



CERTIFICATE OF APPROVAL

No CF 377

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

AGC FLAT GLASS UK LIMITED

Chestnut Field, Regent Place, Rugby, Warwickshire. CV21 2TL
Tel: 01788 535353 Fax: 01788 560853

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

Pyrobelite 7,
Pyrobelite 7 EG,
Pyrobelite 10,
Pyrobelite 12,
Pyrobel 16 & 16 EG,
Pyrobel 19H,
Pyrobel 25 & 25 EG,
Pyrobel 28H,
Pyrobel 30 & 30 EG,
Pyrobel 53N & 53N EG,
Pyrobel 25-25DGU,
Fire Resisting Glass

TECHNICAL SCHEDULE

TS 25 Fire Resistant Glass,
Glazing Systems and Materials

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council

Issued: 1st April 2005
Revised: 26th June 2012
Valid to: 28th June 2016

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Only valid when authentic
CERTIFIRE Seal is in place



CERTIFICATE No CF 377 AGC FLAT GLASS UK LIMITED

PYROBELITE AND PYROBEL FIRE RESISTING GLASS

This Certificate of Approval relates to the fire resistance of AGC Flat Glass UK Limited 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	
Pyrobelite 7 & 7 EG	Timber doorsets	30	-	6
Pyrobelite 7 & 7 EG	Composite doorsets	30	-	7
Pyrobelite 7 & 7 EG	Timber screens	30	-	8
Pyrobelite 7 & 7 EG (IGU's)	Timber screens	30	-	9
Pyrobelite 7 & 7 EG (IGU's)	Steel doorsets	30	-	10
Pyrobelite 7 & 7 EG	Steel screens	30	-	11
Pyrobelite 10	Timber screens	30	-	12
Pyrobelite 12	Timber doorsets	60	-	13
Pyrobelite 12	Timber screens	60	-	14
Pyrobelite 12	Steel screens	30	-	15
Pyrobelite 12	Steel screens	60	-	16
Pyrobel 16 & 16 EG	Timber doorsets	60	30	17
Pyrobel 16 & 16 EG	Timber doorsets	30	30	18
Pyrobel 16 & 16 EG	Timber screens	60	30	19
Pyrobel 16 & 16 EG	Timber screens	30	30	20
Pyrobel 16 & 16 EG Visionline	Butt Jointed in timber	30	30	21
Pyrobel 16 & 16 EG Visionline	Butt Jointed in steel	30	30	22
Pyrobel 16 & 16 EG Visionline	Butt Jointed in aluminium	30	30	23
Pyrobel 16 & 16 EG (IGU's)	Timber screens	30	30	25
Pyrobel 16 & 16 EG (IGU's)	Steel screens	30	30	26
Pyrobel 16 & 16 DGU	Steel doorsets	30	30	27
Pyrobel 16	Steel screens	60	-	28
Pyrobel 16	Steel screens	60	30	29
Pyrobel 16 & 16 EG	Steel screens	30	30	30
Pyrobel 16 & 16 EG (IGU's)	Aluminium screens	30	30	31
Pyrobel 16 & 16 EG (IGU's)	Aluminium screens	30	30	32
Pyrobel 25 & 25 EG	Timber doorsets	60	60	33
Pyrobel 25 & 25 EG	Timber screens (hardwood)	60	60	34
Pyrobel 25 & 25 EG	Timber screens (softwood)	60	60	35
Pyrobel 25 & 25 EG (IGU's)	Timber screens	60	60	36
Pyrobel 25 & 25 EG	Steel screens	60	60	37
Pyrobel 25 & 25 EG	Steel doorsets	60	60	38
Pyrobel 25 & 25 EG (IGU's)	Steel doorsets	60	60	39
Pyrobel 25 & 25 EG (IGU's)	Steel screens	60	60	40
Pyrobel 25 & 25 EG	Aluminium screens	60	60	41
Pyrobel 25 & 25 EG (IGU's)	Aluminium screens	60	60	42
Pyrobel 25 & 25 EG Visionline	Butt Jointed in timber	60	60	43
Pyrobel 25 & 25 EG Visionline	Butt Jointed in steel	60	60	44
Pyrobel 25 & 25 EG Visionline	Butt Jointed in aluminium	60	60	45



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Glass Specification	Application	Fire Resistance Performance (mins)		Page No.
		Integrity	Insulation	
Pyrobel 30 & 30 EG & 30DGU	Steel screens	90	90	47
Pyrobel 53N & 53N EG	Steel screens	120	120	48
Pyrobel 25-25DGU	Steel Screens	120	120	49
Pyrobel 19H	Horizontal steel screens	30	30	50
Pyrobel 28H	Horizontal steel screens	60	60	52
Pyrobelite 7/12 & Pyrobel 16/25	Glazing bars	30-60	0-60	54

The glass is approved in the following nominal thicknesses:

Glass Specification	Thickness	Fire Resistance Performance (mins)	
		Integrity	Insulation
Pyrobelite 7	7.9 mm ± 0.9mm	30	0
Pyrobelite 7EG	11.3 mm ± 1mm	30	0
Pyrobelite 10	11 mm ± 1mm	30	0
Pyrobelite 12	12.3 mm ± 1mm	30/60	0
Pyrobel 16	17.3 mm ± 1mm	30/60	30
Pyrobel 16EG	21.1 mm ± 1.5 mm	30/60	30
Pyrobel 25	26.6 mm ± 2mm	60	60
Pyrobel 25EG	30.4 mm ± 2mm	60	60
Pyrobel 30	30 mm ± 2.5mm	90	90
Pyrobel 30EG	33.7 mm ± 2.8 mm	90	90
Pyrobel 53N	52.7 mm ± 3 mm	120	120
Pyrobel 53N EG	56.5 mm ± 3 mm	120	120
Pyrobel 25-25DGU	59.2 mm ± 3 mm	120	120
Pyrobel 19H	19.1 mm ± 1.5 mm	30	30
Pyrobel 28H	28.4 mm ± 2 mm	60	60



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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.
- The edge cover to each pane shall be no less than 15 mm minimum.
- For external application, or in the case of direct solar radiation on the glazing, Pyrobel is available as external grade, with a UV filter.
- A minimum 6.8 mm laminated glass must be used as the external pane for IGU's incorporating internal grade Pyrobelite/Pyrobel.
- Surface of glass may be lightly sandblasted to a maximum depth of 1 mm.
- IGU's may include either aluminium or steel spacer bars and may utilise hot melt butyl edge sealant.
- IGU's comprising Pyrobel glass may incorporate blinds integrally fitted within the IGU. The fitment of such blinds should not necessitate the removal of any framing or beading material and should be operated via a remote system (i.e. operating system may be magnetic). AGC Flat Glass UK Limited should be consulted prior to specifying integral blinds to ensure acceptability.
- For timber framed glazing systems timber beads may be square.
- Pyrobelite and Pyrobel Antibacterial options are approved throughout the scope.
- Pyrobelite and Pyrobel Matelux options are approved throughout the scope.
- Note: timber species 'Ash' is specifically excluded within the scope of this approval due to its relatively high charring rate compared with other hardwoods.

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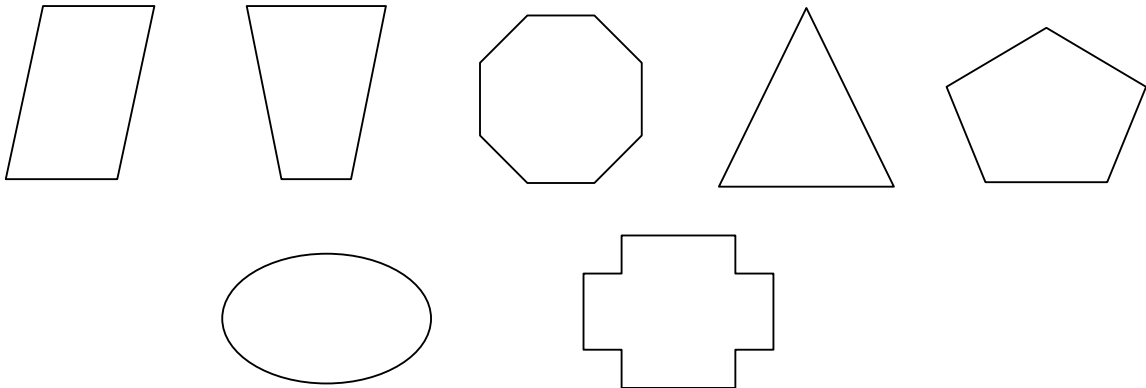


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Shapes

It is also acceptable to include Pyrobelite and Pyrobel in shaped apertures, i.e. circles, ovals, arches, quadrants, etc (examples detailed below). 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.

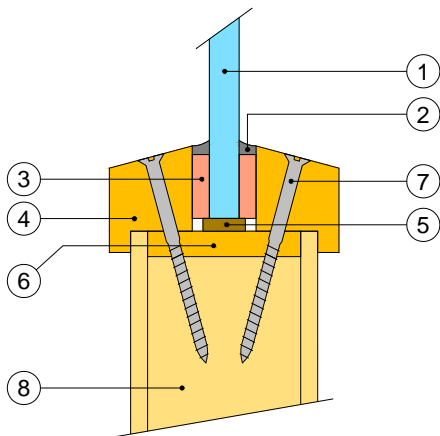


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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 Glass in timber based doorsets for periods of 30 minutes integrity

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



- 1 Pyrobelite 7 or 7 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 5 mm thick ceramic fibre based glazing tape or closed cell foam tape
- 4 20 mm high by 19.5 mm wide (including 5 mm high by 5 mm wide bolection with 15° chamfer or square) hardwood glazing beads, minimum density 510 kg/m³
- 5 Non-combustible / hardwood setting blocks
- 6 6 mm thick hardwood aperture liner
- 7 50 mm long steel screws at 150 mm centres (30° to glass)
- 8 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 Pyrobelite 7 and 7 EG 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.

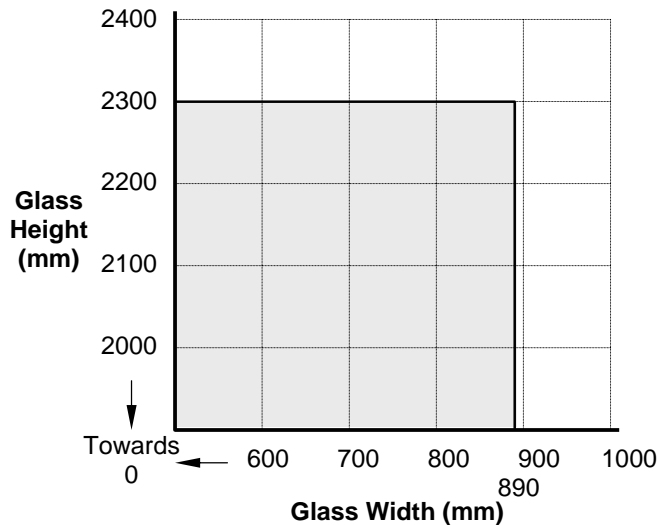


Figure 1.
Maximum Permitted Glass Dimensions





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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 Glass (DGU's) in composite doorsets for periods of 30 minutes integrity

Approval of Pyrobelite 7 or 7EG DGU's is approved, at the dimensions given in Figure 2 below, for use in certain specific designs of composite doorset. There is no limit regarding glass orientation. AGC Limited should be contacted for further information on suitable applications.

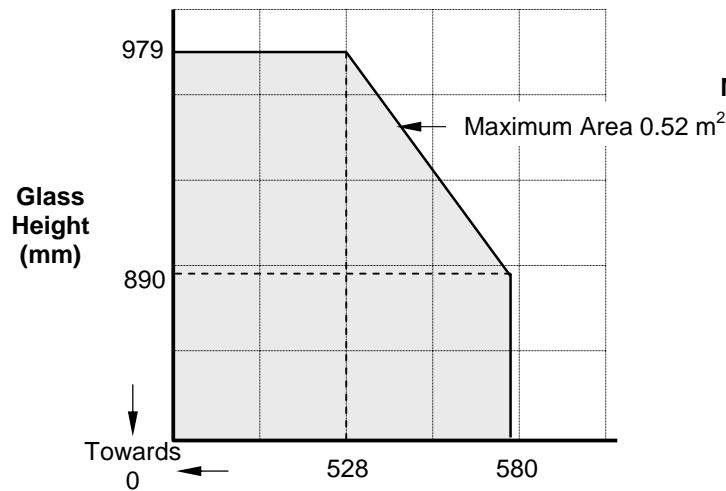


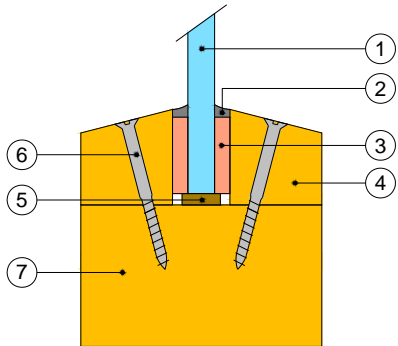
Figure 2.
Maximum Permitted Glass
Dimensions

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PYROBELITE FIRE RESISTING GLASS

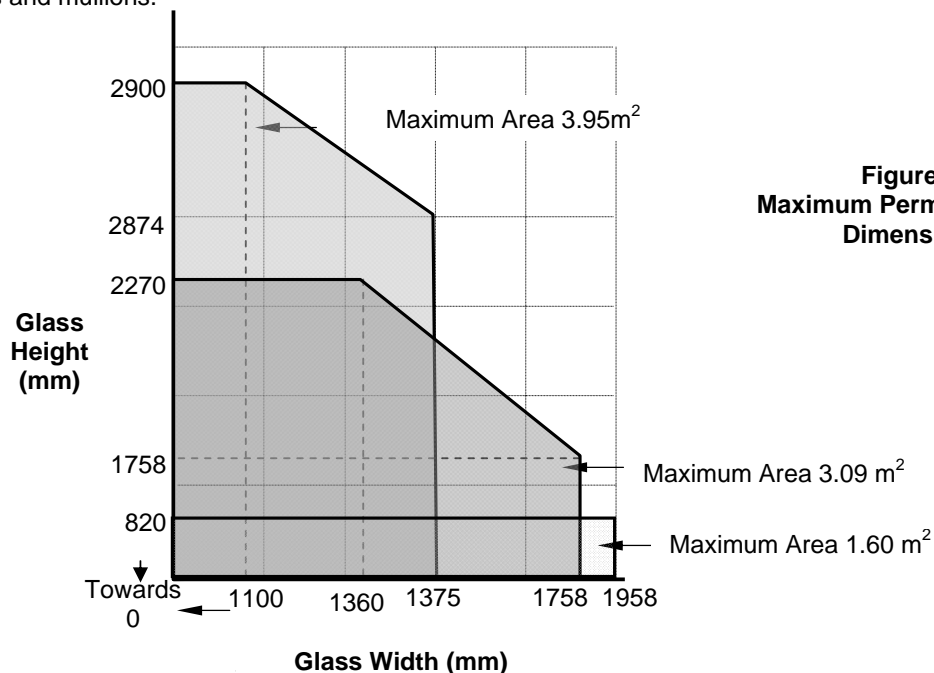
Pyrobelite 7 Glass in timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobelite 7 or 7 EG
- 2 Neutral silicone capping
- 3 15 mm wide by 5 mm thick ceramic fibre based glazing tape or 12 mm wide by 5 mm thick closed cell foam tape
- 4 25 mm wide by 23 mm high (with 15° chamfer or square) hardwood or softwood glazing beads, minimum density 471 kg/m³
- 5 Non-combustible setting blocks
- 6 38 mm long steel screws at 270 mm centres (30° to glass)
- 7 67 mm by 33 mm (minimum) hardwood or softwood perimeter frame, minimum density 471 kg/m³. 67 mm by 46 mm (minimum) hardwood or softwood transoms/mullions, minimum density 471 kg/m³.

This Certificate of Approval relates to the sizes of Pyrobelite 7 and 7 EG 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. May be utilised in multipaned screen systems with shared transoms and mullions.



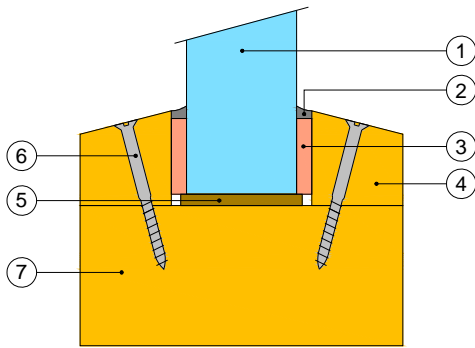
**Figure 3.
Maximum Permitted Glass
Dimensions**

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PYROBELITE FIRE RESISTING GLASS

Insulating Glass Units (IGU's) including Pyrobelite 7 Glass in timber framed screens for periods of 30 minutes integrity

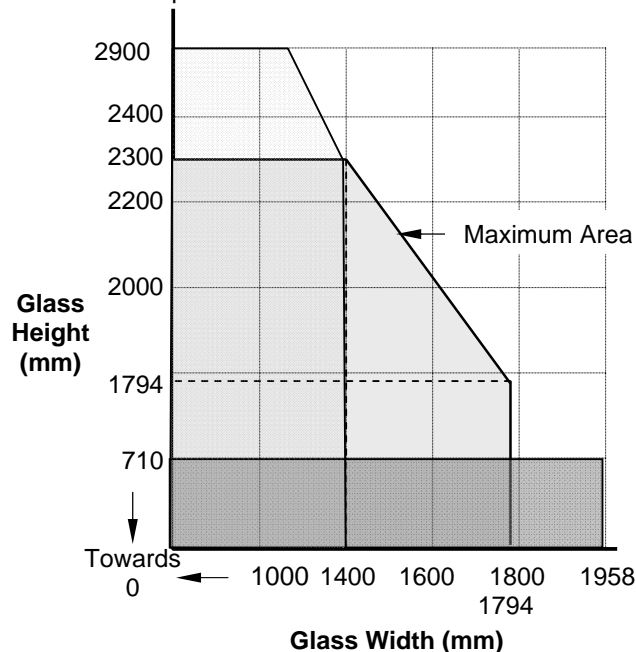
The IGU shall be glazed utilising one of the following specifications:



- 1 IGU comprising Pyrobelite 7 or Pyrobelite 7 EG glass, a minimum 12 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*
- 2 Neutral silicone capping
- 3 15 mm wide by 5 mm thick ceramic fibre based glazing tape or 12 mm wide by 5 mm thick closed cell foam tape
- 4 25 mm wide by 23 mm high (with 15° chamfer or square) hardwood glazing beads, minimum density 471 kg/m³
- 5 Non-combustible setting blocks
- 6 40 mm long steel screws at 270 mm centres (30° to glass)
- 7 86 mm by 33 mm (minimum) hardwood frame, minimum density 471 kg/m³

* A minimum 6.8 mm laminated glass must be used as the external pane for IGU's incorporating internal grade Pyrobelite 7.

This Certificate of Approval relates to the sizes of IGU's including Pyrobelite 7 or 7 EG glass shown in Figure 4 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



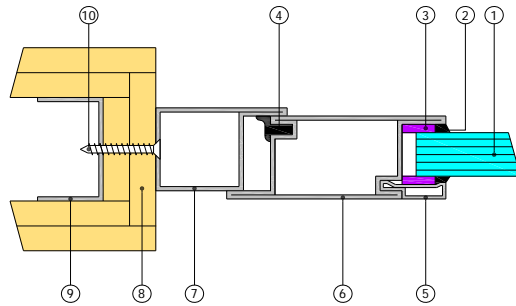
**Figure 4.
Maximum Permitted Glass
Dimensions**

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PYROBELITE FIRE RESISTING GLASS

Insulating Glass Units (IGU's) including Pyrobelite 7 Glass in Steel Doorsets for periods of 30 minutes integrity

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

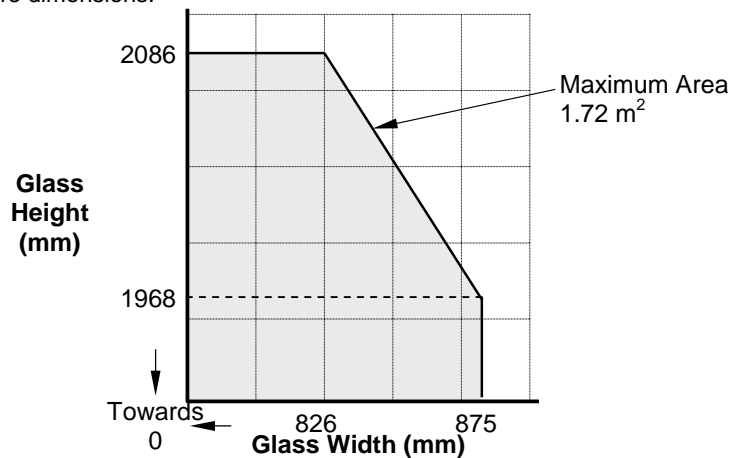


1. IGU comprising Pyrobelite 7 or Pyrobelite 7 EG glass, a minimum 6 mm wide air cavity and minimum 4 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*
2. Neutral silicone capping
3. Ceramic fibre based glazing tape
4. Neoprene seal
5. Steel bead
6. Steel section, stile and rail
7. Steel section, jamb and head
8. Lining board to partition
9. Framework to partition
10. Steel screw

* A minimum 6.8 mm laminated glass must be used as the external pane for IGU's incorporating internal grade Pyrobelite 7.

The steel profiled door framing system shall have test evidence (such as RP Technik Hermetic 40) 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 Pyrobelite 7 and 7 EG glass shown in Figure 5 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



**Figure 5.
Maximum
Permitted Glass
Dimensions**

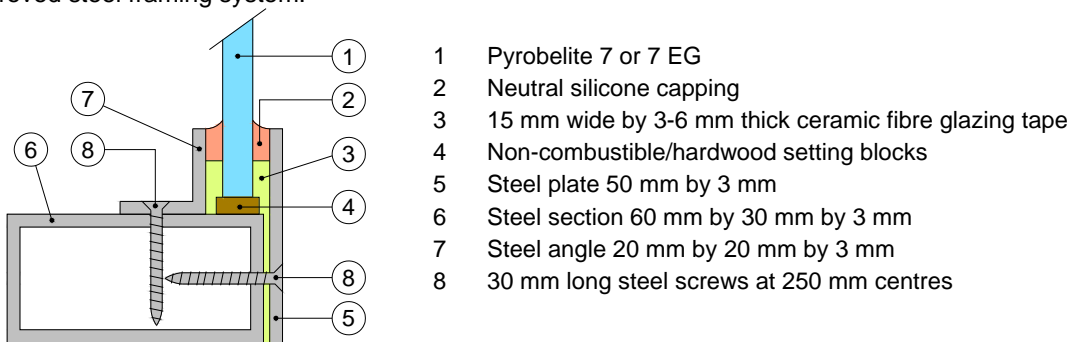


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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 Glass 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 or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

This Certificate of Approval relates to the sizes of Pyrobelite 7 and 7 EG glass shown in Figure 6 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

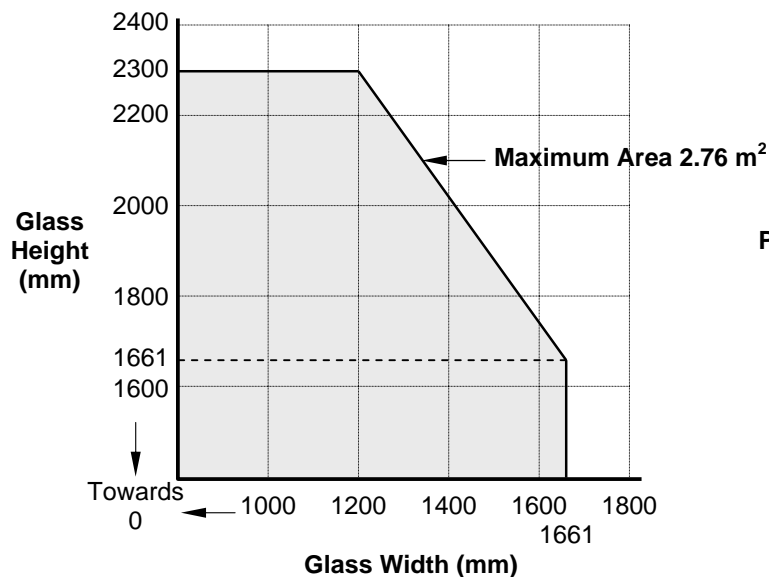


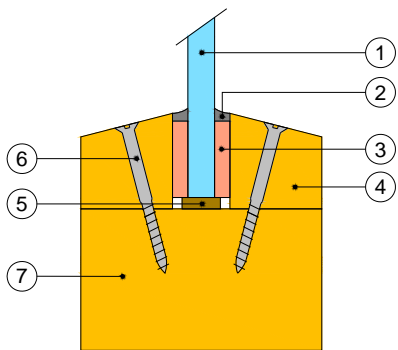
Figure 6.
Maximum Permitted Glass Dimensions

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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 10 Glass in timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobelite 10 (2B2 safety class)
- 2 Dow Corning Firestop 700
- 3 20 mm wide by 5 mm thick ceramic fibre based glazing tape or 12 mm wide by 5 mm thick closed cell foam tape
- 4 25 mm wide by 27 mm high (with 15° chamfer or square) hardwood or softwood glazing beads, minimum density 460 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 200-230 mm centres (30° to glass)
- 7 minimum 71 mm by 33 mm (46 mm for intermediate transoms/mullions) hardwood or softwood frame, minimum density 550 kg/m³

This Certificate of Approval relates to the sizes of Pyrobelite 10 glass shown in Figure 7 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. May be utilised in multipaned screen systems with shared transoms and mullions.

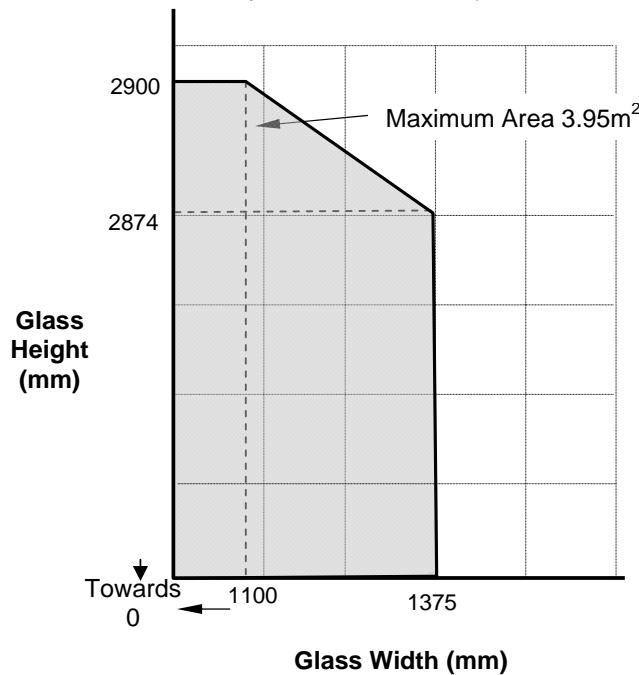


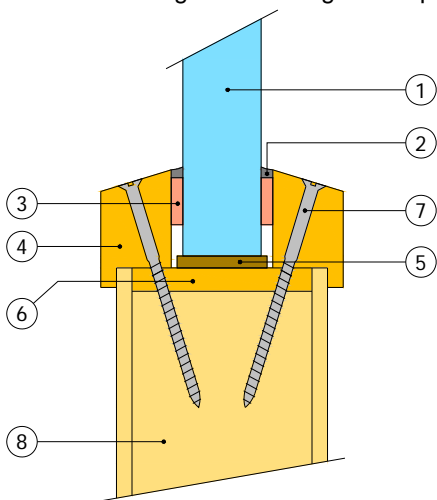
Figure 7.
Maximum Permitted Glass Dimensions

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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 12 Glass in timber based doorsets 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 Pyrobelite 12
- 2 Neutral silicone capping
- 3 12 mm wide by 4 mm thick closed cell foam tape
- 4 30 mm high by 22 mm wide (including 5 mm high by 5 mm wide bolection with 20° chamfer or square) hardwood glazing beads, minimum density 640 kg/m³
- 5 Non-combustible/hardwood setting blocks
- 6 6 mm thick hardwood aperture liner (not required for hardwood cored door leaves)
- 7 60 mm long steel screws at 150 mm centres (30° to glass)
- 8 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 Pyrobelite 12 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.

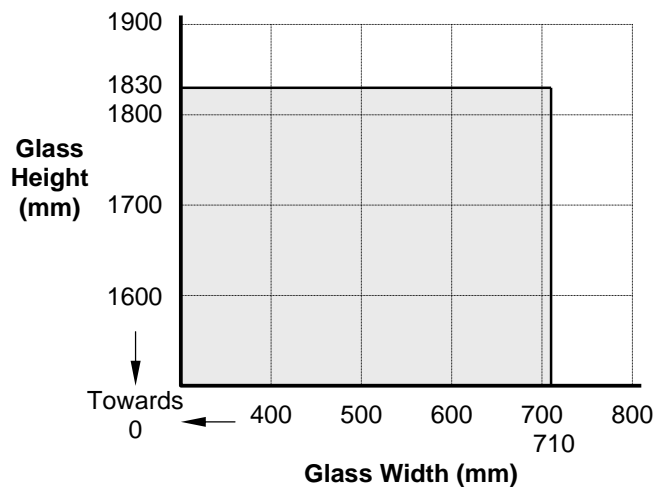


Figure 8.
Maximum Permitted Glass Dimensions

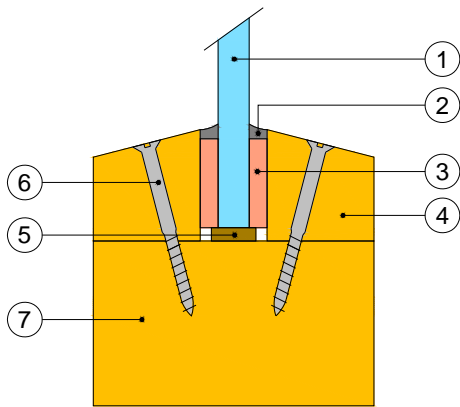


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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 12 Glass in timber framed screens for periods of 60 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobelite 12
- 2 Neutral silicone capping
- 3 20 mm wide by 5 mm thick ceramic fibre based glazing tape or closed cell foam tape
- 4 25 mm wide by 27 mm high (with 10 - 15° chamfer or square) hardwood glazing beads, minimum density 550 kg/m³
- 5 Non-combustible setting blocks
- 6 60 mm long steel screws at 200 mm centres (30° to glass)
- 7 75 mm by 37 mm (minimum) hardwood perimeter framing sections, 75 mm by 54 mm (minimum) hardwood internal transom/mullion framing sections, minimum density 550 kg/m³

This Certificate of Approval relates to the sizes of Pyrobelite 12 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.

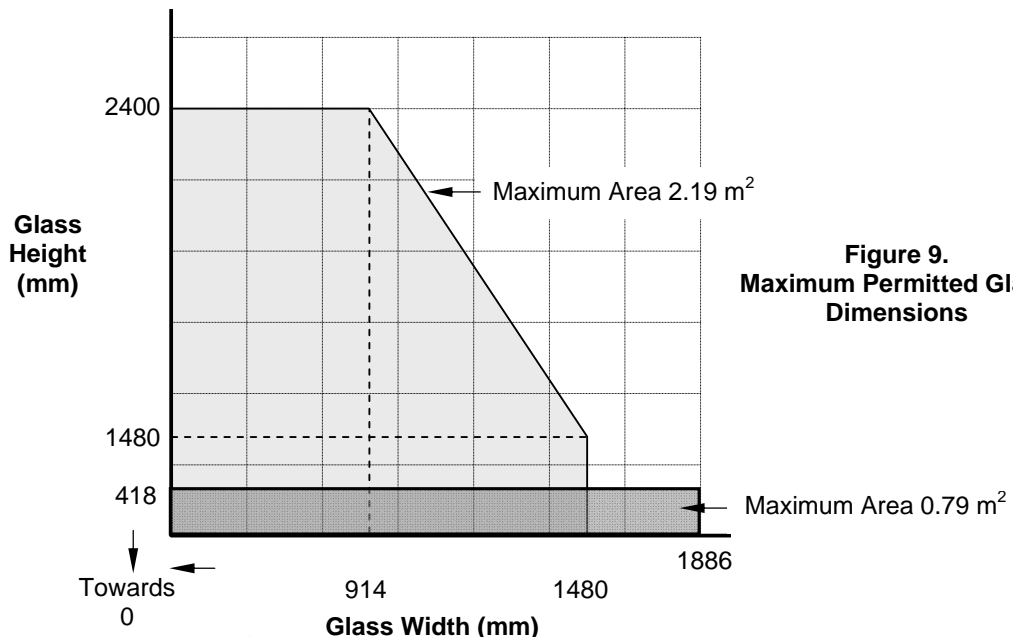


Figure 9.
Maximum Permitted Glass Dimensions

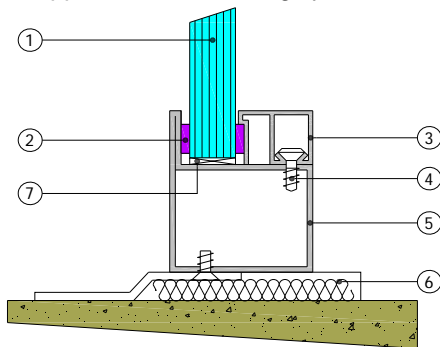


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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 12 Glass in steel framed screens for periods of 30 minutes integrity

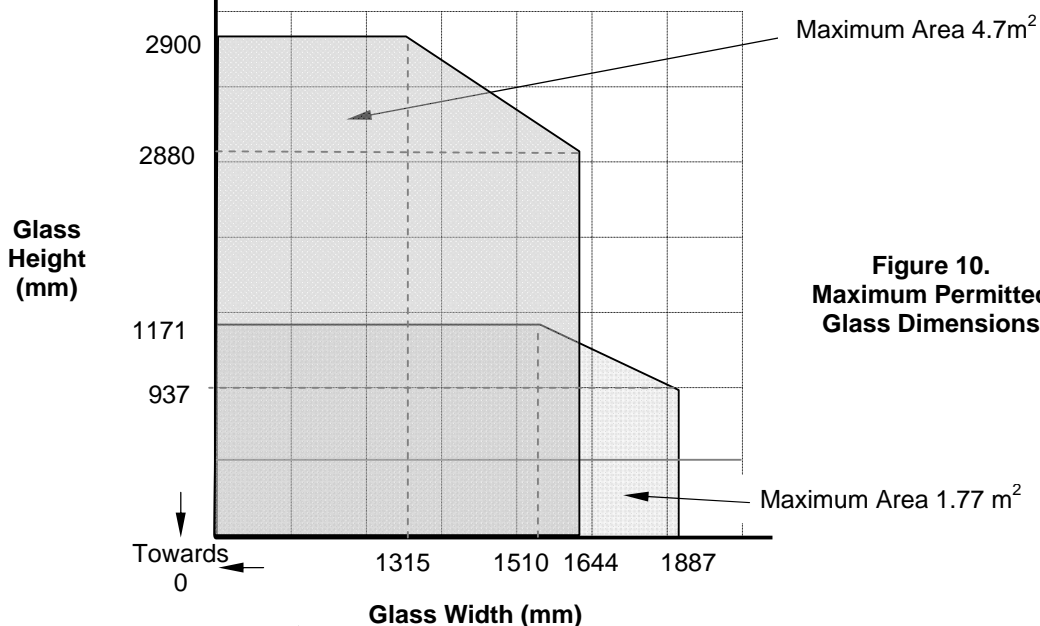
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



1. Pyrobelite 12
2. Ceramic fibre based glazing tape, 20 mm x 3 mm
3. Glazing bead 25 mm x 20 mm
4. Screw, 15 mm long
5. Steel section, 60 mm x 50 mm x 1.5 mm
6. Mineral wool insulation
7. Setting Block

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

This Certificate of Approval relates to the sizes of Pyrobelite 12 glass shown in Figure 10 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



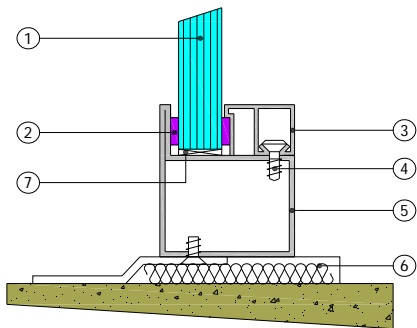
**Figure 10.
Maximum Permitted
Glass Dimensions**

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PYROBELITE FIRE RESISTING GLASS

Pyrobelite 12 Glass in steel framed screens for periods of 60 minutes integrity

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



1. Pyrobelite 12
2. Ceramic fibre based glazing tape, 20 mm x 3 mm
3. Glazing bead 25 mm x 20 mm
4. Screw, 15 mm long
5. Steel section, 60 mm x 50 mm x 1.5 mm
6. Mineral wool insulation
7. Setting Block

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

This Certificate of Approval relates to the sizes of Pyrobelite 12 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.

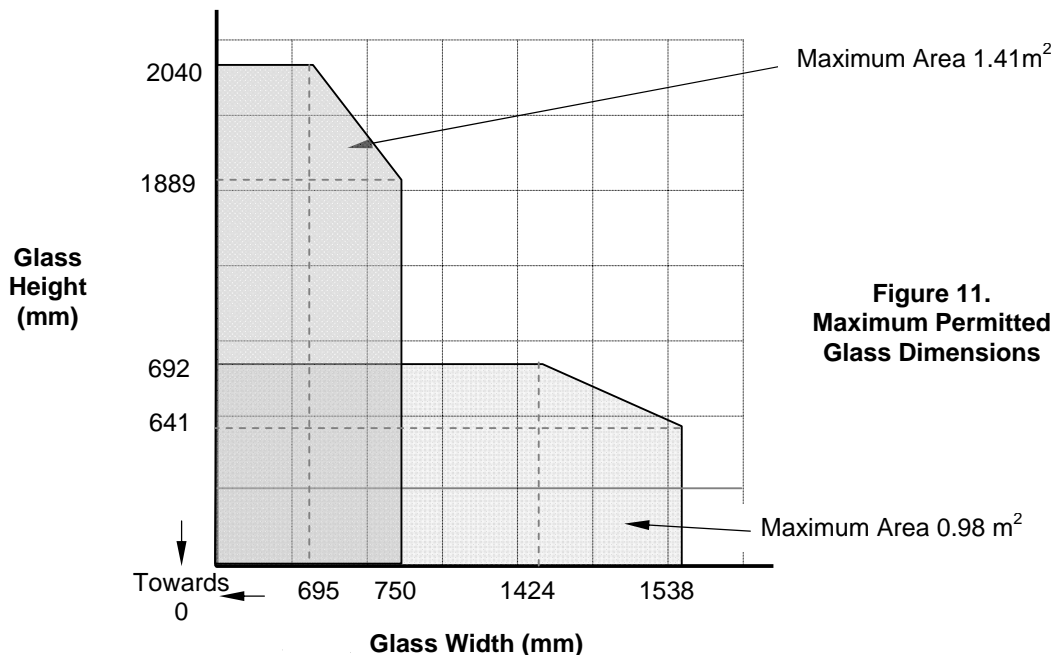


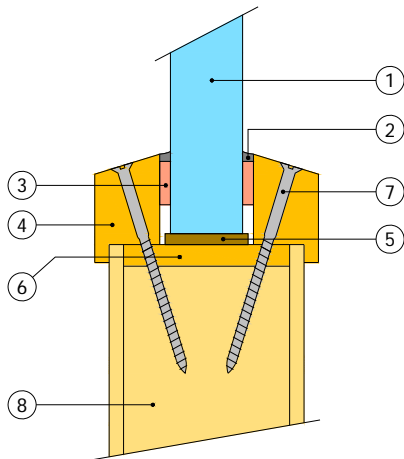
Figure 11.
Maximum Permitted
Glass Dimensions

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PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass in timber based doorsets for periods of 60 minutes integrity and 30 minutes insulation

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



- 1 Pyrobel 16 or Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 4 mm thick closed cell foam tape
- 4 30 mm high by 20 mm wide (including 5 mm high by 5 mm wide bolection with 20° chamfer or square) hardwood glazing beads, minimum density 640 kg/m³
- 5 Non-combustible/hardwood setting blocks
- 6 6 mm thick hardwood aperture liner (not required for hardwood cored door leaves)
- 7 60 mm long steel screws at 150 mm centres (30° to glass)
- 8 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 (Pyrobel 16 and Pyrobel 16 EG) Pyrobel 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.

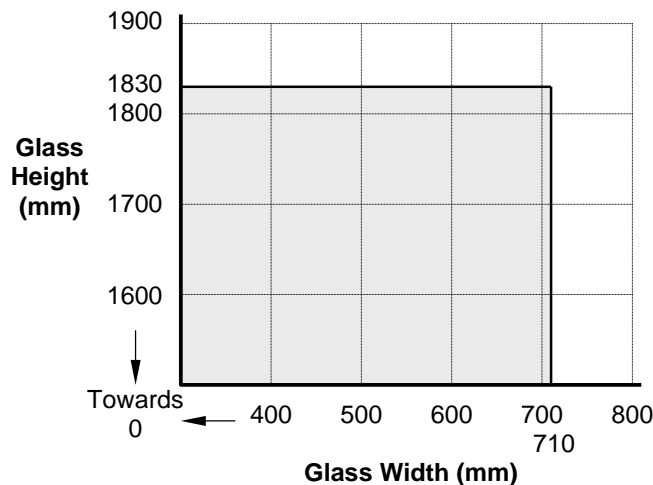


Figure 12.
Maximum Permitted Glass Dimensions

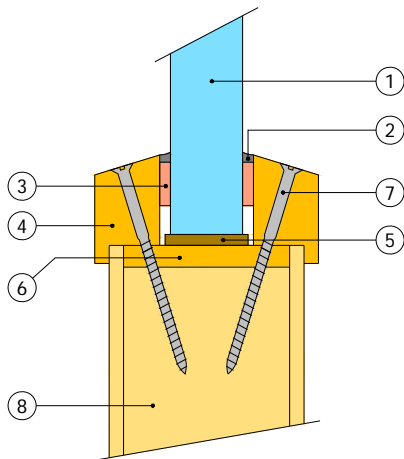


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AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass in timber based doorsets for periods of 30 minutes integrity and 30 minutes insulation

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



- 1 Pyrobel 16 or Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 4 mm thick closed cell foam tape
- 4 30 mm high by 15 mm wide (including 5 mm high by 5 mm wide bolection with 20° chamfer or square) hardwood glazing beads, minimum density 640 kg/m³
- 5 Non-combustible/hardwood setting blocks
- 6 6 mm thick hardwood aperture liner (not required for hardwood cored door leaves)
- 7 60 mm long steel screws at 150 mm centres (30° to glass)
- 8 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 (Pyrobel 16 and Pyrobel 16 EG) Pyrobel 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.

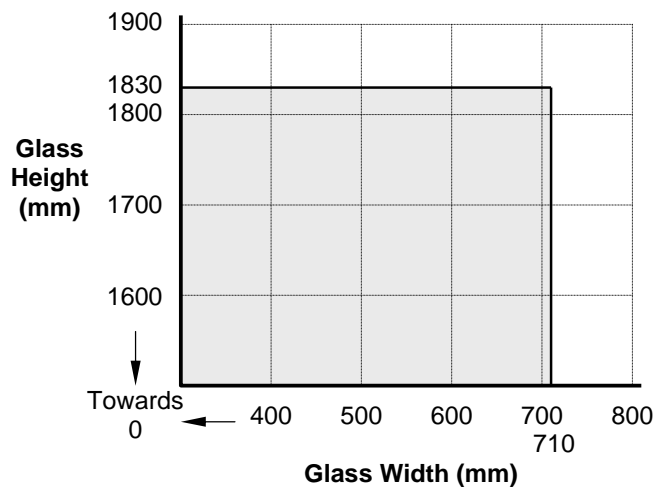


Figure 13.
Maximum Permitted Glass Dimensions

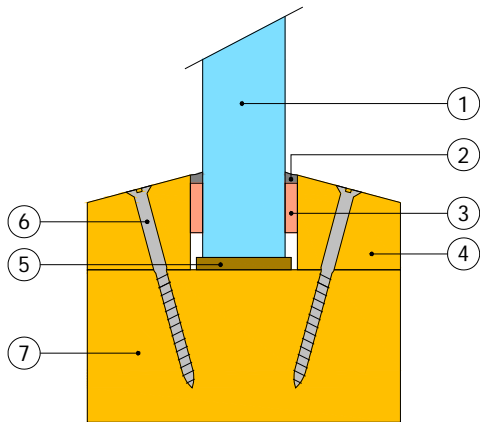


CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass in timber framed screens for periods of 60 minutes integrity and 30 minutes insulation

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobel 16 and Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 4 mm thick closed cell foam tape
- 4 23 mm high by 25 mm wide (with 15° chamfer) hardwood glazing beads, minimum density 640 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 250 mm centres (30° to glass)
- 7 75 mm by 37 mm (minimum) hardwood perimeter framing sections, 75 mm by 54 mm (minimum) hardwood internal transom/mullion framing sections, minimum density 640 kg/m³

This Certificate of Approval relates to the sizes of Pyrobel 16 and Pyrobel 16 EG glass shown in Figure 14 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

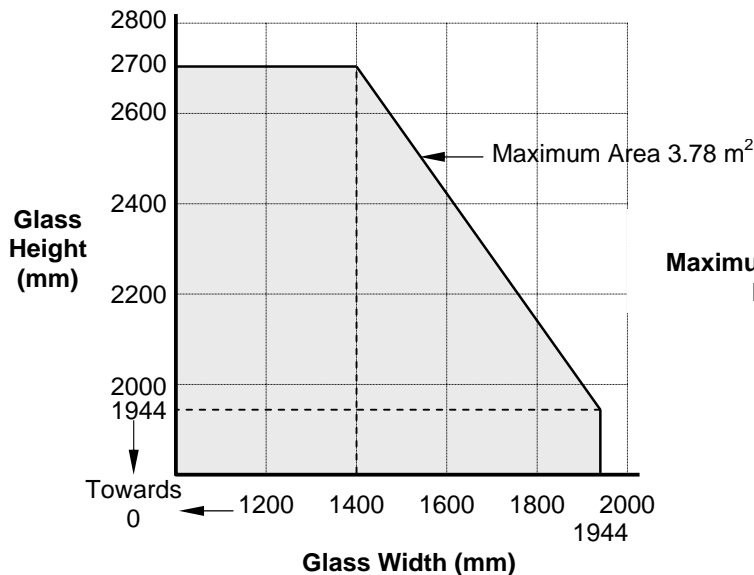


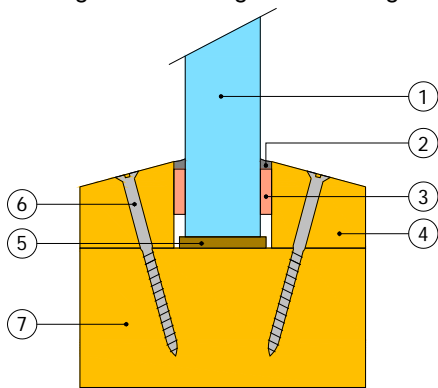
Figure 14.
Maximum Permitted Glass Dimensions

CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass in timber framed screens for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobel 16 and Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 10 mm wide by 5 mm ceramic fibre based glazing tape
- 4 27 mm high by 25 mm wide (with 15° chamfer) hardwood glazing beads, minimum density 640 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 250 mm centres (30° to glass)
- 7 75 mm by 33 mm (minimum) hardwood perimeter framing sections, 75 mm by 46 mm (minimum) hardwood internal transom/mullion framing sections, minimum density 640 kg/m³

This Certificate of Approval relates to the sizes of Pyrobel 16 and Pyrobel 16 EG 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.

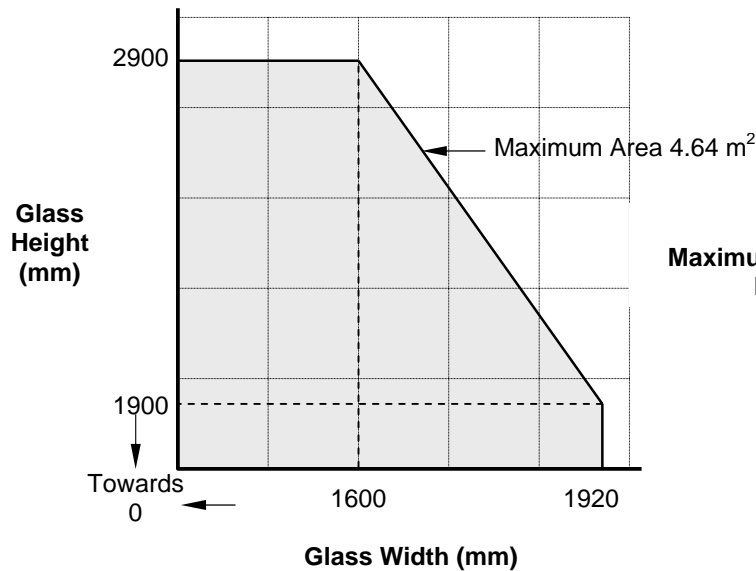


Figure 15.
Maximum Permitted Glass Dimensions

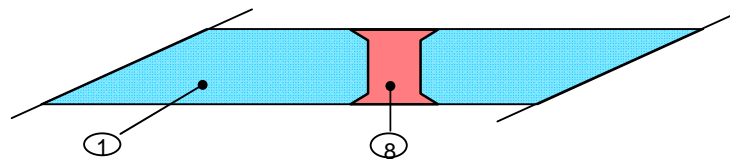
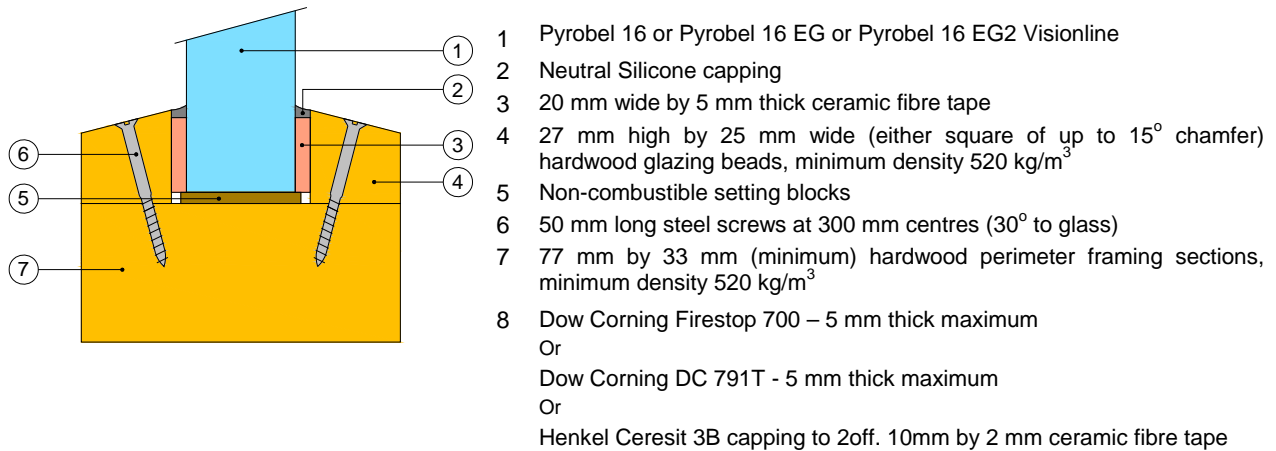
CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

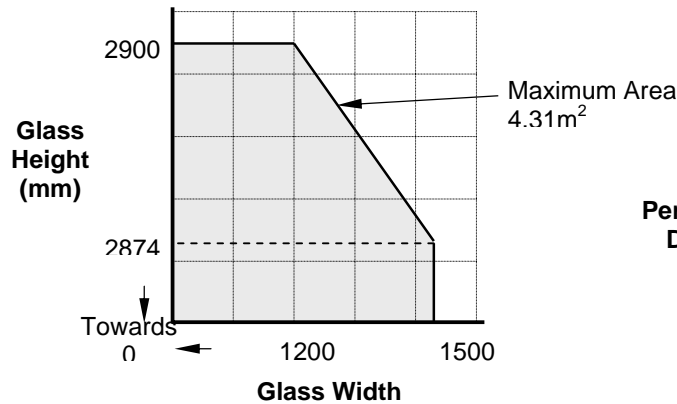
Pyrobel 16 Visionline Glass in butt jointed system for periods of 30 minutes integrity and insulation

Note: Pyrobel 16 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

The glass shall be glazed utilising the following specifications:



This Certificate of Approval relates to the sizes of Pyrobel 16 Visionline 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.



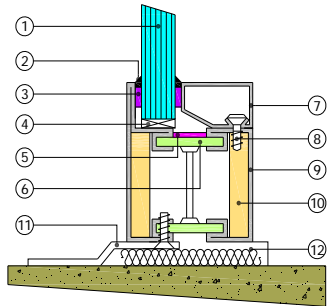
CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

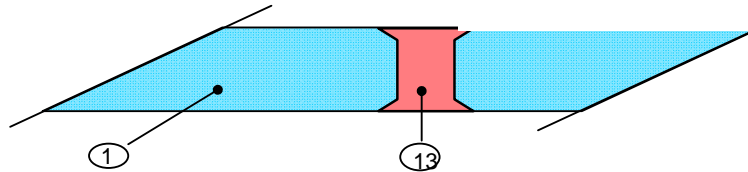
Pyrobel 16 Visionline Glass in butt jointed system for periods of 30 minutes integrity and insulation

Note: Pyrobel 16 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

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 Janisol 2, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.



1. Pyrobel 16 Visionline
2. Neutral silicone capping
3. Ceramic fibre based glazing tape, 20 mm x 5 mm
4. Setting block
5. Fire resistant laminate, 14 mm x 1.5 mm
6. Fibre reinforced strip, 31 mm x 5 mm
7. Glazing bead, 30 mm x 20 mm x 1.3 mm
8. Screw, 15 mm long
9. Steel section, 73 mm x 59 mm x 50 mm x 1.6 mm
10. Fire resistant ceramic filling
11. Mounting bracket
12. Mineral wool insulation
13. Dow Corning Firestop 700 or DC791T (5mm wide maximum) or Henkel Ceresit 3B capping to 2off. 10mm by 2 mm ceramic fibre tape (4 mm wide maximum)



This Certificate of Approval relates to the sizes of Pyrobel 16 Visionline 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.

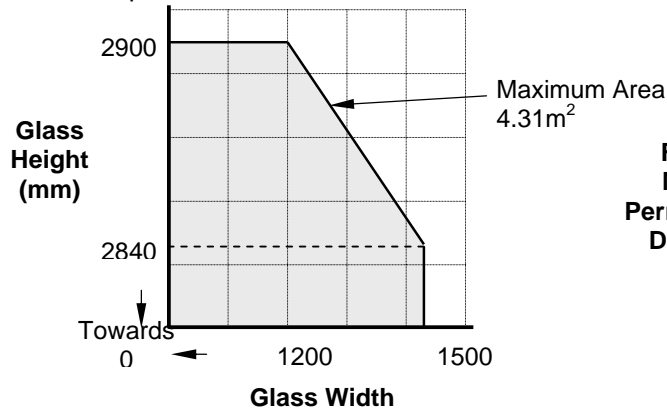


Figure 17.
Maximum Permitted Glass Dimensions



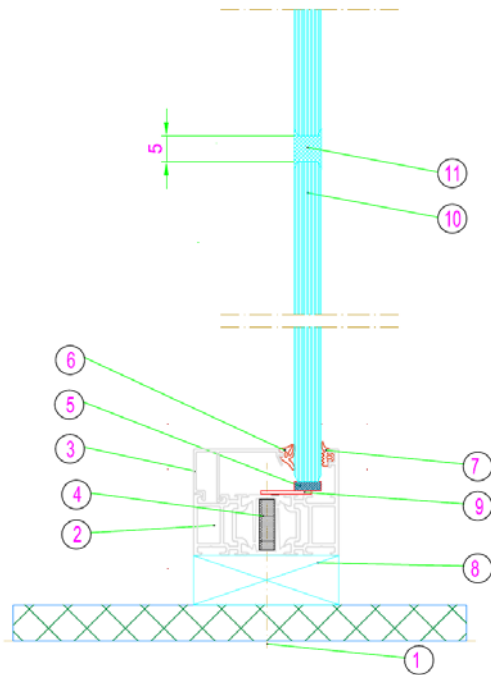
CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

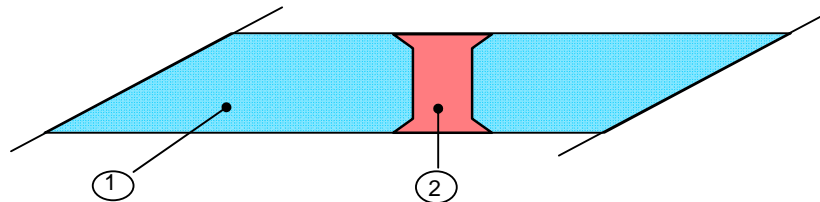
Pyrobel 16 Visionline Glass in butt jointed system for periods of 30 minutes integrity and insulation within Schuco ADS80 FR30 Aluminium Framing System

Note: Pyrobel 16 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

The glass shall be glazed within a Schuco ADS80 FR30 aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.



1. Hilti 100 HT – 10 mm diameterx112mm
2. Schuco Profile ref: 150 330
3. Clipped beads Schuco ref: 150 830
4. Schuco fireboard ref: 298 426
5. Setting block – 70 mm by 17 mm by 5 mm
6. Schuco EPDM glazing gasket ref: 224 350
7. Schuco glazing gasket ref: 224 063
8. Setting block 100mm by 80mm by 15mm
9. Schuco intumescent strip ref: 298 400
10. Pyrobel 16 VL
11. Joint may comprise:
Dow Corning Firestop 700 or DC719T – 5 mm thick maximum
Or
Henkel Ceresit 3B capping to 2off. 10mm by 2 mm ceramic fibre tape – 4 mm maximum



1. Pyrobel 16 Visionline
2. Dow Corning Firestop 700 or DC791T (5mm wide maximum) or Henkel Ceresit 3B capping to 2off. 10mm by 2 mm ceramic fibre tape (4 mm wide maximum)



CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Visionline Glass in butt jointed system for periods of 30 minutes integrity and insulation within Schuco ADS80 FR30 Aluminium Framing System

Note: Pyrobel 16 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

This Certificate of Approval relates to the sizes of Pyrobel 16 Visionline 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.

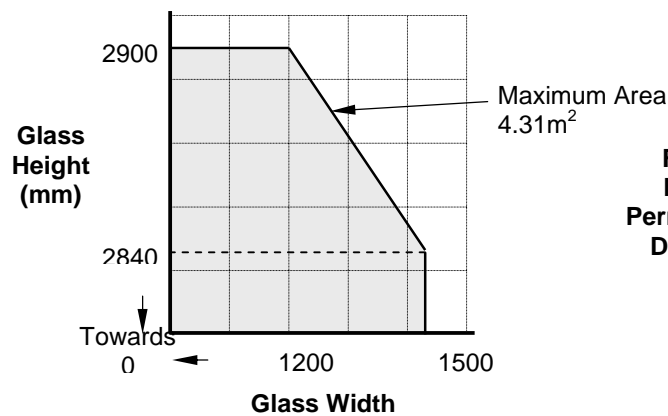


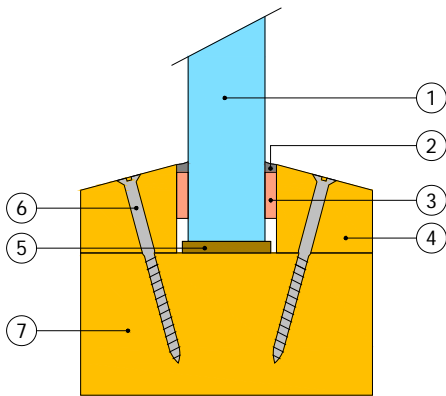
Figure 18.
Maximum Permitted Glass Dimensions

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AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 IGU Glass in timber framed screens for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed utilising the following basic specification:



- 1 IGU comprising Pyrobel 16 or Pyrobel 16 EG glass, a minimum 8 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*
- 2 Neutral silicone capping
- 3 20 mm wide by 5 mm ceramic fibre based glazing tape
- 4 27 mm high by 25 mm wide (with 15° chamfer) hardwood glazing beads, minimum density 520 kg/m³
- 5 Non-combustible setting blocks
- 6 60 mm long steel screws at 250 mm centres (30° to glass)
- 7 33 mm by 97 mm (minimum) hardwood perimeter framing sections, 66 mm by 97 mm (minimum) hardwood internal transom/mullion framing sections, minimum density 520 kg/m³

This Certificate of Approval relates to the sizes of Pyrobel 16 and Pyrobel 16 EG 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.

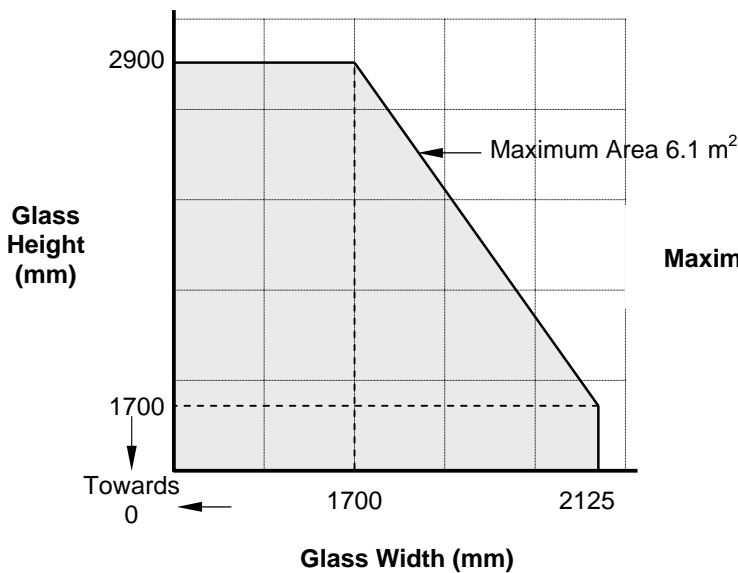


Figure 19.
Maximum Permitted Glass Dimensions





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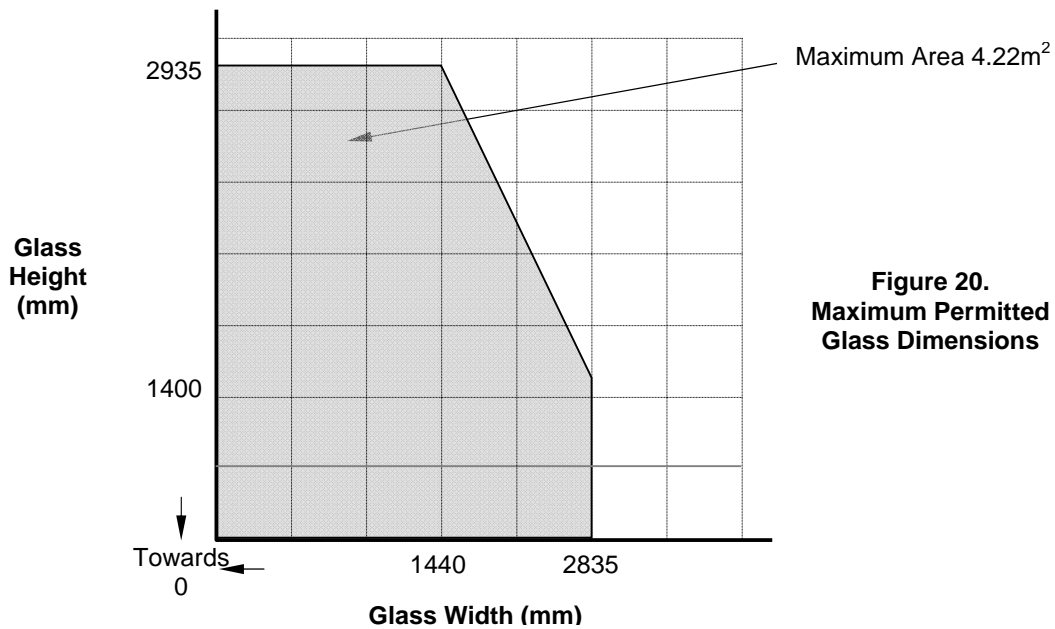
PYROBEL FIRE RESISTING GLASS

Pyrobel 16 IGU Glass in 'Jansen Janisol II' and 'Forster Fuegolight' steel framed screens for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed within a 'Jansen Janisol II' or 'Forster Fuegolight' framed screens. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 16 IGU glass (comprising Pyrobel 16 or Pyrobel 16 External Grade, a minimum 12 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) 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.

* A minimum 6.8 mm laminated glass must be used as the secondary pane for IGU's incorporating internal grade Pyrobel 16.

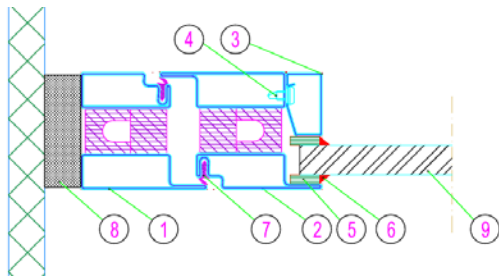


CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass (including IGU's) in steel doorsets 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 doorleaf framing system.



1. Forster Fuego Light 30-65mm x 50mm (ref 735.800/T)
2. Forster Fuego Light 30-65mm x 50mm (ref 735.805/T)
3. Beads Forster – 35mm by 20mm (ref: 901247)
4. Screws – 4 mm diameter by 16 (ref 906377)
5. Ceramic paper 20mm by 5mm
6. Silicone Dow Corning Firestop 700
7. Weatherstripping ref 905307
8. Mineral wool insulation
9. Pyrobel 16

The steel profiled door framing system shall have test evidence, such as Forster FuegoLight, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions for the fire resistance required (i.e. 30 minutes integrity and 30 minutes insulation). 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 Pyrobel 16 glass (inc. IGU's) 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.

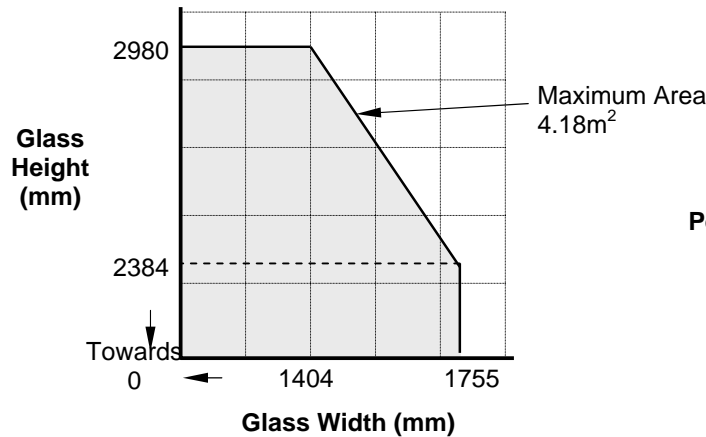


Figure 21.
Maximum Permitted Glass Dimensions

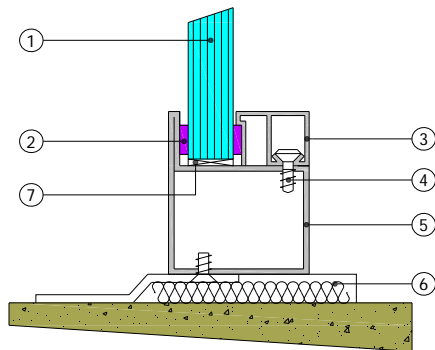


CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass in steel framed screens for periods of 60 minutes integrity

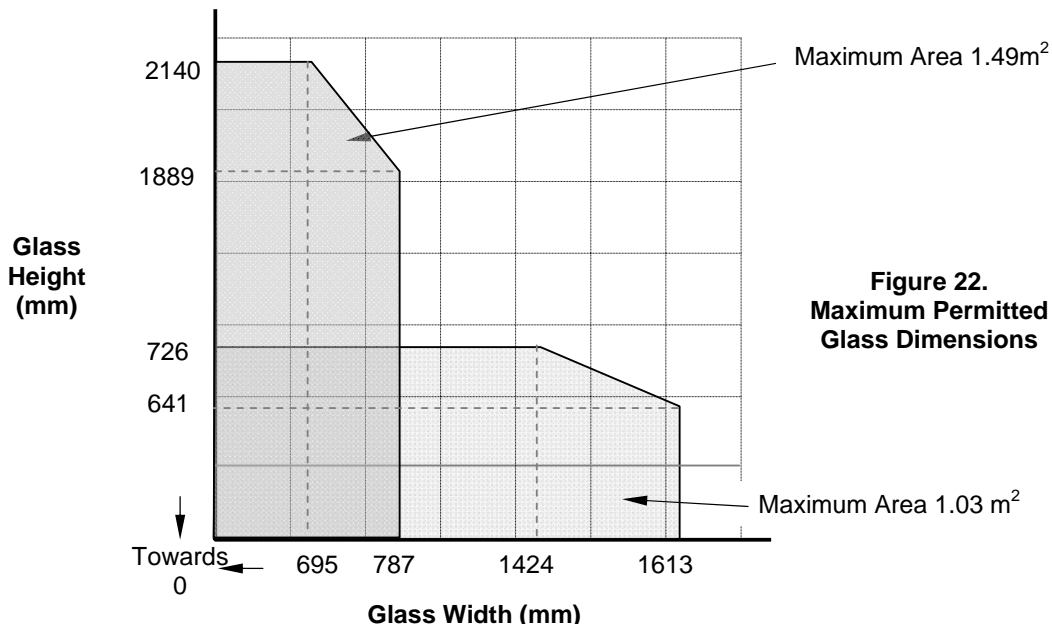
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



1. Pyrobel 16
2. Ceramic fibre based glazing tape, 20 mm x 3 mm
3. Glazing bead 25 mm x 20 mm
4. Screw, 15 mm long
5. Steel section, 60 mm x 50 mm x 1.5 mm
6. Mineral wool insulation
7. Setting block

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

This Certificate of Approval relates to the sizes of Pyrobel 16 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.

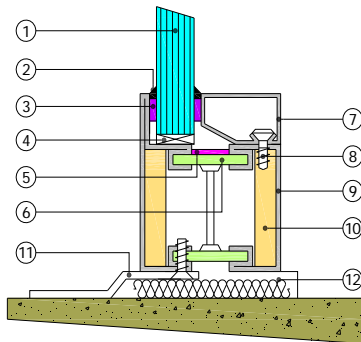


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AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass in steel framed screens for periods of 60 minutes integrity and 30 minutes insulation

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



1. Pyrobel 16
2. Neutral silicone capping
3. Ceramic fibre based glazing tape, 20 mm x 5 mm
4. Setting block
5. Fire resistant laminate, 14 mm x 1.5 mm
6. Fibre reinforced strip, 31 mm x 5 mm
7. Glazing bead, 30 mm x 20 mm x 1.3 mm
8. Screw, 15 mm long
9. Steel section, 73 mm x 59 mm x 50 mm x 1.6 mm
10. Fire resistant ceramic filling
11. Mounting bracket
12. Mineral wool insulation

The framing system shall have test evidence, such as Jansen Janisol II, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

This Certificate of Approval relates to the sizes of Pyrobel 16 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.

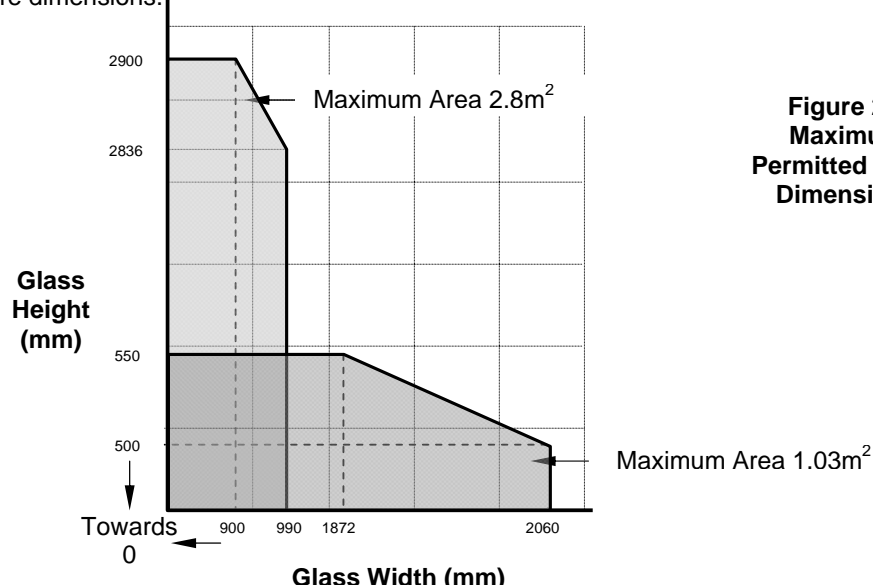


Figure 23.
Maximum Permitted Glass Dimensions

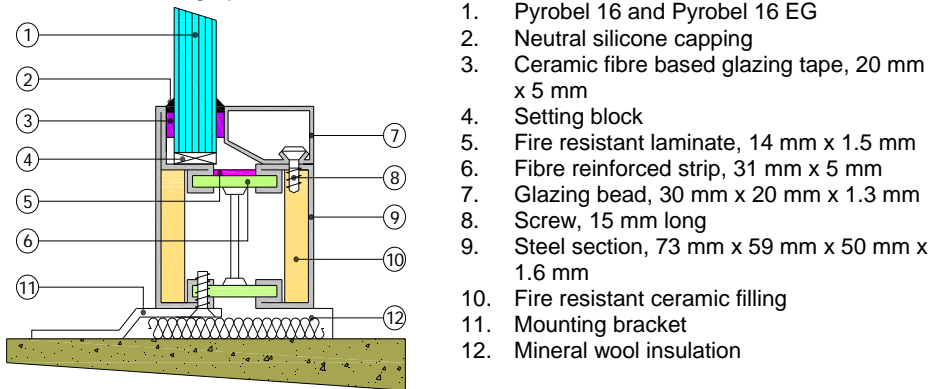


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PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass in steel framed screens for periods of 30 minutes integrity and 30 minutes insulation

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 Janisol II or Forster Fuegolight, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

This Certificate of Approval relates to the sizes of Pyrobel 16 and Pyrobel 16 EG 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.

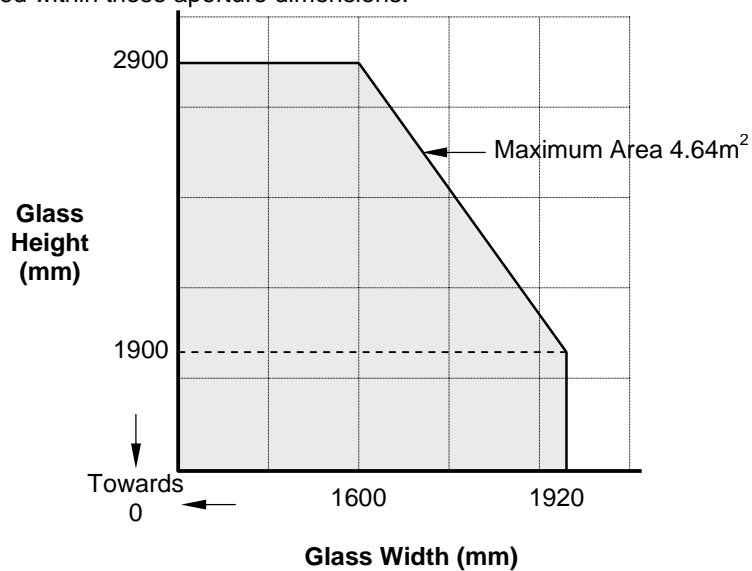


Figure 24.
Maximum Permitted Glass Dimensions

CERTIFICATE No CF 377
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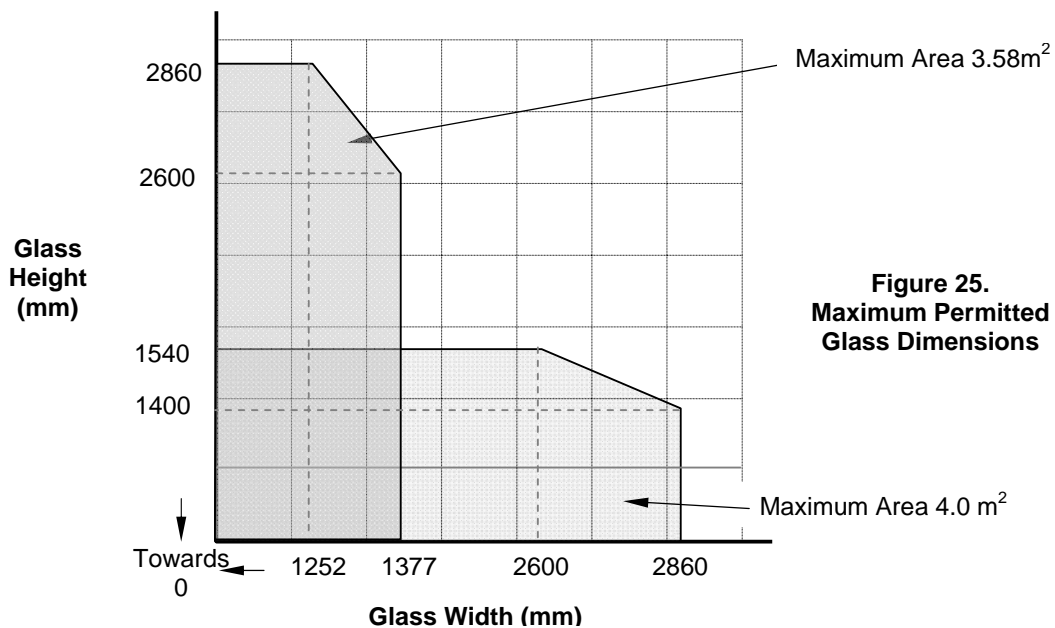
PYROBEL FIRE RESISTING GLASS

Pyrobel 16 IGU's in Schuco BF50+ and BF60+ aluminium framed screens for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed within a Schuco BF50+ or a BF60+ aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 16 IGU glass (comprising Pyrobel 16 or Pyrobel 16 External Grade, a minimum 12 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) 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.

* A minimum 6.8 mm laminated glass must be used as the secondary pane for IGU's incorporating internal grade Pyrobel 16.



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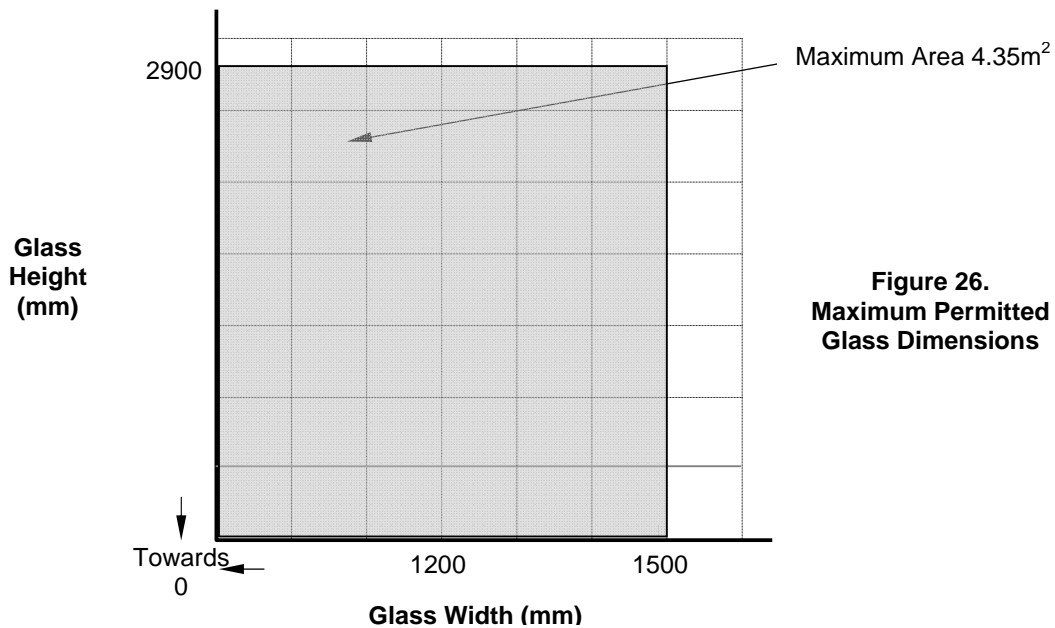
PYROBEL FIRE RESISTING GLASS

Pyrobel 16 IGU's in 'SAPA Fascade 4150 Fire' aluminium framed screens for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed within a 'SAPA Fascade 4150 Fire' aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 16 IGU glass (comprising Pyrobel 16 or Pyrobel 16 External Grade, a minimum 12 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) 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.

* A minimum 6.8 mm laminated glass must be used as the secondary pane for IGU's incorporating internal grade Pyrobel 16.

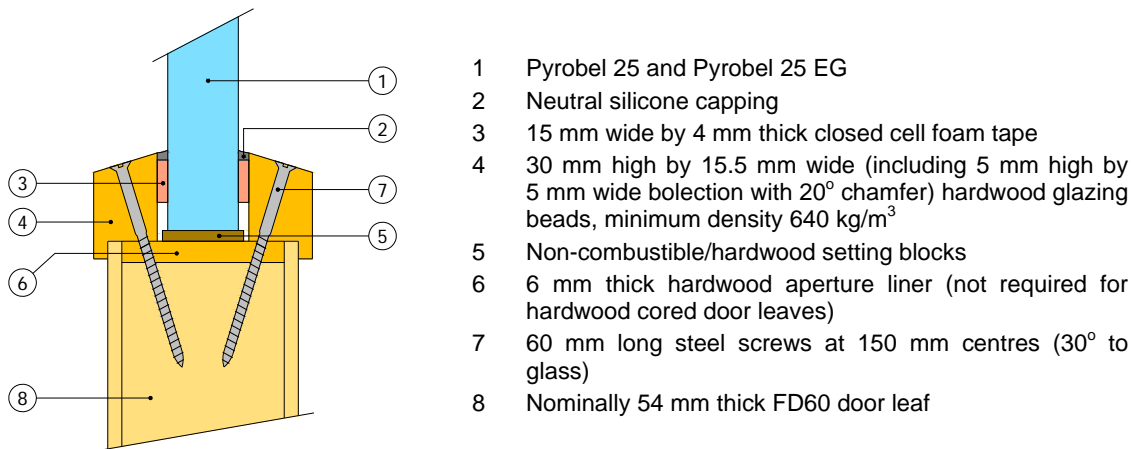



CERTIFICATE No CF 377
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PYROBEL FIRE RESISTING GLASS

Pyrobel 25 Glass in timber based doorsets for periods of 60 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:



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 Pyrobel 25 and Pyrobel 25 EG 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.

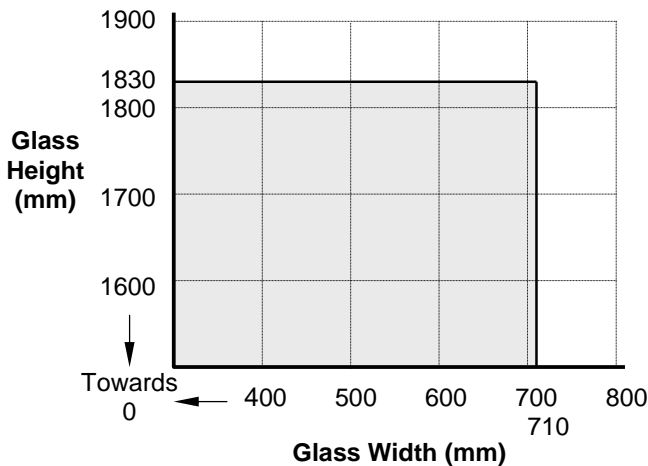


Figure 27.
Maximum Permitted Glass Dimensions

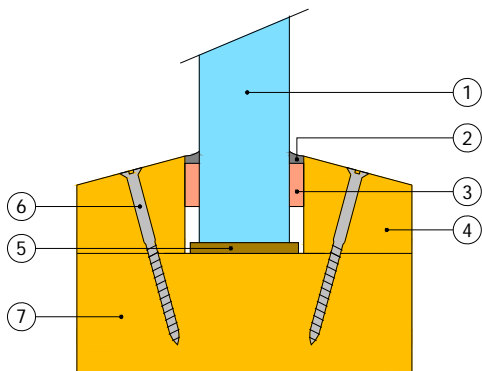


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PYROBEL FIRE RESISTING GLASS

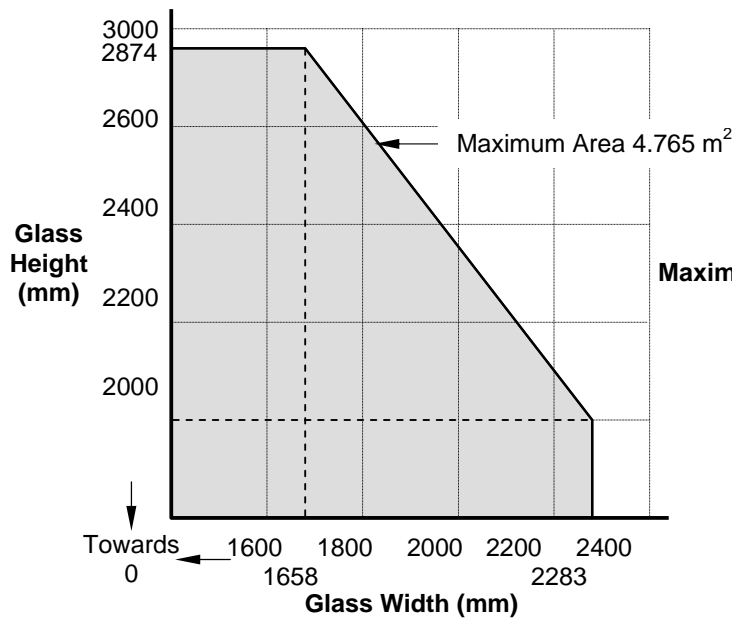
Pyrobel 25 Glass in hardwood timber framed screens for periods of 60 minutes integrity and insulation

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobel 25 and Pyrobel 25 EG
- 2 Neutral Silicone capping
- 3 15 mm wide by 4 mm thick closed cell foam tape
- 4 27 mm high by 30 mm wide (with 15° chamfer) hardwood glazing beads, minimum density 640 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 250 mm centres (30° to glass)
- 7 95 mm by 33 mm (minimum) hardwood perimeter framing sections, 95 mm by 46 mm (minimum) hardwood internal transom/mullion framing sections, minimum density 640 kg/m³

This Certificate of Approval relates to the sizes of Pyrobel 25 and Pyrobel 25 EG glass shown in Figure 28 below, when used in conjunction with the above systems. The aspect ratio of the glass may be unlimited within these aperture dimensions.



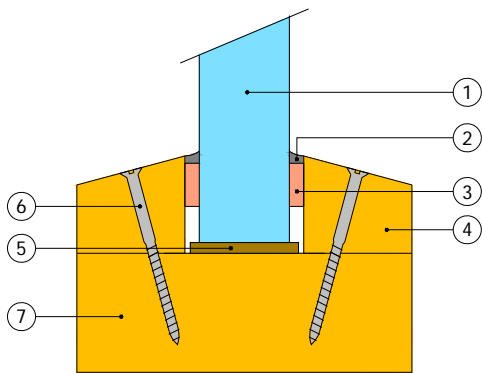
**Figure 28.
Maximum Permitted Glass
Dimensions**

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AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 25 Glass in softwood timber framed screens for periods of 60 minutes integrity and insulation

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobel 25 and Pyrobel 25 EG
- 2 Neutral Silicone capping
- 3 15 mm wide by 4 mm thick closed cell foam tape
- 4 25 mm high by 31 mm wide (with 15° chamfer) softwood glazing beads, minimum density 590 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 250 mm centres (30° to glass)
- 7 98 mm by 32 mm (minimum) hardwood perimeter framing sections, 98 mm by 57 mm (minimum) softwood internal transom/mullion framing sections, minimum density 590 kg/m³

This Certificate of Approval relates to the sizes of Pyrobel 25 and Pyrobel 25 EG glass shown in Figure 29 below, when used in conjunction with the above systems. The aspect ratio of the glass may be unlimited within these aperture dimensions.

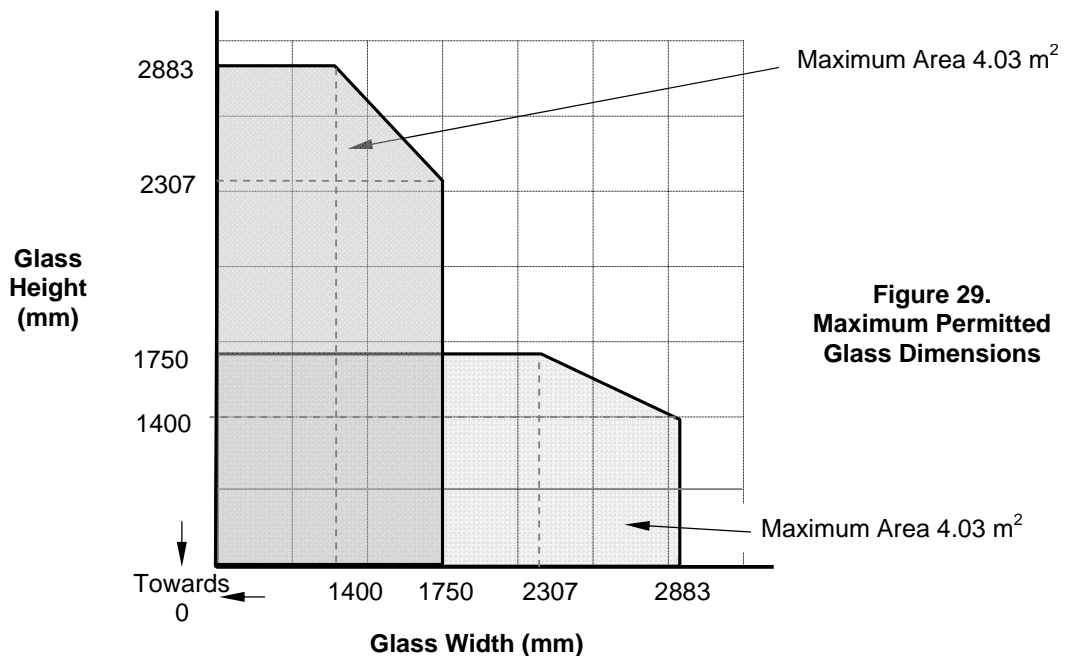


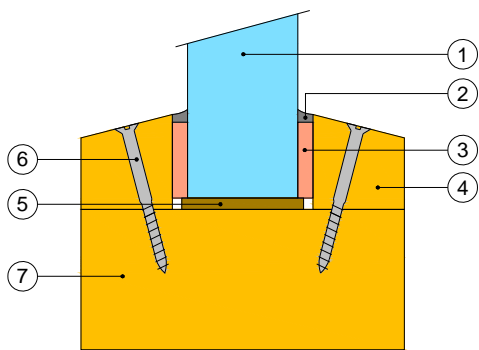
Figure 29.
Maximum Permitted
Glass Dimensions

CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Insulating Glass Units (IGU's) including Pyrobel 25 Glass in timber framed screens for periods of 60 minutes integrity and insulation

The IGU shall be glazed utilising one of the following specifications:



- 1 IGU comprising Pyrobel 25 or Pyrobel 25 External Grade, a minimum 12 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*. IGU's may be triple glazed to a similar specification with the Pyrobel 25 forming the central pane and a pane of non-fire rated glass positioned each side of the Pyrobel 25
- 2 Neutral Silicone capping
- 3 15 mm wide by 4 mm thick closed cell foam tape
- 4 20 mm high by 40 mm wide (either square or up to 15° chamfer) hardwood glazing beads, minimum density 640 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 300 mm centres (30° to glass)
- 7 95 mm by 33 mm (minimum) hardwood perimeter framing sections, 95 mm by 46 mm (minimum) hardwood internal transom/mullion framing sections, minimum density 640 kg/m³

* A minimum 6.8 mm laminated glass must be used as the secondary pane for IGU's incorporating internal grade Pyrobel 25.

This Certificate of Approval relates to the sizes of IGU's including Pyrobel 25 and Pyrobel 25 EG 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.

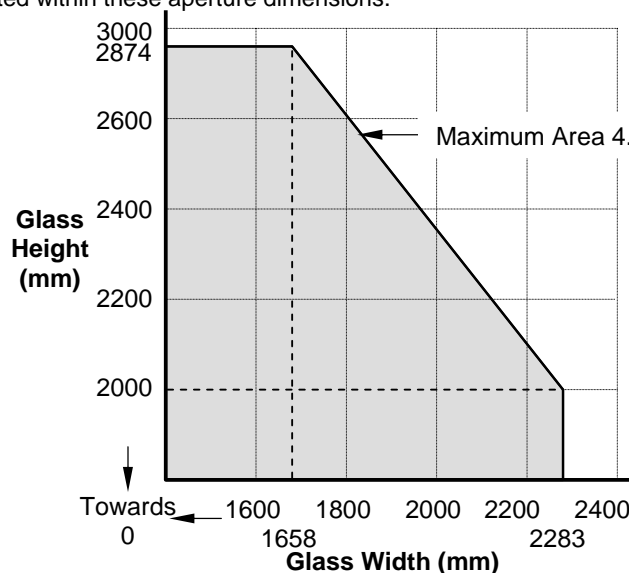


Figure 30.
Maximum Permitted
Glass Dimensions

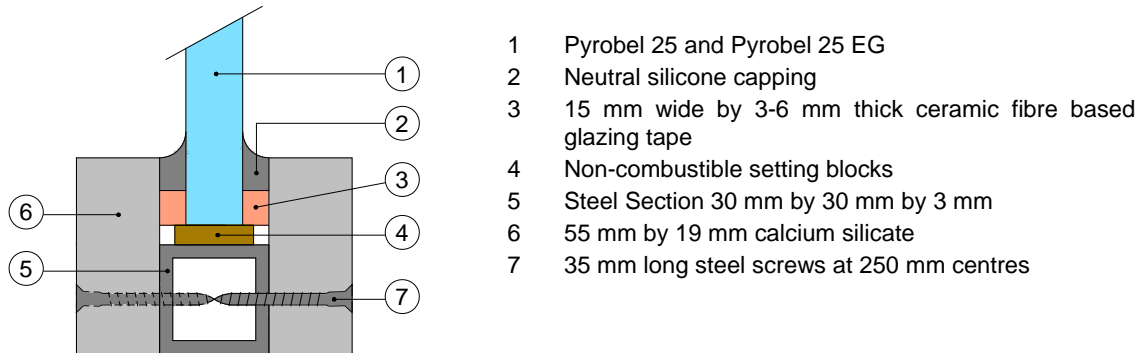


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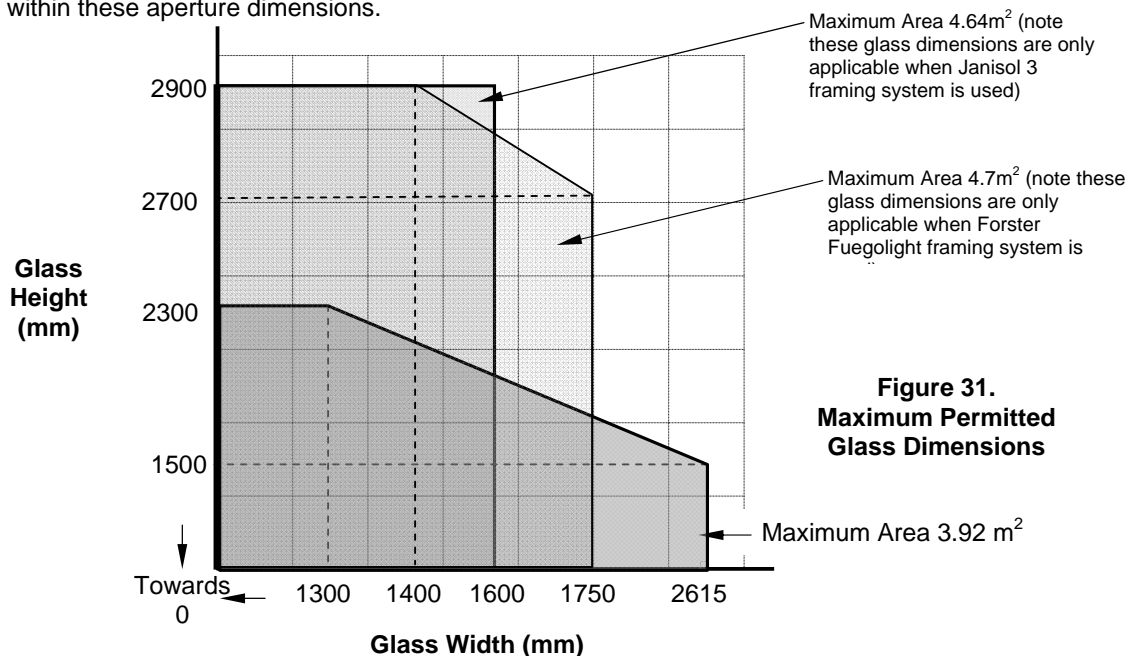
PYROBEL FIRE RESISTING GLASS

Pyrobel 25 Glass in steel framed screens for periods of 60 minutes integrity and 60 minutes insulation

The glass shall be glazed within a previously fire tested (see example below) or CERTIFIRE approved steel framing system utilising the following basic specification. The edge cover to each pane shall be no less than 15 mm minimum



This Certificate of Approval relates to the sizes of Pyrobel 25 and Pyrobel 25 EG 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.

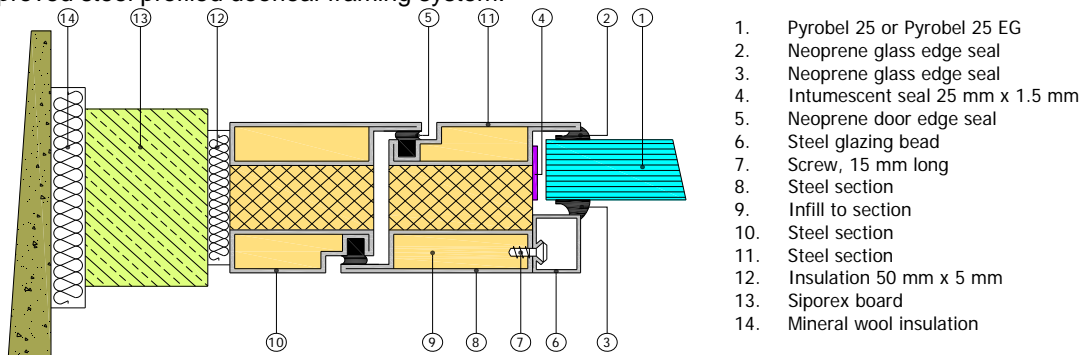



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PYROBEL FIRE RESISTING GLASS

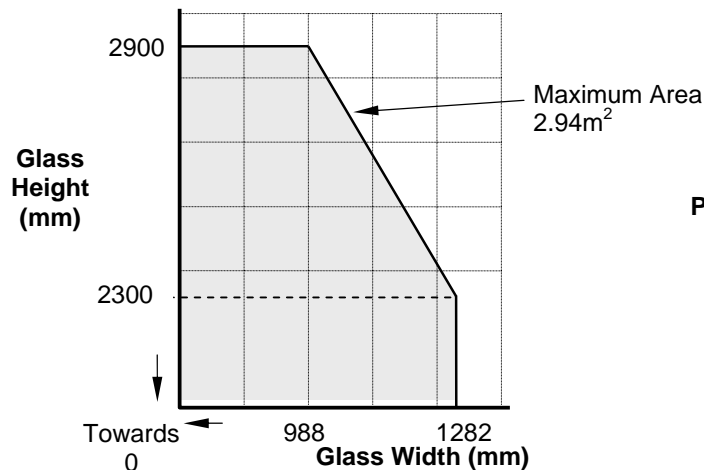
Pyrobel 25 Glass in Steel Doorsets for periods of 60 minutes integrity and 60 minutes insulation

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



The steel profiled door framing system shall have test evidence, such as RP Isofeu 60, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions for the fire resistance required (i.e. 60 minutes integrity and 60 minutes insulation). 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 Pyrobel 25 and Pyrobel 25 EG 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.



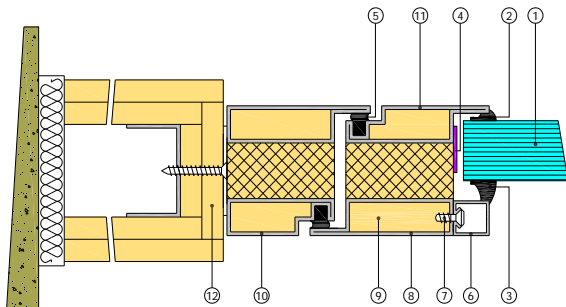
**Figure 32.
Maximum
Permitted Glass
Dimensions**

CERTIFICATE No CF 377 AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Insulating Glass Units (IGU's) including Pyrobel 25 Glass in steel doorsets for periods of 60 minutes integrity and insulation

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

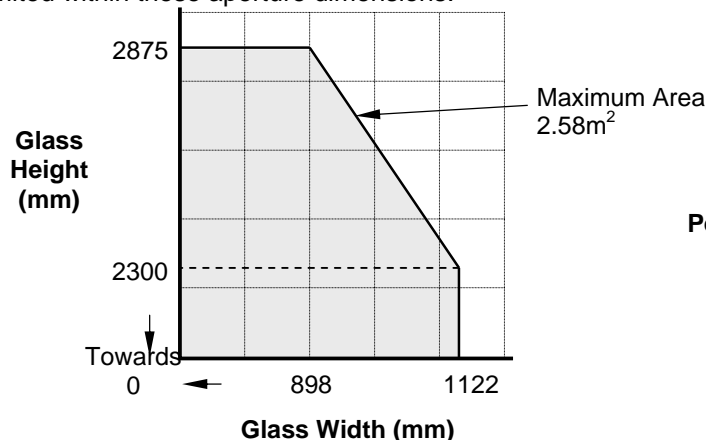


1. IGU comprising Pyrobel 25 or Pyrobel 25 EG glass, a minimum 6 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*
2. Neoprene glass edge seal
3. Neoprene glass edge seal
4. Intumescent seal 25 mm x 2 mm
5. Neoprene door edge seal
6. Steel glazing bead
7. Screw, 15 mm long
8. Steel section
9. Infill to section
10. Steel section
11. Steel section
12. Partition wall

*A minimum 6.8 mm laminated glass must be used as the external pane for IGU's incorporating internal grade Pyrobel 25.

The steel profiled door framing system shall have test evidence, such as RP Technik Isofeu 60, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions for the fire resistance required (i.e. 60 minutes integrity and 60 minutes insulation). 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 Pyrobel 25 or 25 EG glass (in IGU's) shown in Figure 33 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



**Figure 33.
Maximum
Permitted Glass
Dimensions**

CERTIFICATE No CF 377

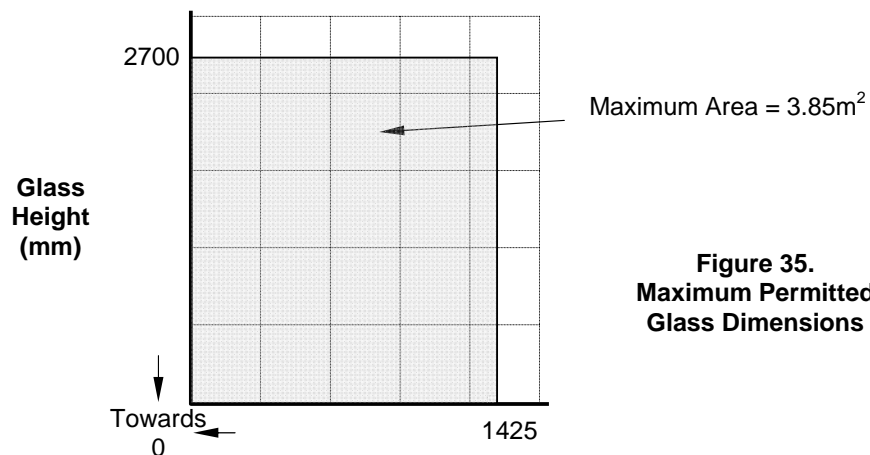
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PYROBEL FIRE RESISTING GLASS

Pyrobel 25 and Pyrobel 25 EG in 'SAPA SFB 3074' and 'SCHUCO FIRESTOP II' aluminium framed screens for periods of 60 minutes integrity and 60 minutes insulation

The glass shall be glazed within a 'SAPA SFB 3074' aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 25 shown in Figure 35 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



**Figure 35.
Maximum Permitted
Glass Dimensions**



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AGC FLAT GLASS UK LIMITED

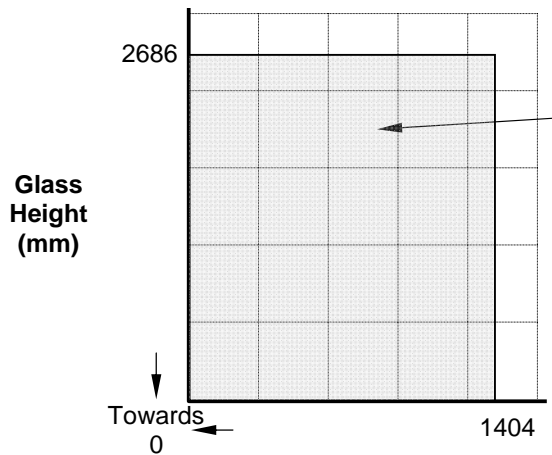
PYROBEL FIRE RESISTING GLASS

Pyrobel 25 IGU's in 'SCHUCO FIRESTOP II' aluminium framed screens for periods of 60 minutes integrity and 60 minutes insulation

The glass shall be glazed within a 'Schuco Firestop II' aluminium framed screen. Approval is given only when the Pyrobel glass component faces the fire hazard direction. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 25 IGU glass (comprising Pyrobel 25 or Pyrobel 25 External Grade, a minimum 12 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) 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.

* A minimum 6.8 mm laminated glass must be used as the secondary pane for IGU's incorporating internal grade Pyrobel 16.



Maximum Area = 3.39m²

Figure 36.
Maximum Permitted
Glass Dimensions

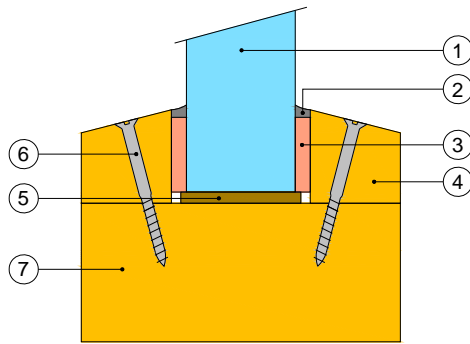
CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

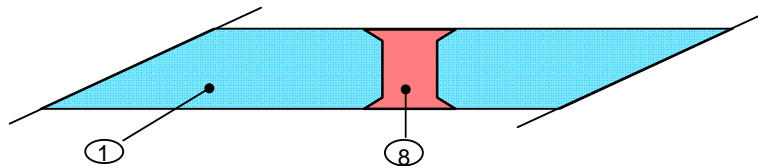
Pyrobel 25 Visionline Glass in butt jointed system for periods of 60 minutes integrity and insulation

Note: Pyrobel 25 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

The glass shall be glazed utilising the following specifications:



- 1 Pyrobel 25 or Pyrobel 25 EG Visionline
- 2 Neutral Silicone capping
- 3 15 mm wide by 4 mm thick ceramic fibre tape
- 4 27 mm high by 30 mm wide (either square or up to 15° chamfer) hardwood glazing beads, minimum density 450 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 300 mm centres (30° to glass)
- 7 95 mm by 33 mm (minimum) hardwood perimeter framing sections, minimum density 450 kg/m³
- 8 Dow Corning Firestop 700 or DC719T – 5 mm thick maximum
Or
Henkel Ceresit 3B capping to 2off. 10mm by 2 mm ceramic fibre tape – 4 mm maximum



This Certificate of Approval relates to the sizes of Pyrobel 25 Visionline glass shown in Figure 37 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

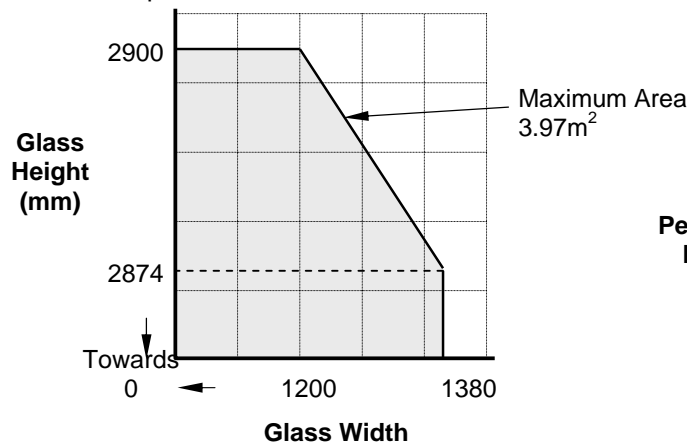


Figure 37.
Maximum Permitted Glass Dimensions



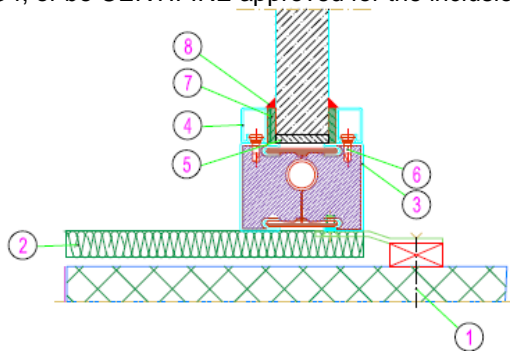
CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

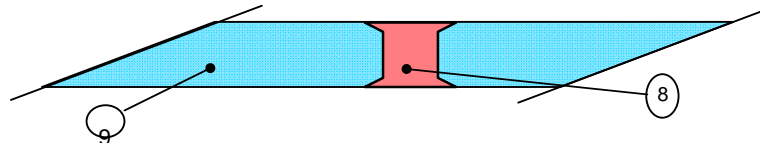
Pyrobel 25 & 25EG Visionline Glass in butt jointed system for periods of 60 minutes integrity and insulation

Note: Pyrobel 25 & 25EG Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

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 Janisol C4, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.



1. Hilti 100 HT – 10 mm diameter x 112 mm
 2. Superwool X607 – 96 kg/m³
 3. Janisol C4 – 70 mm by 50 mm
 4. Clipped Beads, steel profile 15 mm by 20 mm
 5. Setting block – 70 mm by 30 mm by 5 mm
 6. 4 mm diameter by 16 mm long steel screw
 7. Ceramic paper – 20 mm by 5 mm
 8. Silicone – Dow Corning DC791T
 9. Glass - Pyrobel 25 or 25EG Visionline
- Note: joint may comprise:
Dow Corning Firestop 700 or DC719T – 5 mm thick maximum
Or
Henkel Ceresit 3B capping to 2off. 10 mm by 2 mm ceramic fibre tape – 4 mm maximum



This Certificate of Approval relates to the sizes of Pyrobel 25 Visionline glass shown in Figure 38 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

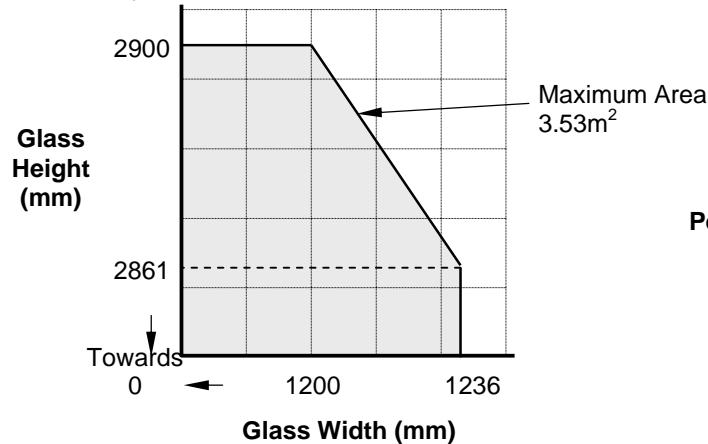


Figure 38.
Maximum Permitted Glass Dimensions

CERTIFICATE No CF 377

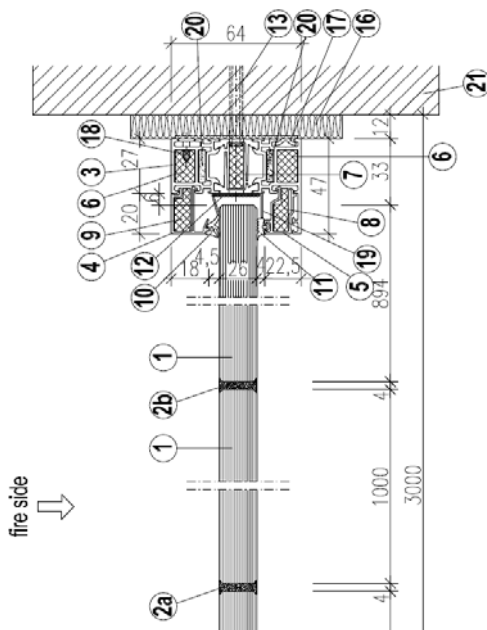
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

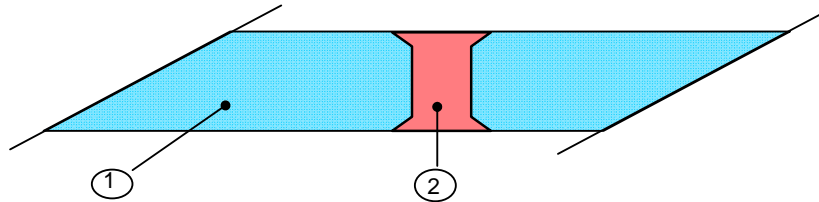
Pyrobel 25 & 25EG Visionline Glass in butt jointed system for periods of 60 minutes integrity and insulation within Schuco ADS80 FR60 Aluminium Framing System

Note: Pyrobel 25 & 25EG Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

The glass shall be glazed within a Schuco ADS 80 FR60 aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.



1. PYROBEL 25 VL, structure 3/3/8/3/3, nominal thickness 26.6 +/- 2.0 mm, size 1000 x 2888 mm – 2 pieces and 894 x 2888 mm – 1 piece
2. 2a Promat-SYSTEMGLAS-silicone, transparent
2b Silicone DC 700, grey
3. Schüco Profile ref 150 330
4. Clipped Beads Schüco ref 173 810
5. Clipped Beads Schüco ref 173 820
6. Schüco fireboard ref 266 600
7. Schüco fireboard ref 266 601
8. Schüco fireboard ref 266 602
9. Schüco fireboard ref 266 603
10. Schüco EPDM glazing gasket ref 224 263
11. Schüco EPDM glazing gasket ref 224 063
12. Intumescent strip PROMASEAL-PL 1.8 x 28 mm
13. Fixation : Hilti 100 HT – 10 x 112 mm
14. Setting Block PROMATECT-H, (L) 100 x (W) 80 x (H) 15 mm
15. Setting Block PROMATECT-H, (L) 40 x (W) 30 x (H) 6 mm
16. INSULFRAX : 128 kg/m³
17. Schüco anchor steel plate ref 242 035
18. Schüco steel scrow ref 205 496
19. Schüco glazing clip ref 266 500 (each at 680 mm)
20. Schüco Isolator ref 266 616, 4 x 20 mm, L = 100 mm, bonded in all connection of profile
21. Supporting construction



1. Pyrobel 25 & 25EG Visionline
2. Dow Corning Firestop DC700 (5mm wide maximum) or Promat-SYSTEMGLAS-silicone (5 mm wide maximum)



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AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 25 & 25EG Visionline Glass in butt jointed system for periods of 60 minutes integrity and insulation within Schuco ADS80 FR60 Aluminium Framing System

Note: Pyrobel 25 & 25EG Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist for further details.

This Certificate of Approval relates to the sizes of Pyrobel 25 & 25EG Visionline glass shown in Figure 39 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

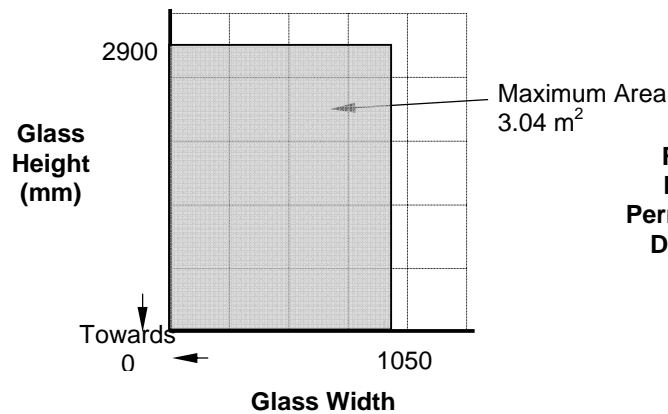


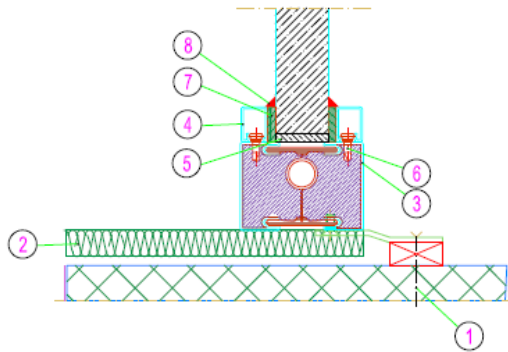
Figure 39.
Maximum Permitted Glass Dimensions

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PYROBEL FIRE RESISTING GLASS

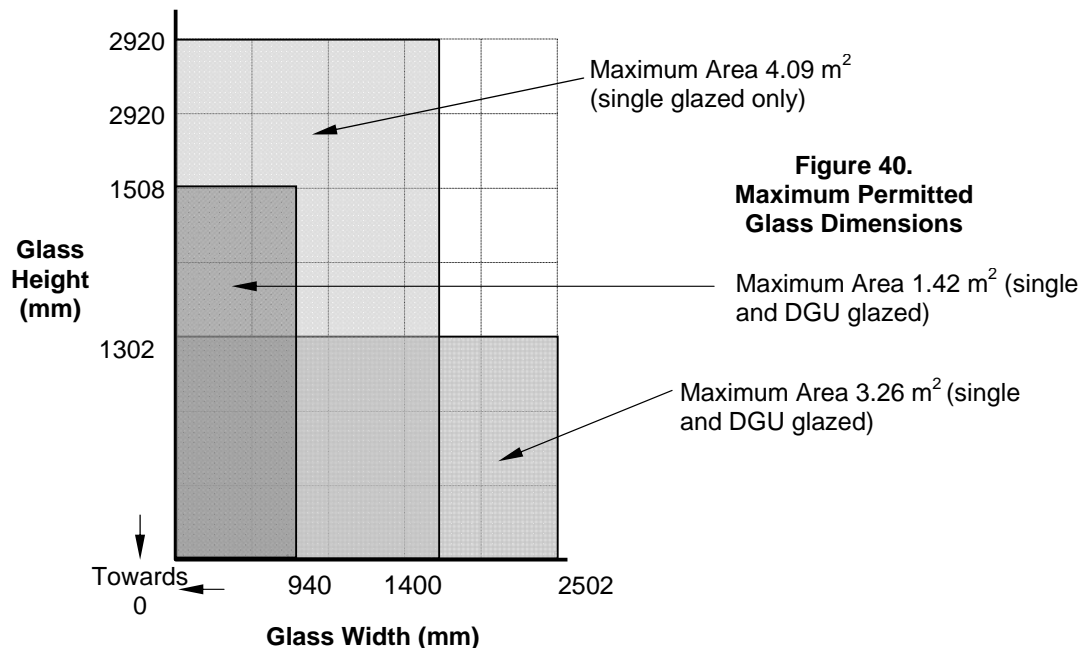
Pyrobel 30, Pyrobel 30EG and Pyrobel 30 DGU Glass in steel framed screens for periods of 90 minutes integrity and insulation

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 Janisol C4, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.



1. Hilti 100 HT – 10 mm diameter x 112 mm
 2. Superwool X607 – 96 kg/m³
 3. Janisol C4 – 70 mm by 50 mm
 4. Clipped Beads, steel profile 15 mm by 20 mm
 5. Setting block – 70 mm by 30 mm by 5 mm
 6. 4 mm diameter by 16 mm long steel screw
 7. Ceramic paper – 20 mm by 5 mm
 8. Silicone – Dow Corning DC791T
- Glass - Pyrobel 30 or 30EG or 30 DGU (min air cavity 6 mm + min 4 mm non-fire rated glass)

This Certificate of Approval relates to the sizes of Pyrobel 30 and Pyrobel 30 EG and Pyrobel 30 DGU glass 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.

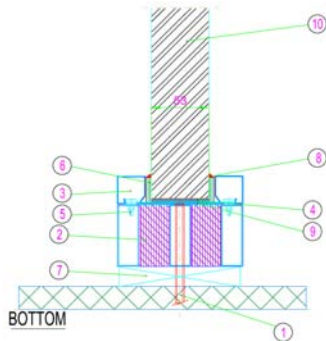


CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 53N & 53N EG Glass in steel framed screens for periods of 120 minutes integrity and insulation

The glass shall be glazed within a previously fire tested (see diagrammatic example below) or CERTIFIRE approved steel framing system utilising the following basic specification. The framing system shall have test evidence, such as Forster Fuego, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions. The edge cover to each pane shall be no less than 15 mm minimum.



1. Hilti 100 HT – 10 mm diameter x 112 mm
2. Steel profile – Forster Fuego 110 mm by 55 mm
3. Clipped beads – 25 mm by 25 mm
4. Setting block – 70 mm by 53 mm x 5 mm
5. Steel screw – 4 mm diameter, 16 mm long
6. Ceramic paper – 20 mm by 5 mm
7. Setting block – 100 mm by 110 mm by 15 mm
8. Silicone – Dow Corning Firestop 700
9. Intumescent Strip – Palusol 65 mm by 2 mm
10. Pyrobel 53N & 53N EG

This Certificate of Approval relates to the sizes of Pyrobel 53N glass shown in Figure 41 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

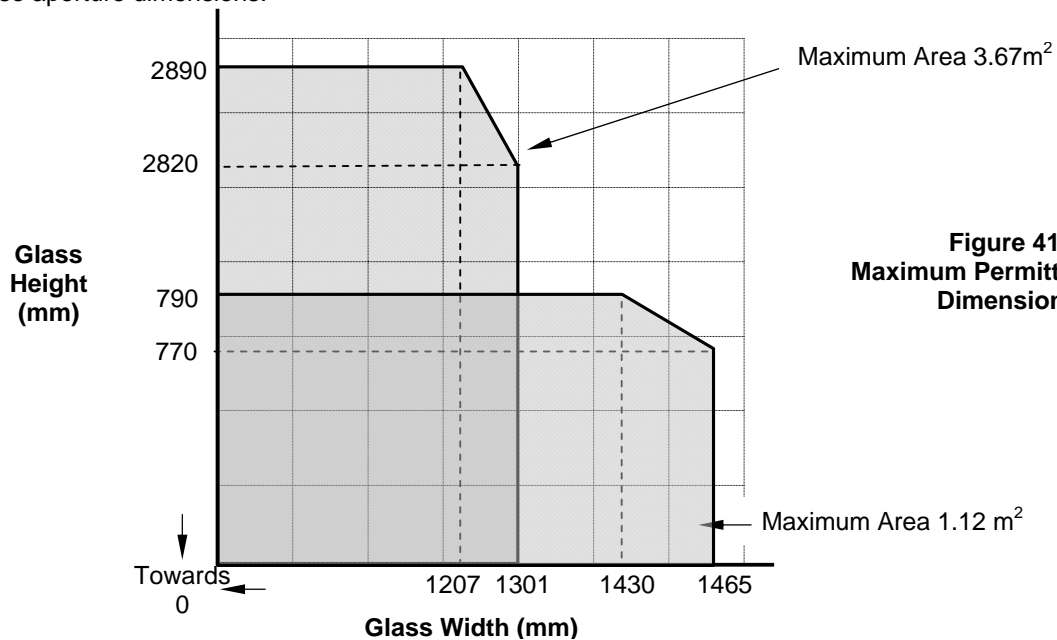


Figure 41.
Maximum Permitted Glass Dimensions

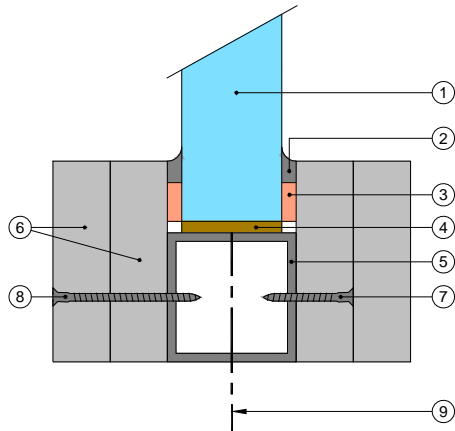


CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 25-25DGU Glass in steel framed screens for periods of 120 minutes integrity and insulation

The glass shall be glazed within a previously fire tested (see example below) or CERTIFIRE approved steel framing system utilising the following basic specification. The edge cover to each pane shall be no less than 15 mm minimum.



- 1 Pyrobel 25-25DGU (59 mm nominal thickness) - comprising Pyrobel 25 - 6 mm air space - Pyrobel 25
- 2 Neutral silicone capping
- 3 15 mm wide by 5 mm thick closed cell foam tape or ceramic fibre tape
- 4 Non-combustible setting blocks
- 5 Steel Section 60 mm by 40 mm by 3 mm
- 6 2 layers of 100 mm by 15 mm calcium silicate sections
- 7 35 mm long x 3.5 mm diameter steel screws at ends of each section
- 8 45 mm long x 3.5 mm diameter steel screws at 240 mm centres
- 9 112 mm long by 10 mm diameter long steel screws at 500 mm centres

This Certificate of Approval relates to the sizes of Pyrobel 25-25DGU glass shown in Figure 42 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

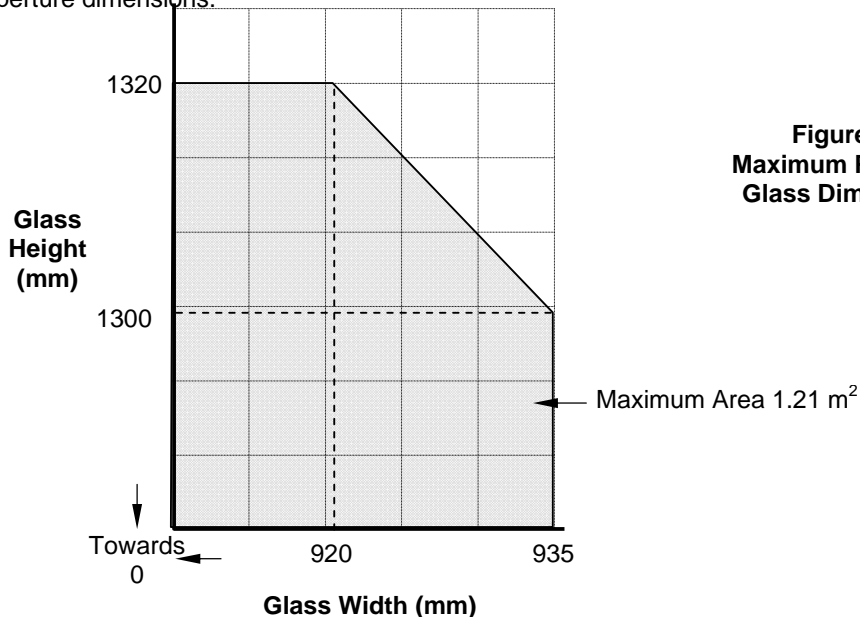


Figure 42.
Maximum Permitted Glass Dimensions

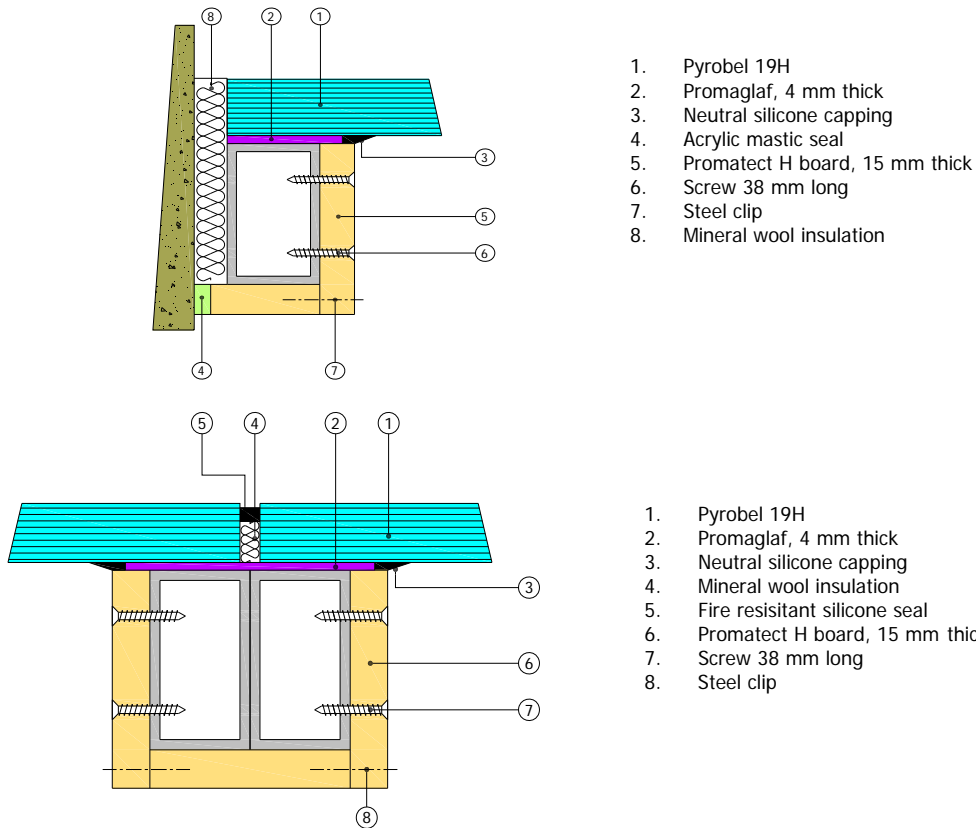


CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 19H Glass in horizontally orientated (or inclined) steel framed screens for periods of 30 minutes integrity and insulation (for non-loadbearing applications)

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



- 'Pyrobel 19H' glass
- The edge cover to each pane shall be no less than 55 mm minimum.

The framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions in a horizontal orientation (or included at up to 30° from horizontal). Maximum overall screen size is limited to 6000 mm by 3000 mm.



CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 19H Glass in horizontally orientated (or inclined) steel framed screens for periods of 30 minutes integrity and insulation (for non-loadbearing applications)

This Certificate of Approval relates to the sizes of 'Pyrobel 19H' glass shown in Figure 43 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

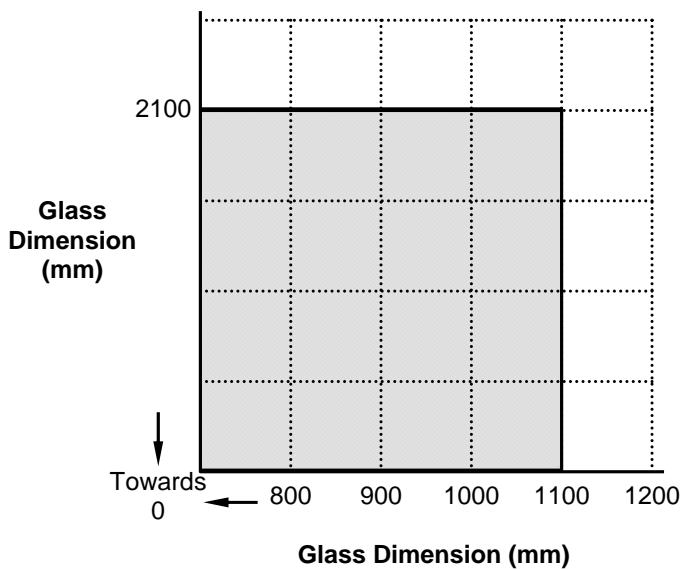


Figure 43. Maximum Permitted Glass Dimensions

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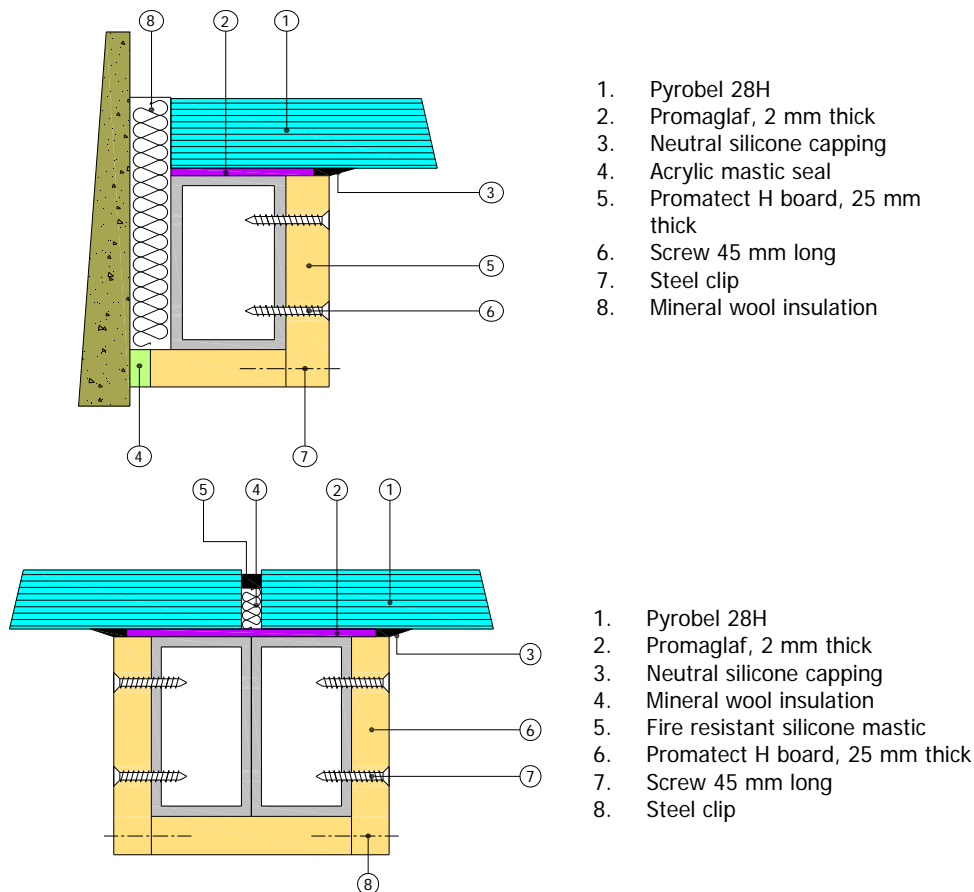
PYROBEL FIRE RESISTING GLASS

Pyrobel 28H Glass in horizontally orientated (or inclined) steel framed screens for periods of 60 minutes integrity and insulation (for non-loadbearing applications)

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

- 'Pyrobel 28H' glass
- The edge cover to each pane shall be no less than 55 mm minimum.

The framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions in a horizontal orientation (or included at up to 30° from horizontal). Maximum overall screen size is limited to 6000 mm by 3000 mm.



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AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 28H Glass in horizontally orientated (or inclined) steel framed screens for periods of 60 minutes integrity and insulation

This Certificate of Approval relates to the sizes of 'Pyrobel 28H' glass shown in Figure 44 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

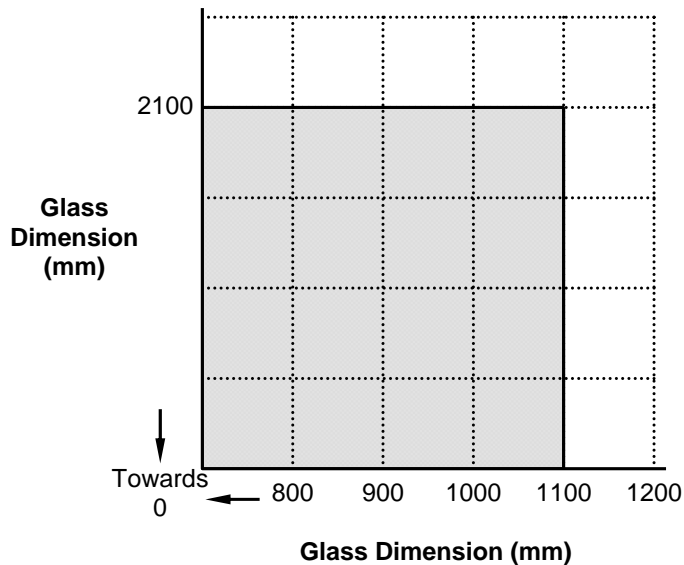


Figure 44. Maximum Permitted Glass Dimensions

Note: AGC Limited should be consulted with regards the use of Pyrobel 28H in loadbearing floor applications

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AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Glazing bars in conjunction with Pyrobelite/Pyrobel glass in timber framed screens for periods of 30 minutes integrity (Pyrobelite 7), 60 minutes integrity (Pyrobelite 12), 60/30 minutes integrity and 30 minutes insulation (Pyrobel 16) and 60 minutes integrity and insulation (Pyrobel 25)

The glass shall be glazed utilising the following basic specifications, the glass and glazing system is otherwise to be as specified within CF No. 377;

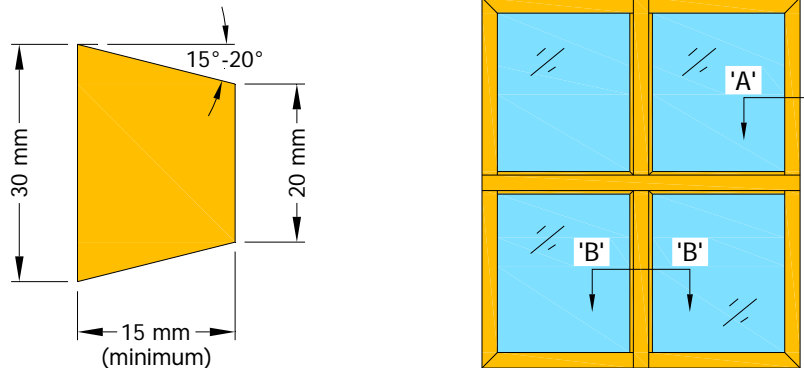
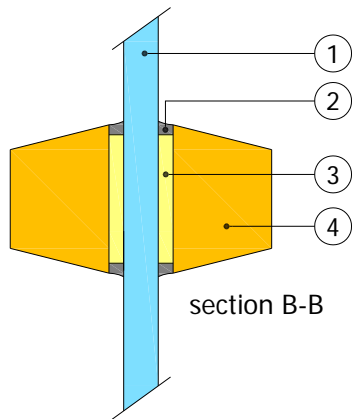


Figure 45. Glazing Bar Specification

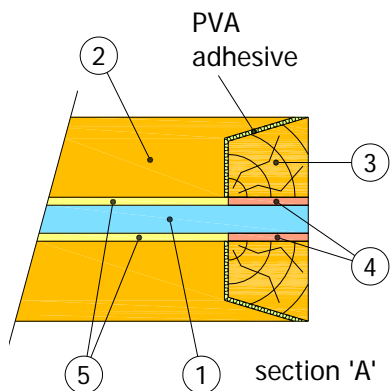
CERTIFICATE No CF 377
AGC FLAT GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Glazing bars in conjunction with Pyrobelite/Pyrobel glass in timber framed screens for periods of 30 minutes integrity (Pyrobelite 7), 60 minutes integrity (Pyrobelite 12), 60/30 minutes integrity and 30 minutes insulation (Pyrobel 16) and 60 minutes integrity and insulation (Pyrobel 25)... continued



- 1 Pyrobelite 7 & 12, Pyrobel 16 & 25 (+ external grade products)
- 2 Neutral silicone capping
- 3 30 mm by 1 mm Sealmaster Fireglaze Compound
30 mm by 2 mm Sealmaster Fireglaze G30 Strip (2 No. 15 mm by 2 mm)
30 mm by 1.5 mm Hodgson's Sealants Firestrip 30FD (2 No. 15 mm by 1.5 mm)
30 mm by 1 mm Interdens/Lorient Mono-ammonium phosphate
- 4 30 mm by minimum 15 mm (with 15° chamfer) hardwood glazing bars, minimum density 640 kg/m³



- 1 Pyrobelite 7 & 12, Pyrobel 16 & 25 (+ external grade products)
- 2 Hardwood glazing bar
- 3 Hardwood perimeter glazing bead (as specified for glass within CF377)
- 4 Ceramic Fibre / Closed Cell Foam tape
- 5 30 mm by 1 mm Sealmaster Fireglaze Compound
30 mm by 2 mm Sealmaster Fireglaze G30 Strip (2 No. 15 mm by 2 mm)
30 mm by 1.5 mm Hodgson's Sealants Firestrip 30FD (2 No. 15 mm by 1.5 mm)
30 mm by 1 mm Interdens/Lorient Mono-ammonium phosphate

Figure 46. Installation Specification