



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 GLASS UK LIMITED

Valiant Office Suites, Lumonics House, Valley Drive,
Rugby, CV21 1TQ
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 9EG,
Pyrobelite 10, Pyrobelite 12 & 12
EG, Pyrobel 16 & 16 EG, Pyrobel
17N & 17N EG, Pyrobel 19H,
Pyrobel 25 & 25 EG, Pyrobel 28H,
Pyrobel 30 & 30 EG, Pyrobel 53N
& 53N EG, Pyrobel 54, Pyrobel
25-25 IGU, 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: 1st April 2005
Revised: 21st June 2019
Next Audit test due: 21st June 2022
Frequency: 3 years
Valid to: 20th June 2024

Page 1 of 92





CERTIFICATE No CF 377

AGC GLASS UK LIMITED

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.

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 & 9 EG	Timber doorsets (hardwood beads)	30	-	7
Pyrobelite 7 & 9 EG	Timber doorsets (MDF beads)	30	-	8
Pyrobelite 7 & 9 EG (IGU's)	Composite doorsets	30	-	9
Pyrobelite 7	Timber doorsets	60	-	10
Pyrobelite 7 & 9 EG	Timber screens	30	-	11
Pyrobelite 7 & 9 EG (IGU's)	Timber screens	30	-	12
Pyrobelite 7 & 9 EG (IGU's)	Steel doorsets	30	-	13
Pyrobelite 7 & 9 EG	Steel screens	30	-	14
Pyrobelite 9EG	Timber screens	30	-	16
Pyrobelite 9EG (inc. IGU's)	Steel screens	30	-	17
Pyrobelite 9EG (inc. IGU's)	Steel doorsets	30	-	18
Pyrobelite 9EG	Aluminium Screens	30	-	19
Pyrobelite 10	Timber doorsets (hardwood beads)	30	-	20
Pyrobelite 10	Timber doorsets (MDF beads)	30	-	21
Pyrobelite 10	Steel screens	30	-	22
Pyrobelite 10 (IGU's)	Steel screens	30	-	23
Pyrobelite 10	Timber screens	30	-	24
Pyrobelite 10	Aluminium screens	30	-	25
Pyrobelite 10	Aluminium screens	30	-	26
Pyrobelite 12	Timber doorsets	60	-	27
Pyrobelite 12	Timber doorsets	60	-	28
Pyrobelite 12	Timber screens	60	-	29
Pyrobelite 12 & 12 EG	Steel screens	30	-	30
Pyrobelite 12	Steel screens	60	-	31
Pyrobel 16 & 16 EG	Timber doorsets	60	30	32
Pyrobel 16 & 16 EG	Timber doorsets	30	30	33
Pyrobel 16 & 16 EG	Timber doorsets	30	30	34
Pyrobel 16 & 16 EG	Timber doorsets	30	30	35
Pyrobel 16 & 16 EG	Timber screens	60	30	36
Pyrobel 16 & 16 EG	Timber screens	30	30	37
Pyrobel 16 & 16 EG (IGU's)	Timber screens	60	30	38
Pyrobel 16 & 16 EG Visionline	Butt Jointed in timber	30	30	39
Pyrobel 16 & 16 EG Visionline	Butt Jointed in steel	30	30	40
Pyrobel 16 & 16 EG Visionline	Butt Jointed in aluminium	30	30	41
Visionline Corner Joint	Butt Jointed Corner Joint	30	30	43

Page 2 of 92 Signed
Y/003 & N/003

Issued: 1st April 2005
Revised: 21st June 2019
Valid to: 20th June 2024



CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE AND PYROBEL FIRE RESISTING GLASS

Glass Specification	Application	Fire Resistance Performance (mins)		Page No.
		Integrity	Insulation	
Pyrobel 16 & 16 EG (IGU's)	Timber screens	30	30	44
Pyrobel 16 & 16 EG (IGU's)	Steel screens	30	30	45
Pyrobel 16 & 16 (IGU's)	Steel doorsets	30	30	46
Pyrobel 16	Steel screens	60	-	47
Pyrobel 16	Steel screens	60	30	48
Pyrobel 16 & 16 EG	Steel screens	30	30	49
Pyrobel 16 Triple Glazed Units	Steel Screens	30	30	50
Pyrobel 16 & 16 EG (IGU's)	Aluminium screens	30	30	51
Pyrobel 16 & 16 EG (IGU's)	Aluminium screens	30	30	52
Pyrobel 16	Aluminium screens	30	30	53
Pyrobel 17N & 17N EG	Timber screens	60	30	54
Pyrobel 17N & 17N EG	Steel screens	60	30	55
Pyrobel 17N & 17N EG	Steel screens	60	0	56
Pyrobel 17N & 17N EG	Aluminium screens	60	30	57
Pyrobel 25 & 25 EG	Timber doorsets	60	60	58
Pyrobel 25 & 25 EG	Timber screens (hardwood)	60	60	59
Pyrobel 25 & 25 EG	Timber screens (softwood)	60	60	60
Pyrobel 25 & 25 EG (IGU's)	Timber screens	60	60	61
Pyrobel 25 & 25 EG	Steel screens	60	60	62
Pyrobel 25 & 25 EG	Steel doorsets	60	60	63
Pyrobel 25 & 25 EG (IGU's)	Steel doorsets	60	60	64
Pyrobel 25 & 25 EG (IGU's)	Steel screens	60	60	65
Pyrobel 25 & 25 EG	Aluminium screens	60	60	66
Pyrobel 25 & 25 EG	Aluminium screens	60	60	67
Pyrobel 25 & 25 EG (IGU's)	Aluminium screens	60	60	68
Pyrobel 25 & 25 EG Visionline	Butt Jointed in timber	60	60	69
Pyrobel 25 & 25 EG Visionline	Butt Jointed in steel	60	60	70
Pyrobel 25 & 25 EG Visionline	Butt Jointed in aluminium	60	60	71
Visionline Corner Joint	Butt Jointed Corner Joint	60	60	73
Pyrobel 30 & 30 EG & 30 IGU	Steel screens	90	90	74
Pyrobel 30 & 30 EG & 30 IGU	Steel doorsets	90	90	75
Pyrobel 53N & 53N EG	Steel screens	120	120	76
Pyrobel 53N & 53N EG Visionline	Butt Jointed in steel	120	120	77
Pyrobel 54	Steel screens	120	120	78
Pyrobel 54	Steel screens	120	120	79
Pyrobel 54 Visionline	Butt Jointed in steel	120	120	80
Pyrobel 25-25IGU	Steel Screens	120	120	81
Pyrobel 19H	Horizontal steel screens	30	30	82
Pyrobel 19H	Horizontal steel roofs	30	30	84
Pyrobel 28H	Horizontal steel screens	60	60	85
Pyrobel 28H	Horizontal steel roofs	60	30	87
Pyrobel 33H	Horizontal steel roofs	60	60	88
Pyrobelite 7/12 & Pyrobel 16/25	Glazing bars	30-60	0-60	89
Pyrobelite 7, 9EG and 12	Dual glazed timber screens	30-60	0	91
Pyrobel 16 & 25, 16 EG & 25 EG	Dual glazed timber screens	30-60	30-60	92

Page 3 of 92 Signed
Y/003 & N/003

Issued: 1st April 2005
Revised: 21st June 2019
Valid to: 20th June 2024



CERTIFICATE No CF 377

AGC GLASS UK LIMITED

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	30/60	0
Pyrobelite 9EG	12.1 mm ± 1.5mm	30	0
Pyrobelite 10	11 mm ± 1mm	30	0
Pyrobelite 12	12.3 mm ± 1mm	30/60	0
Pyrobelite 12EG	16.1 mm ± 1mm	30	0
Pyrobel 16	17.3 mm ± 1mm	30/60	30
Pyrobel 16EG	21.1 mm ± 1.5 mm	30/60	30
Pyrobel 17N	17.8 mm ± 1.5mm	60	30/0
Pyrobel 17N EG	21.6 mm ± 1.8 mm	60	30/0
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 54	54 mm ± 3 mm	120	120
Pyrobel 25-25 IGU	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



CERTIFICATE No CF 377

AGC GLASS UK LIMITED

PYROBELITE AND PYROBEL FIRE RESISTING GLASS

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, steel or aluminium framed screen, the orientation of the screen shall be no more than $\pm 10^\circ$ from the vertical.
- For horizontal applications, the orientation of the screen shall be no more than 80° from the horizontal.
- 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 6.4 mm laminated glass must be used as the external pane for IGU's incorporating internal grade Pyrobelite/Pyrobel.
- Minimum spacer width in IGU's should be 6 mm.
- Surface of glass may be lightly sandblasted to a maximum depth of 1 mm.
- Manifestation films may be applied to the fully insulated glass variants.
- IGU's may include either aluminium or steel spacer bars and may utilise hot melt butyl edge sealant. Warm edge spacers referenced Edgetech Superspacer, Swissspacer V, Thermobar and Thermix TXN may also be utilised.
- IGU's comprising Pyrobelite/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 Matelux options are approved throughout the scope.
- Ash timber species (minimum density 650kg/m^3) is acceptable in all applications for up to and including 60 minute applications.
- Where foam tape or ceramic fibre is specified as a glazing tape, Interdens intumescent strip may be used as an alternative.
- Timber screens, where the application mentions shared mullion/transoms, multipane screens are approved up to an overall screen height of 4000 with unlimited width provided that maximum glass pane sizes are respected.
- Aluminium profile glazing bars may be installed within the air cavity of IGUs.

Page 5 of 92 Signed
Y/003 & N/003

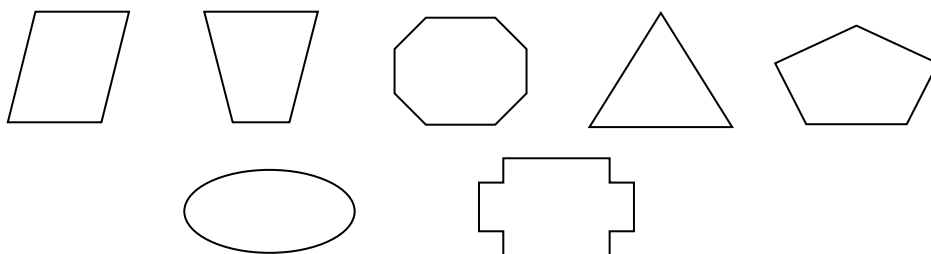
Issued: 1st April 2005
Revised: 21st June 2019
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CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE AND PYROBEL FIRE RESISTING GLASS

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.



Approved Closed cell foam tape

Where closed cell foam tapes are included as an acceptable glazing gasket, the tapes should comprise one of the following types:

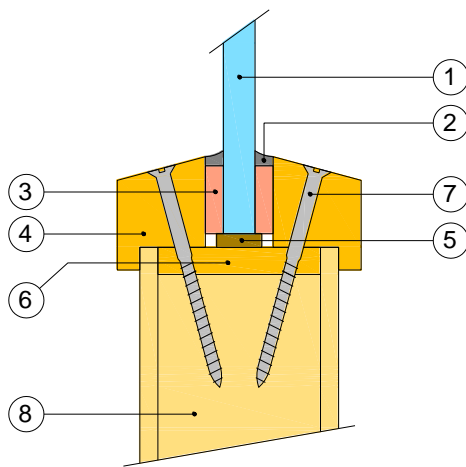
- Arbostrip F42 by Arbo Façade Solutions
- FoamLINK 3003H+ by UK Industrial Tapes Ltd.
- FDP792 Superior F.R.G. Edge tape by Flowstrip Ltd.
- Scapa 3259 by Scapa Ltd
- Techniseal 220 by Technibond Ltd.
- Sealmaster Black Glazing Tape by Sealmaster
- Fire + Acoustic Closed cell foam tape by Fire & Acoustice Seals Ltd.
- Flowstrip FDP005
- Expanded Polyethylene Foam by AS Rubber Ltd.
- Vita Cellular Foams Flexitec E
- Vita Cellular Foams Flexitec HT
- Illbruck TN131
- Avio product 606

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 and 9EG Glass in timber based doorsets for periods of 30 minutes integrity (hardwood beads)

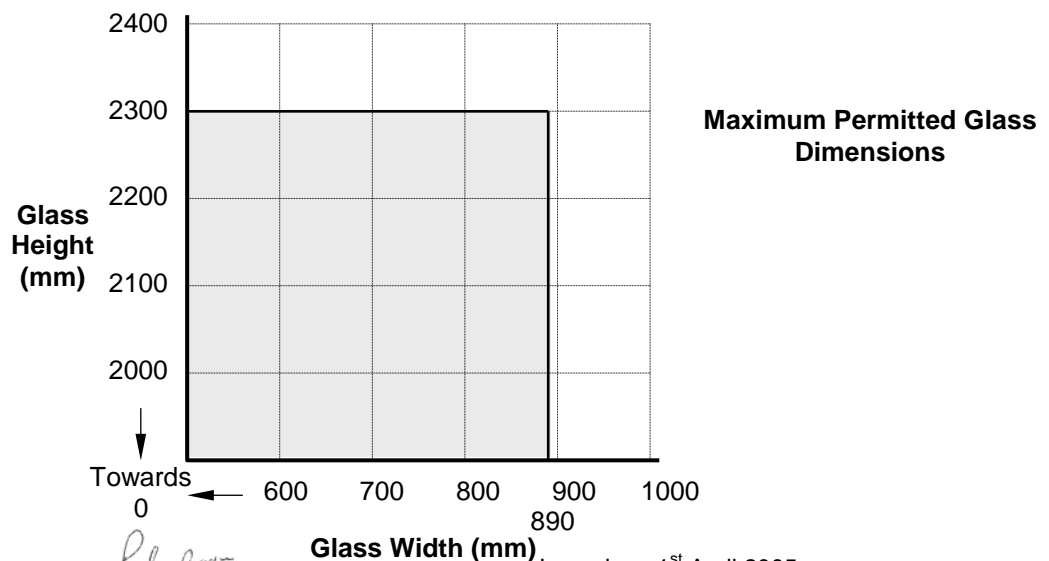
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobelite 7 or 9 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 5 mm thick ceramic fibre based glazing tape or closed cell foam tape (see page 6 for approved tapes)
- 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 or pins 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 9 EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



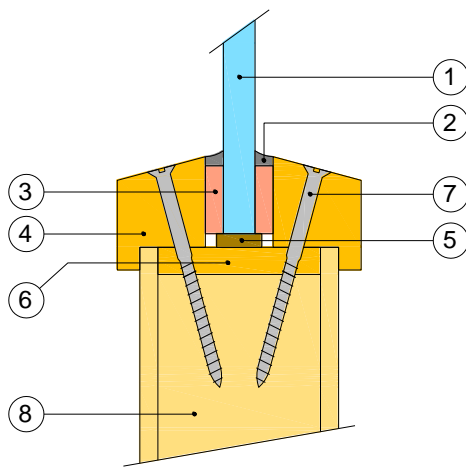
Paul Duggan

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 and 9EG Glass in timber based doorsets for periods of 30 minutes integrity (MDF Beads)

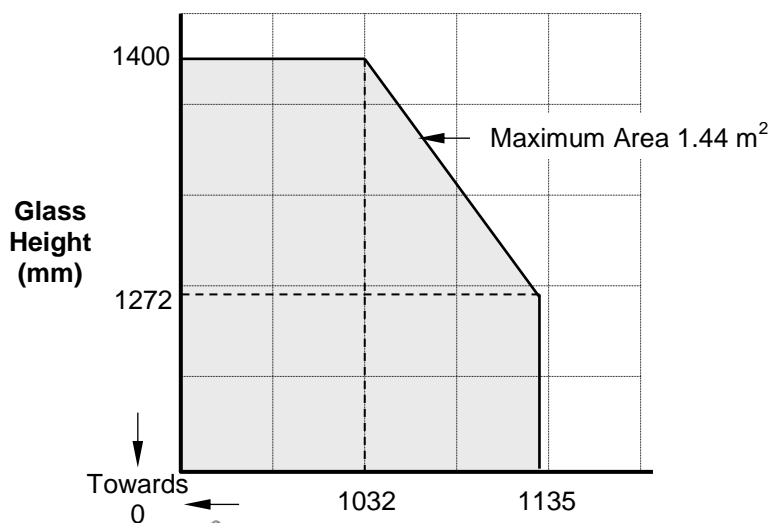
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobelite 7 or 9 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 5 mm thick ceramic fibre based glazing tape or closed cell foam tape (see page 6 for approved tapes)
- 4 20 mm high by 19.5 mm wide (including 5 mm high by 5 mm wide bolection with 15° chamfer or square) MDF glazing beads, minimum density 640 kg/m³
- 5 Non-combustible / hardwood setting blocks
- 6 6 mm thick MDF or hardwood aperture liner
- 7 40 mm long steel pins (1.8 mm diameter) at 150 mm centres (30° to glass) starting at 100 mm in from corners
- 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 9 EG glass shown 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

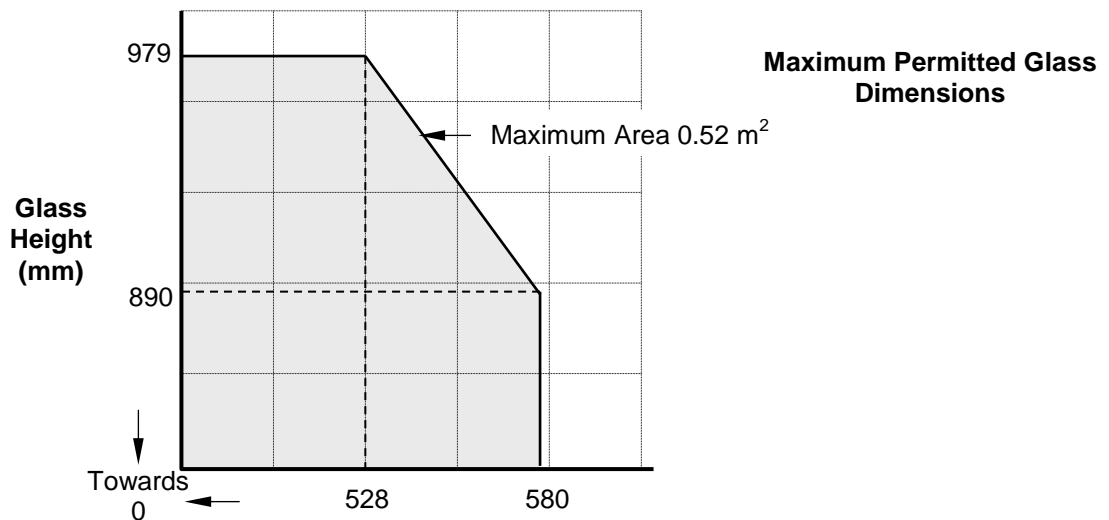
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CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

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

Approval of Pyrobelite 7 or 9EG IGU's is approved, at the dimensions given 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.

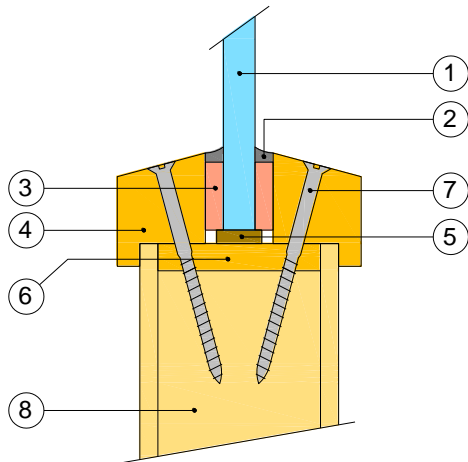


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 Glass in timber based doorsets for periods of 60 minutes integrity

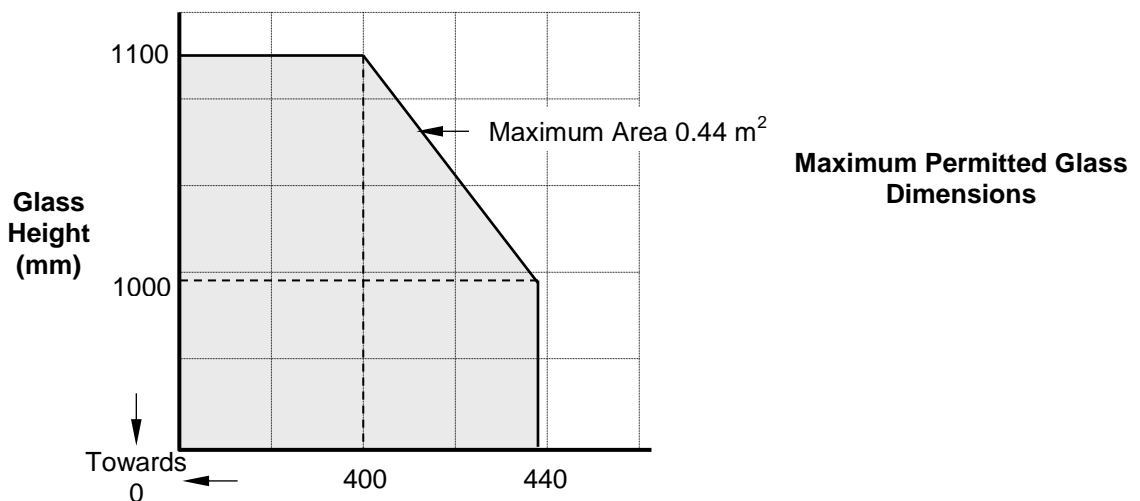
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobelite 7
- 2 Neutral silicone capping
- 3 12 mm wide by 5 mm thick 'Fire and Acoustic' closed cell foam tape (see page 6 for approved tapes)
- 4 25 mm high by 30 mm wide (including 5 mm high by 5 mm wide bolection with min. 15° chamfer or square) MDF or hardwood glazing beads
- 5 Non-combustible / hardwood setting blocks
- 6 2 mm thick by 54 wide "Therm-A-Line" aperture liner
- 7 40 mm long, 1.8 mm diameter steel pins or screws (40 mm long) 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 7 glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

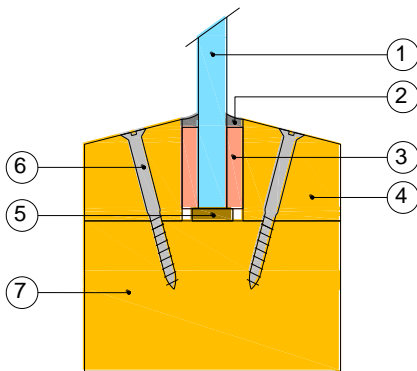


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PYROBELITE FIRE RESISTING GLASS

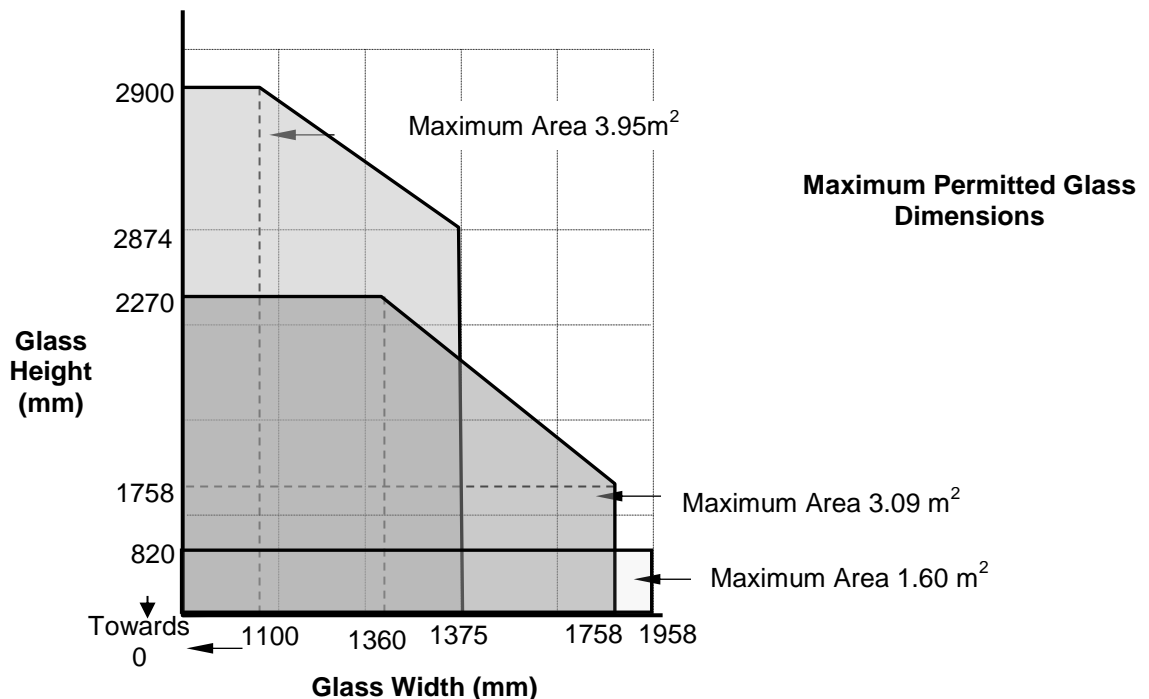
Pyrobelite 7 and 9EG Glass in timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobelite 7 or 9 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 (see page 6 for approved tapes)
- 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 or 38 mm long steel pins at 150 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 9 EG glass shown 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.

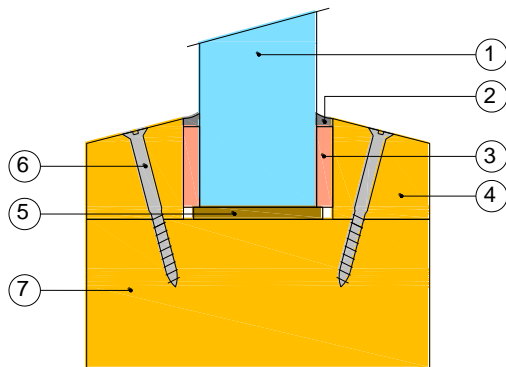


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Insulating Glass Units (IGU's) including Pyrobelite 7 and 9EG Glass in timber framed screens for periods of 30 minutes integrity

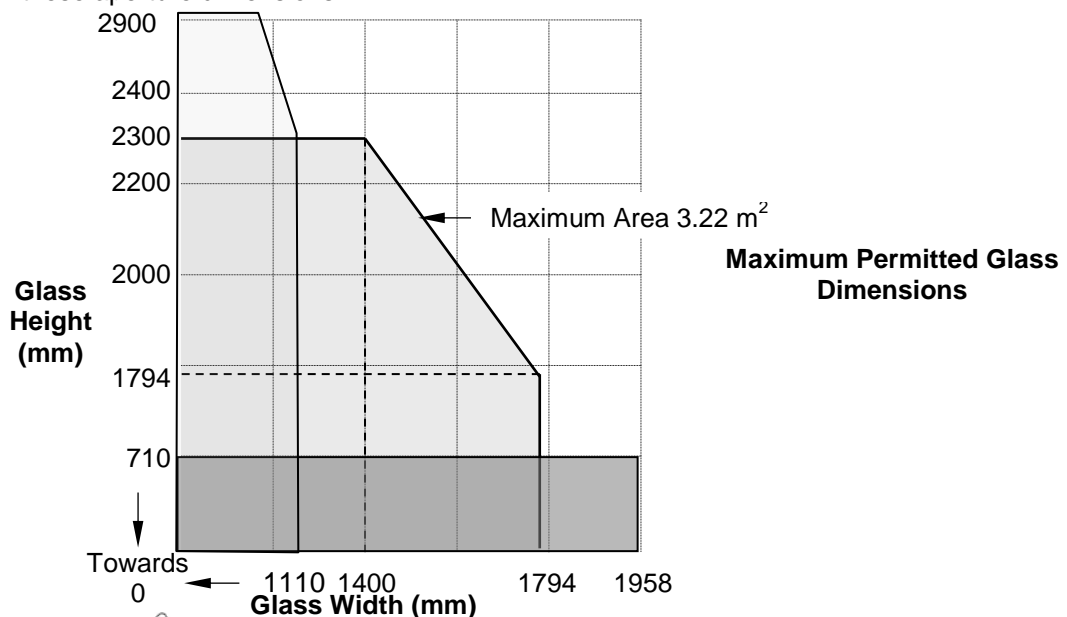
The IGU shall be glazed utilising one of the following specifications:



- 1 IGU comprising Pyrobelite 7 or Pyrobelite 9 EG glass, a minimum 10 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 (see page 6 for approved tapes)
- 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 or 40 mm long steel pins at 150 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 9 EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



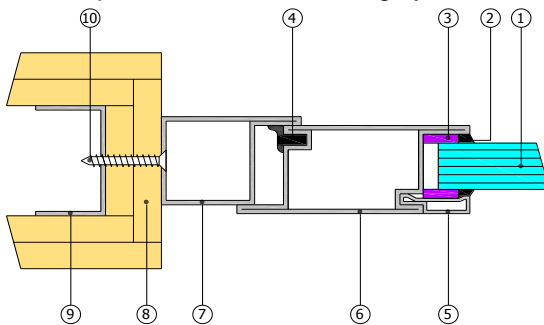
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CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Insulating Glass Units (IGU's) including Pyrobelite 7 and 9EG 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 door leaf framing system.

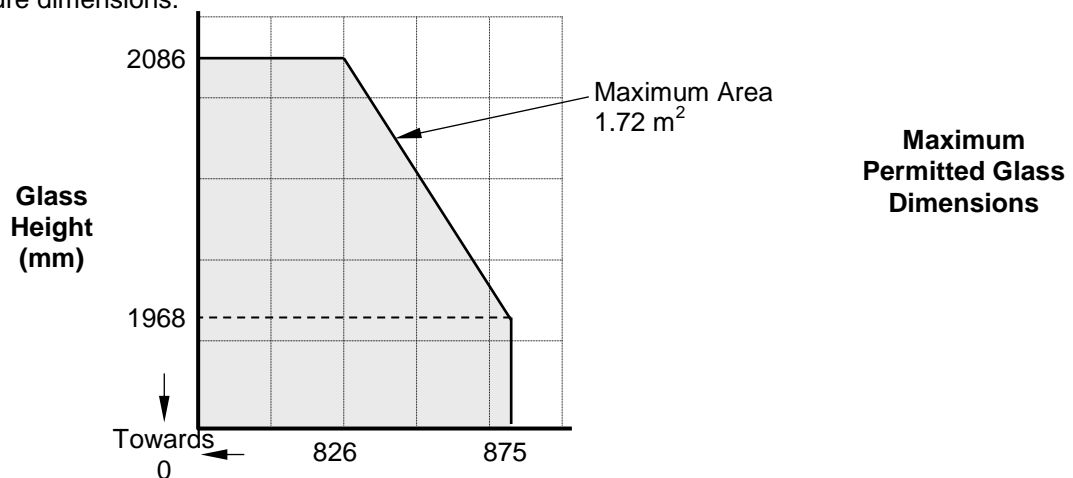


1. IGU comprising Pyrobelite 7 or Pyrobelite 9 EG glass, a minimum 6 mm wide air cavity and minimum 4 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*
2. Neutral silicone capping
3. Ceramic fibre based glazing tape
4. Neoprene seal
5. Steel bead
6. Steel section, stile and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

* 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 9 EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

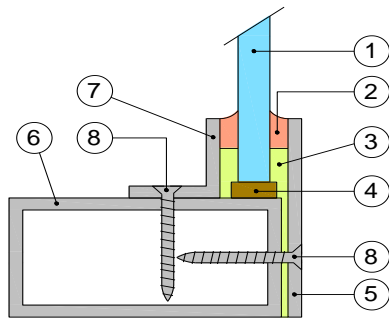


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 and 9EG Glass in steel framed screens for periods of 30 minutes integrity

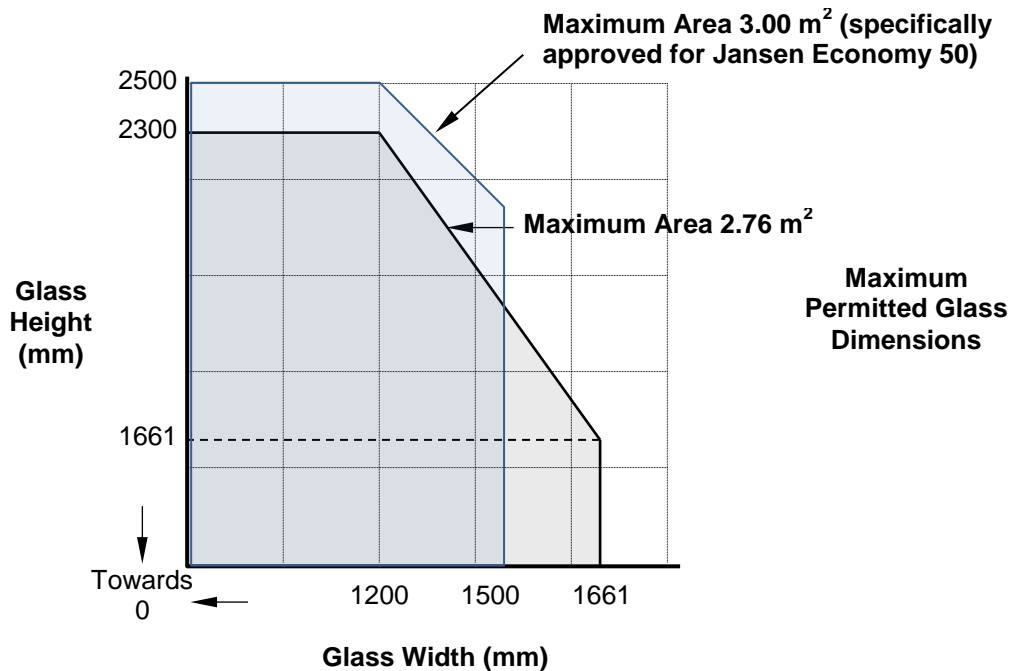
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



- 1 Pyrobelite 7 or 9 EG
- 2 Neutral silicone capping
- 3 15 mm wide by 3-6 mm thick ceramic fibre glazing tape
- 4 Non-combustible/hardwood setting blocks
- 5 Steel plate 50 mm by 3 mm
- 6 Steel section 60 mm by 30 mm by 3 mm
- 7 Steel angle 20 mm by 20 mm by 3 mm
- 8 30 mm long steel screws at 250 mm centres

An example of a tested framing system is detailed above. Alternative framing systems shall have test evidence, such as Jansen Economy 50 or Forster Presto or similar, 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 9 EG glass shown in two figures 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 GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7 and 9EG Glass in steel framed screens for periods of 30 minutes integrity (continued)

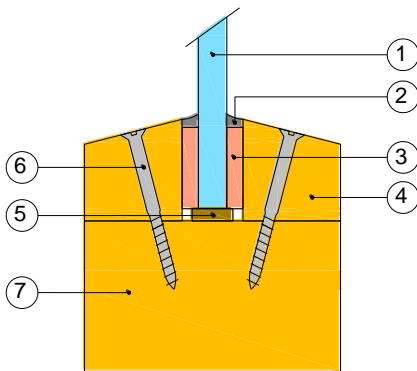


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

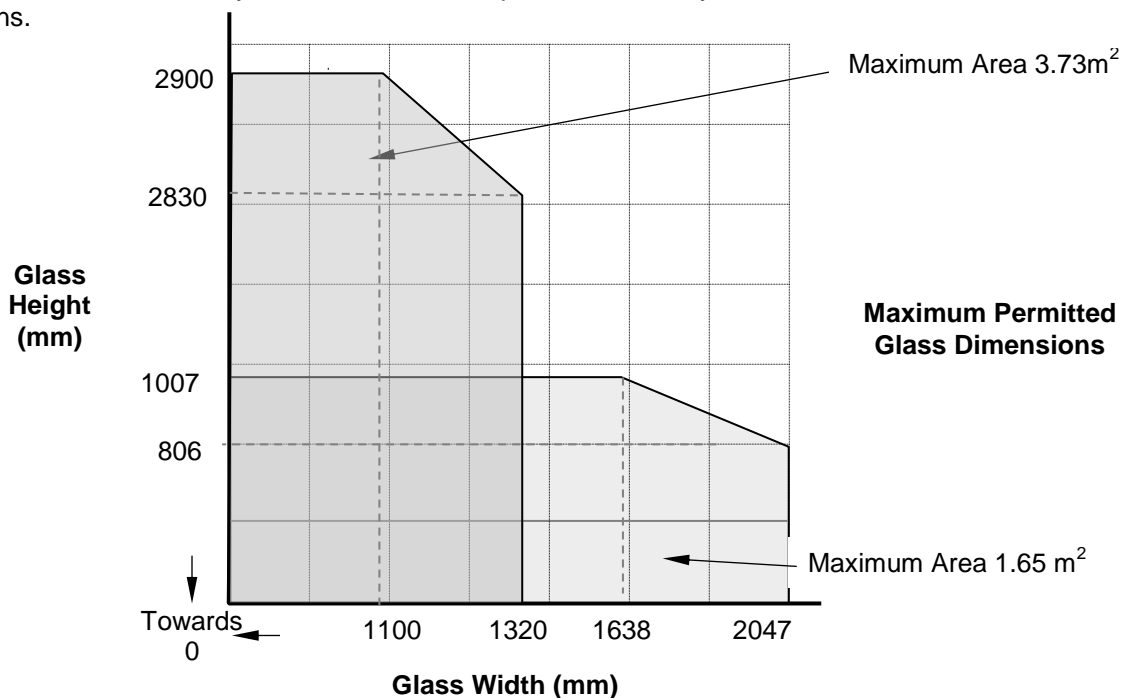
Pyrobelite 9EG Glass in timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobelite 9 EG
- 2 Neutral silicone capping
- 3 15 mm wide by 5 mm thick ceramic fibre based glazing tape or closed cell foam
- 4 25 mm wide by 27 mm high (with 15° chamfer or square) hardwood glazing beads, minimum density 490 kg/m³
- 5 Non-combustible setting blocks
- 6 50 mm long steel screws at 200 mm centres (30° to glass) centres or 50 mm long steel pins at 150 mm centres (30° to glass)
- 7 72 mm by 33 mm (minimum) hardwood perimeter frame, minimum density 490kg/m³. 72 mm by 46 mm (minimum) hardwood transoms/mullions, minimum density 490 kg/m³.

This Certificate of Approval relates to the sizes of Pyrobelite 9 EG glass shown 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.

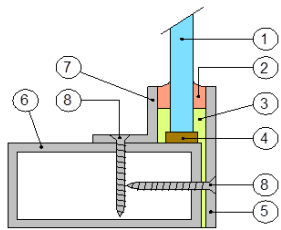


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 9EG (inc. IGU's) Glass in steel framed screens for periods of 30 minutes integrity

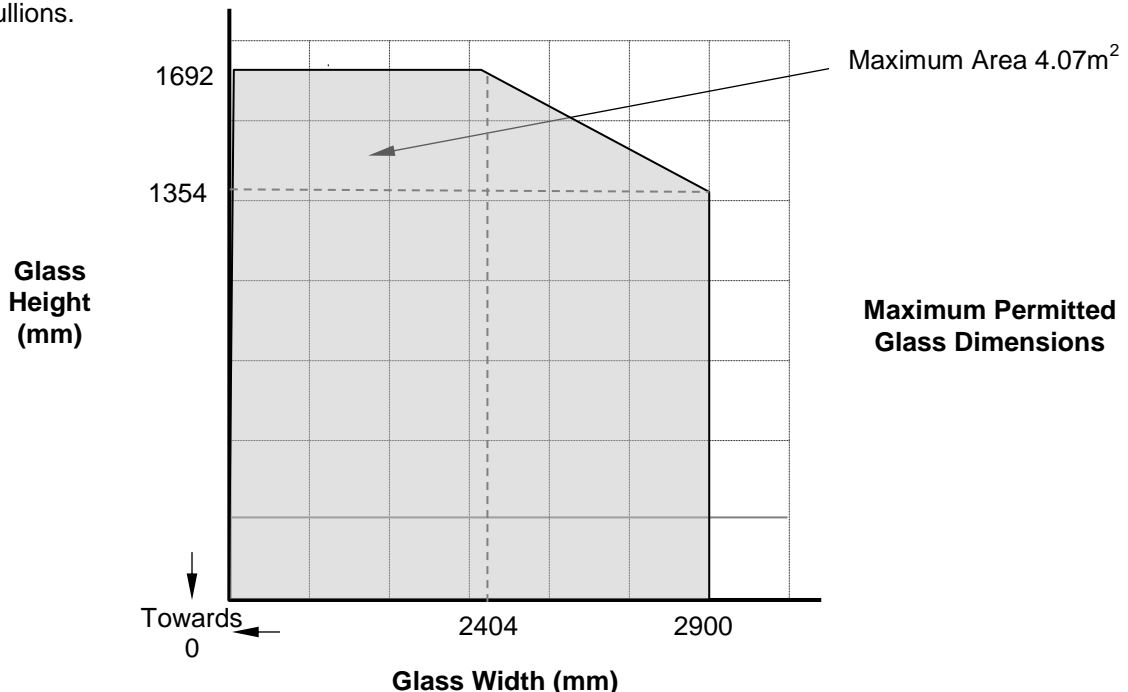
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



- 1 Pyrobelite 9G or 9 EG IGU - a minimum 6 mm wide air cavity and a minimum 4 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted etc.)
- 2 Neutral silicone capping
- 3 15 mm wide by 3-6 mm thick ceramic fibre glazing tape
- 4 Non-combustible/hardwood setting blocks
- 5 Steel plate 50 mm by 3 mm
- 6 Steel section 60 mm by 30 mm by 3 mm
- 7 Steel angle 20 mm by 20 mm by 3 mm
- 8 30 mm long steel screws at 250 mm centres

An example of a tested framing system is detailed above. Alternative framing systems shall have test evidence, such as RP-hermetic 55N FP, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

This Certificate of Approval relates to the sizes of Pyrobelite 9EG and 9EG IGU glass shown 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.

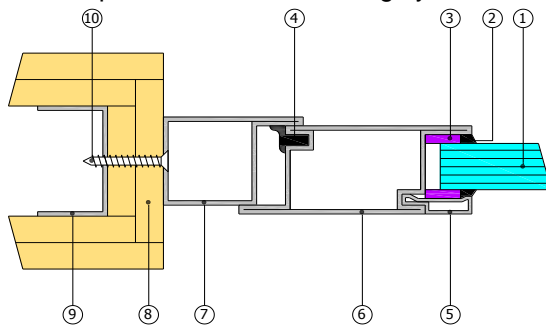


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 9EG (inc. IGU's) Glass in Steel Doorsets for periods of 30 minutes integrity

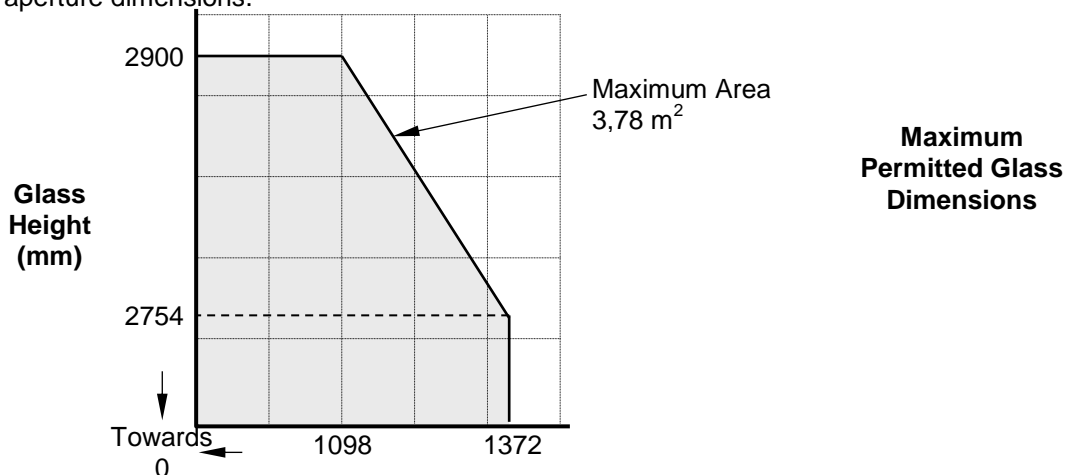
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel profiled door leaf framing system.



1. Pyrobelite 9 EG or 9EG IGU 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

The steel profiled door framing system shall have test evidence (such as RP Technik Hermetic 55N FP E30) 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 9EG and 9 EG IGU glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



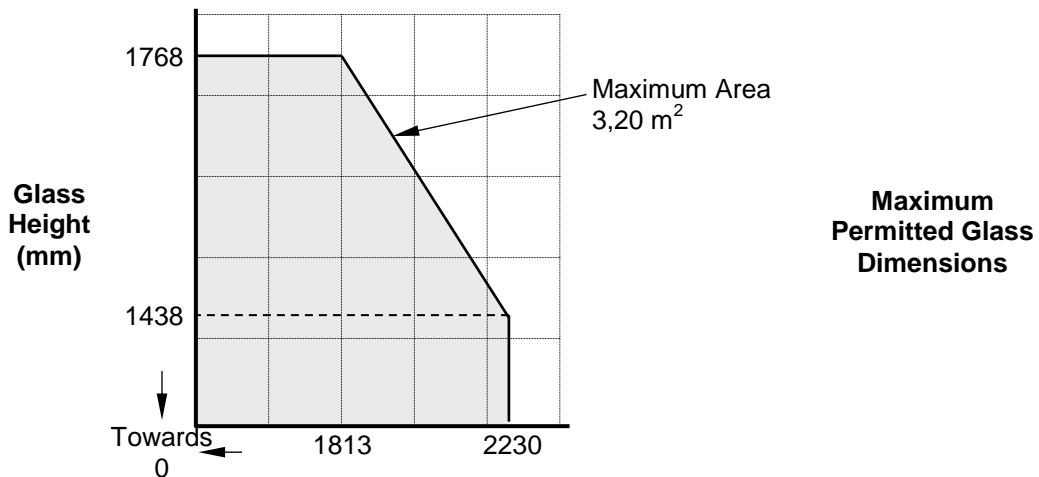
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 9EG Glass in Soleal 65 aluminium framed screens for periods of 30 minutes integrity

The glass shall be glazed within a Soleal 65 aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 9EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

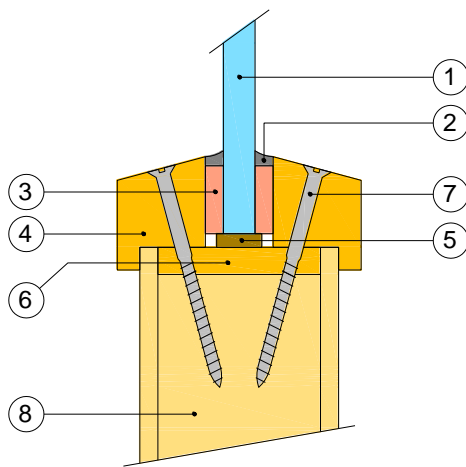


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 10 Glass in timber based doorsets for periods of 30 minutes integrity (hardwood beads)

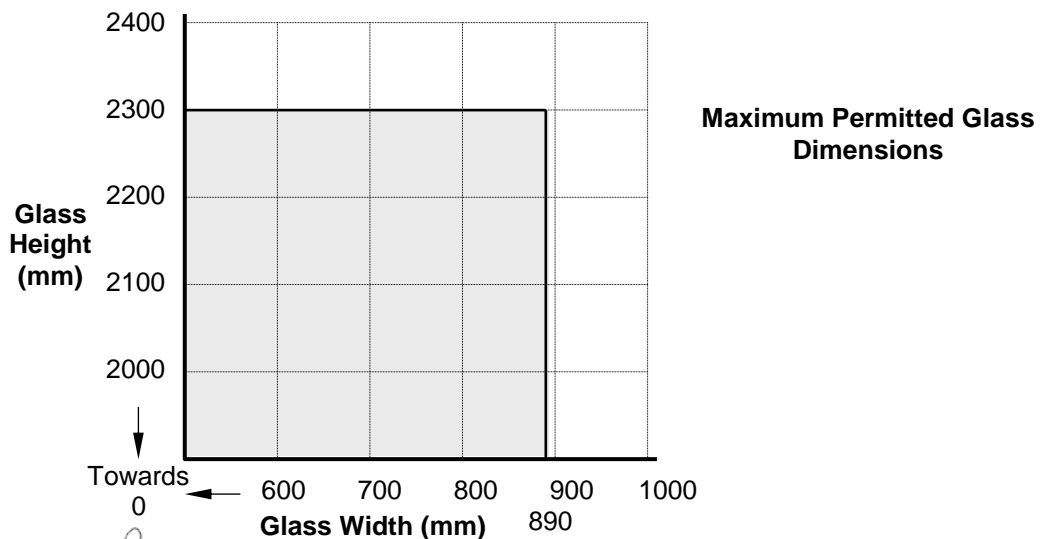
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobelite 10
- 2 Neutral silicone capping
- 3 12 mm wide by 5 mm thick ceramic fibre based glazing tape or closed cell foam tape (see page 6 for approved tapes)
- 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 or pins 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 10 glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



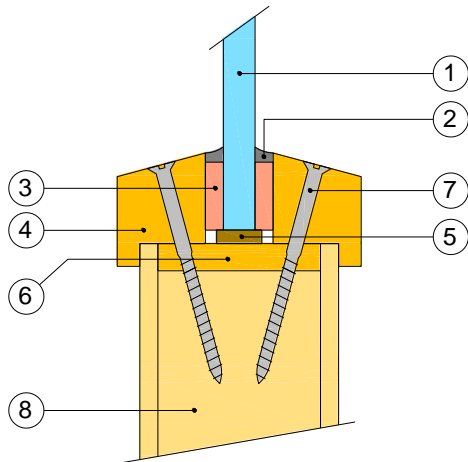
Paul Dyer

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 10 Glass in timber based doorsets for periods of 30 minutes integrity (MDF Beads)

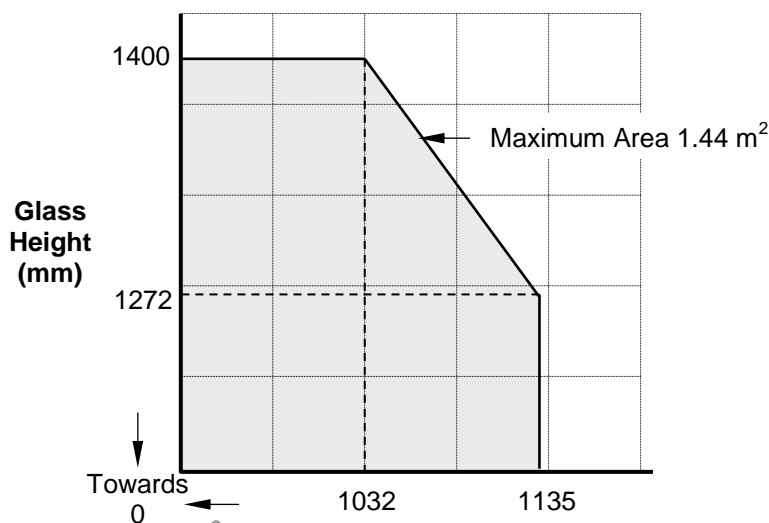
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobelite 10
- 2 Neutral silicone capping
- 3 12 mm wide by 5 mm thick ceramic fibre based glazing tape or closed cell foam tape (see page 6 for approved tapes)
- 4 20 mm high by 19.5 mm wide (including 5 mm high by 5 mm wide bolection with 15° chamfer or square) MDF glazing beads, minimum density 640 kg/m³
- 5 Non-combustible / hardwood setting blocks
- 6 6 mm thick MDF aperture liner
- 7 40 mm long steel pins (1.8 mm diameter) at 150 mm centres (30° to glass) starting at 100 mm in from corners
- 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 10 glass shown 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

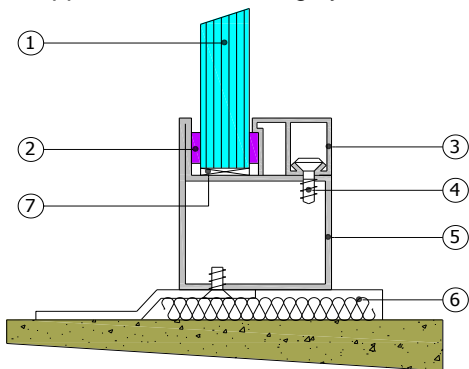
Paul Duggan

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

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

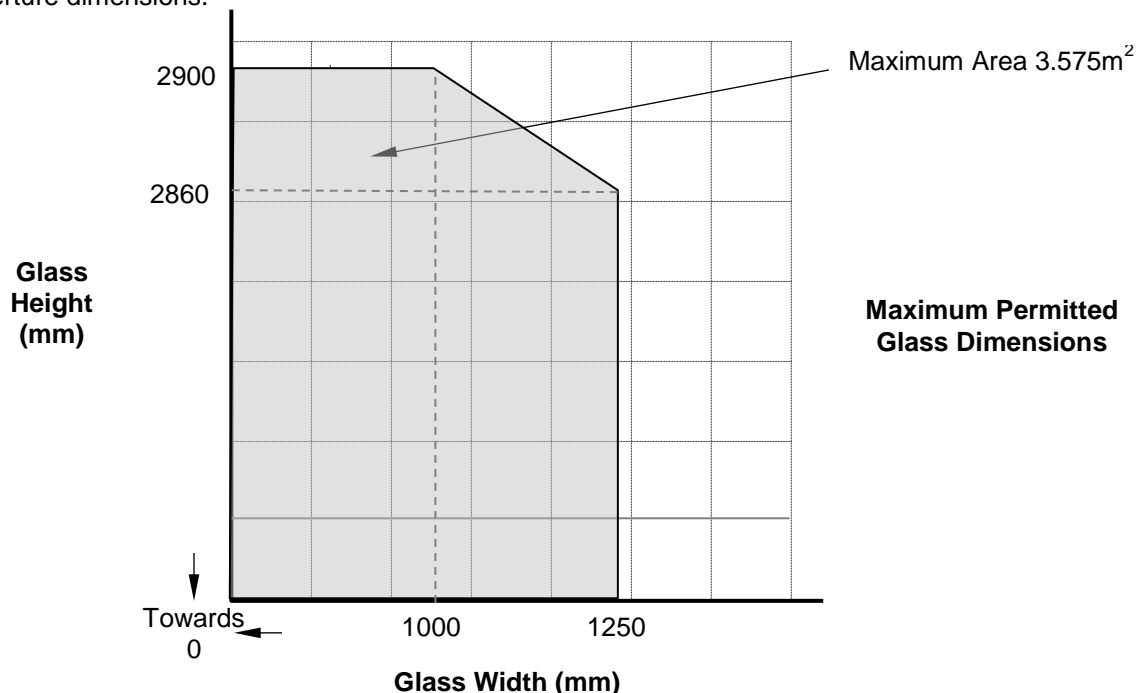
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



1. Pyrobelite 10 (2B2 safety class)
2. Ceramic fibre based glazing tape, Superwool X607, 20 mm x 5 mm capped with Dow Corning Firestop 700 neutral silicone
3. Glazing bead 35 mm x 20 mm
4. Stud, 4 mm diameter by 15 mm long
5. Perimeter Steel section, 60 mm x 70 mm x 1.75 mm (intermediate sections 60 mm by 90 mm by 1.75 mm thick)
6. Mineral wool insulation
7. Timber Setting Block (750kg/m³)

The framing system shall have test evidence, such as Jansen Economy 60 (as detailed above), or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

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

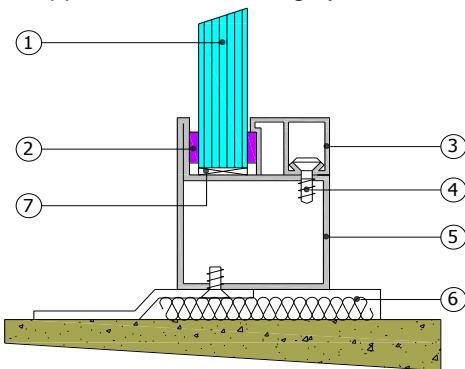


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Insulating Glass Units (IGU's) including Pyrobelite 10 Glass in steel framed screens for periods of 30 minutes integrity

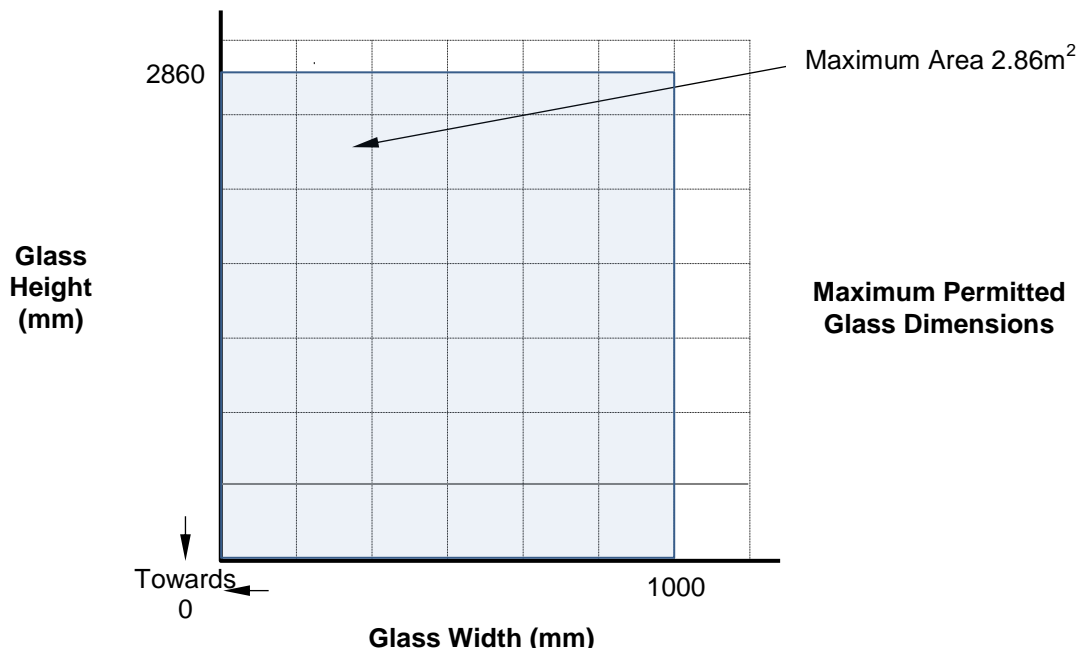
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



1. Pyrobelite 10 (2B2 safety class) Insulating Glazed Unit (a minimum 8 mm wide air cavity and minimum 6 mm thick non-fire rated glass - toughened, float, laminated, coated, tinted). Note: 6.4 mm laminated glass must be used in external applications
2. Ceramic fibre based glazing tape, Superwool X607, 20 mm x 5 mm capped with Dow Corning Firestop 700 neutral silicone
3. Glazing bead 15 mm x 20 mm
4. Stud, 4 mm diameter by 15 mm long
5. Perimeter Steel section, 60 mm x 70 mm x 1.75 mm (intermediate sections 60 mm by 90 mm by 1.75 mm thick)

The framing system shall have test evidence, such as Jansen Economy 60 (as detailed above), or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

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

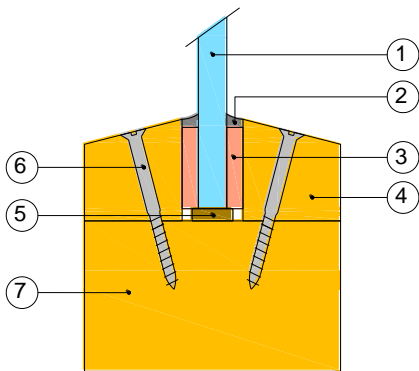


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

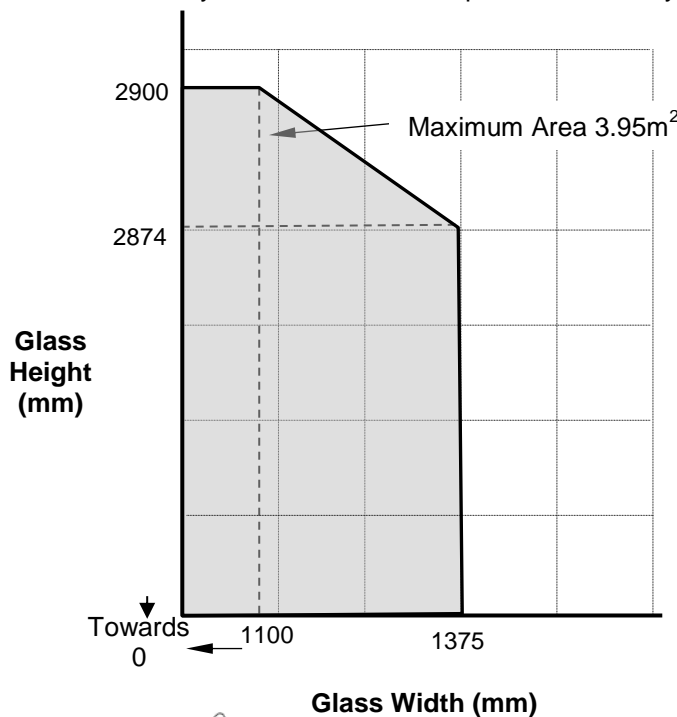
Pyrobelite 10 Glass in timber framed screens for periods of 30 minutes integrity

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 (see page 6 for approved tapes)
- 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 or 50 mm long steel pins at 150 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 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.



Maximum Permitted Glass Dimensions

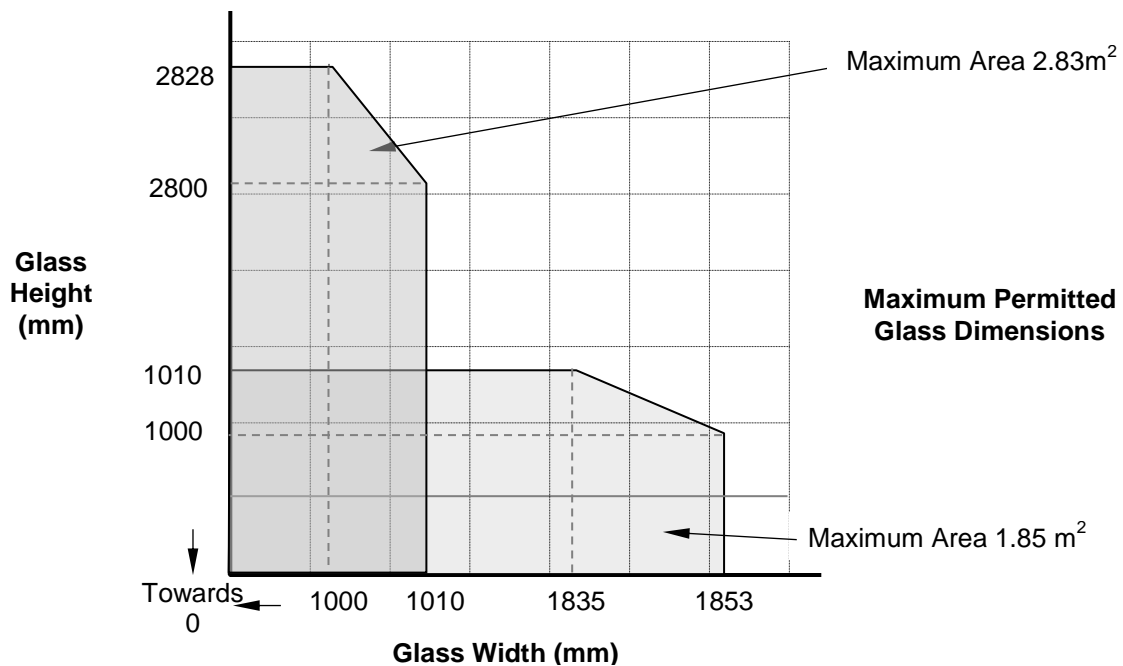
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobelite 10 (inc. IGU's) in Wicona Wicline 65 aluminium framed screens for periods of 30 minutes integrity

The glass shall be glazed within a Wicona Wicline 65 aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 10 glass (inc. IGU options comprising a minimum 8 mm wide air cavity and minimum 6 mm thick non-fire rated glass -toughened, float, laminated, coated, tinted. Note: 6.4 mm laminated glass must be used in external applications) shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



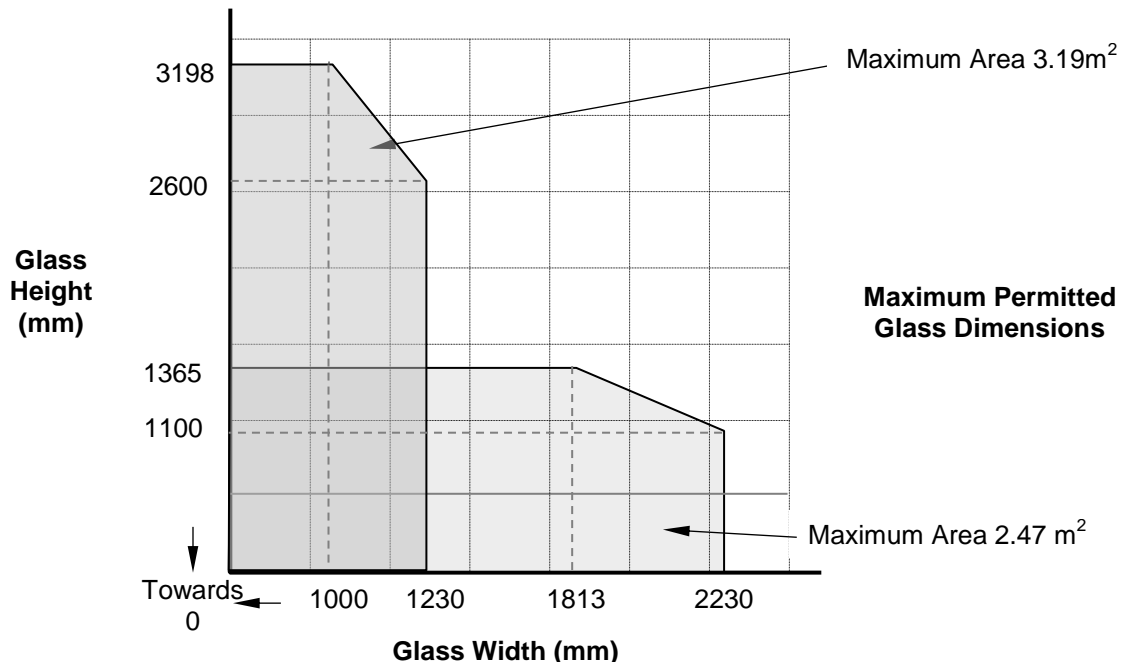
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 10 IGU Glass in Soleal 65 aluminium framed screens for periods of 30 minutes integrity

The glass shall be glazed within a Soleal 65 aluminium framed screen. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 10 IGU (please consult AGC for IGU specification) glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. **Note: Glass must be orientated such that the non-fire rated counter panes faces the fire hazard direction.**

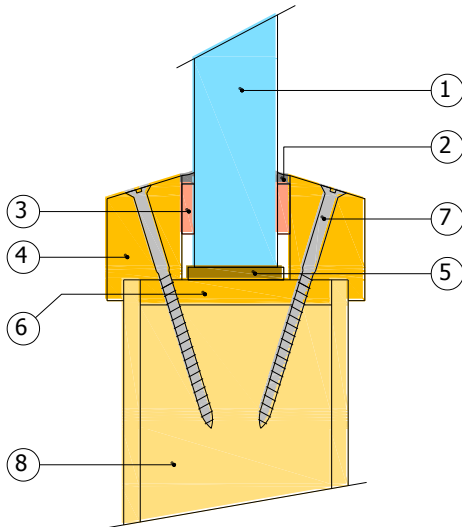


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 12 Glass in timber based doorsets for periods of 60 minutes integrity

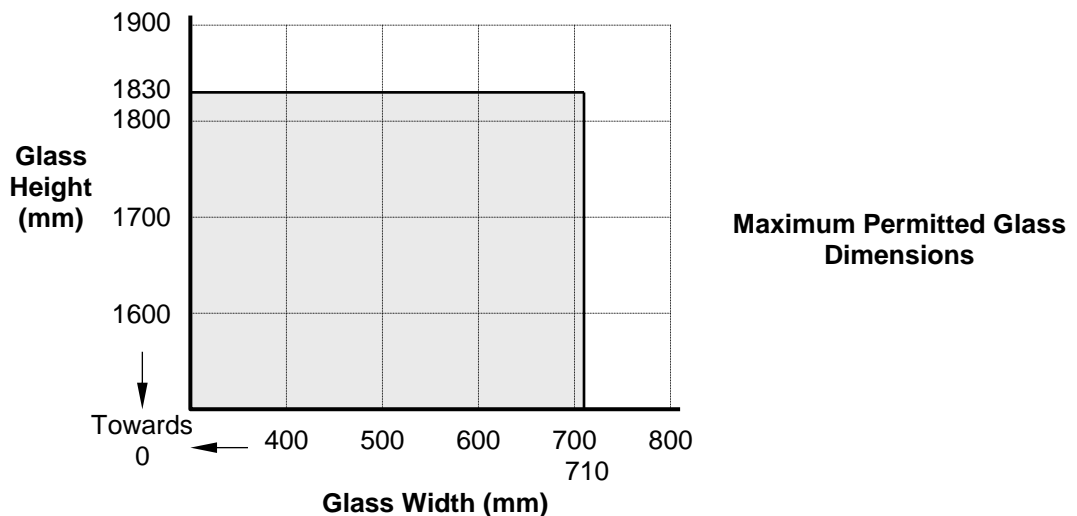
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobelite 12
- 2 Neutral silicone capping
- 3 12 mm wide by 4 mm thick closed cell foam tape (see page 6 for approved tapes)
- 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 or pins 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

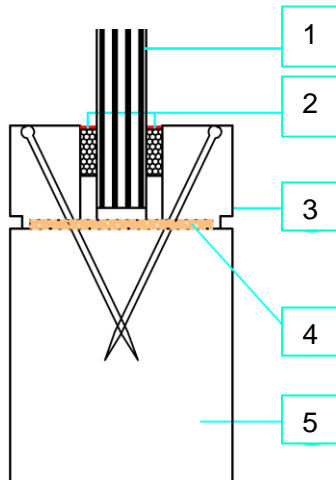


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

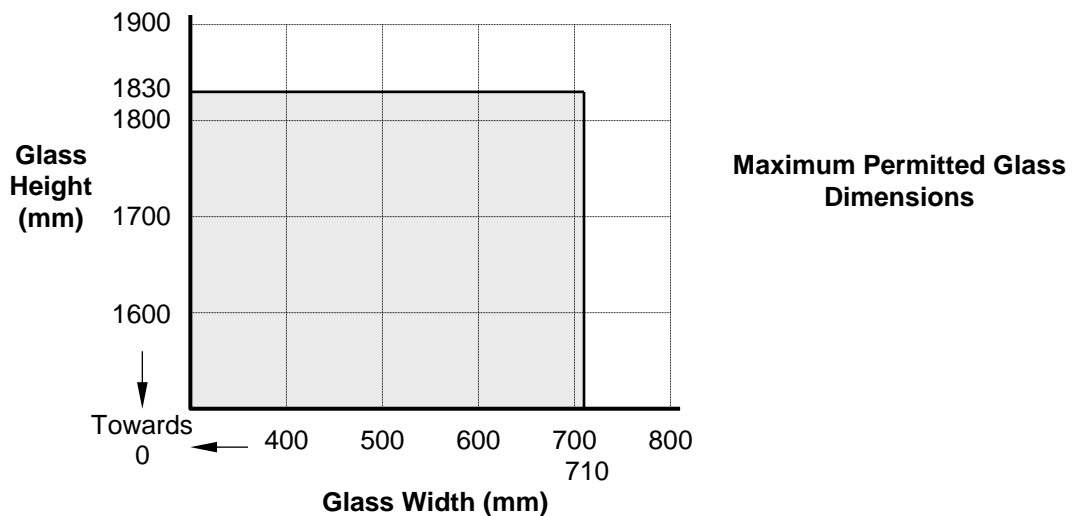
Pyrobelite 12 Glass in timber based doorsets for periods of 60 minutes integrity

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 Closed cell foam tape (see page 6 for approved tapes) capped with Neutral silicone capping
- 3 Hardwood glazing beads (640kg/m^3), 25 mm high by 18 mm wide, recessed to accept liner. Fixed with steel pins (60 mm long by 3 mm diameter) at 45° to face of glass at 100 mm centres (50 mm in from corners)
- 4 44 mm wide by 2 mm thick (Intumescent Seals Ltd Therm-A-Line or Mann McGowan Palusol)
- 4 Non-combustible/hardwood setting blocks
- 5 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

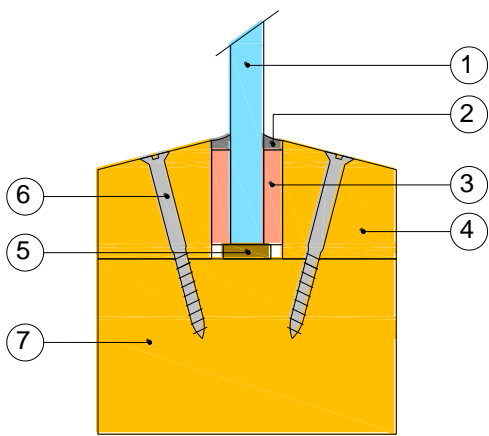


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

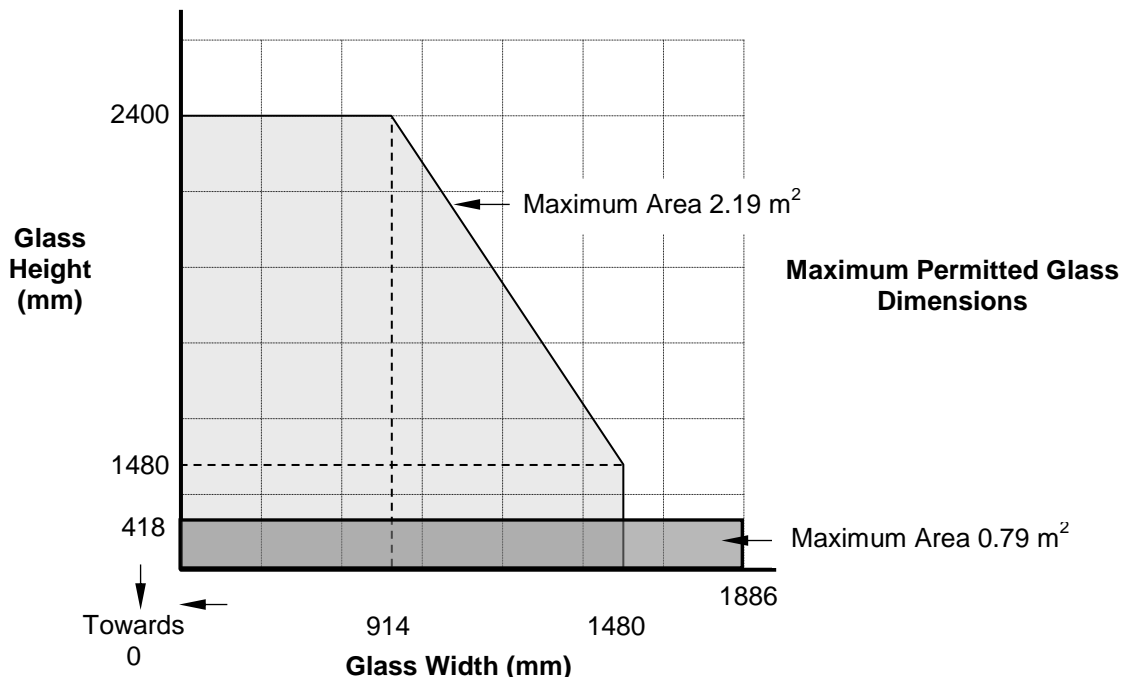
Pyrobelite 12 Glass in timber framed screens for periods of 60 minutes integrity

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 (see page 6 for approved tapes)
- 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 or 60 mm long steel pins at 150 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

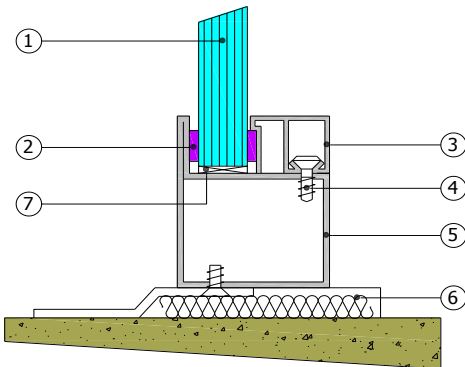


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

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

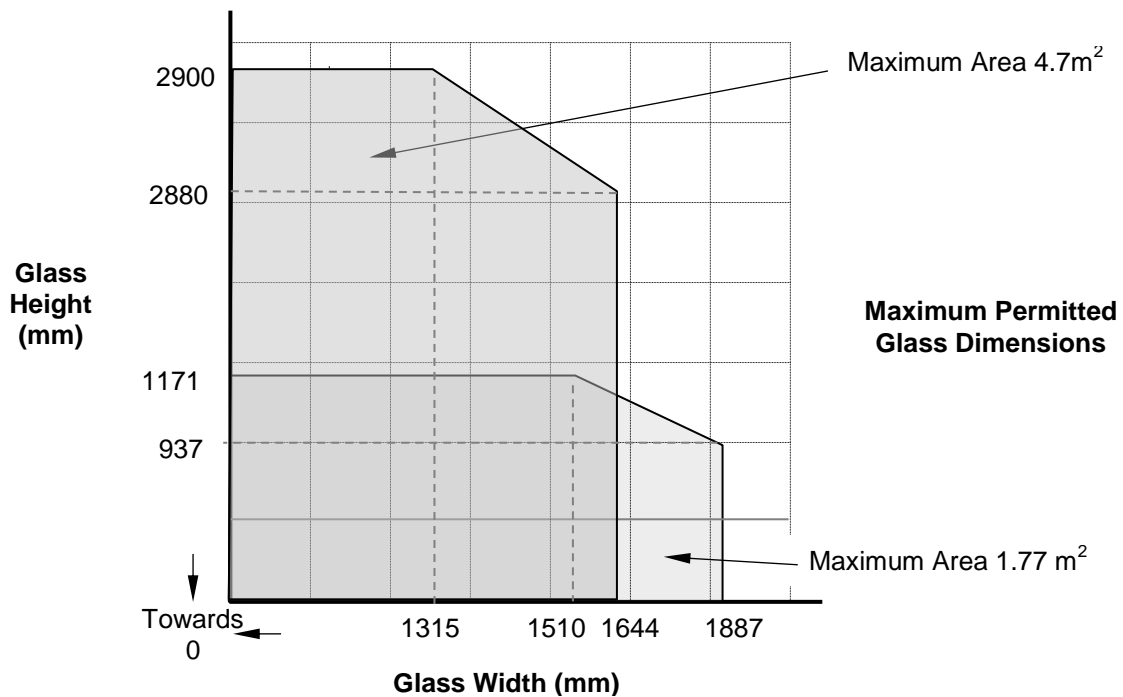
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



1. Pyrobelite 12 or Pyrobelite 12EG
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 show below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

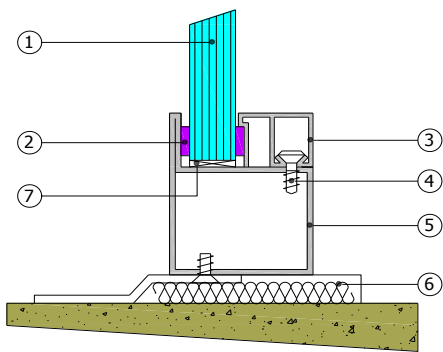


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

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

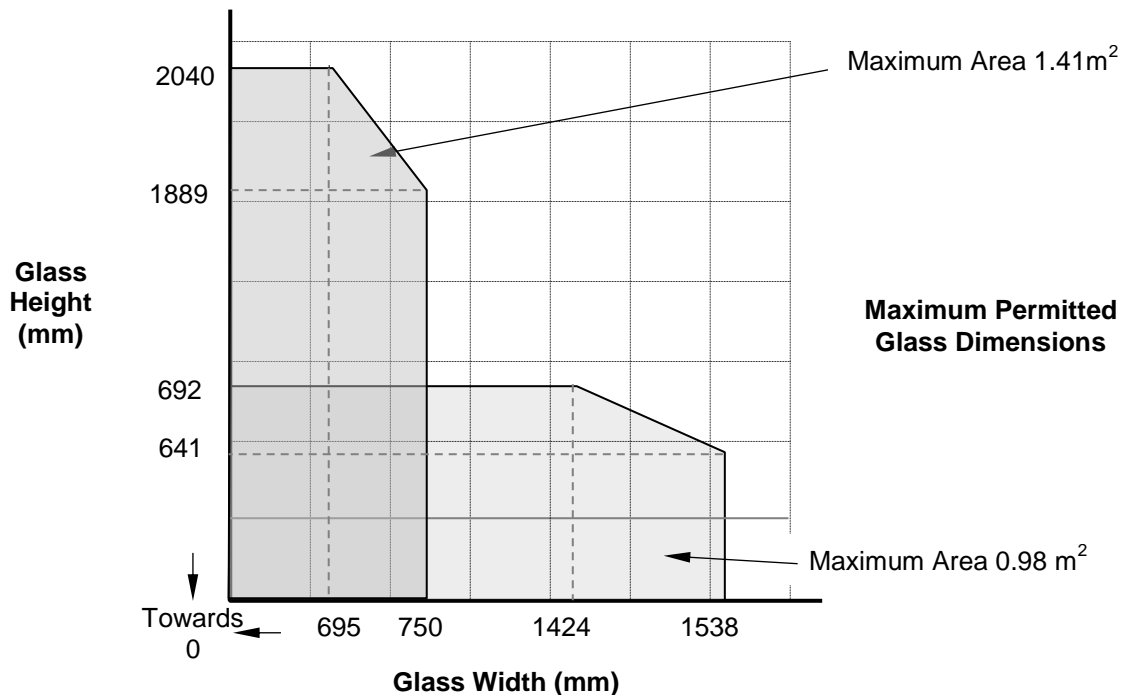
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



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

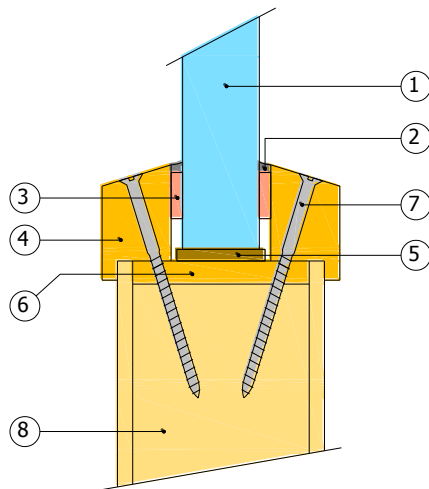


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

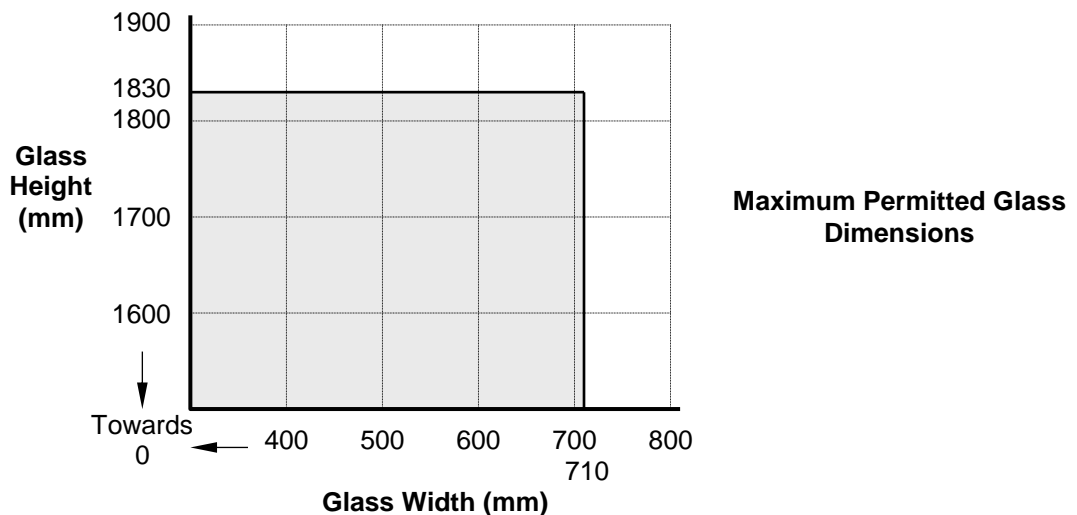
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobel 16 or Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 4 mm thick closed cell foam tape (see page 6 for approved tapes)
- 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 or pins 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

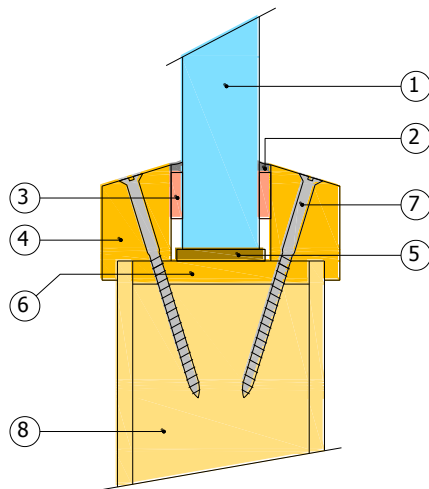


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

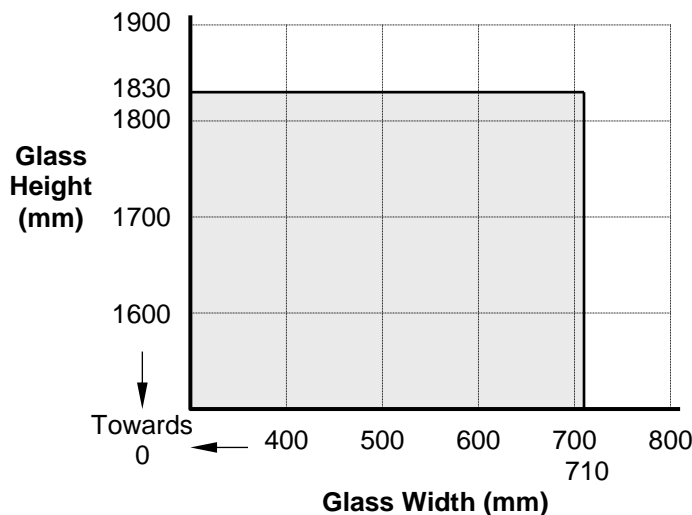
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobel 16 or Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 12 mm wide by 4 mm thick closed cell foam tape (see page 6 for approved tapes)
- 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 or pins 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

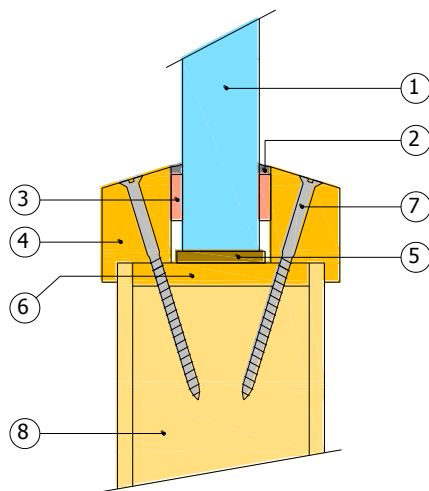


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

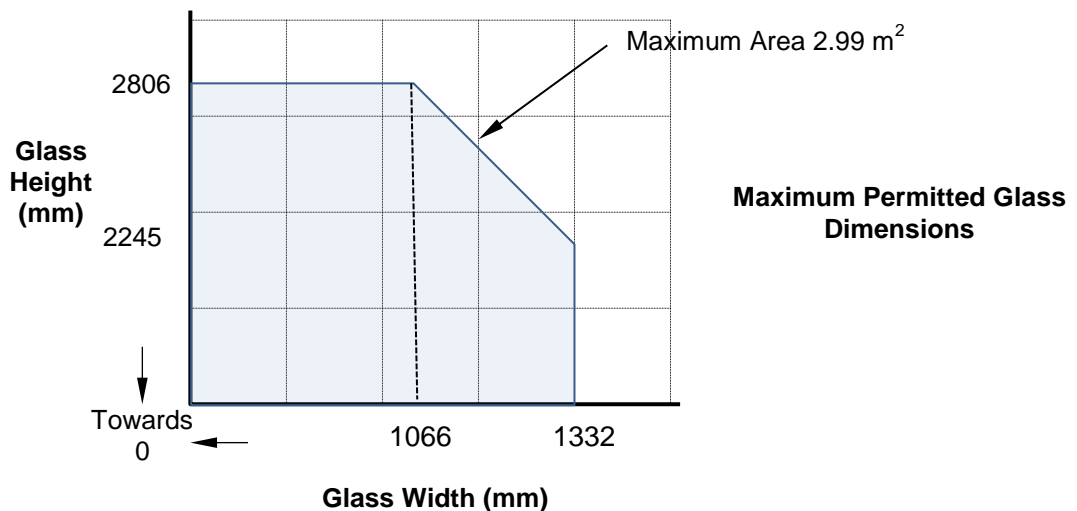
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobel 16 or Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 15 mm wide by 5 mm thick closed cell foam tape (see page 6 for approved tapes)
- 4 33 mm high by 25 mm wide (including 5 mm high by 5 mm wide bolection with 25° chamfer or square) hardwood glazing beads, minimum density 440 kg/m³
- 5 Non-combustible/hardwood setting blocks
- 6 6 mm thick hardwood aperture liner (not required for hardwood cored door leaves)
- 7 45 mm long steel screws at 250 mm centres or 50 mm long steel pins at 150 mm centres (25° to glass)
- 8 Nominally 56 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

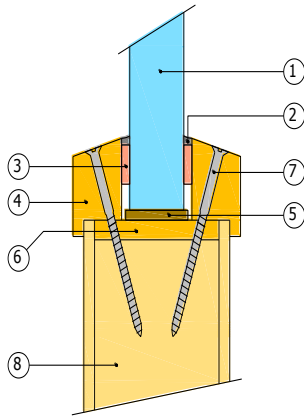


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

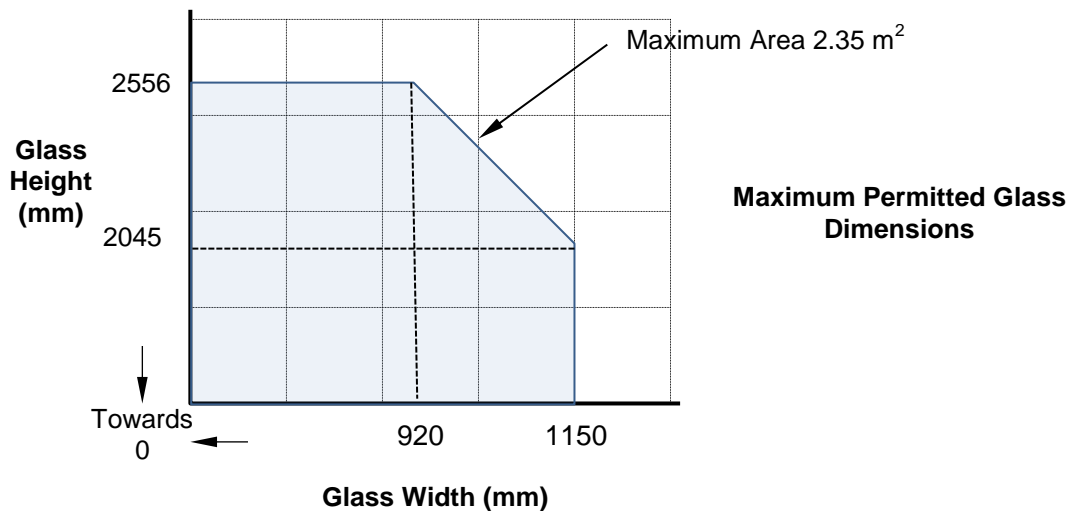
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobel 16 or Pyrobel 16 EG
- 2 Neutral silicone capping
- 3 15 mm wide by 5 mm thick closed cell foam tape (see page 6 for approved tapes)
- 4 23 mm high by 16 mm wide flush beads (with 25° chamfer or square) hardwood glazing beads, minimum density 500 kg/m³
- 5 Non-combustible/hardwood setting blocks
- 6 6 mm thick hardwood aperture liner (not required for hardwood cored door leaves)
- 7 45 mm long steel screws at 250 mm centres or 45 mm long steel pins at 150 mm centres (25° to glass)
- 8 Nominally 56 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

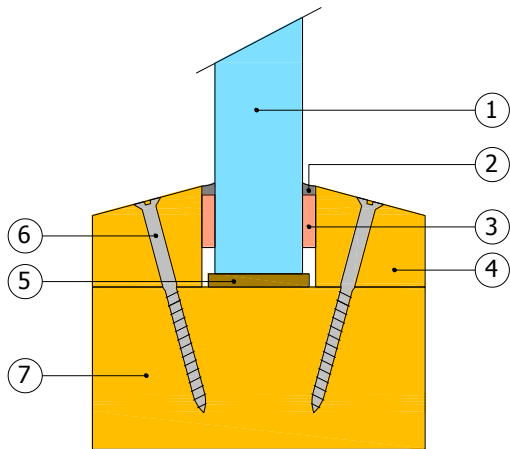


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

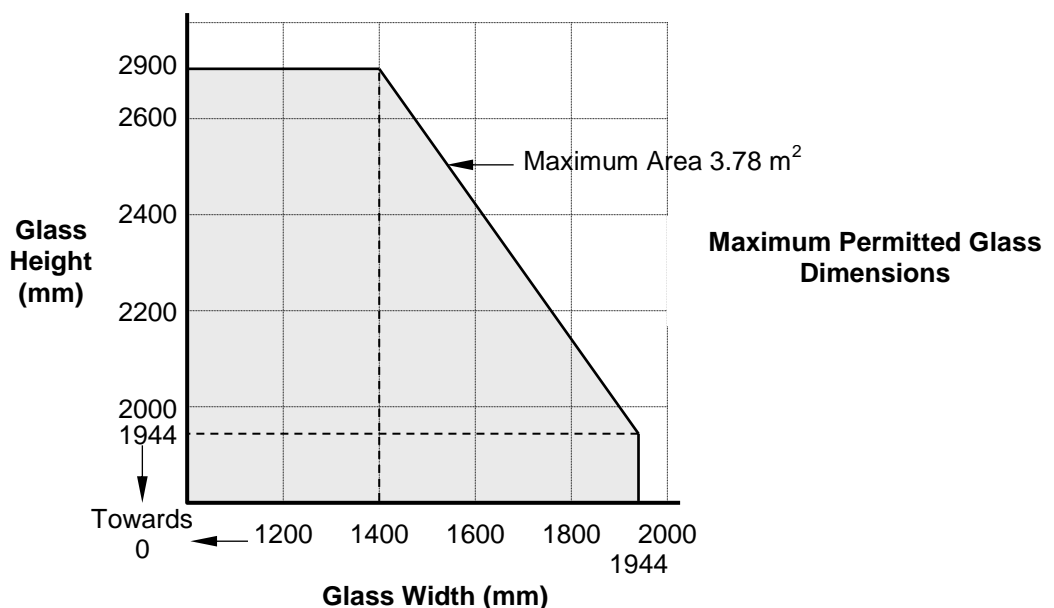
Pyrobel 16 Glass in timber framed screens for periods of 60 minutes integrity and 30 minutes insulation

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 or ceramic fibre based 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 or 50 mm long steel pins at 150 mm centres (30° to glass)
- 7 75 mm by 37 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

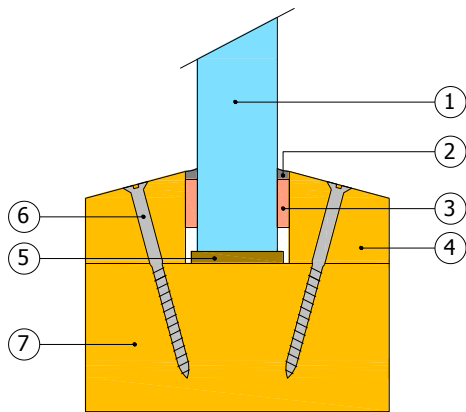


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

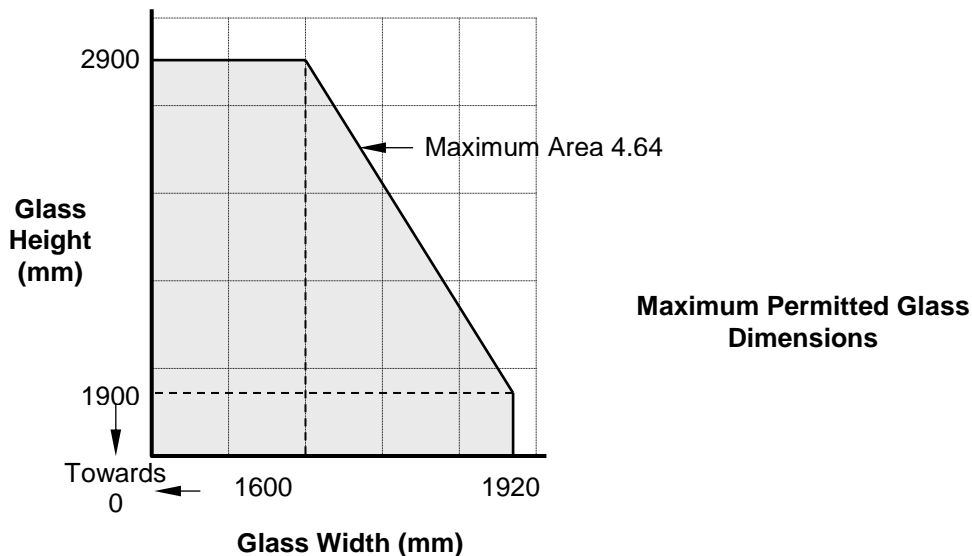
Pyrobel 16 Glass in timber framed screens for periods of 30 minutes integrity and 30 minutes insulation

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 or closed cell foam tape (see page 6 for approved tapes) 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 or 50 mm long steel pins at 150 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 (density may be reduced to 520 kg/m³ if 97 mm by 33 mm (minimum) hardwood perimeter framing sections and 97 mm by 66 mm (minimum) hardwood internal transom/mullion framing sections are used)

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

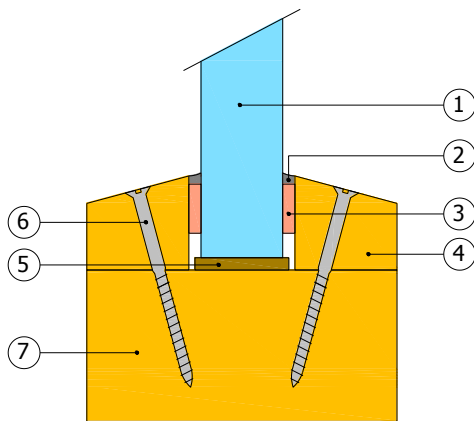


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

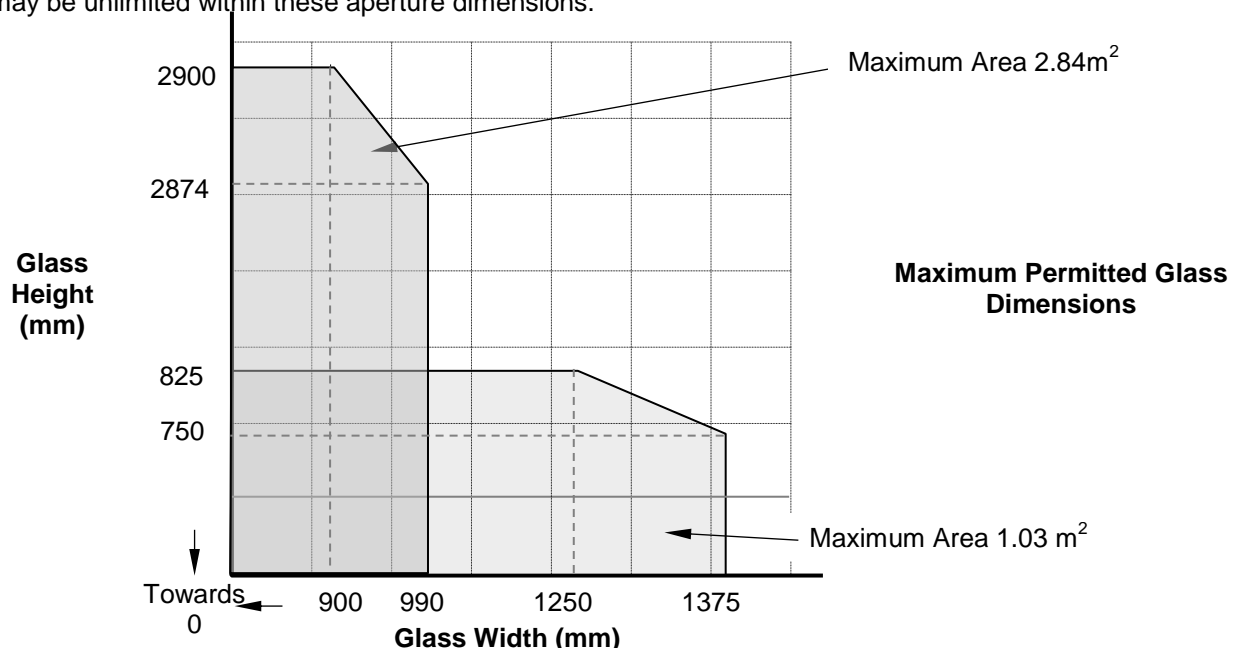
Pyrobel 16 IGU Glass in timber framed screens for periods of 60 minutes integrity and 30 minutes insulation

The glass shall be glazed utilising the following basic specification:



- 1 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 – Dow Corning Firestop 700
- 3 20 mm wide by 5 mm ceramic fibre based glazing tape – Superwool X607
- 4 30 mm high by 27 mm wide (with 15° chamfer) timber glazing beads, minimum density 491kg/m³
- 5 Non-combustible setting blocks
- 6 60 mm long steel screws at 250 mm centres or 60 mm long steel pins at 150 mm centres (30° to glass)
- 7 33 mm by 109 mm (minimum) hardwood perimeter framing sections, 46 mm by 109 mm (minimum) timber internal transom/mullion framing sections, minimum density 491 kg/m³

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



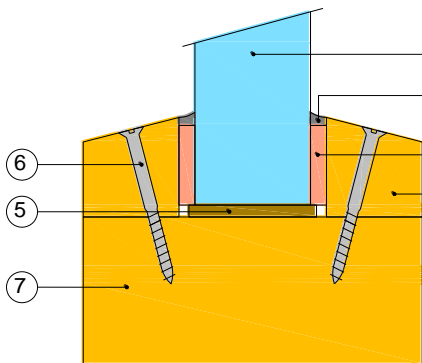
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

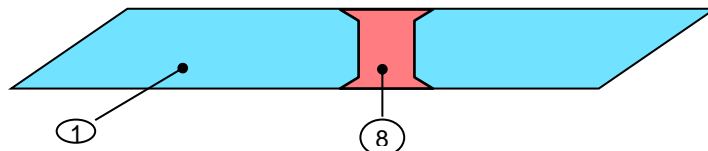
PYROBEL FIRE RESISTING GLASS

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

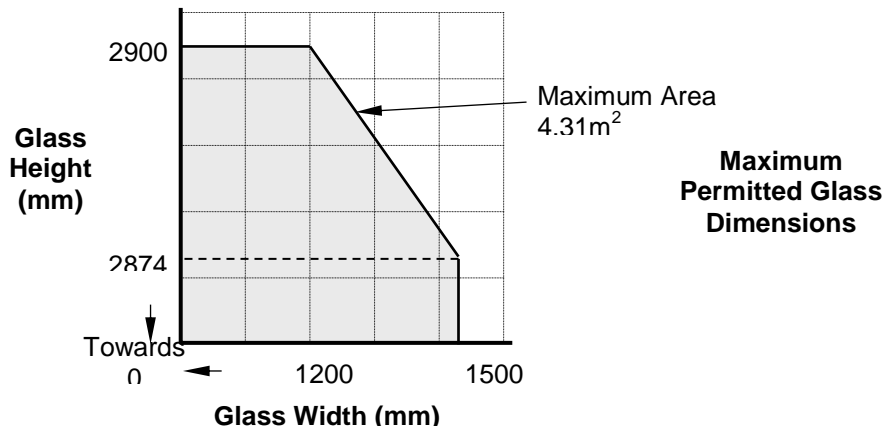
Note: Pyrobel 16 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist or AGC for further details.

The glass shall be glazed utilising the following specifications:

- 
- 1 Pyrobel 16 or Pyrobel 16 EG or Pyrobel 16 EG2 Visionline
 - 2 Neutral Silicone capping
 - 3 20 mm wide by 5 mm thick ceramic fibre tape or closed cell foam tape (see page 6 for approved tapes)
 - 4 27 mm high by 25 mm wide (either square or up to 15° chamfer) hardwood glazing beads, minimum density 520 kg/m³
 - 5 Non-combustible setting blocks
 - 6 50 mm long steel screws at 300 mm centres or 50 mm long steel pins at 150 mm centres (30° to glass)
 - 7 77 mm by 33 mm (minimum) hardwood perimeter framing sections, minimum density 520 kg/m³
 - 8 Dow Corning Firestop 700 – 5 mm thick maximum
Or
Dow Corning DC 791T - 5 mm thick maximum
Or
Henkel Ceresit 3B capping to 2off. 10mm by 2 mm ceramic fibre tape



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



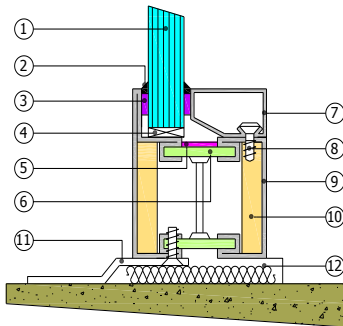
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

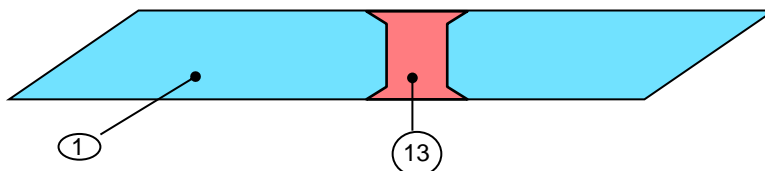
Pyrobel 16 Visionline Glass in butt jointed system for periods of 30 minutes integrity and insulation

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

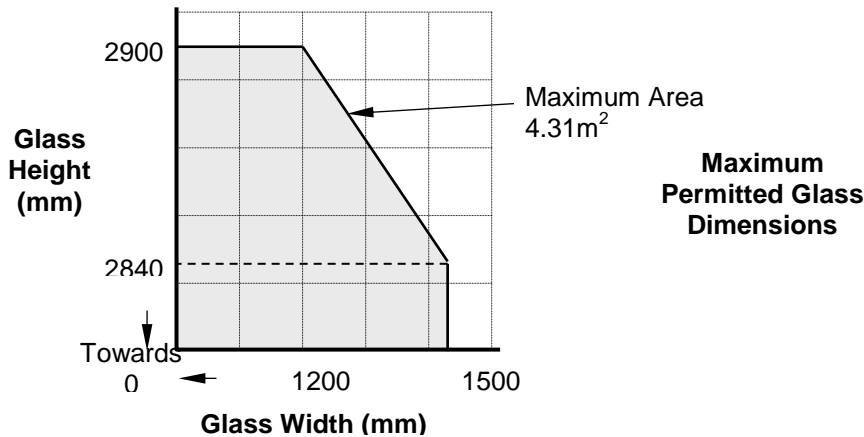
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system. The framing system shall have test evidence, such as Jansen Janisol 2, Forster Fuego Light or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.



1. Pyrobel 16 and 16 EG 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



Paul Duggan

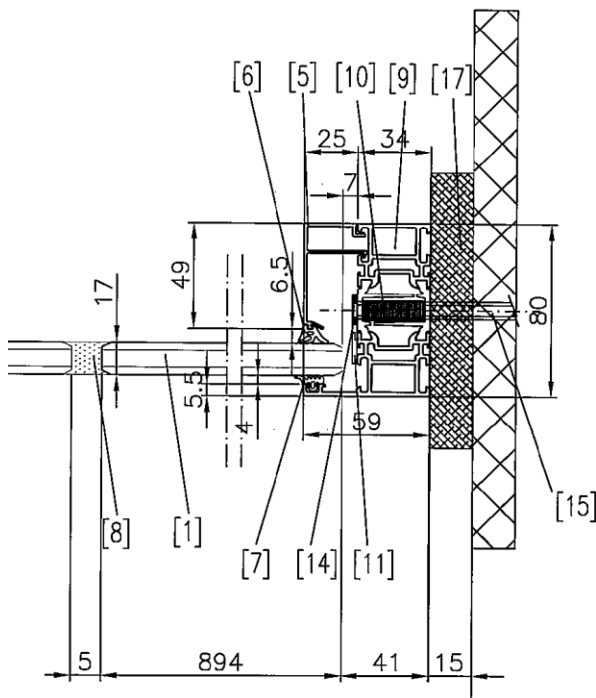
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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

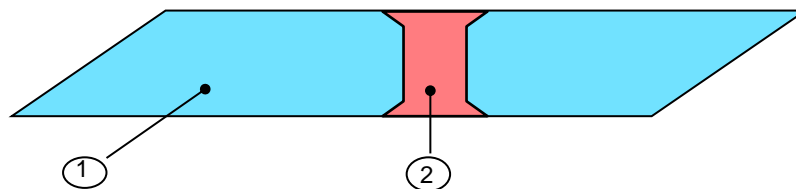
Note: Pyrobel 16 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist or AGC for further details.

The glass shall be glazed within a Schuco ADS80 FR30 aluminium framed screen.



1. Pyrobel 16 and 16EG Visionline
5. Clipped beads Schuco ref: 150 830
6. Schuco EPDM glazing gasket ref: 224 350
7. Schuco glazing gasket ref: 224 063
8. 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
9. Schuco Profile ref: 150 330
10. Schuco fireboard ref: 298 426
11. Schuco intumescent strip ref: 298 400
15. Hilti 100 HT – 10mm diameter x 112mm
17. Setting block 100mm by 80mm by 15mm

Glass setting blocks – 70 mm by 17 mm by 5 mm



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)

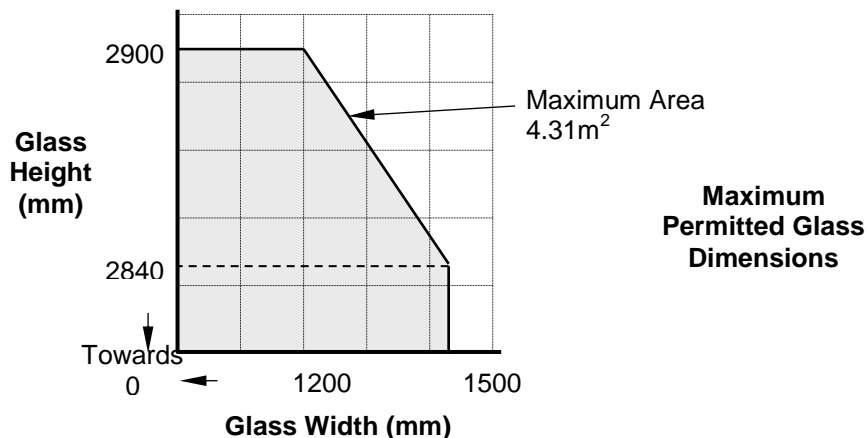
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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 or AGC for further details.

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



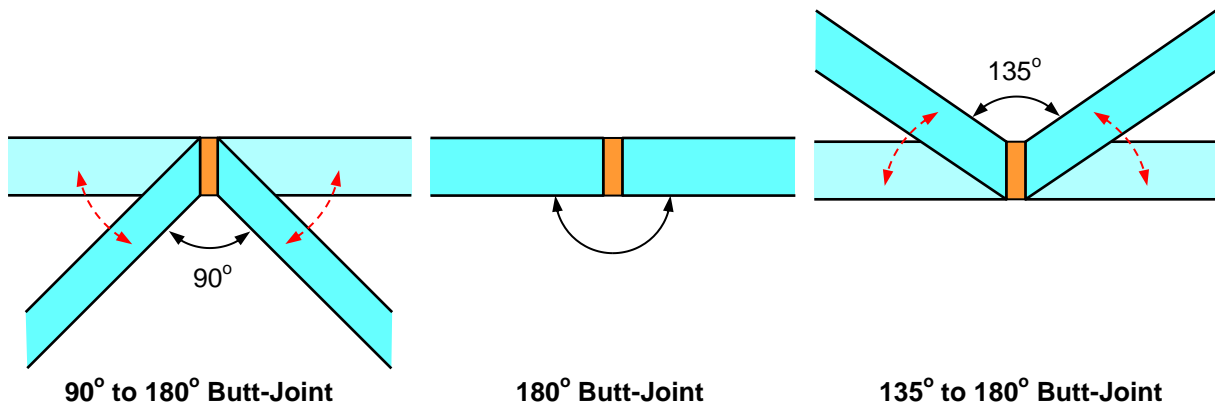
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

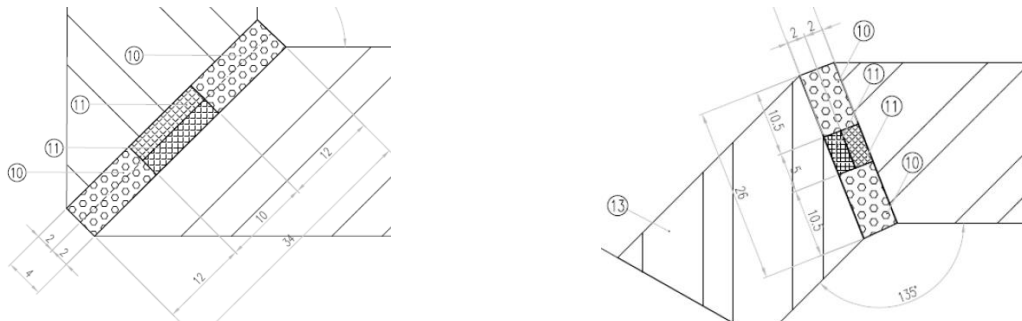
Pyrobel 16 Visionline Glass in butt jointed systems – Corner Joint Options

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

This Certificate of Approval relates to the sizes Pyrobel 16 and 16EG Visionline glass utilising corner joint details as shown below, for when used in conjunction with the system previously described above (for timber, Janisol 2, Forster Fuegolight and ADS80 framing systems). The system may include vertically orientated butt joints in a range of angles. In order to ensure the correct specification is utilised for such specialist glazing, further information should be sought from the manufacturer. The butt joint detail depends upon the angle between glass panes (in terms of butt joint component dimensions and specifications).



Corner joint specification:



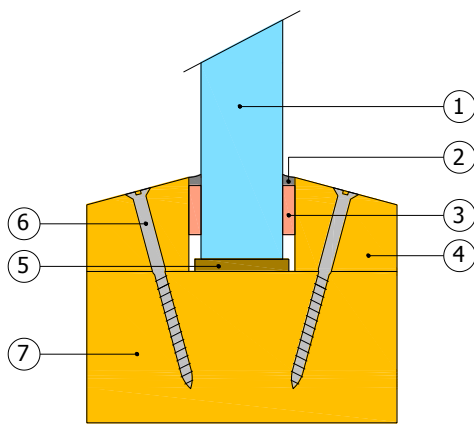
Item 10 - Momentive Pensil 300 – neutral silicone
Item 11 - Gluske Kerafix FXL200

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PYROBEL FIRE RESISTING GLASS

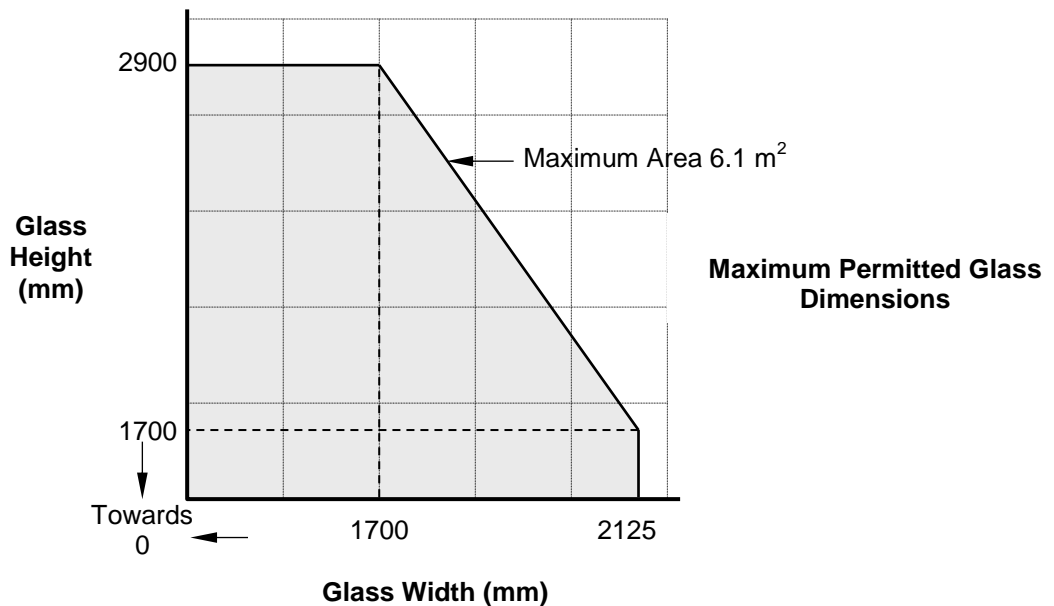
Pyrobel 16 IGU Glass in timber framed screens for periods of 30 minutes integrity and 30 minutes insulation

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 or 60 mm steel pins at 150 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 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 GLASS UK LIMITED

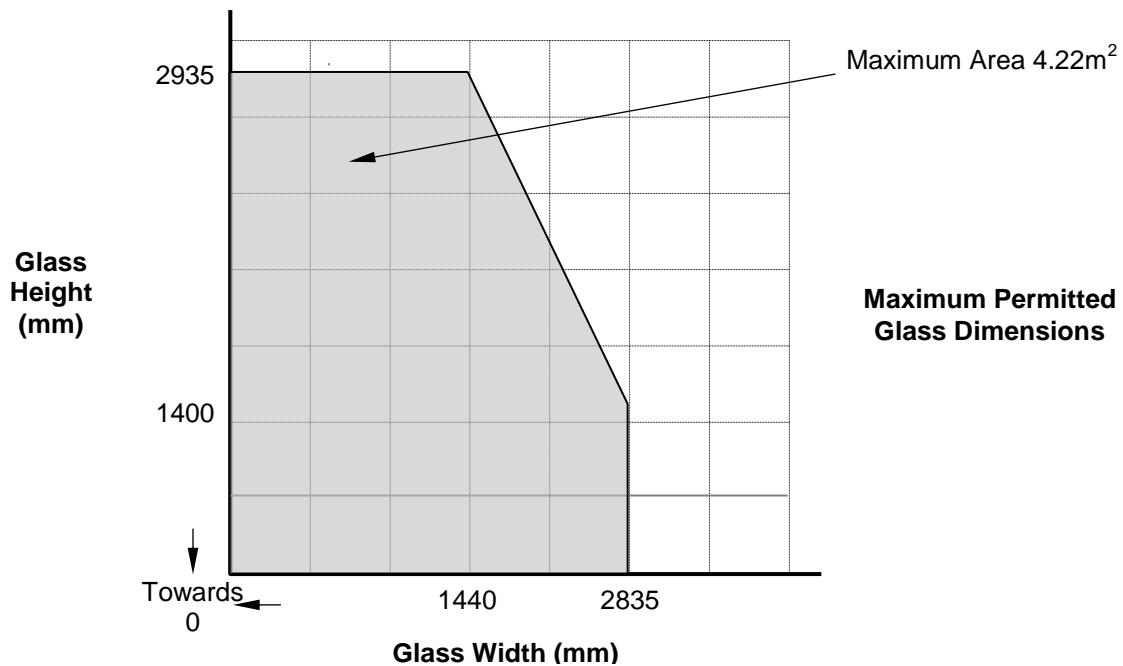
PYROBEL FIRE RESISTING GLASS

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 10 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) shown 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.

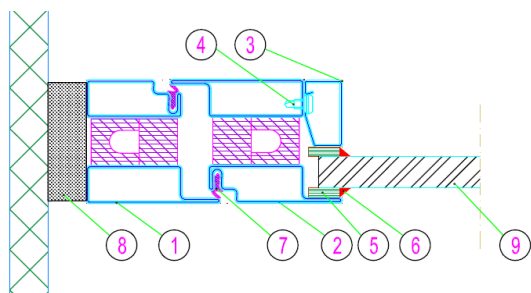


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 Glass (including IGU's) in steel doorsets for periods of 30 minutes integrity and insulation

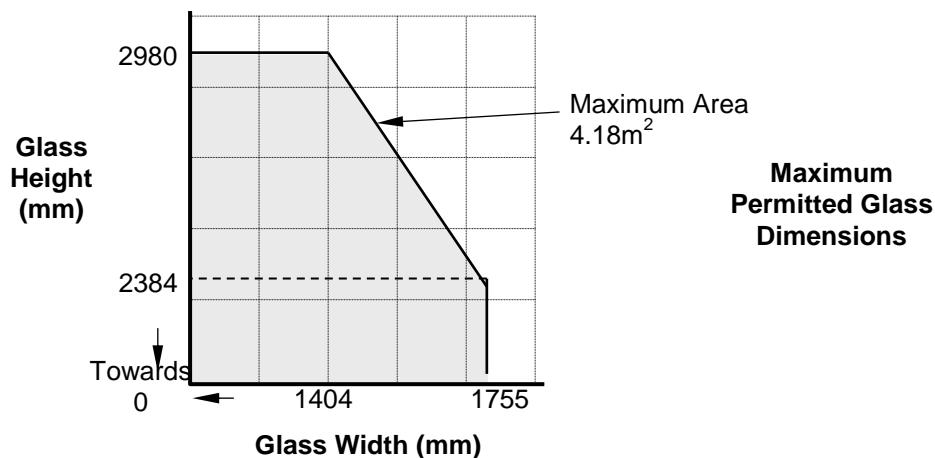
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel profiled door leaf framing system.



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

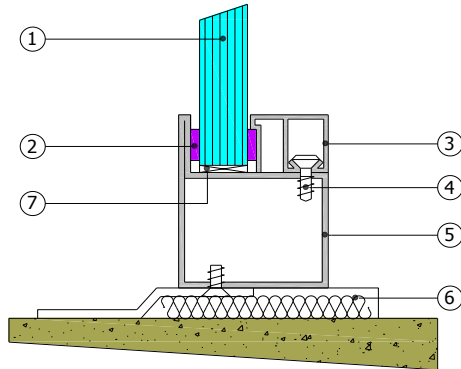


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

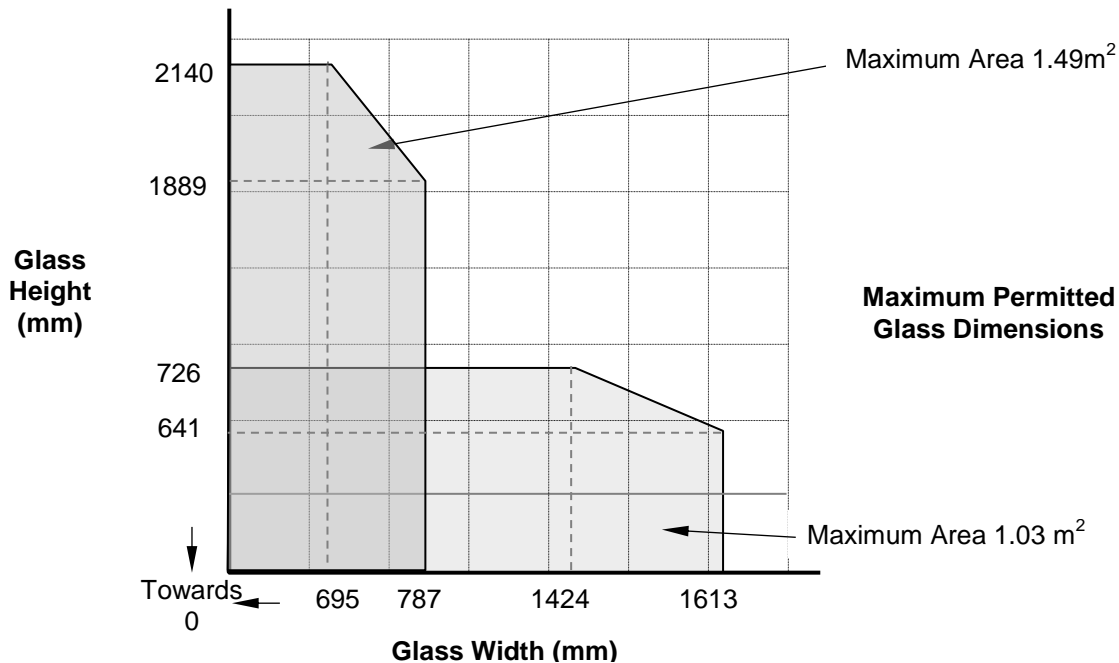
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



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

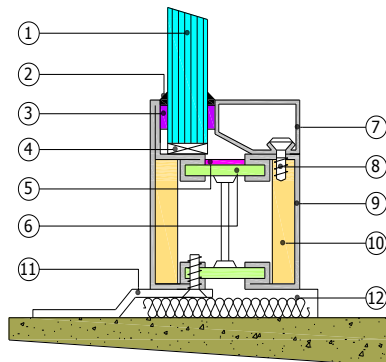


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

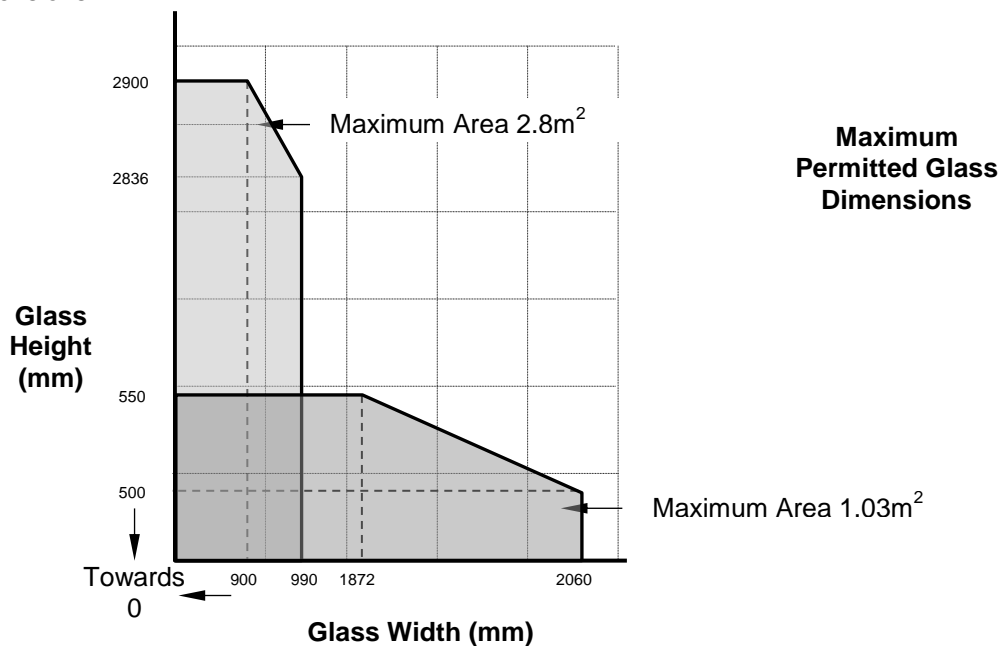
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



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

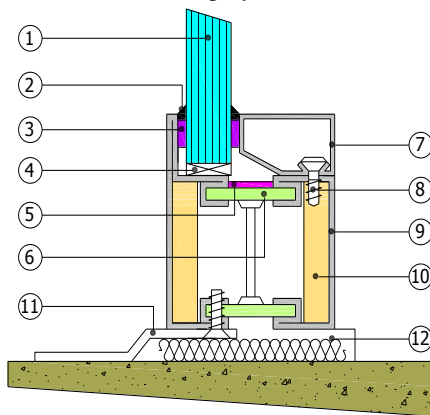


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

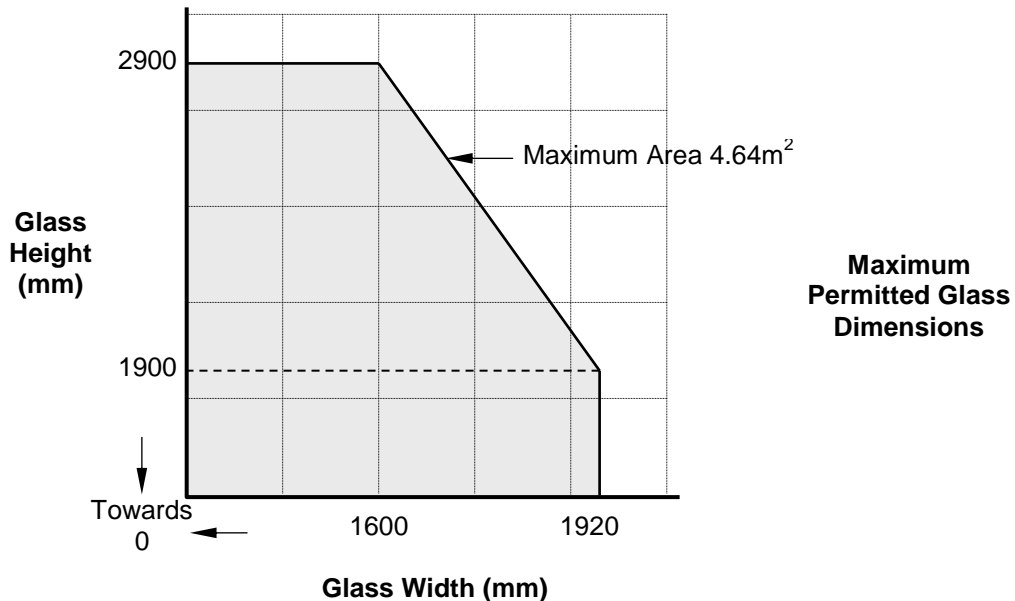
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



1. Pyrobel 16 and Pyrobel 16 EG
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 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

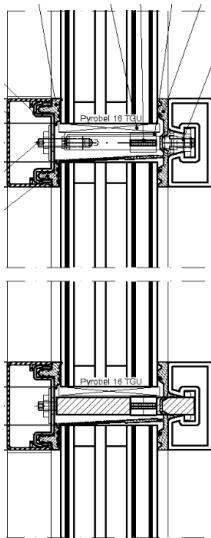


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

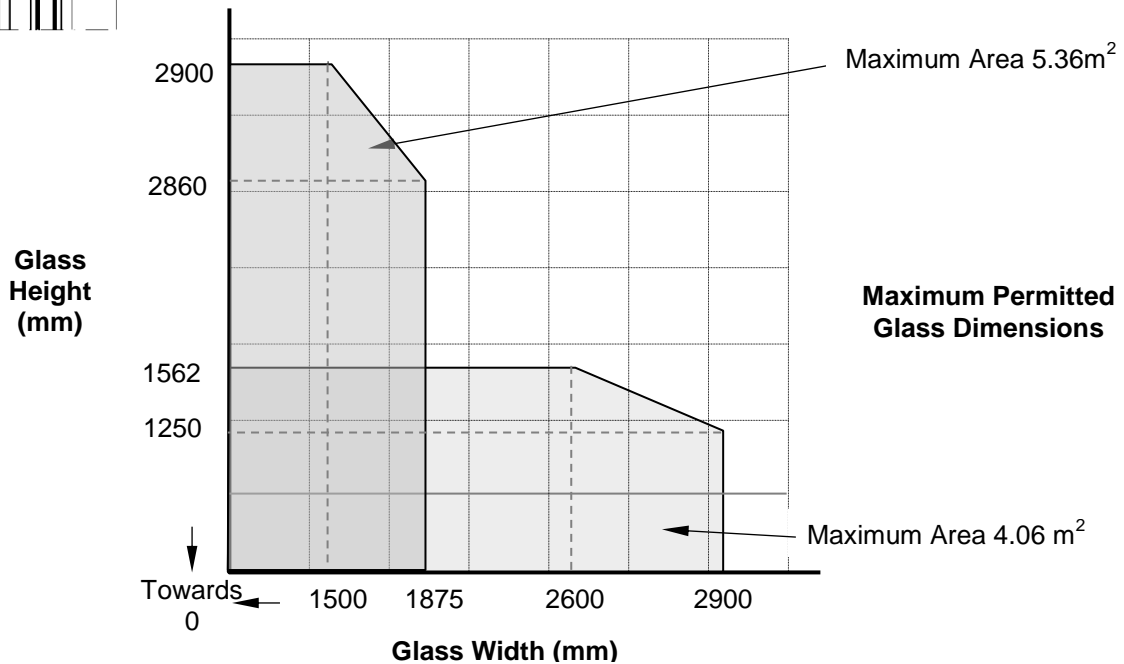
Pyrobel 16 (Triple Glazed TGU's) in insulated steel framed screens for periods of 30 minutes integrity and 30 minutes insulation

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 VISS Ixtra TV (as detailed above), or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

This Certificate of Approval relates to the sizes of Pyrobel 16 Triple glazed IGU (please consult AGC for TGU specification) glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. Note: glass must be orientated such that the non-fire glass face the fire hazard direction.



CERTIFICATE No CF 377 AGC GLASS UK LIMITED

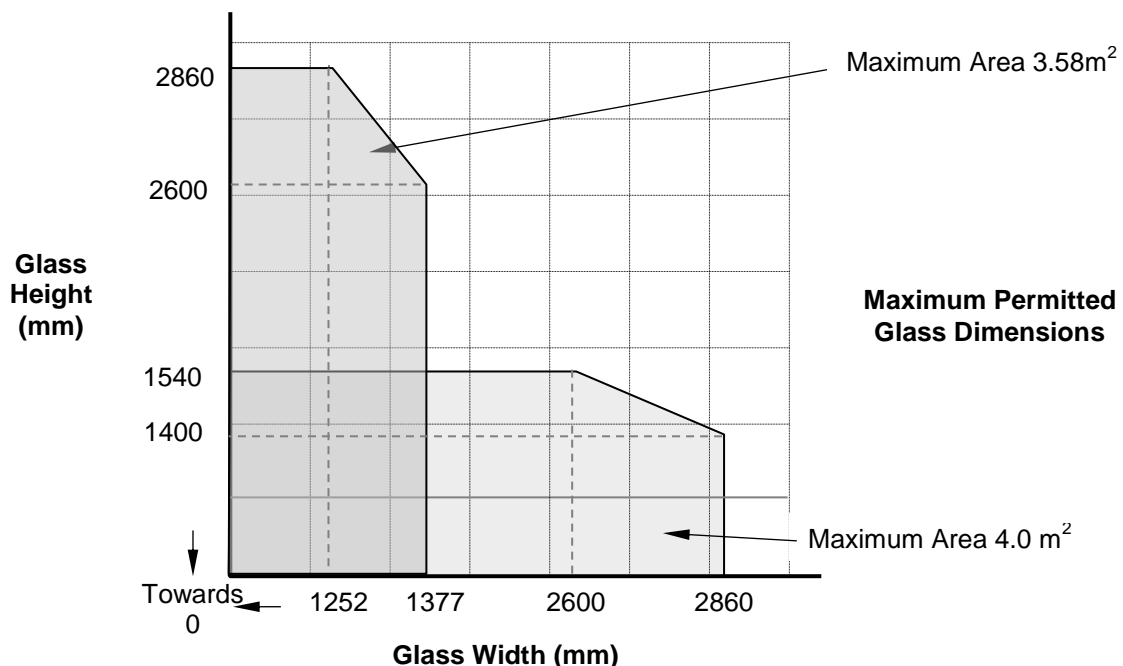
PYROBEL FIRE RESISTING GLASS

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 10 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) shown 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 GLASS UK LIMITED

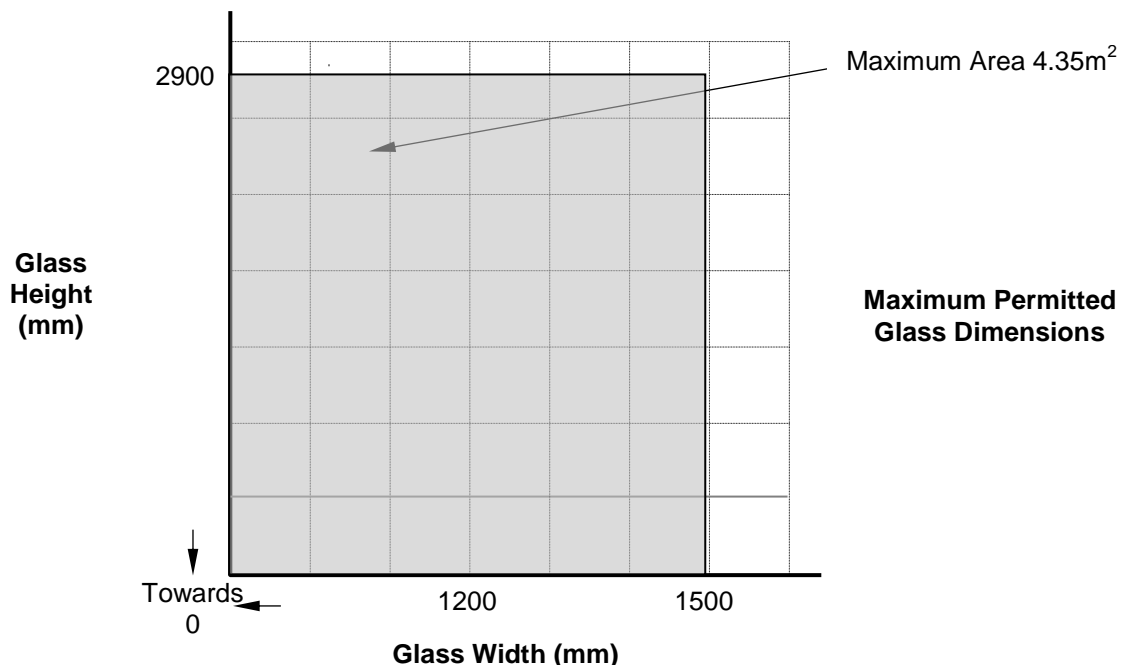
PYROBEL FIRE RESISTING GLASS

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 10 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) shown 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.

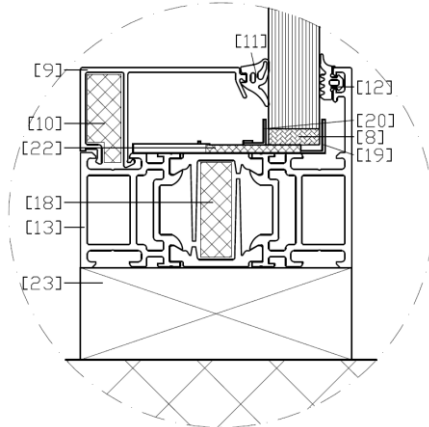


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16 and Pyrobel 16EG in 'Schuco ADS80' aluminium framed screens for periods of 30 minutes integrity and 30 minutes insulation

The glass shall be glazed within a 'Schuco ADS80' aluminium framed screen.



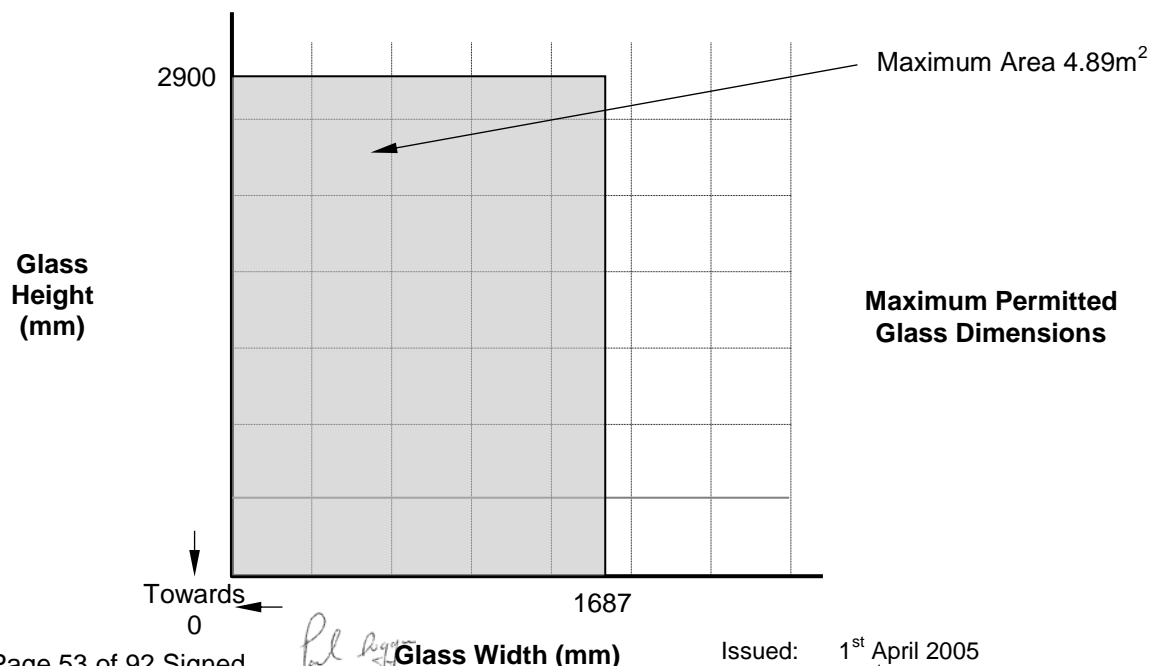
Pyrobel 16 and 16EG

- 8. Setting blocks – 70 mm by 17 mm by 5 mm
- 9. Clipped beads Schuco ref: 150 830
- 10. Schuco fireboard ref: 266 603
- 11. Schuco EPDM glazing gasket ref: 284 305
- 12. Schuco EPDM glazing gasket ref: 284 360
- 13. Schuco Profile ref: 150 330
- 18. Schuco fireboard ref: 298 426
- 19. Glazing clip ref: 242 860
- 20. Retaining clip ref: 242 861
- 22. Schuco intumescent strip ref: 266 784
- 23. Setting block 260mm by 55mm by 15mm

Fixing: Hilti 100 HT – 10mm diameter x 112mm

This Certificate of Approval relates to the sizes of Pyrobel 16 glass (comprising Pyrobel 16 or Pyrobel 16 External Grade) shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Note: the approval is only valid when the insulated sections of the frame face the fire hazard direction.



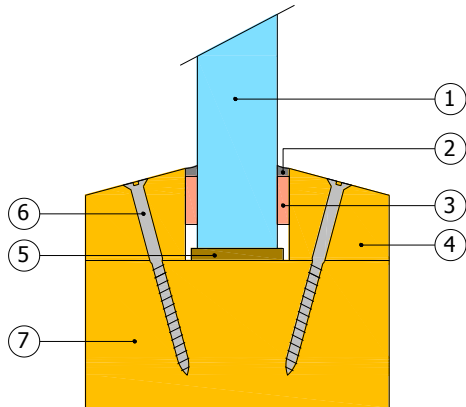
Paul Dyer

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

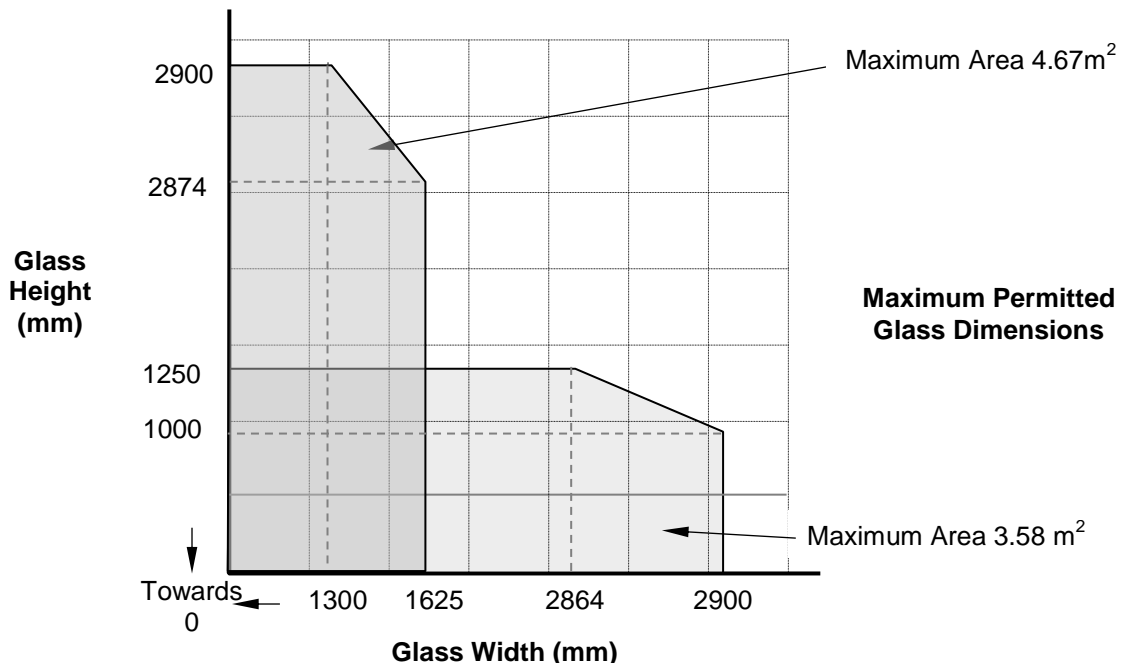
Pyrobel 17N and 17N EG Glass in timber framed screens for periods of 60 minutes integrity and 30 minutes insulation

The glass shall be glazed utilising the following basic specification:



- 1 Pyrobel 17N or 17N EG
- 2 Neutral silicone capping
- 3 20 mm wide by 5 mm ceramic fibre based glazing tape or closed cell foam
- 4 30 mm high by 27 mm wide (with 15° chamfer) hardwood glazing beads, minimum density 550 kg/m³
- 5 Non-combustible setting blocks
- 6 60 mm long steel screws or pins at 200 mm centres (30° to glass)
- 7 87 mm by 33 mm (minimum) hardwood perimeter framing sections, 87 mm by 46 mm (minimum) hardwood internal transom/mullion framing sections, minimum density 550 kg/m³

This Certificate of Approval relates to the sizes of Pyrobel 17N or 17N EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

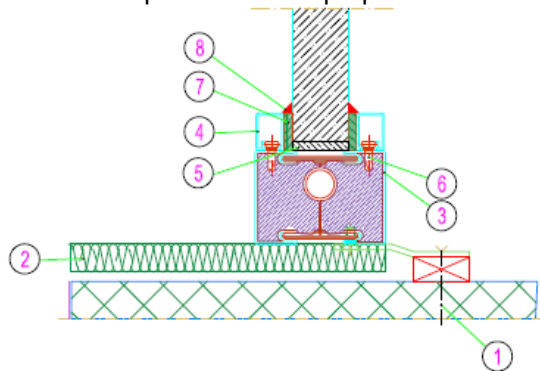


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

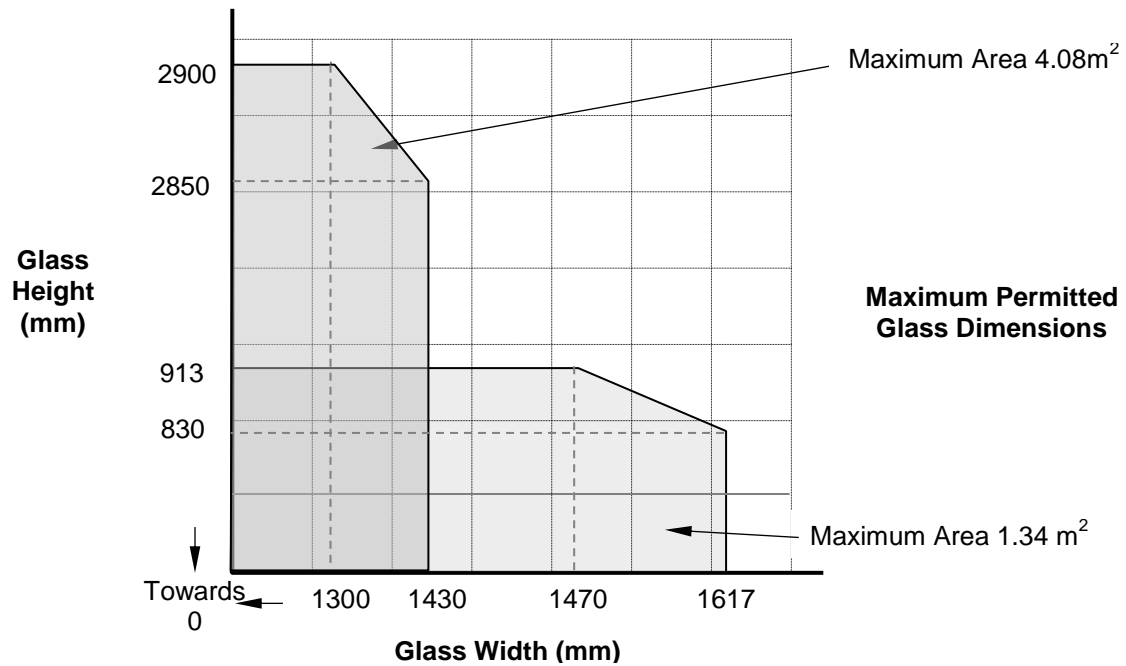
Pyrobel 17N or 17N EG in insulated steel framed screens for periods of 60 minutes integrity and 30 minutes insulation

The glass shall be glazed within a Jansen Janisol C4 frame, 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 20 mm by 20 mm
5. Setting block – 70 mm by 30 mm by 5 mm
6. 4mm diameter by 16 mm long steel screw
7. Ceramic paper – 20 mm by 5 mm
8. Silicone – Dow Corning Firestop 700

This Certificate of Approval relates to the sizes of Pyrobel 17N or 17N EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

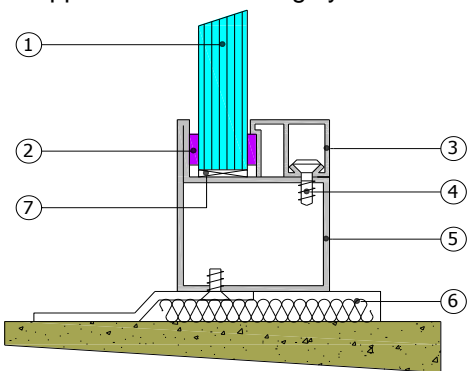


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobel 17N or 17N EG in uninsulated steel framed screens for periods of 60 minutes integrity only

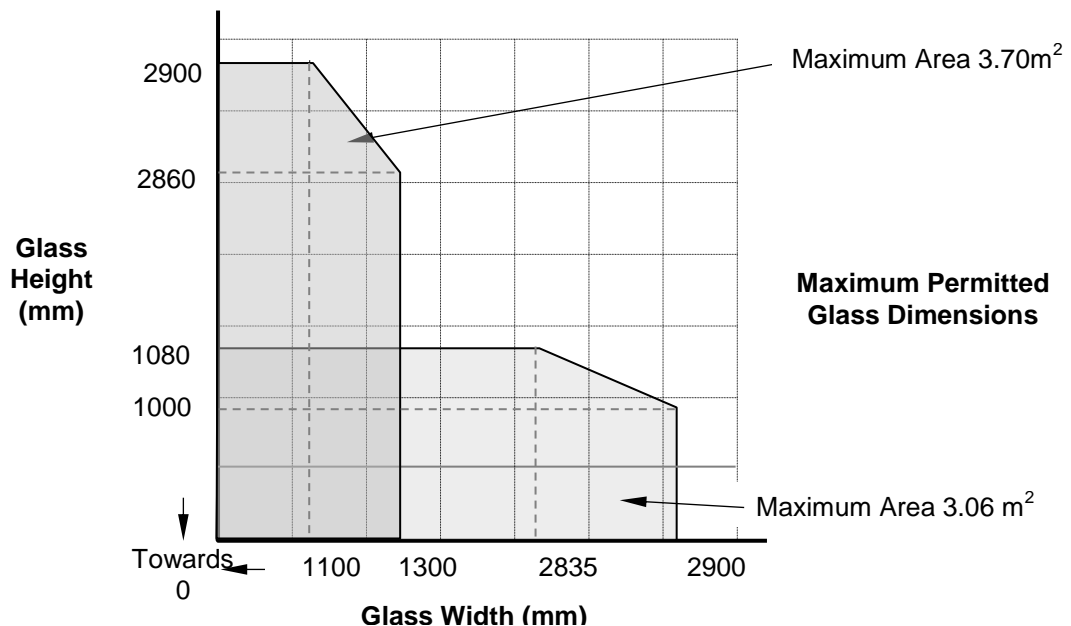
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system.



1. Pyrobel 17N or 17N EG
2. Ceramic fibre based glazing tape, Superwool X607, 20 mm x 5 mm capped with Dow Corning Firestop 700 neutral silicone
3. Glazing bead 20 mm x 25 mm
4. Stud, 4 mm diameter by 16 mm long
5. Perimeter Steel section, 60 mm x 70 mm x 1.75 mm (intermediate sections 60 mm by 90 mm by 1.75 mm thick)
6. Mineral wool insulation
7. Non-combustible setting blocks

The framing system shall have test evidence, such as Jansen Economy 60 (as detailed above), Forster Presto or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.

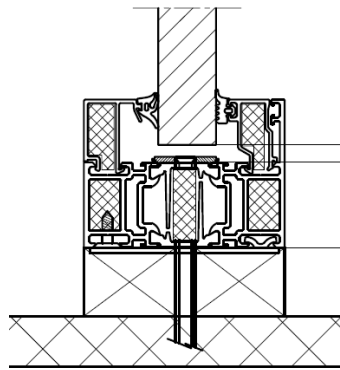
This Certificate of Approval relates to the sizes of Pyrobel 17N or 17N EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



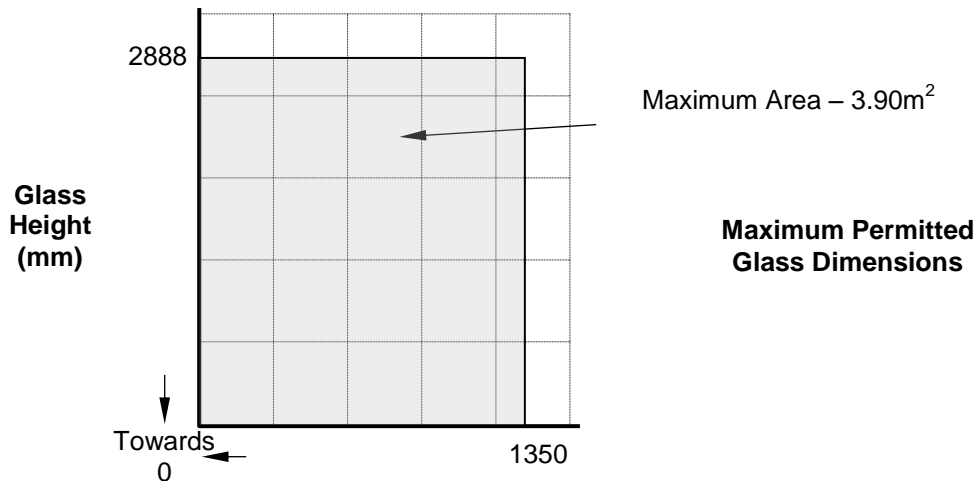
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

Pyrobel 17N and 17N EG in 'SCHUCO ADS80' aluminium framed screens for periods of 60 minutes integrity and 30 minutes insulation

The glass, Pyrobel 17N and 17N EG, shall be glazed within a 'Schuco ADS80' aluminium framed screen – see below for diagrammatic details:



This Certificate of Approval relates to the sizes of Pyrobel 17N and 17N EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

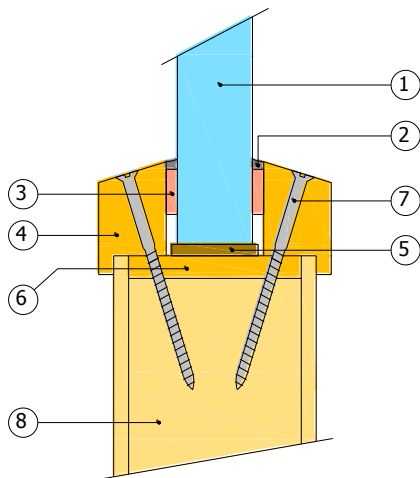


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 25 Glass in timber based doorsets for periods of 60 minutes integrity and insulation

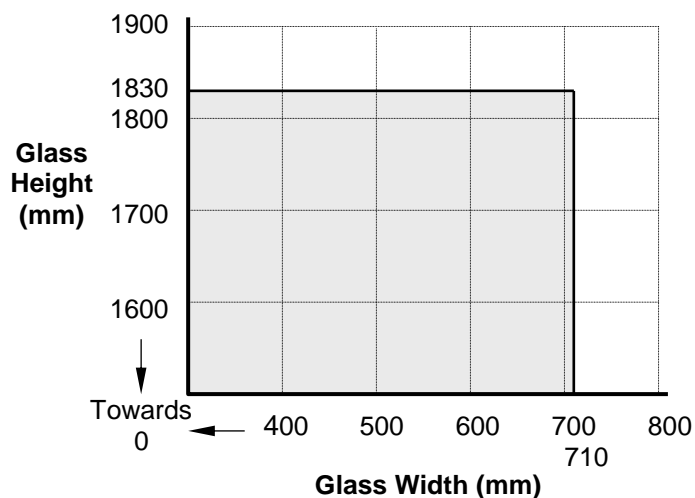
The glass shall be glazed within a previously fire tested or CERTIFIRE approved timber based doorset utilising the following basic specification:



- 1 Pyrobel 25 and Pyrobel 25 EG
- 2 Neutral silicone capping
- 3 15 mm wide by 4 mm thick closed cell foam tape (see page 6 for approved tapes)
- 4 30 mm high by 15.5 mm wide (including 5 mm high by 5 mm wide bolection with 20° chamfer) 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 25 and Pyrobel 25 EG glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

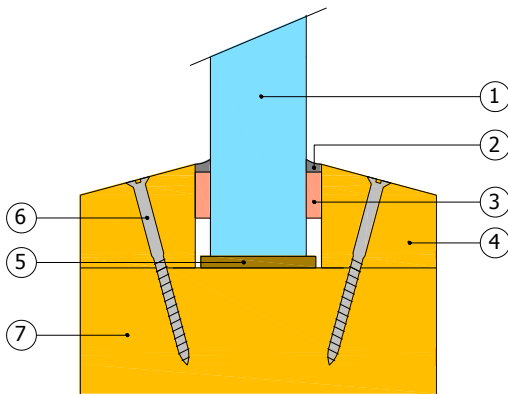


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

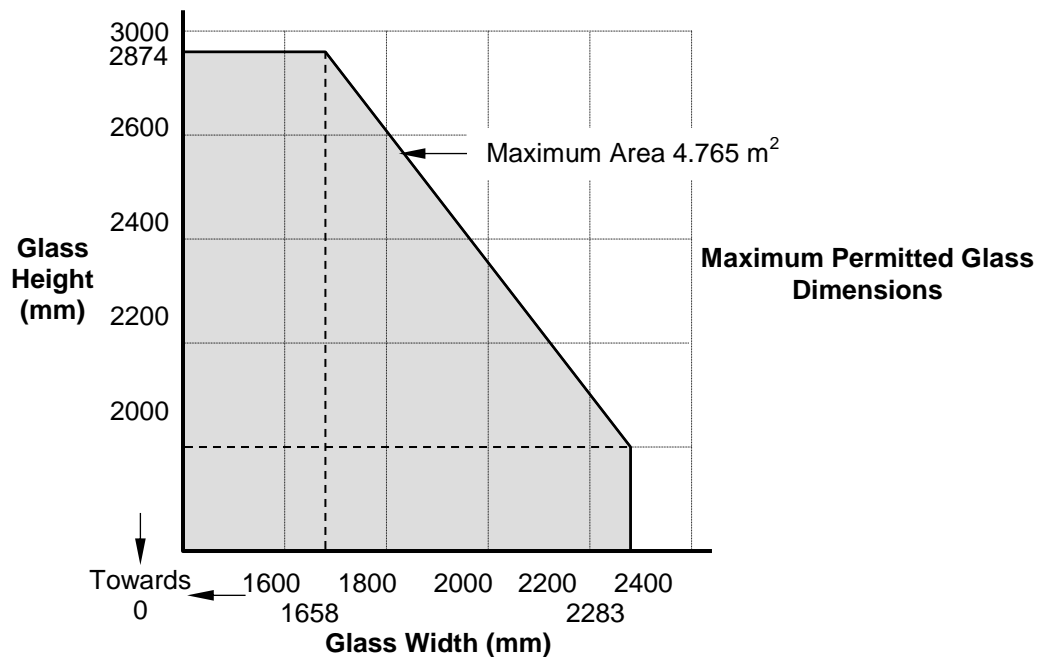
Pyrobel 25 Glass in hardwood timber framed screens for periods of 60 minutes integrity and insulation

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 (see page 6 for approved tapes)
- 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 below when used in conjunction with the above systems. The aspect ratio of the glass may be unlimited within these aperture dimensions.

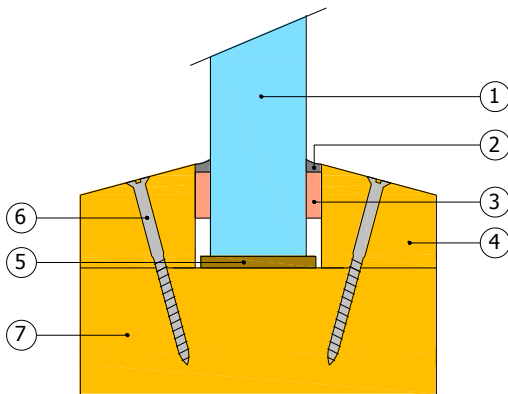


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

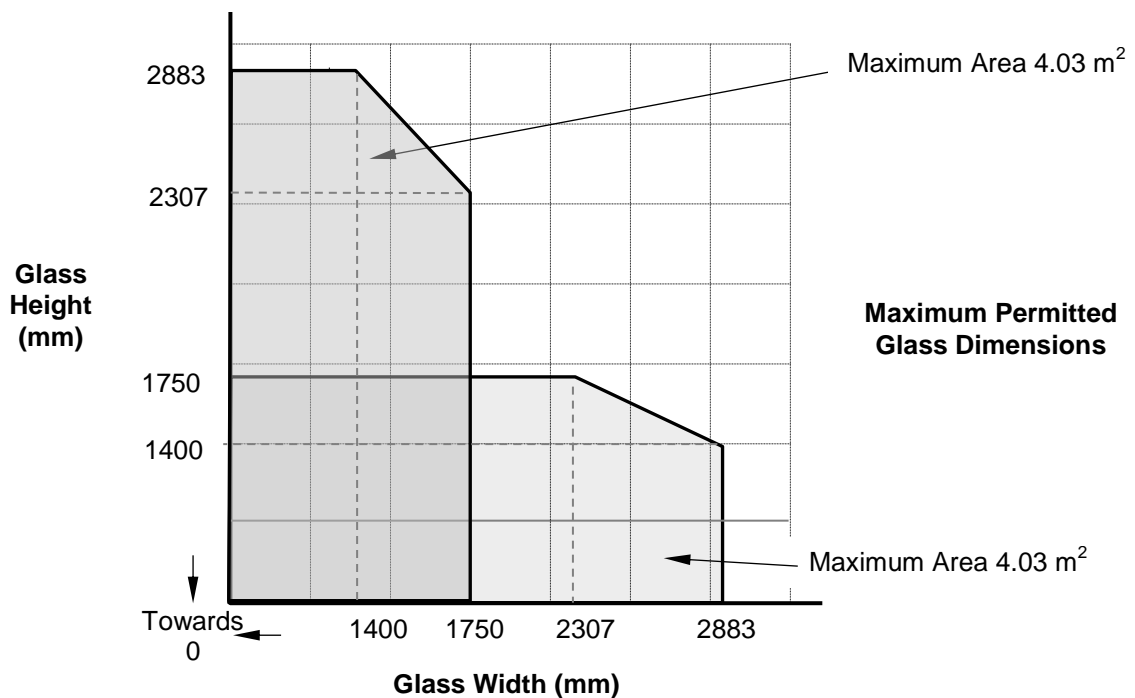
Pyrobel 25 Glass in softwood timber framed screens for periods of 60 minutes integrity and insulation

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 (see page 6 for approved tapes)
- 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) softwood 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 below when used in conjunction with the above systems. The aspect ratio of the glass may be unlimited within these aperture dimensions.

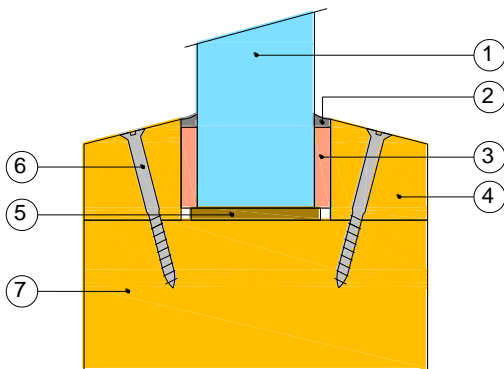


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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

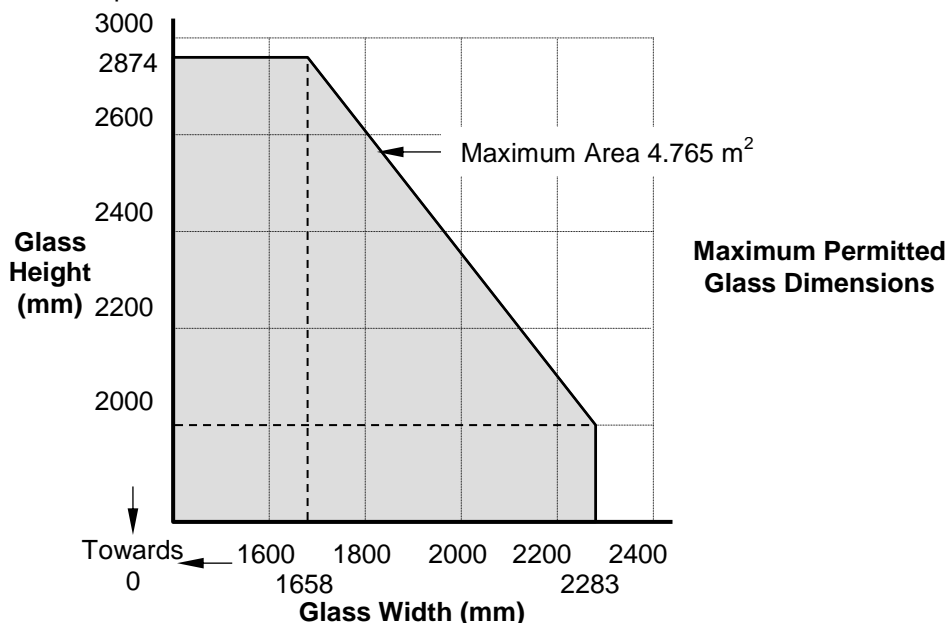
The IGU shall be glazed utilising one of the following specifications:



- 1 IGU comprising Pyrobel 25 or Pyrobel 25 External Grade, a minimum 10 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 (see page 6 for approved tapes)
- 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)
- 7 112 mm by 33 mm (minimum) hardwood perimeter framing sections, 112 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

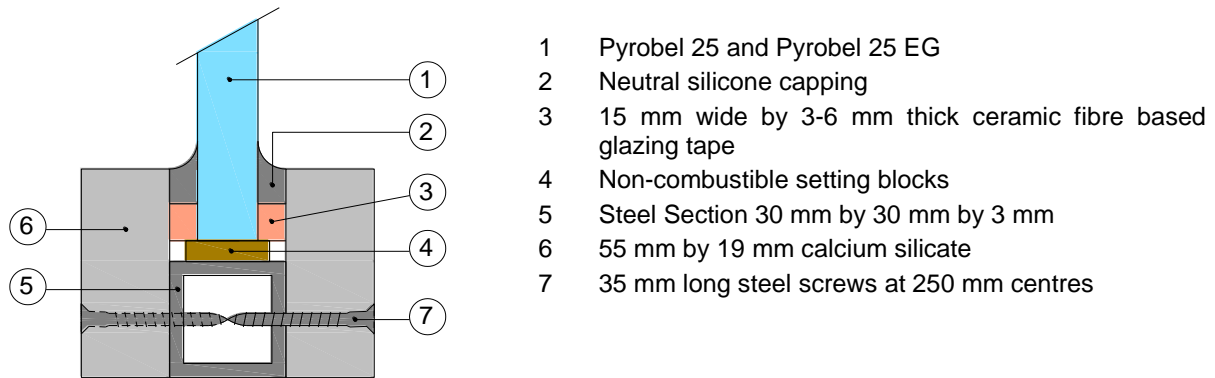


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

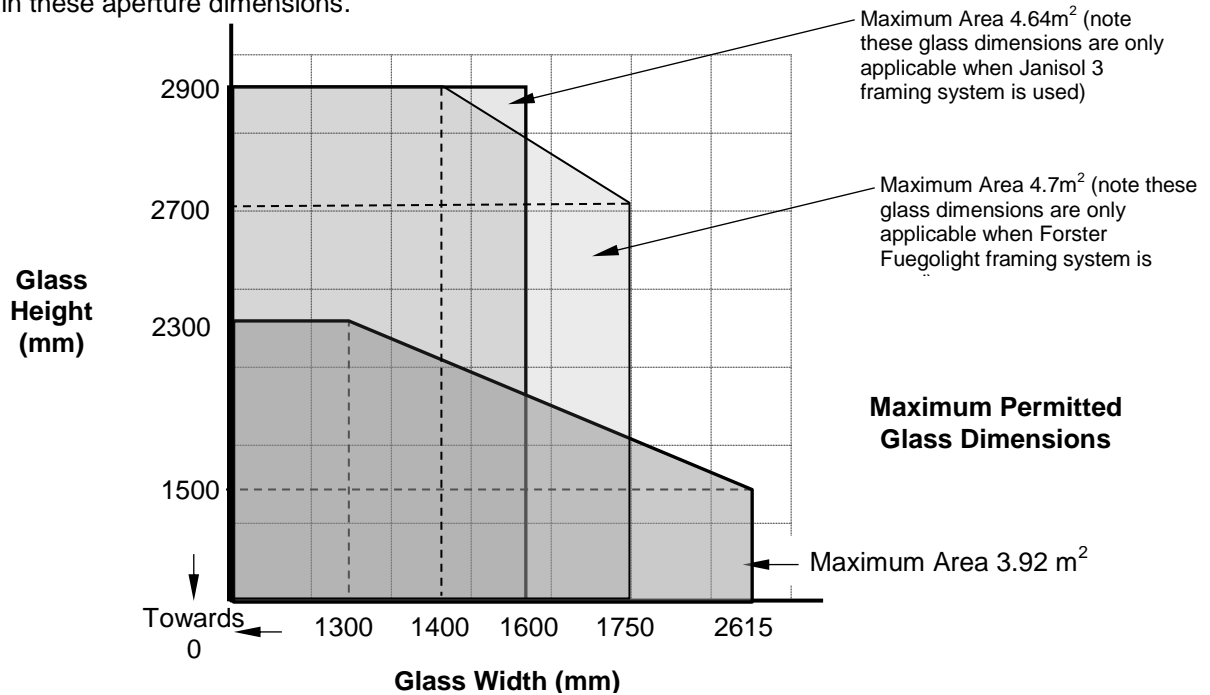
PYROBEL FIRE RESISTING GLASS

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

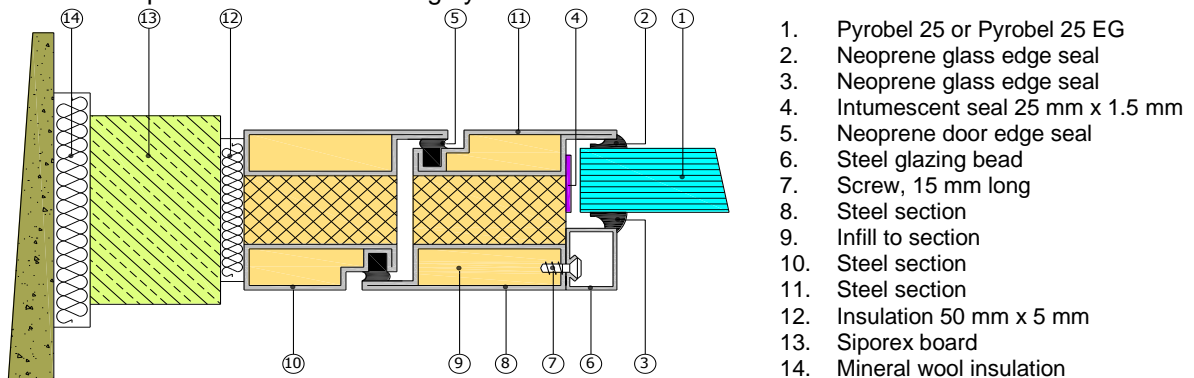


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

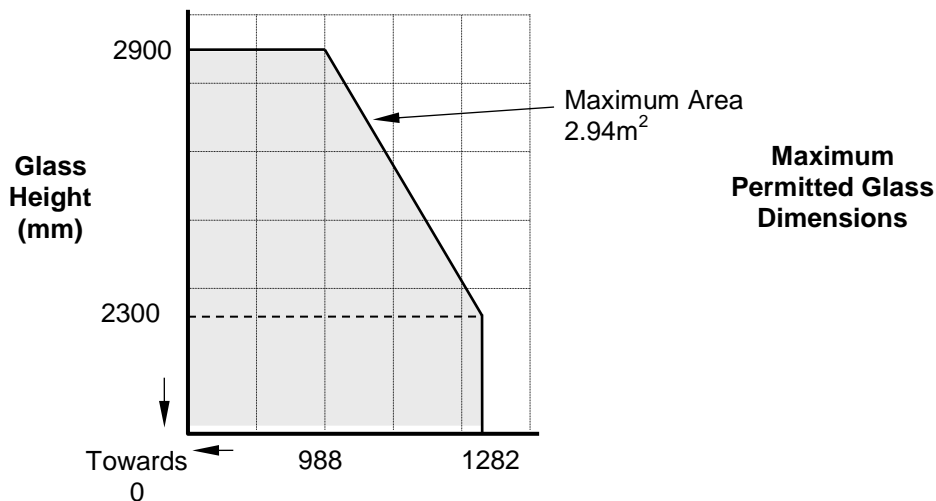
Pyrobel 25 Glass in Steel Doorsets for periods of 60 minutes integrity and 60 minutes insulation

The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel profiled door leaf 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



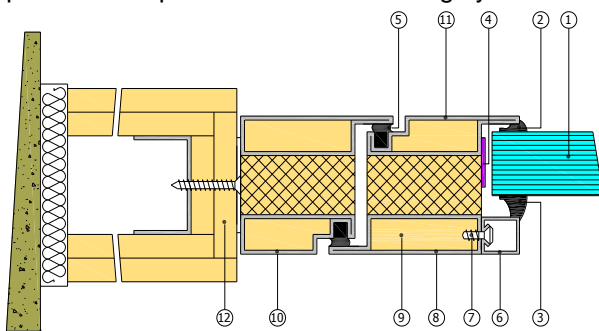
Paul Duggan

CERTIFICATE No CF 377 AGC 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 door leaf framing system.

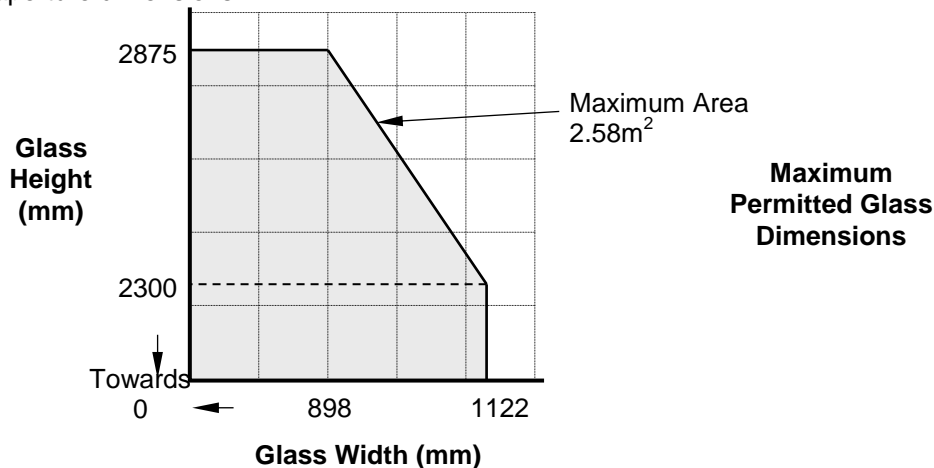


1. IGU comprising Pyrobel 25 or Pyrobel 25 EG glass, a minimum 6 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*
2. Neoprene glass edge seal
3. Neoprene glass edge seal
4. Intumescent seal 25 mm x 2 mm
5. Neoprene door edge seal
6. Steel glazing 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



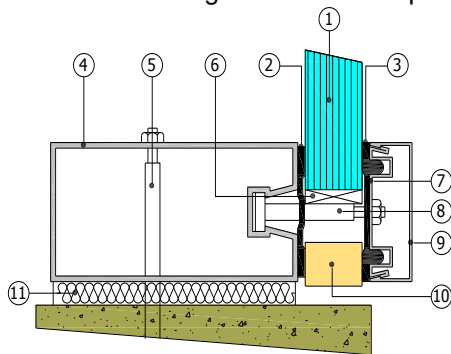
Paul Duggan

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

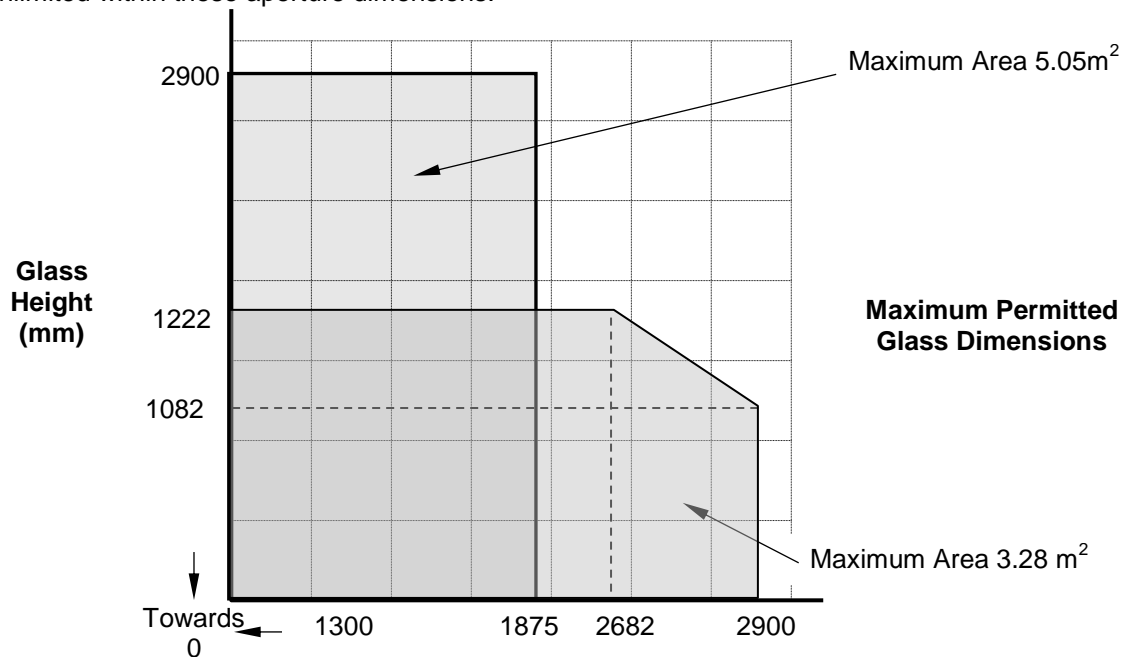
The glass shall be glazed within a previously fire tested, such as Jansen VISS, Jansen Janisol C4 or Forster Thermfix Vario or CERTIFIRE approved steel framing system utilising the following basic specification. The edge cover to each pane shall be no less than 15 mm minimum



1. IGU comprising Pyrobel 25 or Pyrobel 25 EG glass, a minimum 8 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*
2. Rubber profile, 50 mm x 7 mm
3. Rubber profile, 17 mm x 5 mm
4. Steel section, 122 mm x 50 mm x 2 mm
5. Anchor bolt
6. Setting block
7. Steel section, 48 mm x 10 mm x 2 mm
8. Steel bolt, 58 mm long
9. Aluminium section, 50 mm x 18 mm x 1.5 mm
10. Calcium silicate board

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

This Certificate of Approval relates to the sizes of Pyrobel 25 and Pyrobel 25 EG glass (in IGU's) shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



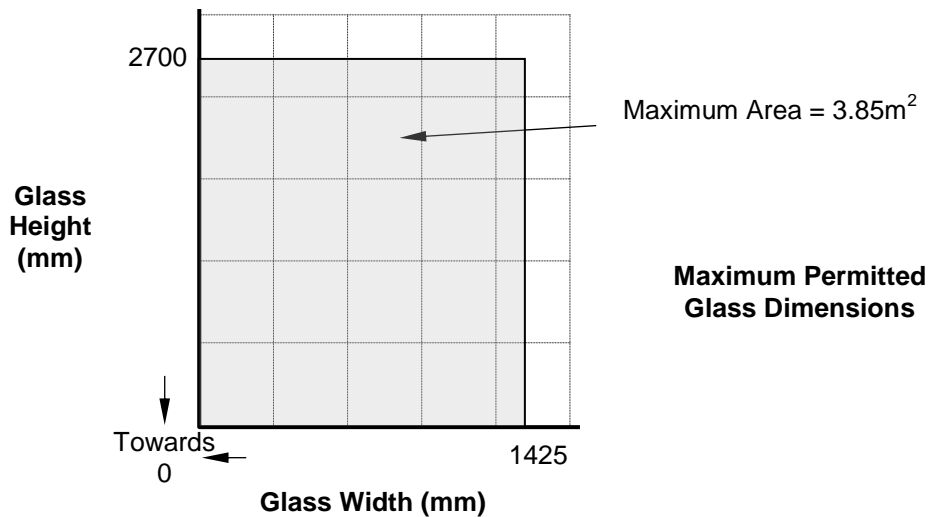
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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

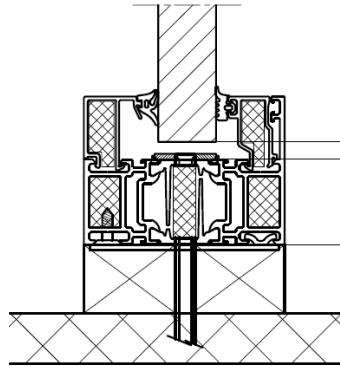


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

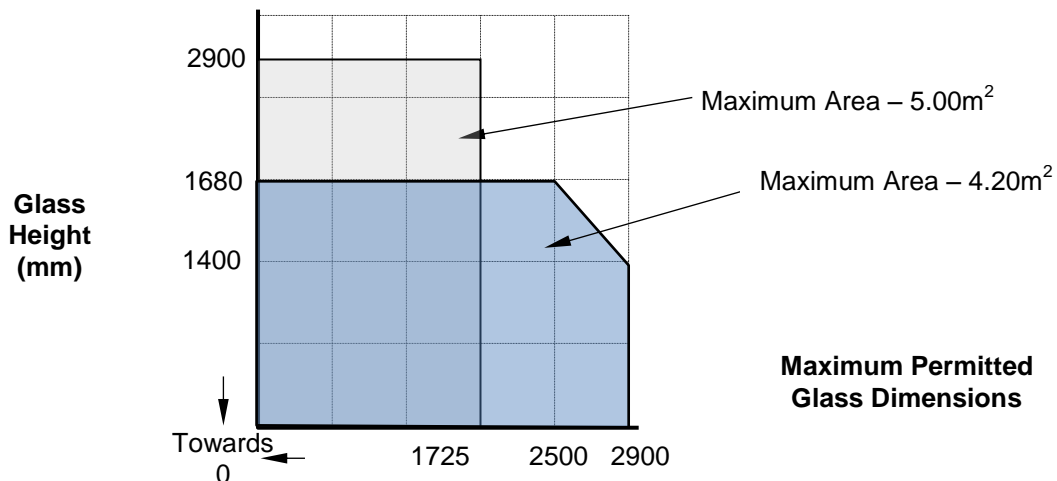
PYROBEL FIRE RESISTING GLASS

Pyrobel 25 and Pyrobel 25EG in 'SCHUCO ADS80' aluminium framed screens for periods of 60 minutes integrity and 60 minutes insulation

The glass, Pyrobel 25 and 25EG, shall be glazed within a 'Schuco ADS80' aluminium framed screen – see below for diagrammatic details:



This Certificate of Approval relates to the sizes of Pyrobel 25 glass (comprising Pyrobel 25 or Pyrobel 25 External Grade) shown 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 GLASS UK LIMITED

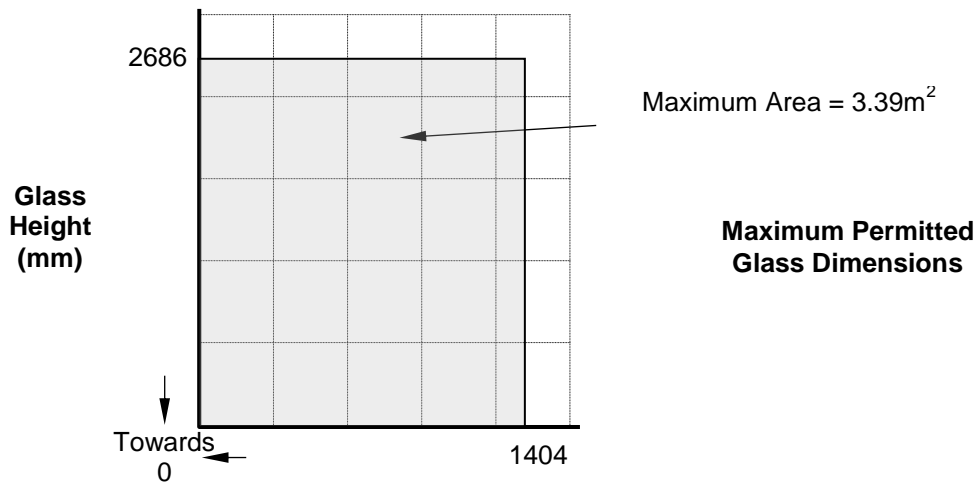
PYROBEL FIRE RESISTING GLASS

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 10 mm wide air cavity and minimum 6 mm thick non-fire rated glass (toughened, float, laminated, coated, tinted)*) shown 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.



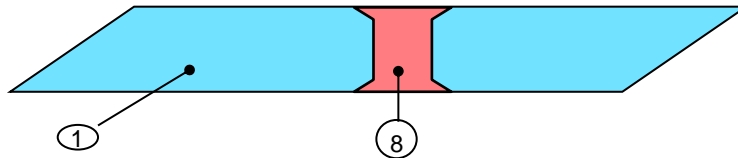
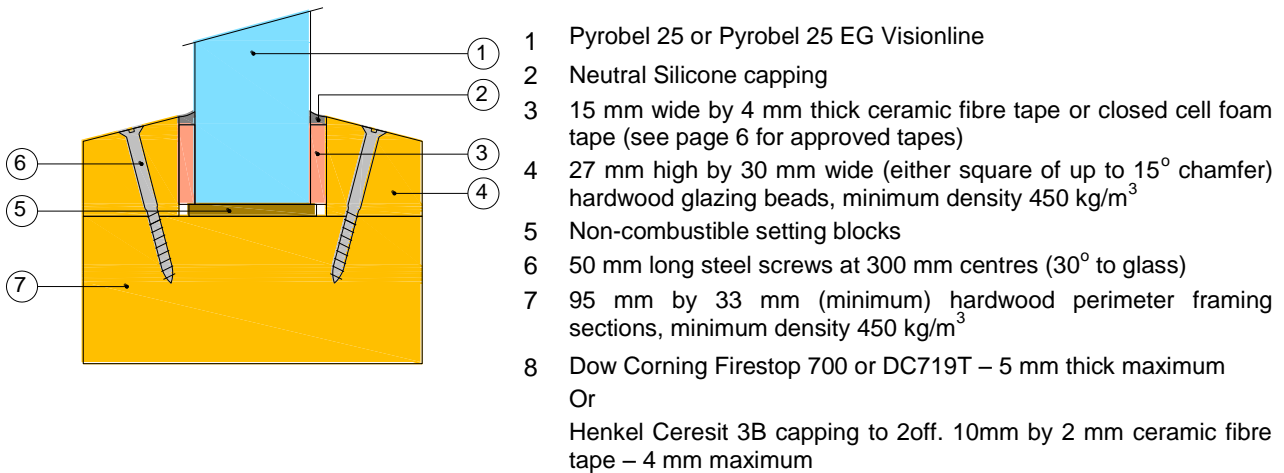
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

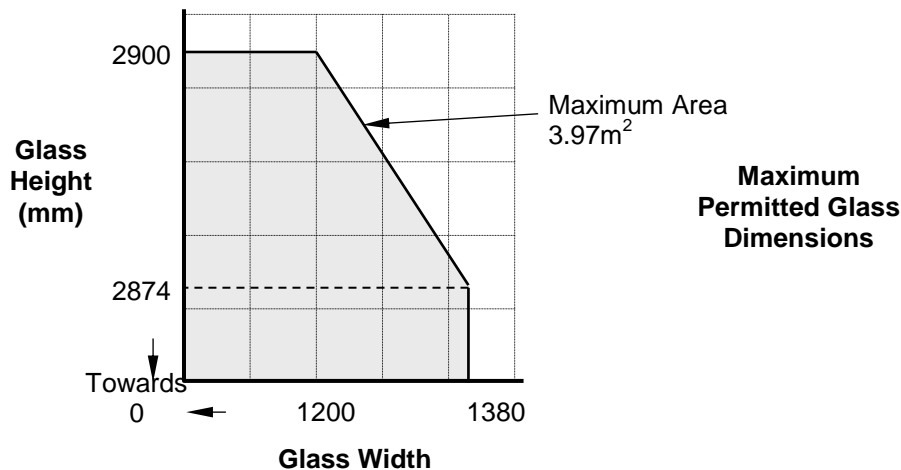
Pyrobel 25 Visionline Glass in butt jointed system for periods of 60 minutes integrity and insulation

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

The glass shall be glazed utilising the following specifications:



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



Paul Duggan

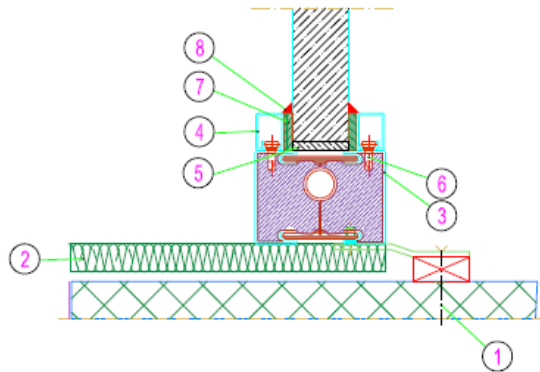
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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 or AGC 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, Forster Fuego Light, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.



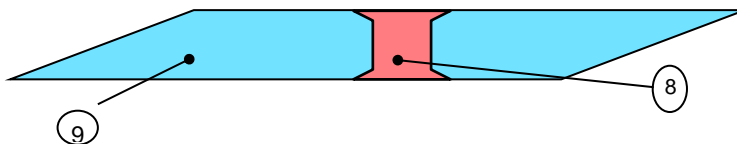
1. Hilti 100 HT – 10 mm diameter x 112mm
2. Superwool X607 – 96kg/m³
3. Janisol C4 – 70 mm by 50 mm
4. Clipped Beads, steel profile 15 mm by 20 mm
5. Setting block – 70 mm by 30 mm by 5 mm
6. 4mm diameter by 16 mm long steel screw
7. Ceramic paper – 20 mm by 5 mm
8. Silicone – Dow Corning DC791T
9. Glass - Pyrobel 25 or 25EG Visionline

Note: joint may comprise:

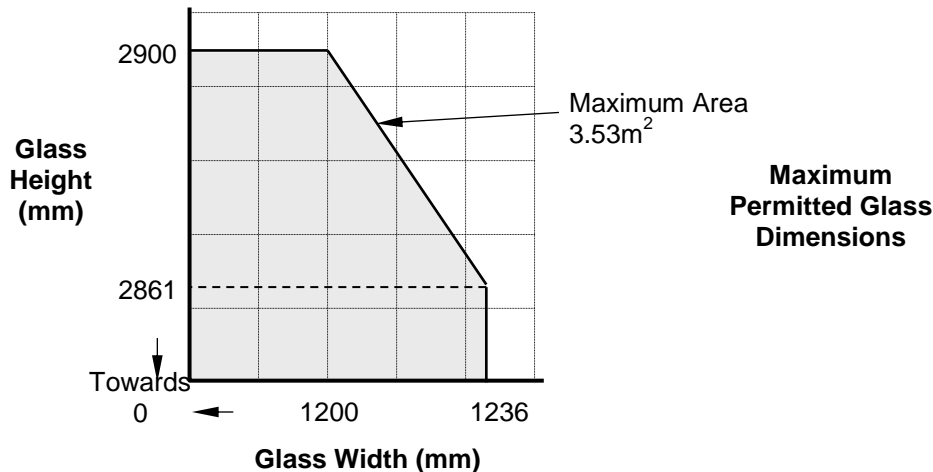
Dow Corning Firestop 700 or DC719T – 5 mm thick maximum

Or

Henkel Ceresit 3B capping to 2off. 10mm by 2 mm ceramic fibre tape – 4 mm maximum



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



Paul Duggan

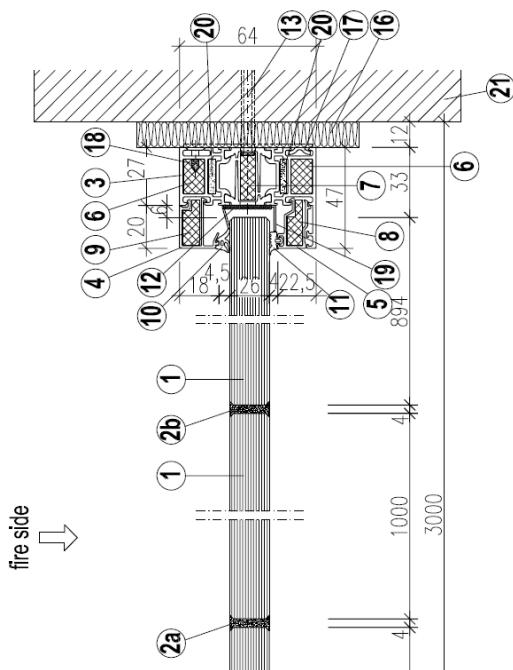
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

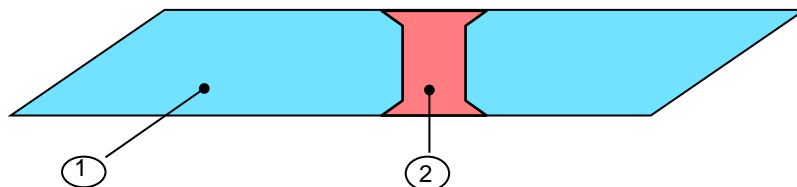
Pyrobel 25 & 25EG Visionline Glass in butt jointed system for periods of 60 minutes integrity and insulation within Schuco ADS80 FR60 Aluminium Framing System

Note: Pyrobel 25 & 25EG Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist or AGC 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 Visionline, 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)

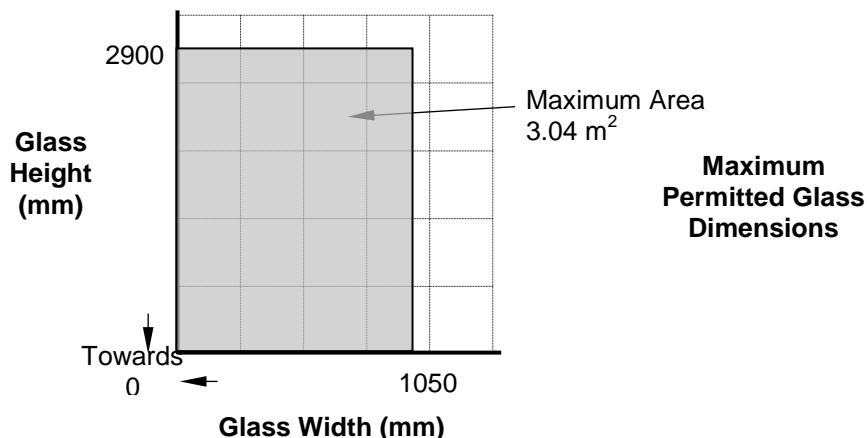
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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 or AGC for further details.

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



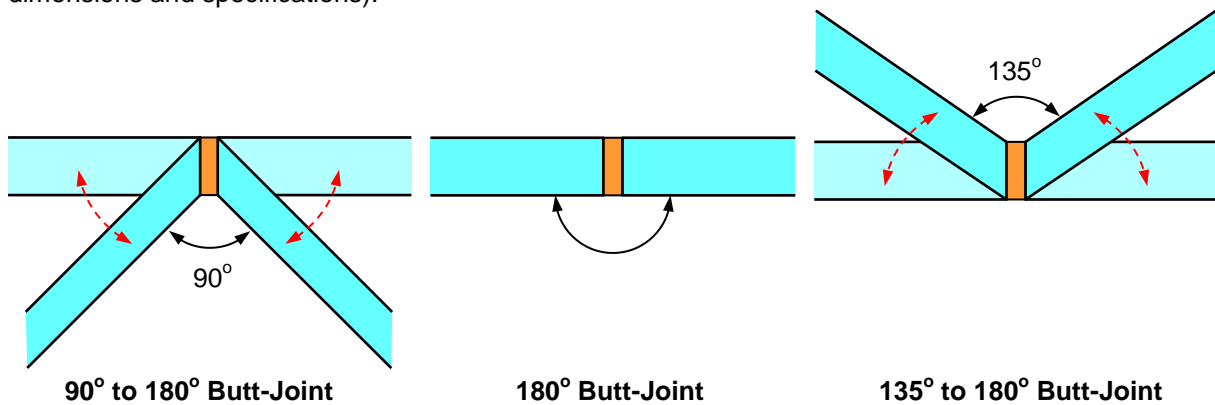
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 25 and 25EG Visionline Glass in butt jointed systems – Corner Joint Options

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

This Certificate of Approval relates to the sizes Pyrobel 25 and 25EG Visionline glass utilising corner joint details as shown below, for when used in conjunction with the system previously described above (for timber, Janisol C4, Forster Fuego Light and ADS80 framing systems). The system may include vertically orientated butt joints in a range of angles. In order to ensure the correct specification is utilised for such specialist glazing, further information should be sought from the manufacturer. The butt joint detail depends upon the angle between glass panes (in terms of butt joint component dimensions and specifications).

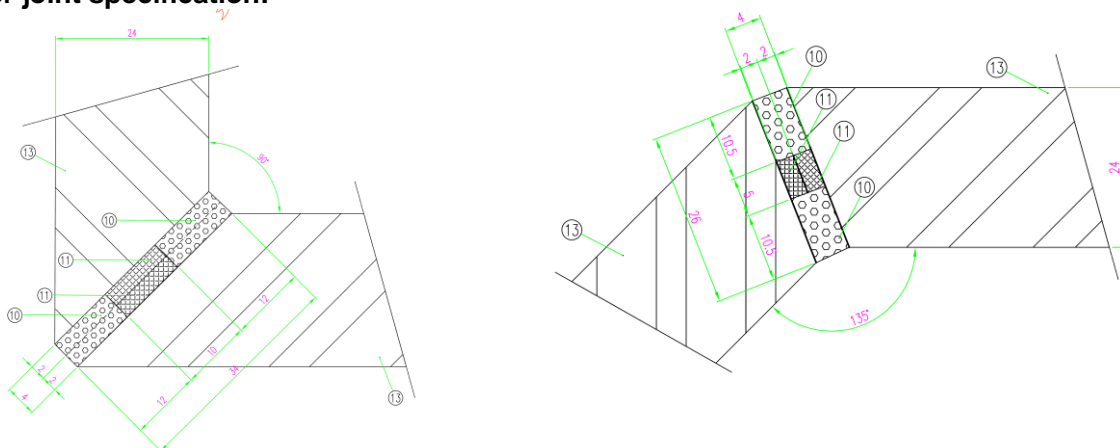


90° to 180° Butt-Joint

180° Butt-Joint

135° to 180° Butt-Joint

Corner joint specification:



- Item 10 - Momentive Pensil 300 – neutral silicone
- Item 11 - Gluske Kerafix FXL200
- Item 13 – Glass

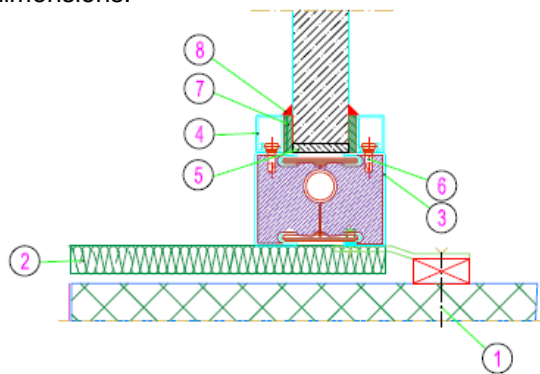
Paul Hogg

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

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

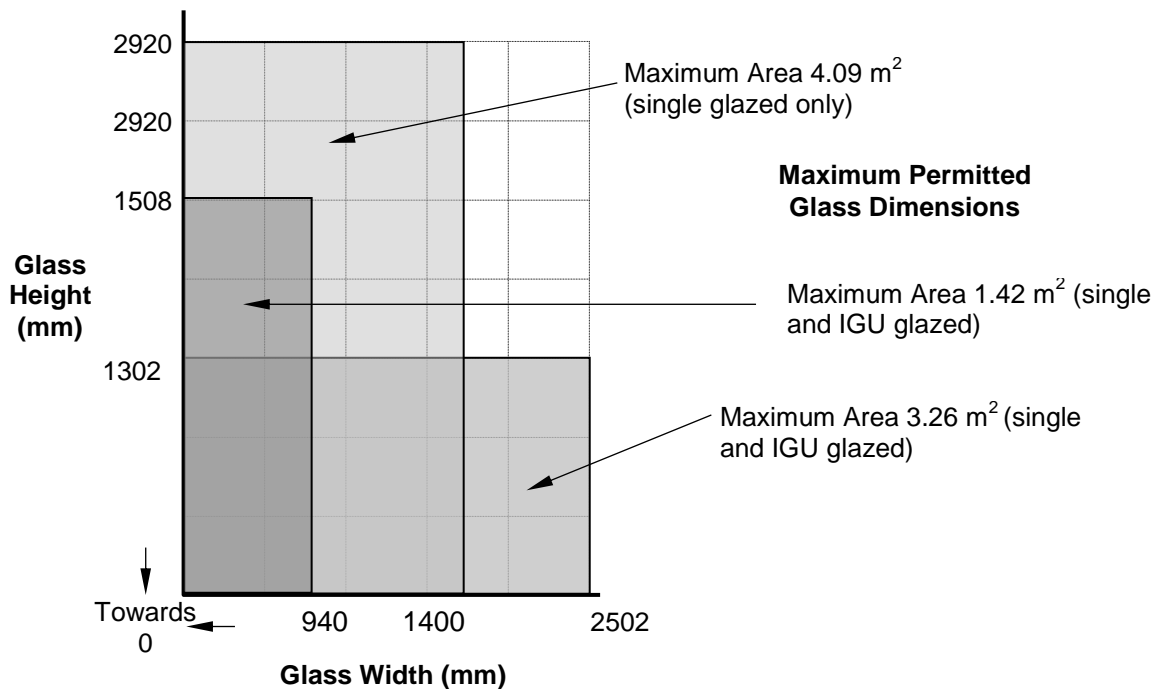
The glass shall be glazed within a previously fire tested (see example below) or a CERTIFIRE approved steel framing system. The framing system shall have test evidence, such as Jansen Janisol C4 or Forster Fuego Light, or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions.



1. Hilti 100 HT – 10 mm diameter x 112mm
2. Superwool X607 – 96kg/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. 4mm 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 IGU (min air cavity 6mm + 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 IGU glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



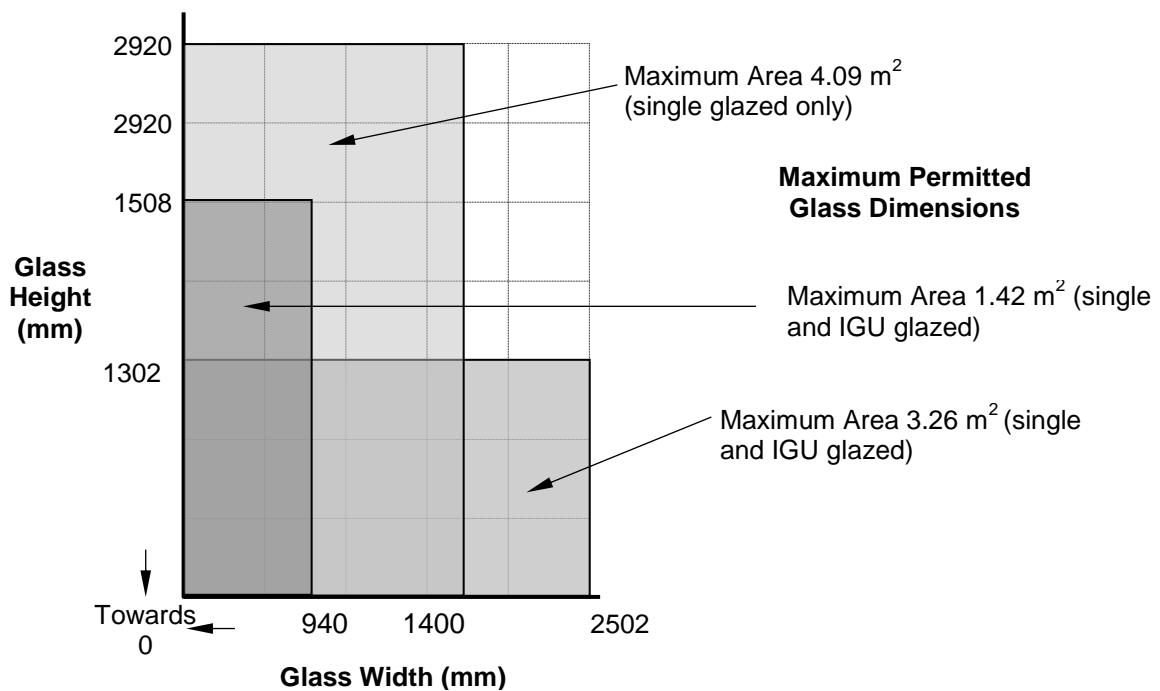
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 30, Pyrobel 30EG and Pyrobel 30 IGU Glass in FORSTER FUEGO LIGHT T90 steel doorsets for periods of 90 minutes integrity and insulation

The glass shall be glazed within **fully latched/bolted** Forster Fuego Light T90 doorsets. Please consult the frame manufacturer for drawings of glazing system.

This Certificate of Approval relates to the sizes of Pyrobel 30 and Pyrobel 30 EG and Pyrobel 30 IGU glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

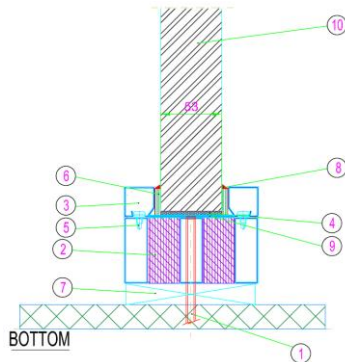


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

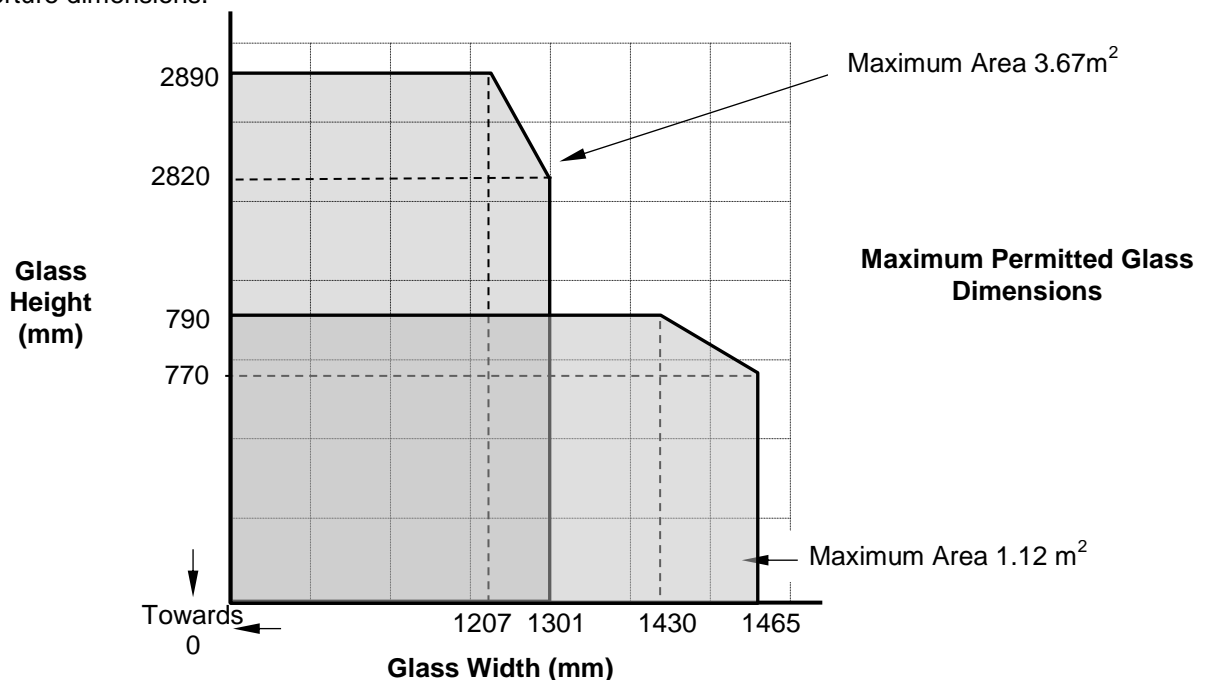
Pyrobel 53N & 53N EG Glass in steel framed screens for periods of 120 minutes integrity and insulation

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



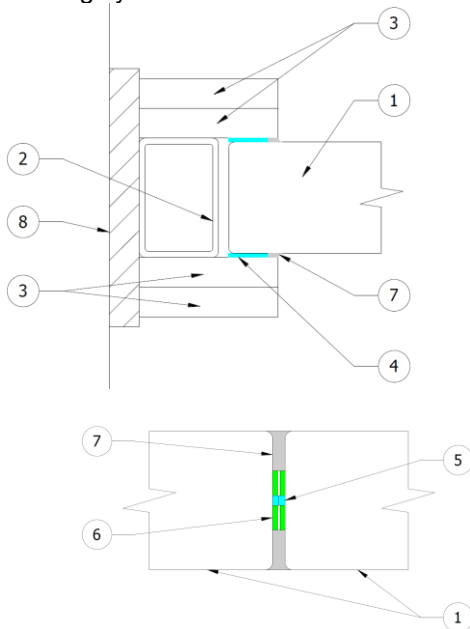
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 53N & 53N EG Visionline Glass in butt jointed system for periods of 120 minutes integrity and insulation

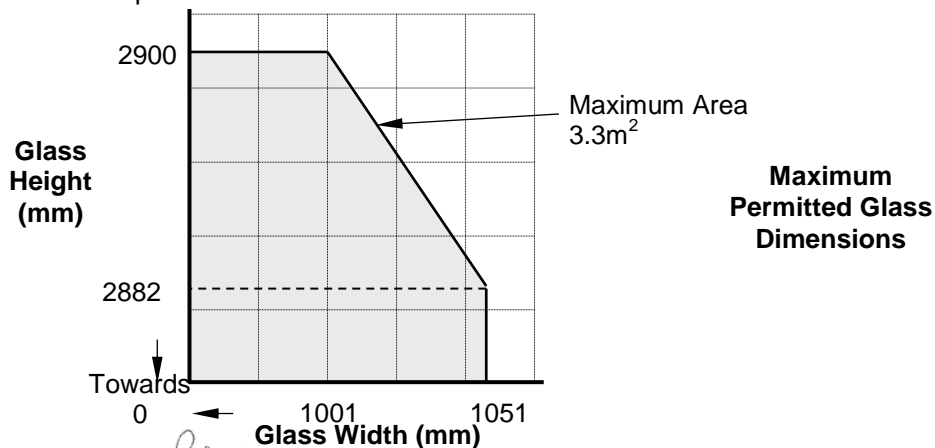
Note: Pyrobel 53N & 53N EG Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist or AGC for further details.

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



- 1 Pyrobel 53N or 53N EG
- 2 Steel tube, 60 mm by 40 mm by 3 mm thick with non-combustible setting blocks
- 3 2 no. layers of Promatect-H or Supalux-S with staggered joints. First layer screwed to frame with 35x3.5 mm steel screws. Outer layer screwed to frame with 55x3.5 mm steel screws. Screw centres to be 300 mm
- 4 Superwool X607 tape, 20 mm by 5 mm
- 5 Superwool X607 tape, 4 mm by 2.5 mm, full height to each glazing panel edge
- 6 Kerafix FXL 200 tape, 10 mm by 2 mm, full height to each glazing panel edge
- 7 Silicone sealant, Momentive Pensil 300

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



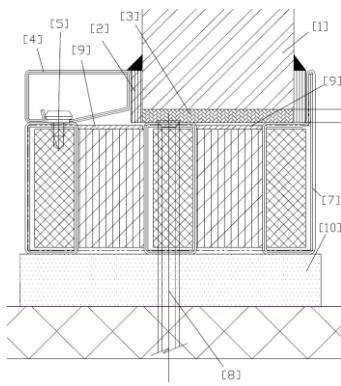
Paul Duggan

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 54 Glass in steel framed screens for periods of 120 minutes integrity and insulation

The glass shall be glazed within a previously fire tested framing system, such as Forster Fuego Light (see diagrammatic example below), or CERTIFIRE approved steel framing system. The edge cover to each pane shall be no less than 15 mm minimum.



1. Pyrobel 54
2. Superwool X607 ceramic paper – 20 mm by 6 mm
3. Hardwood setting block – 70 mm by 53 mm x 5 mm
4. Clip-on beads– 40 mm by 20 mm by 1.25 mm thick
5. Fastening studs – 4.6 mm diameter by 15 mm long
6. Silicone – Dow Corning Firestop 700
7. Steel profile – Forster Fuego Light 110 mm by 50/70/90 mm
8. Hilti 100 HT – 10 mm diameter by 112mm
9. Intumescent Strip – Forster ref: 948000 24.5 mm by 1.5 mm
10. Setting block -110 mm by 47 mm by 15 mm

This Certificate of Approval relates to the sizes of Pyrobel 54 glass shown 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

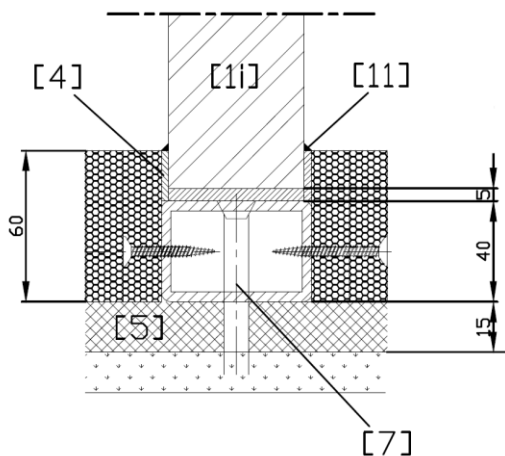
Maximum Width	Maximum Height	Maximum Area
1430mm wide (at 2860mm high)	3000mm high (at 1300mm wide)	4.09m ²

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 54 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. The edge cover to each pane shall be no less than 15 mm minimum.



- 1i Pyrobel 54 set on 80 mm by 54 mm by 5 mm Promatect-H setting blocks
- 4. Superwool X607 tape, 20 mm by 3 mm
- 5. Promatect-H setting blocks 200 mm by 65 mm by 15 mm
- 7. Hilti 100 HT – 10mm diameter x 112mm
- 11. Silicone sealant, Dow Corning Firestop 700

Steel tube 60 mm by 40 mm by 3 mm thick

2 no. layers of Promatect-H with staggered joints. First layer screwed to frame with 45x3.5 mm steel screws. Outer layer screwed to frame with 55x3.5 mm steel screws. Screw centres to be 200 mm

This Certificate of Approval relates to the sizes of Pyrobel 54 glass shown 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
Portrait	1800mm wide (at 2860mm high)	3000mm high (at 1600mm wide)	5.15m ²
Landscape	3000mm wide (at 930mm high)	1046mm high (at 3000mm wide)	3.14m ²

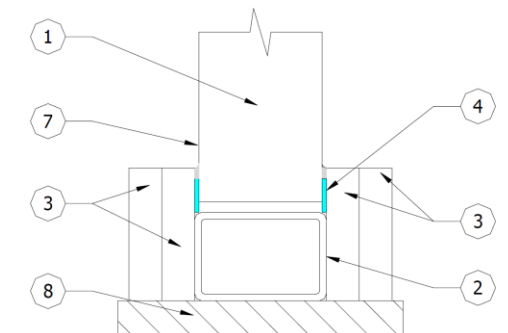
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

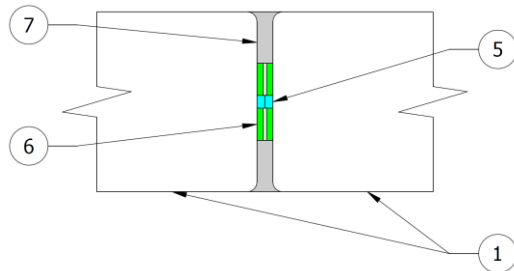
Pyrobel 54 Visionline Glass in butt jointed system for periods of 120 minutes integrity and insulation

Note: Pyrobel 54 Visionline butt jointed requires special edge processing and should be ordered as such. Please contact an approved Pyrobel stockist or AGC for further details.

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



- 1 Pyrobel 54 Visionline with setting blocks 76 mm by 52 mm by 6mm
- 2 Steel tube, 60 mm by 40 mm by 3 mm thick
- 3 2 no. layers of 15 mm thick Promatect-H with staggered joints. First layer screwed to frame with 35x3.5 mm steel screws. Outer layer screwed to frame with 55x3.5 mm steel screws. Screw centres to be 250 mm
- 4 Superwool X607 tape, 15 mm by 5 mm
- 5 Superwool X607 tape, 4 mm by 2.5 mm, full height to each glazing panel edge
- 6 Kerafix FXL 200 tape, 10 mm by 2 mm, full height to each glazing panel edge
- 7 Silicone sealant, Dow Firestop 700
- 8 Calcium silicate setting blocks 215 mm by 60 mm by 15 mm



This Certificate of Approval relates to the sizes of Pyrobel 54 Visionline glass shown 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

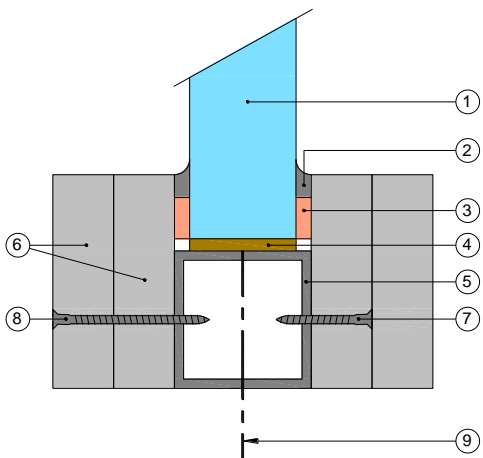
Maximum Width	Maximum Height	Maximum Area
1108mm wide (at 2880mm high)	3000mm high (at 1000mm wide)	3.19m ²

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

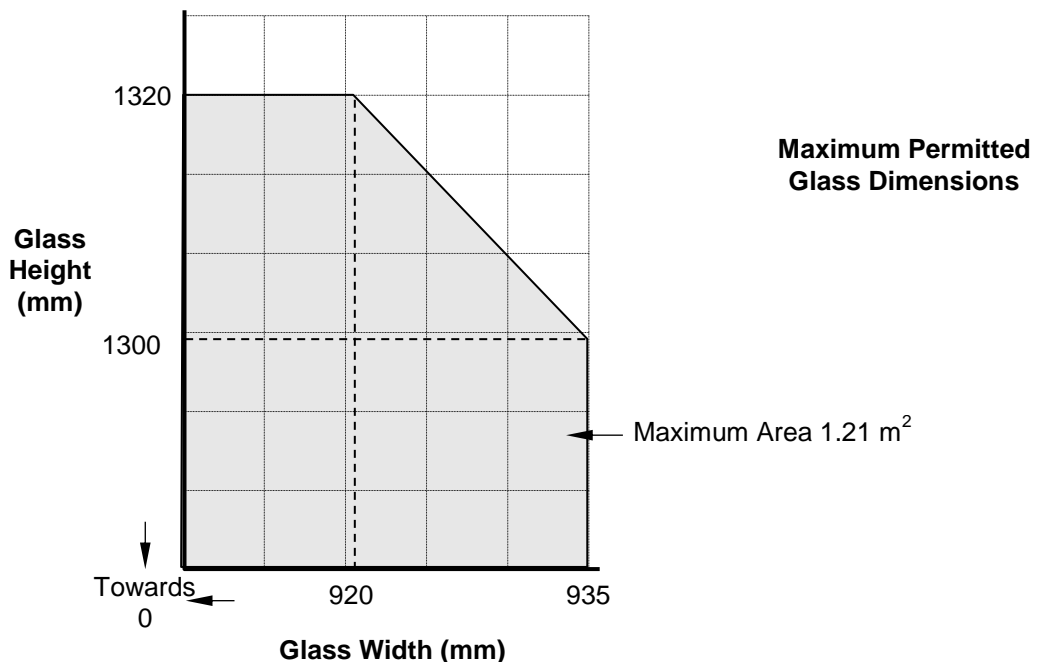
Pyrobel 25-25IGU Glass in steel framed screens for periods of 120 minutes integrity and insulation

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 25-25IGU (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 (see page 6 for approved tapes) 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 25-25IGU glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

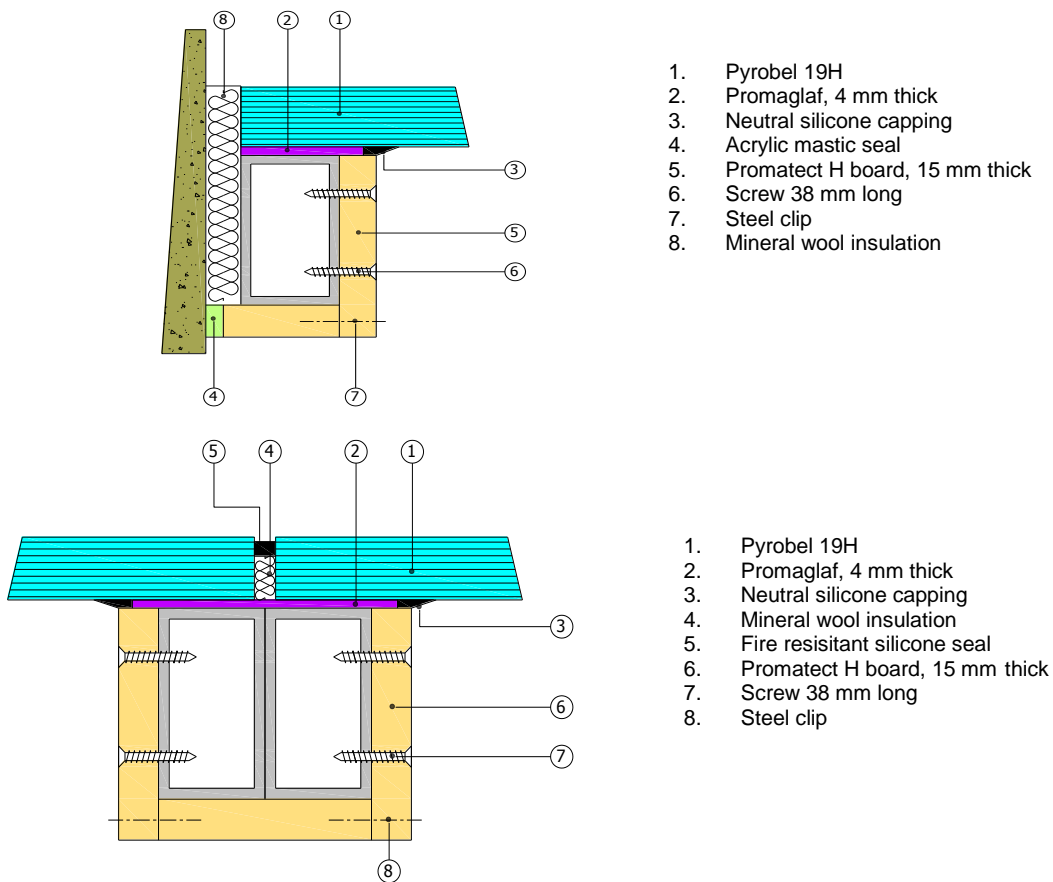


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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:



1. Pyrobel 19H
2. Promaglaf, 4 mm thick
3. Neutral silicone capping
4. Acrylic mastic seal
5. Promatect H board, 15 mm thick
6. Screw 38 mm long
7. Steel clip
8. Mineral wool insulation

1. Pyrobel 19H
2. Promaglaf, 4 mm thick
3. Neutral silicone capping
4. Mineral wool insulation
5. Fire resisitant silicone seal
6. Promatect H board, 15 mm thick
7. Screw 38 mm long
8. Steel clip

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

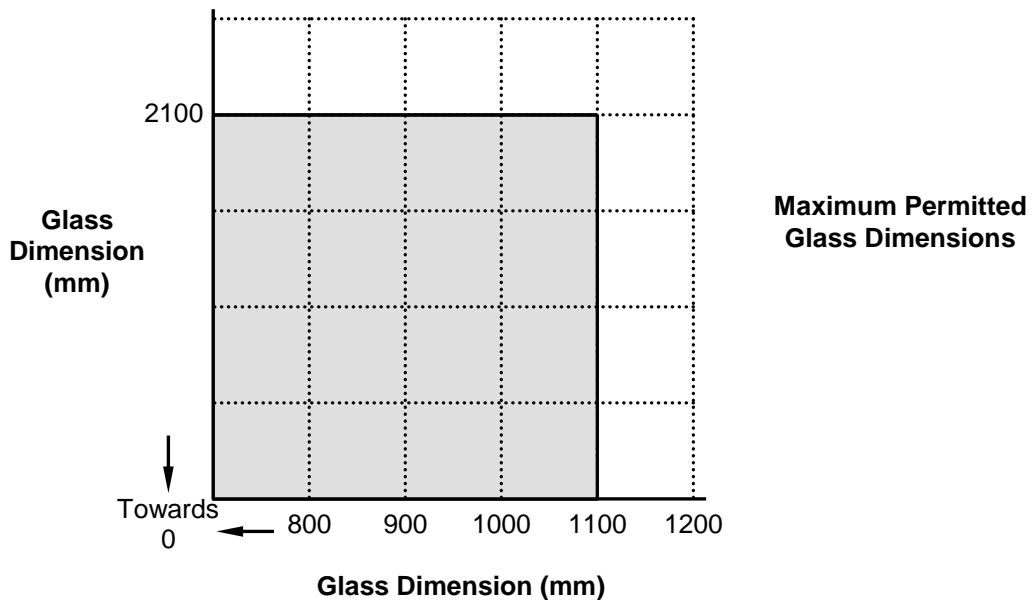
The framing system shall have test evidence or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions in a horizontal orientation (or included at up to 30° from horizontal). Maximum overall screen size is limited to 6000 mm by 3000 mm.

CERTIFICATE No CF 377 AGC 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 below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

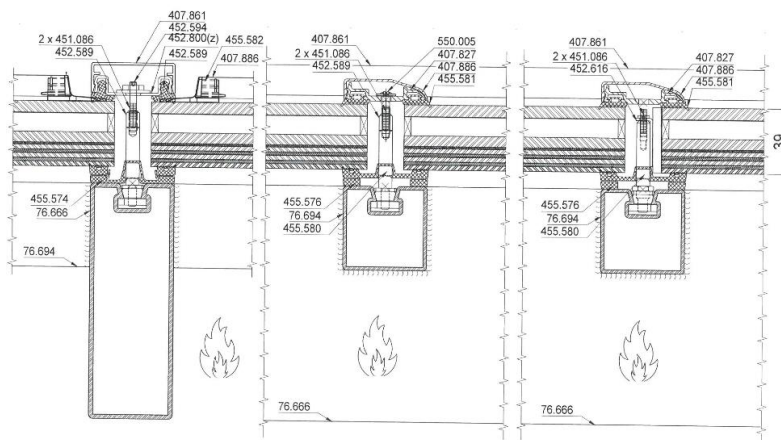


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

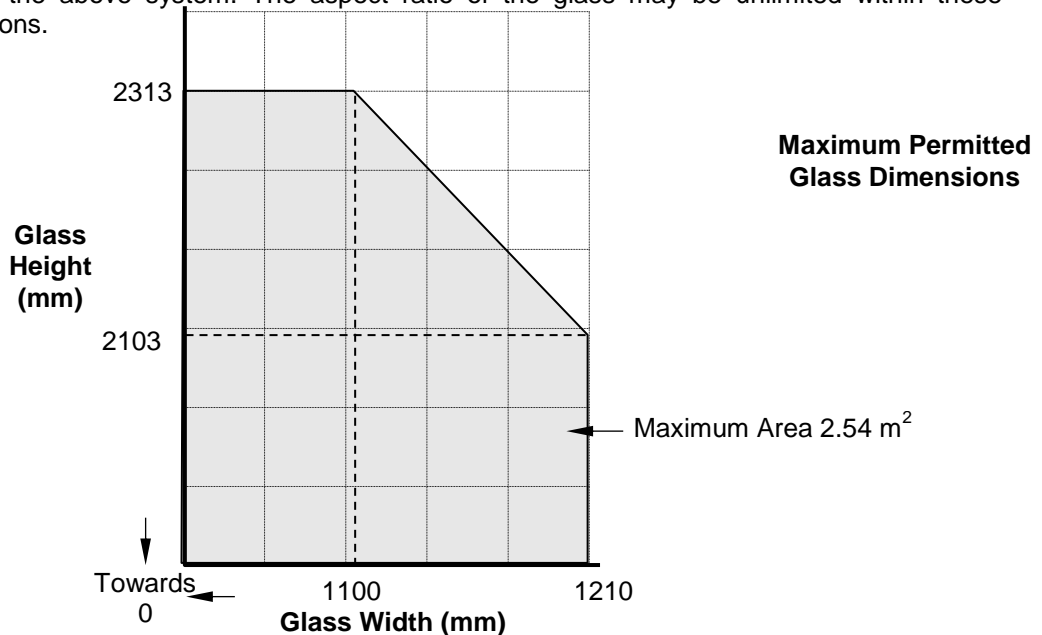
Pyrobel 19H IGU Glass in horizontally orientated steel framed roofs for periods of 30 minutes integrity and insulation

The glass shall be glazed as detailed below within a Jansen VISS fire roof framing system. AGC should be consulted for full details of the IGU specification, framing system and glazing method:



- Maximum overall screen span is limited to 3200 mm.
- Maximum loading on the screen is 5kg/m²

This Certificate of Approval relates to the sizes of 'Pyrobel 19H' glass shown 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 GLASS UK LIMITED

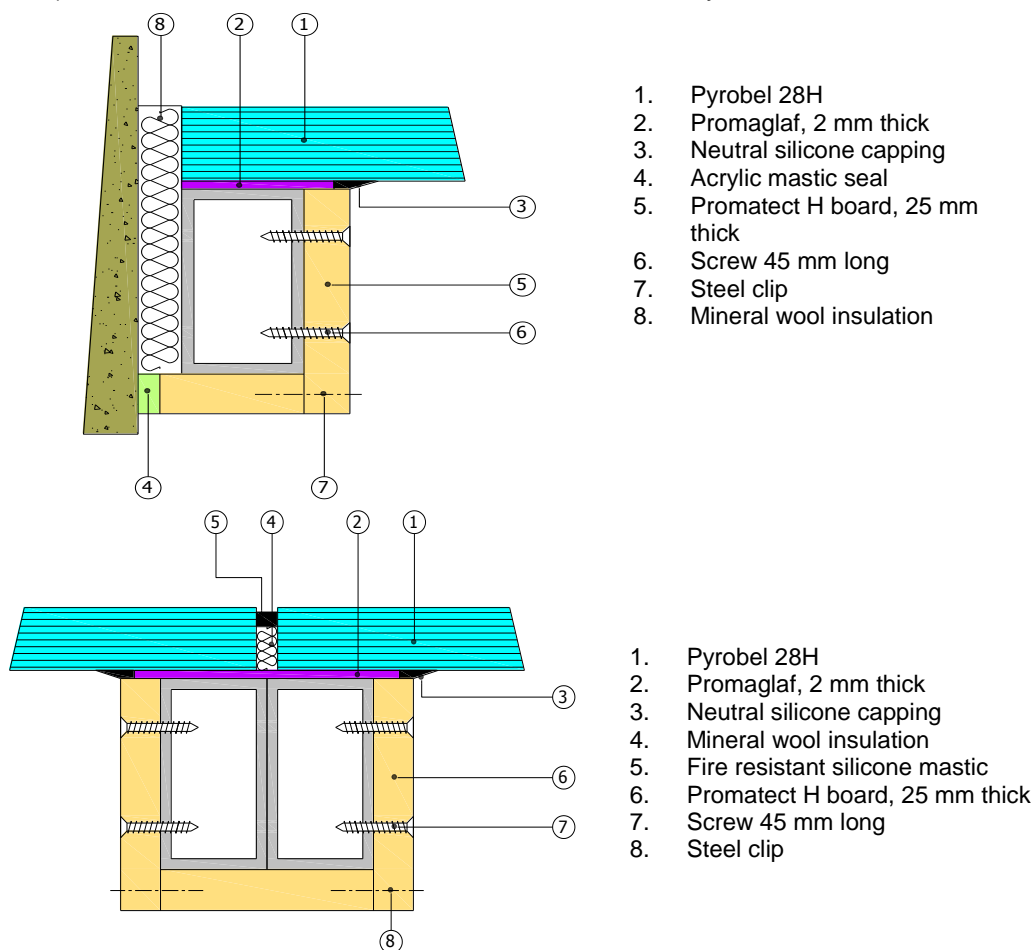
PYROBEL FIRE RESISTING GLASS

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

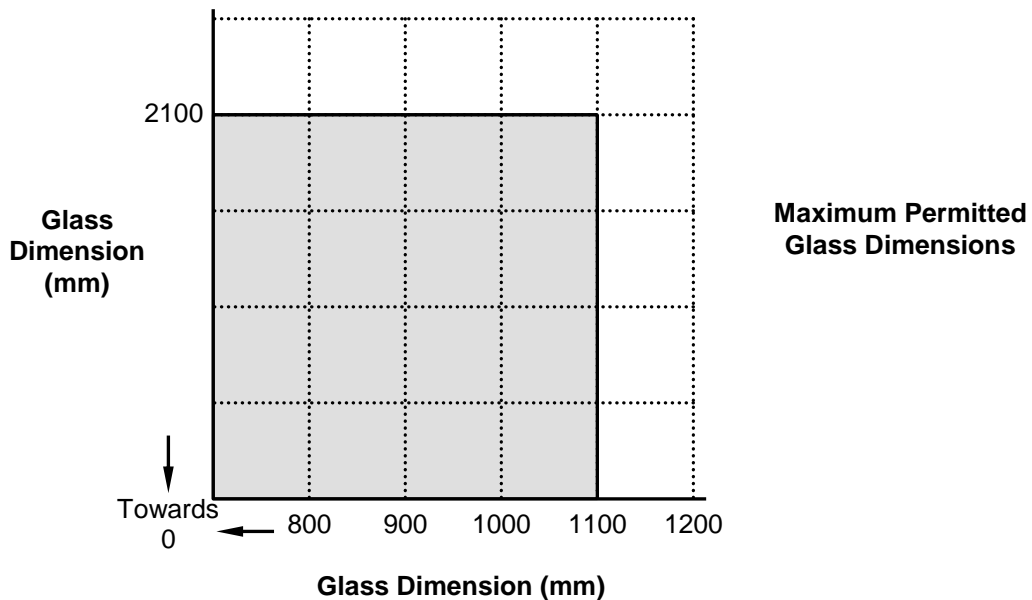


CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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



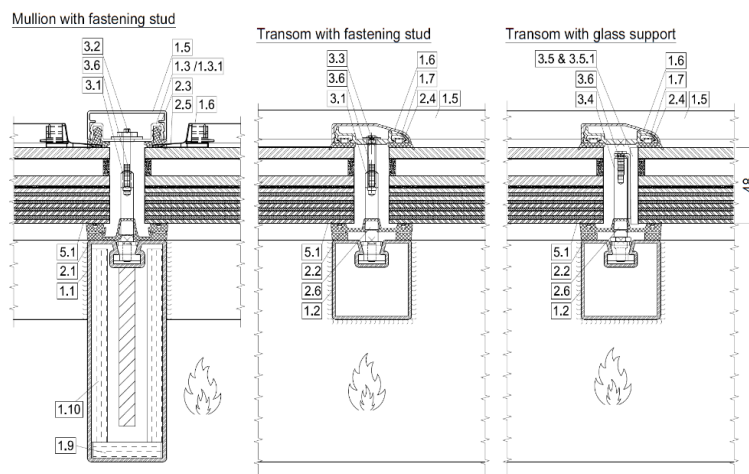
Note: AGC Limited should be consulted with regards the use of Pyrobel 28H in loadbearing floor applications

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

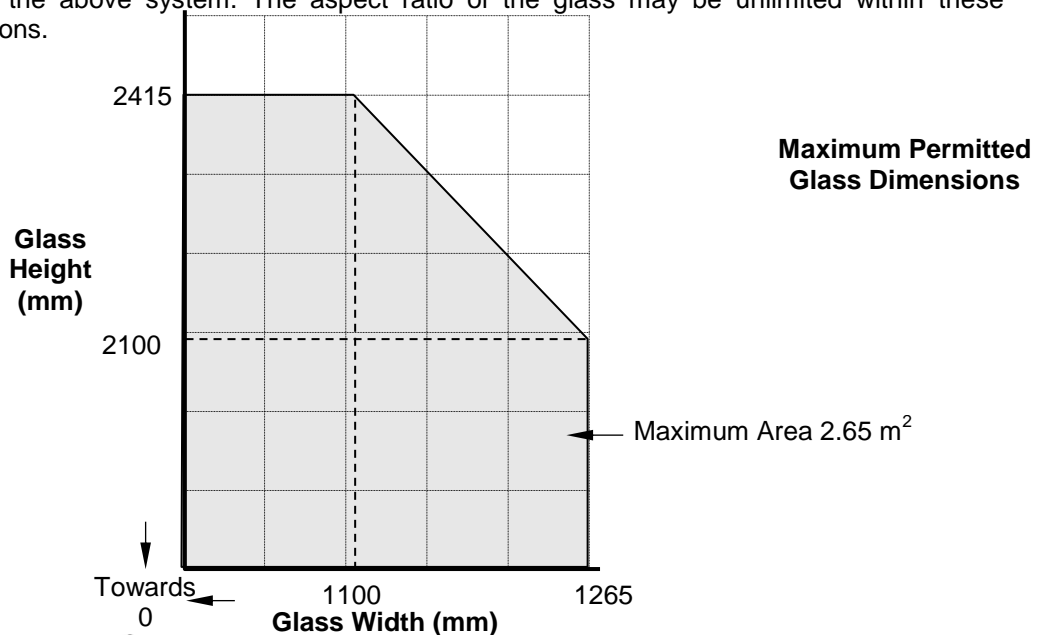
Pyrobel 28H IGU Glass in horizontally orientated steel framed roofs for periods of 60 minutes integrity and 30 minutes insulation (for non-loadbearing applications)

The glass shall be glazed as detailed below within a Jansen VISS fire roof framing system. AGC should be consulted for full details of IGU glass specification, framing system and glazing method:



- Maximum overall screen span is limited to 3200 mm.
- Maximum loading on the screen is 10kg/m²

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



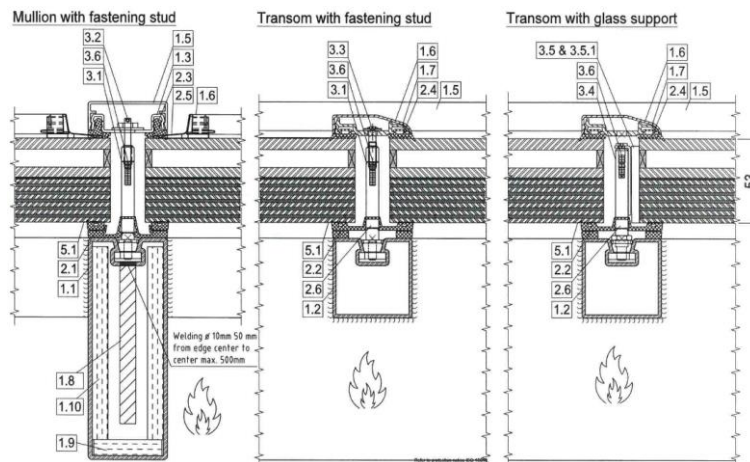
Paul Dyer

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

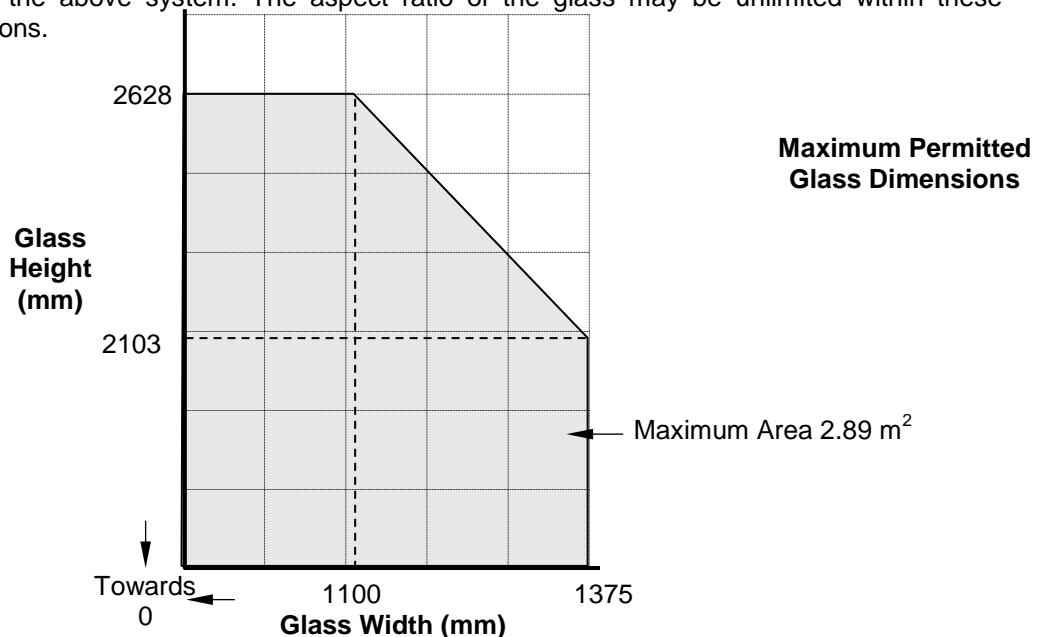
Pyrobel 33H IGU Glass in horizontally orientated steel framed roofs for periods of 60 minutes integrity and 60 minutes insulation (for non-loadbearing applications)

The glass shall be glazed as detailed below within a Jansen VISS fire roof framing system. AGC should be consulted for full details of IGU specification, framing system and glazing method:



- Maximum overall screen span is limited to 3200 mm.
- Maximum loading on the screen is 5kg/m²

This Certificate of Approval relates to the sizes of 'Pyrobel 33H' glass shown below when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



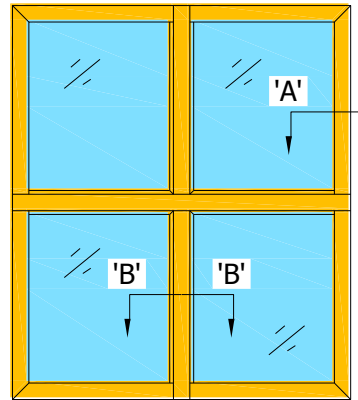
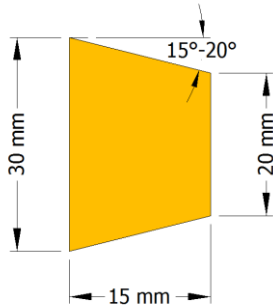
Paul Duggan

CERTIFICATE No CF 377 AGC 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;

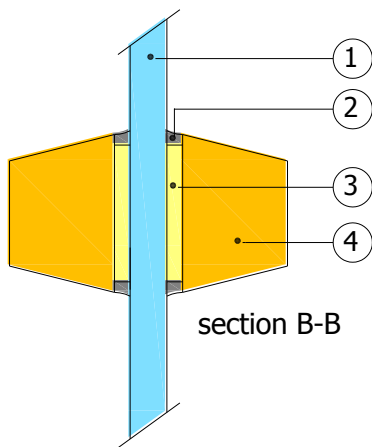


Maximum Glazing Bar Specification
May be reduced to 20mm wide by 10mm high

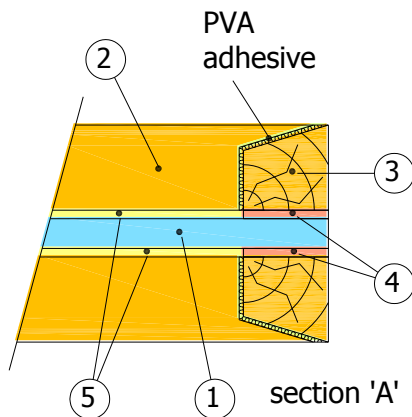
CERTIFICATE No CF 377 AGC GLASS UK LIMITED

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 15 mm (with 15° chamfer) hardwood glazing bars, minimum density 640 kg/m³. May be reduced to a minimum of 20mm by 10mm.
If beads are of reduced width item 3 to be trimmed accordingly



- 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 (see page 6 for approved tapes)
- 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
If beads are of reduced width strips to be trimmed accordingly

Installation Specification

CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBELITE FIRE RESISTING GLASS

Pyrobelite 7, 9 EG and 12 in dual glazed timber framed screens.

Dual glazed systems are permitted for any Pyrobelite timber framed screens.

It is permitted to create a dual glazed systems based on timber framed screens provided the specification of the Pyrobelite single glazed system is still maintained and the dual glazed element is an extension to that.

The non-fire rated glass of the dual glazed system must be orientated towards the fire risk.

The density and size of the timber framing and beads retaining the Pyrobelite must be as the minimum for the single glazed system.

The fixing of the beads retaining the Pyrobelite must be as specified for the single glazed system.

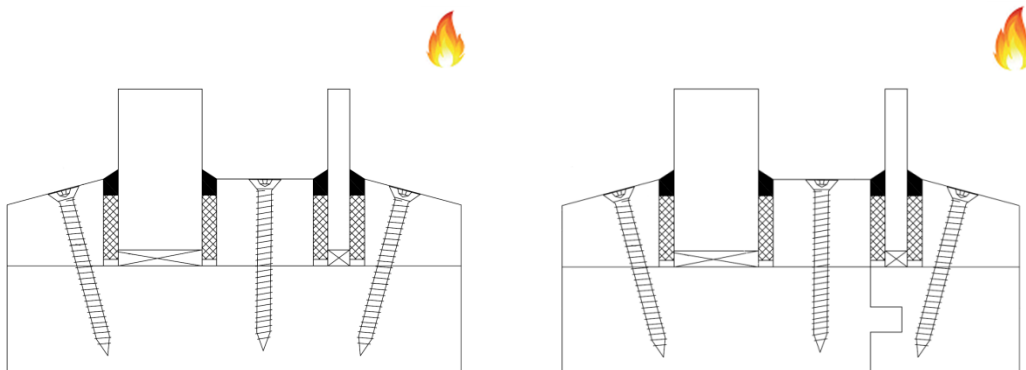
The glazing materials for the Pyrobelite must be as specified for the single glazed system.

The permitted maximum glass sizes are limited to those of the single glazed Pyrobelite system.

The non-fire rated glass may be of any type of float, toughened, laminated, coated or tinted glass.

The dual glazed frame extension and additional bead set can be of any density, sizes or wood species. The fixing of the additional bead set and glazing materials for the non-fire rated glass is not specified.

Typical Example of a Dual Glazed Timber Framed Systems



CERTIFICATE No CF 377 AGC GLASS UK LIMITED

PYROBEL FIRE RESISTING GLASS

Pyrobel 16, 16 EG, 25 and 25 EG in dual glazed timber framed screens.

Dual glazed systems are permitted for any Pyrobel timber framed screens where the fire resistance performance of integrity and insulation are equal.

It is permitted to create a dual glazed systems based on timber framed screens provided the specification of the Pyrobel single glazed system is still maintained and the dual glazed element is an extension to that.

The density and size of the timber framing and beads retaining the Pyrobel must be as the minimum for the single glazed system.

The fixing of the beads retaining the Pyrobel must be as specified for the single glazed system.

The glazing materials for the Pyrobel must be as specified for the single glazed system.

The permitted maximum glass sizes are limited to those of the single glazed Pyrobel system.

Either the Pyrobel or the non-fire rated glass of the dual glazed system may be orientated towards the fire risk.

The non-fire rated glass may be of any type of float, toughened, laminated, coated or tinted glass.

The dual glazed frame extension and additional bead set can be of any density, sizes or wood species. The fixing of the additional bead set and glazing materials for the non-fire rated glass is not specified.

Typical Example of a Dual Glazed Timber Framed Systems

