framed screens above, the following conditions shall apply:

1. 95 mm by 45 mm timber door frame minimum density 550 kg/m³ (15 mm deep stop) (note: compliance with minimum timber size may necessitate thicker door leaf)
2. Pyrostrip 500 Flexifin intumescent seal, 25 mm by 4 mm within head and 15 mm by 4 mm within jambs
3. Minimum 85 mm by 45 mm timber stiles and rails (bottom rail 200 mm minimum). (note: compliance with minimum timber size may necessitate thicker door leaf)
4. Door stop, 12 mm deep, minimum density 550 kg/m³ (pinned, screwed or rebated from solid)
5. Minimum 85 mm by 45 mm timber stiles and rails (bottom rail 200 mm minimum). Minimum density 550 kg/m³
6. Pyrostrip 500 Flexifin intumescent seal 10 mm by 4 mm

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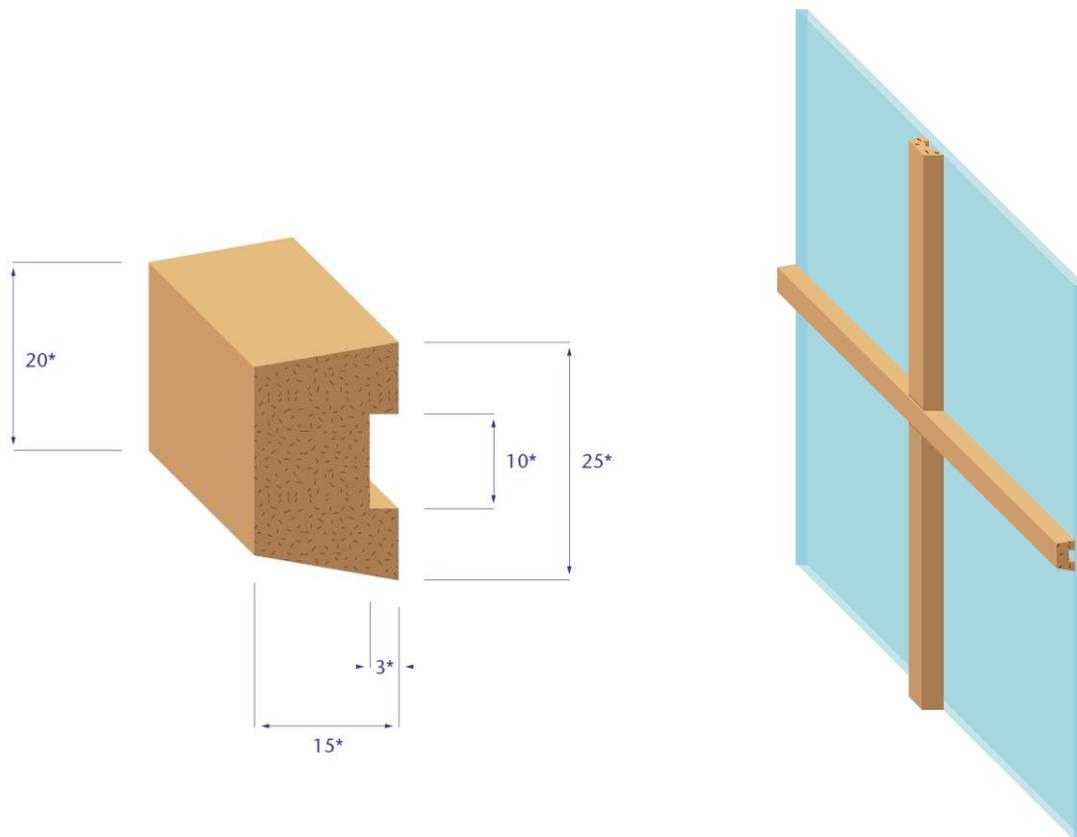
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass, including IGU's, in 'Firestile' timber doorsets for periods of 30 minutes integrity (continued)

Decorative glazing beads as detailed below may be applied to the surface of the glass. Such beads are to be chamfered at each end and shall not be mechanically fixed to the perimeter beading.



* These dimensions may be reduced.

Note: Decorative beads may be utilised for 60 minute glazing applications

A single 10 mm wide by 3 mm thick Pyrostrip 100P intumescent seal is to be included within the groove to the back of the bead. Beads are to be secured using double sided tape constructed from a polyester backing with a modified acrylic adhesive.

Doors may include a lock/latchset of maximum forend width 25 mm, such that they shall be by-passed via a minimum of 4 mm intumescent either side.

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PYRAN S Glass in 'Firestile' timber doorsets for periods of 30 minutes integrity (continued)

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figures 9 and 10 below, when used in conjunction with the glazing system detailed previously:

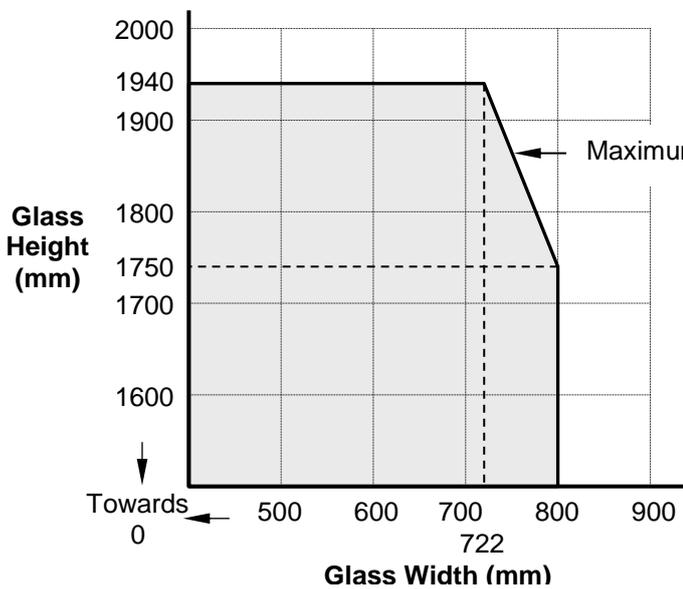


Figure 9.
Maximum Permitted
Pane Dimensions

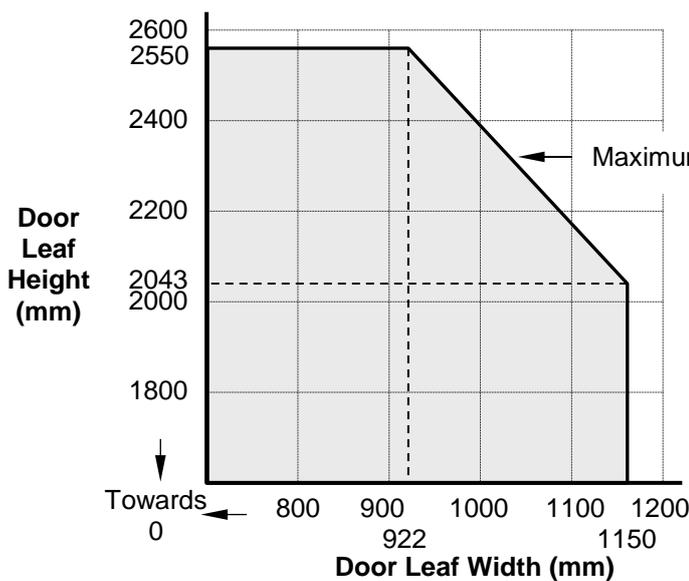


Figure 10.
Maximum Permitted
Door Leaf Dimensions

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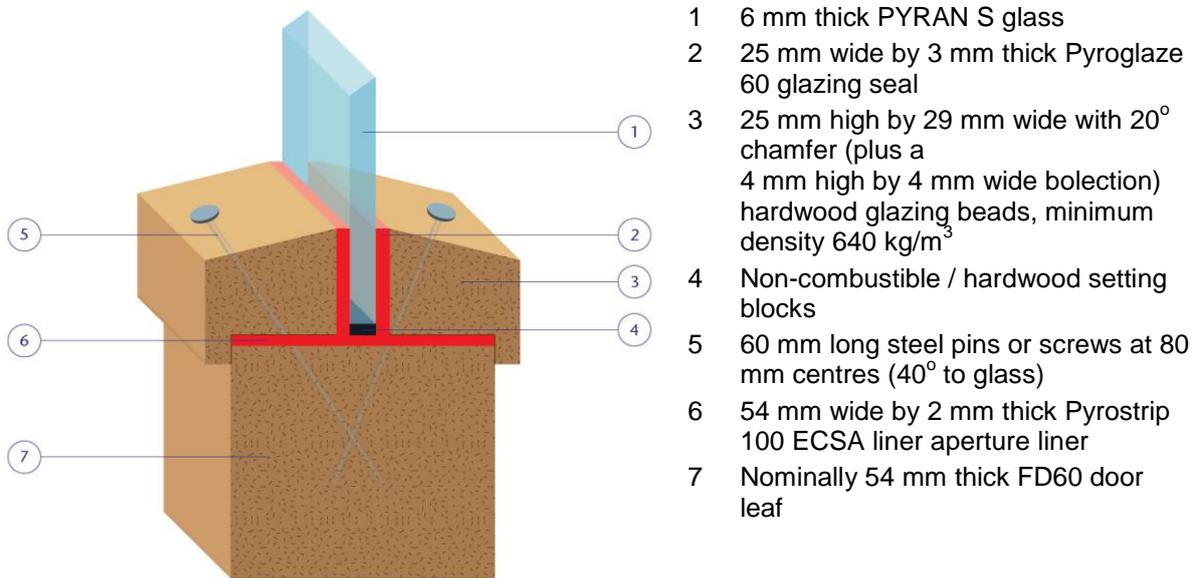
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in timber door leaves for periods of 60 minutes integrity

The glass shall be glazed utilising the following basic specification:



This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 11, when used in conjunction with the system detailed within the preceding figures:

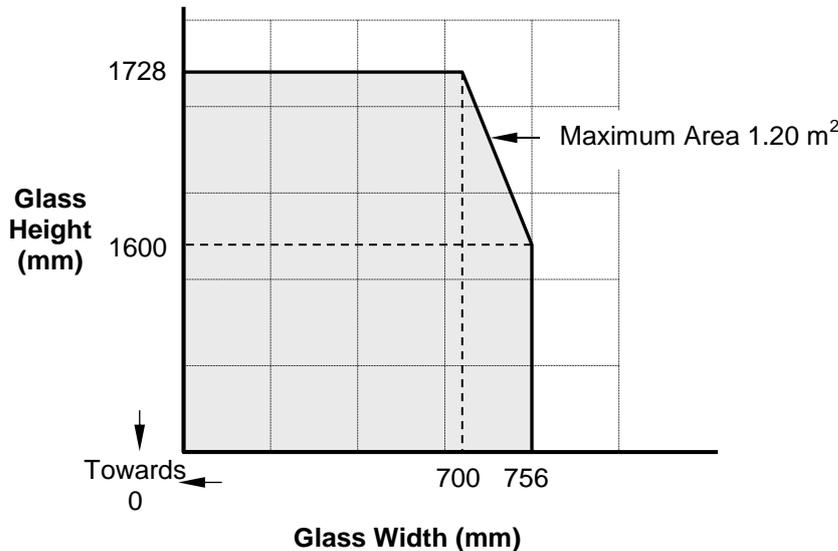


Figure 11.
Maximum Permitted
Pane Dimensions

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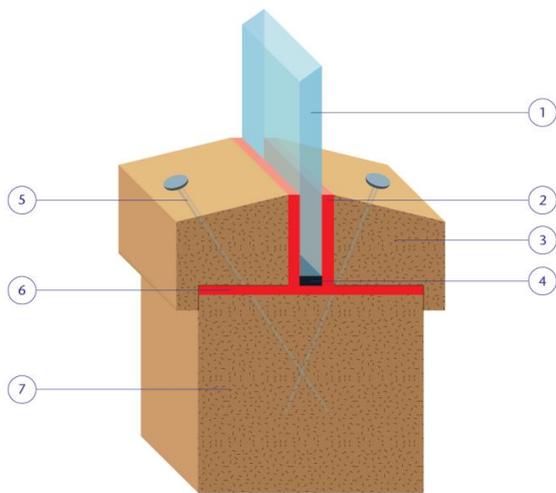
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in timber door leaves for periods of 90 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 6 mm thick PYRAN S glass
- 2 Intumescent Seals ISL60 Plus, 25x5.8mm uncompressed
- 3 30 mm high by 35 mm wide with 25° chamfer (including a 10 mm high by 5 mm wide bolection) hardwood glazing beads, minimum density 640 kg/m³
- 4 Non-combustible setting blocks
- 5 No.8 by 75mm screws at 15 mm centres (25° to glass)
- 6 Intumescent Seals Therm-A-Line, 63x2mm aperture liner
- 7 Nominally 64 mm thick FD90 door leaf. Aperture in leaf to be fitted with a full width, 6 mm thick hardwood (640kg/m³) liner fixed using PU adhesive and steel pins, 40mm x 1.6Ø set 16 mm from each face at 150mm centres (25mm from corners)

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 12, when used in conjunction with the system detailed within the preceding figures:

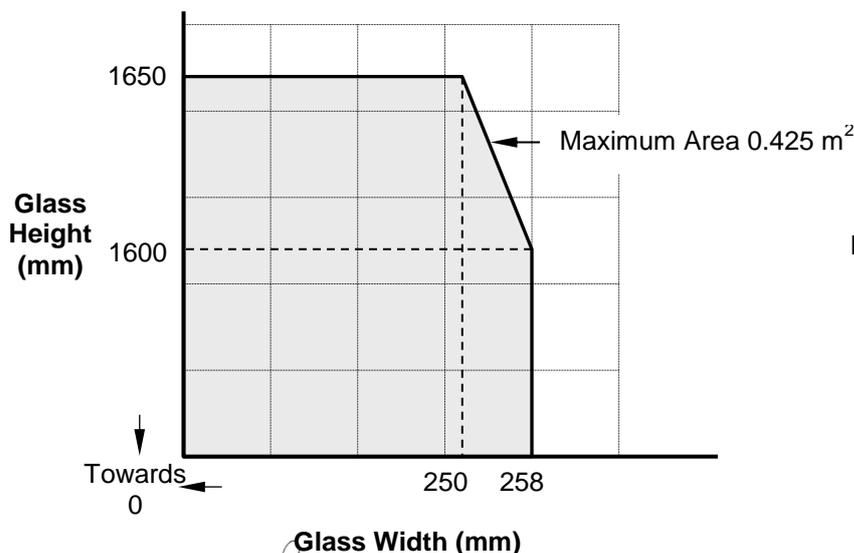


Figure 12.
Maximum Permitted
Pane Dimensions

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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in timber door leaves for periods of 60 & 90 minutes integrity

For this application, in addition to any relevant requirements for timber framed screens above, the following conditions shall apply:

1. The doorset, including door frame and associated building hardware, should have achieved at least 60 or 90 minutes (whichever is applicable) integrity when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987.
2. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations.
3. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets.
4. The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
5. When used to glaze CERTIFIRE approved doorsets which have smaller apertures than allowed in this certificate, the aperture sizes specified in the doorset certificate shall take precedence.
6. The door leaves shall consist of timber faces coupled with timber or other cellulosic cores of minimum overall leaf thickness, 54 mm for 60 minutes performance and 64 mm for 90 minutes performance.
7. When an alternative CERTIFIRE approved glazing system is used, the system shall have been shown to be capable of including PYRAN S glass. The maximum permitted aperture dimensions shall be as detailed below or included within the relevant CERTIFIRE certificate for the glazing system, whichever is the lesser.
8. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 8 & 9 above, when used in conjunction with above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

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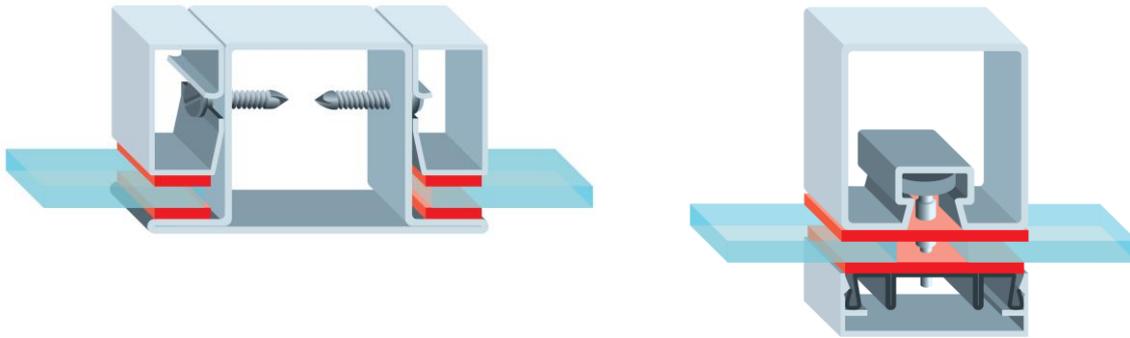
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in steel framed screens for periods of 30, 60, 90 and 120 minutes integrity

The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided.

The glass shall be installed into a previously tested framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The glass shall be glazed into the screen with ceramic fibre gasket on both faces and set on setting blocks which comprise calcium silicate material to determine the correct edge cover.



Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of PYRAN S glass shown in the Table below, when used in conjunction with above systems:

Glass	Thickness (mm)	Fire Resistance (mins)	Maximum Height (mm)	Maximum Width (mm)	Maximum Area (m ²)
PYRAN S	6, 8	30	3180	3180	5.96
PYRAN S	8	30	4500	2250	8.10
PYRAN S	10, 12	30	3438	3438	6.26
PYRAN S	10, 12	30	4500	2250	8.10
PYRAN S	6, 8, 10, 12	60	2875	2875	4.08
PYRAN S	6, 8, 10, 12	60	3250	1766	3.12
PYRAN S	6, 8, 10, 12	90	2875	2576	4.03
PYRAN S	6, 8, 10, 12	120	2520	1878	3.53

Note: maximum area will in some cases limit maximum linear dimensions in height or width

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in steel door leaves for periods of 30, 60, 90 and 120 minutes integrity

For this application, in addition to any relevant requirements for steel framed screens given previously, the following conditions shall apply:



1. The doorset, including door frame and associated building hardware, should have achieved at least 30, 60, 90 or 120 minutes integrity (as relevant) when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987.
2. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations.
3. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets.
4. The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
5. When used to glaze CERTIFIRE approved doorsets which have smaller apertures than allowed in this certificate, the aperture sizes specified in the doorset certificate shall take precedence.

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figures 13 to 16 below, when used in conjunction with above systems:

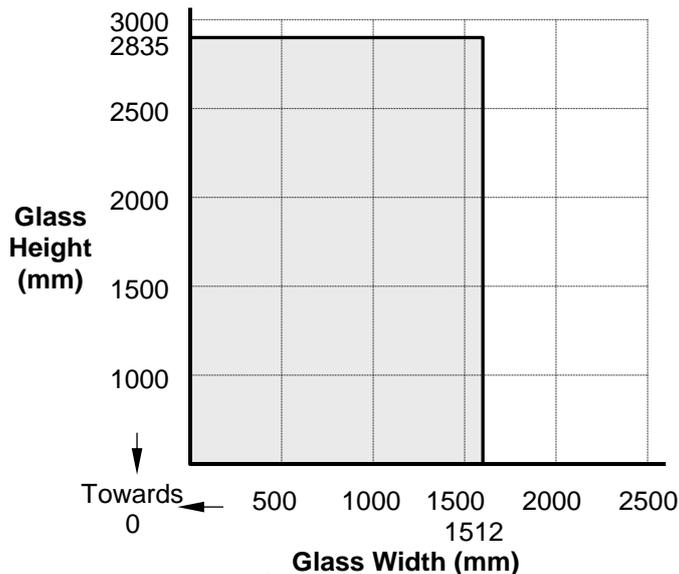


Figure 13.
30 mins Integrity – 6, 8, 10, 12 mm

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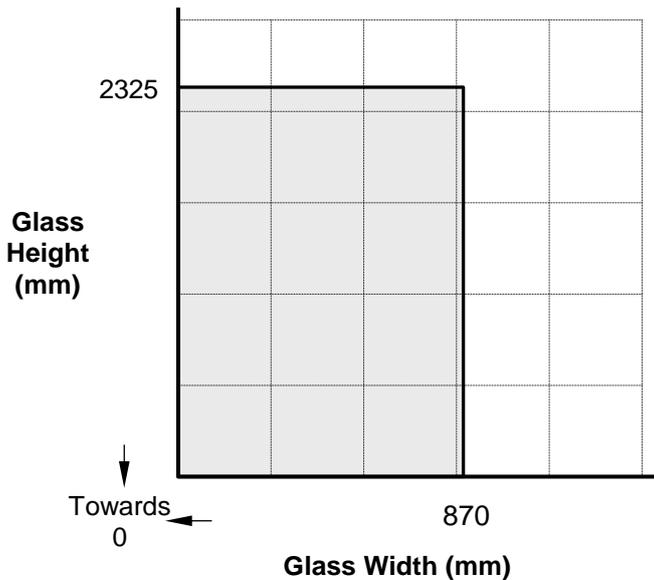
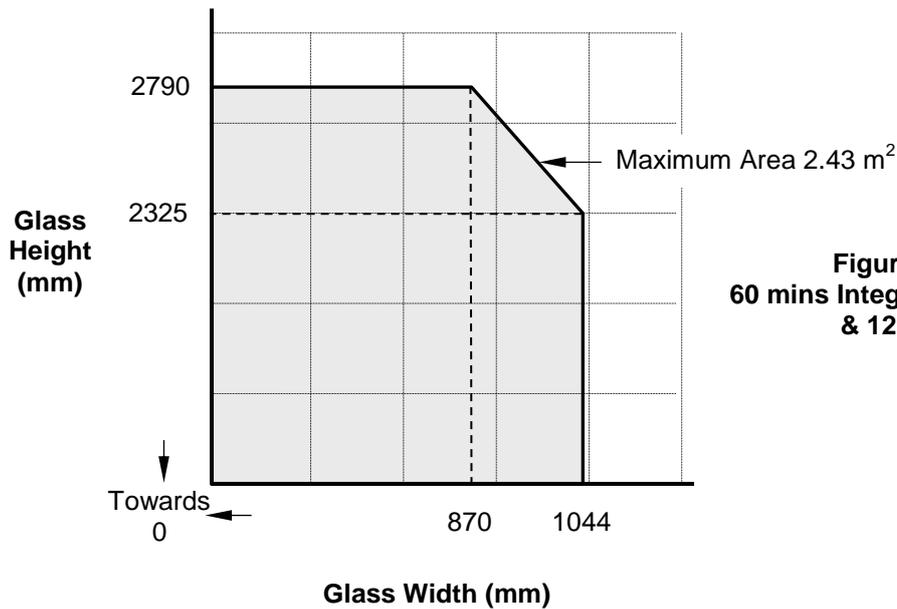
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in steel door leaves for periods of 30, 60, 90 and 120 minutes integrity (continued):



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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in steel door leaves for periods of 30, 60, 90 and 120 minutes integrity (continued):

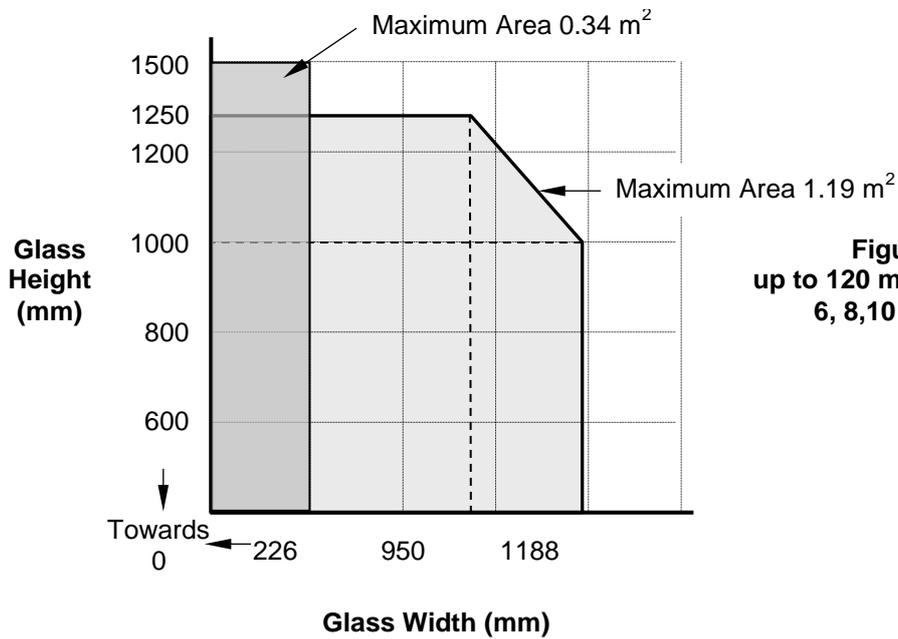


Figure 16.
up to 120 mins Integrity –
6, 8, 10 & 12 mm

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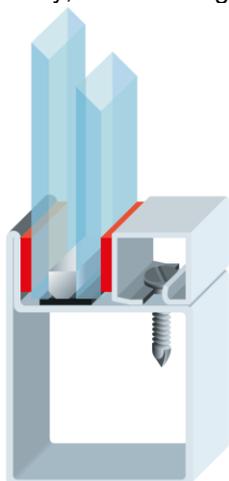
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in Double Glazed Units in steel door leaves for periods of 60, 90 and 120 minutes integrity

For this application, in addition to any relevant requirements for steel framed screens given previously, the following conditions shall apply:



1. The doorset, including door frame and associated building hardware, should have achieved at least 60, 90 or 120 minutes integrity (as relevant) when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987.
2. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations.
3. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets.
4. The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
5. When used to glaze CERTIFIRE approved doorsets which have smaller apertures than allowed in this certificate, the aperture sizes specified in the doorset certificate shall take precedence.
6. Secondary glass pane – minimum 4mm thick of any type including toughened, laminated, annealed or Low E glass

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figures 17,18 & 19 below, when used in conjunction with above systems:

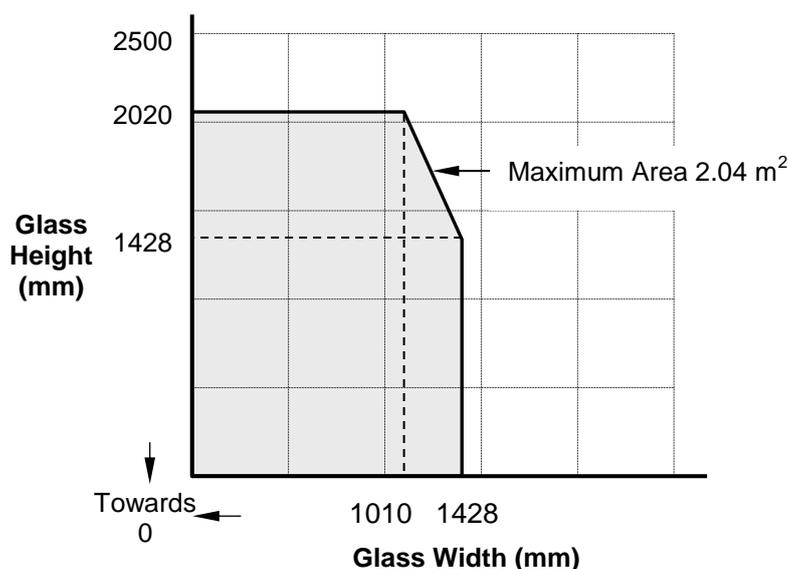


Figure 17.
60 minutes Integrity

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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in Double Glazed Units in steel door leaves for periods of 60, 90 and 120 minutes integrity (continued)

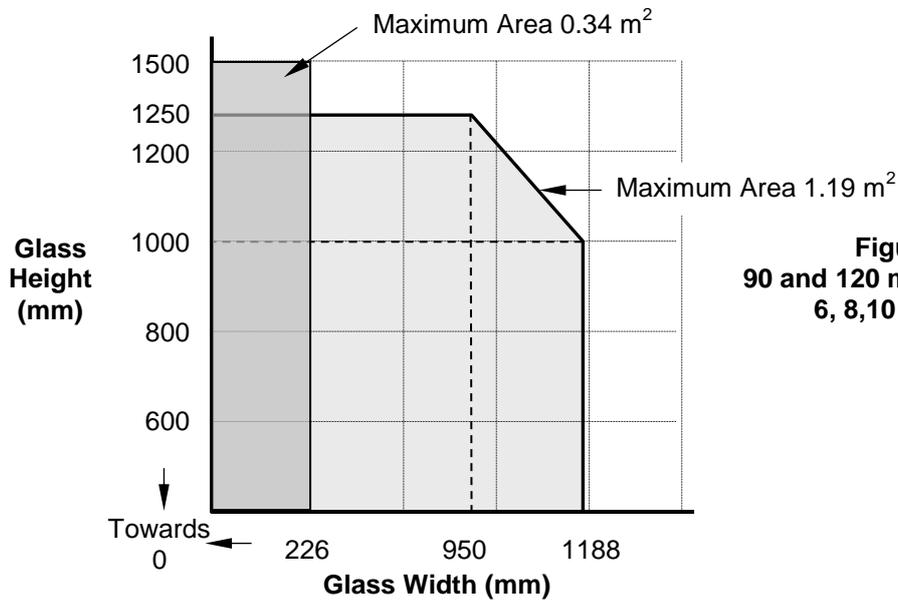


Figure 18
90 and 120 mins Integrity –
6, 8, 10 & 12 mm

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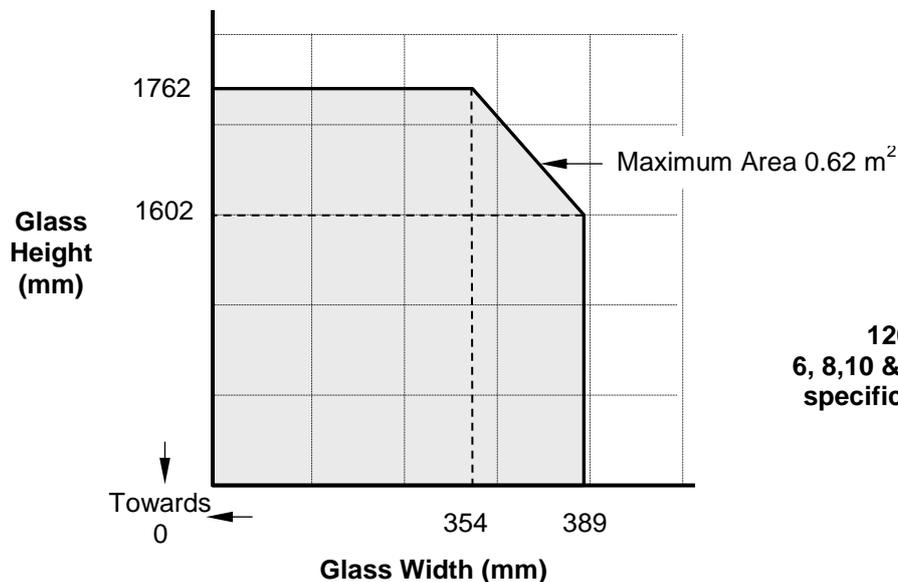
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass in Double Glazed Units in steel door leaves for periods of 60, 90 and 120 minutes integrity (continued)



- **Note for the specification given above in Figure 19, the following glazing specification should be used:**
 - PYRAN S must be orientated such that it is to the unexposed 'non-fire' side of the steel door
 - Kerafix Flexlit intumescent strip, 20x5 mm, to be used between glass and beads
 - Non-combustible setting blocks, 20x80 mm, to be used along the bottom edge of the glass and the frame system

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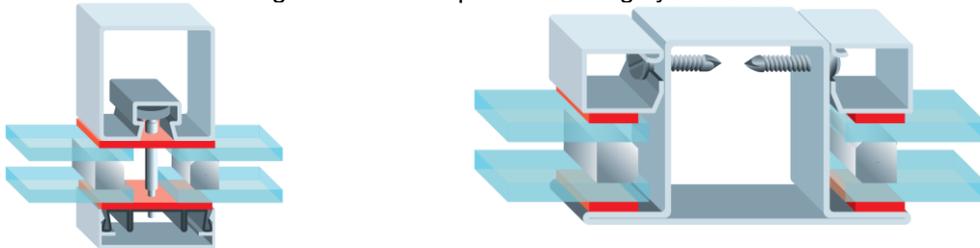
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Double Glazed Units in steel framed screens for periods of 30, 60, 90 and 120 minutes integrity

The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided.

The glass shall be installed into a previously tested framing system (which is covered appropriately by test or assessment evidence) using screw-fixed or clip-on retaining beads. Pressure glazed systems will allow larger pane sizes than non-pressure glazed screens. See Figures 16 and 18 for the largest sizes. Systems that are able to provide positive pressure to the glass edge via mechanical restraint for the duration of the fire test are considered "pressure glazed". The glass shall be glazed into the screen with ceramic fibre gasket on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover. Examples of framing systems are shown below.



Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figures 20 to 24a and 24b, when used in conjunction with above systems:

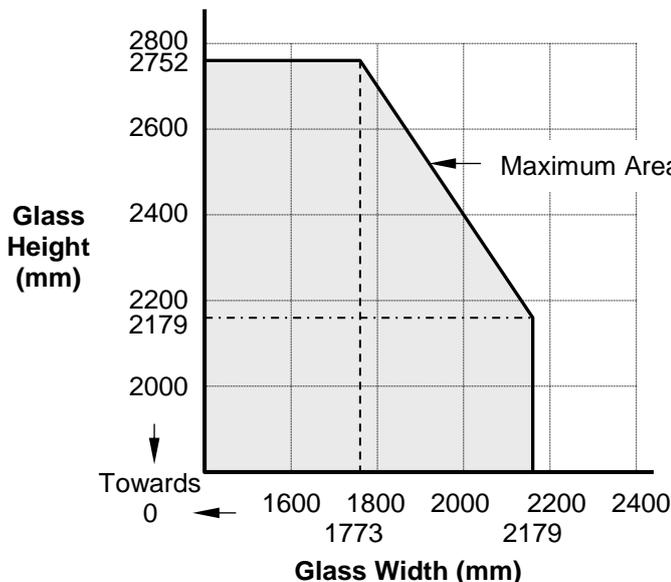


Figure 20.
Non-Pressure Glazed Steel Frames
30 minutes Integrity

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Double Glazed Units in steel framed screens for periods of 30, 60, 90 and 120 minutes integrity

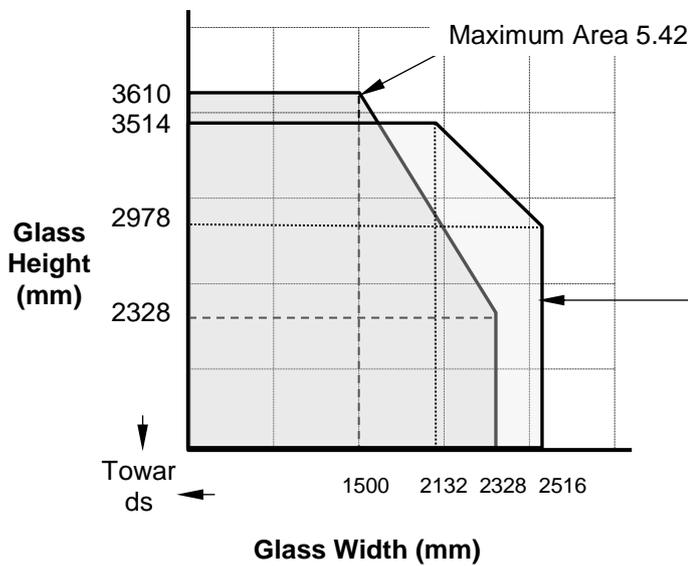


Figure 21.
Pressure Glazed Steel Frames
30 minutes Integrity

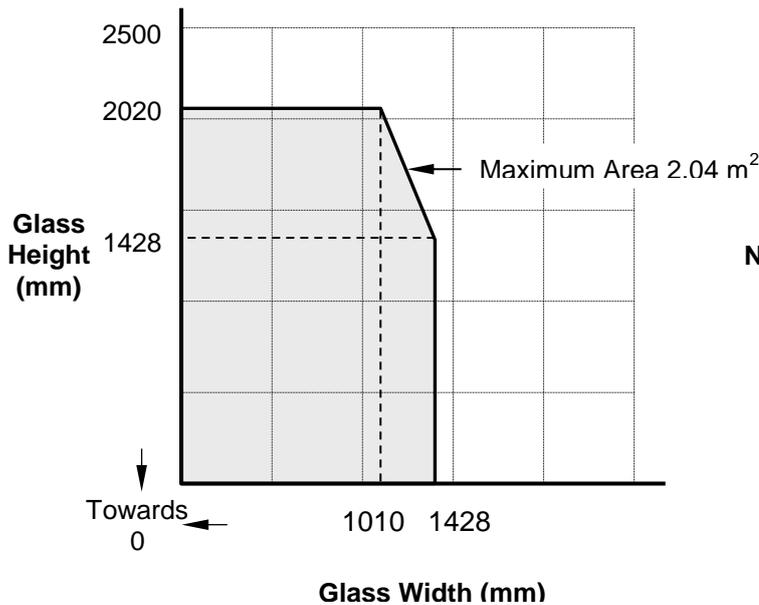


Figure 22.
Non-Pressure Glazed Steel Frames
60 minutes Integrity

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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Double Glazed Units in steel framed screens for periods of 30, 60, 90 and 120 minutes integrity

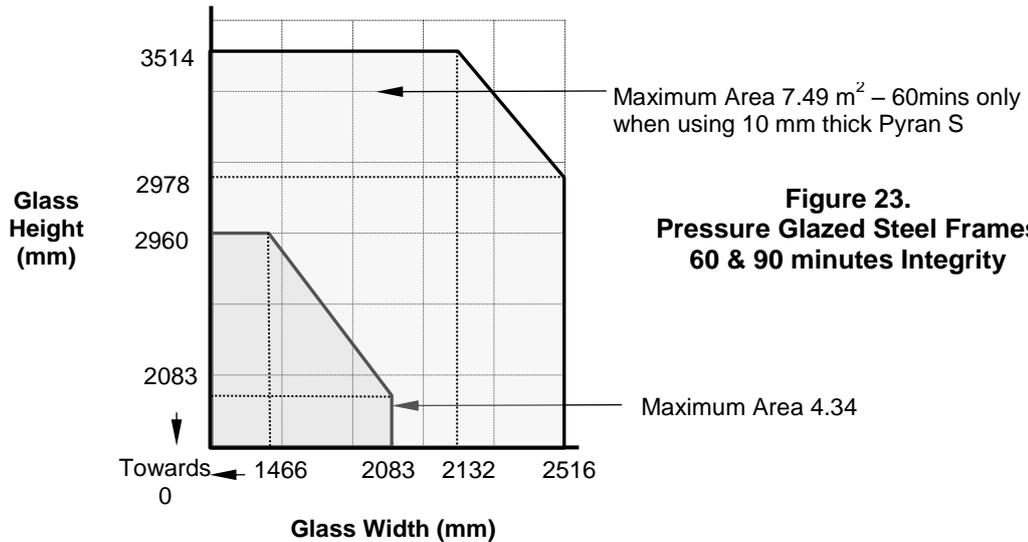


Figure 23.
Pressure Glazed Steel Frames
60 & 90 minutes Integrity

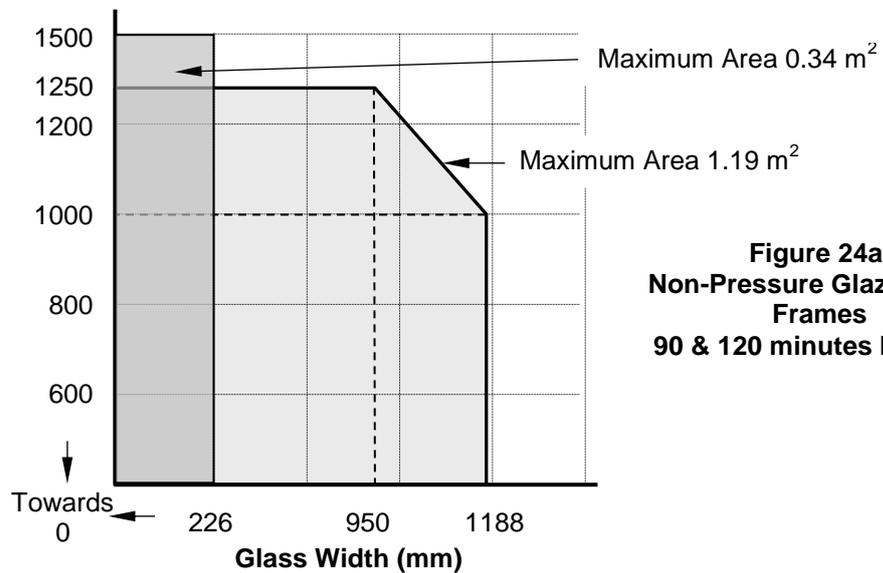


Figure 24a.
Non-Pressure Glazed Steel
Frames
90 & 120 minutes Integrity

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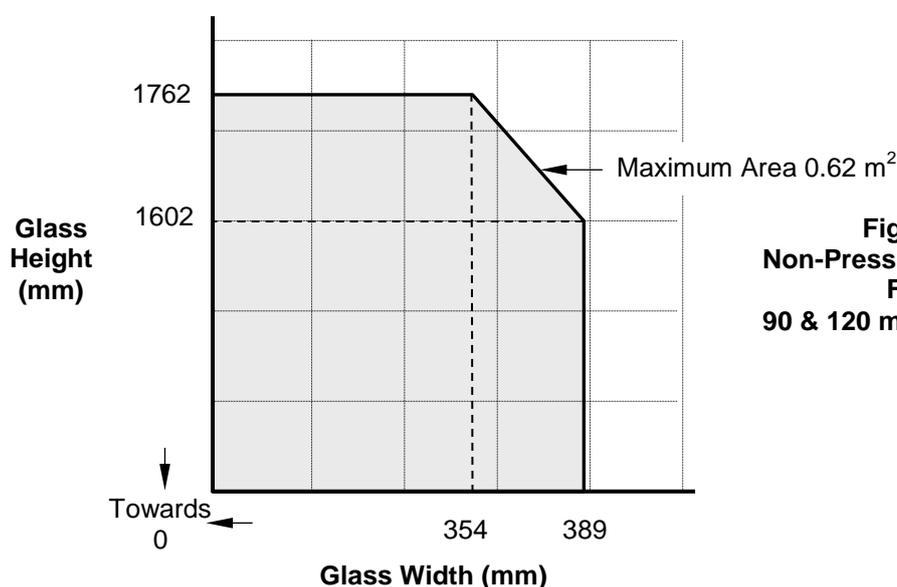
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Double Glazed Units in steel framed screens for periods of 30, 60, 90 and 120 minutes integrity



- **Note for the specification given above in Figure 24b, the following glazing specification should be used:**
 - PYRAN S must be orientated such that it is to the unexposed 'non-fire' side of the steel door
 - Kerafix Flexlit intumescent strip, 20x5 mm, to be used between glass and beads
 - Non-combustible setting blocks, 20x80 mm, to be used along the bottom edge of the glass and the frame system

⁽¹⁾ Double glazed units comprising laminated glass should not be used where the fire risk side is unknown or where the fire risk is to the PYRAN S side of the assembly.

⁽²⁾ 'Low E' coatings may only be utilised within units where the PYRAN S is to the non-fire side of the assembly. The 'Low E' coating shall be applied to 'Surface 3' of the assembly only, i.e the inner face of the secondary/non-PYRAN S pane.

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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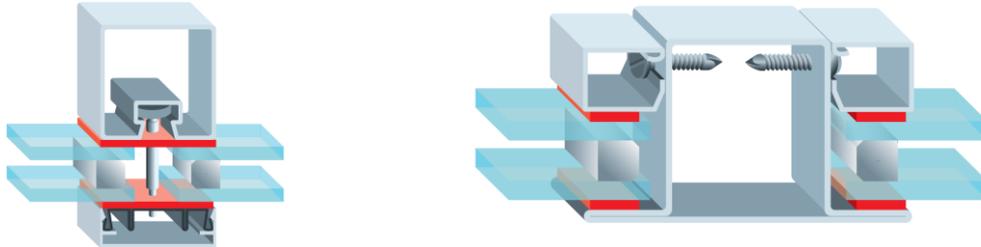
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PYRAN S FIRE RESISTING GLASS

PYRAN S Glass within Double Glazed Units comprising venetian blinds in steel framed screens for periods of 30 minutes integrity

The screens shall be no greater than 4000 mm high unless suitable intermediate supports and/or fire protected structural supports are provided.

The double glazed units shall comprise two panes of 6, 8, 10 or 12 mm thick PYRAN S glass and include a centrally located venetian blind. Alternatively, one pane of PYRAN S may be used providing it faces the non-fire risk side. They shall be installed into a previously tested framing system (which is covered appropriately by test or assessment evidence) using screw-fixed or clip-on retaining beads. The glass shall be glazed into the screen with ceramic fibre gasket on both faces and set on setting blocks which comprise calcium silicate material to determine the correct edge cover. Examples of framing systems are shown below.



Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of PYRAN S double glazed units shown in Figure 255, when used in conjunction with above systems:

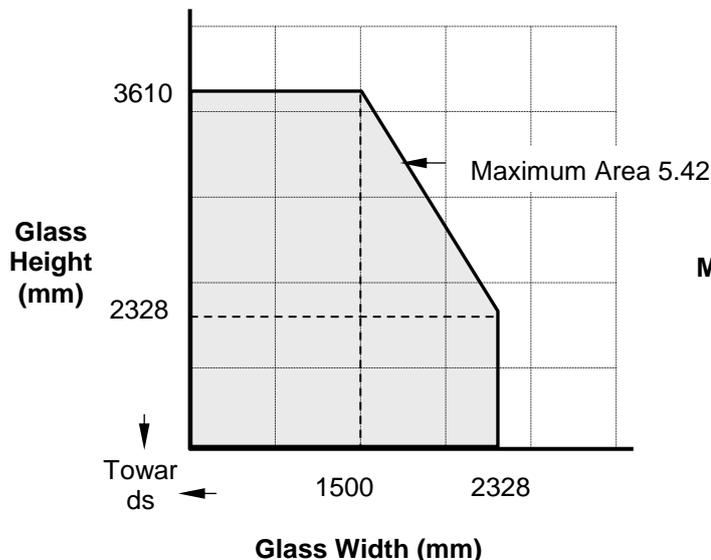


Figure 25.
Maximum Permitted
Pane Dimensions

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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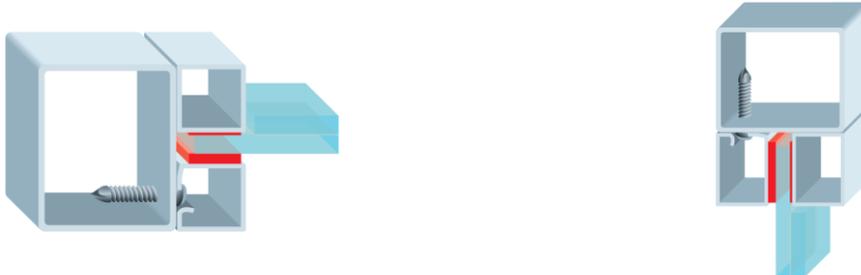
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PYRAN S FIRE RESISTING GLASS

Stepped Laminated PYRAN S Glass in Steel Screens for periods of 120 minutes integrity

The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided.

The glass shall be installed into a previously tested framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The glass shall be glazed into the screen with ceramic fibre gasket on both faces and set on setting blocks which comprise calcium silicate material to determine the correct edge cover.



This Certificate of Approval relates to the sizes of PYRAN S glass shown in Figure 26, when used in conjunction with above systems:

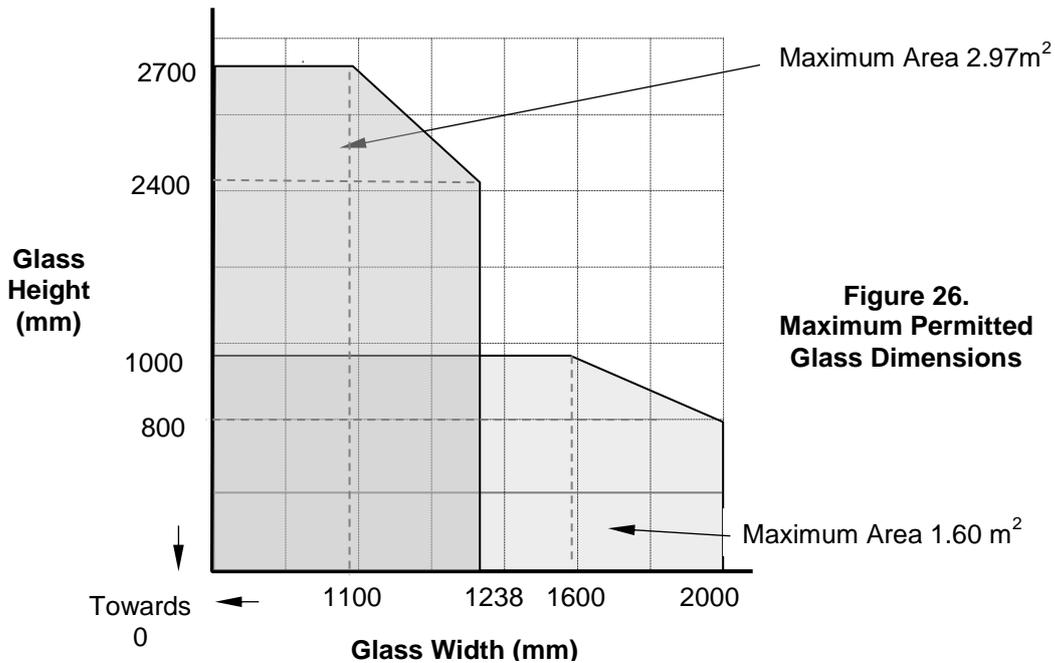


Figure 26.
Maximum Permitted
Glass Dimensions

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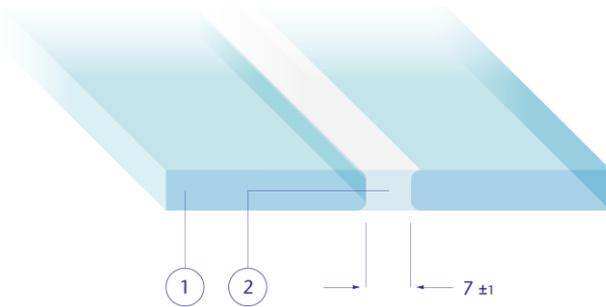
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PYRAN S FIRE RESISTING GLASS

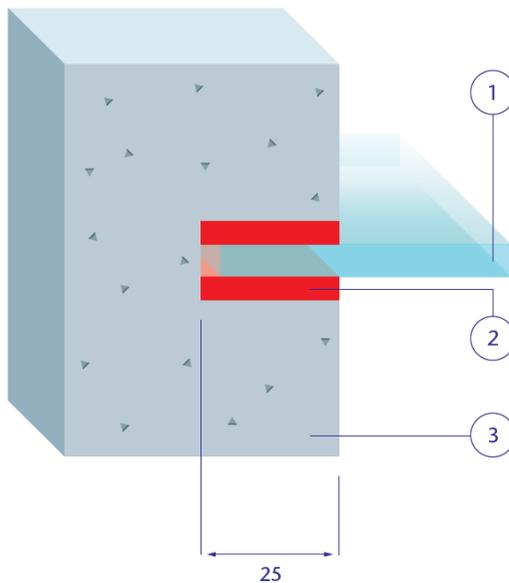
PYRAN S within Butt-Jointed Assemblies for periods of 30 minutes integrity

The perimeter of the system is to comprise a framing assembly of steel, concrete, stone or timber as previously detailed within this data sheet, see page 5 (timber frames) and page 20 (steel frames). Fireglaze Compound is produced and supplied by Sealmaster Limited.



- 1 PYRAN S
- 2 Fireglaze compound

Butt-Joint Glazing Details



- 1 PYRAN S
- 2 Fireglaze compound
- 3 Supporting concrete/stone wall

Alternative Perimeter Detail

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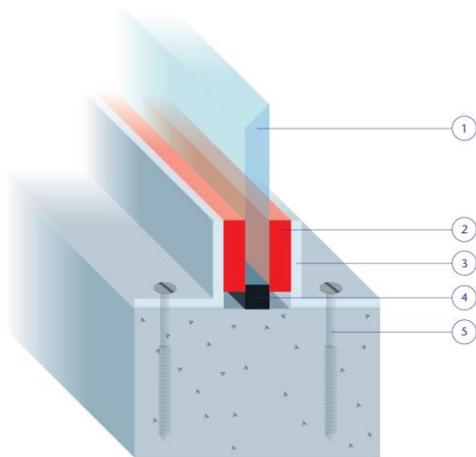
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PYRAN S FIRE RESISTING GLASS

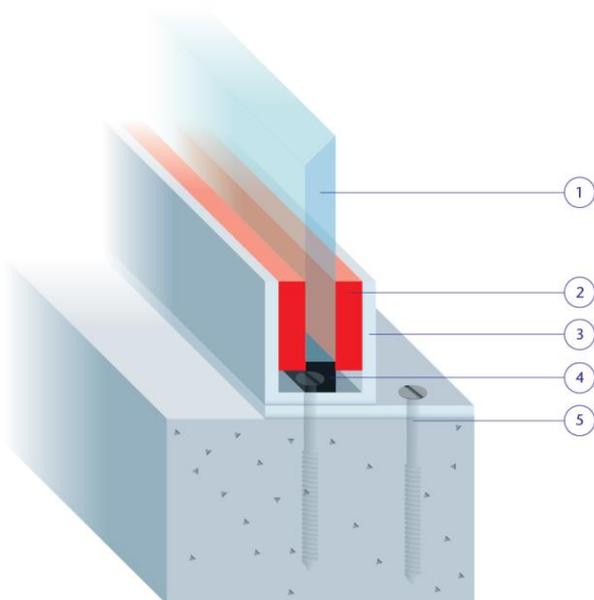
PYRAN S within Butt-Jointed Assemblies (Alternative Installation details) for periods of 30 minutes integrity

6, 8, 10 and 12 mm thick PYRAN S may be used within butt-jointed assemblies up to maximum pane dimensions as detailed within Figure 27 and within the following installation specifications.



- 1 PYRAN S
- 2 20 mm by 6 mm ceramic fibre tape
- 3 25 mm by 25 mm by 3 mm thick mild steel angle
- 4 Non-combustible packer / setting block
- 5 Minimum 50 mm long steel screws fixings at 250 mm centres

Back to Back Steel Angle Detail



- 1 PYRAN S
- 2 20 mm by 6 mm ceramic fibre tape
- 3 Mild steel angle forming 30 mm deep glazing pocket
- 4 Non-combustible packer / setting block
- 5 Minimum 50 mm long steel screws fixings at 250 mm centres

Channel Detail

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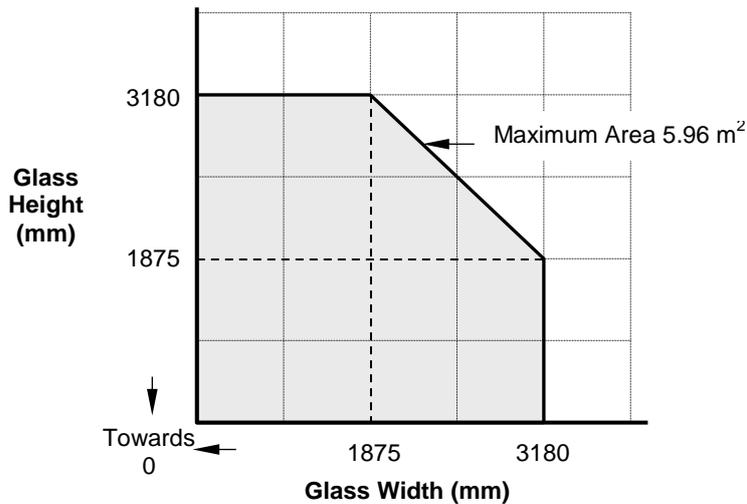
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PYRAN S FIRE RESISTING GLASS

PYRAN S within Butt-Jointed Assemblies for periods of 30 minutes integrity



When installed in butt jointed form the recommended height and thickness for PYRAN S glass will vary depending on loads applied eg wind load, barrier load, etc. Please check with the SCHOTT Technical Department for the correct specification.

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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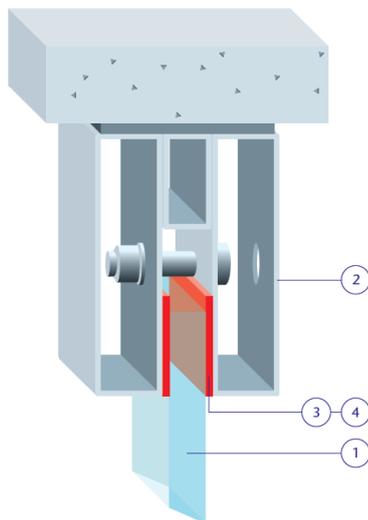
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PYRAN S FIRE RESISTING GLASS

PYRAN S within Butt-Jointed Assemblies for periods of 60 minutes integrity

The perimeter of the system is to comprise a previously tested framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads (figure below is an example only). The glass shall be glazed into the screen with ceramic fibre gasket on both faces and set on setting blocks which comprise calcium silicate material to determine the correct edge cover.

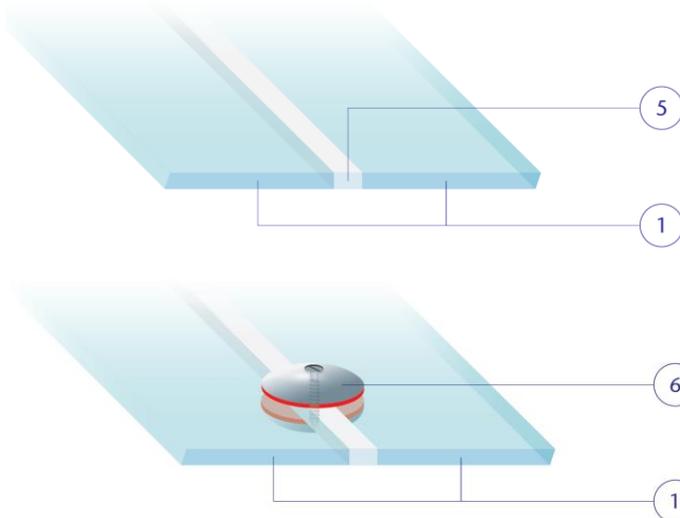


Perimeter Detail

- 1 10 or 12 mm thick PYRAN S
- 2 Steel frame
- 3 Kerafix Flexlit tape, 30 mm wide by 5 mm thick (head only)
- 4 Ceramic fibre based glazing tape (vertical and bottom edges) 20 mm wide by 5 mm thick
- 5 Gluske Kerafix Putty (thickness of glass x 5 mm wide)
- 6 Stainless steel E60 butt-joint 'button'

To calculate the number of buttons required divide the height of the glass by the button centres.

For example $2750 / 650 = 4.22$, therefore 4 buttons required



Butt-Joint Glazing Details (at button joint position)

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PYRAN S FIRE RESISTING GLASS

PYRAN S within Butt-Jointed Assemblies for periods of 60 minutes integrity (continued)

Maximum Permitted Pane Dimensions

10 and 12 thick PYRAN S may be used within butt-jointed assemblies up to the maximum dimensions detailed within Figures 28 and 29 below:

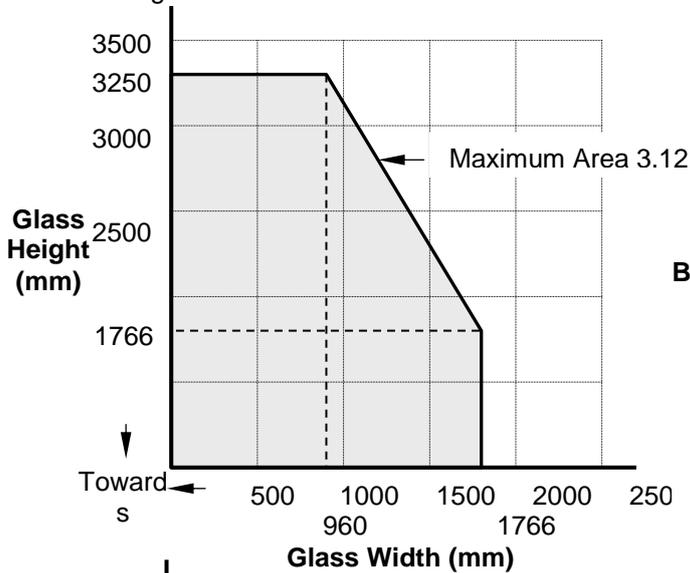


Figure 28.
Buttons at maximum 650 mm centres

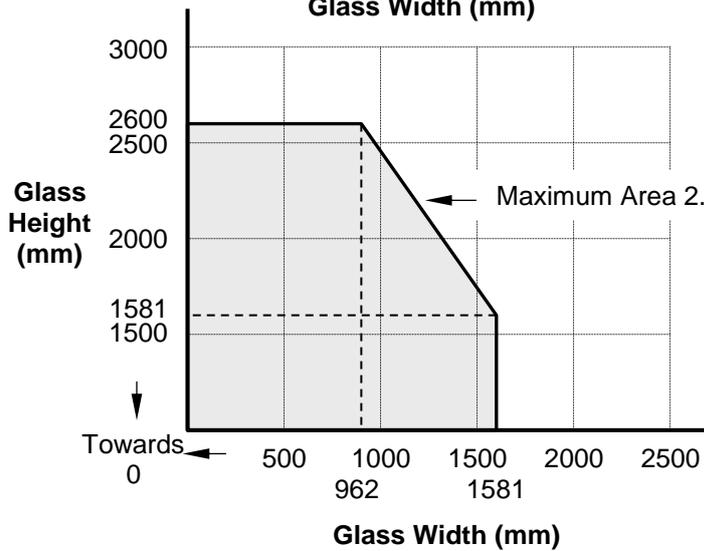


Figure 29.
Buttons at maximum 812.5 mm centres

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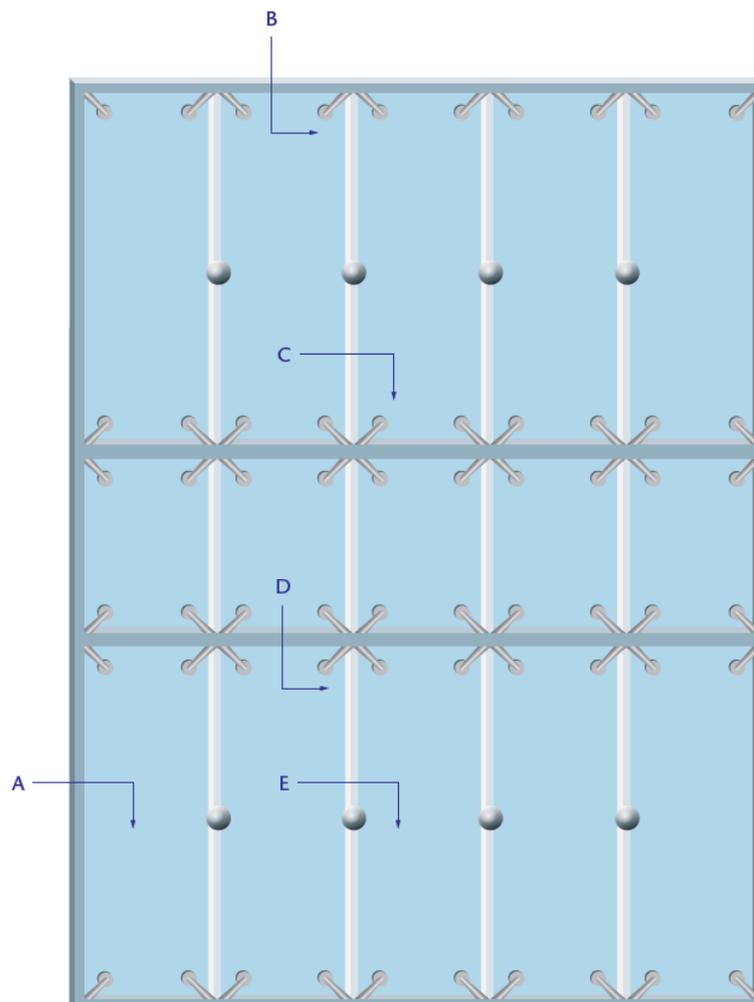
PYRAN S FIRE RESISTING GLASS

PYRAN S within 'Structural Glazing' system for periods of 30 minutes integrity

The glazing system comprises steel "T" profiles (60 x 90 x 8mm) with mounting plates top and bottom, fixed via M10 x 35 mm long bolts, to the supporting construction. Steel angles or channels, 2 mm thick, are utilised at the perimeter of the assembly to form glazing pockets, 35 mm deep x 14 mm wide at sides and base, 50 mm deep x 14 mm wide at the head, into which the PYRAN S is located. Each glass pane is fixed to the support structure via M12 point support fixings*.

* Four point fixings for panes < 2.45 m² height: width ratio not to exceed 1.11:1

* Six point fixings for panes > 2.45 m²



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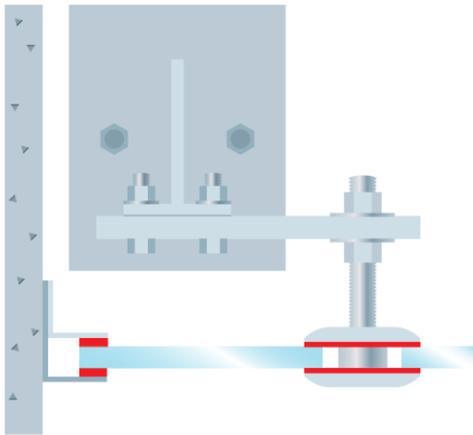
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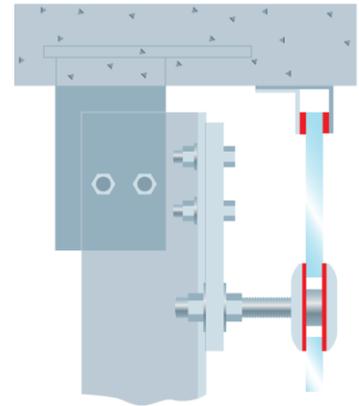
PYRAN S FIRE RESISTING GLASS

PYRAN S within 'Structural Glazing' system for periods of 30 minutes integrity (continued)

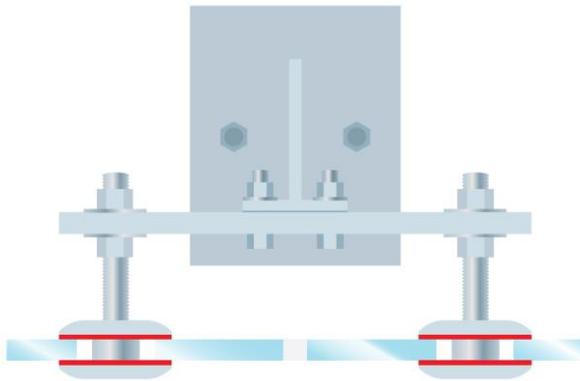
Horizontal and vertical glass-to-glass joint widths are nominally 6 mm. Steel strips nominally 30 mm wide x 2 mm thick are to be used on all horizontal joints. Joint stabilisers, 38 mm in diameter, are to be employed to all vertical joints at no greater than 946 mm centres.



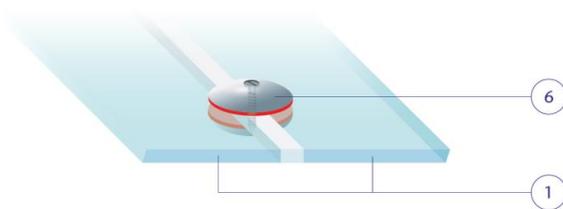
Section 'A'



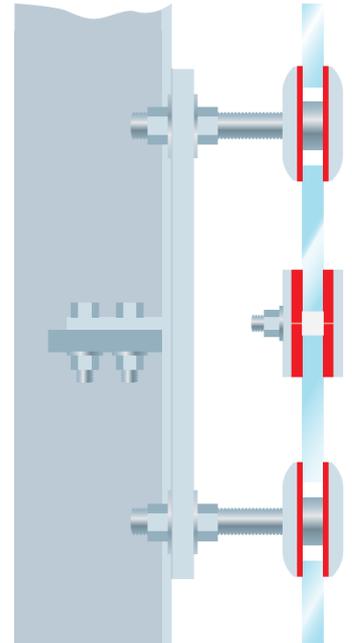
Section 'B'



Section 'C'



Section 'E'



Section 'D'

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PYRAN S FIRE RESISTING GLASS

PYRAN S within 'Structural Glazing' system for periods of 30 minutes integrity

Only 8, 10 & 12 mm thick PYRAN S may be used in conjunction with the above detailed assemblies at the maximum dimensions detailed within Figure 30 below. Any number of panes may be used vertically or horizontally. However, tie-backs to the main structure are required every 4000 mm high. Width of assembly is unlimited.

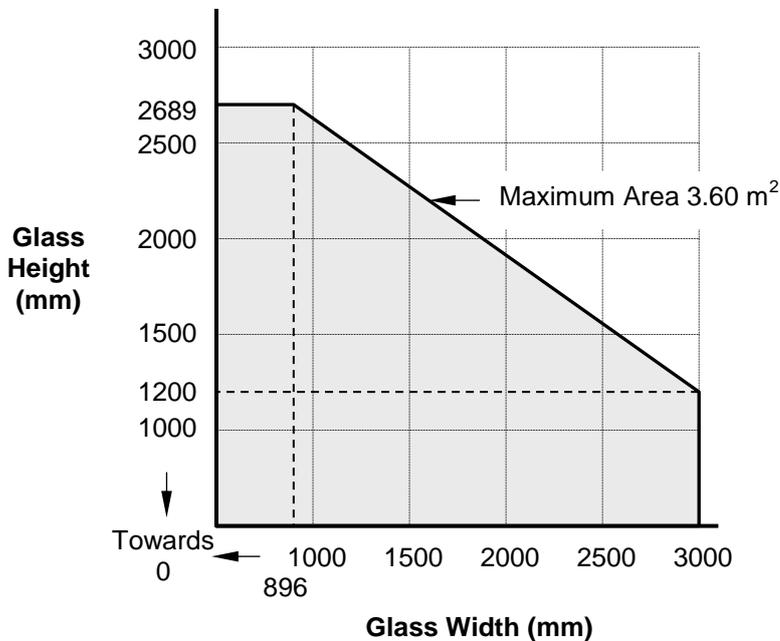


Figure 30.
Maximum Permitted
Pane Dimensions
(8, 10 & 12 mm thick)

PYRAN S glass at thicknesses of 6, 8, 10 and 12 mm is currently available up to a standard size of 3000 mm by 1600 mm. Larger sizes of 8, 10 and 12 mm PYRAN S are available on application to SCHOTT UK Ltd.

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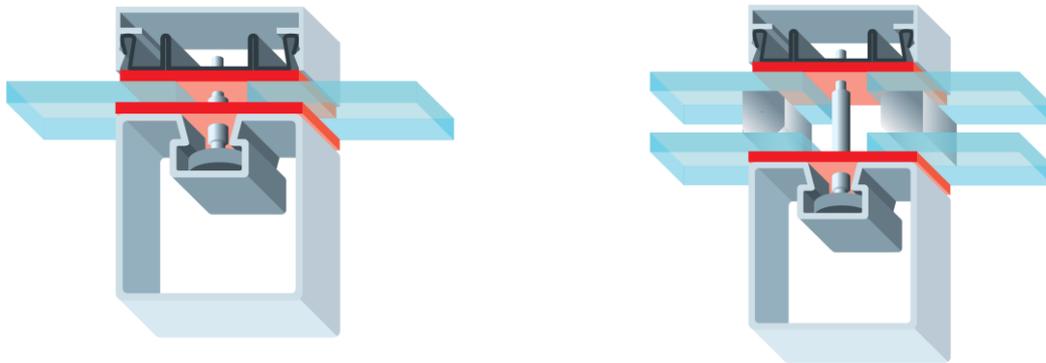
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PYRAN S FIRE RESISTING GLASS

PYRAN S, including double glazed units, horizontally orientated (or inclined) steel framed screens for periods of 30 minutes integrity (for non-loadbearing applications only)

The glass shall be glazed within a Jansen VISS pressure glazed steel framing system. Glass may be single or double glazed. Double glazed units should comprise a 8 mm thick laminated float glass (exposed/underside), an 8 mm air gap and 6 mm PYRAN S glass on the unexposed/top face.



Pane dimensions for horizontal or inclined glazing (with an inclination angle of 0° - 80°) are as follows:

Glass	Thickness (mm)	Fire Resistance (mins)	Maximum Length (mm)	Maximum Width (mm)	Maximum Area (m ²)
PYRAN S	6 mm (min.)	30	2750	1562	3.44
PYRAN S	8 mm (min.)	30	3050	1250	3.81

When installed within horizontal or inclined screens, PYRAN S may be used in various applications and designs. Please check with the SCHOTT Technical Department for available options and the installation specifications/requirements.

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PYRAN S FIRE RESISTING GLASS

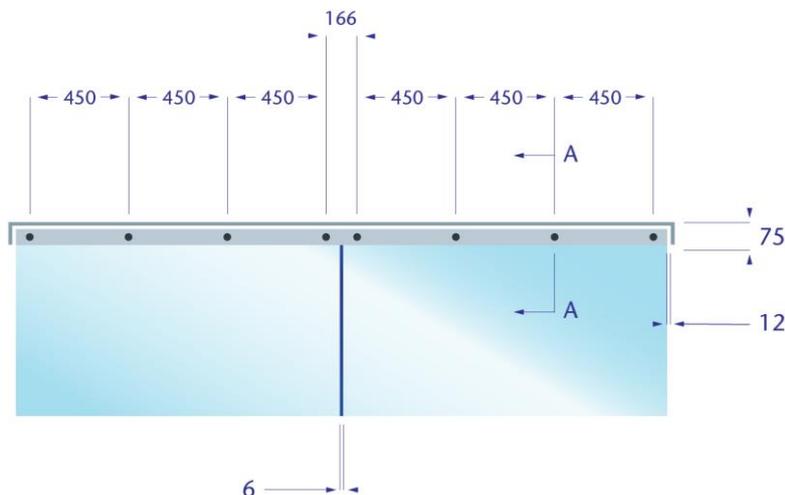
PYRAN S for use in smoke screens to BS7346: Part 3: 1990 for a period of up to 60 minutes

6, 8, 10 and 12 mm thick PYRAN S may be used within smoke screen assemblies up to the maximum pane dimensions detailed within the table below:

Glass	Thickness (mm)	Performance to BS7346: Part 3: 1990 (mins)	Maximum Height (mm)	Maximum Width (mm)	Maximum Area (m ²)
PYRAN S (450 mm fixing centres)	6 mm (min.)	up to 60	1600	3000	3.2
PYRAN S (450 mm fixing centres)	6 mm (min.)	up to 30	2000	3000	6.0
PYRAN S (970 mm fixing centres)	6 mm (min.)	up to 30	1290	3000	6.0

- Smoke screens may be provided at unlimited lengths
- Supporting components and glass joint sections may be from mild or stainless steel. Brackets may be a continuous angle or may comprise individual brackets at each mounting hole position.
- Options for smoke screen design variants include:
 - non-linear runs (including 90° and faceted joint details)
 - non-rectilinear shapes (arched, semi-circular, triangular etc)
 - curved glass
 - Notches, cut-outs etc.

The glass shall be glazed utilising the following basic specification (see report WFRC No. C126363 for details and alternatives):



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Karl Deygen

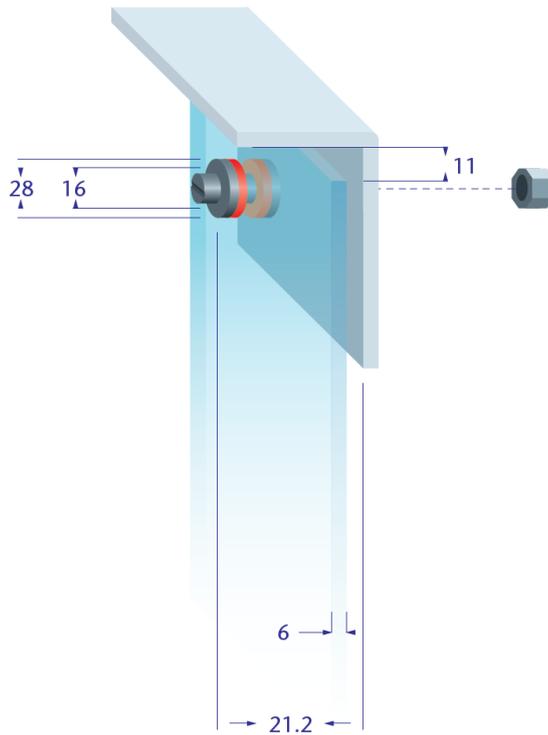
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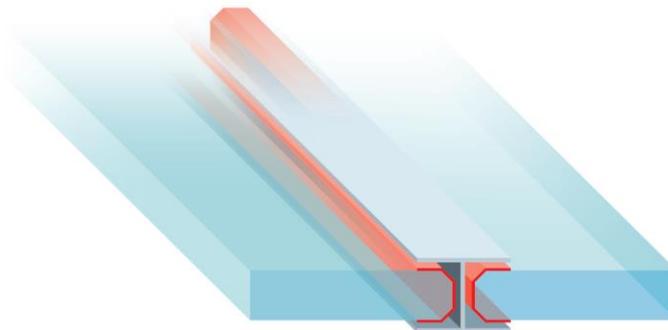
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PYRAN S FIRE RESISTING GLASS

PYRAN S for use in smoke screens to BS7346: Part 3: 1990 for a period of up to 60 minutes



Section A- Hanging Details



Optional Joint Details

When installed within smoke screens, PYRAN S may be used in various applications and designs. Please check with the SCHOTT Technical Department for available options and the installation specifications/requirements.

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PYRAN S FIRE RESISTING GLASS

PYRAN S (un-drilled specification) for use in smoke screens to EN 1364-1 for a period of up to 60 minutes

8, 10 and 12 mm thick PYRAN S may be used within smoke screen assemblies up to the maximum pane dimensions detailed within the table below:

Glass	Thickness (mm)	Performance to EN 1364-1 (mins)	Maximum Height (mm)	Maximum Width (mm)	Maximum Area (m ²)
PYRAN S	8 mm (min.)	up to 60	845	3000	2.54

- Smoke screens incorporate a three sided frame (top and sides) which is of a pressure glazing design supporting a single pane of 8 mm Pyran S glass (glass joints are not permitted)
- Supporting and glazing components to be as tested under the reference EFR-17-V-000393 B

When installed within smoke screens, undrilled PYRAN S may be used in specific applications and designs. Please check with the SCHOTT Technical Department for available options and the installation specifications/requirements.

This certification is provided to the client for their own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

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