



CERTIFICATE OF APPROVAL

No CF 386

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

'PYRANOVA® S2.0/2.1' Fire
Resisting Glass

TECHNICAL SCHEDULE

TS 25 Fire Resistant Glass,
Glazing Systems and Materials

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.

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

Paul Duggan
Certification Manager



Issued: 12th April 2005
Reissued: 12th November 2020
Valid to: 11th November 2025

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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® S2.0.7	Timber based door leaves	30	0	6
PYRANOVA® S2.1.11	Timber based door leaves	30	0	7
PYRANOVA® S2.0.7	Timber framed screens	30	0	8
PYRANOVA® S2.0.7	Timber framed fixed lights	30	0	9
PYRANOVA® S2.0.7	Steel framed screens	30	0	10
PYRANOVA® S2.1.11	Timber framed screens	30	0	11
PYRANOVA® S2.1.11	IGU's in Timber framed screens	30	0	12
PYRANOVA® S2.0.7/S2.1.11	IGU's in Steel framed screens	30	0	13
PYRANOVA® S2.0.11/S2.1.15	Timber based door leaves	30	Up to 30	14
PYRANOVA® S2.0.11/S2.1.15	Timber framed fixed lights	30	Up to 30	16
PYRANOVA® S2.0.11/S2.1.15	Timber framed screens	30	30	17
PYRANOVA® S2.0.11/S2.1.15	Steel framed screens	30	30	18
PYRANOVA® S2.0.11/S2.1.15	Timber based door leaves	60	0	19
PYRANOVA® S2.0.11/S2.1.15	Timber framed screens	60	0	21
PYRANOVA® S2.0.11/S2.1.15	Steel framed fixed lights	60	0	22
PYRANOVA® S2.0.11	Laminated Butt-Jointed in timber screens	30	30	23
PYRANOVA® 30-S2.0/2.1	Timber based door leaves	30	30	24
PYRANOVA® 30-S2.0/2.1	Timber framed screens	30	30	25
PYRANOVA® 30 S2.0/2.1	Steel based door leaves	30	30	26
PYRANOVA® 30 S2.0/2.1	Steel framed screens	30	30	28
PYRANOVA® 30 S2.0/2.1	IGU's in steel based door leaves	30	30	29
PYRANOVA® 30-S2.0/2.1	IGU's in Timber framed screens	30	30	31
PYRANOVA® 30-S2.0/2.1	Triple glazed IGU's in Timber framed screens	30	30	32
PYRANOVA® 30 S2.0/2.1	IGU's in steel framed screens	30	30	33
PYRANOVA® 30-S2.0/2.1	IGU's in Timber framed screens	60	30	35
PYRANOVA® 30 S2.0/2.1	IGU's in steel framed screens	60	30	36
PYRANOVA® 30-S2.0/2.1	Aluminium Screens & Doors	30	30	37
PYRANOVA® 30 S2.0/2.1	Aluminium Screens & Doors	30	30	38
PYRANOVA® 30 S2.0/2.1	Butt-Jointed in timber screens	30	30	39
PYRANOVA® 30 S2.1	Butt-Jointed in timber screens	30	30	41
PYRANOVA® 30 S2.0/2.1	Butt-Jointed in steel screens	30	30	43
PYRANOVA® 60 S2.0/2.1	Steel door leaves	60	60	45
PYRANOVA® 60 S2.0/2.1	Timber framed screens	60	60	46
PYRANOVA® 60 S2.0/2.1	Steel framed screens	60	60	47
PYRANOVA® 60 S2.0/2.1	IGU's in timber framed screens	60	60	48
PYRANOVA® 60 S2.0/2.1	IGU's in steel framed screens	60	60	49

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This product is approved on the basis of:

- a) Initial type testing
- b) A design appraisal against TS25
- c) Certification of quality management system to BS EN ISO 9001: 2008
- d) Inspection and surveillance of factory production control
- e) Audit Testing in accordance with TS25

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 insulating glass unit specifications. The edge cover to each pane shall be no less than 12 mm minimum in all systems that utilise frames.

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 [®] S2.0.7	7 mm thick (internal)	30	0
PYRANOVA [®] S2.1.11	11 mm thick (external)	30	0
PYRANOVA [®] S2.0.11	11 mm thick (internal)	Up to 60	Up to 30
PYRANOVA [®] S2.1.15	15 mm thick (external)	Up to 60	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 an insulating glass 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. Please consult our UK stockists for details of the maximum cut sizes available. The maximum available size will also vary depending on fire rating and therefore these dimensions should be used for guidance only. Please check with the SCHOTT Technical Department.

Insulated Glass Units (IGU's)

For IGU options specification is PYRANOVA[®] glass – spacer – minimum 4 mm thick glass of any type including toughened, laminated or annealed with or without Low E/solar control coatings.



Silk Screening and Sand-Blasting

In an IGU the secondary pane (counterpane) may be provided with silk screen printing with any colour from the 'RAL' range to either face. The printing may account for any area of the glass.

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.

Butt Jointed Systems

The PYRANOVA[®] glass panes used in butt jointed systems may be substituted with thicker panes without compromising either the fire resistance performance, the maximum permitted glass dimensions or the butt joint specifications.

Multi-Paned Systems

PYRANOVA S2 products may be installed in multi-pane glazed screens incorporating transoms and mullions unless indicated otherwise.

Laminated PYRANOVA[®]

Additional glass from 6 to 19 mm thickness may be laminated to any thickness of PYRANOVA[®] glass using an interlayer from 0.38mm to 1.52 mm thickness.

PYRANOVA[®], when laminated as described above, may be used in any timber or steel framed assemblies (including butt jointed options) covered by this certificate but subject to a maximum pane size of 4.8 m².

Other Glass Combinations

PYRANOVA[®] glass products detailed in this Certificate are also suitable for use either in combination with or laminated to SmartGlass and/or X Ray glass and may be used as one or more panes of a fire tested Insulating Glass Unit construction.

Thinner versions of PYRANOVA[®] may be substituted with thicker versions to attain the same, or greater, level of fire performance but not reduced in thickness. For example, 15 mm thick PYRANOVA[®] may be substituted with 23 mm thick PYRANOVA[®].

Hidden Frame Installation Option

Steel angles of minimum dimension 25 x 25 x 3mm thick may be used to support PYRANOVA 30 as perimeter glazing provided the sections are fire protected by an insulated board/protective covering to prevent insulation failure.

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Self Adhesive Films

A '3M SCLARL 400' self adhesive film/foil may be applied to the external face of a counterpane of an IGU with no limitation on exposure directions. Other self adhesive films/foils may be applied to the exposed (fire side) face of any glass covered within this certificate.

Shapes

It is also acceptable to include PYRANOVA® glass products in shaped apertures, i.e. circles, ovals, arches, quadrants, etc. within timber door leaves or screens (subject to limitations in the framing systems). For rectilinear apertures angles between adjoining perimeter beads should not be less than 45°. Where shaped apertures are included, only finger jointed glazing beads are acceptable. Maximum linear dimensions or areas as approved should not be exceeded (the shape should fit within the rectilinear dimensions specified).

Specific Considerations for Doorset Applications

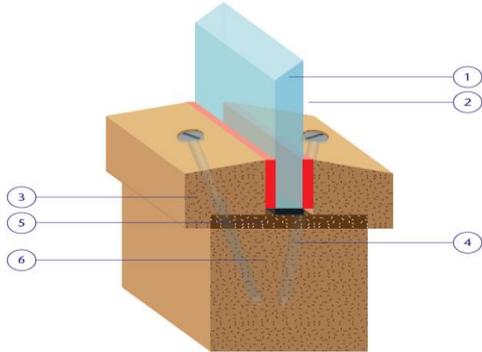
Where scope is provided for glass to be used within timber doorsets, the following should be considered and any requirements complied with:

- The doorset, including door frame and associated building hardware, should have achieved at least the required performance 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 the specified minimum overall leaf thickness, 44 mm for 30 minute doors and 54 mm for 60 minute doors
- When an alternative CERTIFIRE approved glazing system is used, the system shall have been shown to be capable of including the relevant 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.

PYRANOVA® S2.0.7 glass (including IGU construction) in 44 mm thick timber based doorsets for periods of 30 minutes integrity

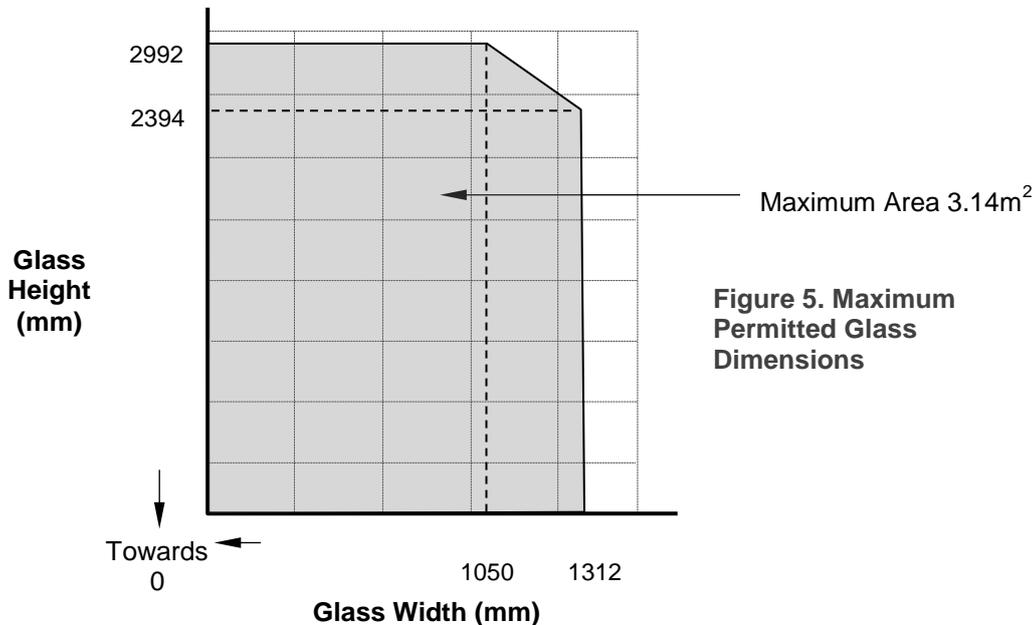
For this application the following conditions shall apply:

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



- 1 PYRANOVA® S2.0.7 glass
- 2 20 mm by 4 mm Kerafix Flexlit intumescent strip
- 3 Minimum 20 mm high by 30 mm wide square or chamfered hardwood or softwood glazing beads, flush or bolection glazed, minimum density 420 kg/m³ or FORMline MDF E1 glazing beads, minimum density 600 kg/m³
- 4 60 mm long steel screws or pins at 215 mm centres (30° to glass)
- 5 Setting blocks 5 mm thick by 7 mm wide by 80 mm long.
- 6 Any 44 mm thick softwood FD30 door leaf minimum density 420 kg/m³

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.7 glass shown in Figure 5 below, when used in conjunction with the above system. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. The aspect ratio of the glass may be unlimited within these glass dimensions. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.

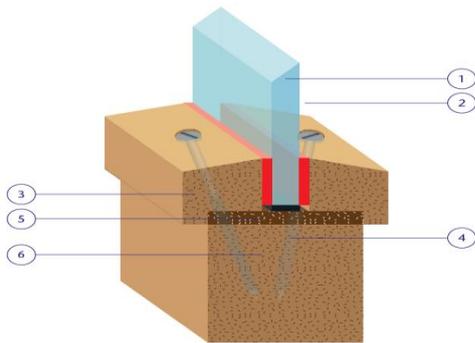


Paul Dyer

PYRANOVA® S2.1.11 glass (including IGU construction) in 44 mm timber based doorsets for periods of 30 minutes integrity

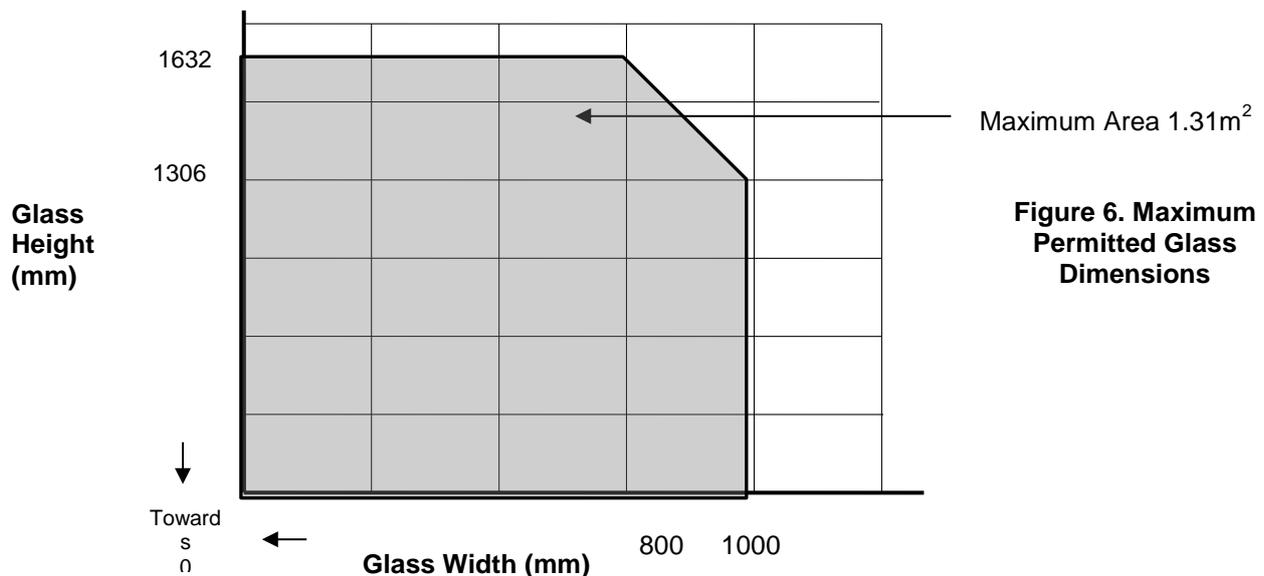
For this application the following conditions shall apply:

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



- 1 PYRANOVA® S2.1.11 glass
- 2 4.3 x 20 mm Kerafix Flexlit tape
- 3 Minimum 22 mm high by 13 mm wide hardwood, softwood or FORMline MDF E1 square or chamfered glazing beads, flush or bolection glazed, minimum density 600 kg/m³.
- 4 2.7 x 70 mm long steel pins or screws at 194 mm centres on the vertical edges and 166 mm on the top and bottom edges (approx 34° to glass)
- 5 3 x 9 x 80 mm Flammi 12 non-combustible setting blocks
- 6 Any 44 mm thick CERTIFIRE approved FD30 timber door leaf

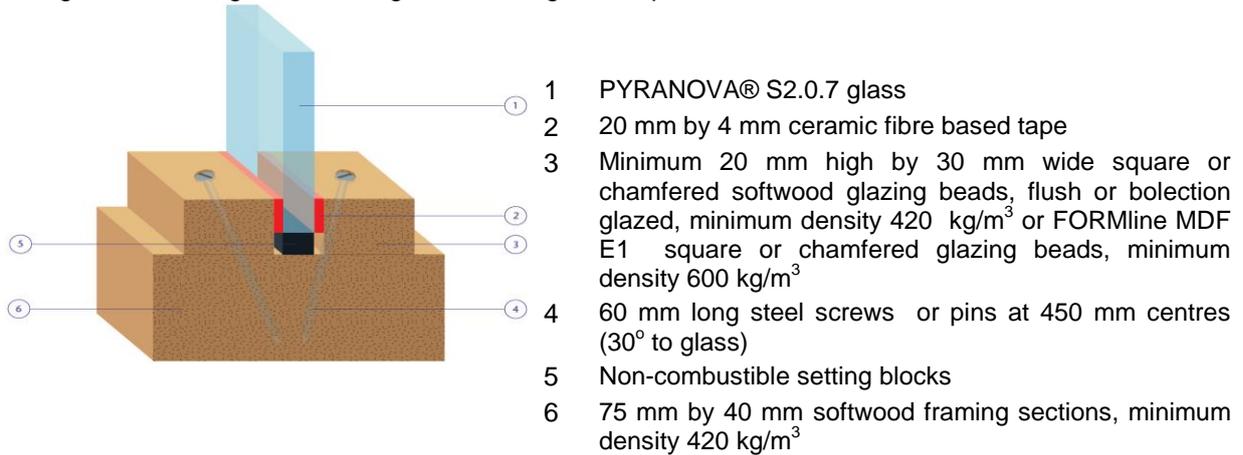
This Certificate of Approval relates to the sizes of PYRANOVA® S2.1.11 glass shown in Figure 6 below, when used in conjunction with the above system. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. The aspect ratio of the glass may be unlimited within these glass dimensions. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.



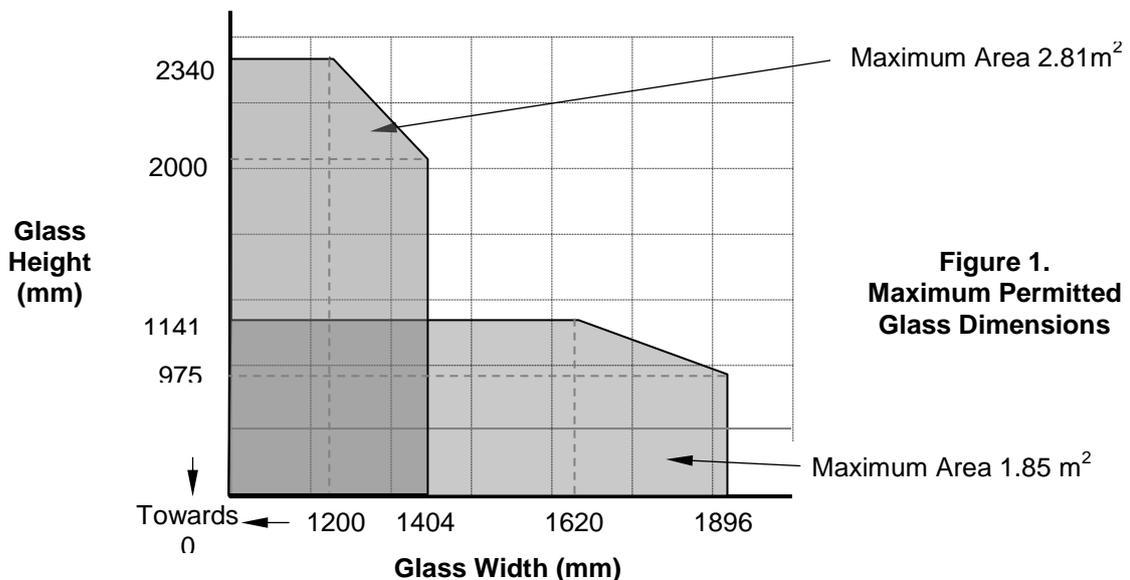
PYRANOVA® S2.0.7 glass (including IGU construction) in timber framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



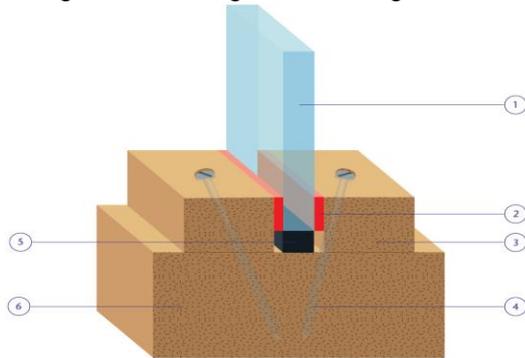
This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.7 glass shown in Figure 1 below, when used in conjunction with the above system. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. The aspect ratio of the glass may be unlimited within these aperture dimensions. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.



PYRANOVA® S2.0.7 glass (including IGU construction) in single pane fixed timber framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

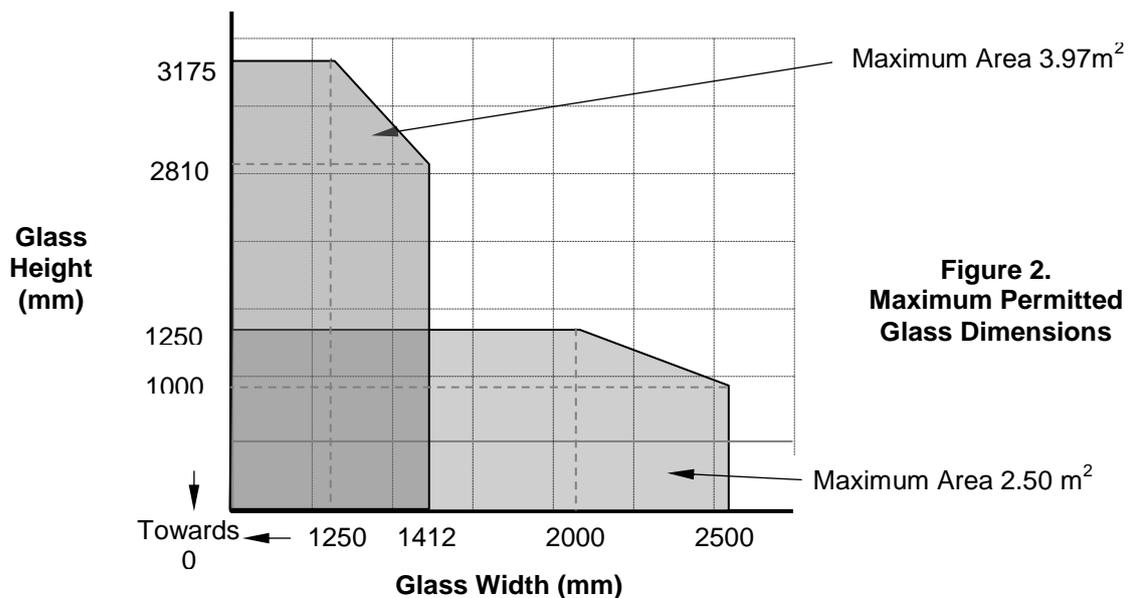
The glass shall be glazed utilising the following basic specification:



- 1 PYRANOVA® S2.0.7 glass
- 2 20 mm by 4 mm ceramic fibre Kerafix 2000 tape
- 3 Minimum 20 mm high by 30 mm wide chamfered softwood glazing beads, flush or bolection glazed, minimum density 420 kg/m³
- 4 60 mm long steel screws 450 mm centres (30° to glass)
- 5 Non-combustible setting blocks
- 6 75 mm by 40 mm softwood framing sections, minimum density 420 kg/m³

Note: bead to fire side only may be square and may be machined from solid without the need for screw fixings

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.7 glass shown in Figure 2 below, when used in conjunction with the above system. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. The aspect ratio of the glass may be unlimited within these aperture dimensions. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.



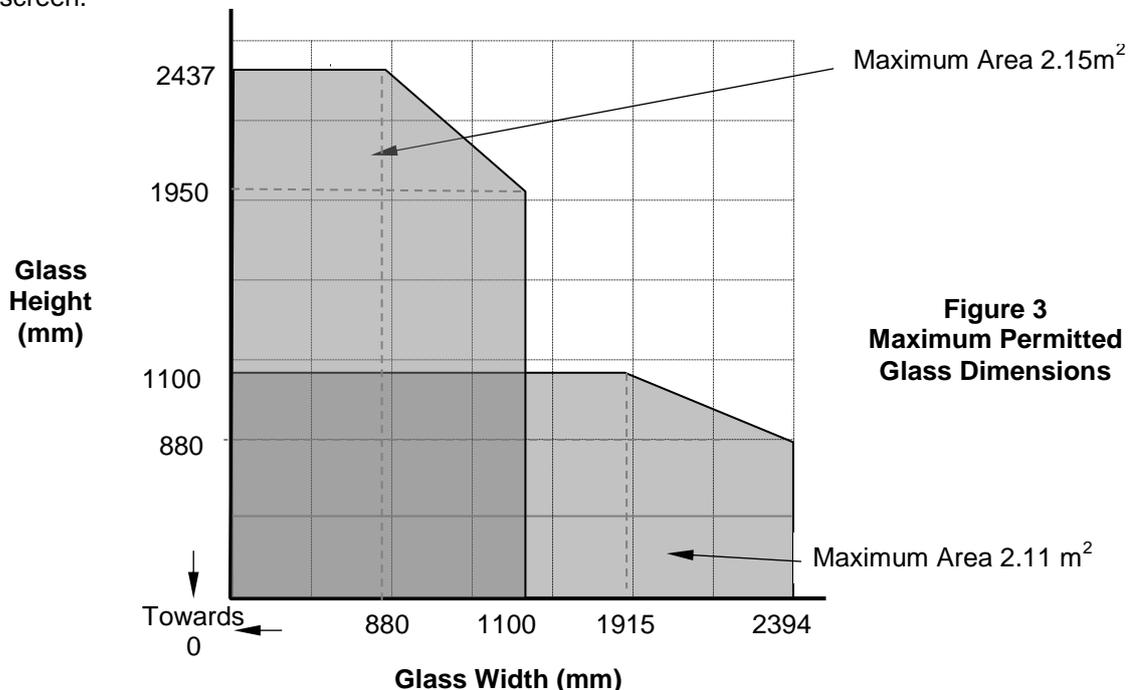
PYRANOVA® S2.0.7 glass (including IGU construction) in steel framed screens for periods of 30 minutes integrity

The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



The framing system shall have test evidence, such as Jansen Economy 50 (as detailed above), or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.7 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. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.

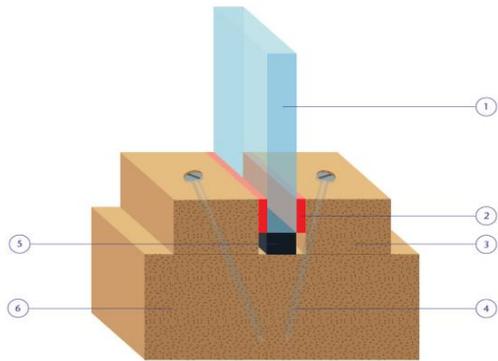


Paul Dwyer

PYRANOVA® S2.1.11 glass (including IGU construction) in timber framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- 1 PYRANOVA® S2.1.11 glass
- 2 20 mm by 4 mm ceramic fibre based tape
- 3 Minimum 20 mm high by 30 mm wide square or chamfered softwood glazing beads, flush or bolection glazed, minimum density 420 kg/m³ or FORMline MDF E1 square or chamfered glazing beads, minimum density 600 kg/m³
- 4 60 mm long steel screws or pins at 450 mm centres (30° to glass)
- 5 Non-combustible setting blocks
- 6 75 mm by 40 mm softwood framing sections, minimum density 420 kg/m³

This Certificate of Approval relates to the sizes of PYRANOVA® S2.1.11 glass shown in Figure 4 below, when used in conjunction with the above system. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. The aspect ratio of the glass may be unlimited within these aperture dimensions. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.

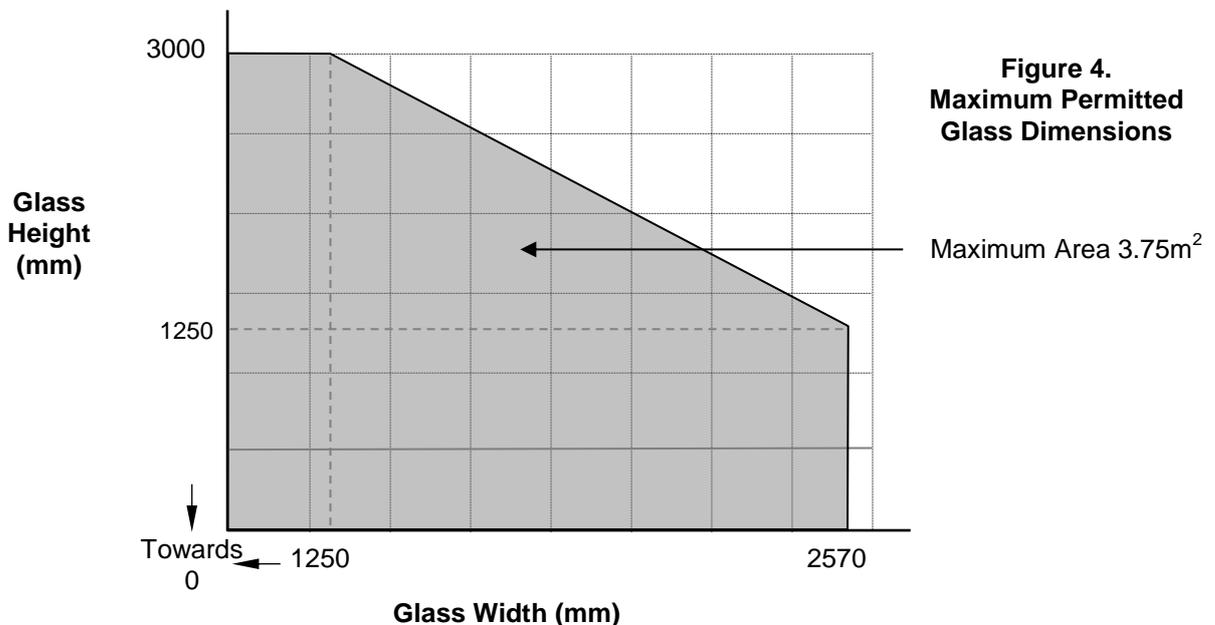
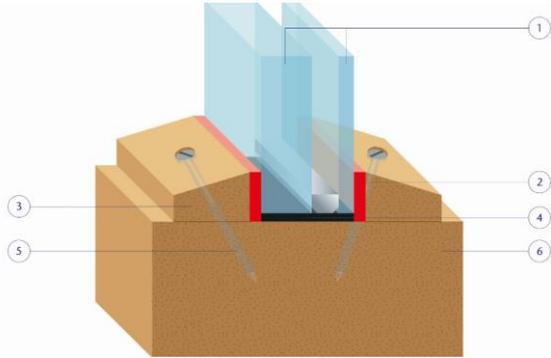


Figure 4.
Maximum Permitted
Glass Dimensions

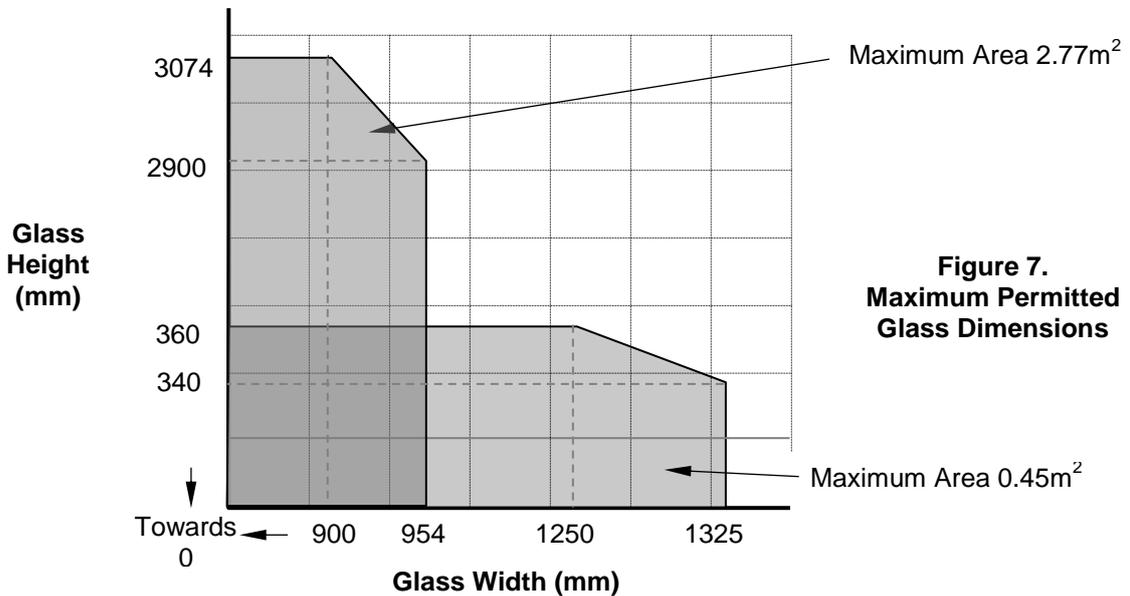
Paul Duggan

PYRANOVA® S2.1.11 insulating glass units (IGU) glass in timber screens for periods of 30 minutes integrity



1. IGU comprising PYRANOVA® S2.1.11 IGU, a 10 mm wide air cavity and 6 mm thick float glass
2. Kerafix 2000 ceramic glazing tape, 17 mm by 4 mm
3. Softwood beads, 420 kg/m³ min. density, min. 20 mm high by 20 mm wide with a 20° chamfer.
4. 60 mm long, 4.5 mm diameter screws or nails, 350 mm centres, fixed at 45°.
5. Non-combustible setting blocks
6. Softwood, 420 kg/m³ min. density, min. 75 mm by 40 mm

This Certificate of Approval relates to the sizes of PYRANOVA® S2.1.11 IGU glass shown in Figure 7 below, when used in conjunction with the above system. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. The aspect ratio of the glass may be unlimited within these glass dimensions.

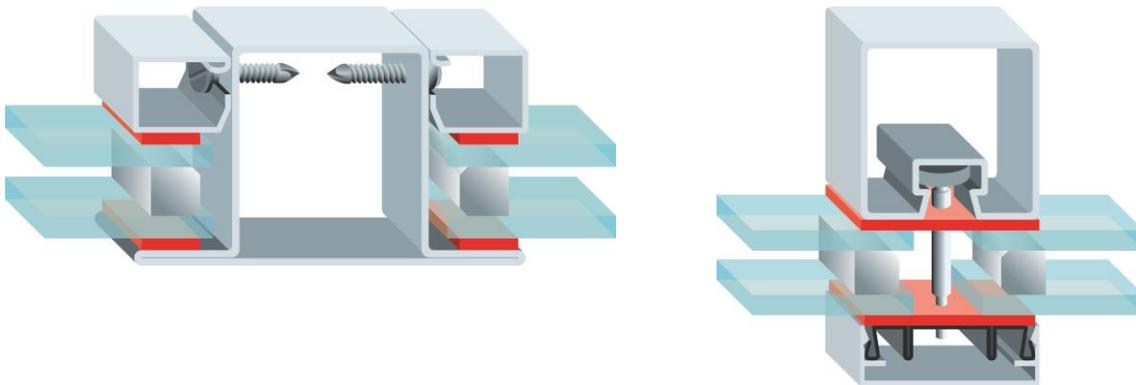


**Figure 7.
Maximum Permitted
Glass Dimensions**

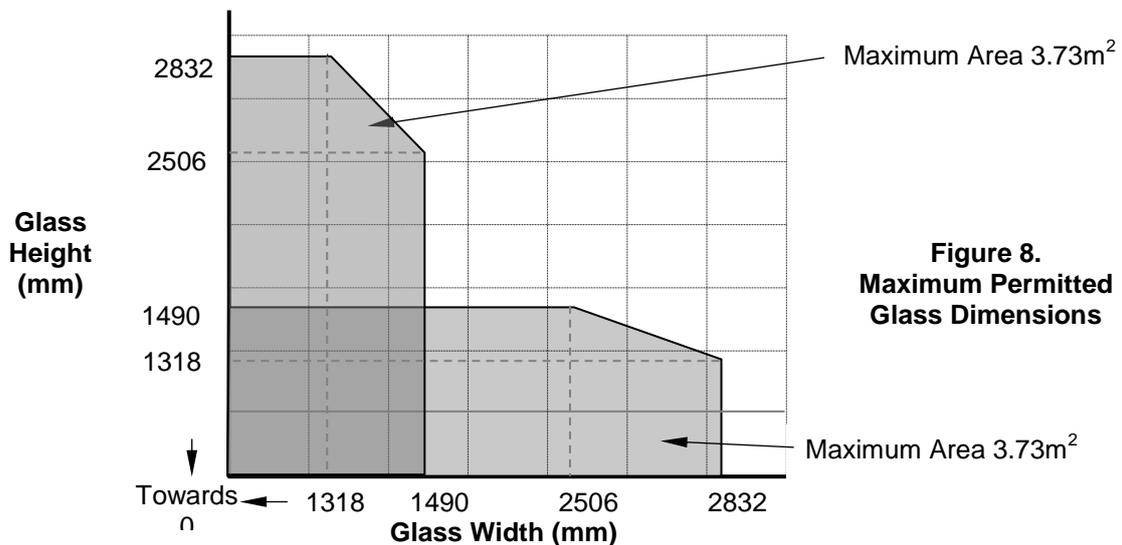
Paul Dwyer

PYRANOVA® S2.0.7 and S2.1.11 insulated glass units (IGU's) glass in steel screens for periods of 30 minutes integrity

The glass shall be glazed within a previously fire tested, such as Forster Thermfix Vario or CERTIFIRE approved steel framing system (pressure glazed systems only) utilising the following basic specification. The edge cover to each pane shall be no less than 12 mm minimum.



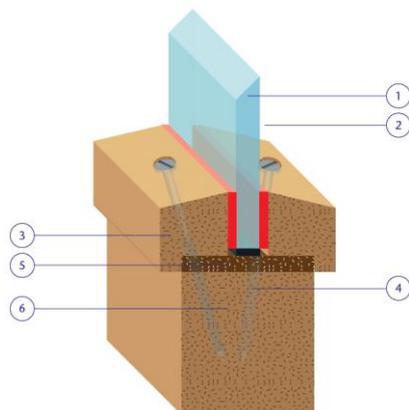
This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.7 and S2.1.11 IGU glass (comprising 10mm thick laminated glass, a 15 mm air cavity and 7 or 11 mm thick PYRANOVA® S2.0.7 and S2.1.) shown in Figure 8 below, when used in conjunction with the above system. Other CERTIFIRE approved glazing seals may be acceptable subject to the limitations within the relevant certificate. The aspect ratio of the glass may be unlimited within these glass dimensions.



Paul Dwyer

PYRANOVA® S2.0.11/S2.1.15 Glass (including IGU construction) 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® S2.0.11/S2.1.15 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/m³
- 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/m³)

- 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.
- **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.

PYRANOVA® S2.0.11/S2.1.15 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® S2.0.11/S2.1.15 glass shown in Figures 9 and 10 below, when used in conjunction with the system detailed within the preceding figures:

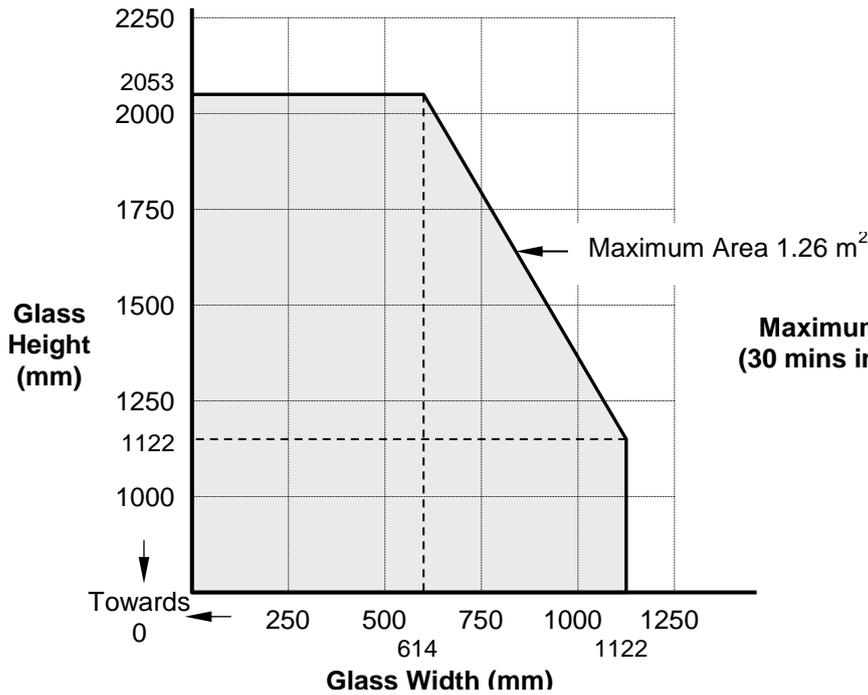


Figure 9.
Maximum Permitted Pane Dimensions
(30 mins integrity and 15 mins insulation)

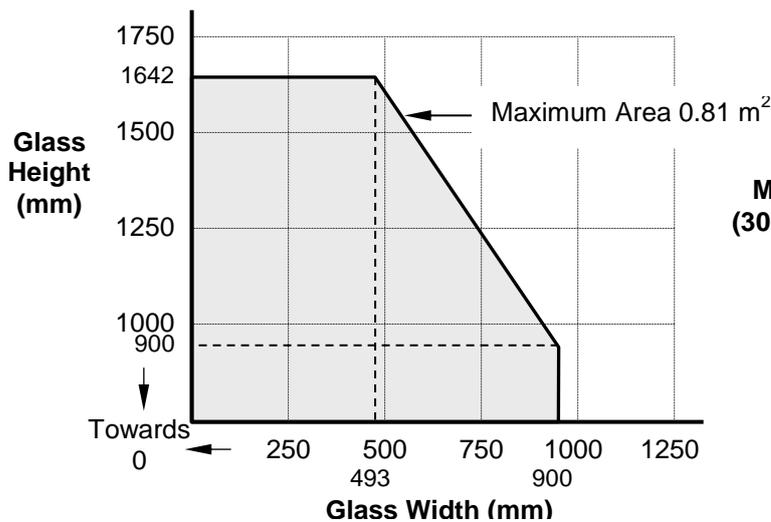
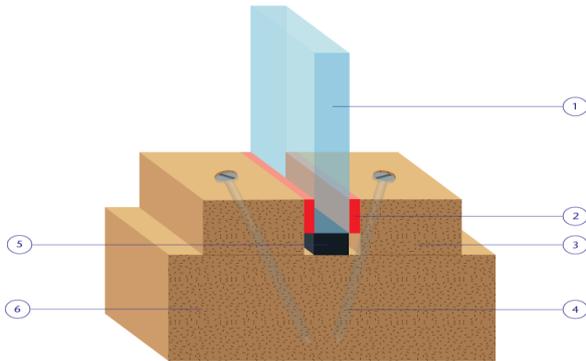


Figure 10.
Maximum Permitted Pane Dimensions
(30 mins integrity and 30 mins insulation)

Paul Dwyer

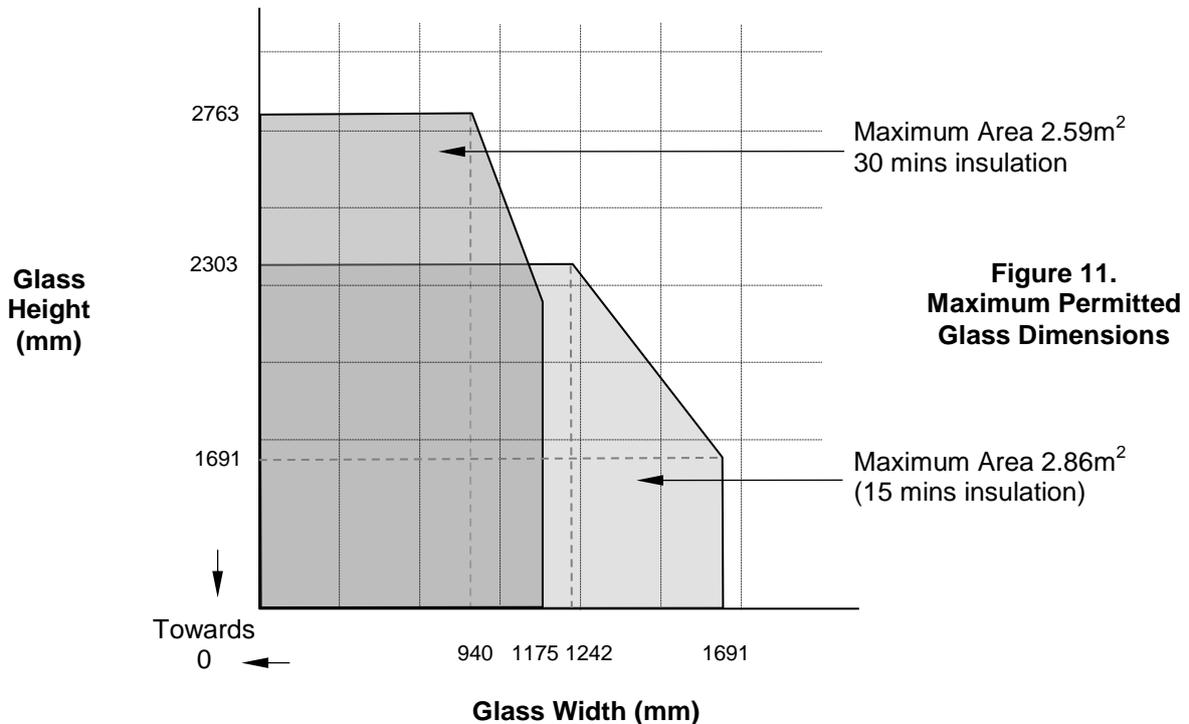
PYRANOVA® S2.0.11/S2.1.15 Glass (including IGU construction) in timber framed fixed lights for periods of 30 minutes integrity and 30 or 15 minutes insulation

The glass shall be glazed utilising the following basic specification:



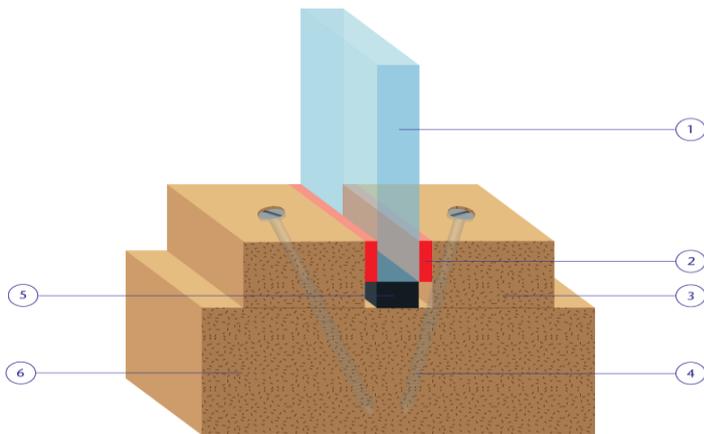
- 1 PYRANOVA® S2.0.11/S2.1.15 glass
- 2 12 mm by 3 mm Hodgson Sealants Firestrip 30
- 3 21 mm high by 23 mm wide square or up to 15° chamfered hardwood glazing beads, minimum density 640 kg/m³
- 4 51 mm long steel oval nails or screws at 150 mm centres (45° to glass)
- 5 Non-combustible setting blocks
- 6 79 mm by 45 mm (minimum) softwood framing sections, minimum density 450 kg/m³

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.11/S2.1.15 glass 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. **This system shall only be used for single fixed lights, i.e transoms and mullions are not permitted. Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component MUST be orientated to the fire exposed face of the screen.



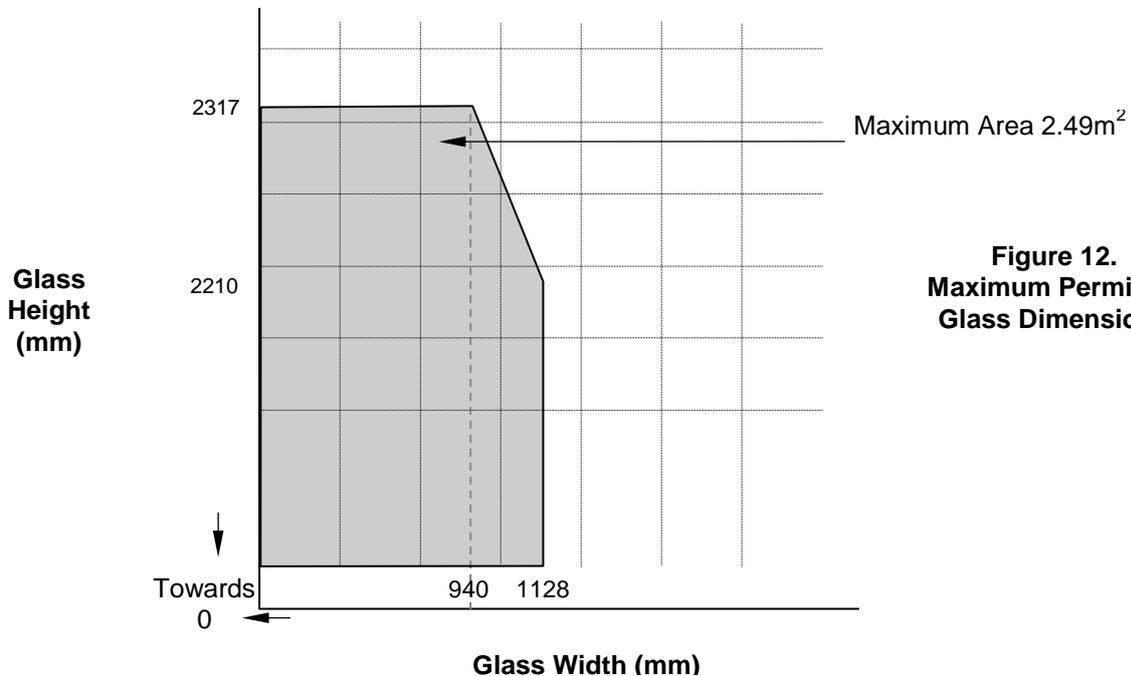
PYRANOVA® S2.0.11/S2.1.15 Glass (including IGU construction) in timber multipaned screens for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed utilising the following basic specification:



- 1 PYRANOVA® S2.0.11/S2.1.15 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/m³
- 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/m³

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.11/S2.1.15 glass 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. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.



**Figure 12.
Maximum Permitted
Glass Dimensions**

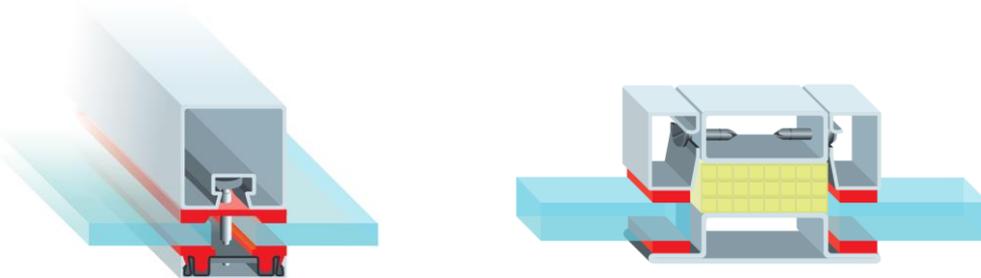
Paul Dyer

PYRANOVA® S2.0.11/S2.1.15 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® S2.0.11/S2.1.15 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. An example of a typical framing system is shown below.



This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.11/S2.1.15 glass 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. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.

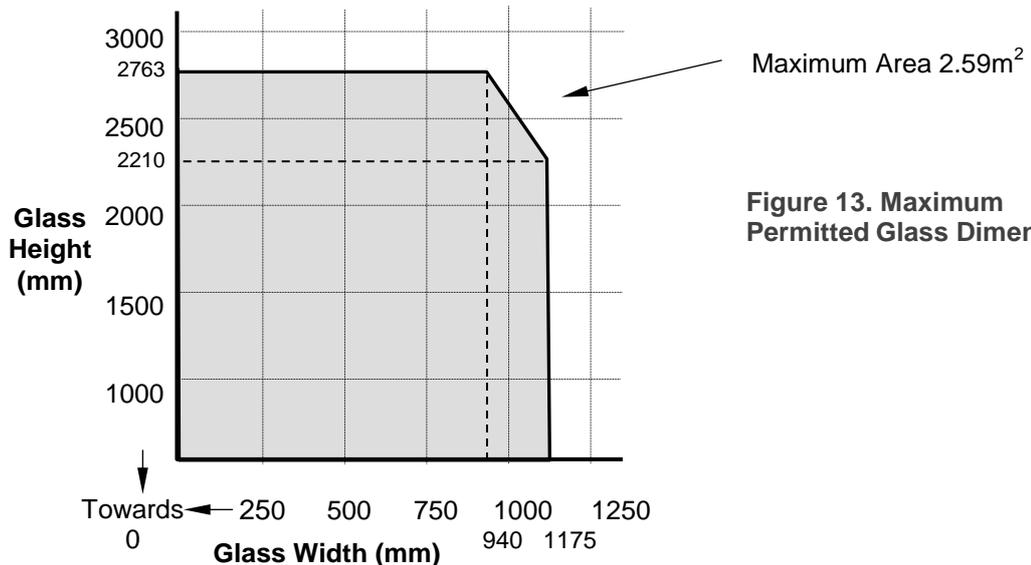
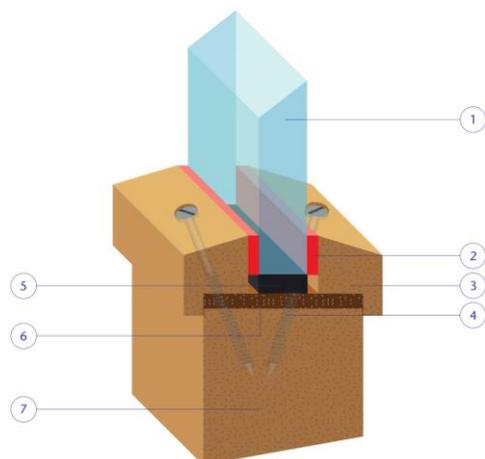


Figure 13. Maximum Permitted Glass Dimensions

Paul Dyer

PYRANOVA® S2.0.11/S2.1.15 Glass in timber door leaves for periods of 60 minutes integrity

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



- 1 PYRANOVA® S2.0.11/S2.1.15 glass
- 2 Lorient Rigid Figure 1, 25 mm by 4 mm
- 3 Hardwood glazing beads 25 mm high by 20 mm wide (minimum) including 6 mm high by 4.5 mm wide bolection, either square or up to 15° chamfer, minimum density 640 kg/m³
- 4 60 mm long steel screws at 150 mm centres (30 - 45° to glass)
- 5 Palusol liner, 54 mm wide by 2 mm thick
- 6 FD60 Door Leaf

- The doorset, including door frame and associated building hardware, should have achieved at least 60 minutes integrity (and up to 60 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.
- 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.
- **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.

PYRANOVA® S2.0.11/S2.1.15 Glass in timber door leaves for periods of 60 minutes integrity

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.11/S2.1.15 glass shown in Figures 14 below, when used in conjunction with the system detailed within the preceding figures:

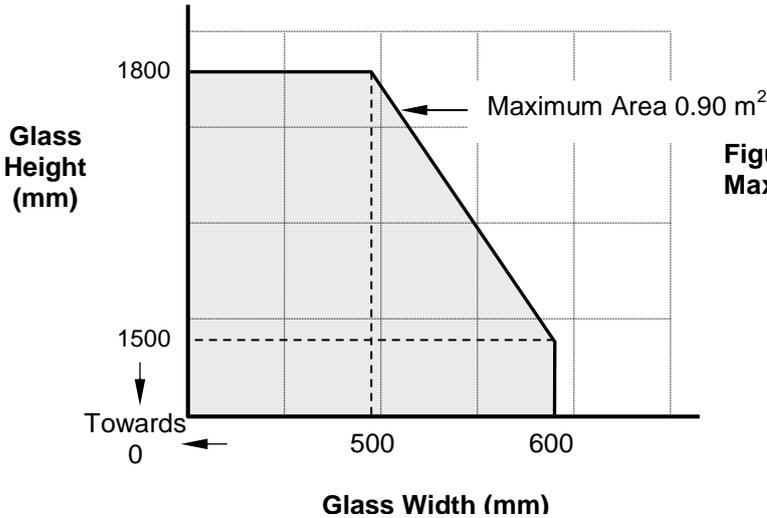
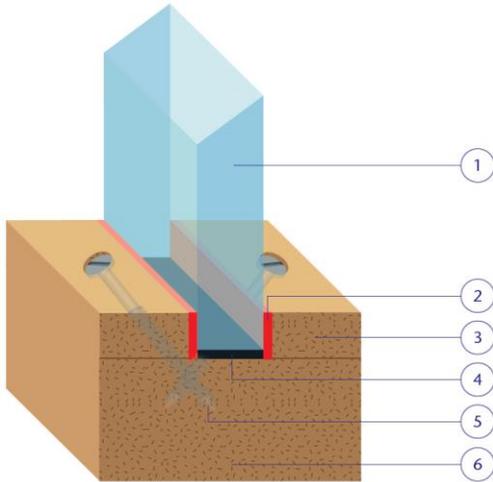


Figure 14.
Maximum Permitted Pane Dimensions
(60 mins integrity)

PYRANOVA® S2.0.11/S2.1.15 Glass in timber screen for periods of 60 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 PYRANOVA® S2.0.11/S2.1.15 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/m³
- 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/m³

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.11/S2.1.15 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. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.

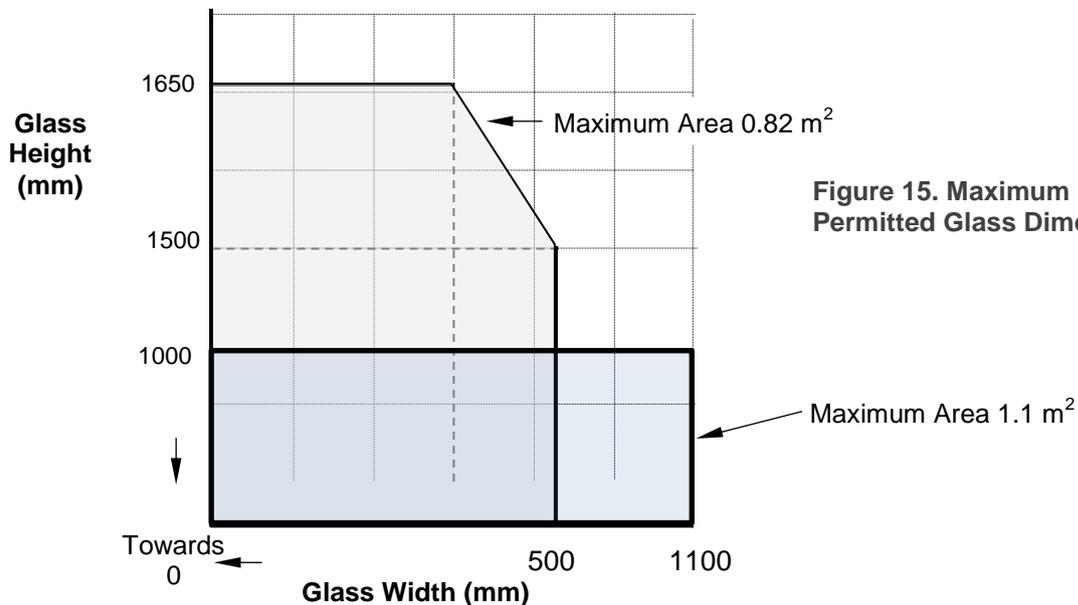


Figure 15. Maximum Permitted Glass Dimensions

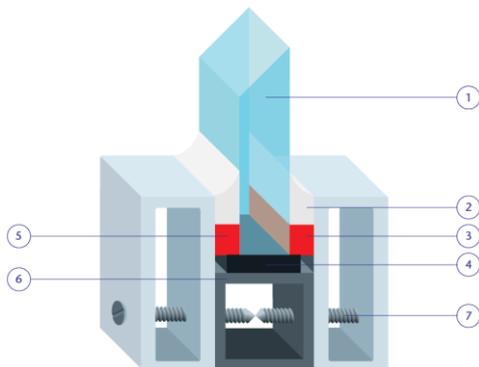
PYRANOVA® S2.0.11/S2.1.15 Glass in steel fixed light screen for periods of 60 minutes integrity

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

- PYRANOVA® S2.0.11/S2.1.15 glass
- 15 mm by 3 mm ceramic fibre based glazing tape

The steel framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.11/S2.1.15 glass shown in Figure 16 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **Note:** the glass in this application may be utilised as an IGU but in this case the non-fire rated glass component **MUST** be orientated to the fire exposed face of the screen.



- 1 PYRANOVA® S2.0.11/S2.1.15 glass
- 2 Neutral silicone capping
- 3&5 15 mm wide by 3-6 mm thick ceramic fibre based glazing tape
- 4 Non-combustible setting blocks
- 6 Steel Section 30 mm by 30 mm by 3 mm & 55 mm by 19 mm hollow steel box section
- 7 35 mm long steel screws at 250 mm centres

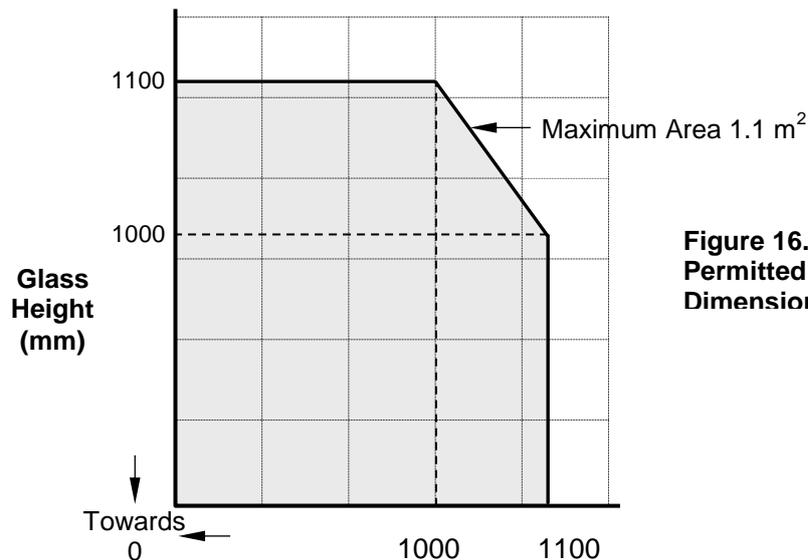
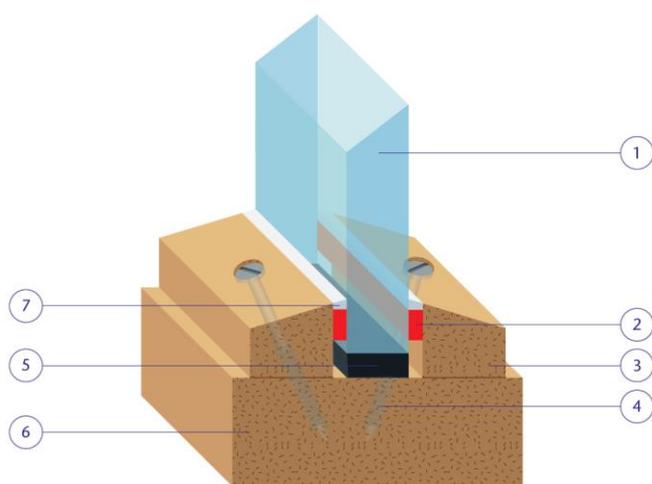


Figure 16. Maximum Permitted Glass Dimensions

Paul Duggan

Laminated Butt-Jointed PYRANOVA® S2.0.11 Glass in timber framed screens for periods of 30 minutes integrity and insulation

The glass shall be glazed utilising the following basic specification:



- 1 Laminated PYRANOVA® S2.0.11 glass (comprising 11mm PYRANOVA® S2.0.11 with minimum 6 mm toughened glass laminated to each face with 0.38-1.52 PVB interlayer)
- 2 9 mm wide by 2 mm thick Ramsauer Kg closed cell foam tape
- 3 20 mm high by 20 mm wide square or up to 10° chamfered hardwood glazing beads, minimum density 680 kg/m³
- 4 3.2x50 mm long steel screws at 600 mm centres, 150mm from edges (30° to glass)
- 5 Non-combustible setting blocks
- 6 80 mm by 40 mm (minimum) hardwood framing sections, minimum density 550 kg/m³
- 7 Neutral silicone capping

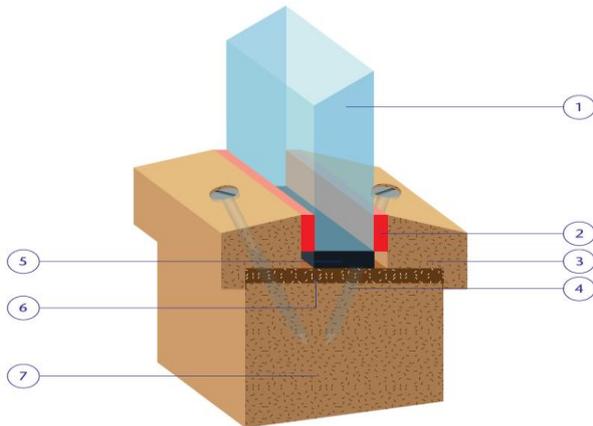
In order to ensure the correct specification is utilised for such specialist glazing and for information regarding butt joint detail and specification, further information should be sought from the manufacturer.

This Certificate of Approval relates to the sizes of PYRANOVA® S2.0.11 glass shown in the table below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Maximum Height	Maximum Width	Maximum Area
3612mm high (at 1315mm wide)	1612mm wide (at 2930mm high)	4.75m ²

PYRANOVA® 30-S2.0/2.1 Glass in timber door leaves for periods of 30 minutes integrity and insulation

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



- 1 PYRANOVA® 30-S2.0/2.1 glass
- 2 9 x 3mm close cell tape
- 3 Softwood glazing beads 18 mm wide by 21.5 mm
- 4 60 mm x 4mm screws at ≤ 400 mm centres high (minimum)
- 5 Promatect H Non-combustible setting blocks
- 6 6 mm thick hardwood aperture liner
- 7 Nominally 44 mm thick FD30 door leaf

This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 glass shown in Figure 17 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

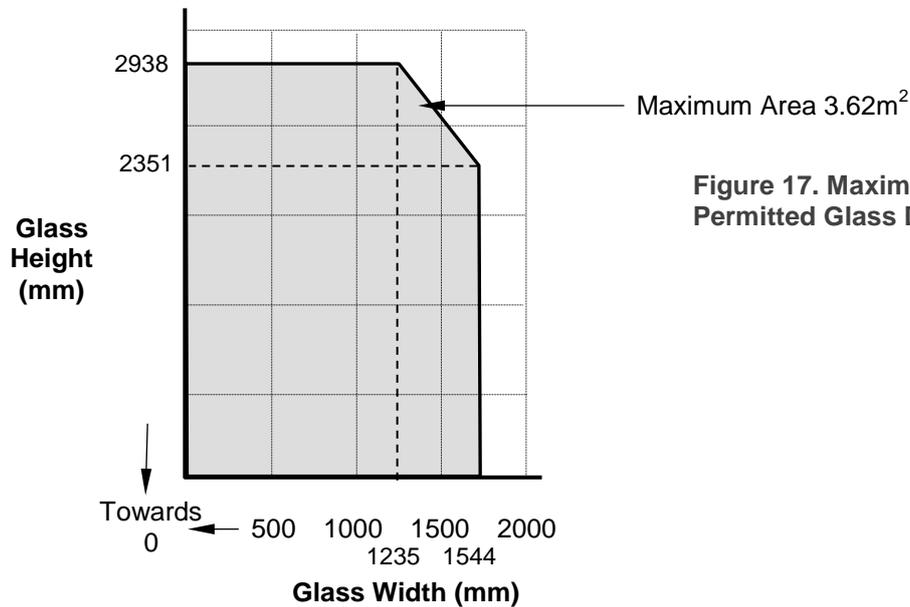
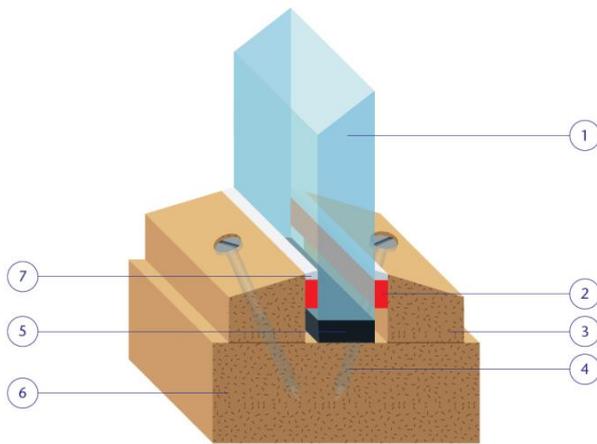


Figure 17. Maximum Permitted Glass Dimensions

Paul Dwyer

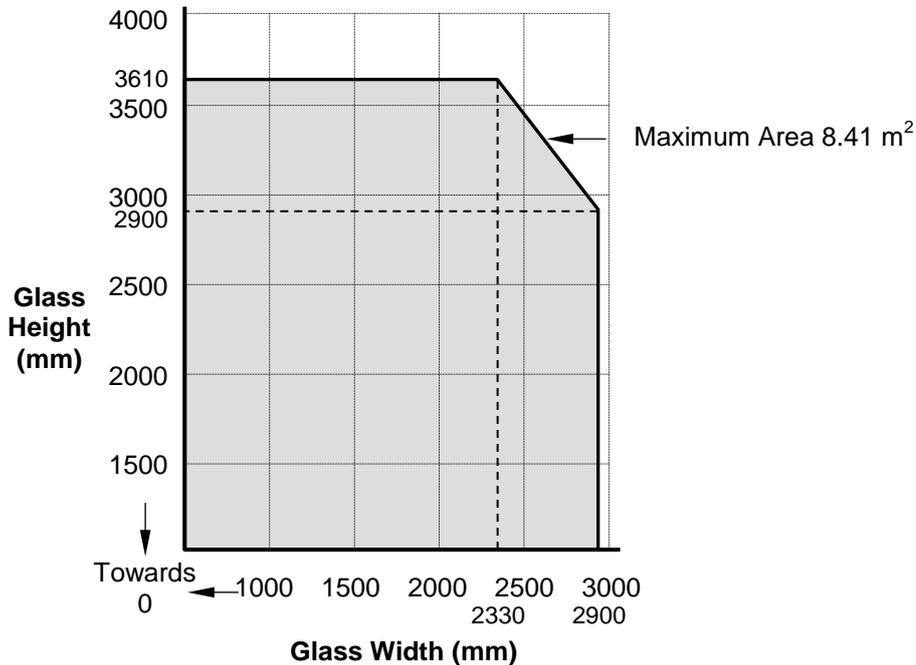
PYRANOVA® 30-S2.0/2.1 Glass in timber framed screens for periods of 30 minutes integrity and insulation

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/m³
- 4 40 mm long steel screws at 400 mm centres (30° to glass) or 51 mm long steel oval nails at 150 mm centres
- 5 Non-combustible setting blocks
- 6 68 mm by 20 mm (minimum) softwood framing sections, minimum density 450 kg/m³
- 7 Neutral silicone capping

This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 glass shown in Figure 18 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



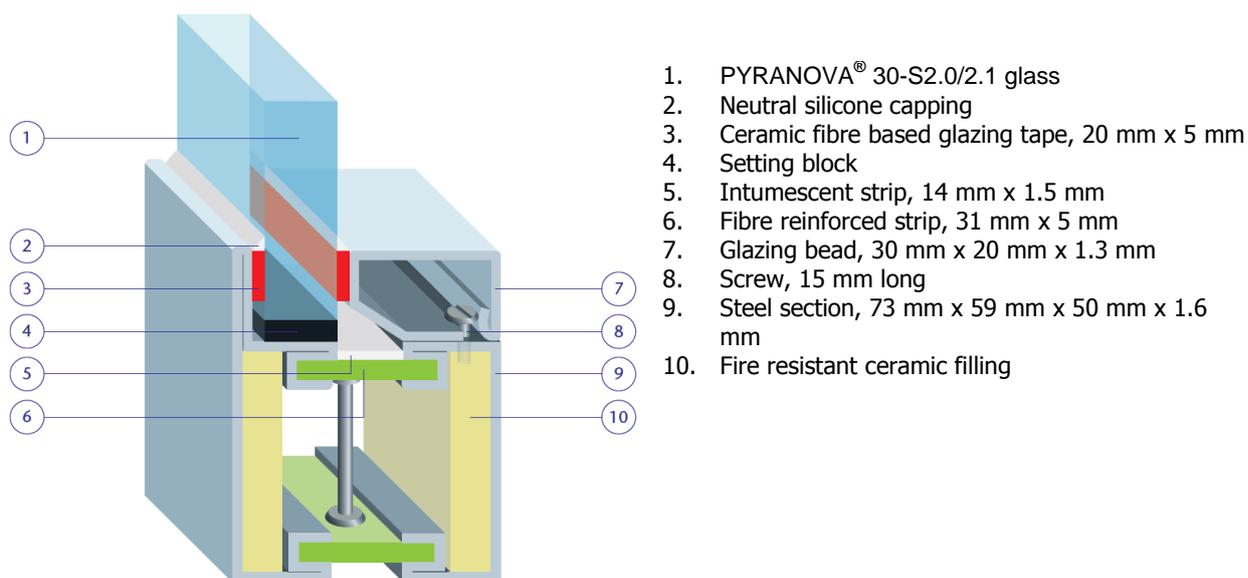
Paul Dwyer

PYRANOVA® 30-S2.0/2.1 Glass in steel door leaves for periods of 30 minutes integrity and insulation

The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel profiled door leaf framing system.

Note: glass used in this application may be laminated, acid etched, tinted, patterned or screen printed subject to the conditions specified on Page 3 of this document.

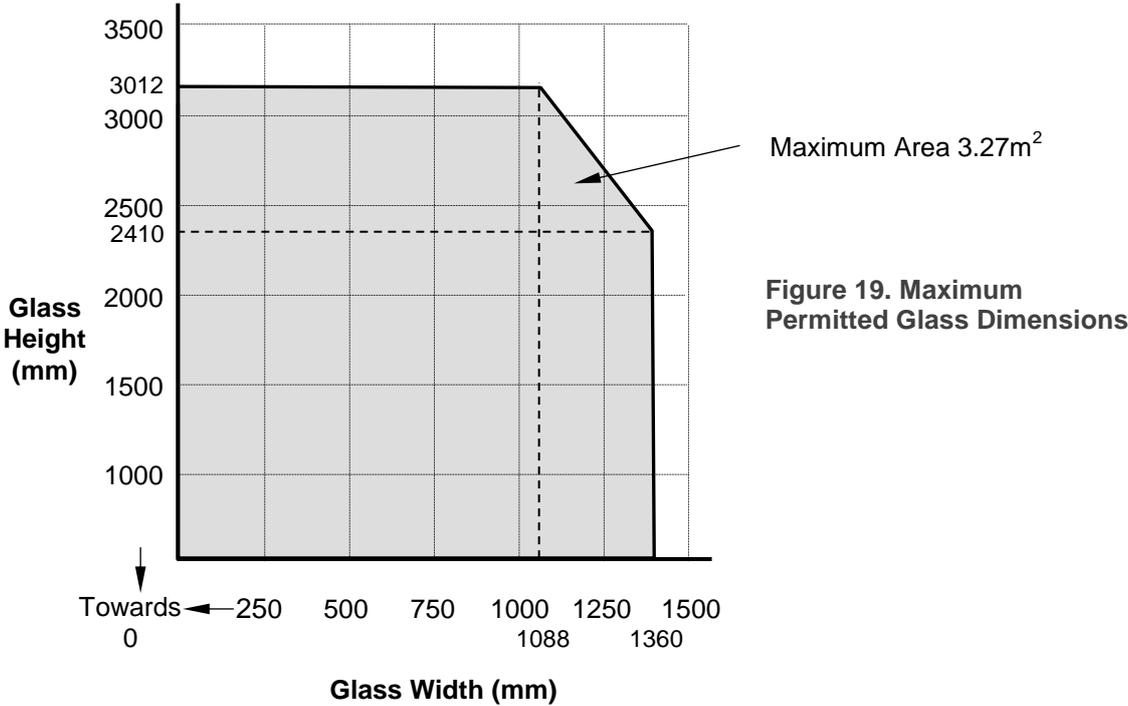
A typical door section is shown below.



The steel profiled door framing system shall have test evidence (such as JANSEN JANISOL 2 or ECONOMY 50) or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets. 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 glass shown in Figure 19 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

PYRANOVA® 30-S2.0/2.1 in steel door leaves for periods of 30 minutes integrity and insulation (continued)

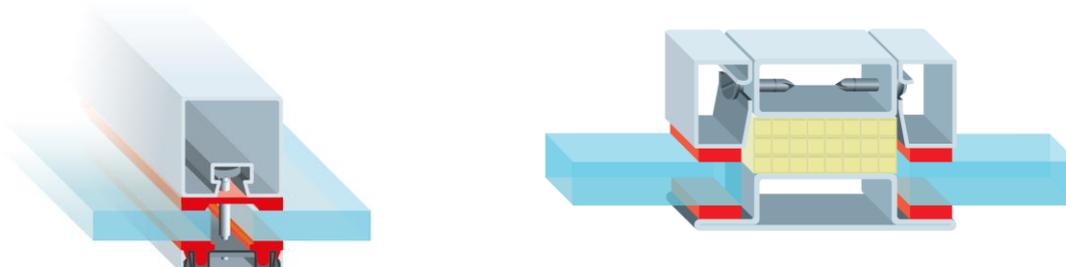


PYRANOVA® 30-S2.0/2.1 Glass in steel framed screens for periods of 30 minutes integrity and insulation

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 20 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

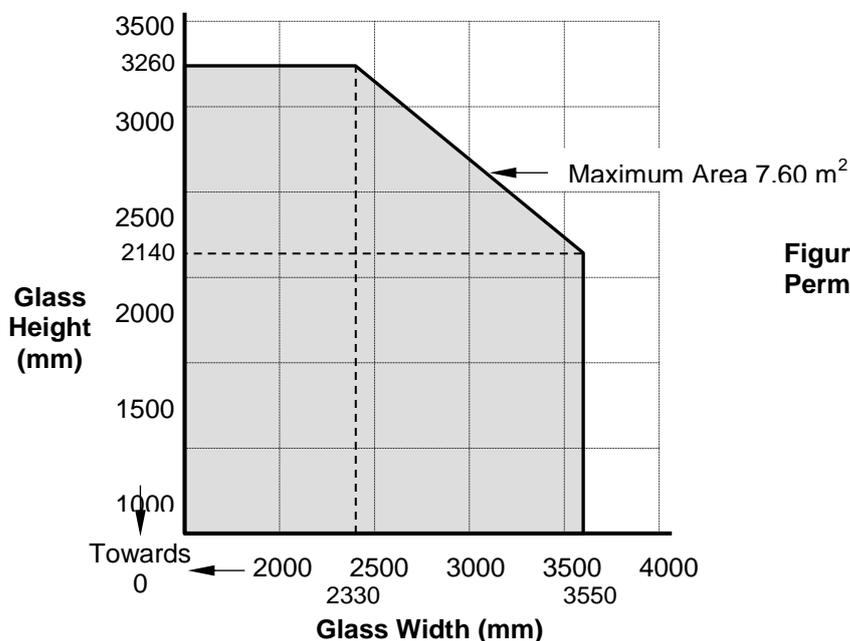


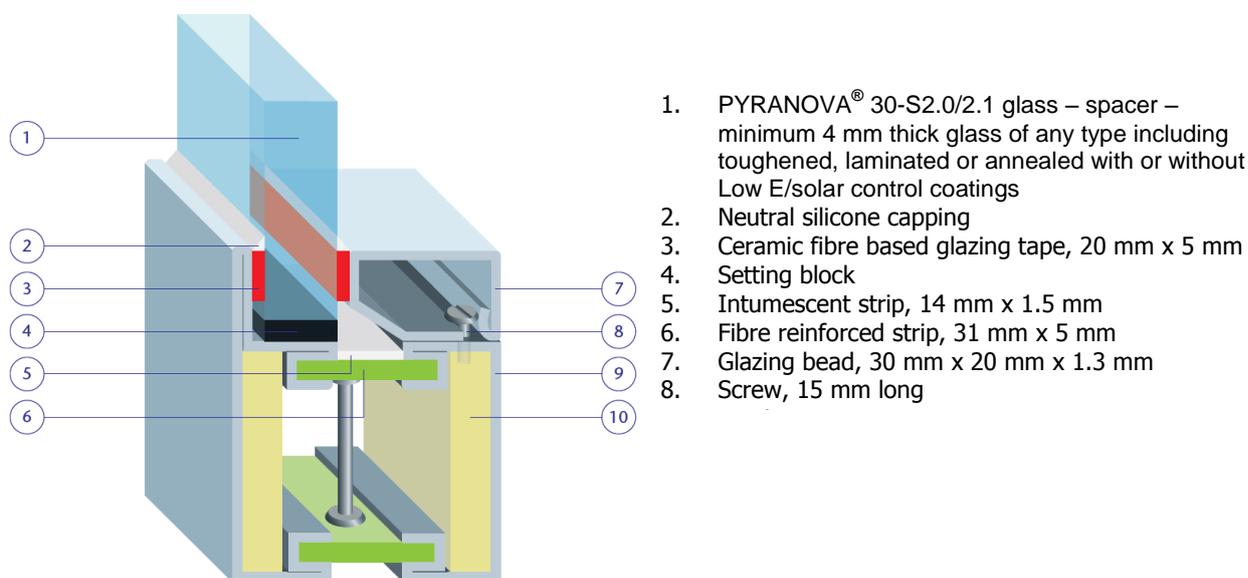
Figure 20. Maximum Permitted Glass Dimensions

PYRANOVA® 30-S2.0/2.1 Insulating Glass Units in steel door leaves for periods of 30 minutes integrity and insulation

The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel profiled door leaf framing system.

Note: glass used in this application may be laminated, acid etched, tinted, patterned or screen printed subject to the conditions specified on Page 3 of this document.

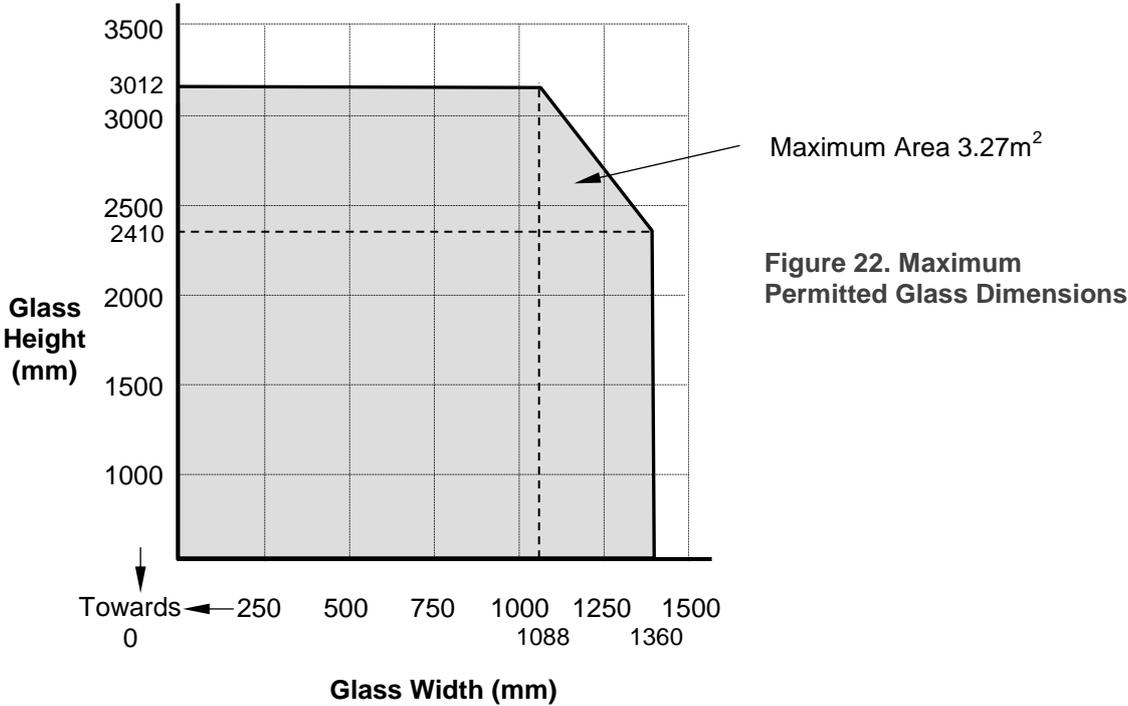
A typical door section is shown below.



The steel profiled door framing system shall have test evidence (such as JANSEN JANISOL 2 or ECONOMY 50) or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets. 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 glass shown in Figure 22 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

PYRANOVA® 30-S2.0/2.1 Insulating Glass Units in steel door leaves for periods of 30 minutes integrity and insulation (continued)

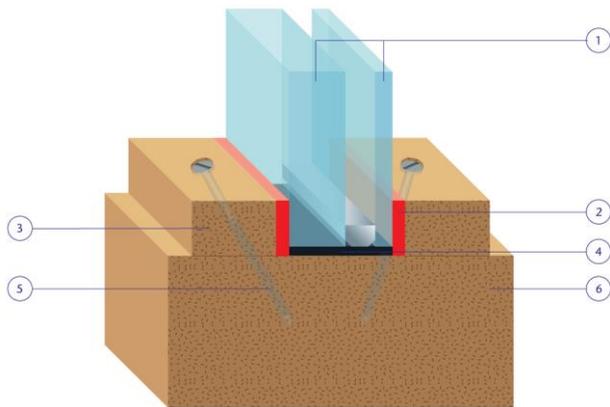


Paul Duggan

PYRANOVA® 30-S2.0/2.1 Insulating Glass Units in timber framed screens for periods of 30 minutes integrity and insulation

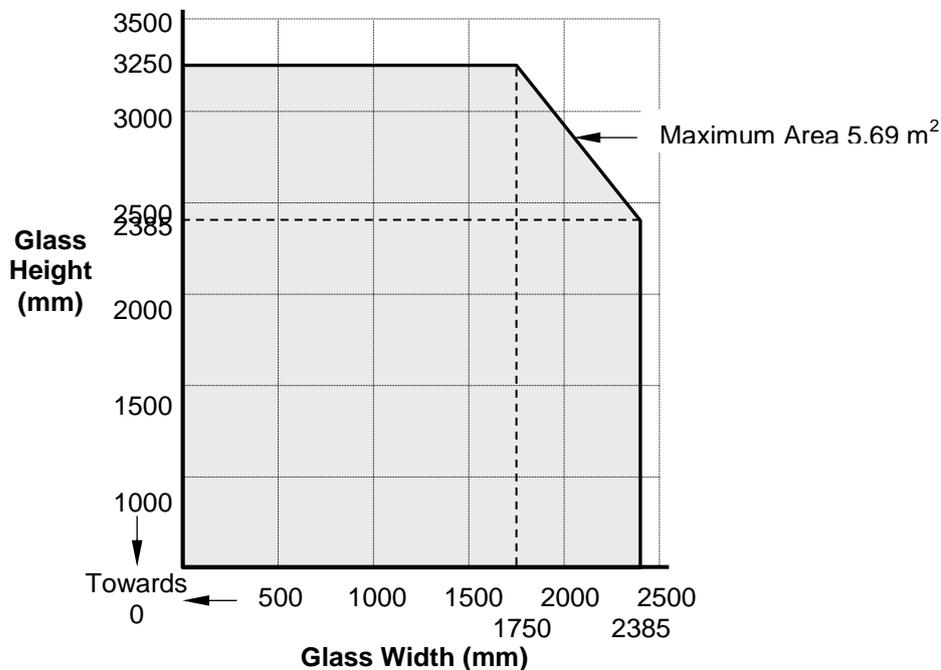
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber framing system utilising the following basic specification:

- An integral blind can be contained in the airspace
- Insulating Glass units may be installed with PYRANOVA® to either face.



- 1 PYRANOVA® 30-S2.0/2.1 glass – spacer – minimum 4 mm thick glass of any type including toughened, laminated or annealed with or without Low E/solar control coatings
- 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/m³
- 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/m³

This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 glass shown in Figure 21 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

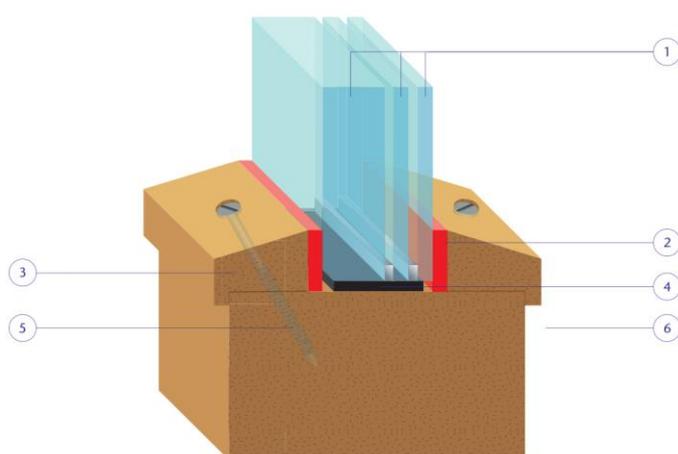


Paul Dwyer

PYRANOVA® 30-S2.0/2.1 Insulating Triple Glazed Units in timber framed screens for periods of 30 minutes integrity and 30 minutes insulation

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

- PYRANOVA® 30 S2.0/2.1 glass – spacer – minimum 4mm toughened glass with or without low e/solar control coating – spacer - minimum 6 mm thick glass of any type including toughened, laminated or annealed with or without Low E/Solar Control coatings.
- Insulated triple glass units should only be installed with PYRANOVA® to the inner face.



- 1 PYRANOVA® 30 S2.0/2.1 TGU
- 2 20 mm wide by 3 mm thick Kerafix 2000 glazing tape
- 3 18 mm high by 16 mm wide square or chamfered hardwood glazing beads, minimum density 430 kg/m³. Planted on or solid and integral to frame
- 4 Non-combustible setting blocks
- 5 3.5mm x 35 mm long steel screws at 300 mm centres, 100mm in from edges (30° to glass)
- 6 80 mm by 40 mm (minimum) hardwood framing sections, minimum density 430 kg/m³

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

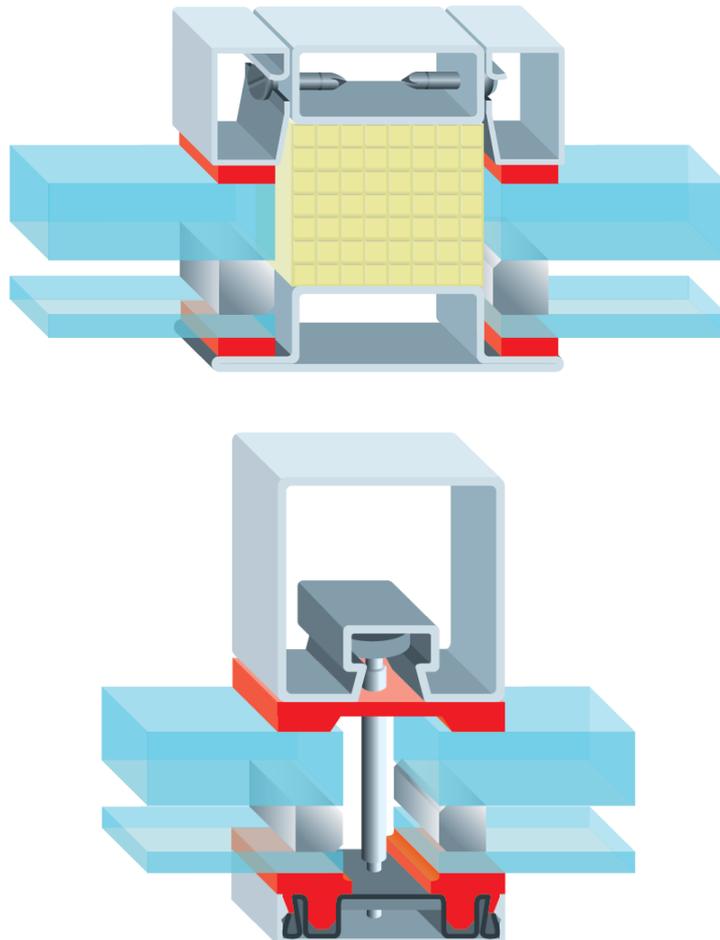
Maximum Height	Maximum Width	Maximum Area
3226mm high (at 1200mm wide)	1359mm wide (at 2848mm high)	3.87m ²
1586mm high (at 2600mm wide)	2945mm wide (at 1400mm high)	4.12m ²

PYRANOVA® 30-S2.0/2.1 Glass within Insulated Glass Units 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:

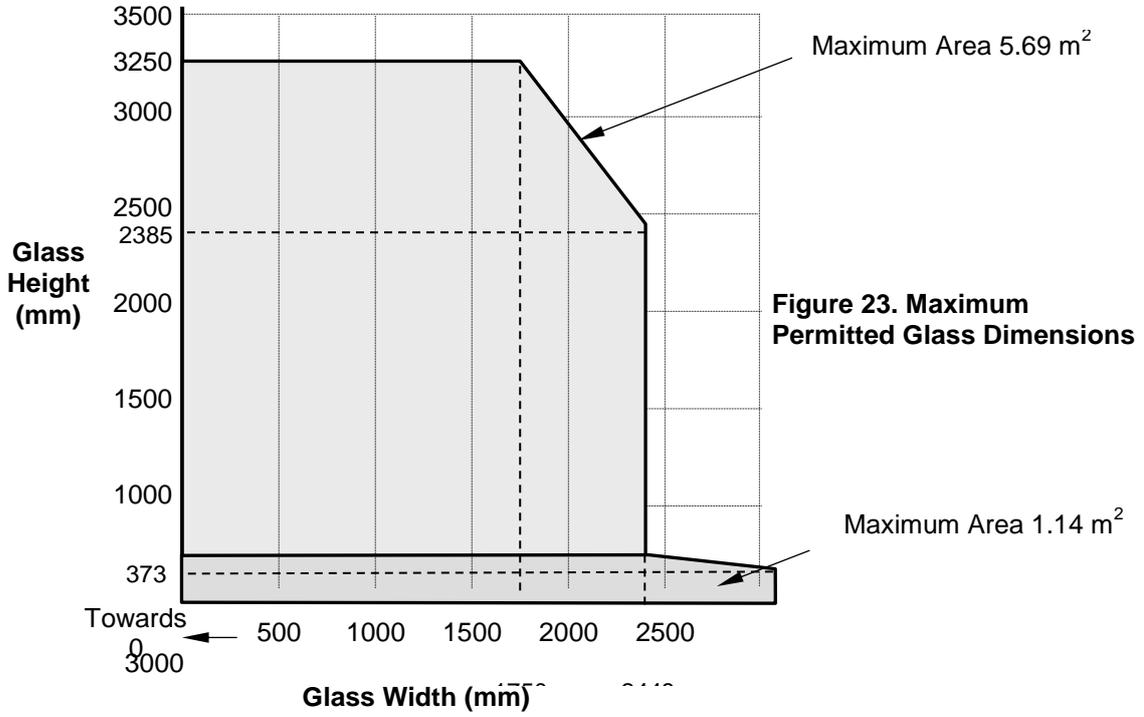
- PYRANOVA® 30-S2.0/2.1 glass – spacer – minimum 4 mm thick glass of any type including toughened, laminated or annealed with or without Low E/solar control coatings
- 15 mm by 6 mm ceramic fibre based glazing tape
- Insulating Glass units may be installed with PYRANOVA® to either face.
- Venetian Blinds may be included within the units.

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:



PYRANOVA® 30-S2.0/2.1 Glass within Insulated Glass Units in steel framed screens for periods of 30 minutes integrity and insulation (continued)

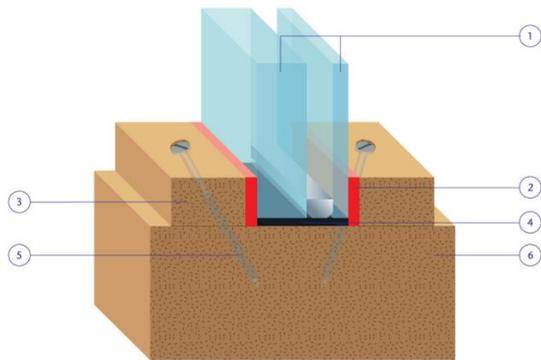
This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 glass shown in Figure 23 below, when used in conjunction with the above system. The aspect ratio of the glass may be



PYRANOVA® 30-S2.0/2.1 Insulating Glass Units in timber 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 timber framing system utilising the following basic specification:

- An integral blind can be contained in the airspace
- Insulating Glass units may be installed with PYRANOVA® to either face.



- 1 PYRANOVA® 30-S2.0/2.1 glass – spacer – minimum 4 mm thick glass of any type including toughened, laminated or annealed with or without Low E/solar control coatings
- 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/m³
- 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/m³

This Certificate of Approval relates to the sizes of PYRANOVA 30-S2.0/2.1 glass shown in Figure 24 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

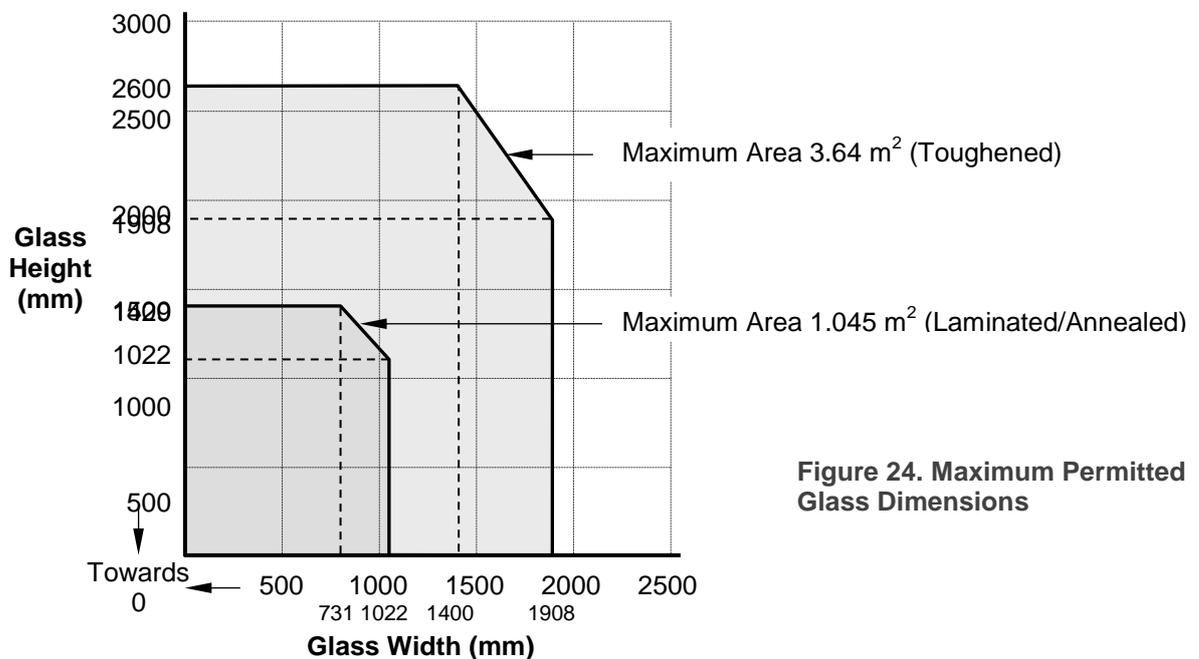


Figure 24. Maximum Permitted Glass Dimensions

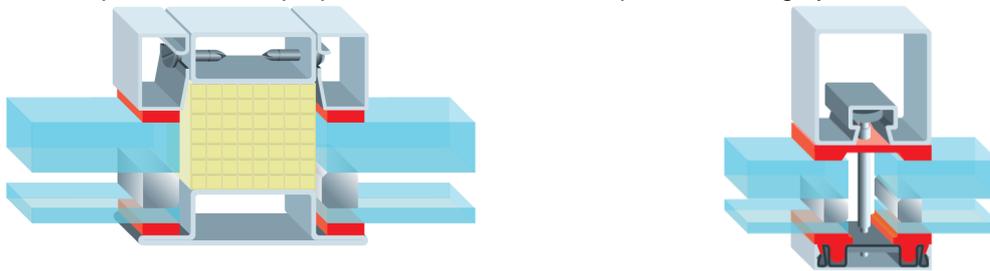
Paul Duggan

PYRANOVA® 30-S2.0/2.1 Glass within Insulating Glass Units in steel framed Screens for periods of 60 minutes integrity and 30 minutes insulation

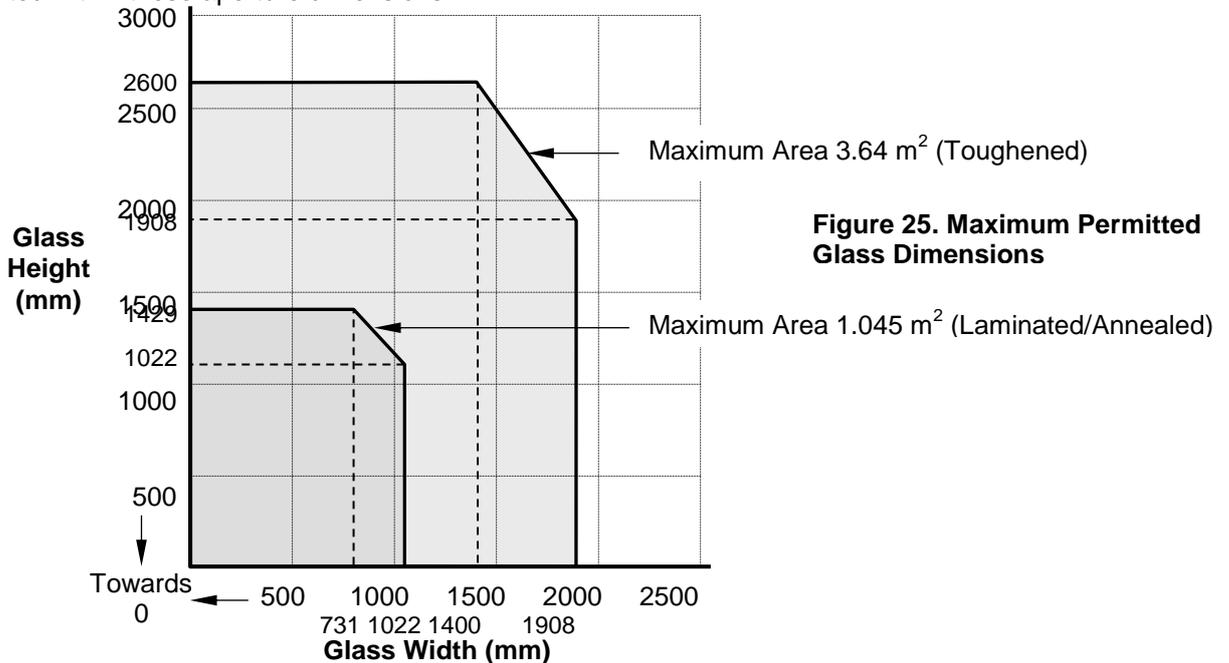
The glass shall be glazed within a previously fire tested or CERTIFIRE approved insulated steel framing system utilising the following basic specification:

- PYRANOVA® 30-S2.0/2.1 glass – spacer – minimum 4 mm thick glass of any type including toughened, laminated or annealed with or without Low E/solar control coatings
- 15 mm by 6 mm ceramic fibre based glazing tape
- Insulating Glass Units glazed units may be installed with PYRANOVA® to either face.

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:



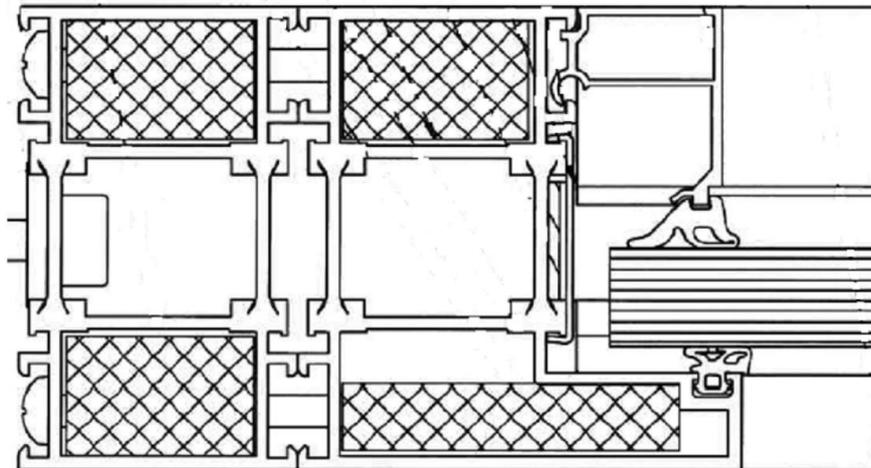
This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 glass shown in Figure 25 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Paul Dyer

PYRANOVA® 30-S2.0/2.1 Glass within Wicona Wicstyle 70FP Doors (inc. doors with side and overpanels) for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed within a Wicona Wicstyle 70 FP aluminium framed doorset with side or overpanels. Please consult the frame manufacturer for drawings of doorset/glazing system.

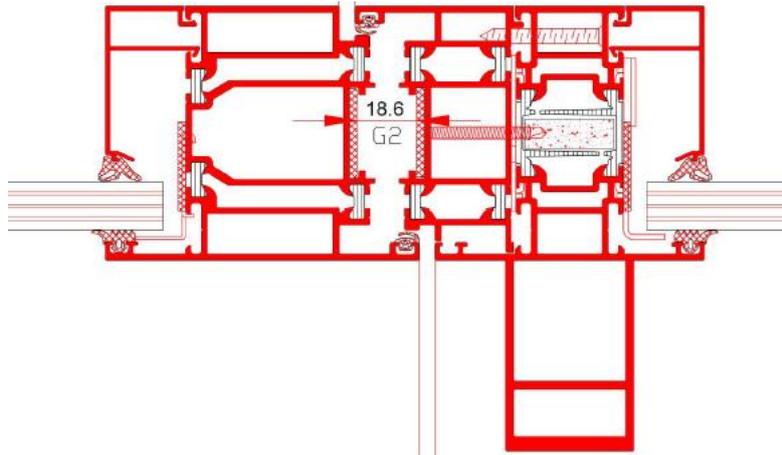


This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. System design and glazing details must be as tested in report 'IBS 10070707' or as covered by test data for the appropriate fire resistance period.

	Maximum Height	Maximum Width	Maximum Area
Within Door leaf	2255mm high (at 1025mm wide)	1127mm wide (at 2050mm high)	2.31m ²
Within side/overpanel	3412mm high (at 1227mm wide)	1533mm wide (at 2730mm high)	4.18m ²

PYRANOVA® 30-S2.0/2.1 Glass within Schuco ADS 80 Doors (inc. doors with side panels) for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed within a Schuco ADS 80 aluminium framed doorset including doors with side panels. Please consult the frame manufacturer for drawings of doorset/glazing system.

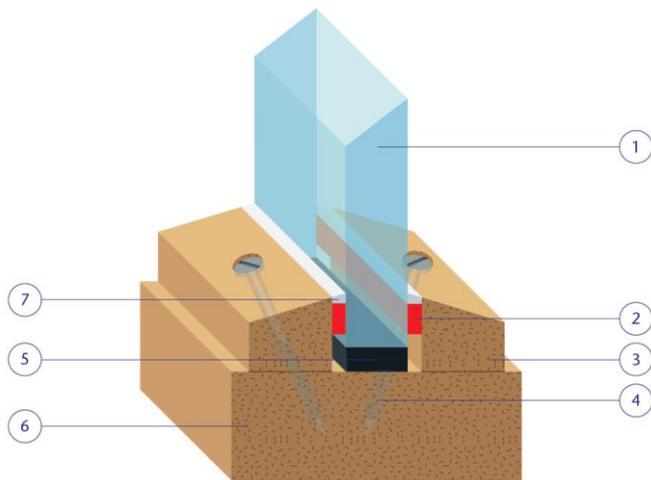


This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. System design and glazing details must be as tested in report 'FIRES-FR-054-10-AUNE' or as covered by test data for the appropriate fire resistance period.

	Maximum Height	Maximum Width	Maximum Area
Within Door leaf	3180mm high (at 1209mm wide)	1409mm wide (at 2728mm high)	3.84m ²
Within side/overpanel	3355mm high (at 1415mm wide)	1649mm wide (at 2878mm high)	4.74m ²

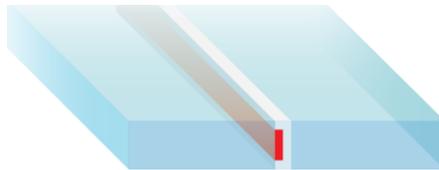
Butt-Jointed PYRANOVA® 30-S2.0/2.1 Glass in timber framed screens for periods of 30 minutes integrity and insulation

The glass shall be glazed utilising the following basic specification:

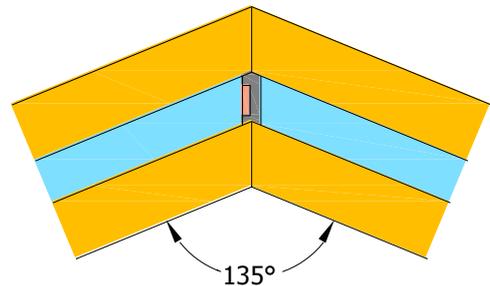
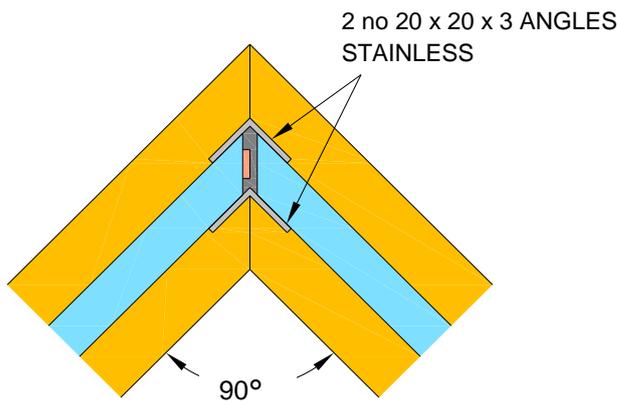


- 1 PYRANOVA® 30-S2.0/2.1 glass
- 2 8 mm wide by 3 mm thick closed cell foam tape
- 3 28 mm high by 20 mm wide square or up to 10° chamfered hardwood glazing beads, minimum density 550 kg/m³
- 4 60 mm long steel screws at 300 mm centres (30° to glass)
- 5 Non-combustible setting blocks
- 6 70 mm by 40 mm (minimum) hardwood framing sections, minimum density 550 kg/m³
- 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.

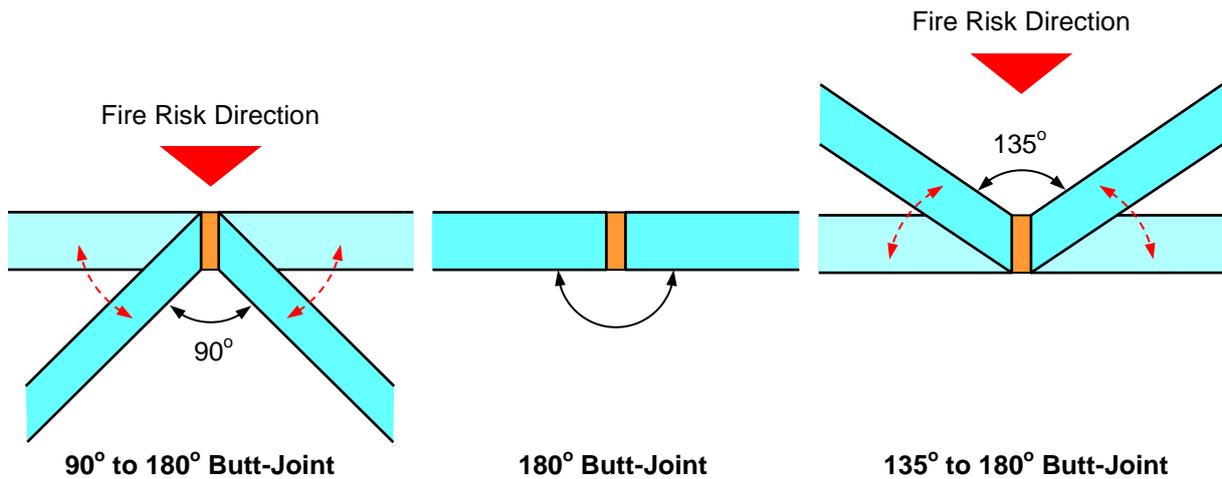


Nominal 5mm wide joint



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

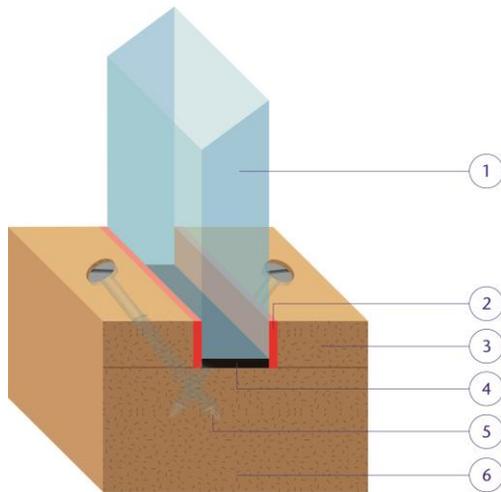
This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.0/2.1 glass shown in the table below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. The maximum permitted pane dimensions depend on the butt-joint specification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



Glass Type	Angle	Max Height (mm)	Max Width (mm)	Max Area (m ²)
PYRANOVA® 30-S2.0/2.1	180°	2750	1080	2.97
PYRANOVA® 30-S2.0/2.1	135° to 180°	1875	705	1.32
PYRANOVA® 30-S2.0/2.1	90° to 180°	1875	619	1.16
PYRANOVA® 30-S2.1	180°	3625	1806	5.23

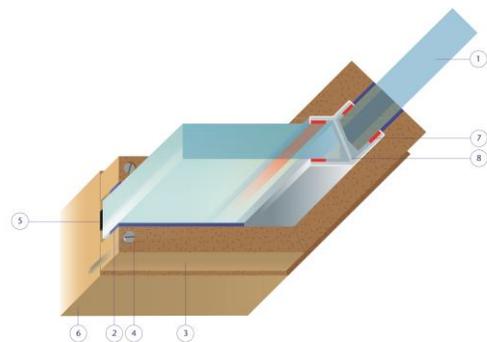
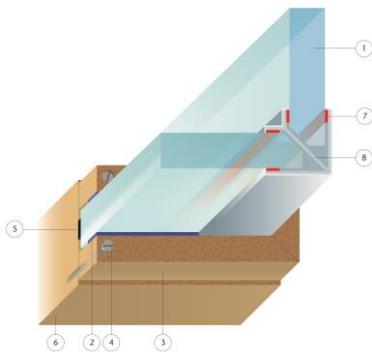
Butt-Jointed PYRANOVA® 30-S2.1 Glass in timber framed screens for periods of 30 minutes integrity and insulation – alternative detail

The glass shall be glazed utilising the following basic specification:



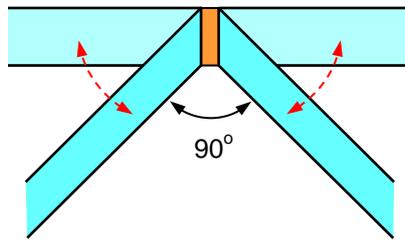
- 1 PYRANOVA® 30-S2.1 glass
- 2 9 x 4mm thick close cell tape
- 3 20 mm high x 21 mm wide square hardwood glazing beads, minimum density 670 kg/m³
- 4 Non-combustible setting blocks
- 5 45 mm long steel screws at 300 mm centres
- 6 68 mm x 30 mm (minimum) hardwood framing sections, minimum density 670 kg/m³
- 7 Neutral silicone capping to beads and Kerafix FR silicone to corner profiles
- 8 Stainless Steel corner profile

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.



Butt-Jointed PYRANOVA® 30-S2.1 Glass in timber framed screens for periods of 30 minutes integrity and insulation – alternative detail (continued)

This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.1 glass shown in the table below, 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.



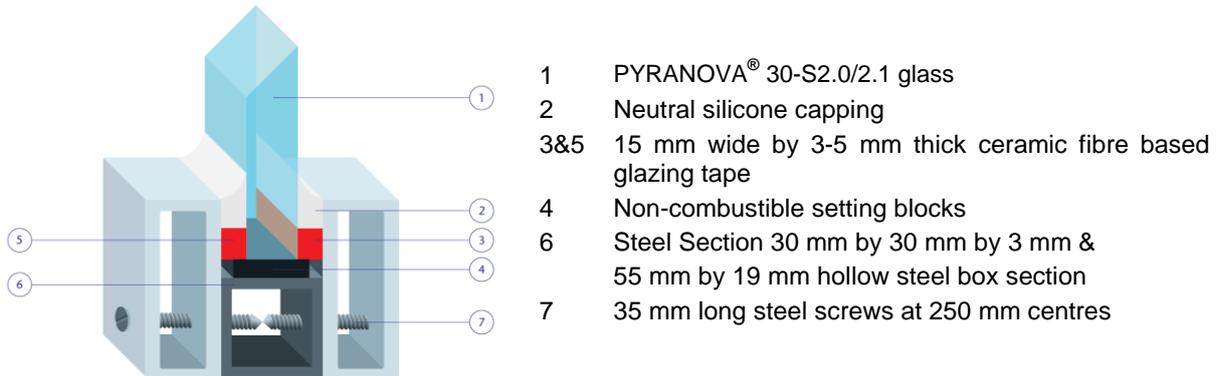
90° to 180° Butt-Joint

Glass Type	Angle	Max Height (mm)	Max Width (mm)	Max Area (m ²)
PYRANOVA® 30-S2.1	180° - 90°	3562	1437	4.09

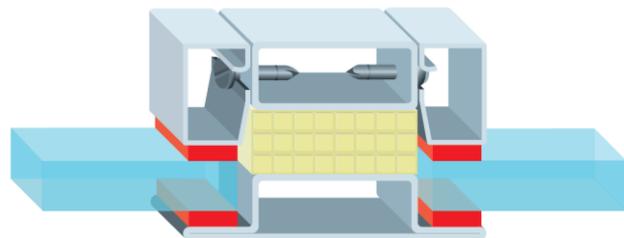
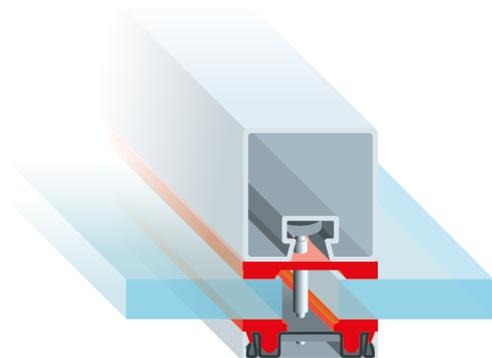
Butt-Jointed PYRANOVA® 30- S2.0/2.1 Glass in Steel framed screens for periods of 30 minutes integrity and insulation

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.

The glass shall be glazed utilising the following basic specification:



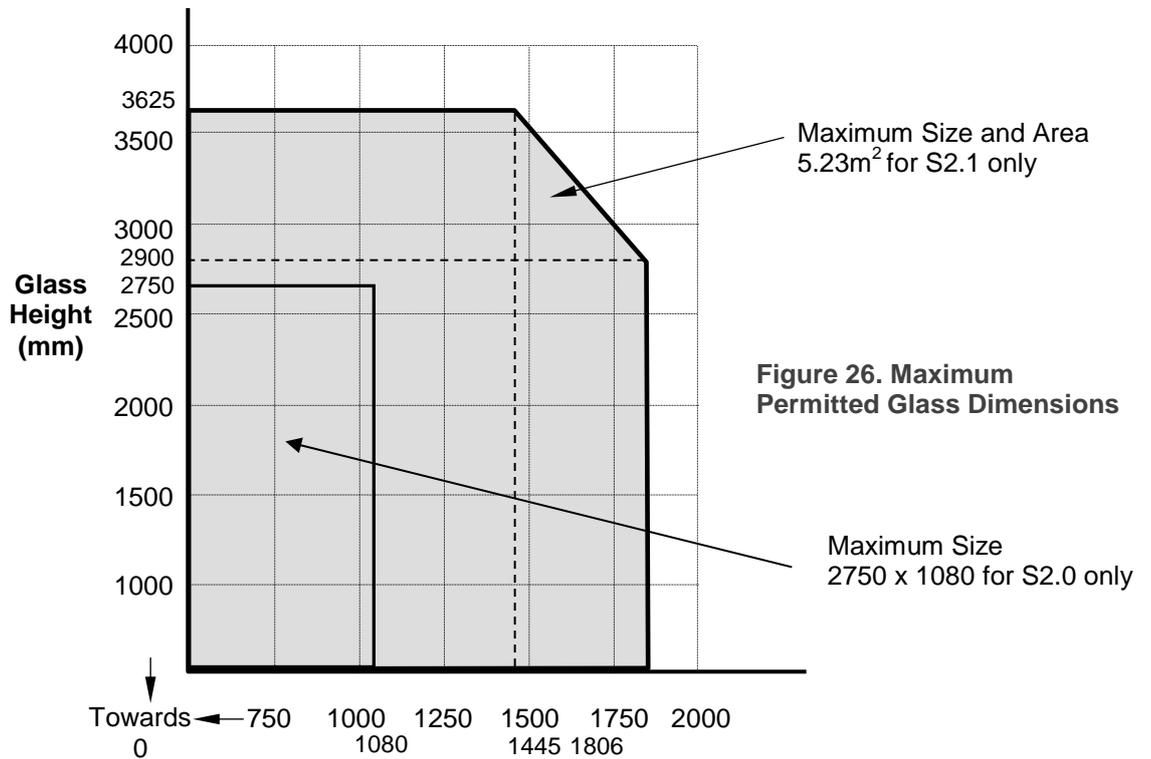
Nominal 5mm wide joint



In order to ensure the correct specification is utilised for such specialist glazing, further information should be sought from the manufacturer.

Butt-Jointed PYRANOVA® 30- S2.0/2.1 Glass in Steel framed screens for periods of 30 minutes integrity and insulation (continued)

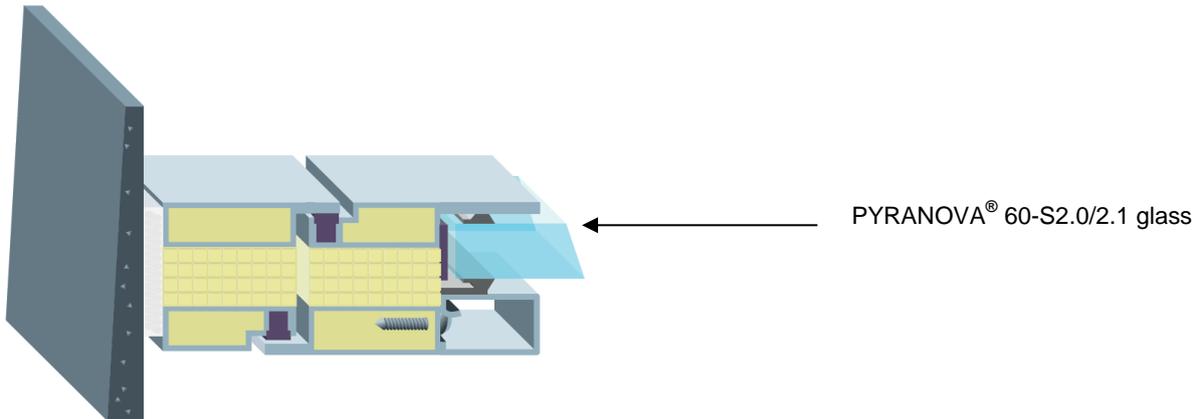
This Certificate of Approval relates to the sizes of PYRANOVA® 30-S2.1 glass shown in Figure 26 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



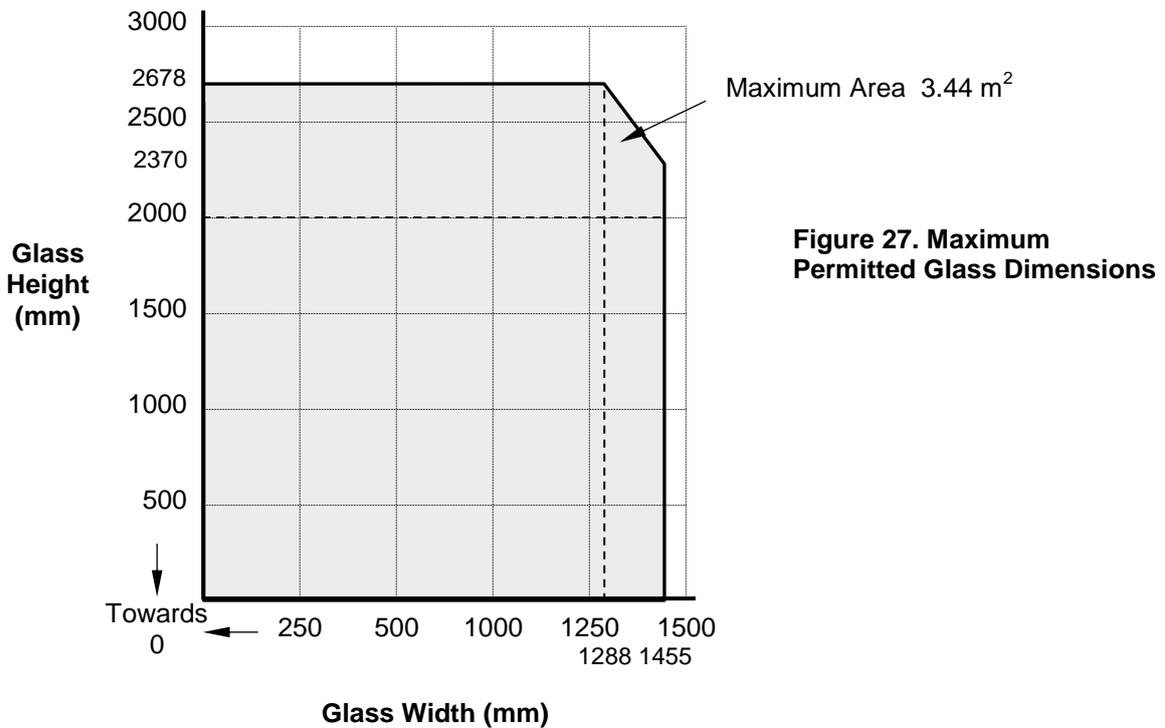
Paul Duggan

PYRANOVA® 60-S2.0/2.1 Glass in steel door leaves for periods of 60 minutes integrity and insulation

The glass shall be glazed utilising the following basic steel profiled doorleaf framing system specification:

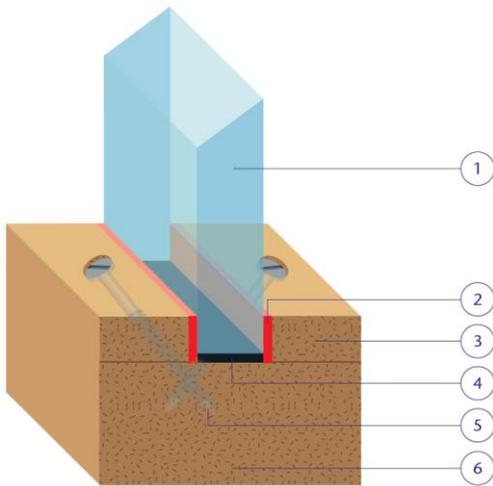


This Certificate of Approval relates to the sizes of PYRANOVA® 60-S2.0/2.1 glass shown in Figure 27 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



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/m³
- 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/m³

This Certificate of Approval relates to the sizes of PYRANOVA® 60-S2.0/2.1 glass shown in Figure 28 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

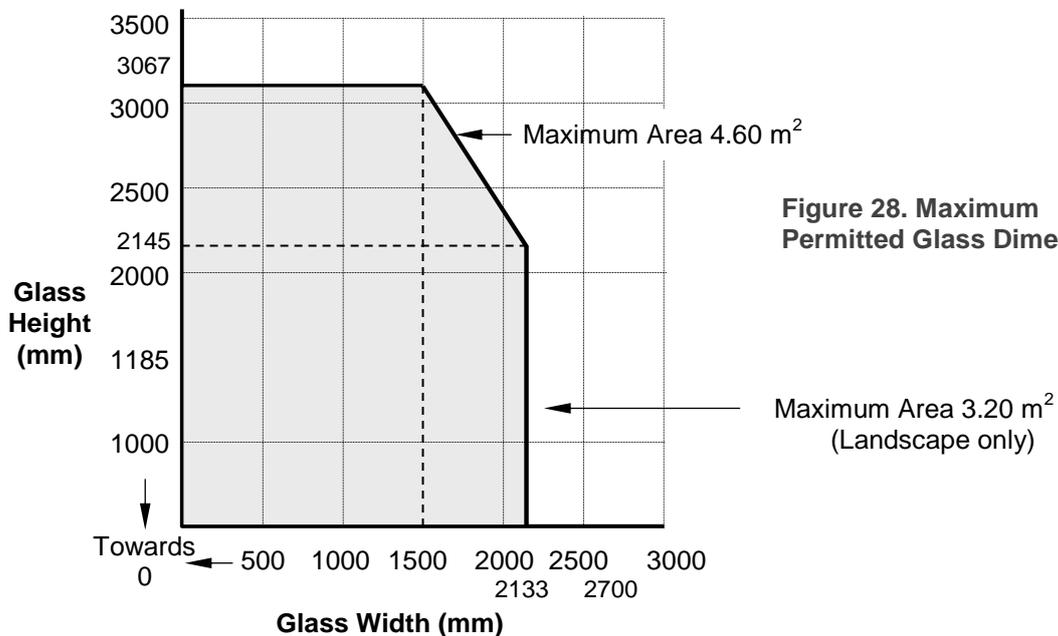


Figure 28. Maximum Permitted Glass Dimensions

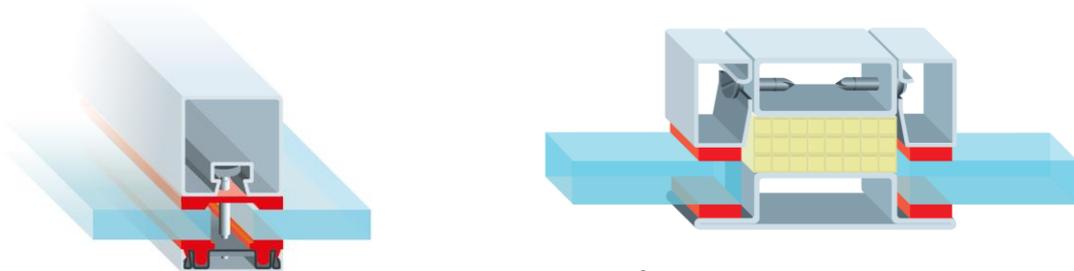
Paul Dyer

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 29 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

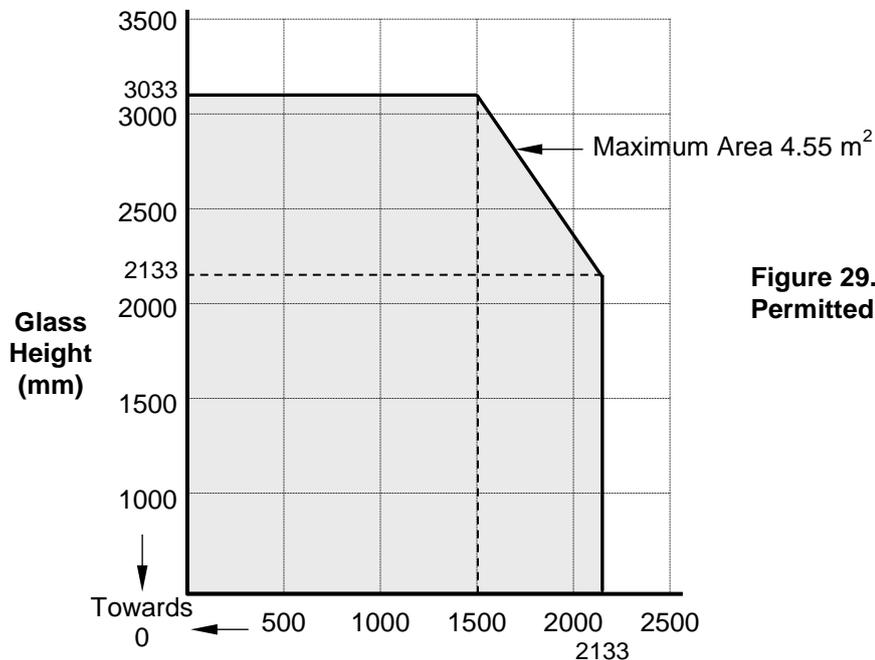
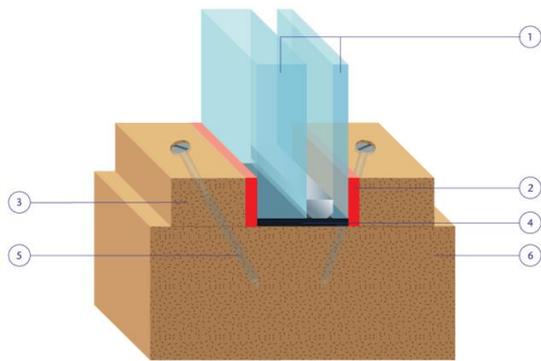


Figure 29. Maximum Permitted Glass Dimensions

PYRANOVA® 60-S2.0/2.1 Insulating Glass Units in timber framed screens for periods of 60 minutes integrity and insulation

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

- An integral blind can be contained in the airspace
- Insulating Glass units may be installed with PYRANOVA® to either face.



- 1 PYRANOVA® 60-S2.0/2.1 glass – spacer – minimum 4 mm thick glass of any type including toughened, laminated or annealed with or without Low E/solar control coatings
- 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/m³
- 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/m³

This Certificate of Approval relates to the sizes of PYRANOVA® 60-S2.0/2.1 glass shown in Figure 30 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

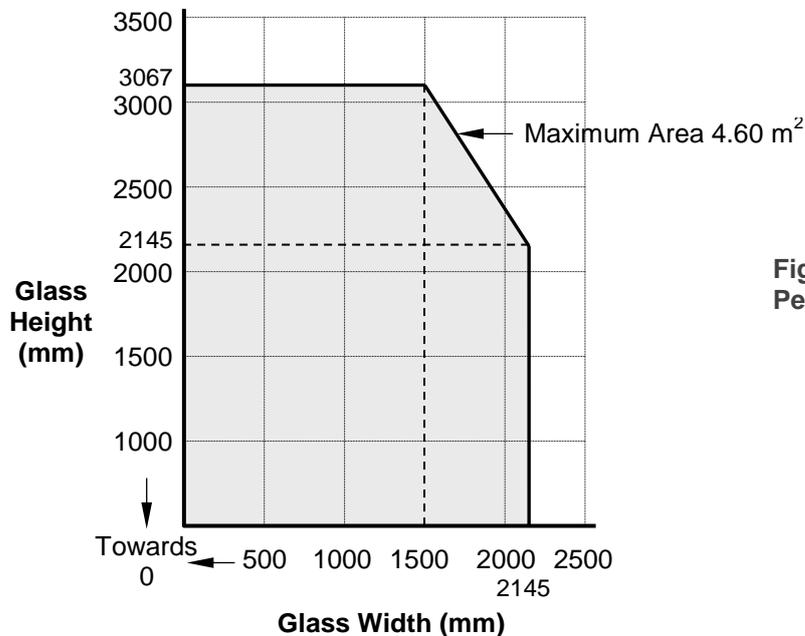


Figure 30. Maximum Permitted Glass Dimensions

Paul Duggan

PYRANOVA® 60-S2.0/2.1 Glass within Insulating Glass Units 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 – spacer – minimum 4 mm thick glass of any type including toughened, laminated or annealed with or without Low E/solar control coatings
- An integral blind can be contained in the airspace
- 15 mm by 6 mm ceramic fibre based glazing tape
- Insulating Glass units may be installed with PYRANOVA® to either face.

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 31 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

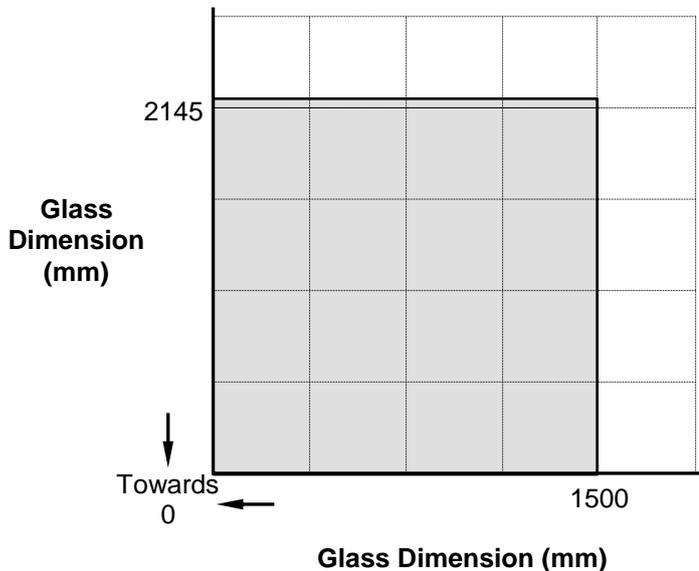


Figure 31. Maximum Permitted Glass Dimensions

Paul Duggan