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## CERTIFICATE OF APPROVAL

### No CF 386

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This is to certify that, in accordance with  
CERTIFIRE's Rules for Certification  
The undermentioned products of

## SCHOTT UK LIMITED

Drummond Road, Stafford. ST16 3EL  
Tel: 01785 223166 Fax: 01785 223522

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

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#### CERTIFIED PRODUCT

'Pyranova S2.0/2.1'  
Fire Resisting Glass

#### TECHNICAL SCHEDULE

TS 25 Fire Resistant Glass,  
Glazing Systems and Materials

Signed and sealed for and on behalf of CERTIFIRE

A handwritten signature in black ink, appearing to read "Sir Ken Knight".

Sir Ken Knight  
Chairman - Management Council

Issued: 12<sup>th</sup> April 2005  
Revised: 29<sup>th</sup> January 2007  
Valid to: 11<sup>th</sup> April 2010

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**CERTIFICATE No CF 386**  
**SCHOTT UK LIMITED**

**Pyranova S2.0/2.1 Fire Resisting Glass**

This Certificate of Approval relates to the fire resistance of Schott UK Limited 'Pyranova S2.0/2.1' laminated glass products when used in the following applications, as defined in BS EN 1364-1: 1999 subject to the undermentioned conditions.

Glass Specification	Application	Fire Resistance Performance (mins)		Page No.
		Integrity	Insulation	
Pyranova 15-S2.0/2.1	Timber Based Door Leaves	30	Up to 30	4 – 5
Pyranova 15-S2.0/2.1	Timber Framed Fixed Lights	30	Up to 30	6
Pyranova 30-S2.0/2.1	Timber framed screens	30	30	7
Pyranova 30 S2.0/2.1	Steel framed screens	30	30	8
Pyranova 30 S2.0/2.1	Butt-Jointed in timber screens	30	30	9 – 10
Pyranova 30 S2.0/2.1	DGU's in steel based doorsets	30	30	11
Pyranova 30 S2.0/2.1	DGU's in metallic framed screens	30	30	12 – 13
Pyranova 30 S2.0/2.1	DGU's in metallic framed screens	60	30	14
Pyranova 30 S2.0/2.1	Planline in timber framed screens	30	30	15 – 16
Pyranova 30 S2.0/2.1	Planline in timber framed doorsets	30	30	17 – 18
Pyranova 30 S2.0/2.1	Planline in steel framed screens	30	30	19 – 20
Pyranova 30 S2.0/2.1	Planline in steel framed doorsets	30	30	21 – 22
Pyranova 60 S2.0/2.1	Timber framed screens	60	60	23
Pyranova 60 S2.0/2.1	Steel framed screens	60	60	24

This product is approved on the basis of:

- a) Initial type testing
- b) A design appraisal against TS25
- c) Product surveillance under BS EN ISO 9001: 2000
- d) Audit testing

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

**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. Orientation may, however, be restricted by the requirements of a non-symmetrical framing system or certain double glazed units specifications.

The edge cover to each pane shall be no less than 15 mm minimum in all systems that utilise frames.



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**Pyranova S2.0/2.1 Fire Resisting Glass**

The glass is approved in the following nominal thicknesses:

Glass Specification	Application	Fire Resistance Performance (mins)	
		Integrity	Insulation
Pyranova 15-S2.0	11 mm thick (internal)	30	Up to 30
Pyranova 15-S2.1	15 mm thick (external)	30	Up to 30
Pyranova 30-S2.0	15 mm thick (internal)	30*	30
Pyranova 30-S2.1	19 mm thick (external)	30*	30
Pyranova 60-S2.0	23 mm thick (internal)	60	60
Pyranova 60-S2.1	27 mm thick (external)	60	60

\* May be used for 60 minutes integrity as part of a double glazed unit

**Maximum Cut Size of Pyranova**

The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.

**Silk Screening and Sand-Blasting**

The Pyranova glass may be provided with silk screen printing with any colour from the 'RAL' range to either face within both single and double glazed systems. The printing may account for any area of the glass.

Similarly, sand-blasting may be included to either face of the glass. The sand-blasting may account for any area of the glass.

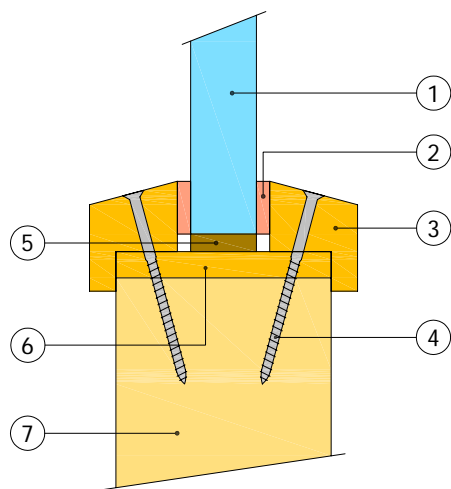
Additionally, sheets of plain, patterned, textured or coloured glass may be laminated to the base product. A silk sheet material may be included within the extra laminate/interlayer.

Alternatively patterned, textured or coloured glass may be substituted for one of the 3 mm annealed float elements in the base product.

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**Pyranova 15-S2.0/2.1 Glass in timber door leaves for periods of 30 minutes integrity and 30 or 15 minutes insulation**

The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



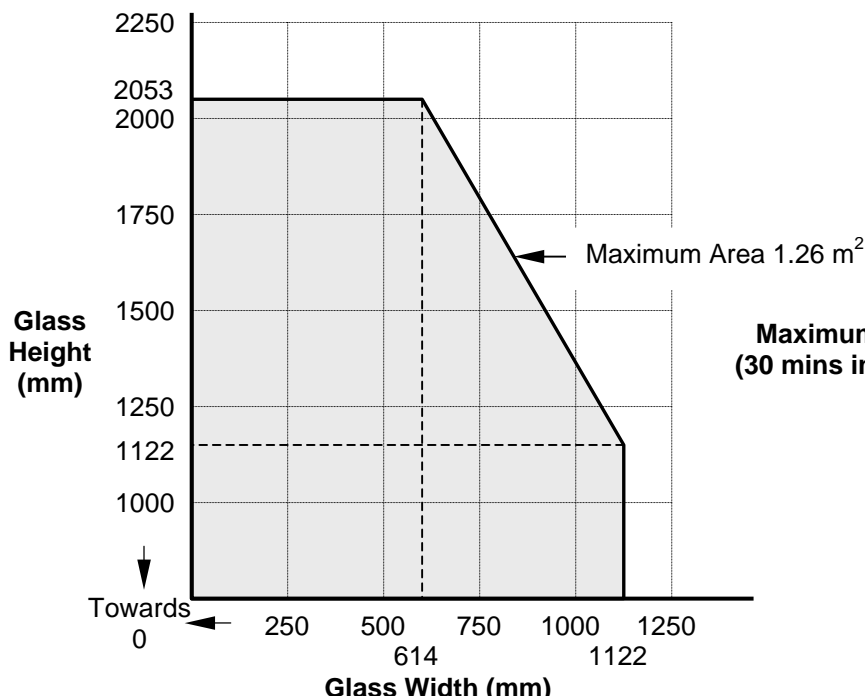
- 1 Pyranova 15-S2.0/2.1 glass
- 2 12 mm by 3 mm Hodgson Sealants Firestrip 30
- 3 Hardwood glazing beads 25 mm high by 20 mm wide (minimum) including 9 mm high by 6 mm wide bolection, either square or up to 15° chamfer, minimum density 640 kg/m<sup>3</sup>
- 4 45 mm long steel screws at 150 mm centres (30 - 45° to glass)
- 5 Non-combustible setting blocks
- 6 Minimum 6 mm thick hardwood aperture liner (not required on door leaves with a softwood / hardwood timber core of density > 550 kg/m<sup>3</sup>)
- 7 FD30 door leaf

- The doorset, including door frame and associated building hardware, should have achieved at least 30 minutes integrity (and up to 30 minutes insulation) when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987 or BS EN 1634-1: 2000.
- The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
- 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.
- The door leaves shall consist of timber faces coupled with timber or other cellulosic cores of minimum overall leaf thickness, 44 mm.
- When an alternative CERTIFIRE approved glazing system is used, the system shall have been shown to be capable of including Pyranova 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.
- 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 Pyranova glass shown in Figures 1 and 2, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

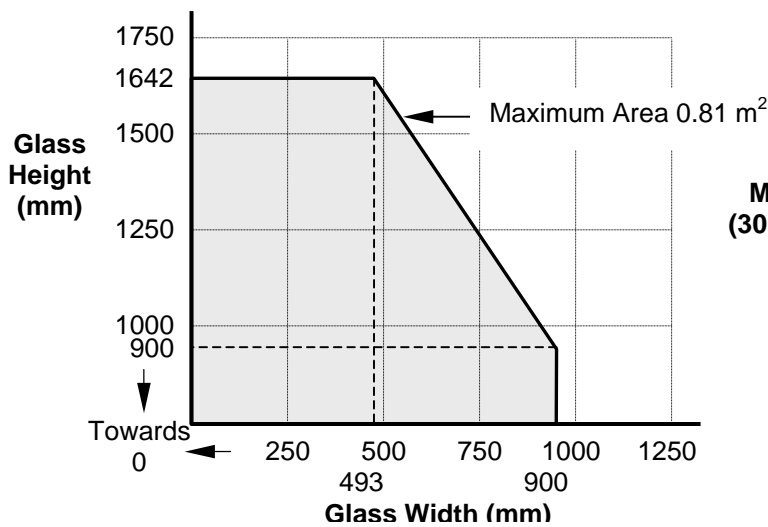
**CERTIFICATE No CF 386**  
**SCHOTT UK LIMITED**

**Pyranova 15-S2.0/2.1 Glass in timber door leaves for periods of 30 minutes integrity and 30 or 15 minutes insulation**

This Certificate of Approval relates to the sizes of Pyranova 15-S2.0/2.1 glass shown in Figures 1 and 2, when used in conjunction with the system detailed within the preceding figures:



**Figure 1.**  
**Maximum Permitted Pane Dimensions**  
**(30 mins integrity and 15 mins insulation)**



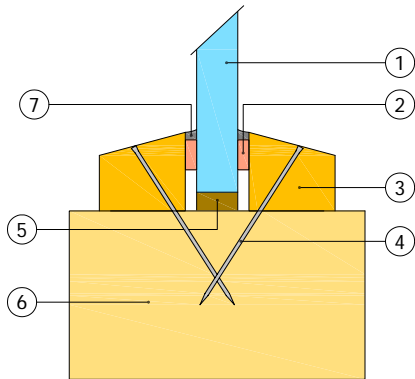
**Figure 2.**  
**Maximum Permitted Pane Dimensions**  
**(30 mins integrity and 30 mins insulation)**



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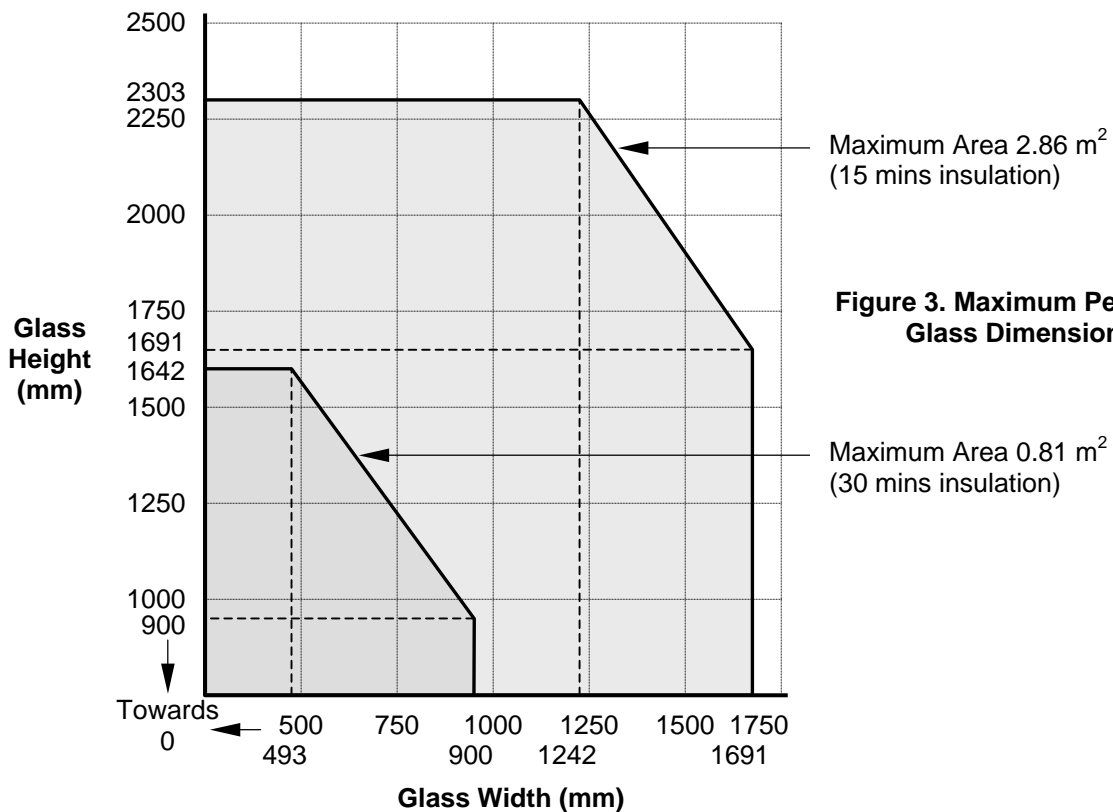
**Pyranova 15-S2.0/2.1 Glass in timber framed fixed lights for periods of 30 minutes integrity and 30 or 15 minutes insulation**

The glass shall be glazed utilising the following basic specification:



- 1 Pyranova 15-S2.0/2.1 glass
- 2 12 mm by 3 mm Hodgson Sealants Firestrip 30
- 3 21 mm high by 23 mm wide square or up to 15° chamfered hardwood glazing beads, minimum density 640 kg/m<sup>3</sup>
- 4 51 mm long steel oval nails or screws at 150 mm centres (45° to glass)
- 5 Non-combustible setting blocks
- 6 79 mm by 45 mm (minimum) softwood framing sections, minimum density 450 kg/m<sup>3</sup>
- 7 Neutral silicone capping

This Certificate of Approval relates to the sizes of Pyranova 15-S2.0/2.1 glass shown in Figure 3 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **This system shall only be used for single fixed lights, i.e transoms and mullions are not permitted.**

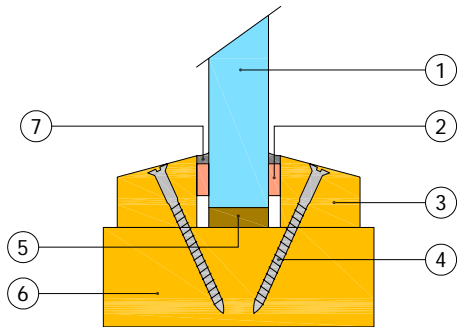


**Figure 3. Maximum Permitted Glass Dimensions**

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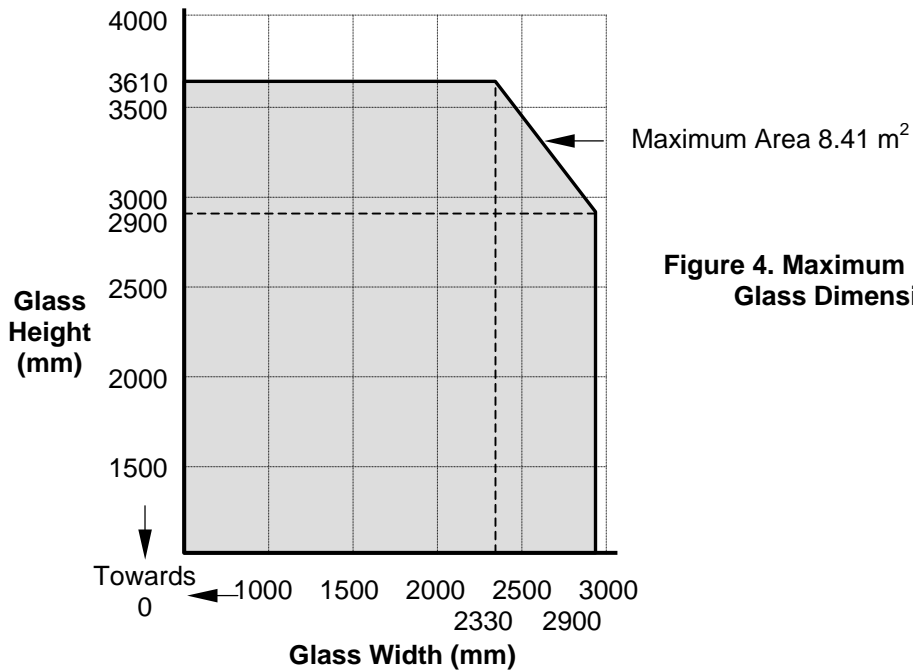
**Pyranova 30-S2.0/2.1 Glass in timber framed screens for periods of 30 minutes integrity and insulation**

The glass shall be glazed utilising the following basic specification:



- 1 Pyranova 30-S2.0/2.1 glass
- 2 8 mm wide by 3 mm thick closed cell foam tape
- 3 18 mm high by 20 mm wide square or up to 10° chamfered softwood glazing beads, minimum density 450 kg/m<sup>3</sup>
- 4 40 mm long steel screws at 400 mm centres (30° to glass)
- 5 Non-combustible setting blocks
- 6 68 mm by 20 mm (minimum) softwood framing sections, minimum density 450 kg/m<sup>3</sup>
- 7 Neutral silicone capping

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass shown in Figure 4 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.**



**Figure 4. Maximum Permitted Glass Dimensions**



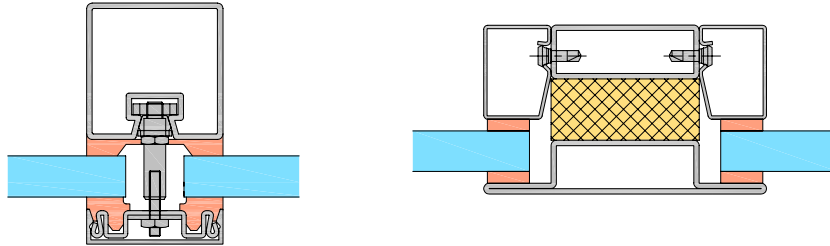
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**Pyranova 30-S2.0/2.1 Glass in steel framed screens for periods of 30 minutes integrity and insulation**

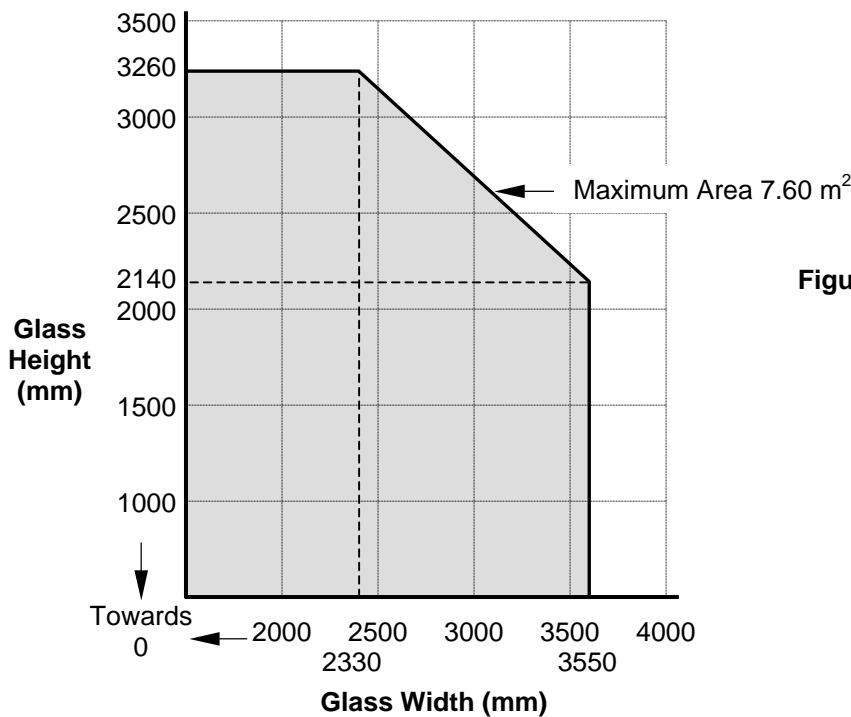
The glass shall be glazed within a previously fire tested or CERTIFIRE approved insulated steel framing system utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass
- 15 mm by 6 mm ceramic fibre based glazing tape

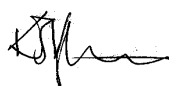
The insulated steel framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions. Examples of framing systems are shown below.



This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass shown in Figure 5 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.**



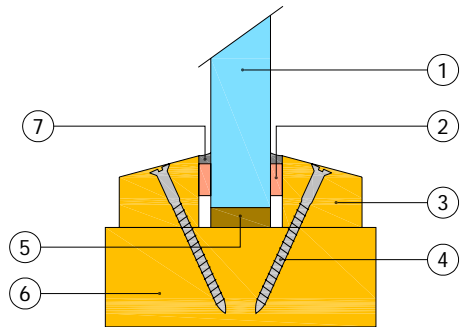
**Figure 5. Maximum Permitted Glass Dimensions**



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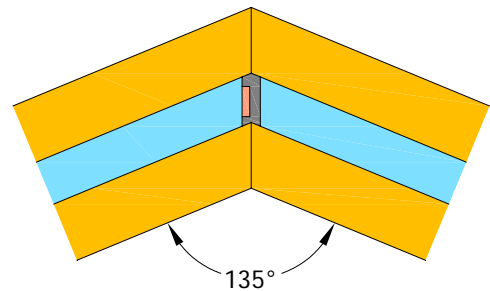
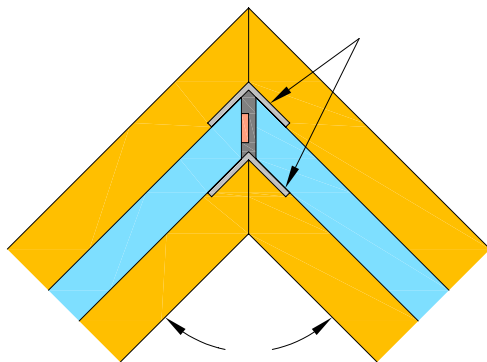
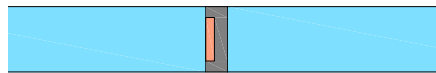
**Butt-Jointed Pyranova 30-S2.0/2.1 Glass in timber framed screens for periods of 30 minutes integrity and insulation**

The glass shall be glazed utilising the following basic specification:



- 1 Pyranova 30-S2.0/2.1 glass
- 2 8 mm wide by 3 mm thick closed cell foam tape
- 3 28 mm high by 20 mm wide square or up to 10° chamfered hardwood glazing beads, minimum density 550 kg/m<sup>3</sup>
- 4 60 mm long steel screws at 300 mm centres (30° to glass)
- 5 Non-combustible setting blocks
- 6 70 mm by 40 mm (minimum) hardwood framing sections, minimum density 550 kg/m<sup>3</sup>
- 7 Neutral silicone capping

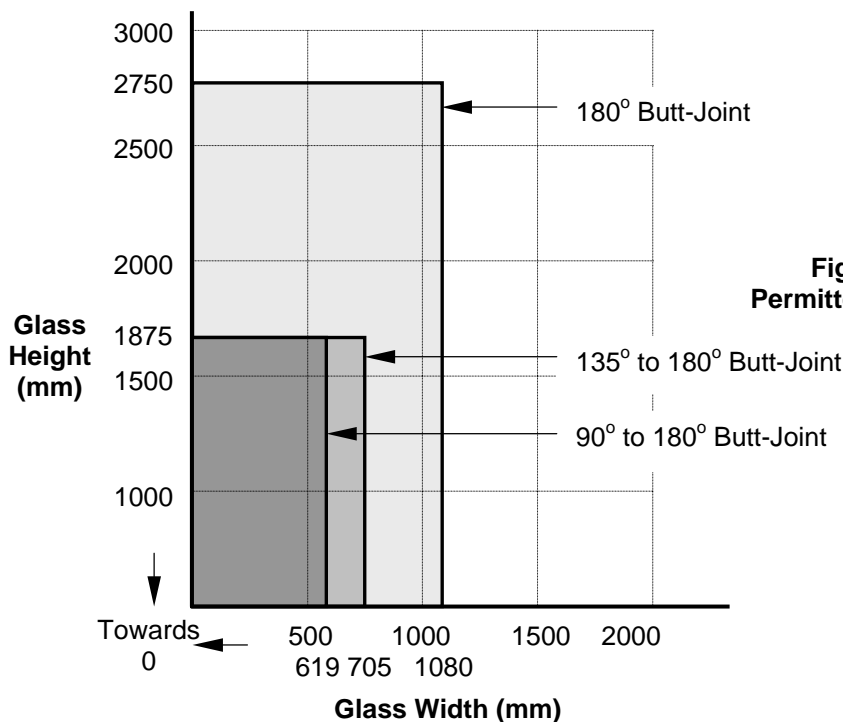
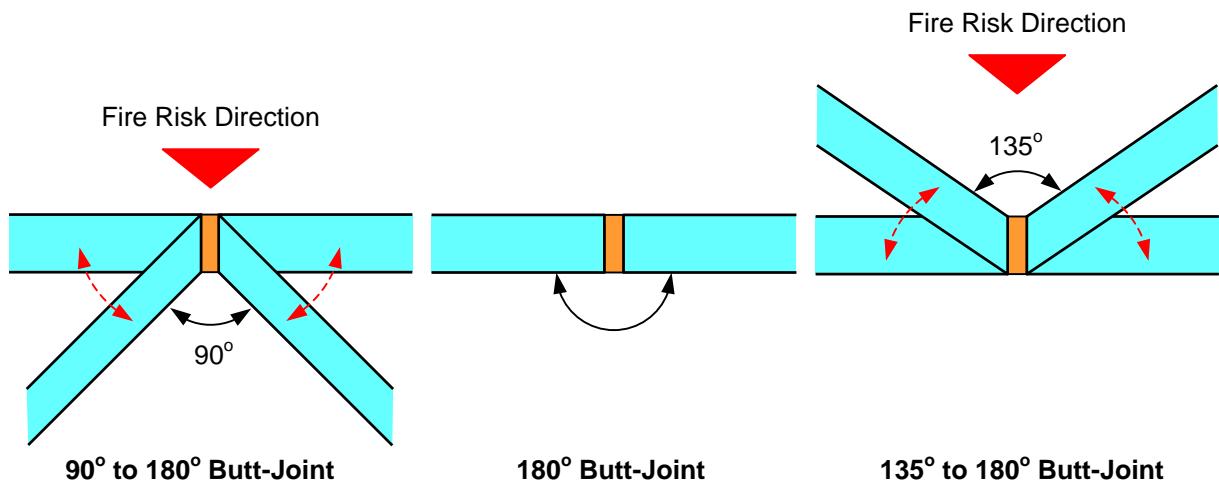
The system may include vertically orientated butt joints in a range of angles. In order to ensure the correct specification is utilised for such specialist glazing, further information should be sought from the manufacturer.



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**Butt-Jointed Pyranova 30-S2.0/2.1 Glass in timber framed screens for periods of 30 minutes integrity and insulation (continued)**

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass shown in Figure 6, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. The maximum permitted pane dimensions depend on the butt-joint specification and also requires the fire risk side to be identified for angled butt-joints.





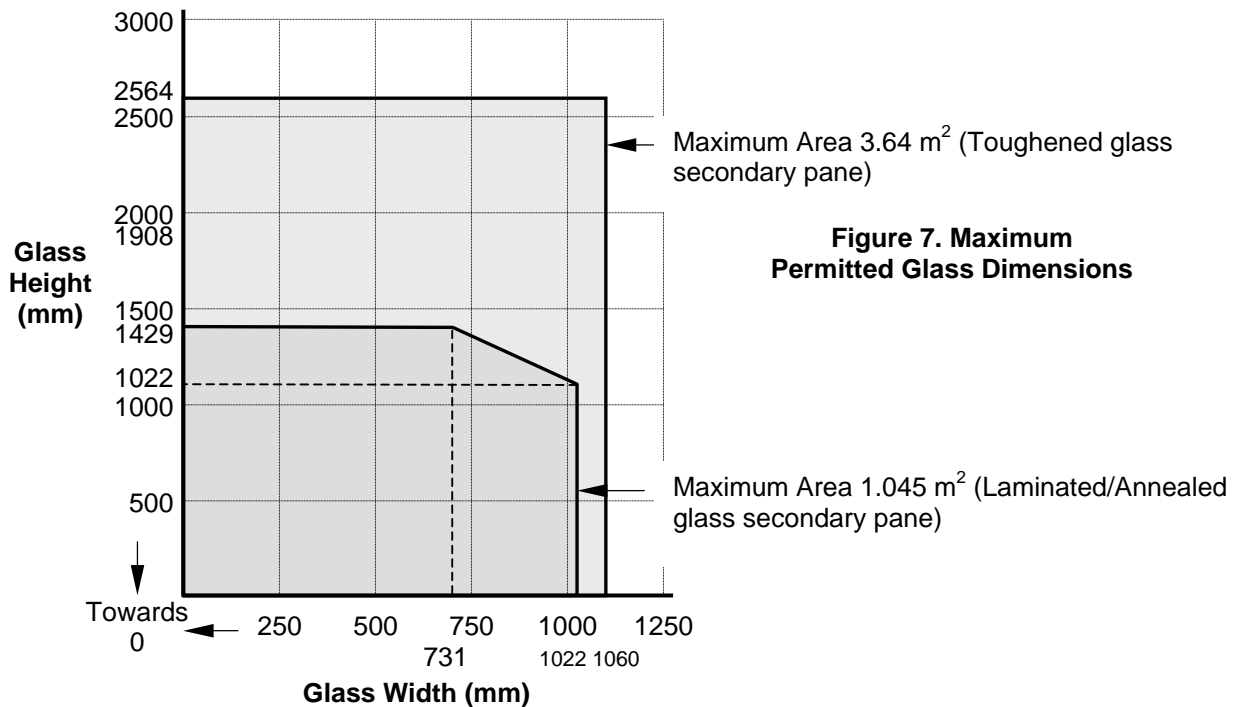

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**Pyranova 30-S2.0/2.1 Glass within Double Glazed Units in metallic (steel or aluminium) Doorsets for periods of 30 minutes integrity and insulation**

The glass shall be glazed within a previously fire tested or CERTIFIRE approved insulated metallic (steel or aluminium) doorset utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass – aluminium spacer – minimum 4 mm thick glass of any type including toughened, laminated, annealed or Low E glass
- 15 mm by 6 mm ceramic fibre based glazing tape
- Double glazed units may be installed with Pyranova to either face.
- Internally fitted Venetian Blinds may be included within the units.
- The doorset, including door frame and associated building hardware, should have achieved at least 30 minutes integrity and insulation when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987 or BS EN 1634-1: 2000.
- The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
- 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.

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 double glazed units shown in Figure 7 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



**Figure 7. Maximum Permitted Glass Dimensions**



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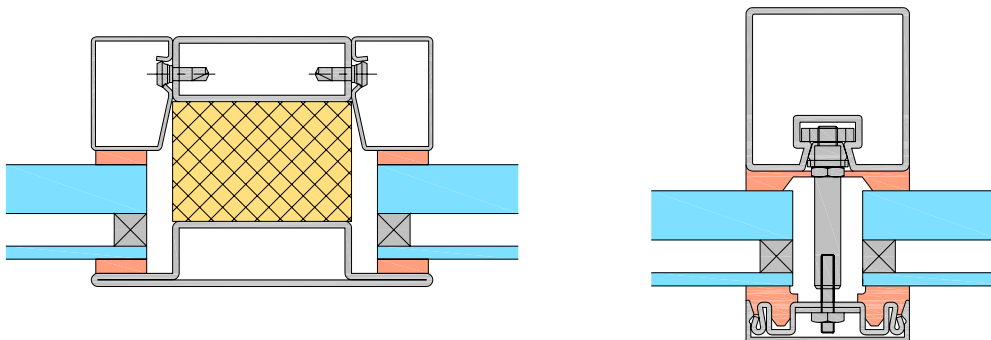
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**Pyranova 30-S2.0/2.1 Glass within Double Glazed Units in metallic (steel or aluminium) framed screens for periods of 30 minutes integrity and insulation**

The glass shall be glazed within a previously fire tested or CERTIFIRE approved insulated metallic (steel or aluminium) framing system utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass – aluminium spacer – minimum 4 mm thick glass of any type including toughened, laminated, annealed or Low E glass
- 15 mm by 6 mm ceramic fibre based glazing tape
- Double glazed units may be installed with Pyranova to either face.
- Venetian Blinds may be included within the units.

The insulated metallic (steel or aluminium) framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions. Examples of framing systems are shown below:



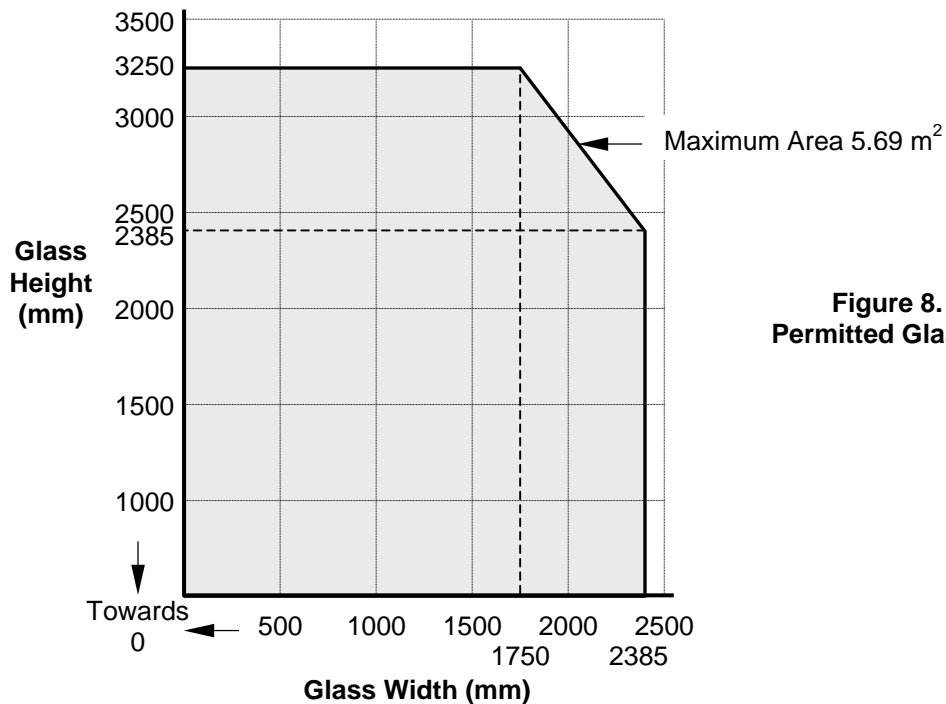
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**SCHOTT UK LIMITED**

**Pyranova 30-S2.0/2.1 Glass within Double Glazed Units in metallic (steel or aluminium) framed screens for periods of 30 minutes integrity and insulation (continued)**

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass shown in Figure 8 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.**



**Figure 8. Maximum Permitted Glass Dimensions**

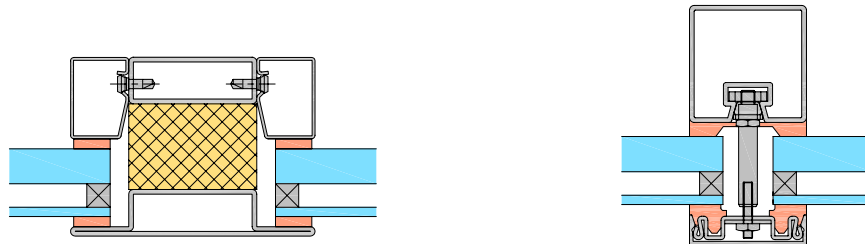
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**Pyranova 30-S2.0/2.1 Glass within Double Glazed Units in metallic (steel or aluminium) framed Screens for periods of 60 minutes integrity and 30 minutes insulation**

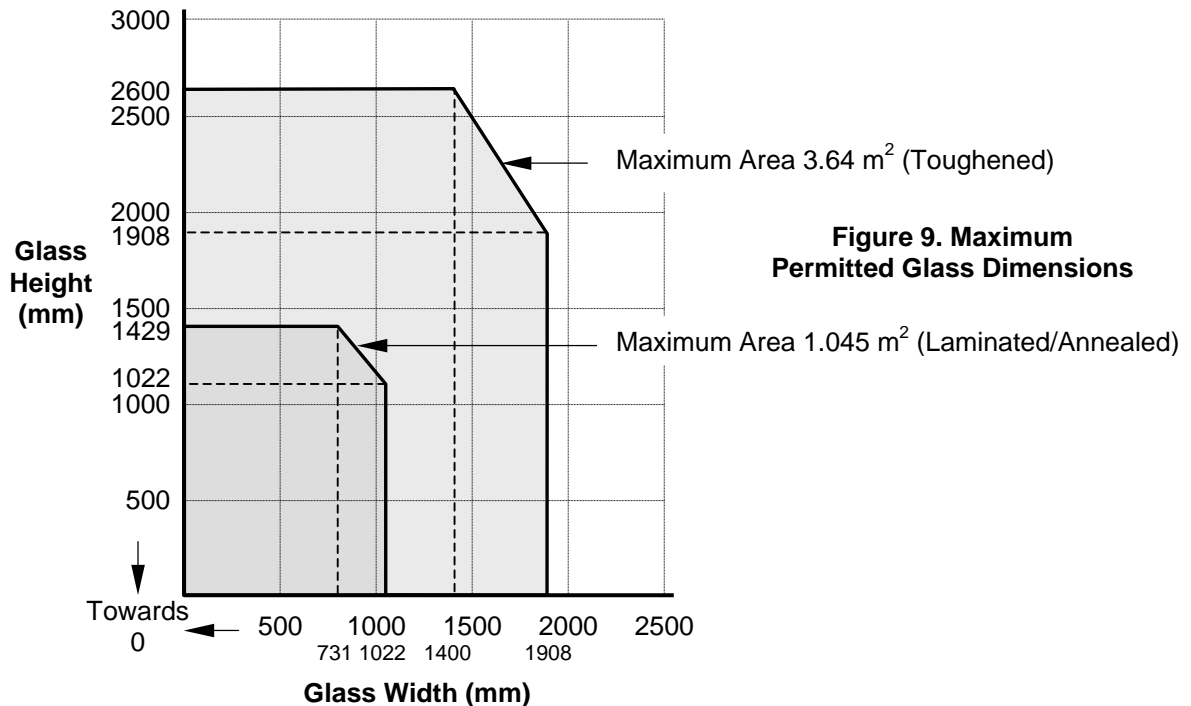
The glass shall be glazed within a previously fire tested or CERTIFIRE approved insulated metallic (steel or aluminium) framing system utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass – aluminium spacer – minimum 4 mm thick glass of any type including toughened, laminated, annealed or Low E glass
- 15 mm by 6 mm ceramic fibre based glazing tape
- Double glazed units may be installed with Pyranova to either face.

The insulated metallic (steel or aluminium) framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions. Examples of framing systems are shown below:



This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass shown in Figure 9 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



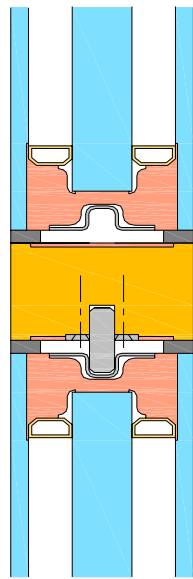

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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within timber screens**

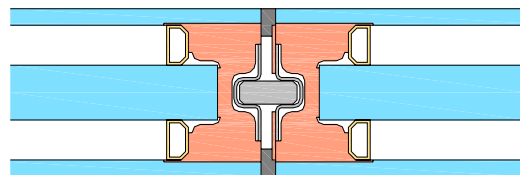
The glass shall be glazed within an external perimeter timber framing assembly as detailed within sketched below utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass
- 6 mm thick toughened glass to both faces
- Proprietary timber framing system
- Either butt jointed or timber jointed (See figures below)

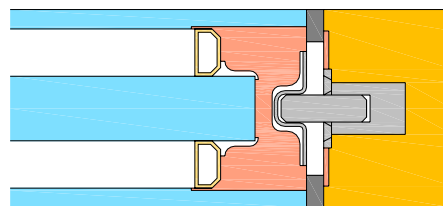
The glass is retained in position via 'locking pins' which locate within the external perimeter timber frame assembly.



Mullion Cross-Section



Butt-jointed Cross-Section



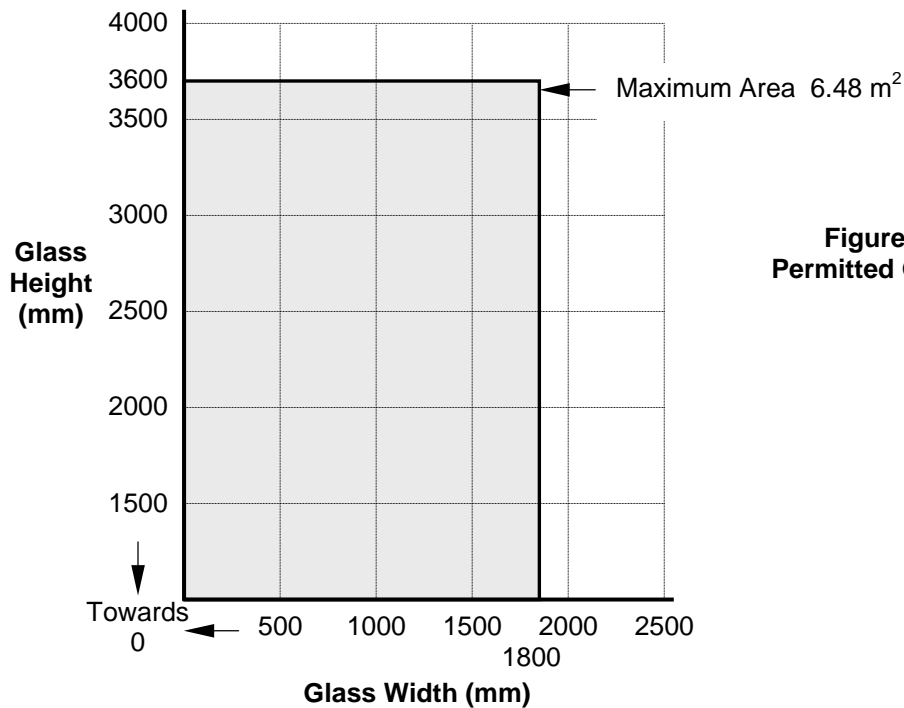
Perimeter Detail



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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within timber screens (continued)**

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass units shown in Figure 10 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.**



**Figure 10. Maximum Permitted Glass Dimensions**



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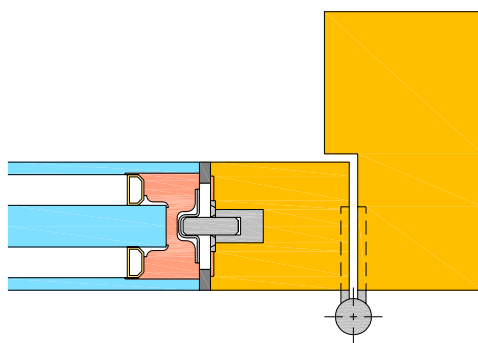
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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within timber based doorsets**

The glass shall be glazed within an external perimeter steel based framing assembly as detailed within sketched below utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass.
- 6 mm thick toughened glass to both faces.
- The doorset, including door frame and associated building hardware, should have achieved at least 30 minutes integrity (and up to 30 minutes insulation) when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987 or BS EN 1634-1: 2000.
- The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
- 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.
- The door leaves shall consist of timber faces coupled with timber or other cellulosic cores of minimum overall leaf thickness, 54 mm.

The glass is retained in position via 'locking pins' which locate within the external perimeter timber leaf assembly.



Perimeter Detail

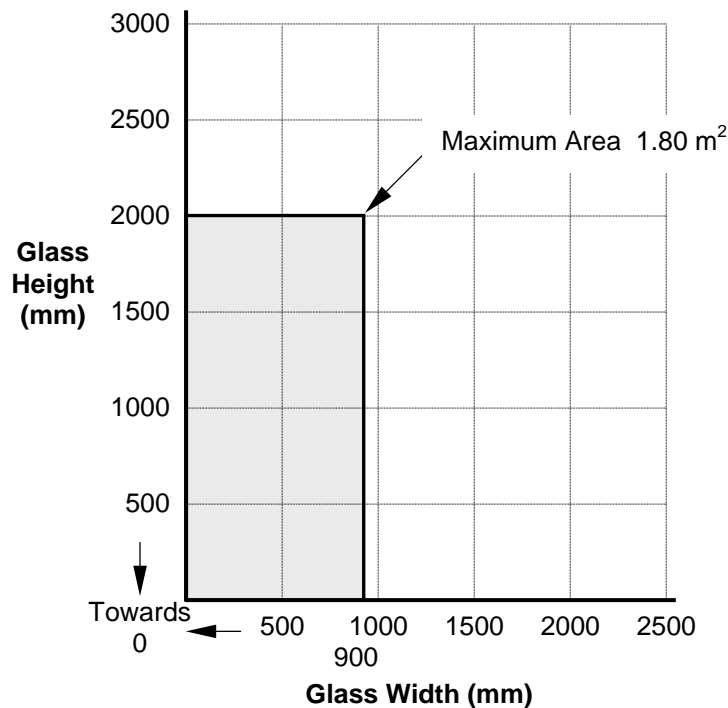
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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within timber based doorsets (continued)**

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass units shown in Figure 11 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



**Figure 11. Maximum Permitted Glass Dimensions**

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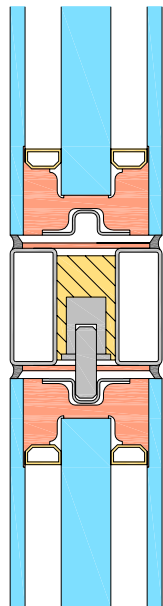
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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within steel screens**

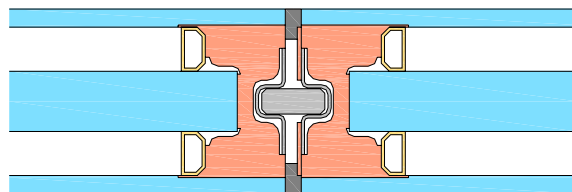
The glass shall be glazed within an external perimeter steel based framing assembly as detailed within sketched below utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass
- 6 mm thick toughened glass to both faces
- Forster 'Fuego Light' insulated steel based framing system
- Either butt jointed or framed to all four sides (See figures below)

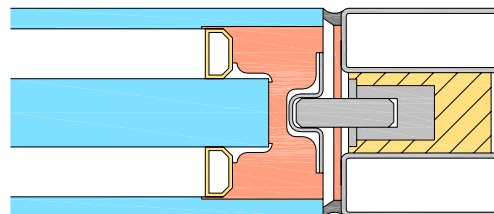
The glass is retained in position via 'locking pins' which locate within the external perimeter frame assembly.



Mullion Cross-Section



Butt-jointed Cross-Section



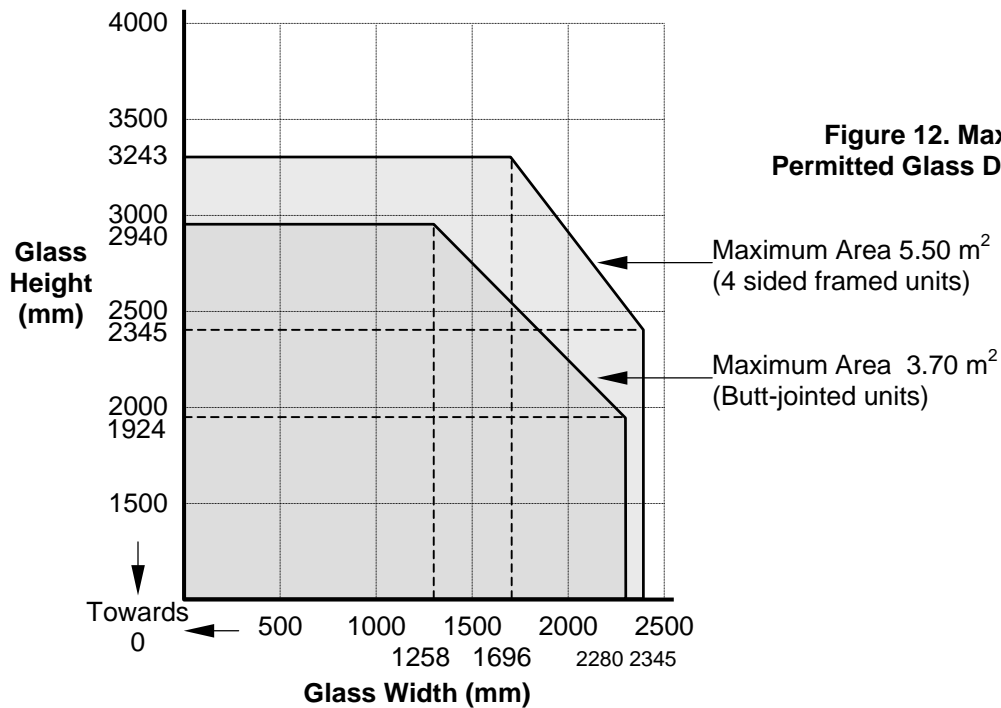
Perimeter Detail



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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within steel screens (continued)**

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass units shown in Figure 12 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.**





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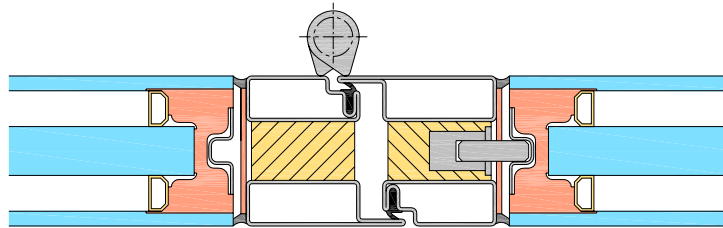
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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within steel doorsets**

The glass shall be glazed within an external perimeter steel based framing assembly as detailed within sketched below utilising the following basic specification:

- Pyranova 30-S2.0/2.1 glass
- 6 mm thick toughened glass to both faces
- Forster 'Fuego Light' insulated steel based framing system

The glass is retained in position via 'locking pins' which locate within the steel doorset assembly.



Perimeter Detail

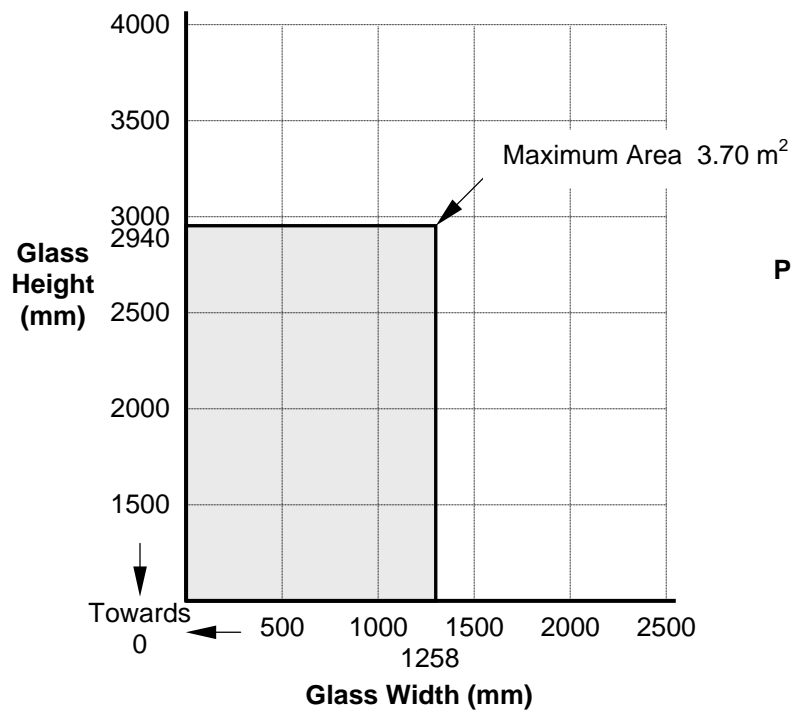
A handwritten signature in black ink, appearing to be "K. J. ...".



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**Pyranova 30-S2.0/2.1 Glass within Planline System for periods of 30 minutes integrity and insulation within steel doorsets (continued)**

This Certificate of Approval relates to the sizes of Pyranova 30-S2.0/2.1 glass units shown in Figure 13 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

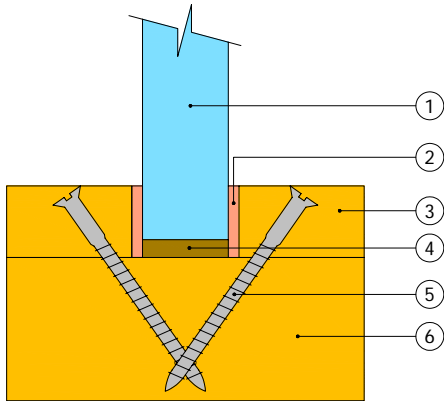


**Figure 13. Maximum Permitted Glass Dimensions**

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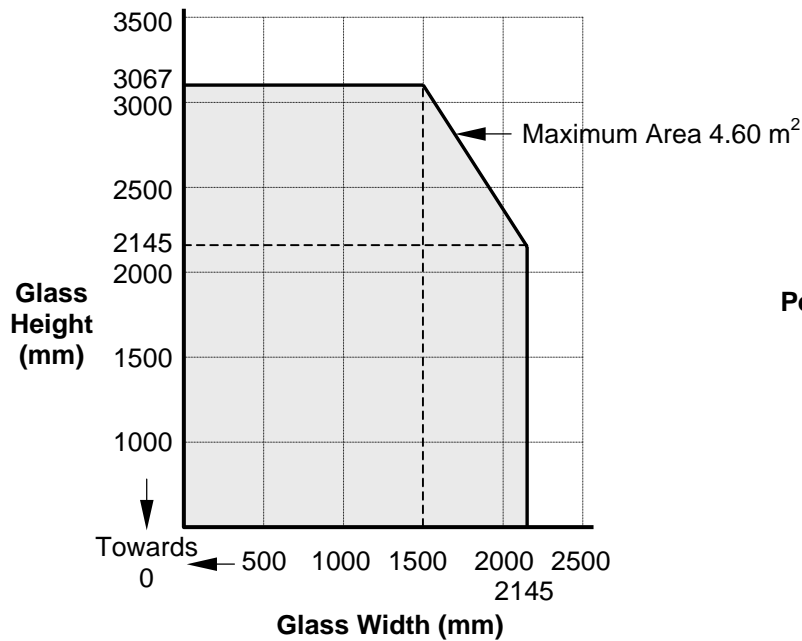
**Pyranova 60-S2.0/2.1 Glass in timber framed screens for periods of 60 minutes integrity and insulation**

The glass shall be glazed utilising the following basic specification:

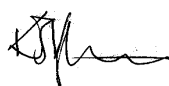


- 1 Pyranova 60-S2.0/2.1 glass
- 2 20 mm wide by 4 mm thick ceramic fibre based glazing tape
- 3 20 mm high by 30 mm wide square hardwood glazing beads, minimum density 600 kg/m<sup>3</sup>
- 4 Non-combustible setting blocks
- 5 70 mm long steel screws at 200 mm centres (30° to glass)
- 6 100 mm by 40 mm (minimum) hardwood framing sections, minimum density 600 kg/m<sup>3</sup>

This Certificate of Approval relates to the sizes of Pyranova 60-S2.0/2.1 glass shown in Figure 14 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.**



**Figure 14. Maximum Permitted Glass Dimensions**



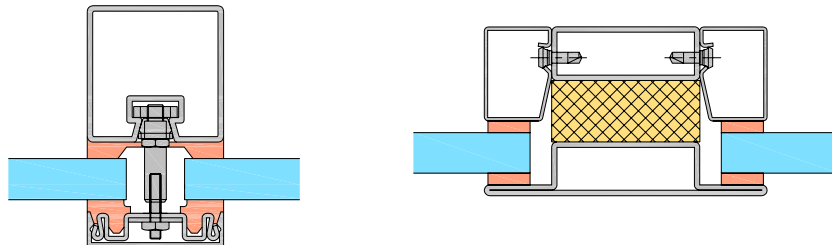
**CERTIFICATE No CF 386**  
**SCHOTT UK LIMITED**

**Pyranova 60-S2.0/2.1 Glass in steel framed screens for periods of 60 minutes integrity and insulation**

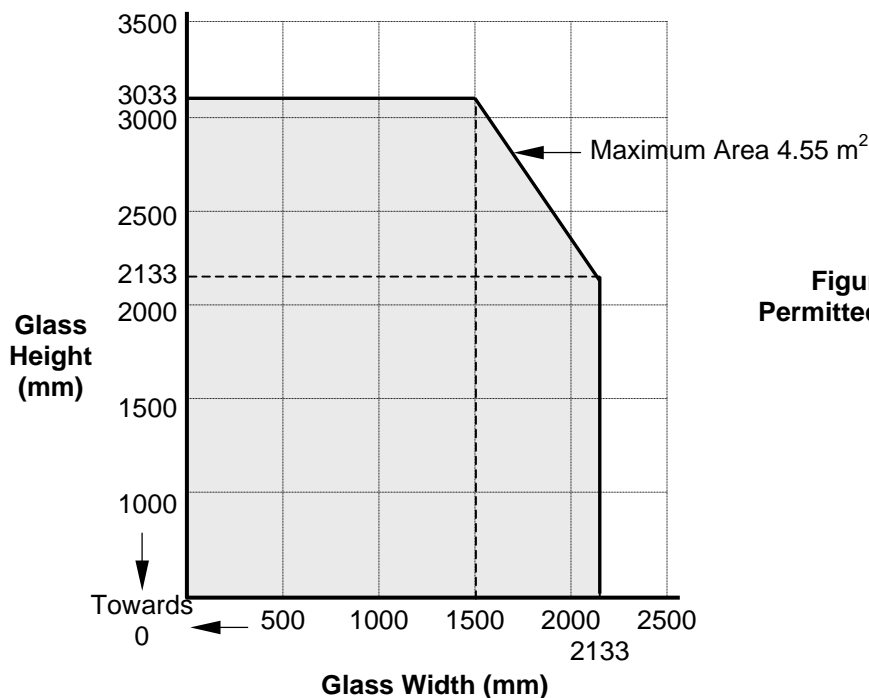
The glass shall be glazed within a previously fire tested or CERTIFIRE approved insulated steel framing system utilising the following basic specification:

- Pyranova 60-S2.0/2.1 glass
- 15 mm by 6 mm ceramic fibre based glazing tape

The insulated steel framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions. Examples of framing systems are shown below.



This Certificate of Approval relates to the sizes of Pyranova 60-S2.0/2.1 glass shown in Figure 15 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **The range of Pyranova glasses is currently available up to a maximum size of 2900 mm by 1900 mm.**



**Figure 15. Maximum Permitted Glass Dimensions**

