



CERTIFICATE OF APPROVAL No CF 257

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

PYROGUARD UK LIMITED

**International House, Millfield Lane, Haydock, WA11 9GA
United Kingdom**
Tel: 01942 710720 Fax: 01942 710730

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
'Pyroguard EW'
Fire Resisting Glass

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

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

Paul Duggan
Certification Manager

Issued: 20th February 2006
Reissued: 16th December 2025
Valid to: 19th February 2031



EWC-QU-FT-733 (Issue 3)



Pyroguard Fire Resisting Glass

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.

This Certificate of Approval relates to the fire resistance of Pyroguard UK Limited's 'Pyroguard' laminated glass products when used in the following applications, as defined in BS 476: Part 22: 1987 subject to the undermentioned conditions.

Glass Specification	Application	Fire Resistance Performance (mins)		Page No.
		Integrity	Insulation	
Pyroguard EW30 IMPACT (7mm)	Timber framed screens	30	0	6-13
Pyroguard EW30 IMPACT (7mm)	IGUs in timber framed screens	30	0	14-16
Pyroguard EW30 IMPACT (7mm)	Steel framed screens	30	0	17
Pyroguard EW30 IMPACT (7mm)	IGUs in steel framed screens	30	0	18
Pyroguard EW30 IMPACT (7mm)	Steel doorsets	30	0	19
Pyroguard EW30 IMPACT (7mm)	IGUs in steel framed screens	60	0	20
Pyroguard EW30 IMPACT (7mm)	Timber based doorsets	30	0	21-24
Pyroguard FD60 (9mm)	Timber based doorsets	60	0	25-26
Pyroguard EW30 IMPACT (7mm)	Timber stile & rail doorsets	30	0	27-34
Pyroguard EW30 IMPACT (7mm)	Secondary Glazed Screen	30	0	35
Pyroguard EW30 IMPACT (7mm)	Glazed Partition	30	0	36
Pyroguard EW30 IMPACT (7mm) with Priva-See film (total 11 mm)	Timber based doorsets	30	0	37
Pyroguard EW30 MAXI (11mm)	Timber Framed Screen	30	0	38
Pyroguard EW30 MAXI (11mm) & Pyroguard EW60 (11mm)	Timber framed screens	30 & 60	0	39-40
Pyroguard EW60 (11mm)	Timber Framed Screen	60	0	41
Pyroguard EW30 MAXI (11mm)	Timber Framed Screens	30	0	42-43
Pyroguard EW30 MAXI (11mm)	IGUs in timber framed screens	30	0	44
Pyroguard EW60 (11mm)	IGUs in timber framed screens	60	0	45
Pyroguard EW30 MAXI (11mm)	Steel framed screens	30	0	46

Pyroguard Fire Resisting Glass

Glass Specification	Application	Fire Resistance Performance (mins)		Page No.
		Integrity	Insulation	
Pyroguard EW30 MAXI (11mm)	IGU's in Aluminium framed screens	30	0	47
Pyroguard EW30 MAXI (11mm)	IGUs in steel framed screens	30	0	48
Pyroguard EW60	IGUs in steel framed screens	60	0	49
Pyroguard EW30 MAXI (11mm)	Timber based doorsets	30	0	50
Pyroguard EW60 (11mm)	Timber based doorsets	60	0	51-54
Pyroguard EW30 MAXI (11mm)	Timber stile & rail doorsets	30	0	55-56
Pyroguard EW30 MAXI (11mm)	IGUs/laminated in horizontal steel framed screens	30	0	57-58

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: 2015
- 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.

The edge cover to each pane shall be no less than 10 mm with an expansion gap allowance of no less than 3mm to the top and sides.

Options

- i. Setting Blocks: Hardwood and other non-combustible materials may be used. The dimensions may vary in order to centralise and stabilize the glazing within the aperture. It has also been proven that setting blocks may be removed with no detriment to performance provided that sufficient edge cover is provided on all four sides of the glazing.
- ii. Neutral Silicone Capping: Where a glazing tape is used it may, optionally, be sealed with a neutral silicone capping. This can only be used on applications where the EW30 (7mm) glass is utilised for 30 minute applications or the EW60 (11mm) glass is utilised for 60 minute applications.
- iii. Beads: In cases where flush or square timber beads are tested in doors or partitions. Flush timber beads may be converted to chamfered or bolection while maintaining at least the overall tested bead dimension and approved fixing method. Chamfered and bolection beads may only be increased in dimension.

Pyroguard Fire Resisting Glass

- iv. Section: The tested framing sections may be increased but not decreased in dimensions.
- v. Insulated glass units (IGU, DGU, VI): The orientation of the unit with respect to the fire risk is critical to the fire resistance performance and is specified in this certificate for each application. The approved insulated glass units may be modified in the following ways: Counterpanes may be selected from the following list:

Annealed glass,

Laminated glass (Where IGUs are approved and the fire resistant pane is glazed to the non-fire side, the non-fire resistant glass on the fire side can be float, toughened or laminated glass. When the fire resistant pane is glazed to the fire side the non-fire resistant glass on the non-fire side can be any pane that does not contain a flammable organic material i.e. float glass or toughened glass but not a laminated or painted glass unless supported by test evidence not contained in this CF),

Low E glass,

Obscured glass,

Patterned glass,

Solar Control glass,

Toughened glass.

The non-fire glass counterpane within the IGU's options considered in this document can be of any thickness (subject to the conditions above and also subject to bead size being maintained).

Spacers may be of dimensions 6-22mm thick.

Spacer materials may be selected from the following:

Aluminium,

Stainless Steel,

Technoform Mww SP14 (Warm Edge).

Seal materials may be selected from the following:

Hot-melt butyl,

Polyurethane,

Polysulphide,

Silicone.

- vi. Insulated glass units (Blinds): IGUs may also have an integrated blind within the airspace provided the Pyroguard glass pane is glazed on the non-fire side when combined with a non-fire rated laminated glass or either side when combined with a float or toughened glass.
- vii. Insulated glass units (Georgian bars): All systems may include decorative self-adhesive leading on either or both faces.

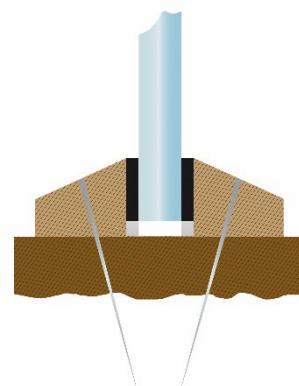
Pyroguard Fire Resisting Glass

- viii. Application of films: The glass may have 3M – Ultra 400 clear or Llumar Window Film SCL SR PS4 applied to either face or an alternative film applied to the known fire risk side only. If the fire risk may be from either side or it cannot be determined which side of the glass will be on the fire risk side, then films other than 3M – Ultra 400 clear or Llumar Window Film SCL SR PS4 shall not be applied.
- ix. Obscured: Pyroguard glass may be sandblasted, acid etched, bevelled or incorporate grooves subject to the minimum glass thickness being maintained i.e. by utilizing thicker glass sheets bevelled at the edge or grooved to standard thickness.
- x. Shapes: It is acceptable to include Pyroguard in shaped apertures, i.e. circles, ovals, arches, quadrants, etc. within timber door leaves or screens (subject to limitations in the door or 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.
- xi. Glazing: Glazing may be substituted for other, thicker, glazing from the same product family. For example, EW30 7mm may be substituted by 9mm etc, provided that the minimum bead dimensions are respected and that there is no reduction in the thickness of the interlayer component.
- xii. Where multiple panes are approved for use within a single door leaf, the certificate holder should be contacted in regards minimum spacing requirements and further restrictions.

Pyroguard EW30 IMPACT (7 mm) glass in multi-pane timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:

- Pyroguard EW30 IMPACT (7mm)
- Sealmaster Intumescent Foam Glazing Tape- 15x5mm uncompressed
- 50 mm screw or pin fixings at 150 mm centres, 50 mm from corners angled at 45°
- Softwood/Hardwood framing members, 80 mm x 40 mm, min. density 510kg/m³
- Glazing Bead, 15x20mm with a 20° chamfer from hardwood: min. density 510kg/m³



System may be used with and without non-combustible setting blocks

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 1 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

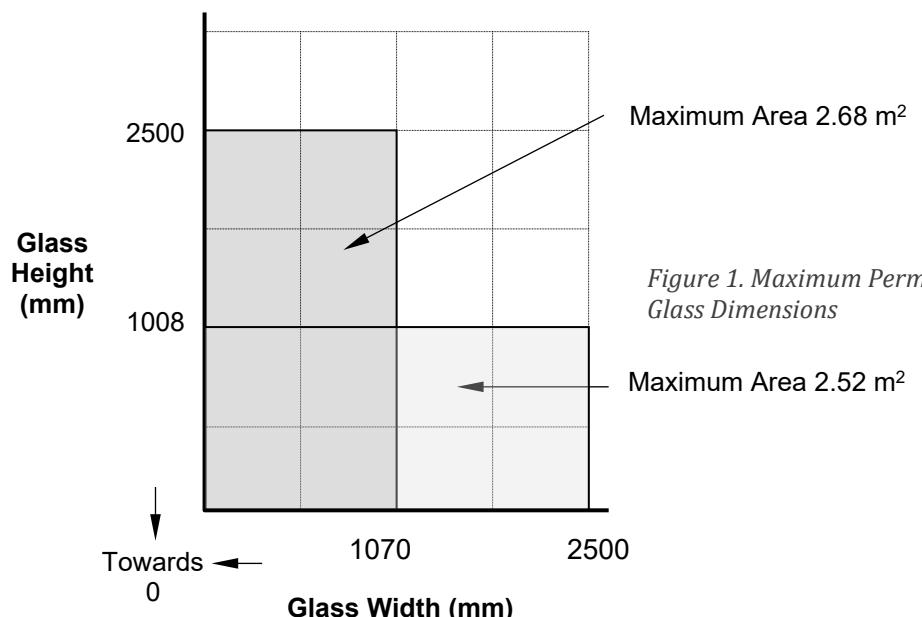
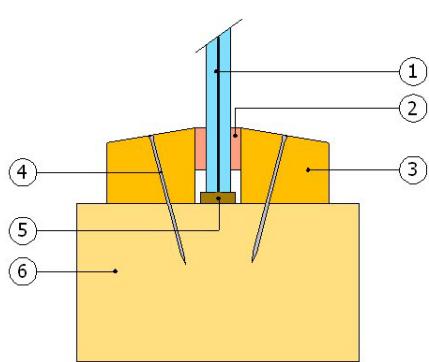


Figure 1. Maximum Permitted Glass Dimensions

Pyroguard EW30 IMPACT (7 mm) glass in multi-pane 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 Pyroguard EW30 IMPACT (7mm)
- ② 15 mm by 6 mm ceramic fibre glazing tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (MannMcGowan).
- ③ 20 mm high by 40 mm wide square or chamfered (up to 30°) hardwood glazing beads, minimum density 660 kg/m³.
- ④ 38 mm long No. 8 steel screws at 200 mm centres (30° to glass)
- ⑤ Hardwood or Non-combustible setting blocks
- ⑥ 63 mm by 105 mm (minimum) hardwood framing sections, minimum density 530 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7mm) glass shown in Figure 2 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 2220 mm wide by 2610 mm high.

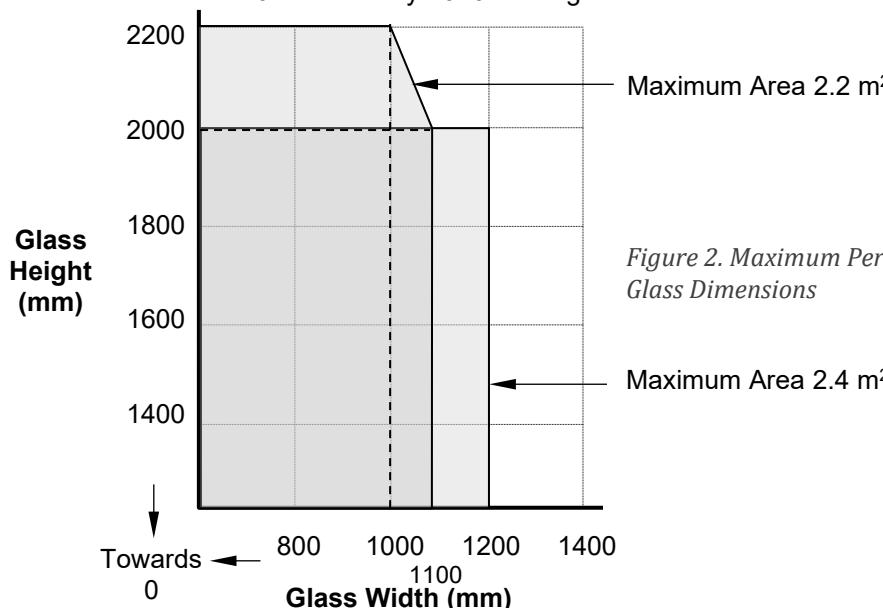


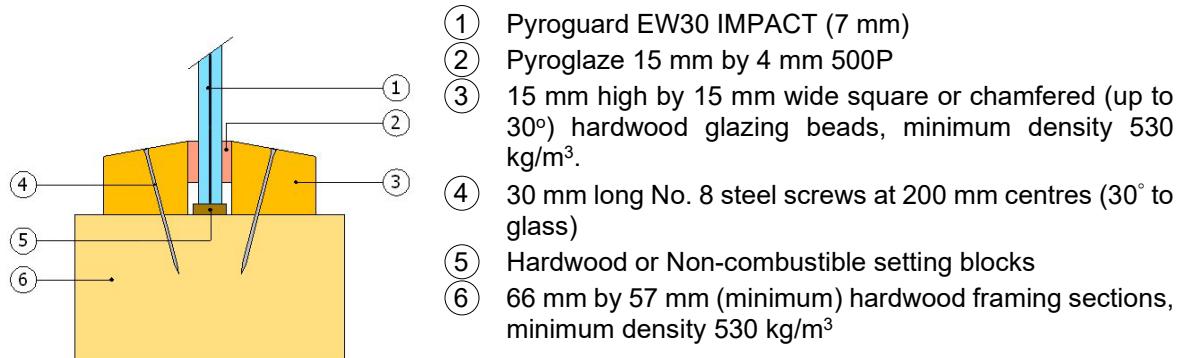
Figure 2. Maximum Permitted Glass Dimensions

The aspect ratio of the glass may be unlimited within these aperture dimensions. Alternative glazing systems as detailed in Table 1 (Timber Doorsets) may be utilised subject to the dimensional limitations specified in Table 1. These systems may also be included in previously tested doorset fan and sidelights.

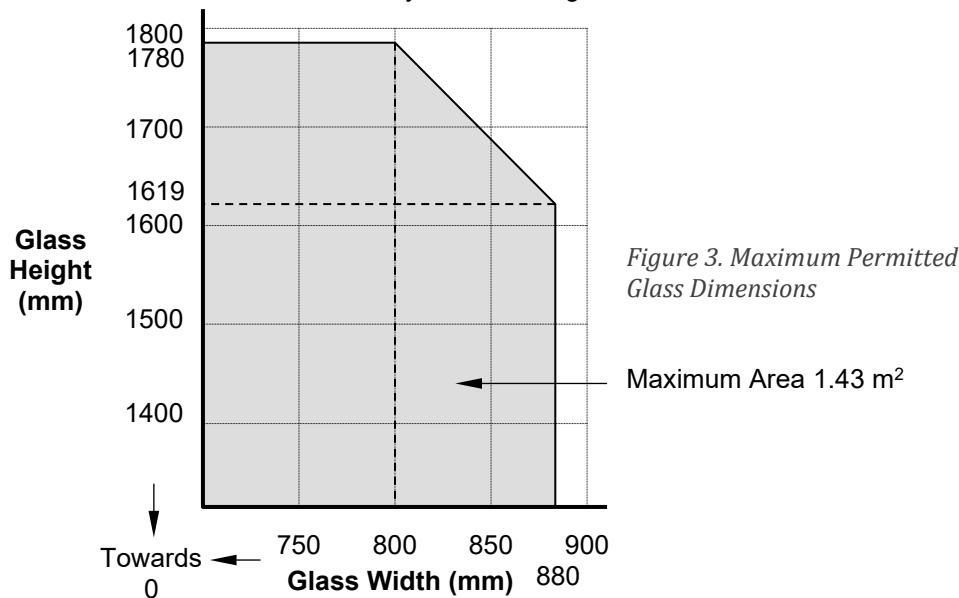
Pyroguard EW30 IMPACT (7 mm) glass in multi-pane timber framed screens for periods of 30 minutes integrity (continued)

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 Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 3 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 1900 mm wide by 2500 mm high.

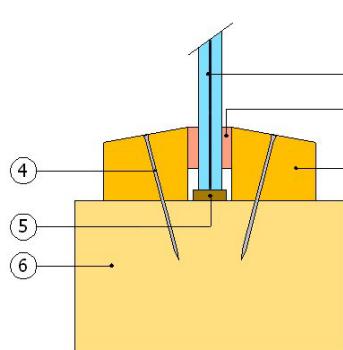


The aspect ratio of the glass may be unlimited within these aperture dimensions. Alternative glazing systems as detailed in Table 1 (Timber Doorsets) may be utilised subject to the dimensional limitations specified in Table 1. These systems may also be included in previously tested doorset fan and sidelights.

Pyroguard EW30 IMPACT (7 mm) glass in multi-pane timber framed screens for periods of 30 minutes integrity (continued)

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:

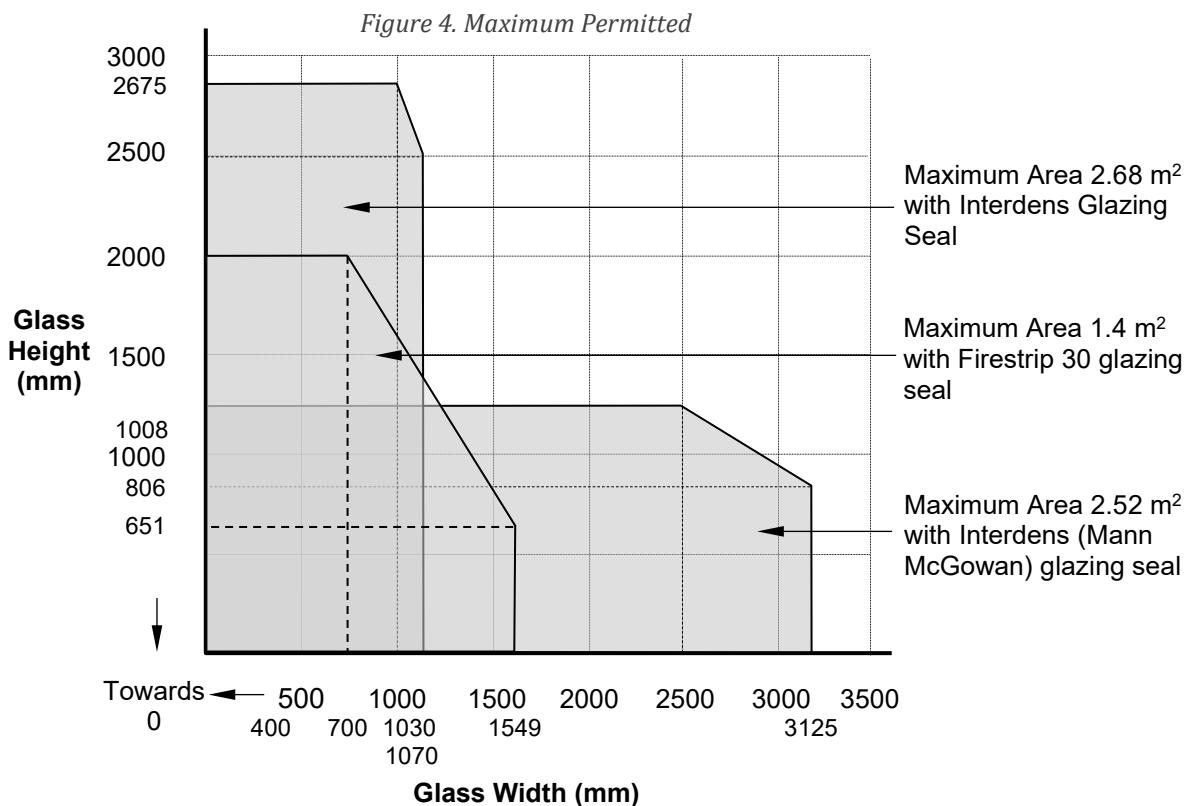


- ① Pyroguard EW30 IMPACT (7 mm)
- ② 12 mm by 3 mm 'Firestrip 30' glazing seal or 10 by 2 mm Interdens (Mann McGowan) glazing seal
- ③ 13 mm high by 21 mm wide square or chamfered (up to 20°) hardwood glazing beads, minimum density 650 kg/m³
- ④ 32 mm long steel screws or 50 mm steel pins at 150 mm centres (30° to glass) and nominally 50 mm from each corner.
- ⑤ Hardwood or Non-combustible setting blocks
- ⑥ 40 mm by 75 mm (minimum) softwood or hardwood framing sections, minimum density 510 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 4 below, when used in conjunction with the above system.

Alternative glazing systems as detailed in Table 1 (Timber Doorsets) may be utilised subject to the dimensional limitations specified in Table 1. These systems may also be included in previously tested doorset fan and side-lights.

Pyroguard EW30 IMPACT (7 mm) glass in multi-pane timber framed screens for periods of 30 minutes integrity (continued)

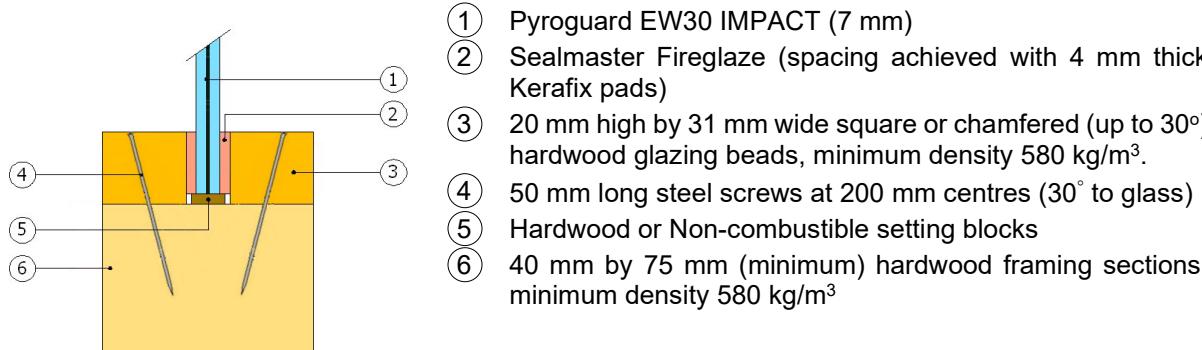


Note: Maximum glass stock size is currently limited to 1580mm by 2780mm.

Pyroguard EW30 IMPACT (7 mm) glass in single pane 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 Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 5 below, when used in conjunction with the above system. The maximum permitted overall single pane screen dimensions are 1200 mm wide by 2200 mm high.

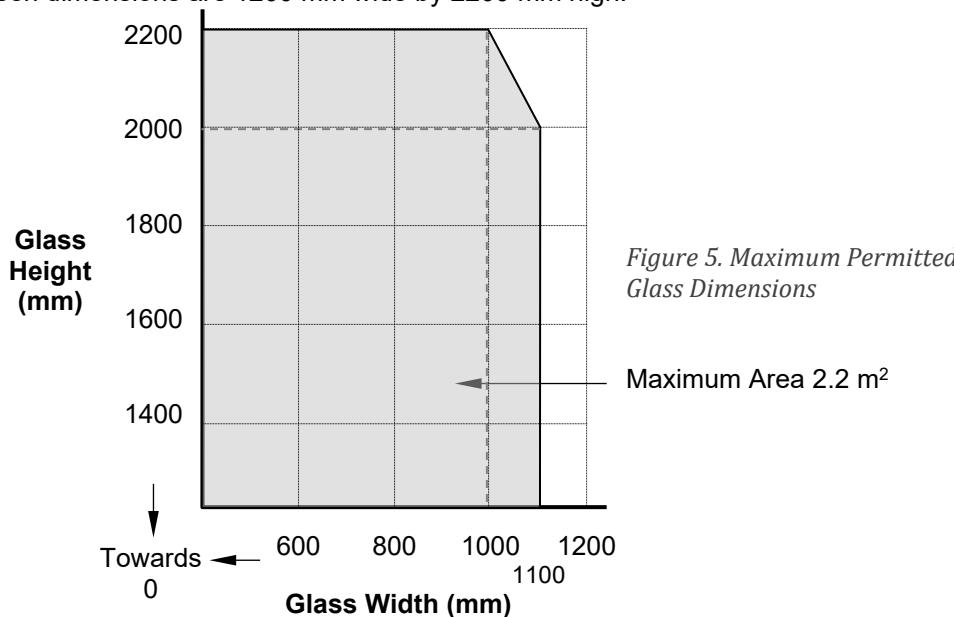


Figure 5. Maximum Permitted Glass Dimensions

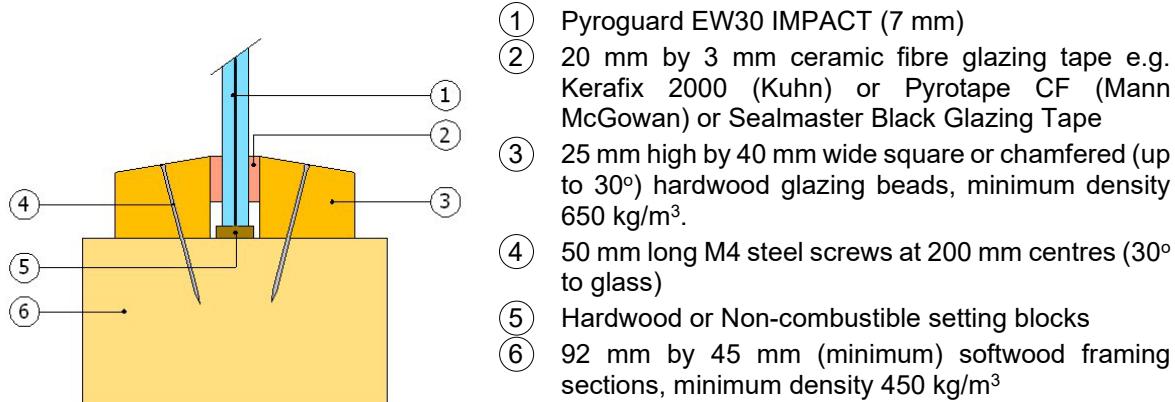
Maximum Area 2.2 m²

The aspect ratio of the glass may be unlimited within these aperture dimensions. Alternative glazing systems as detailed in Table 1 (Timber Doorsets) may be utilised subject to the dimensional limitations specified in Table 1. These systems may also be included in previously tested doorset fan and sidelights.

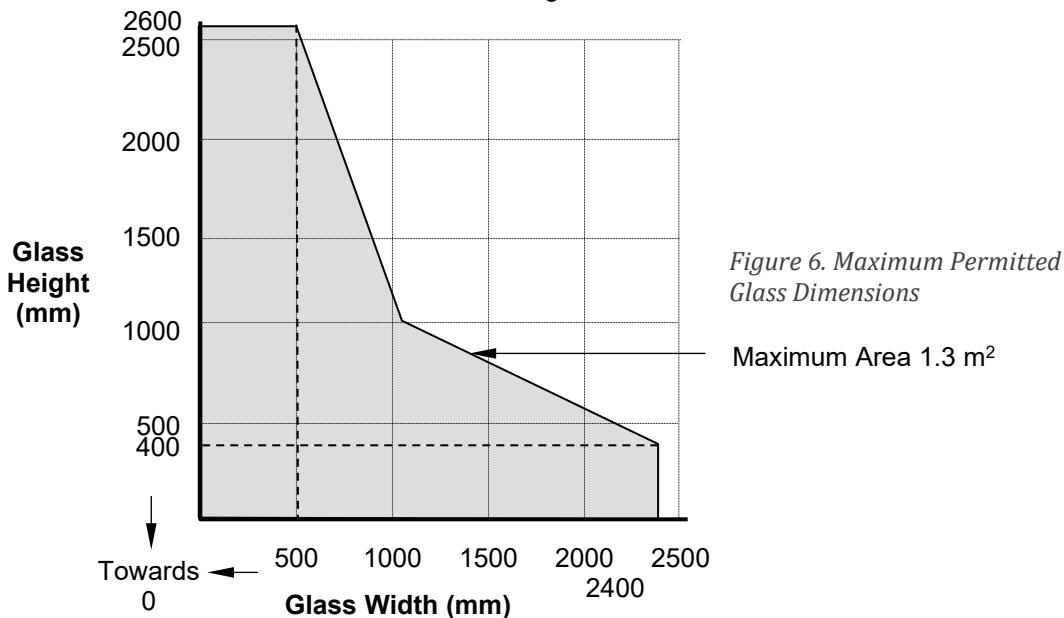
Pyroguard EW30 IMPACT (7 mm) glass in single pane softwood framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



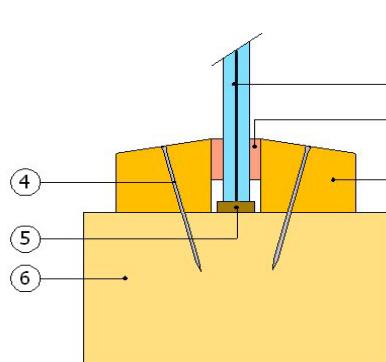
This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 6 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 2506 mm wide and 2706 mm high.



Pyroguard EW30 IMPACT (7 mm) glass in multi-pane softwood 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 Pyroguard EW30 IMPACT (7 mm)
- ② 15 mm by 3 mm ceramic fibre glazing tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan) or Sealmaster Black Glazing Tape
- ③ 20 mm high by 32 mm wide square or chamfered (up to 30°) hardwood glazing beads, minimum density 650 kg/m³.
- ④ 50 mm long M4 steel screws at 200 mm centres (30° to glass)
- ⑤ Hardwood or Non-combustible setting blocks
- ⑥ 72 mm by 40 mm (minimum) softwood framing sections, minimum density 510 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 7 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 2506 mm wide and 2706 mm high.

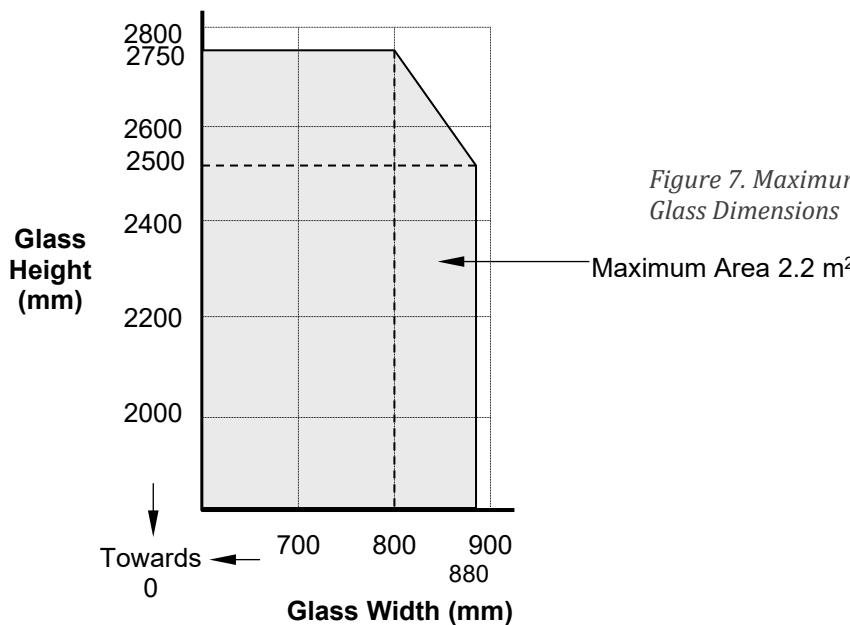
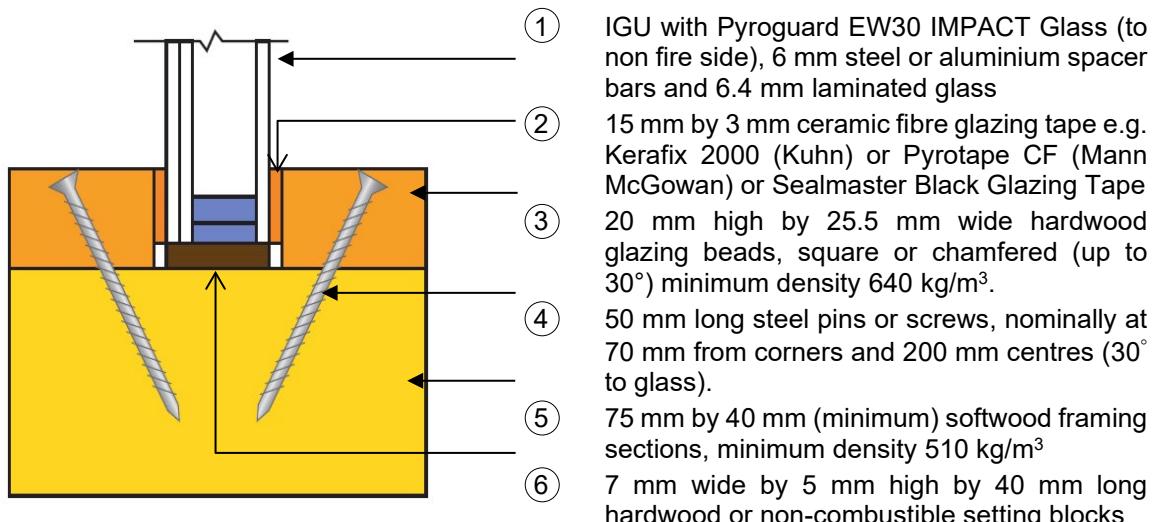


Figure 7. Maximum Permitted Glass Dimensions

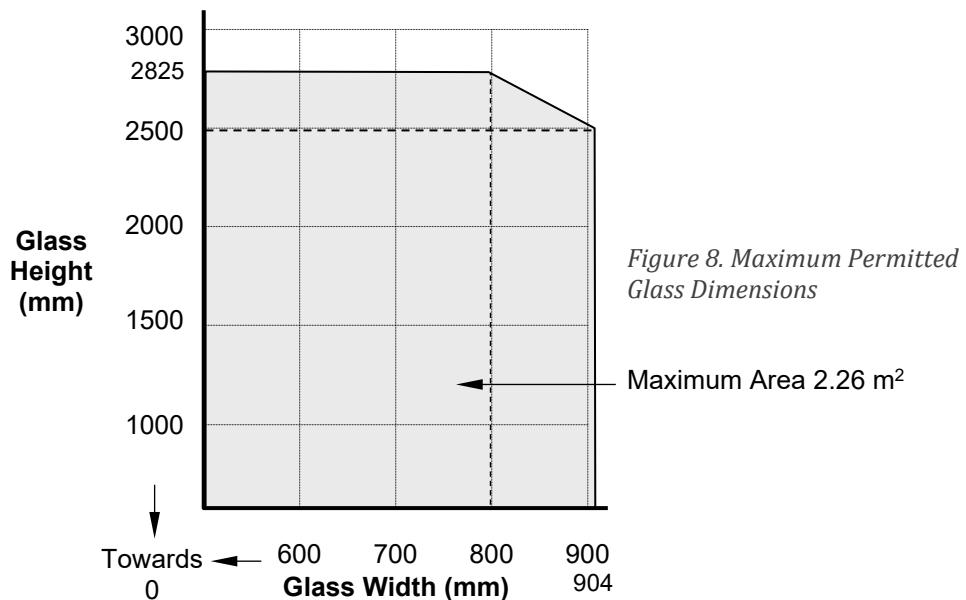
Pyroguard EW30 IMPACT Insulating Glass Units in single pane timber framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



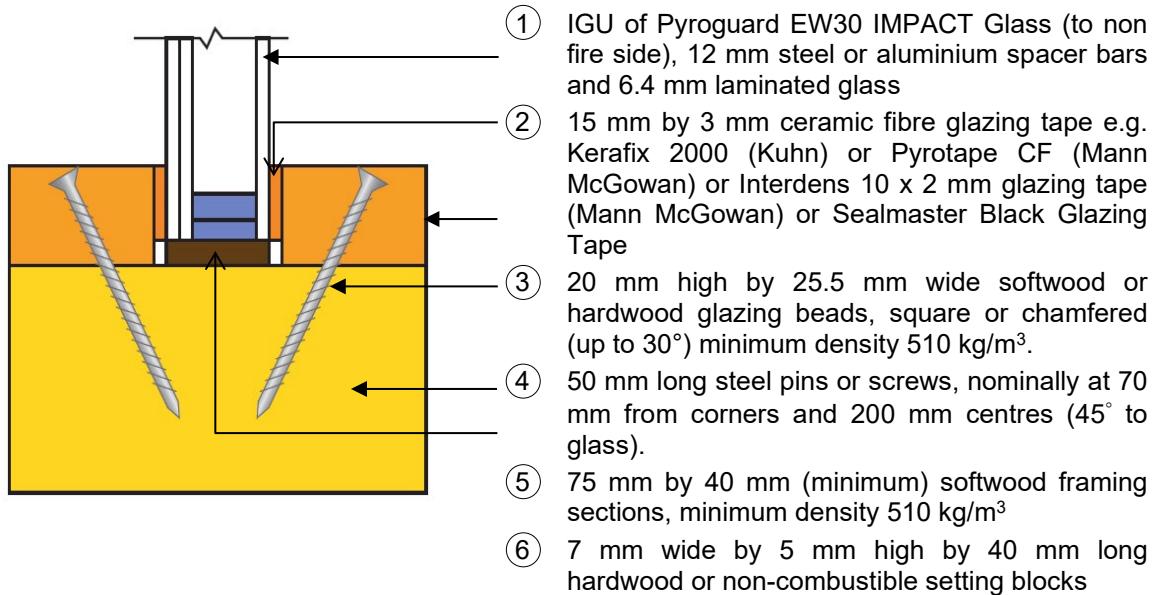
This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT glass shown in Figure 8 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Pyroguard EW30 IMPACT Insulating Glass Units in single pane 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 Pyroguard EW30 IMPACT 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.

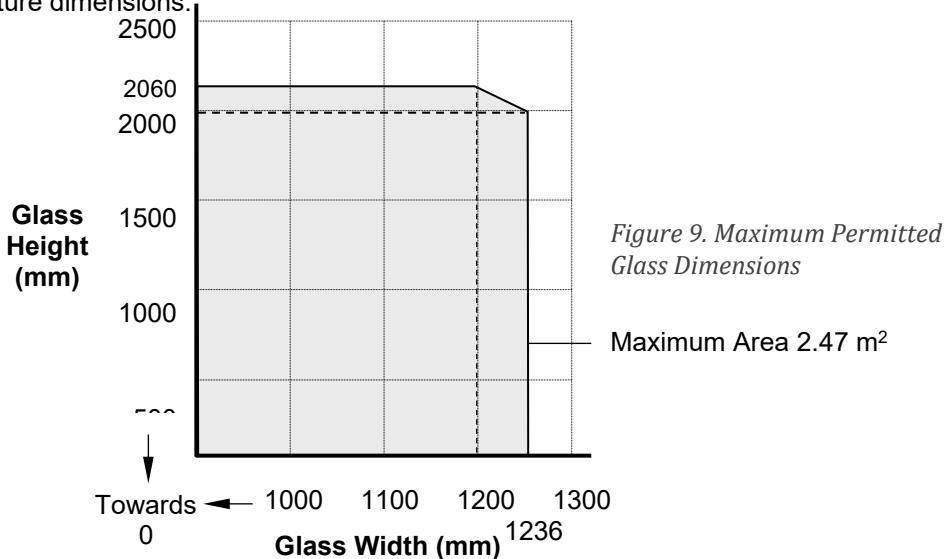
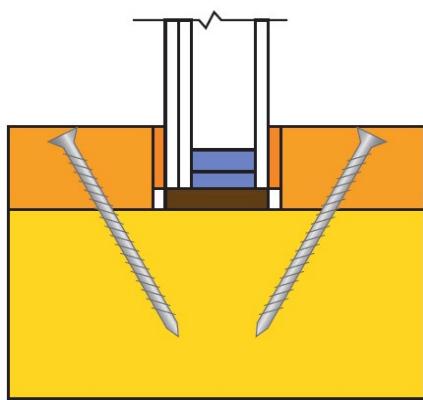


Figure 9. Maximum Permitted Glass Dimensions

Pyroguard EW30 IMPACT Insulated Glazed Units glass in multi-pane 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 'IGU' of Pyroguard EW30 IMPACT glass, a 12 mm Argon filled cavity with steel or aluminium spacer bars and a single layer of 4 mm annealed glass (including 'low E' coated glasses), to form a 23 mm thick unit*.
- ② 10 mm by 2 mm Interdend glazing tape (Mann McGowan)
- ③ 15 mm high by 32 mm wide square or chamfered (up to 30°) hardwood glazing beads, minimum density 650 kg/m³.
- ④ 50 mm long M4 steel screws at 200 mm centres (30° to glass)
- ⑤ Hardwood or Non-combustible setting blocks
- ⑥ 90 mm by 40 mm (minimum) softwood framing sections, minimum density 510 kg/m³

*The panes must be oriented such that the 4 mm layer faces the fire risk direction.

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT glass IGUs shown in Figure 10 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 3000 mm wide and 3000 mm high.

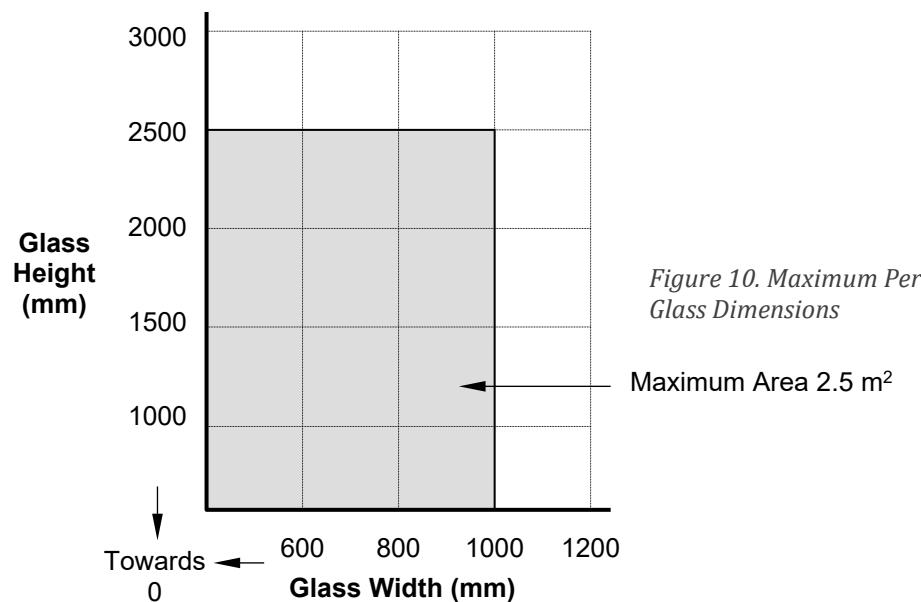
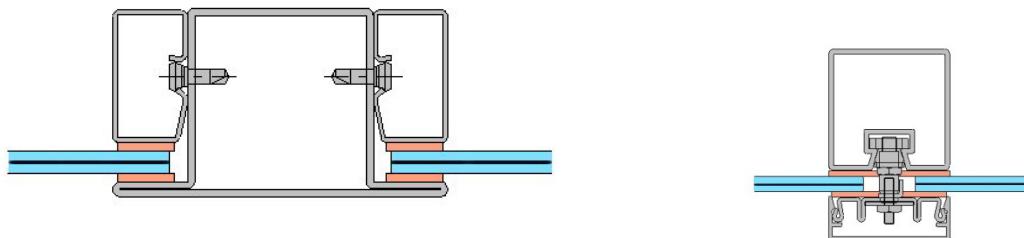


Figure 10. Maximum Permitted Glass Dimensions

Pyroguard EW30 IMPACT (7 mm) glass in multi-pane steel framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The glass shall be glazed into the screen with Sealmaster Black Glazing Tape or ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan), 15x3mm, on both faces and set on non-combustible setting blocks to determine the correct edge cover.



Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 11 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 3000 mm high by unlimited width. The aspect ratio of the glass may be unlimited within these aperture dimensions.

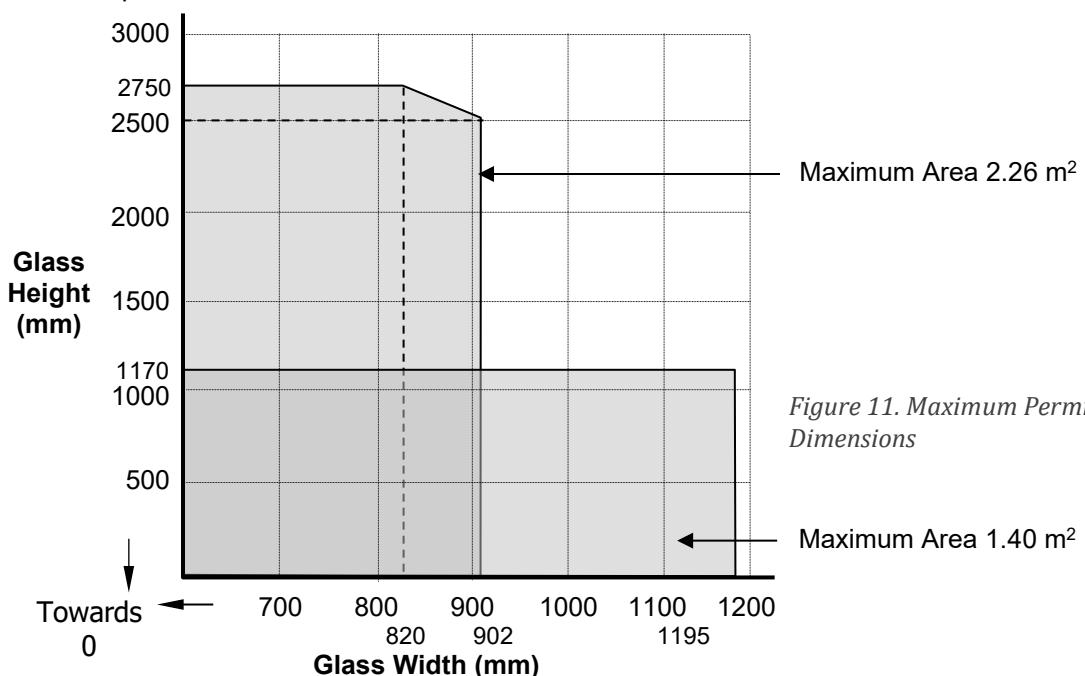


Figure 11. Maximum Permitted Glass Dimensions

Pyroguard EW30 IMPACT glass Insulating Glass Units in multi-pane steel screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The 'IGU' shall comprise a single layer of Pyroguard EW30 IMPACT glass, a 12 -15 mm Argon filled cavity with steel or aluminium spacer bars and a single layer of 4 mm toughened glass (including 'low E' glasses), to form a 23 mm thick unit. The panes must be oriented such that the Pyroguard EW30 glass faces the fire risk direction.

The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads. The glass shall be glazed into the screen with Sealmaster Black Glazing Tape or ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan), 15x3mm, on both faces and set on hardwood or non-combustible setting blocks to determine the correct edge cover.

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT glass IGUs shown in Figure 12 below, when used in conjunction with the above system. The glass may be installed within multi-paned screens providing that the overall height of the screen does not exceed 3000 mm. The aspect ratio of the glass may be unlimited within these aperture dimensions.

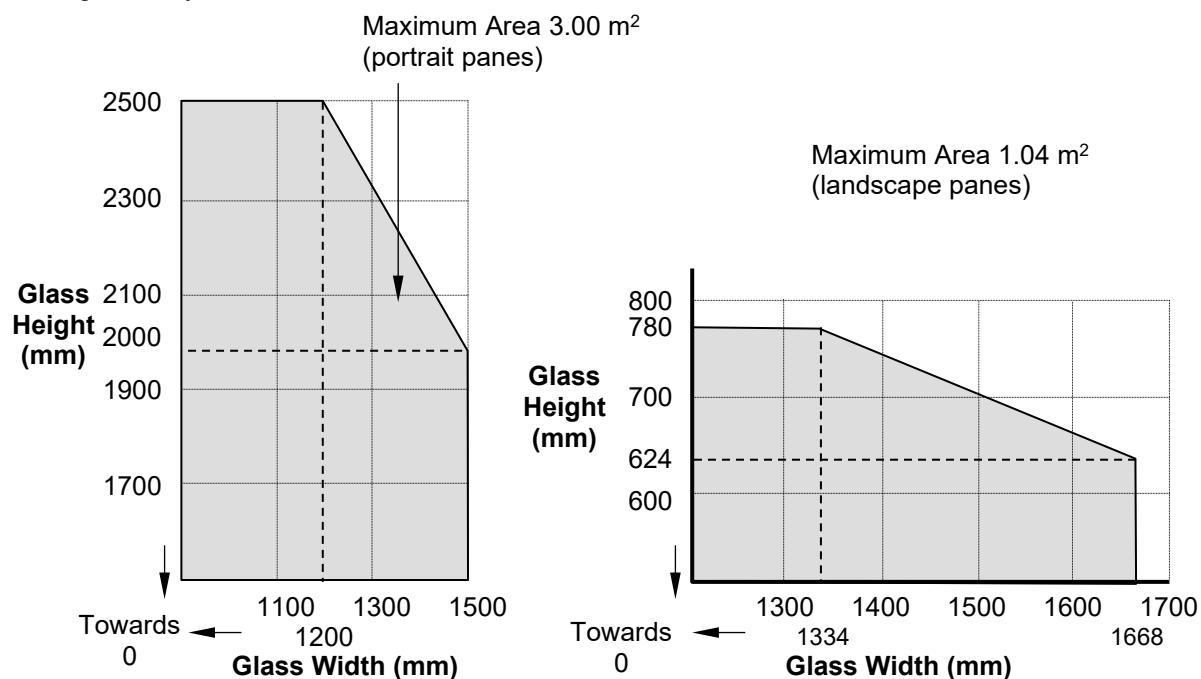


Figure 12. Maximum Permitted Glass Dimensions

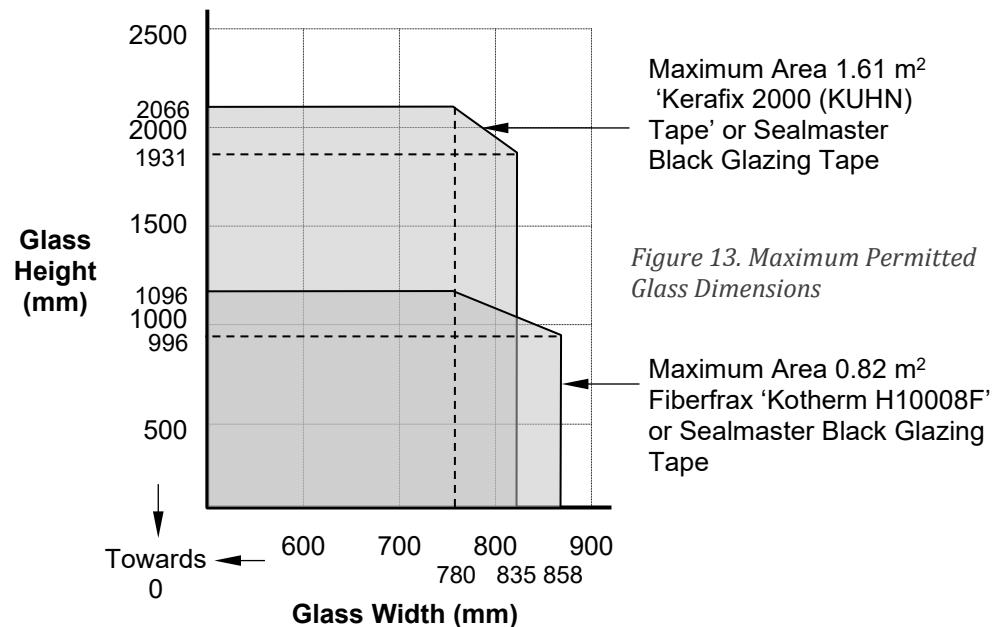
Pyroguard EW30 IMPACT (7 mm) glass in steel doorsets for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be installed into a previously tested or CERTIFIRE steel doorset (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads. The glass shall be glazed into the doorset with Seamaster Black Glazing Tape, or ceramic fibre gasket e.g. Kerafix 2000 (Kuhn), Fiberfrax Kotherm H10008F or Pyrotape CF (Mann McGowan), 15x3mm, on both faces and set on non-combustible setting blocks to determine the correct edge cover.

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) 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.



Pyroguard EW30 IMPACT Insulated Glazed Units glass in multi-pane steel framed screens for periods of 60 minutes integrity

For this application the following conditions shall apply:

The 'IGU' shall comprise a single layer of Pyroguard EW30 IMPACT glass, a 12 -15 mm Argon filled cavity with steel or aluminium spacer bars and a counterpane of 4 mm toughened glass and can include 'low E' glasses), to form a minimum 23 mm thick unit. The panes must be oriented such that the Pyroguard EW30 glass faces the fire risk direction.

The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads. The glass shall be glazed into the screen with Sealmaster Black Glazing Tape or ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan), 15x3mm, on both faces and set on hardwood or non-combustible setting blocks to determine the correct edge cover.

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT glass IGUs shown in Figure 14 below, when used in conjunction with the above system. The glass may be installed within multi-paned screens providing that the overall height of the screen does not exceed 3000 mm. The aspect ratio of the glass may be unlimited within these aperture dimensions.

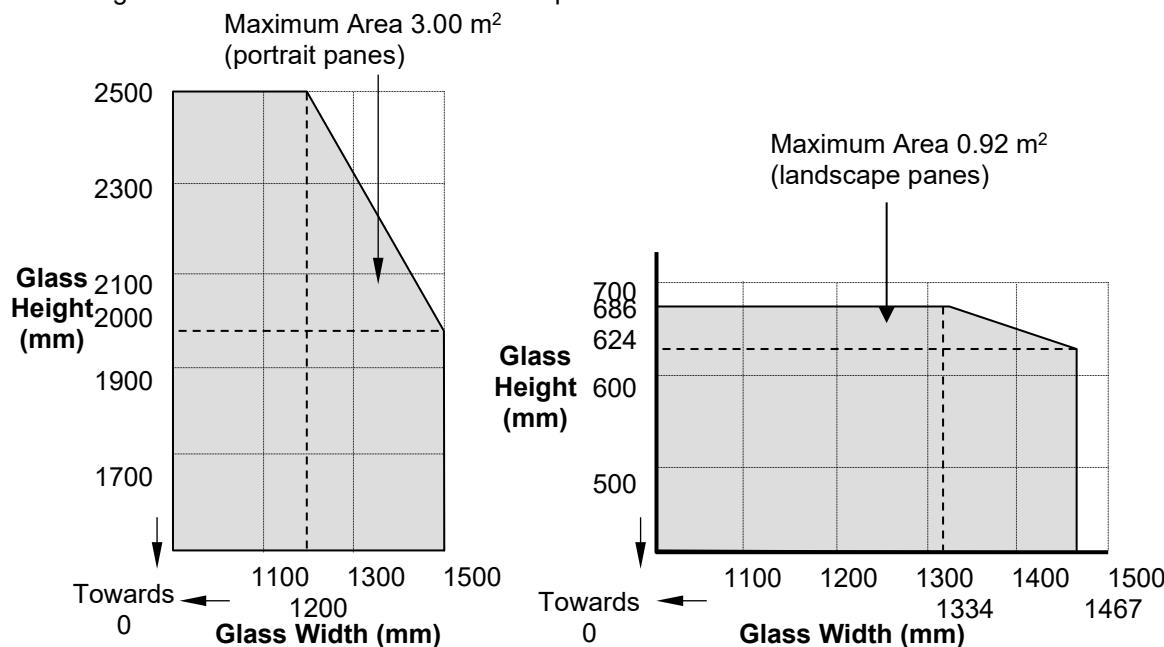
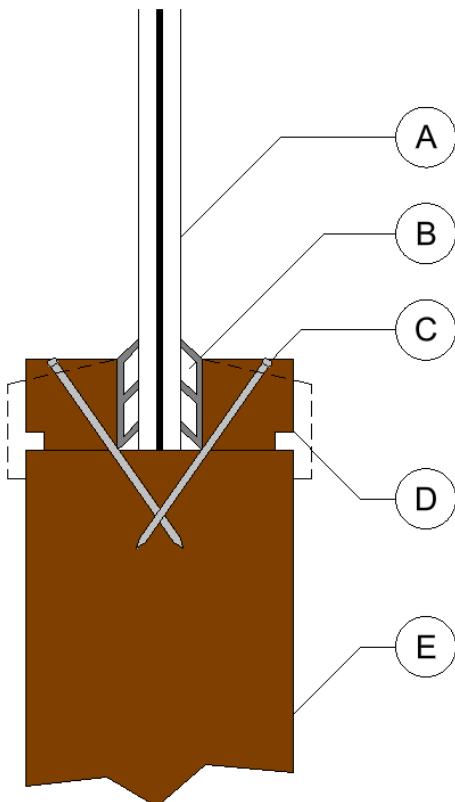


Figure 14. Maximum Permitted Glass Dimensions

Pyroguard EW30 IMPACT (7 mm) glass in 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 framing system utilising the following basic specification:



- (A) Glazing: Pyroguard EW30 Impact (7mm thick)
- (B) Glazing tape: Pyroglaze C30 3.5 mm x 15 mm [Mann McGowan]
- (C) Fixings: 16 swg x 40mm pins at 50 mm from corners, maximum 200mm centres.
- (D) Bead: Hardwood $\geq 640 \text{ kg/m}^3$ $\geq 15\text{mm}$ wide x $\geq 15\text{mm}$ deep, including an optional shadow gap.
Alternative bead may be approved based on TS25 rules. Square beads may be converted to chamfered while maintaining at least the overall tested bead dimensions and approved fixing method
- (E) Leaf: Nominally 44 mm thick previously tested or Certifire approved FD30 door

Glazing details as described in test report:
Warringtonfire WF549008

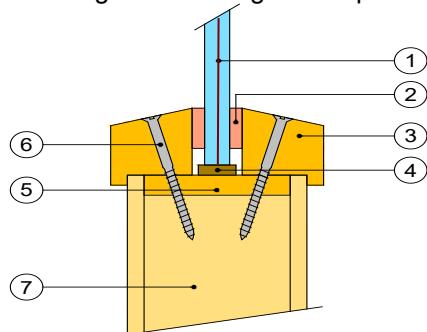
The doorset shall be CERTIFIRE approved or have test evidence for the inclusion of apertures of the proposed dimensions. This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in the table below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Maximum Permitted Glass Dimensions		
Maximum Width	Maximum Height	Maximum Area
825mm (at 1284 high)	1491mm (at 711 wide)	1.06m ²

Pyroguard EW30 IMPACT (7 mm) glass in 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 Pyroguard EW30 IMPACT (7mm)*
- 2 Glazing system (see below)
- 3 Hardwood glazing beads (see below for alternative specs)
- 4 Non-combustible/hardwood setting blocks
- 5 Liner (see below)
- 6 Fixings (see below)
- 7 Nominally 44 mm thick FD30 door leaf

* Option of IGU with Pyroguard EW30 clear or wired glass, 6 mm steel spacer and 6 mm toughened glass, with the system specified in Table 1.

The doorset shall be CERTIFIRE approved or have test evidence for the inclusion of apertures of the proposed dimensions. This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Table 1 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Table 1

Glazing System	Maximum Pane dimension – height (mm)	Maximum Pane dimension – width (mm)	Maximum Pane Area (m ²)
Sealmaster Therm-A-Strip 10 mm x 2 mm ⁽⁸⁾	2125 (at 300 w)	800 (at 800 h)	0.64
Sealmaster G30 glazing gasket between beads and glass ⁽⁸⁾	2125 (at 300 w)	800 (at 800 h)	0.64
Sealmaster G30 glazing gasket in Pyroguard UK Ltd's bead system ⁽⁹⁾	800	800	0.64
Sealmaster Intumescent Foam Glazing Tape, 10x5mm ⁽¹⁵⁾	1680	610	0.85
Sealmaster Intumescent Foam Glazing Tape, 10x5mm ⁽¹⁶⁾	1846	760	1.31
Hodgsons Sealants Firestrip 30 ⁽¹⁾	875 (at 500 wide)	875 (at 500 high)	0.44
Lorient Flexible Figure 1 glazing system ⁽²⁾	1236 (at 574 w)	750 (at 960 h)	0.72
Lorient System 36/7 ⁽³⁾	875	750	0.66
Pyroplex 8193 glazing system ⁽⁴⁾	600	610	0.36
Pyroplex 30049 glazing system ⁽⁵⁾	750	750	0.56
Pyroplex 30054 glazing system ⁽⁶⁾	750	750	0.56
Pyroplex 8492 glazing system ⁽⁷⁾	403	626	0.25
Interdens 10 x 2 mm glazing strip (Mann McGowan) ⁽¹⁰⁾	1846	760	1.31
IGU + Therm-A-Strip 10 x 2 mm ⁽¹¹⁾	1210	610	0.74

Pyroguard EW30 IMPACT (7 mm) glass in timber based doorsets for periods of 30 minutes integrity

Glazing System	Maximum Pane dimension – height (mm)	Maximum Pane dimension – width (mm)	Maximum Pane Area (m ²)
IGU +ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan), 15mm x 3mm ⁽¹²⁾	952	749	0.68
Technibond Closed cell foam tape 15mm x 3mm ⁽¹³⁾	1680 (at 508 wide)	610 (at 1400 high)	0.85
Moreland Quickfix FD30 Glazing Bead System ⁽¹⁴⁾	1392	492	0.57
	1500	200	0.3
Mann McGowan Pyroglaze30 10mm x 3mm ⁽¹⁷⁾	1560 (at 500 wide)	600 (at 1300 high)	0.78

The aspect ratio of the glass may be unlimited within these pane dimensions or area

(1)	The glazing beads shall be of Sapele, or equivalent or higher density (610 kg/m ³), sections, 22mm wide by 21mm high, chamfered by approximately 13° and fixed using 1.5 mm diameter, 50mm long steel pins at a maximum of 100mm centres and angled to pass under the face of the glass.
(2)	The glazing beads shall be hardwood of minimum density 550 kg/m ³ or MDF of minimum 750 kg/m ³ density, sections, 22mm wide by 15 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 15° and fixed using 1.5 mm diameter, 40mm long steel pins or screws at a maximum of 150mm centres and angled to pass under the face of the glass. A secondary hardwood liner (integral or separate) or an LX4402 intumescent liner shall be used to line apertures cut within flaxboard substrates.
(3)	The glazing beads shall be of minimum density 550 kg/m ³ , sections, 22mm wide by 13 mm high, chamfered by approximately 15° and fixed using 1.5mm diameter, 40mm long steel pins or screws at a maximum of 200mm centres and angled to pass under the face of the glass. A secondary Palusol based intumescent material is required to be used as a lining around the perimeter of apertures cut within flaxboard substrates which have a density below 500 kg/m ³ .
(4)	The glazing beads shall be of minimum density 630 kg/m ³ , sections, 20mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 50 mm long steel screws at a maximum of 150mm centres and angled at 30-45°. A secondary 6 mm thick hardwood liner (min. density 630 kg/m ³) shall be used to line apertures cut within all substrates.
(5)	The glazing beads shall be of minimum density 630 kg/m ³ , sections, 20mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 36 mm long steel screws at a maximum of 150mm centres and angled at 30-45°. A secondary 6 mm thick hardwood liner (min. density 630 kg/m ³) shall be used to line apertures cut within all substrates.
(6)	The glazing beads shall be of minimum density 630 kg/m ³ , sections, 20mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 50 mm long steel screws at a maximum of 150mm centres and angled at 30-45°. A secondary 6 mm thick hardwood liner (min. density 630 kg/m ³) shall be used to line apertures cut within all substrates.
(7)	The glazing beads shall be of minimum density 630 kg/m ³ , sections, 20 mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 45 mm long steel screws at a maximum of 150mm centres and angled at 30-45°.

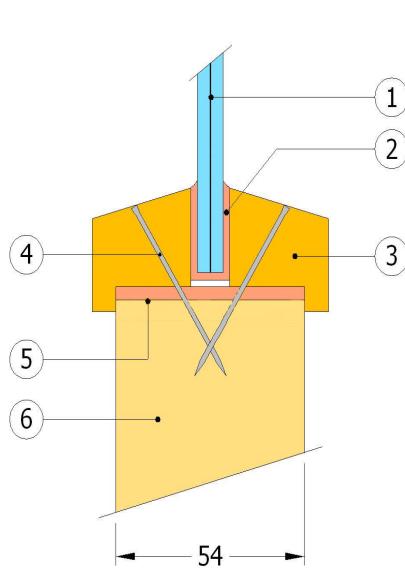
Pyroguard EW30 IMPACT (7 mm) glass in timber based doorsets for periods of 30 minutes integrity

(8)	The glazing beads shall be hardwood of minimum density 500 kg/m ³ , sections, 25 mm wide by 23 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 15° and fixed using, 38 mm long steel pins or screws at a maximum of 150mm vertical and 100 mm horizontal centres and angled at 15°. A secondary 6 mm thick hardwood liner (min. density 500 kg/m ³) shall be used to line apertures cut within all substrates.
(9)	Asymmetrical beading system as shown in Pyroguard UK Ltd Drawing no. G20011-01 (01/07/04).
(10)	The glazing beads shall be Sapele hardwood of minimum density 610 kg/m ³ , sections, 20 mm wide by 21 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 21° and fixed using, 50 mm long steel pins or screws at nominally 70mm at corners and a maximum of 200mm centres and angled at 45° to glass.
(11)	The glazing beads shall be hardwood of minimum density 650 kg/m ³ , sections, 16.5 mm wide by 25 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 15° and fixed using, 40 mm long steel pins or screws at a maximum of 150mm centres and angled at 30°. A secondary 6 mm thick hardwood liner (min. density 500 kg/m ³) shall be used to line apertures cut within all substrates.
(12)	The glazing beads shall be Sapele hardwood, or equivalent or higher density (610 kg/m ³) sections, 15.5 mm wide by 20 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 21° and fixed using, 50 mm long steel pins or screws at nominally 70mm at corners and a maximum of 200mm centres and angled at 45° to glass.
(13)	The glazing beads shall be MDF, minimum density 700 kg/m ³ , 20mm wide by 25 mm high including a 4.5 mm wide by 10 mm high bolection return, chamfered at 15° to the glass. Beads were fixed using 2.0 mm diameter, 50mm long steel pins equally spaced at a maximum of 150mm centres (vertical beads) and 230 mm centres (horizontal beads) angled at 30° to the MDF beads. A 15 mm by 3 mm closed cell foam tape (Technibond) was located between the glass and beads. An intumescent acrylic sealant can optionally be applied around the perimeter of the glass. An MDF or hardwood liner, minimum density 700 kg/m ³ shall be used to line apertures cut within all substrates.
(14)	Morland QuickFix FD30 Glazing Bead system (comprising bead and glazing gasket), 50 mm long steel pins at 150 mm max. centres (30° to vertical bead edge), Intumescent Acrylic Sealant under perimeter edge of glass. Core incorporating voids or hollow tubes should not be glazed using this system unless a 6 mm hardwood aperture liner is fitted within the perimeter of the aperture (CF5241 must be consulted for full details of this system).
(15)	Sealmaster Intumescent Foam Glazing Tape, Ø1.6x40mm long steel pins or No.8x40mm long screws at 150max. centres and 50mm from corners (fixed at 45°), 15 mm high beads, with a 5x5mm min. bolection, from softwood or hardwood (min. density 510kg/m ³ with a 20° chamfer) or MDF (min. density 700kg/m ³ with a 15° chamfer). System may be used with and without non-combustible setting blocks
(16)	Sealmaster Intumescent Foam Glazing Tape, Ø1.6x40mm long steel pins or No.8x40mm long screws at 150max. centres and 50mm from corners (fixed at 45°), 15 mm high beads, with a 5x5mm min. bolection, from hardwood (min. density 620kg/m ³ with a 20° chamfer). System may be used with and without non-combustible setting blocks
(17)	Mann McGowan Pyroglaze 30 Glazing Tape (10mm x 3mm), Ø1.6x40mm long steel pins or No.8x40mm long screws at 200max. centres and 50mm from corners (fixed at 45°), 15 mm high beads, with a 5x5mm min. bolection, from hardwood (min. density 640kg/m ³ with a 20° chamfer). System may be used with and without non-combustible setting blocks.

Pyroguard FD60 (9 mm) glass in timber based doorsets for periods of 60 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 specifications:



- ① Pyroguard FD60 glass (9 mm)
- ② Lorient System 90+ or Interdens (Mann McGowan) glazing seal, 20 mm by 2 mm.
- ③ With Lorient System 90, MDF glazing beads of minimum 700 kg/m³ density, 32mm wide by 19 mm high with a 6 mm by 6 mm bolection return, chamfered by approximately 45°.
- ④ With Interdens glazing seal, MDF glazing beads of minimum 700 kg/m³ density or hardwood glazing beads of minimum 650 kg/m³ density, 27 mm by 30 mm including a 6 mm by 6 mm bolection return, chamfered at 13° to glass
- ⑤ 50 mm by 2 mm steel pins at 150 mm centres and 45° (for System 90+), or equally spaced at same centres (vertical beads) and 230 mm centres (horizontal beads) fixed at 30° (for Interdens glazing seal).
- ⑥ 54 x 2 mm LX5402 intumescent liner (Lorient)
- ⑦ Nominally 54 mm thick FD60 door leaf

The doorset shall be CERTIFIRE approved or have test evidence for the inclusion of apertures of the proposed dimensions. This Certificate of Approval relates to the sizes of 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.

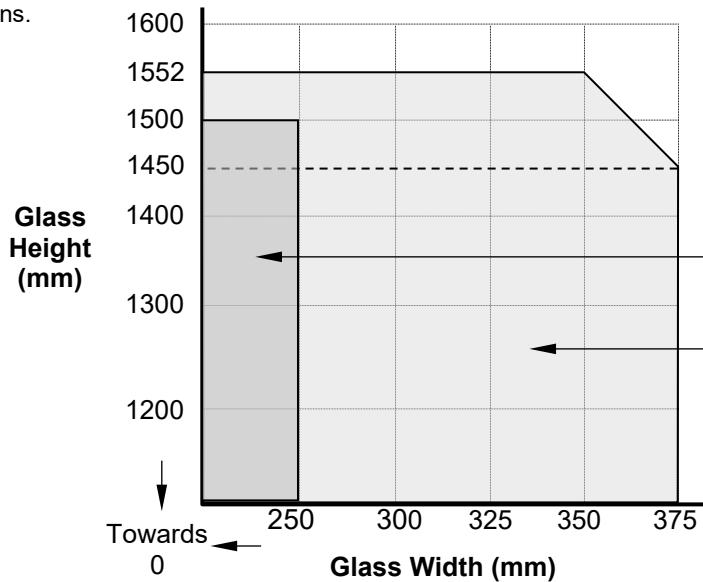


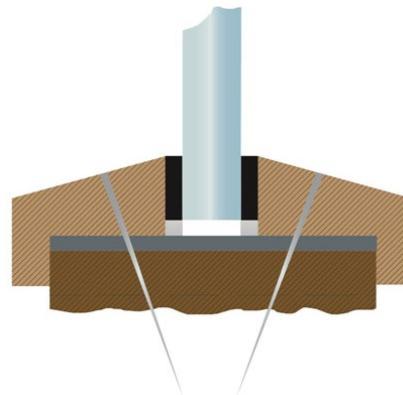
Figure 15. Maximum Permitted Glass Dimensions

Pyroguard FD60 (9mm) glass in timber based doorsets for periods of 60 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 specifications:

- Pyroguard FD60 (9 mm)
- Sealmaster FIREGLAZE Tape as glazing tape – 15 mm x 2.5 mm thick
- Sealmaster FIREGLAZE Tape as aperture liner – 54 mm x 2.5 mm thick
- No. 8 x 63 mm long screws at 150 mm maximum centres and 50mm from corners (fixed at 45° to glass).
- Bead dimensions – 30 mm high by 26 mm wide (dimension includes a 5 mm x 5 mm bolection)
- Glazing Bead from hardwood with a minimum density 640kg/m³, 20° chamfer
- Nominally 54 mm thick timber based FD60 door leaf



System may be used with and without non-combustible setting blocks.

This Certificate of Approval relates to the sizes of Pyroguard FD60 (9mm) glass shown in Figure 16 below, when used in conjunction with the glazing system detailed previously

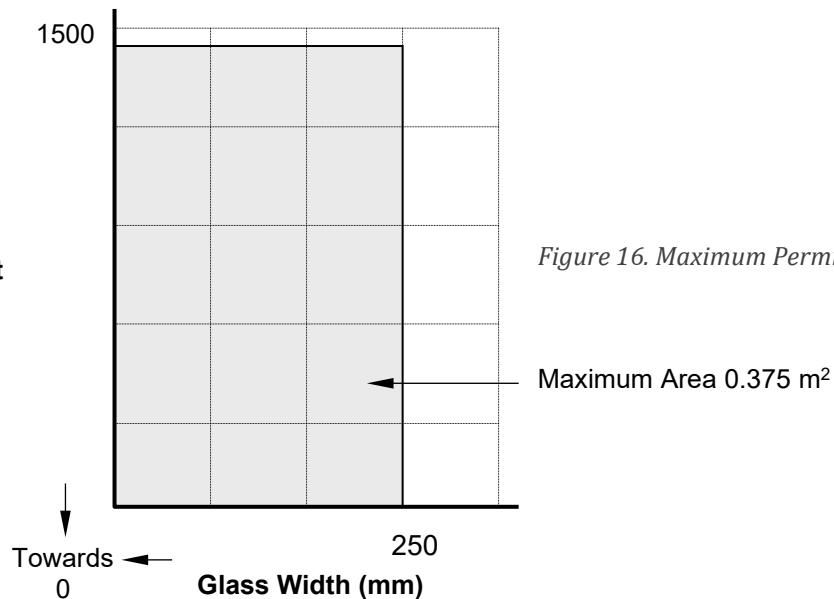
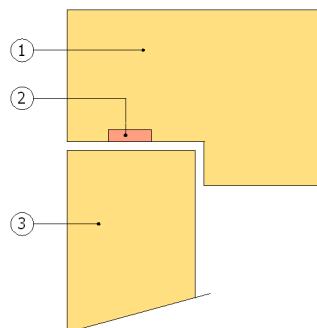


Figure 16. Maximum Permitted

Pyroguard EW30 IMPACT (7 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity

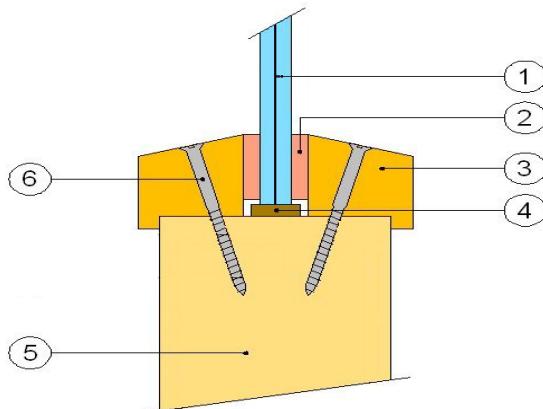
The doorsets may be single-acting, single -leaf only, with an engaged latching device and are to be as detailed within the figures below:



Door Leaf to Frame Detail

- 1 72 mm by 40 mm softwood or hardwood door frame with 25 x 12 mm planted stop, minimum density 510 kg/m³
- 2 Lorient Polyproducts Ltd LP1504 15 x 4mm intumescent seals, positioned centrally within the reveal of the frame, at the head and vertical edges. The leaf to frame gap must not exceed 4 mm.
- 3 Minimum 102 mm by 44 mm softwood stiles, 150 mm by 44 mm softwood top and bottom rails and 100 mm x 44 mm mid rails, minimum density 510 kg/m³. Stiles and rails must be mortice & tenon jointed

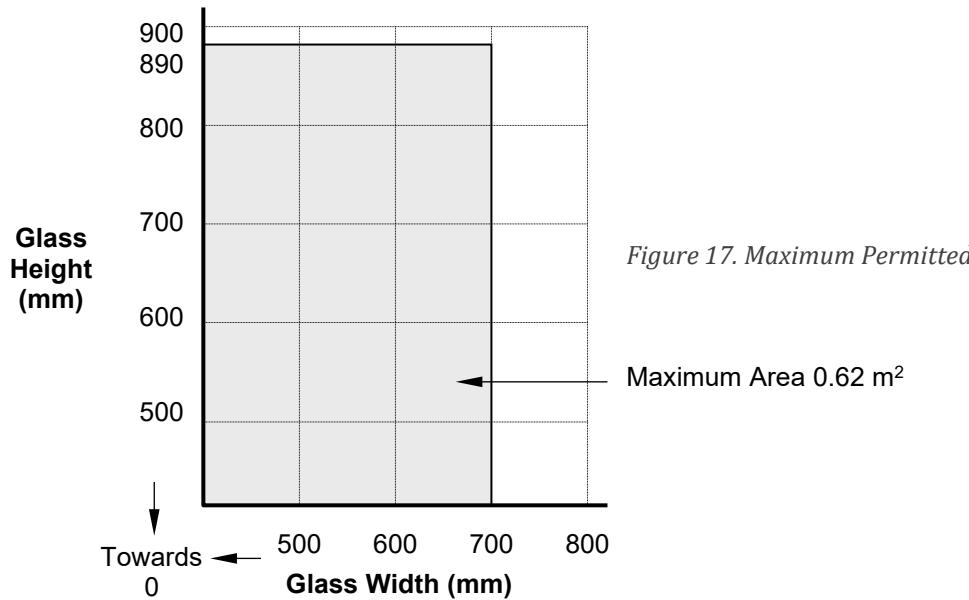
All doorset hardware must be CERTIFIRE approved for use with ITT doors and the leaf must be hung upon 1½ pair of hinges and incorporate a latching device and automatic closing device.



- 1 Pyroguard EW30 IMPACT (7 mm) Glass
- 2 Sealmaster Black Glazing Tape or ceramic fibre gasket e.g. Kerifix 2000 (Kuhn) or Pyrotape CF (Mann McGowan) 15 x 3 mm or Interdens (Mann McGowan) 10 x 2 mm glazing tape
- 3 Softwood or hardwood glazing beads 20 mm by 21 mm including a 5 mm by 5 mm bolection return chamfered at 0-20° and minimum 510 kg/m³ density
- 4 Non-combustible or hardwood setting blocks
- 5 Door leaf as described above
- 6 50 mm long steel pins or screws at a maximum of 150mm horizontal centres and angled at 45°

Pyroguard EW30 IMPACT (7 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity (continued)

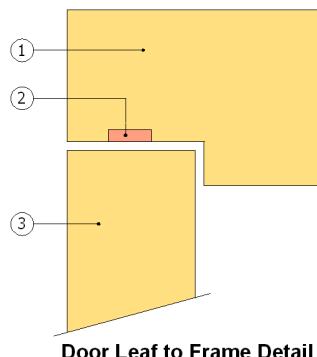
This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 17 below, when used in conjunction with the glazing system detailed previously.



Maximum leaf dimensions are 2040 mm high and 926 mm wide, subject to a maximum area of 1.89 m².

Pyroguard EW30 IMPACT (7 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity

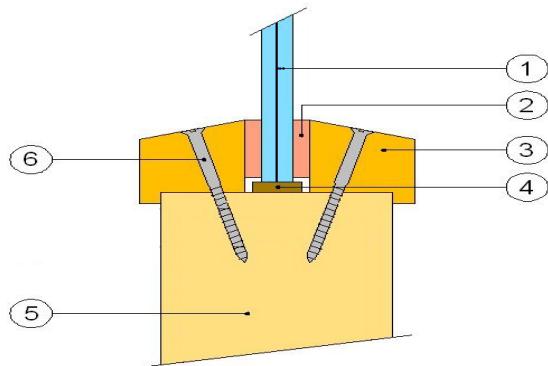
The doorsets may be single-acting, single -leaf only, with an engaged latching device and are to be as detailed within the figures below:



Door Leaf to Frame Detail

- 1 72 mm by 40 mm softwood door frame with 25 x 12 mm planted stop, minimum density 510 kg/m³
- 2 Pyrostrip 15 mm x 4 mm 100P (Mann McGowan) intumescent Palusol seals, positioned centrally within the reveal of the frame, at the head and vertical edges. The leaf to frame gap must not exceed 4 mm.
- 3 Minimum 95 mm by 44 mm softwood stiles, 100 mm by 44 mm softwood top and middle rails and 206 mm x 44 mm bottom rails, minimum density 510 kg/m³. Stiles and rails must be mortice & tenon jointed and polyurethane adhesive

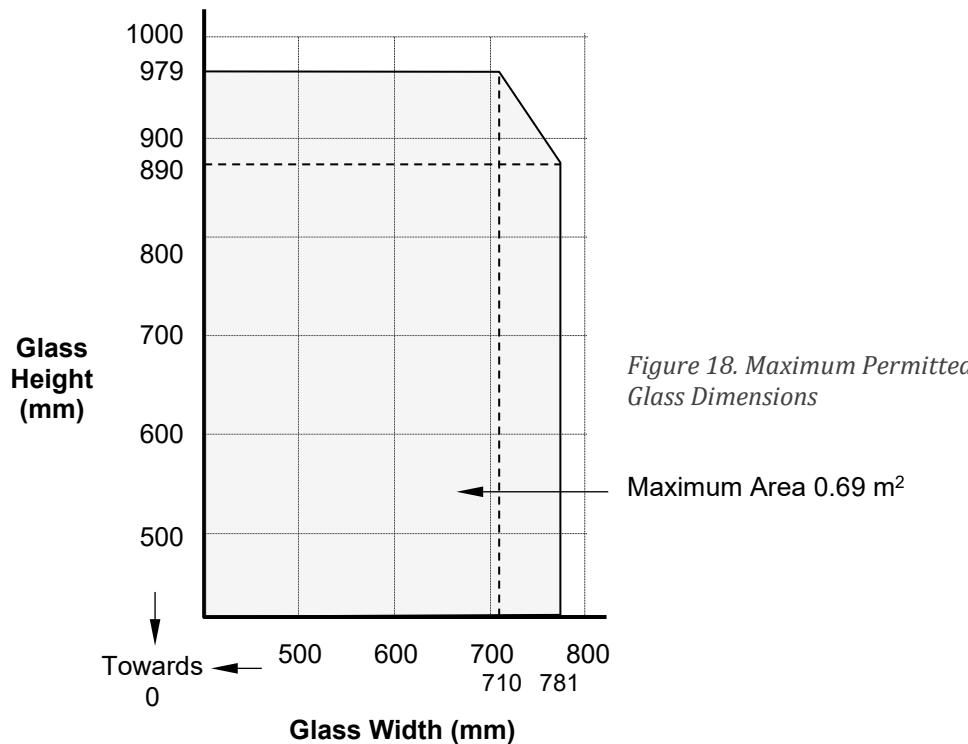
All doorset hardware must be CERTIFIRE approved for use with ITT doors and the leaf must be hung upon 1½ pair of hinges and incorporate a latching device and automatic closing device.



- 2 Sealmaster Black Glazing Tape or ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan) 15 x 3 mm or Interdens 10 x 2 mm
- 3 Softwood or hardwood glazing beads 20 mm by 15.5 mm including a 5 mm by 5 mm bolection return chamfered at 21° and minimum 510 kg/m³ density
- 4 Non-combustible or hardwood setting blocks, 7 mm wide x 40 mm long
- 5 Door leaf as described above
- 6 50 mm long steel pins or screws at a nominal 70 mm from the corners and 200 mm (max) centres and angled at 45° to the glass.

Pyroguard EW30 IMPACT (7 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity (continued)

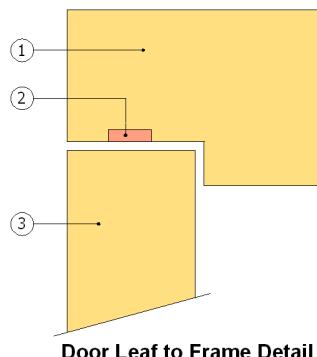
This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 18 below, when used in conjunction with the glazing system detailed previously.



Maximum leaf dimensions are 2040 mm high by 915 mm wide, subject to a maximum area of 1.87 m².

Pyroguard EW30 IMPACT (7 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity

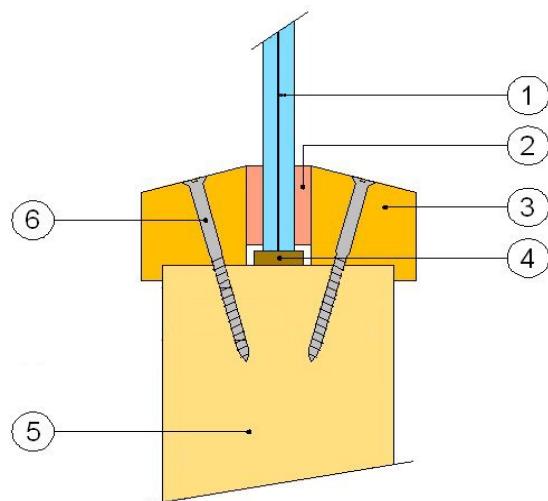
The doorsets may be single-acting, single -leaf only, with an engaged latching device and are to be as detailed within the figures below:



Door Leaf to Frame Detail

- 1 72 mm by 40 mm softwood door frame with 25 x 12 mm planted stop, minimum density 510 kg/m³
- 2 Pyrostrip 15 mm x 4 mm 100P (Mann McGowan) intumescent Palusol seals, positioned centrally within the reveal of the frame, at the head and vertical edges. The leaf to frame gap must not exceed 4 mm.
- 3 Minimum 95 mm by 44 mm softwood stiles, 100 mm by 44 mm softwood top and middle rails and 206 mm x 44 mm bottom rails, minimum density 510 kg/m³. Stiles and rails must be mortice & tenon jointed and polyurethane adhesive

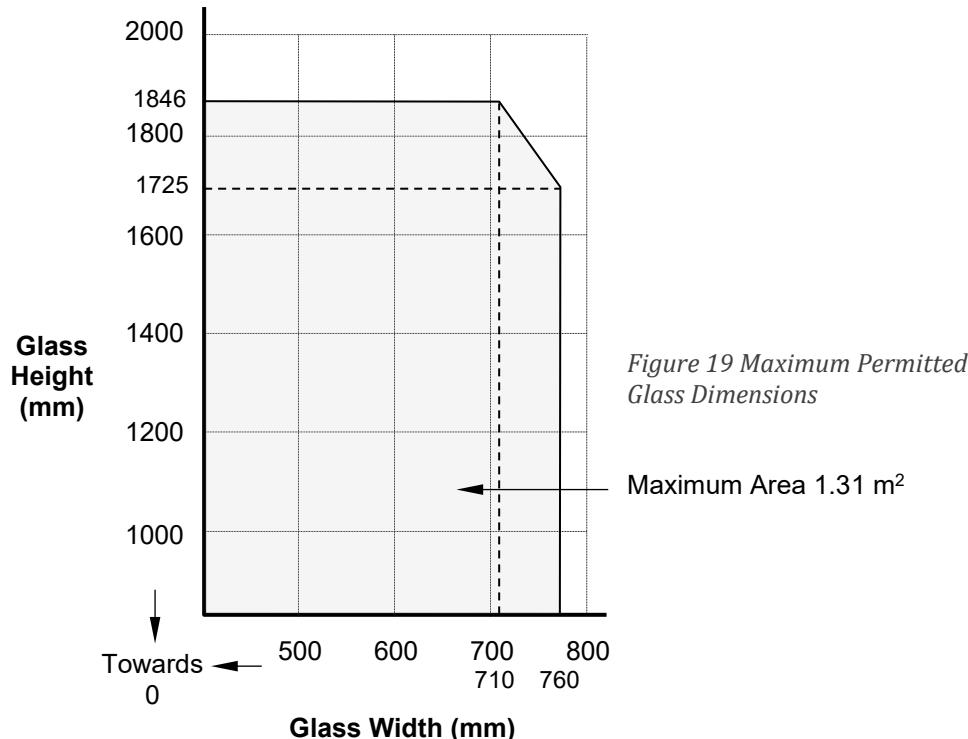
All doorset hardware must be CERTIFIRE approved for use with ITT doors and the leaf must be hung upon 1½ pair of hinges and incorporate a latching device and automatic closing device.



- 1 Pyroguard EW30 Glass
- 2 Interdens (Mann McGowan) 10 x 2 mm
- 3 Softwood or hardwood glazing beads 20 mm by 21 mm including a 5 mm by 5 mm bolection return chamfered at 21° and minimum 510 kg/m³ density
- 4 Non-combustible or hardwood setting blocks, 5 mm high by 7 mm wide x 40 mm long
- 5 Door leaf as described above
- 6 50 mm long steel pins or screws at a nominal 70 mm from the corners and 200 mm (max) centres and angled at 45° to the glass.

Pyroguard EW30 IMPACT (7 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity (continued)

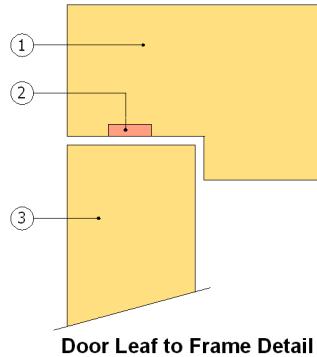
This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 19 below, when used in conjunction with the glazing system detailed previously.



Maximum leaf dimensions are 2040 mm high by 915 mm wide, subject to a maximum area of 1.87 m².

Pyroguard EW30 IMPACT Insulating Glass Units in timber stile and rail doorsets for periods of 30 minutes integrity

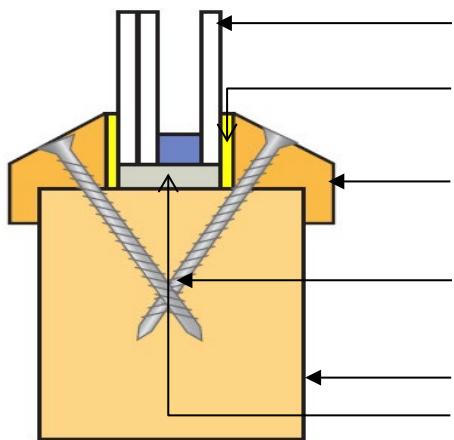
The doorsets may be single-acting, single -leaf only, with an engaged latching device and are to be as detailed within the figures below:



- 1 72 mm by 40 mm softwood or hardwood door frame with 25 x 12 mm planted stop, minimum density 510 kg/m³
- 2 Lorient Polyproducts Ltd LP1504 15 x 4mm intumescent seals, positioned centrally within the reveal of the frame, at the head and vertical edges. The leaf to frame gap must not exceed 4 mm.
- 3 Minimum 102 mm by 44 mm softwood stiles, 150 mm by 44 mm softwood top and bottom rails and 100 mm x 44 mm mid rails, minimum density 510 kg/m³. Stiles and rails must be mortice & tenon jointed

All doorset hardware must be CERTIFIRE approved for use with ITT doors and the leaf must be hung upon 1½ pair of hinges and incorporate a latching device and automatic closing device.

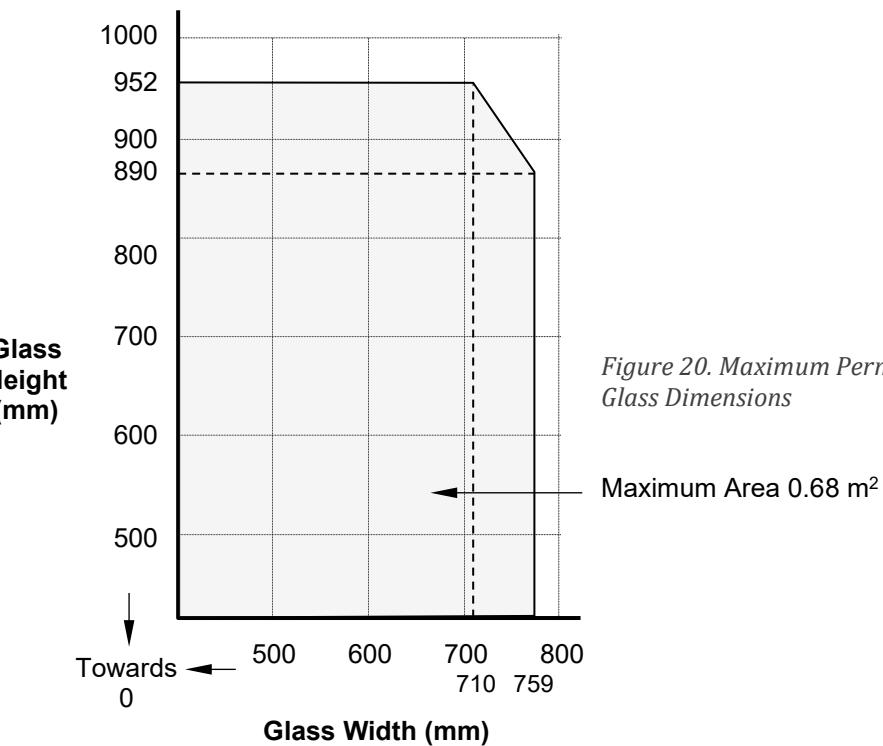
The glass shall be glazed utilising the following basic specification:



- 1 IGU with Pyroguard EW30 IMPACT Glass (to fire side), 12 mm steel and 4 mm float glass
- 2 15 mm by 3 mm Sealmaster Black Glazing Tape or' ceramic fibre glazing tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan)
- 3 20 mm high by 32 mm wide hardwood glazing beads, square or chamfered (up to 30°) minimum density 640 kg/m³.
- 4 50 mm long steel pins or screws, nominally 70 mm from corners and 200 mm centres (30° to glass).
- 5 Door leaf as described above
- 6 7 mm wide by 5 mm high by 40 mm long hardwood or non-combustible setting blocks

Pyroguard EW30 IMPACT Insulating Glass Units in timber stile and rail doorsets for periods of 30 minutes integrity (continued)

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT insulating glass units 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.



Pyroguard EW30 IMPACT (7 mm) glass in Maars Metaline secondary glazed partition system for periods of 30 minutes integrity

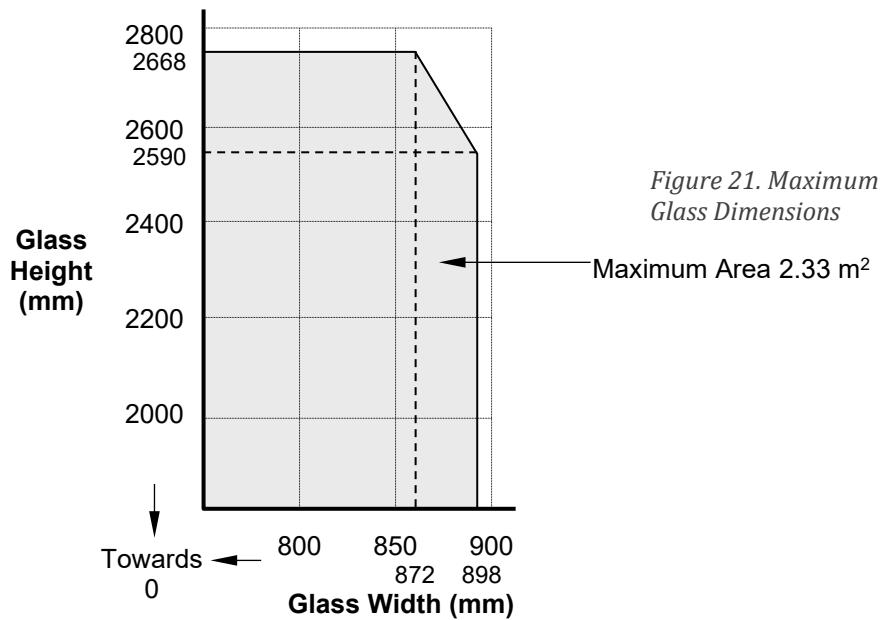
For this application the following conditions shall apply:

The 'secondary glazing' shall comprise a single layer of Pyroguard EW30 IMPACT (7 mm) glass (to the non fire side), a 64.5 mm cavity and a single layer of minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted).

The glass shall be installed into the tested system or other partition system (which is covered appropriately by test or assessment evidence).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT (7 mm) glass shown in Figure 21 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 3000 mm high by unlimited width. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Pyroguard EW30 IMPACT glass in a partition wall system for periods of 30 minutes integrity

For this application the following conditions shall apply:

The 'IGU' shall comprise a single layer of Pyroguard EW30 IMPACT glass, a 12 -15 mm Argon filled cavity with steel or aluminium spacer bars and a single layer of 4 mm toughened glass (including 'low E' glasses), to form a 23 mm thick unit. The panes must be oriented such that the Pyroguard EW30 IMPACT glass faces the fire risk direction.

The glass shall be installed into the tested system or other partition system (which is covered appropriately by test or assessment evidence).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 IMPACT glass shown in Figure 22 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 3000 mm high by unlimited width. The aspect ratio of the glass may be unlimited within these aperture dimensions.

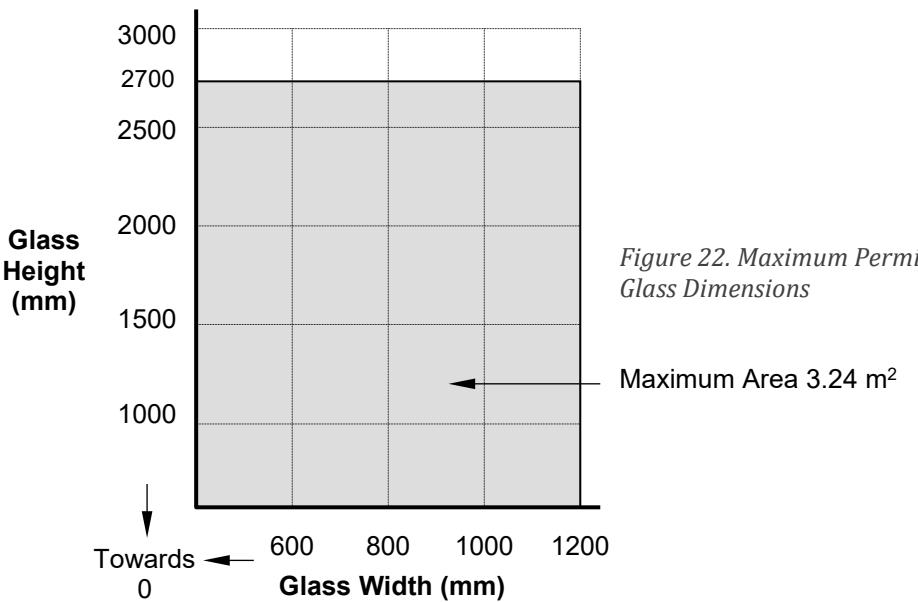
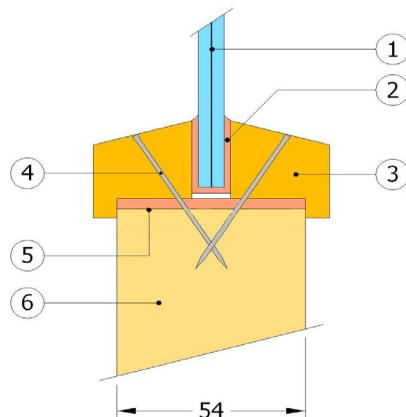


Figure 22. Maximum Permitted Glass Dimensions

Pyroguard EW30 IMPACT (7 mm) glass with Priva-See Film (11 mm total thickness) in 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 specifications:



- ① EW30 IMPACT (7 mm) Pyroguard with Priva-See Film (11 mm total thickness)
- ② 10 mm by 2 mm ISL graphite seal
- ③ MDF (minimum density 700 kg/m³) or hardwood glazing beads (minimum density 650 kg/m³), 20 mm wide by 25 mm high including a 4.5 mm by 10.0 mm bolection return, chamfered at 15° to glass.
- ④ 50 mm by 2 mm steel pins equally spaced at maximum of 150 mm centres (vertical beads) and 230 mm centres (horizontal beads) fixed at 30°.
- ⑤ MDF liner, 42.5 mm by 6 mm thick, density 700 kg/m³
- ⑥ Nominally 44 mm thick FD30 door leaf

The doorset shall be CERTIFIRE approved or have test evidence for the inclusion of apertures of the proposed dimensions. This Certificate of Approval relates to the sizes of glass shown in Figure 23 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

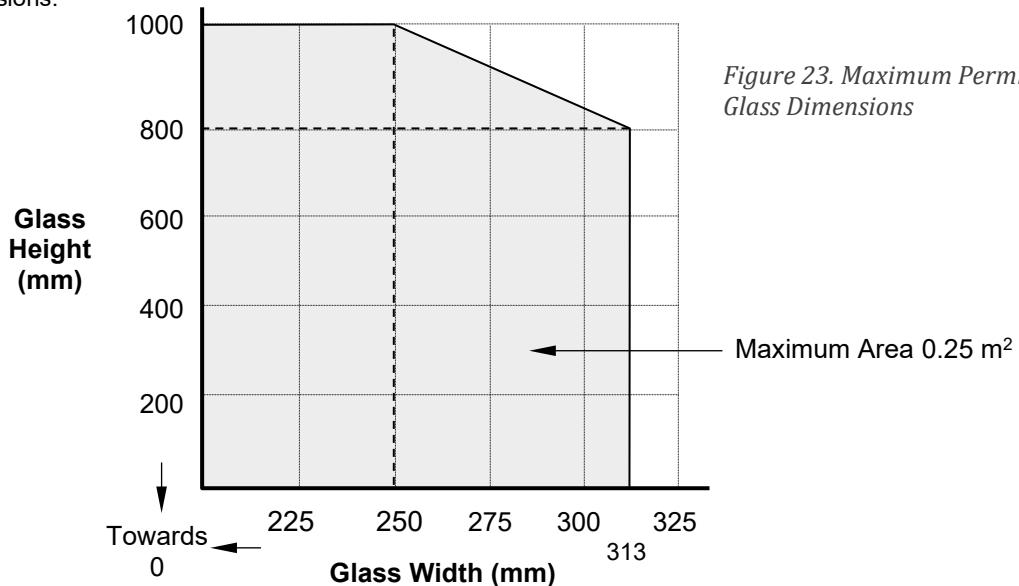
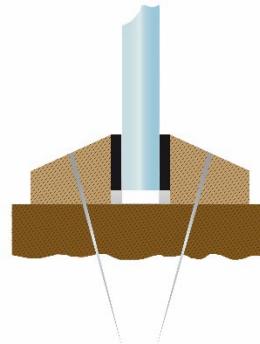


Figure 23. Maximum Permitted Glass Dimensions

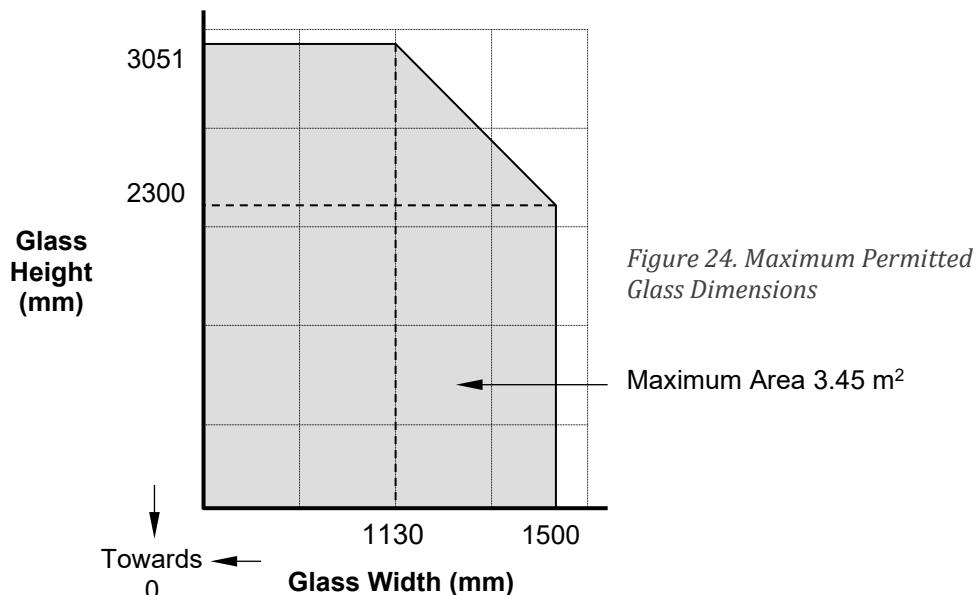
Pyroguard EW30 MAXI (11 mm) glass in multi-pane timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:

- Pyroguard EW30 MAXI (11 mm)
- Sealmaster Intumescent Foam Glazing Tape- 15x5mm uncompressed
- 50 mm screw or pin fixings at 150 mm centres, 50 mm from corners angled at 45°
- Softwood/Hardwood framing members, 92 mm x 45 mm, min. density 510kg/m³
- Glazing Bead, 15x38mm with a 20° chamfer from hardwood: min. density 510kg/m³
- System may be used with and without non-combustible setting blocks



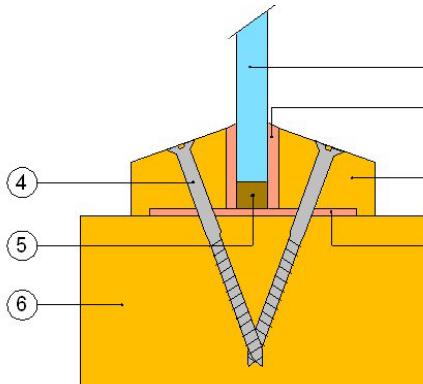
This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI (11 mm) glass shown in Figure 24 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Note: Maximum glass stock size is currently limited to 1580mm by 2780mm.

Pyroguard EW60 (11 mm) -60 mins & EW30 MAXI (11 mm) -30 mins, glass in multi-pane timber framed screens for periods of 30 & 60 minutes integrity (System 1)

For this application the following conditions shall apply:



- 1 Pyroguard EW60 (11 mm) or EW30 MAXI (11 mm)
- 2 Sealmaster Fireglaze Compound (approx. 23 mm by 4 mm)
- 3 25 mm high by 37 mm wide square or chamfered (up to 30°) hardwood glazing beads, minimum density 650 kg/m³.
- 4 50 mm long No. 8 steel screws at 200 mm centres (approx. 30° to glass)
- 5 Hardwood or Non-combustible setting blocks
- 6 92 mm by 45 mm (minimum) hardwood framing sections, minimum density 650 kg/m³
- 7 45 mm wide by 2 mm thick Sealmaster 'GL60' intumescent liner (for 60 mins only)

This Certificate of Approval relates to the sizes of Pyroguard EW60 (11 mm) or EW30 MAXI (11 mm) glass shown in Figure 25 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 3000 mm high by unlimited width. The aspect ratio of the glass may be unlimited within these aperture dimensions.

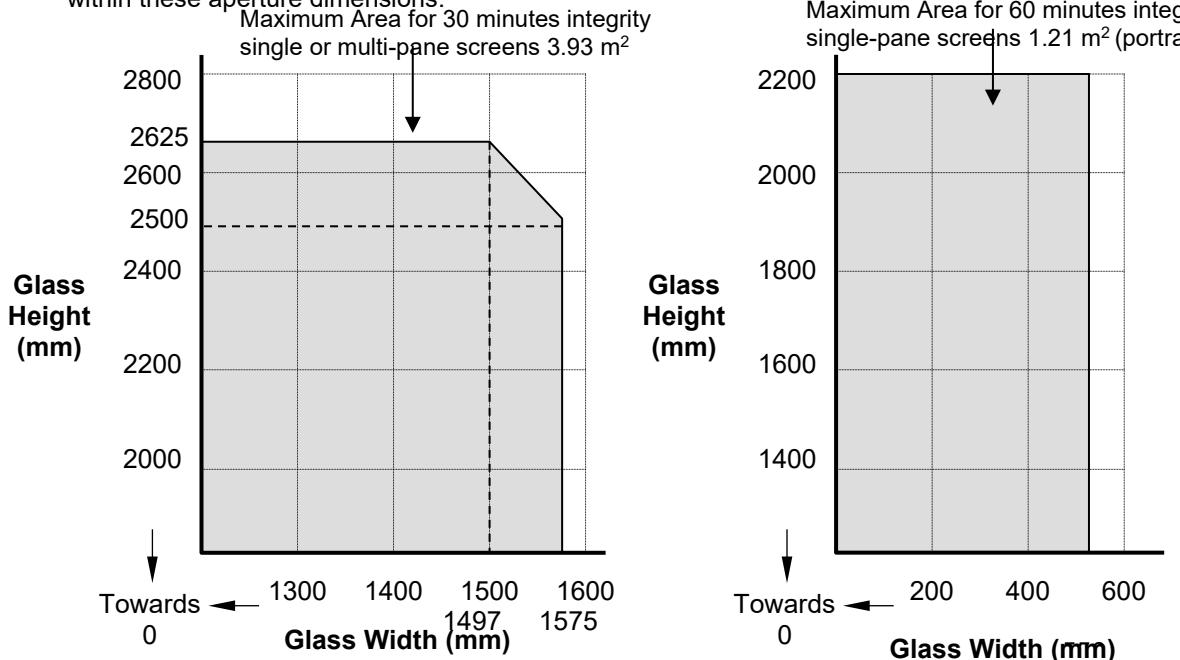


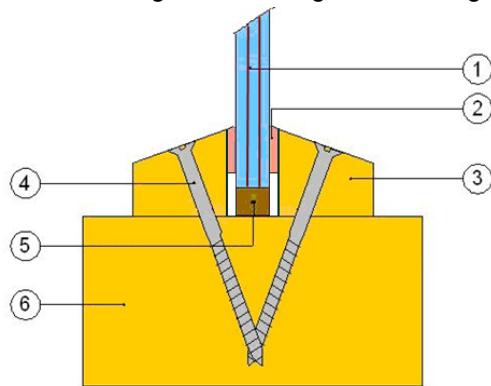
Figure 25. Maximum Permitted Glass Dimensions

These systems may also be included in previously tested doorset fan and side-lights.

Pyroguard EW60 (11 mm) -60 mins & EW30 MAXI (11 mm) -30 mins, glass in multi-pane timber framed screens for periods of 30 & 60 minutes integrity (System 1)

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① Pyroguard EW60(11 mm) or EW30 MAXI (11 mm)
- ② Pyrostrip 10mm x 2mm 100ECSA aka Palusol (Mann McGowan)
- ③ 22 mm high by 20 mm wide square or chamfered (up to 30°) hardwood glazing beads, minimum density 660 kg/m³.
- ④ 38 mm long No. 8 steel screws at 200 mm centres (approx. 30° to glass)
- ⑤ Hardwood or Non-combustible setting blocks
- ⑥ 92 mm by 45 mm (minimum) hardwood framing sections, minimum density 650 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard EW60 (11 mm) & EW30 MAXI (11 mm) 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.

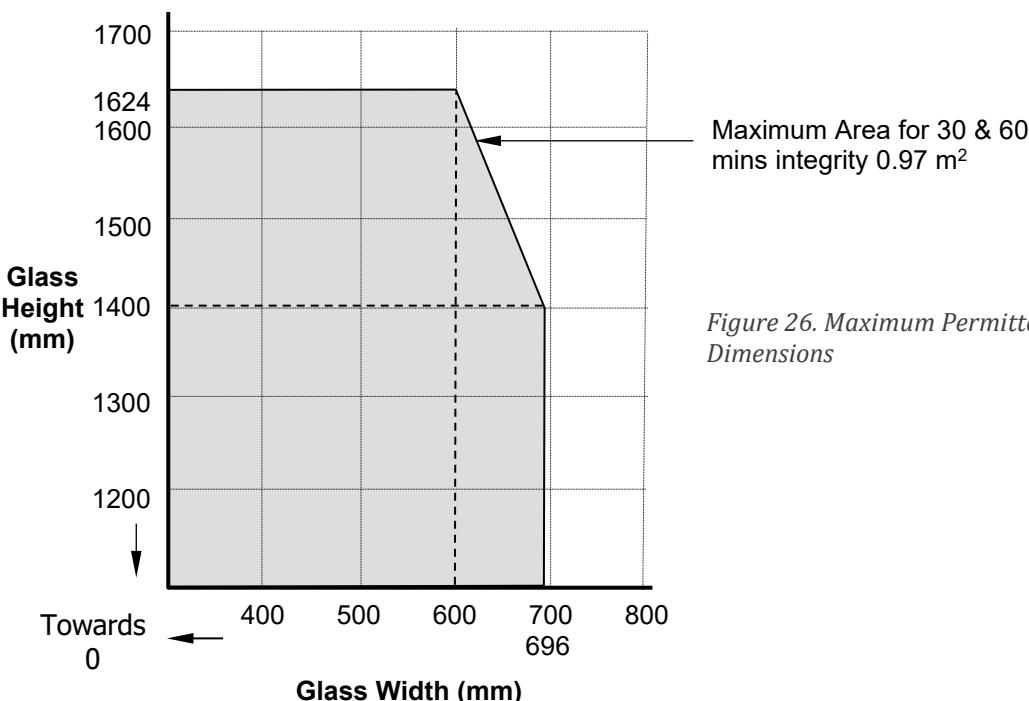


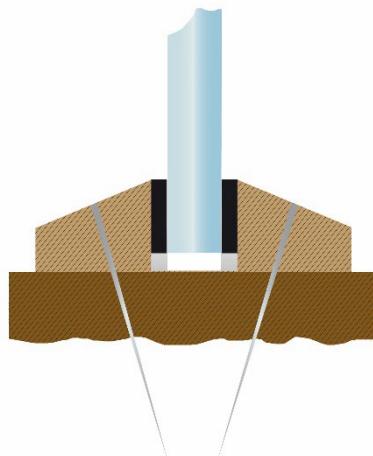
Figure 26. Maximum Permitted Glass Dimensions

These systems may also be included in previously tested doorset fan and side-lights.

Pyroguard EW60 (11mm) glass in multi-pane timber framed screens for periods of 60 minutes integrity

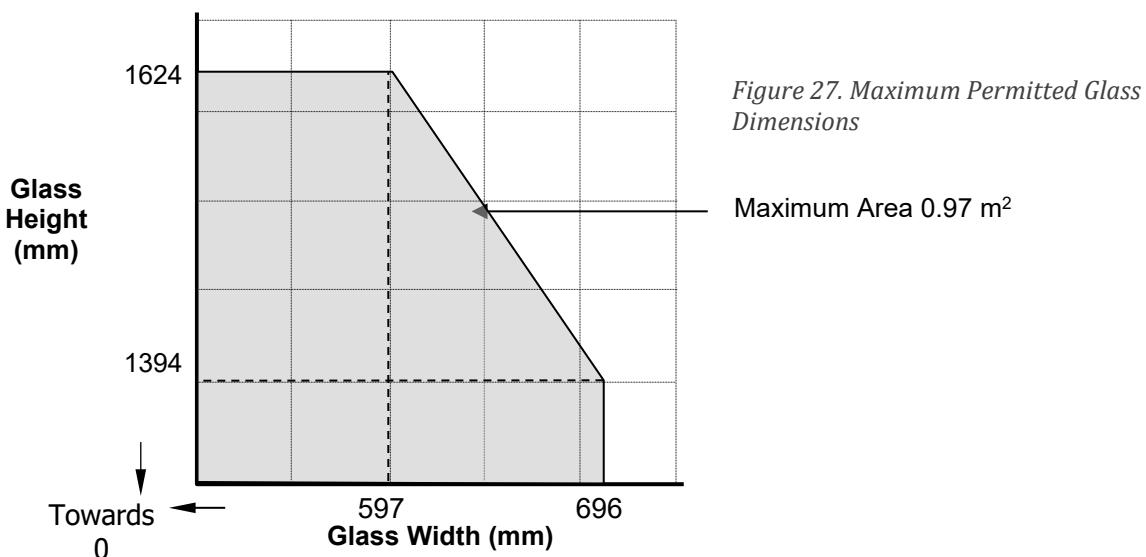
The glass shall be glazed utilising the following basic specification:

- Pyroguard EW60 (11mm)
- Sealmaster FIREGLAZE Tape as glazing tape – 25 x 2.5mm
- Hardwood framing members – 92 x 45mm, 640kg/m³ min.
- Hardwood Glazing Bead, 640kg/m³ min. 22mm x 20 mm (square or chamfered) fixed using No8x38mm screws at 200mm centres at a 30° angle



System may be used with and without non-combustible setting blocks

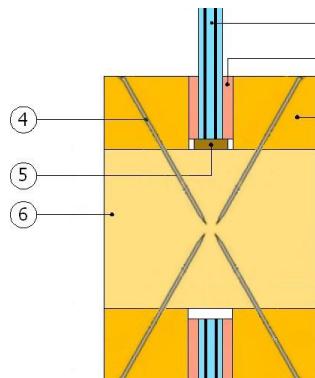
This Certificate of Approval relates to the sizes of Pyroguard EW60 (11mm) glass shown in Figure 27 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Pyroguard EW30 MAXI (11 mm) glass in multi-pane 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 Pyroguard EW30 MAXI (11 mm)
- ② 16 mm by 6 mm ceramic fibre glazing tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan)
- ③ 20 mm high by 36.5 mm wide square or chamfered (up to 30°) hardwood glazing beads, minimum density 640 kg/m³.
- ④ 50 mm long M4 steel screws at 200 mm centres (45° to glass)
- ⑤ Hardwood or Non-combustible setting blocks
- ⑥ 45 mm by 92 mm (minimum) hardwood framing sections, minimum density 640 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI (11mm) glass shown in Figure 28 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 3000 mm high by unlimited width.

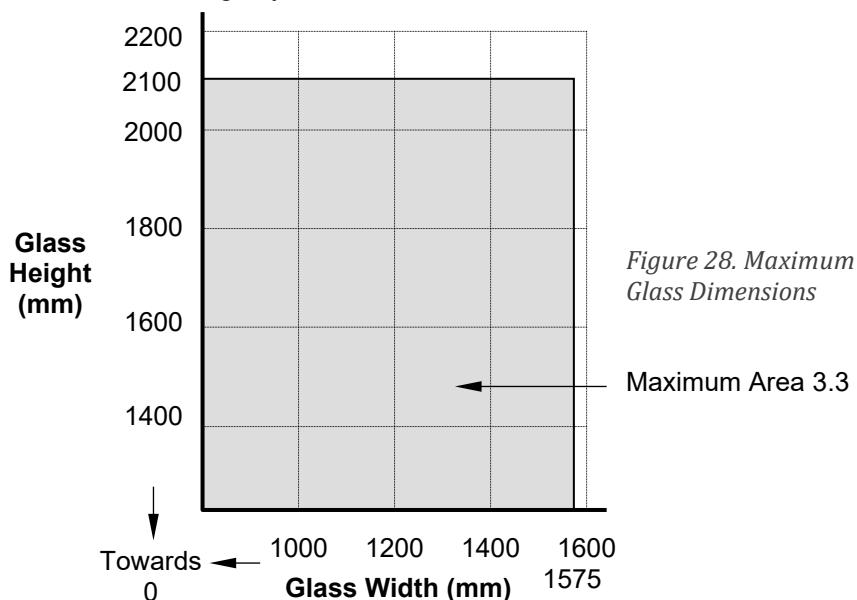
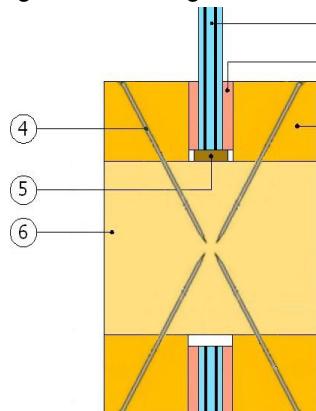


Figure 28. Maximum Permitted Glass Dimensions

Pyroguard EW30 MAXI (11mm) glass in multi-pane timber framed screens for periods of 30 minutes integrity

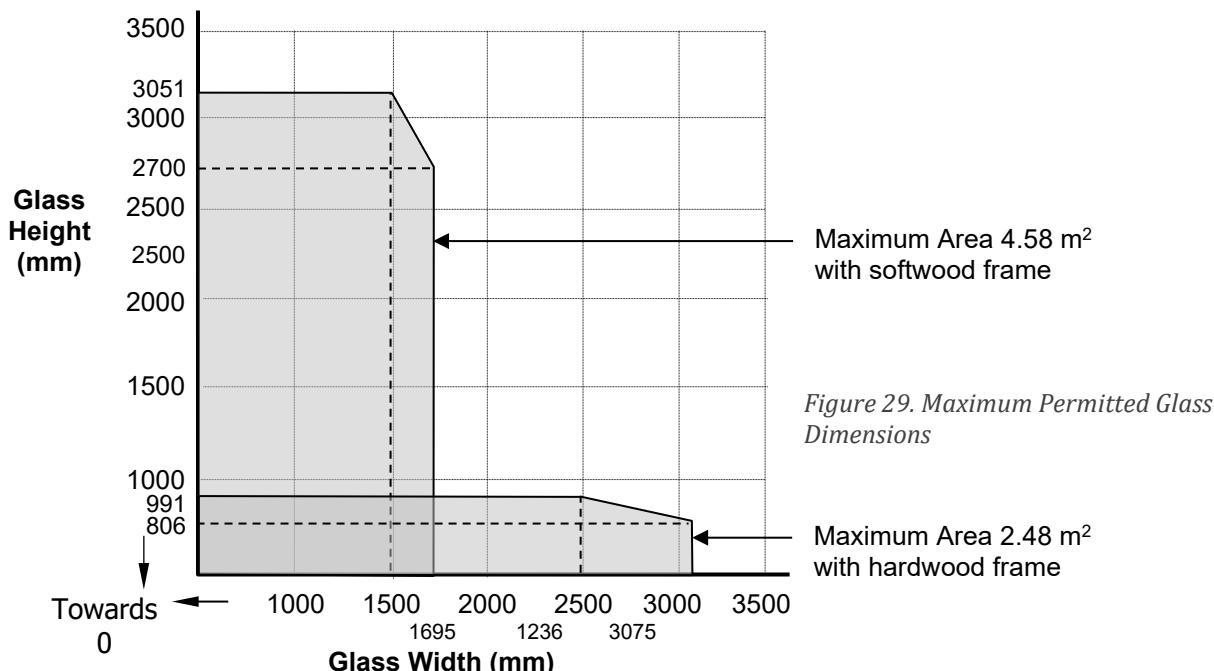
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① Pyroguard EW30 MAXI (11 mm)
- ② 15 mm by 2 mm Interdens glazing tape (Mann McGowan) with softwood frame. 10 mm by 2 mm Interdens glazing tape with hardwood frame.
- ③ 15 mm high by 38.5 mm wide square or chamfered beads (with softwood frame) or 25 mm high by 30 mm wide chamfered beads, up to 14° (with hardwood frame). All glazing beads have minimum density of 640 kg/m³.
- ④ 50 mm long steel pins or screws nominally 50 mm from corners and 150 mm centres (45° to glass) with softwood or hardwood frame
- ⑤ Hardwood or Non-combustible setting blocks.
- ⑥ 45 mm by 92 mm (minimum) softwood framing sections minimum density 510 kg/m³ or 40 mm by 75 mm hardwood framing sections minimum density 640 kg/m³.

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI (11 mm) glass shown in Figure 29 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 3000 mm high by unlimited width.

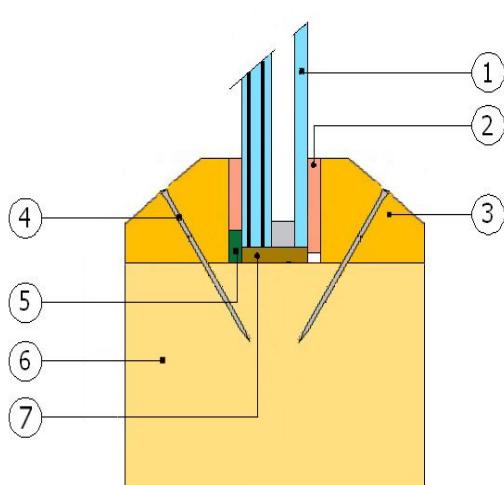


Note: Maximum glass stock size is currently limited to 1580mm by 2780mm.

Pyroguard EW30 MAXI Insulating Glass Units in multiple paned timber framed screens for periods of 30 minutes integrity

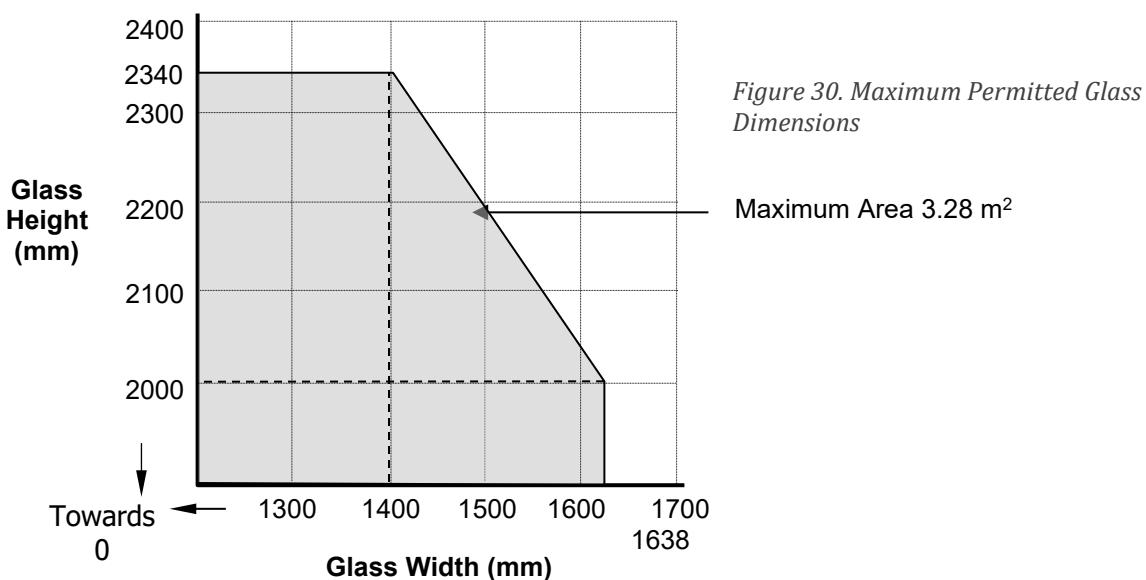
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① IGU of Pyroguard EW30 MAXI Glass, 15mm steel or aluminium spacer bars and 6 mm toughened glass
- ② 15 mm by 3 mm Sealmaster Black Glazing Tape or ceramic fibre glazing tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan)
- ③ 25 mm high by 28.5 mm wide chamfered (30°) hardwood glazing beads, minimum density 650 kg/m³
- ④ 50 mm long steel screws at 200 mm centres (approx. 45° to glass)
- ⑤ CXL715 high temperature adhesive - also on both faces of ceramic fibre tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan)
- ⑥ 92 mm by 45 mm (minimum) hardwood framing sections, minimum density 640 kg/m³
- ⑦ Sealmaster Fireglaze compound with Hardwood or Non-combustible setting blocks

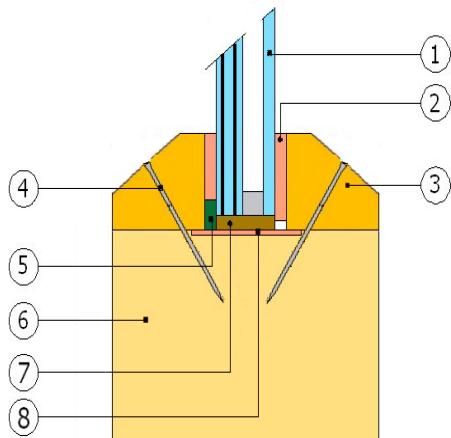
This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI glass shown in Figure 30 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Pyroguard EW60 within Insulating Glass Units in single pane timber framed screens for periods of 60 minutes integrity

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- (1) IGU of Pyroguard EW60 Glass, 12mm steel spacer and 4 mm float glass
- (2) 20 & 15 mm by 6 mm ceramic fibre glazing tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan)
- (3) 25 mm high by 28.5 mm wide chamfered (30°) hardwood glazing beads, minimum density 650 kg/m³.
- (4) 50 mm long M4 steel screws at 200 mm centres (approx. 30° to glass)
- (5) CXL high temperature adhesive
- (6) 92 mm by 45 mm (minimum) hardwood framing sections, minimum density 650 kg/m³
- (7) Sealmaster Fireglaze compound with Hardwood or Non-combustible setting blocks
- (8) Sealmaster GL60 Liner

This Certificate of Approval relates to the sizes of Pyroguard EW60 in insulating glazed units 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.

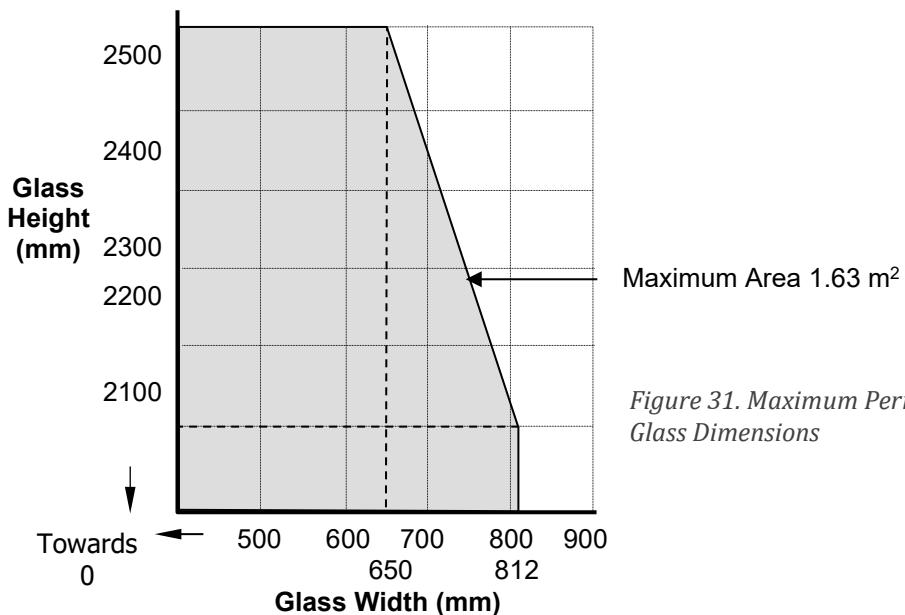
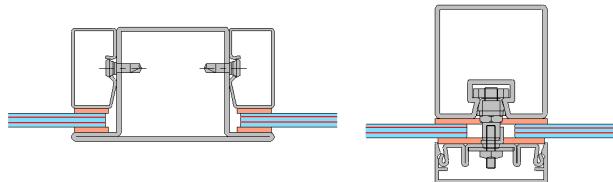


Figure 31. Maximum Permitted Glass Dimensions

Pyroguard EW30 MAXI (11 mm) glass in multi-pane steel framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply: The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The glass shall be glazed into the screen as described in the table below and set on non-combustible setting blocks to determine the correct edge cover.



Glazing Material	Single/Multi-Pane
Sealmaster Black Glazing Tape or 15x3mm ceramic gasket to both faces of glass e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan)	Single Pane

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI (11 mm) glass shown in Figure 32 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

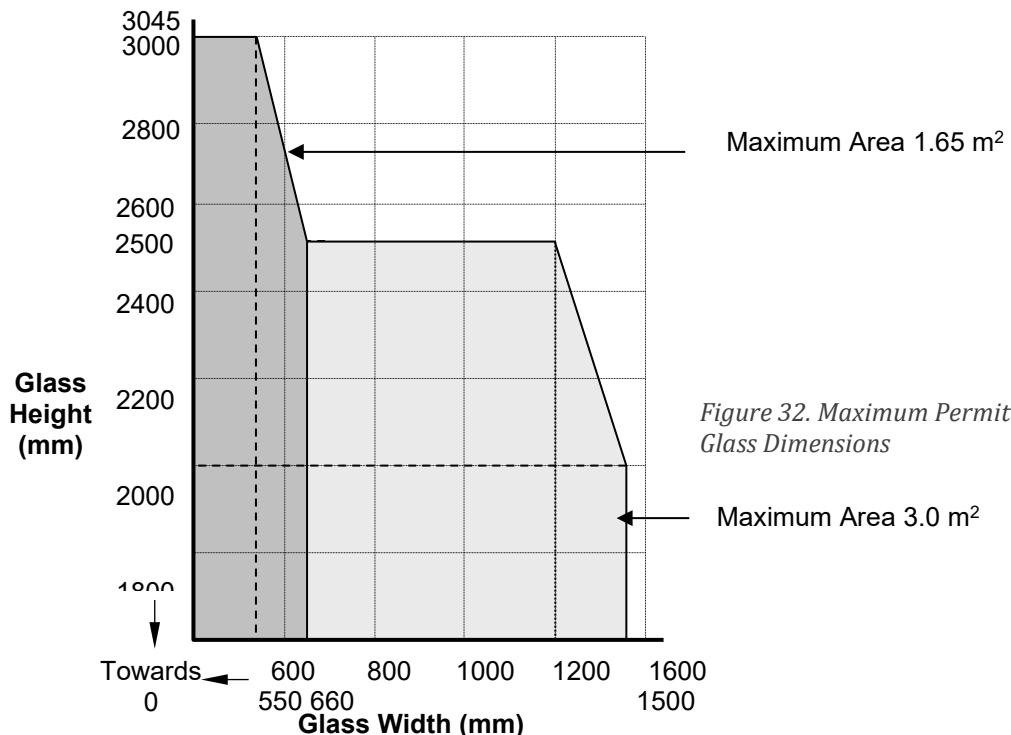


Figure 32. Maximum Permitted Glass Dimensions

Note: Maximum glass stock size is currently limited to 1580mm by 2780mm.

Pyroguard EW30 MAXI in Insulated Glazed Units in multi-pane Schuco AWS/ADS 65 AD aluminium framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The 'IGU' shall comprise a single layer of Pyroguard EW30 MAXI (11 mm) glass, a 12-16 mm cavity with steel or aluminium spacer bars and a single layer of minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted*).

The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads. The glass shall be glazed into the screen with 15x3 mm Sealmaster Black Glazing Tape or ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan) on both faces and set on hardwood or non-combustible setting blocks to determine the correct edge cover.

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI glass IGUs shown in Figure 33 below, when used in conjunction with the above system. The glass may only be installed within single paned screens. The aspect ratio of the glass may be unlimited within these aperture dimensions.

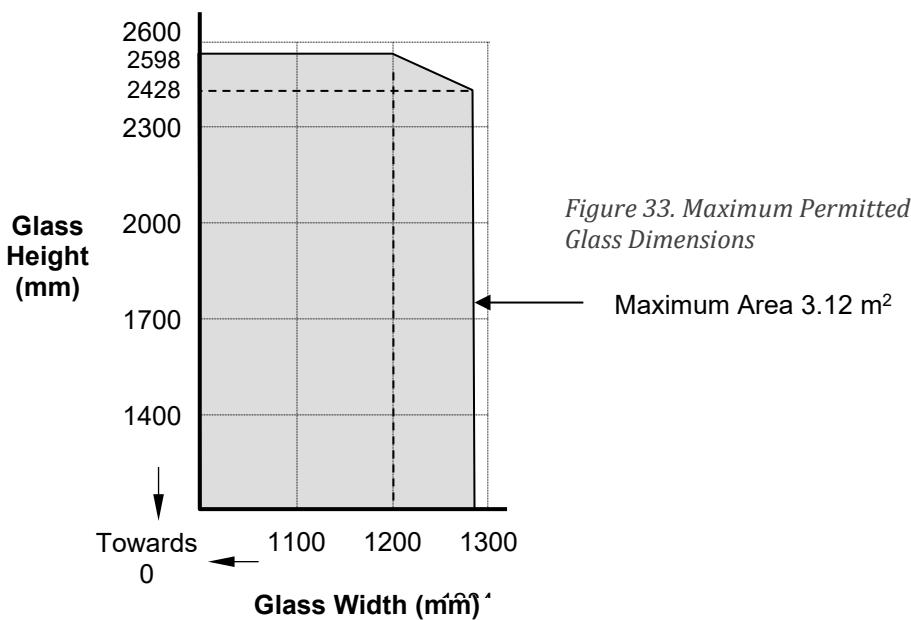


Figure 33. Maximum Permitted Glass Dimensions

Pyroguard EW30 MAXI in Insulated Glazed Units in multi-pane steel framed screens for periods of 30 minutes integrity

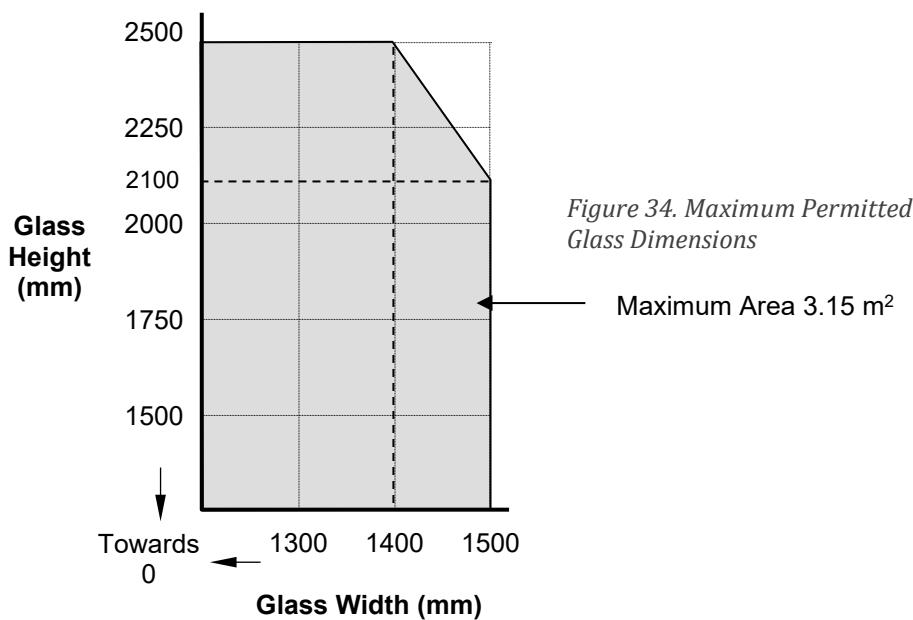
For this application the following conditions shall apply:

The 'IGU' shall comprise a single layer of Pyroguard EW30 MAXI (11 mm) glass, a 10 -15 mm cavity with steel or aluminium spacer bars and a single layer of 4-6 mm toughened or float glass, to form a 25 - 32 mm thick unit.

The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads. The glass shall be glazed into the screen with 15x3mm Sealmaster Black Glazing Tape or ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan) on both faces and set on hardwood or non-combustible setting blocks to determine the correct edge cover.

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI glass IGUs shown in Figure 34 below, when used in conjunction with the above system. The glass may only be installed within single paned screens. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Pyroguard EW60 in Insulated Glazed Units in multi-pane steel framed screens for periods of 60 minutes integrity

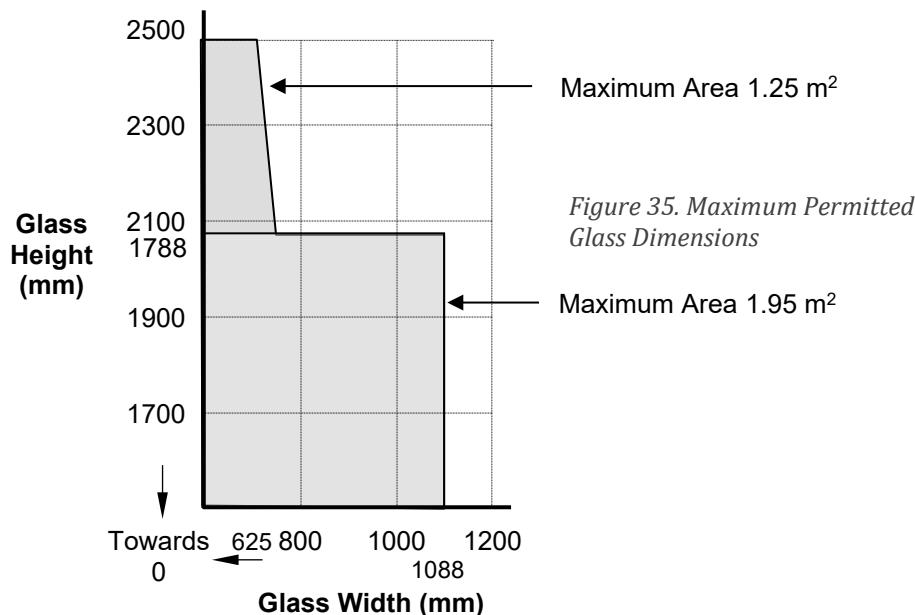
For this application the following conditions shall apply:

The 'IGU' shall comprise a single layer of Pyroguard EW60 (11 mm) glass, a 12-15 mm cavity with steel or aluminium spacer bars and a single layer of 4-6 mm toughened or float glass, to form a 27 - 32 mm thick unit.

The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads. The glass shall be glazed into the screen with 15x3mm Sealmaster Black Glazing Tape or Kerafix 2000 (KUHN) or Pyrotape CF (Mann McGowan) ceramic fibre gasket on both faces, bonded with a ceramic based adhesive across the top edge (between tape/frame and tape/glass) and set on hardwood or non-combustible setting blocks to determine the correct edge cover.

Maximum Permitted Pane Dimensions

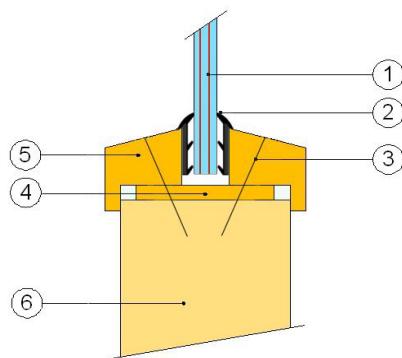
This Certificate of Approval relates to the sizes of Pyroguard EW60 glass IGUs shown in Figure 35 below, when used in conjunction with the above system. The glass may only be installed within single paned screens. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Pyroguard EW30 MAXI (11 mm) glass in 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 Pyroguard EW30 MAXI (11 mm) Glass
- 2 Lorient Flexible Figure 1 glazing gasket
- 3 40 mm long steel screws at a maximum of 150mm centres and angled at 45°
- 4 Hardwood liner 38 x 6 mm
- 5 Hardwood or MDF glazing beads 25 mm by 20 mm including a 10 mm by 6 mm bolection return chamfered at 30° and minimum 650 kg/m³ density HW or 750 kg/m³ MDF
- 6 Nominally 44 mm thick FD30 door leaf

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

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI (11 mm) glass shown in Figure 36 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

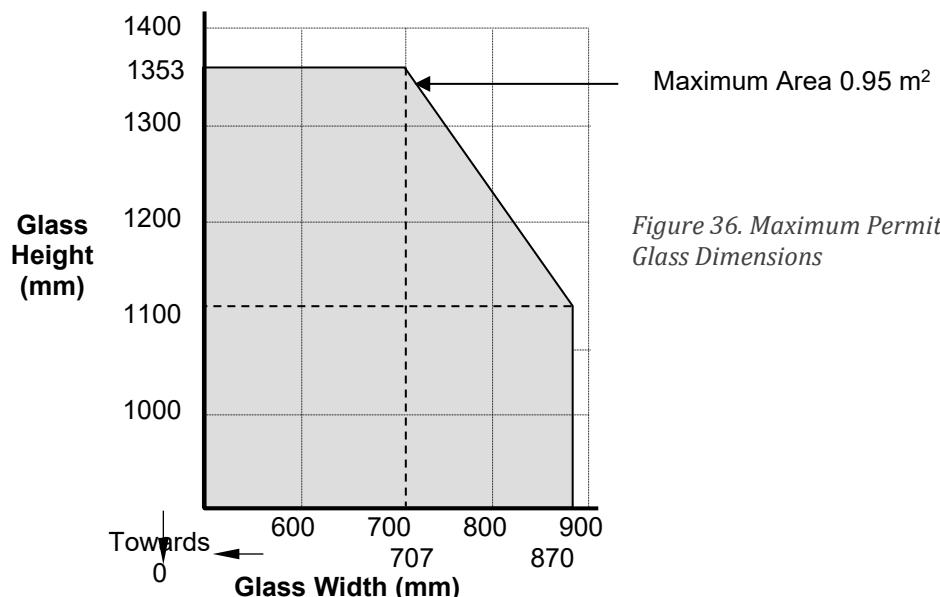


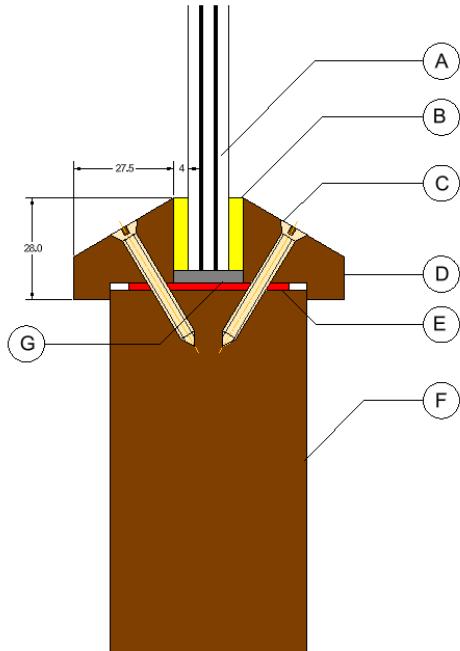
Figure 36. Maximum Permitted Glass Dimensions

These systems may also be included in previously tested doorset fan and side-lights.

Pyroguard EW60 (11 mm) glass in timber based doorsets for periods of 60 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:



- (A) Glazing: Pyroguard EW60 (11mm) Glass
- (B) Glazing tape: Fireglaze 60
4 mm x 20 mm
[Sealmaster]
- (C) Fixing: ≥ 38 mm long steel screws at a maximum of 150 mm vertical and 100 mm horizontal centres and fixed at 15° .
- (D) Bead: Hardwood glazing beads, ≥ 650 kg/m³ ≥ 27.5 mm wide x ≥ 28 mm deep including a 10 mm x 5 mm bolection return chamfer at 30° .
- (E) Liner: GL60 liner [Sealmaster] or Palusol 100 ECSA line [Mann McGowan], 44 mm x 2 mm thick
- (F) Leaf: Nominally 54 mm thick FD60 door leaf or Certifire approved FD60 Door
- (G) Setting Block: Non-combustible or hardwood setting blocks

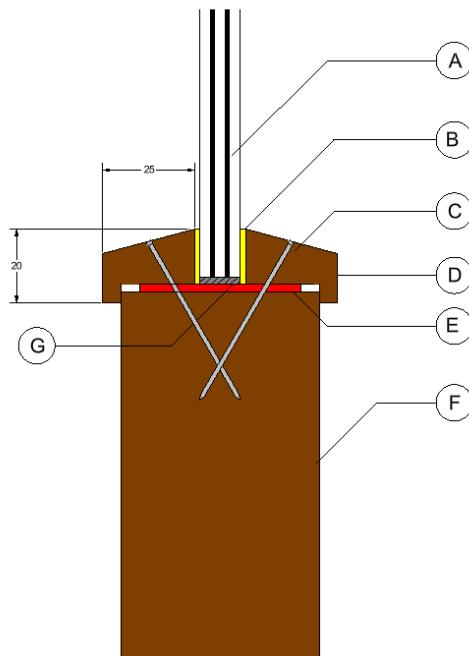
This Certificate of Approval relates to the sizes of Pyroguard EW60 Impact 11mm glass shown in the table below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Maximum Permitted Glass Dimensions		
Maximum Width	Maximum Height	Maximum Area
460 mm wide	1437 mm high	0.58m ²

Pyroguard EW60 (11 mm) glass in timber based doorsets for periods of 60 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:



- Ⓐ Glazing: Pyroguard EW60 (11mm) Glass
- Ⓑ Glazing tape: Closed cell foam tape 15 mm x 3 mm.
- Ⓒ Fixing: ≥ 50 mm x $\varnothing 2$ mm steel pins equally spaced on vertical beads, 230 mm centres on the horizontal beads, fixed at 30°.
- Ⓓ Bead: MDF glazing beads (≥ 700 kg/m³ density), ≥ 25 mm wide x ≥ 20 mm deep, including a 5 mm x 5 mm bolection return chamfer at 15° to the glass.
- Ⓔ Liner: GL60 liner [Sealmaster] or Palusol 100 ECSA line, 44 mm x 2 mm thick [Mann McGowan]
- Ⓕ Leaf: Nominally 54 mm thick FD60 door leaf or Certifire approved FD60 Door
- Ⓖ Setting Block: Non-combustible or hardwood setting blocks with Intumescent acrylic sealant infill around the perimeter

This Certificate of Approval relates to the sizes of Pyroguard EW60 Impact 11mm 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.

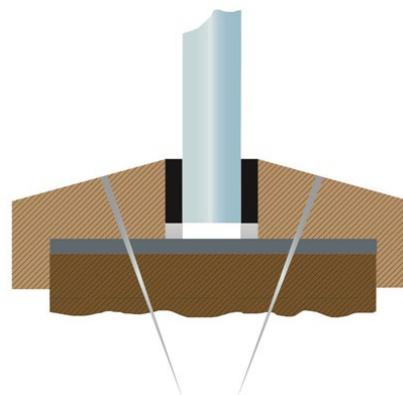
Maximum Permitted Glass Dimensions		
Maximum Width	Maximum Height	Maximum Area
508 mm wide	1200 mm high	0.58m ²

Pyroguard EW60 (11 mm) glass in timber based doorsets for periods of 60 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 specifications:

- Pyroguard EW60 (11 mm)
- Sealmaster FIREGLAZE Tape as glazing tape – 25 mm x 2.5 mm thick
- Sealmaster FIREGLAZE Tape as aperture liner – 54 mm x 2.5 mm thick
- No. 8 x 63 mm long screws at 150 mm maximum centres and 50mm from corners (fixed at 45° to glass).
- Bead dimensions – 30 mm high by 26 mm wide (dimension includes a 5 mm x 5 mm bolection)
- Glazing Bead from hardwood with a minimum density 640kg/m³, 20° chamfer
- Nominally 54 mm thick timber based FD60 door leaf



System may be used with and without non-combustible setting blocks.

This Certificate of Approval relates to the sizes of Pyroguard FD60 glass shown in Figure 38 below, when used in conjunction with the glazing system detailed previously

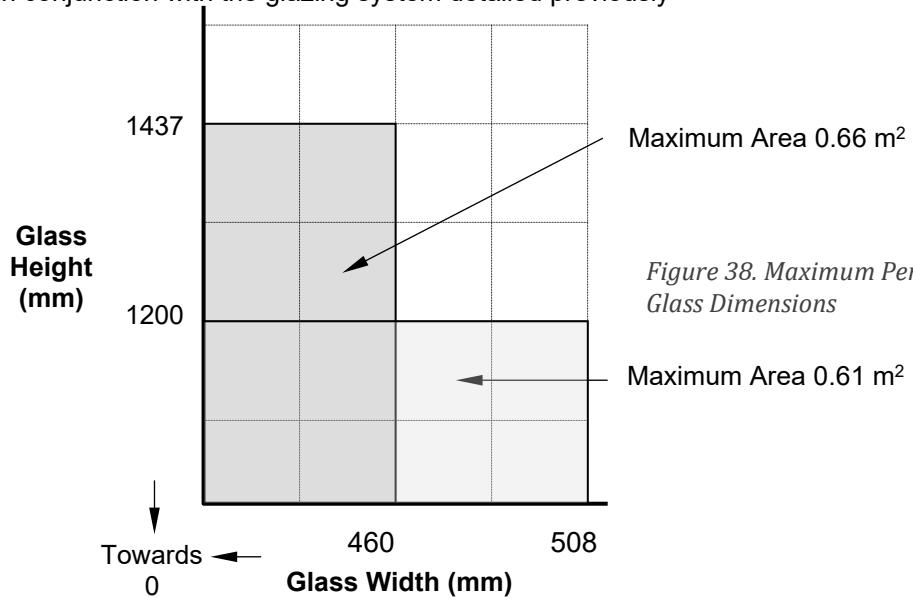


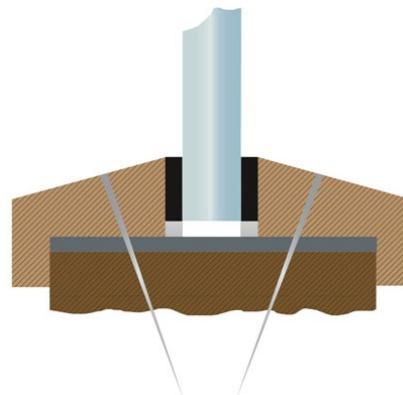
Figure 38. Maximum Permitted Glass Dimensions

Pyroguard EW60 (11 mm) glass in timber based doorsets for periods of 60 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 specifications:

- Pyroguard EW60 (11 mm)
- Sealmaster intumescent foam glazing tape – 20 mm x 5 mm thick
- Therma-A-Sol intumescent aperture liner – 52 mm x 2 mm thick
- Glazing Bead from hardwood with a minimum density 640kg/m³, 20° chamfer
- Bead dimensions – 30 mm high by 22.5 mm wide (dimension includes a 5 mm x 5 mm bolection)
- No. 8 x 63 mm long screws at 150 mm maximum centres (fixed at 35° to glass).
- Nominally 54 mm thick timber based FD60 door leaf



System may be used with and without non-combustible setting blocks.

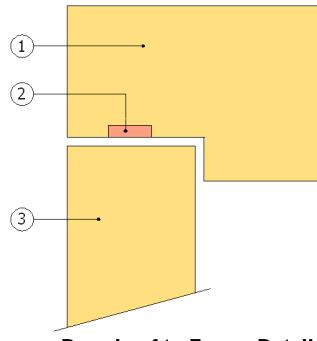
This Certificate of Approval relates to the sizes of Pyroguard EW60 glass shown in Table 2 below, when used in conjunction with the glazing system detailed previously.

The aspect ratio of the glass may be unlimited within these aperture dimensions.

Maximum Permitted Glass Dimensions		
Maximum Width	Maximum Height	Maximum Area
414mm wide (at 1650mm high)	1925mm high (at 350mm) wide	0.68m ²

Pyroguard EW30 MAXI (11 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity

The doorsets may be single-acting, single -leaf only, with an engaged latching device and are to be as detailed within the figures below:

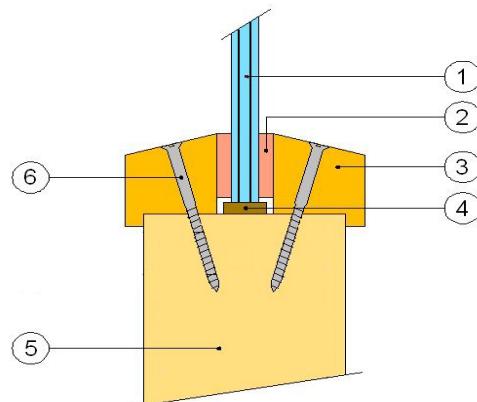


Door Leaf to Frame Detail

- 1 67 mm by 57 mm softwood or hardwood door frame with 19 mm integral stop, minimum density 450 kg/m³
- 2 Lorient Polyproducts Ltd LP1504 15 x 4mm intumescent seals, positioned centrally within the reveal of the frame, at the head and vertical edges. The leaf to frame gap must not exceed 4 mm.
- 3 Minimum 100 mm by 44 mm hardwood stiles and rails (bottom rail 200 mm minimum) minimum density 640 kg/m³. Stiles and rails must be mortice & tenon jointed

The door leaves may be provided with a mid-rail (or a number of intermediate rails) of minimum dimensions 100 mm by 44 mm and of minimum density 640 kg/m³.

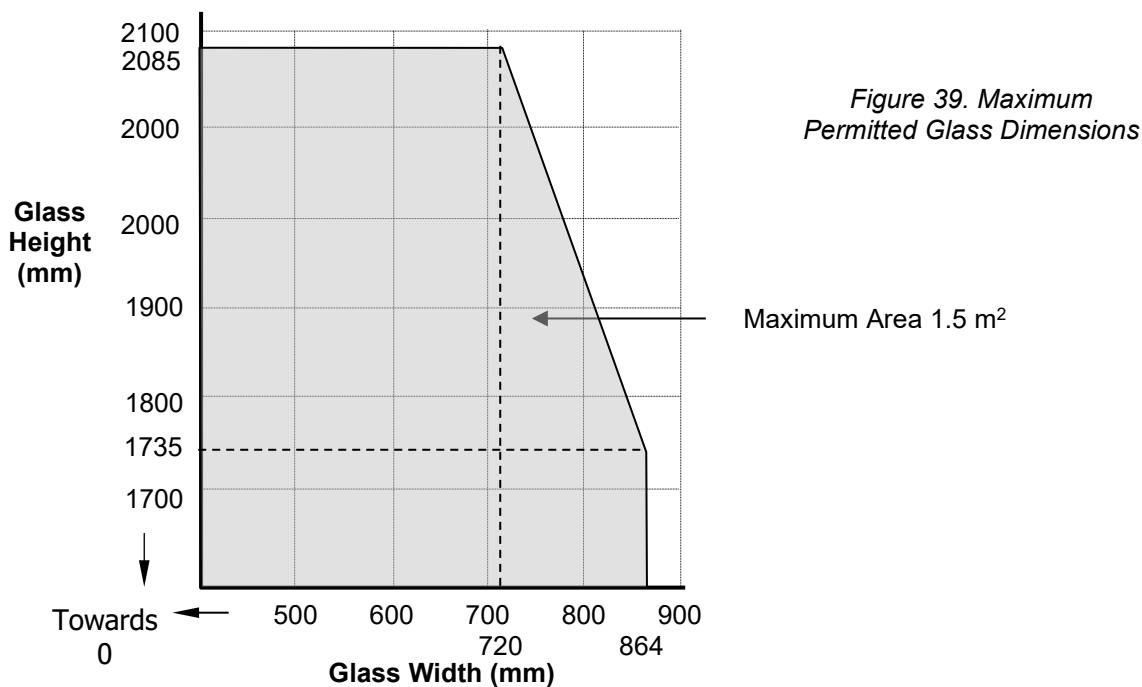
All doorset hardware must be CERTIFIRE approved for use with ITT doors and the leaf must be hung upon 1½ pair of hinges and incorporate a latching device and automatic closing device.



- 1 Pyroguard EW30 MAXI (11 mm) Glass
- 2 Sealmaster Black Glazing Tape or ceramic fibre tape e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan), 15 x 3 mm or Interdens (Mann McGowan) 10 x 2 mm
- 3 Softwood and hardwood glazing beads 35 mm by 20.5 mm including a 12 mm by 6 mm bolection return chamfered at 0-45° and minimum 5100 kg/m³ density
- 4 Non-combustible or hardwood setting blocks
- 5 Door leaf as described above
- 6 48 mm long steel screws at a maximum of 200mm horizontal centres and angled at 45°

Pyroguard EW30 MAXI (11 mm) glass in timber stile and rail doorsets for periods of 30 minutes integrity (continued)

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI (11 mm) glass shown in Figure 39 below, when used in conjunction with the glazing system detailed previously. The aspect ratio of the glass may be unlimited within these aperture dimensions.

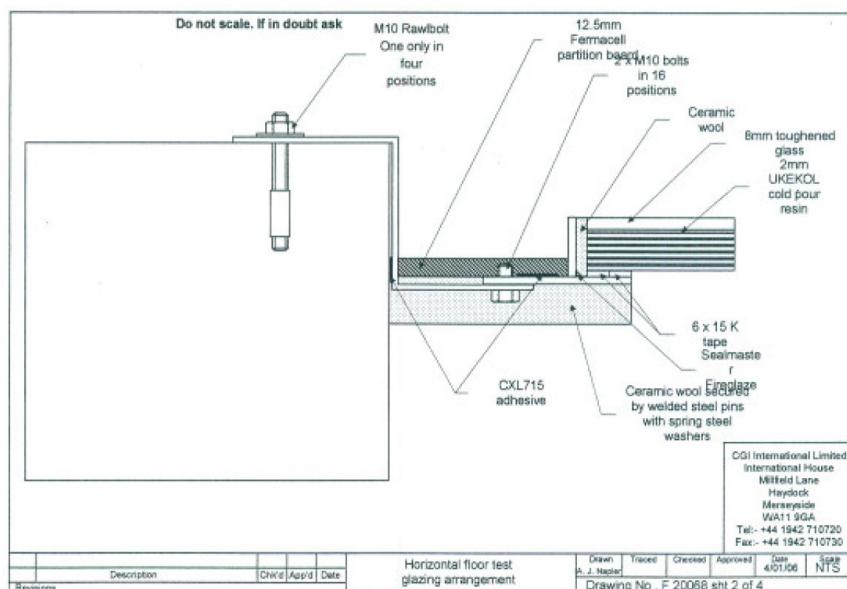


Maximum leaf dimensions are 2382 mm high (at 920 mm wide) and 1064 mm wide (at 2035 mm high), subject to a maximum area of 2.19 m².

Pyroguard EW30 MAXI glass (laminated or as Insulating Glass Units) in single pane, horizontal steel framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be installed into a previously tested or CERTIFIRE approved framing system (which is covered appropriately by test or assessment evidence) using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The glass shall be glazed into the screen with ceramic fibre gasket e.g. Kerafix 2000 (Kuhn) or Pyrotape CF (Mann McGowan), 15x6 mm, on both faces. The laminated glass/IGU shall be as detailed in the table below.

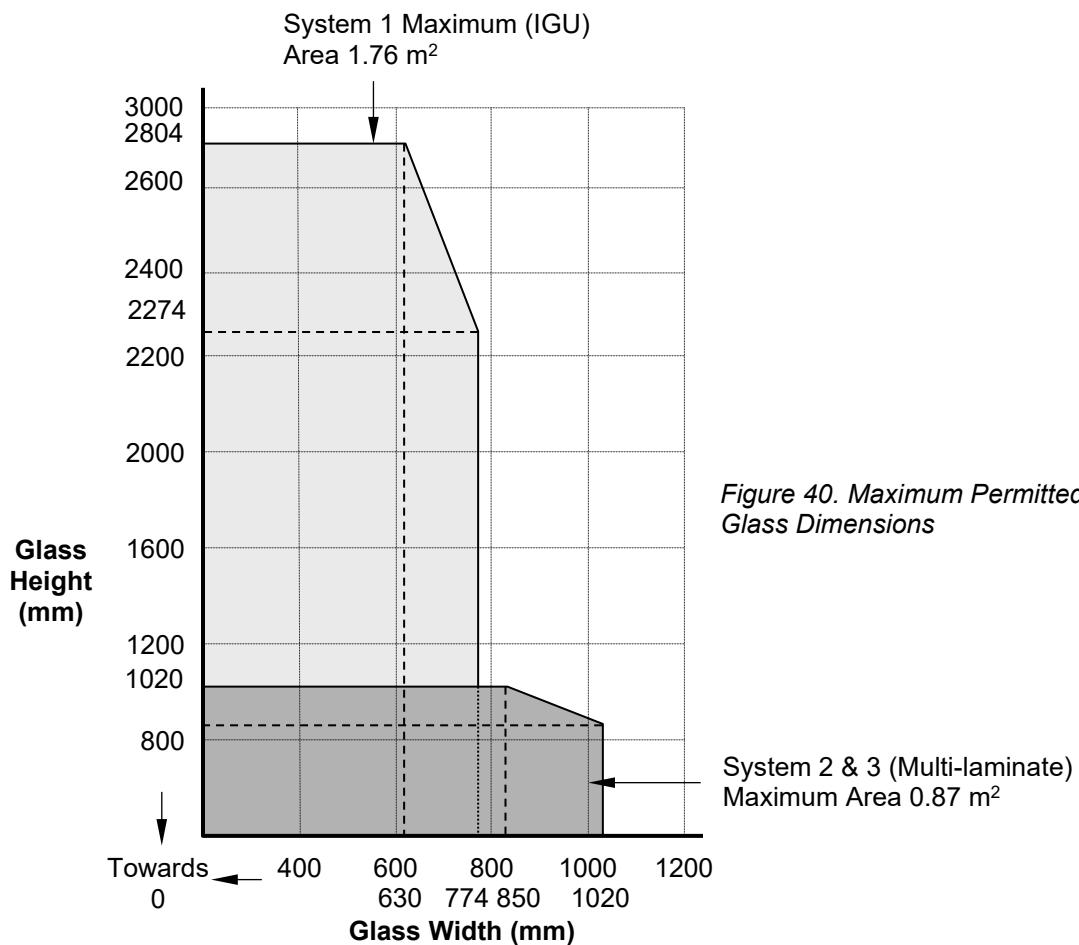


System	Construction	Orientation
1	IGU comprising EW30 MAXI Pyroguard glass and 6 mm toughened glass	Pyroguard at the soffit
2	Laminated glass comprising 8 mm toughened glass, a 1 mm PVB layer, EW30 MAXI Pyroguard glass, a 1 mm PVB layer and a 15 mm toughened glass	Toughened glass at the soffit
3	Laminated glass comprising 8 mm toughened glass, a 2 mm cold pour resin layer, EW30 MAXI Pyroguard glass, a further 2 mm cold pour resin layer and 15 mm float glass	Toughened glass at the soffit

Pyroguard EW30 MAXI glass (laminated or as Insulating Glass Units) in single pane, horizontal steel framed screens for periods of 30 minutes integrity (continued)

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of Pyroguard EW30 MAXI Laminated/IGUs shown in Figure 40 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Note: Maximum glass stock size is currently limited to 1580mm by 2780mm.