



CERTIFICATE OF APPROVAL

No CF 437

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

CGI INTERNATIONAL LIMITED

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

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

CERTIFIED PRODUCT

'Pyroguard Insulation'
Fire Resisting Glass

TECHNICAL SCHEDULE

TS 25 Fire Resistant Glass,
Glazing Systems and Materials

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council

Issued: 20th February 2006
Revised 4th February 2011
Valid to: 3rd February 2016

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Only valid when authentic
CERTIFIRE Seal is in place



CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation Fire Resisting Glass

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

Glass Specification	Application	Fire Resistance Performance (mins)		Page No.
		Integrity	Insulation	
Pyroguard Insulation 30-15, 30-16 O, 30-19, 30-20 O	Timber framed screens	30	30	5-7
	Steel framed screens	30	30	8-9
Pyroguard Insulation 30-15, 30-16 O, 30-19, 30-20 O	Timber based doorsets	30	30	10-12
	Timber based doorsets	60	30	13
Pyroguard Insulation 30-15, 30-16 O, 30-19, 30-20 O	Steel based doorsets	30	30	14
	IGUs in Steel based doorsets	30	30	15
	IGUs in Steel framed screens	30	30	16
	Timber framed screens	60	30	17
Pyroguard Insulation 30-30 ISO VSG	IGUs in timber framed screens	30	30	18
	IGUs in steel framed screens	30	30	19
Pyroguard Insulation 30-19 VSG 10-8, 30-20 O VSG 10-8	IGUs in Steel based doorsets	30	30	20
	IGUs in Steel framed screens	30	30	21
Pyroguard Insulation 60-23, 60-24 O, 60-27, 60-28 O	Timber framed screens	60	60	22-23
Pyroguard Insulation 60-23, 60-24 O, 60-27, 60-28 O	Timber based doorsets	60	60	24
Pyroguard Insulation 60-23, 60-24 O, 60-27, 60-28 O	Steel framed screens	60	60	25
Pyroguard Insulation 60-44 ISO VSG	IGUs in timber framed screens	60	60	26
	IGUs in steel framed screens	60	60	27
Pyroguard Insulation 60-23, 60-24 O, 60-27, 60-28 O in laminated glazed units	Horizontal steel framed screens	60	60	28



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CGI INTERNATIONAL LIMITED

Pyroguard Insulation Fire Resisting Glass

This product is approved on the basis of:

- a) Initial type testing
- b) A design appraisal against TS25
- c) Product surveillance under BS EN ISO 9001: 2008
- d) Audit testing
- e) Inspection and surveillance of factory production control

The glass is approved in the following nominal thicknesses:

Glass Specification	Application	Fire Resistance Performance (mins)	
		Integrity	Insulation
Pyroguard Insulation 30-15	15 mm thick (internal)	30*	30
Pyroguard Insulation 30-16 O	16 mm thick (internal)	30*	30
Pyroguard Insulation 30-19	19 mm thick (external)	30*	30
Pyroguard Insulation 30-20 O	20 mm thick (external)	30*	30
Pyroguard Insulation 30-30 ISO VSG	30 mm thick	30*	30
Pyroguard Insulation 60-23	23 mm thick (internal)	60	60
Pyroguard Insulation 60-24 O	24 mm thick (internal)	60	60
Pyroguard Insulation 60-27	27 mm thick (external)	60	60
Pyroguard Insulation 60-28 O	28 mm thick (external)	60	60
Pyroguard Insulation 60-44 ISO VSG	44 mm thick	60	60

* may be used to provide 60 minutes integrity depending upon element of construction, as detailed later in this approval.

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

General Requirements

Where the glass is installed in a timber or steel framed screen, the orientation of the screen shall be no more than $\pm 10^\circ$ from the vertical.

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



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Pyroguard Insulation Fire Resisting Glass

Options

All systems may include decorative self adhesive plant on beads to simulate transoms or may be acid etched/sandblasted on one face.

IGUs may incorporate fixed aluminium blinds within the cavity between inner and outer glass layers.

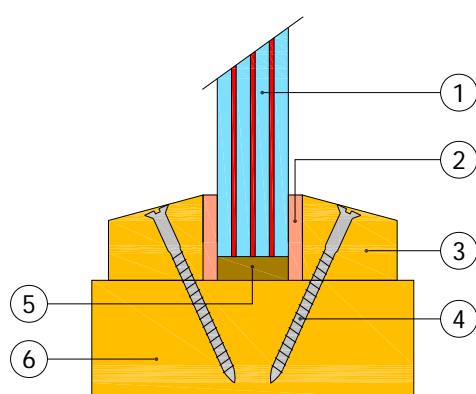
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CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in timber framed screens for periods of 30 minutes integrity and insulation

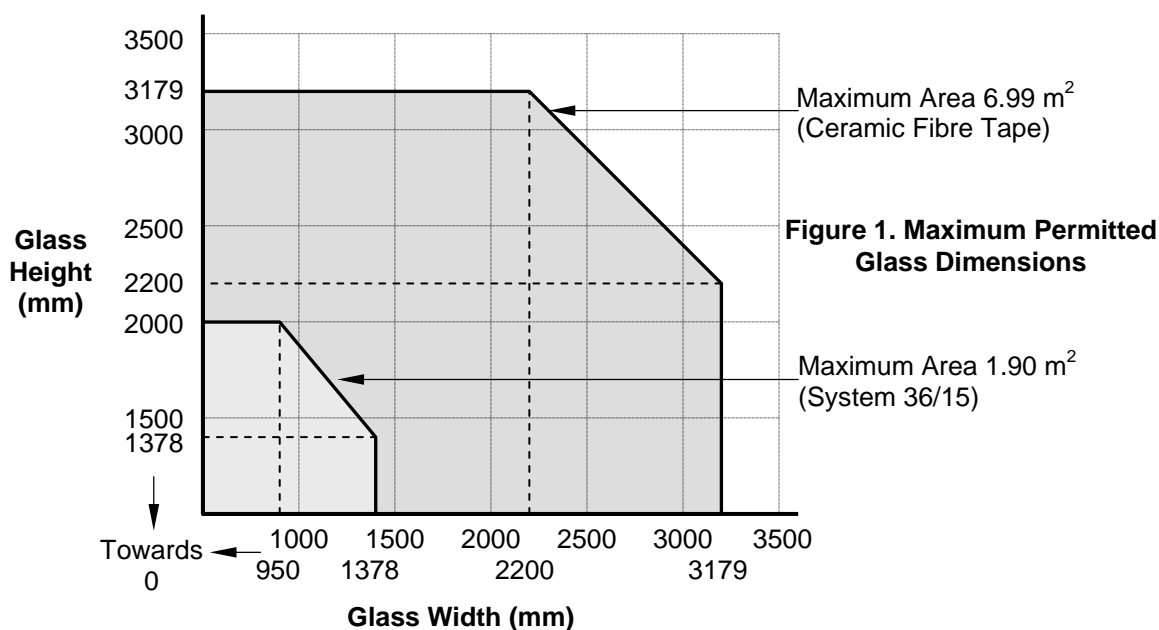
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- ② 20 mm by 6 mm ceramic fibre based glazing tape (eg. CGI 'K' tape) or Lorient System 36/15
- ③ 20 mm high by 23 mm wide square or chamfered (up to 10°) hardwood glazing beads, minimum density 640 kg/m³. (17 mm high for System 36/15)
- ④ 40 mm long steel screws at 400 mm centres (30° to glass)
- ⑤ Non-combustible setting blocks
- ⑥ 68 mm by 40 mm (minimum) hardwood framing sections, minimum density 640 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass shown in Figure 1 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



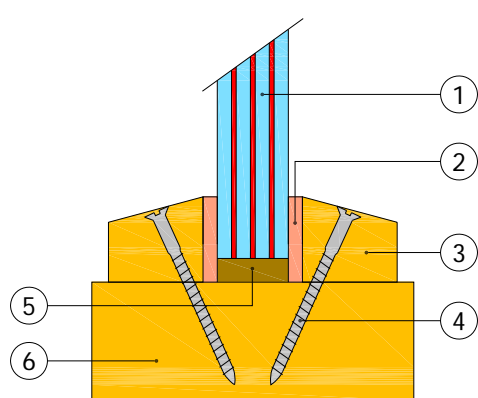
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CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in timber framed screens for periods of 30 minutes integrity and insulation continued

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- ② ISL Therm-A-Glaze 45 (15 x 2 mm)
- ③ 25 mm high by 30 mm wide square or chamfered (up to 16°) hardwood glazing beads, minimum density 650 kg/m³.
- ④ 50 mm long steel screws at 145 mm centres (30° to glass)
- ⑤ Non-combustible setting blocks
- ⑥ 4 mm by 44 mm (minimum) hardwood framing sections, minimum density 650 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass shown in Figure 2 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

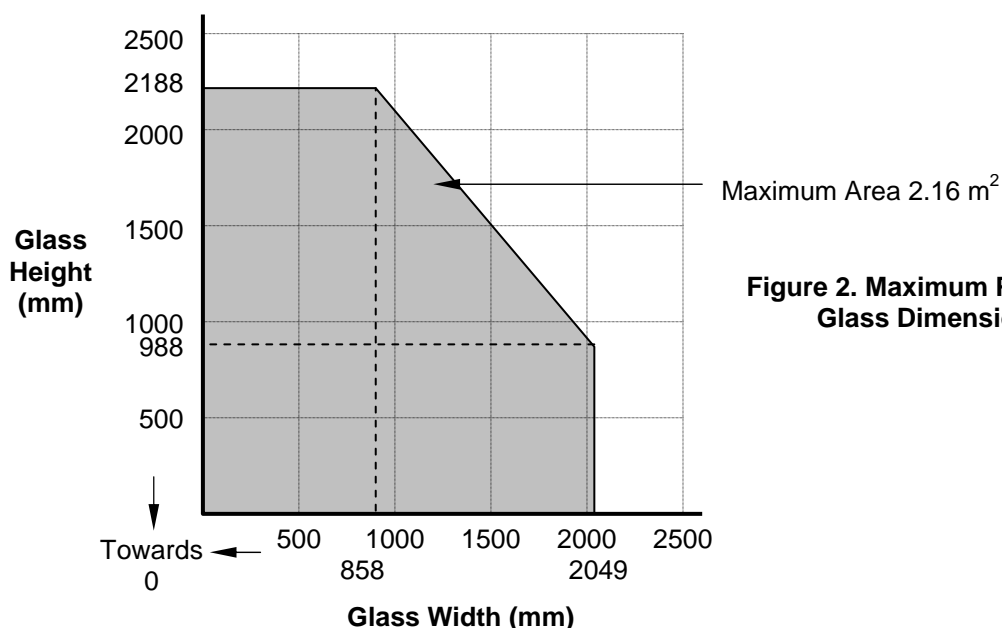


Figure 2. Maximum Permitted Glass Dimensions

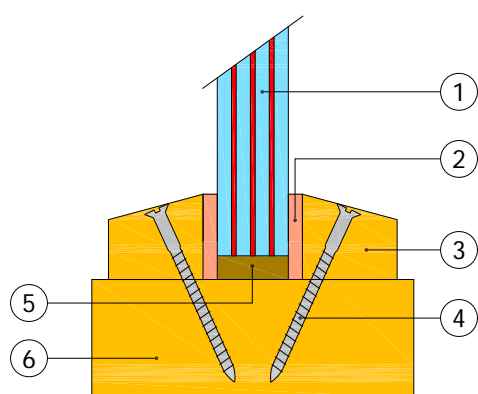
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CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in single pane softwood framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- ② 20 mm by 6 mm CGI 'K tape', ceramic fibre based glazing tape
- ③ 20 mm high by 23 mm wide square or chamfered (up to 10°) hardwood glazing beads, minimum density 640 kg/m³. (17 mm high for System 36/15)
- ④ 50 mm long M4 steel screws at 200 mm centres (30° to glass)
- ⑤ Hardwood or Non-combustible setting blocks
- ⑥ 92 mm by 45 mm (minimum) softwood framing sections, minimum density 450 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' shown in Figure 3 below, when used in conjunction with the above system. The maximum permitted overall screen dimensions are 2506 mm wide and 2706 mm high.

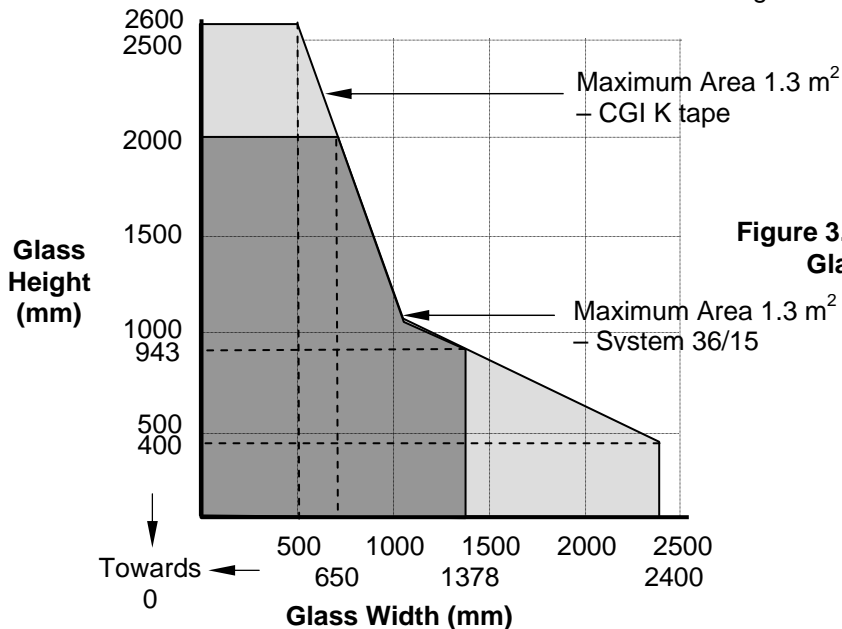


Figure 3. Maximum Permitted Glass Dimensions



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Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in steel framed screens for periods of 30 minutes integrity and insulation

For this application the following conditions shall apply:

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

- Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- 20 mm by 6 mm ceramic fibre based glazing tape (eg. CGI 'K' tape)
- The edge cover to each pane shall be no less than 15 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass shown in Figure 4 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

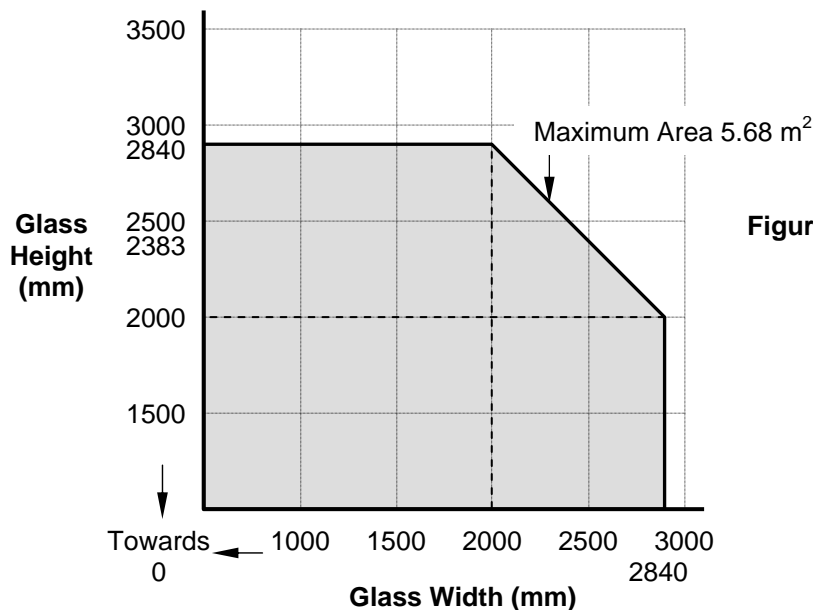


Figure 4. Maximum Permitted Glass Dimensions



CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in steel framed screens for periods of 30 minutes integrity and insulation continued

For this application the following conditions shall apply:

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

- Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- Proprietary 20 mm by 5 mm EPDM glazing seal
- The edge cover to each pane shall be no less than 15 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass shown in Figure 5 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

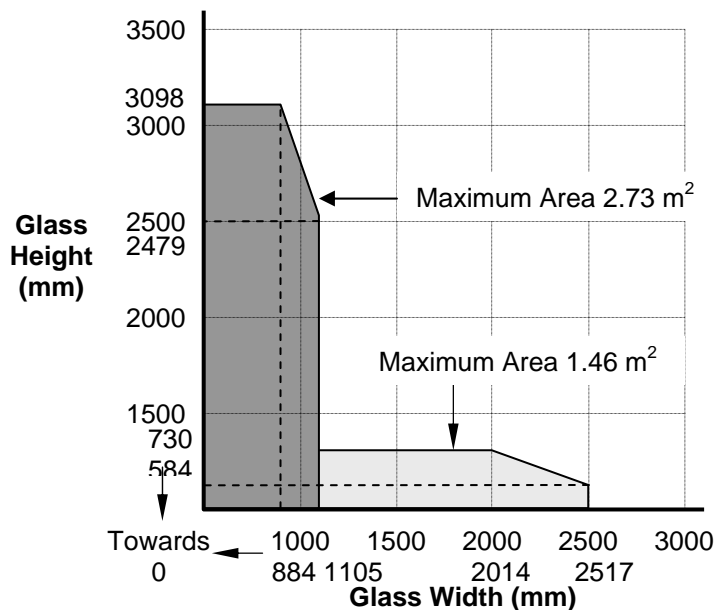


Figure 5. Maximum Permitted Glass Dimensions

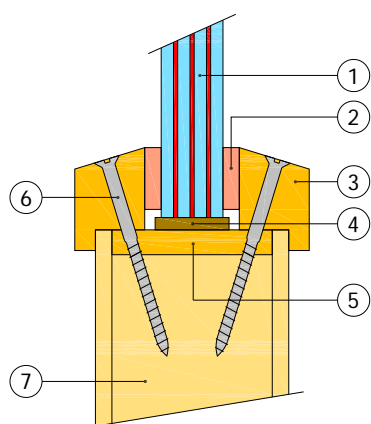
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CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O', glass in timber based doorsets for periods of 30 minutes integrity and insulation

For this application the following conditions shall apply:

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



- ① Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- ② Glazing seal (see below)
- ③ Hardwood glazing beads (or as specified on Pages 8 & 9, see below)
- ④ Non-combustible/hardwood setting blocks
- ⑤ Liner (see below)
- ⑥ Fixings (see below)
- ⑦ Nominally 44 mm thick FD30 door leaf (or thicker if required to accommodate glazing beads)

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', or '30-16 O' glass shown in the table below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Glazing System	Maximum Pane dimension – height (mm)	Maximum Pane dimension – width (mm)	Maximum Pane Area (m ²)
Hodgsons Sealants Firestrip 30 ⁽¹⁾	875	758	0.57
Lorient Flexible Figure 1 glazing system ⁽²⁾	1236	750	0.72
Lorient Flexible Figure 1 glazing system ⁽³⁾	1353	800	0.95
Lorient System 36/15 ⁽⁴⁾	1800	600	1.08
Pyroplex 8193 glazing system ⁽⁵⁾	600	600	0.36
Pyroplex 30049 glazing system ⁽⁶⁾	750	750	0.56
Pyroplex 30054 glazing system ⁽⁷⁾	750	750	0.56
Pyroplex 8492 glazing system ⁽⁸⁾	403	626	0.25
Sealmaster Therm-A-Strip 10 mm x 2 mm ⁽⁹⁾	2125	800	0.64
Sealmaster G30 glazing gasket between beads and glass ⁽⁹⁾	2125	610	0.64
Sealmaster G30 glazing gasket in CGI Ltd bead system ⁽¹⁰⁾	800	610	0.49



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CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in timber based doorsets for periods of 30 minutes integrity and insulation (continued)

- 1) The glazing beads shall be of Sapele, or equivalent or higher density (610 kg/m^3), sections, 22mm wide by 21mm high, chamfered by approximately 13° and fixed using 1.5 mm diameter, 50mm long steel pins at a maximum of 100mm centres and angled to pass under the face of the glass.
- 2) The glazing beads shall be of minimum density 550 kg/m^3 , sections, 22mm wide by 15 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 15° and fixed using 1.5 mm diameter, 40mm long steel pins or screws at a maximum of 150mm centres and angled to pass under the face of the glass. A secondary hardwood liner (integral or separate) or a LX4402 intumescent liner shall be used to line apertures cut within flaxboard substrates.
- 3) The glazing beads shall be of minimum density 650 kg/m^3 hardwood or 750 kg/m^3 MDF, sections, 25mm wide by 20 mm high with a 10 mm by 6 mm bolection return, chamfered by approximately 30° and fixed using 40mm long steel screws at a maximum of 150mm centres and angled at 45° . A secondary 38 mm x 6 mm thick hardwood liner (min. density 650 kg/m^3) shall be used to line apertures cut within all substrates.
- 4) The glazing beads shall be of minimum density 550 kg/m^3 , sections, 18.5 mm wide by 15 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 15° and fixed using 1.5 mm diameter, 45mm long steel screws at a maximum of 200mm centres and angled to pass under the face of the glass. A secondary hardwood liner (integral or separate) or a LX4402 intumescent liner shall be used to line apertures cut within flaxboard substrates.
- 5) The glazing beads shall be of minimum density 630 kg/m^3 , sections, 20mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 50 mm long steel screws at a maximum of 150mm centres and angled at $30-45^\circ$. A secondary 6 mm thick hardwood liner (min. density 630 kg/m^3) shall be used to line apertures cut within all substrates.
- 6) The glazing beads shall be of minimum density 630 kg/m^3 , sections, 20mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 36 mm long steel screws at a maximum of 150mm centres and angled at $30-45^\circ$. A secondary 6 mm thick hardwood liner (min. density 630 kg/m^3) shall be used to line apertures cut within all substrates.
- 7) The glazing beads shall be of minimum density 630 kg/m^3 , sections, 20mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 50 mm long steel screws at a maximum of 150mm centres and angled at $30-45^\circ$. A secondary 6 mm thick hardwood liner (min. density 630 kg/m^3) shall be used to line apertures cut within all substrates.



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CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in timber based doorsets for periods of 30 minutes integrity and insulation (continued)

- 8) The glazing beads shall be of minimum density 630 kg/m³, sections, 20 mm wide by 14.5 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 20° and fixed using, 45 mm long steel screws at a maximum of 150mm centres and angled at 30-45°.
- 9) The glazing beads shall be hardwood of minimum density 500 kg/m³, sections, 25 mm wide by 23 mm high with a 5 mm by 5 mm bolection return, chamfered by approximately 15° and fixed using, 38 mm long steel pins or screws at a maximum of 150mm vertical and 100 mm horizontal centres and angled at 15°. A secondary 6 mm thick hardwood liner (min. density 500 kg/m³) shall be used to line apertures cut within all substrates.
- 10) Asymmetrical beading system as shown in CGI International Ltd Drawing no. G20011-01 (01/07/04)

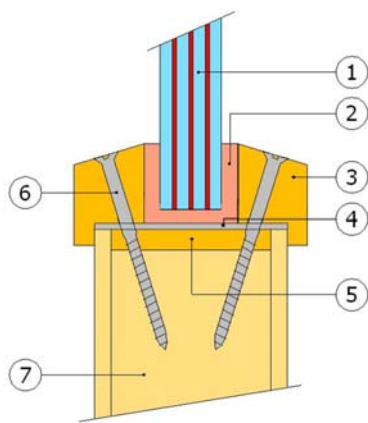
CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O', glass in timber based doorsets for periods of 60 minutes integrity and 30 minutes insulation

For this application the following conditions shall apply:

The glass shall be glazed within a previously fire tested (with test evidence for the inclusion of apertures of the proposed dimensions) or CERTIFIRE approved timber based doorset utilising the following basic specification:



- ① Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- ② Lorient System 36/15 glazing seal
- ③ Hardwood glazing beads 33 mm high by 21 mm wide including 13 mm high by 5 mm wide bolection return. Min. density 650 kg/m³
- ④ Palusol liner (full width)
- ⑤ Hardwood liner 10 mm thick
- ⑥ 8 x 50 mm screws at 45° and minimum 150 mm centres. Maximum distance from corners 50 mm.
- ⑦ Nominally 54 mm thick FD60 door leaf (or thicker if required to accommodate glazing beads)

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', or '30-16 O' glass shown in Figure 6 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

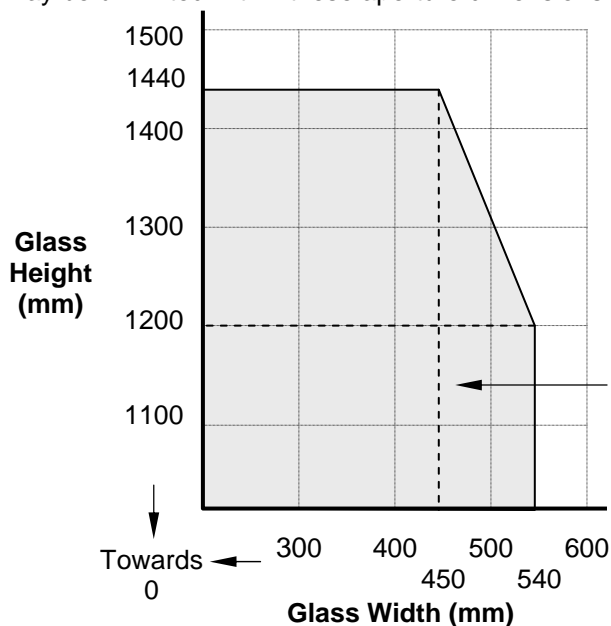


Figure 6. Maximum Permitted Glass Dimensions



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CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in steel based doorsets for periods of 30 minutes integrity and insulation

For this application the following conditions shall apply:

1. The doorset, including door frame and associated building hardware, should have achieved at least 30 minutes integrity and insulation when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987.
2. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations.
3. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets.
4. The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
5. 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 Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass shown in Figure 7 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

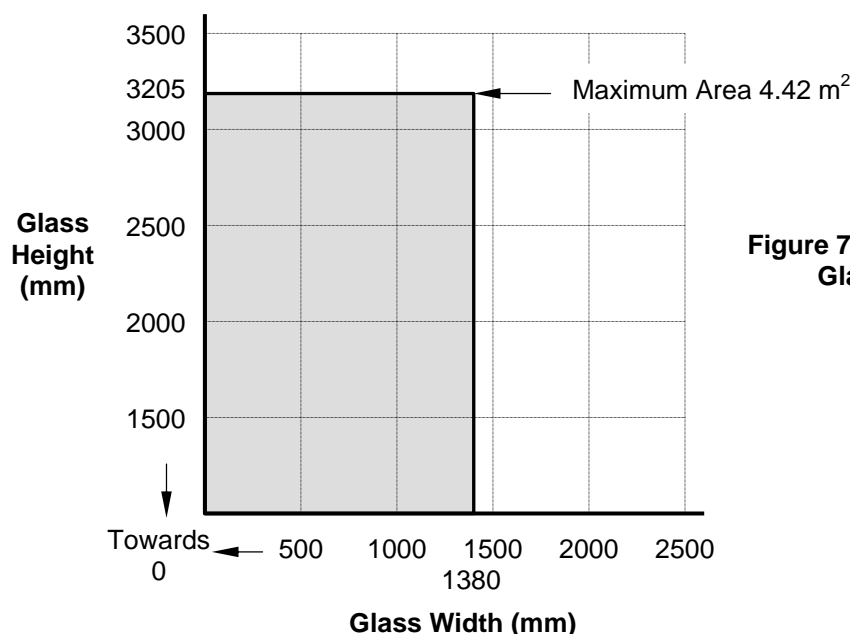


Figure 7. Maximum Permitted Glass Dimensions



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Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O', Insulated Glazed Units in steel based doorsets for periods of 30 minutes integrity and insulation

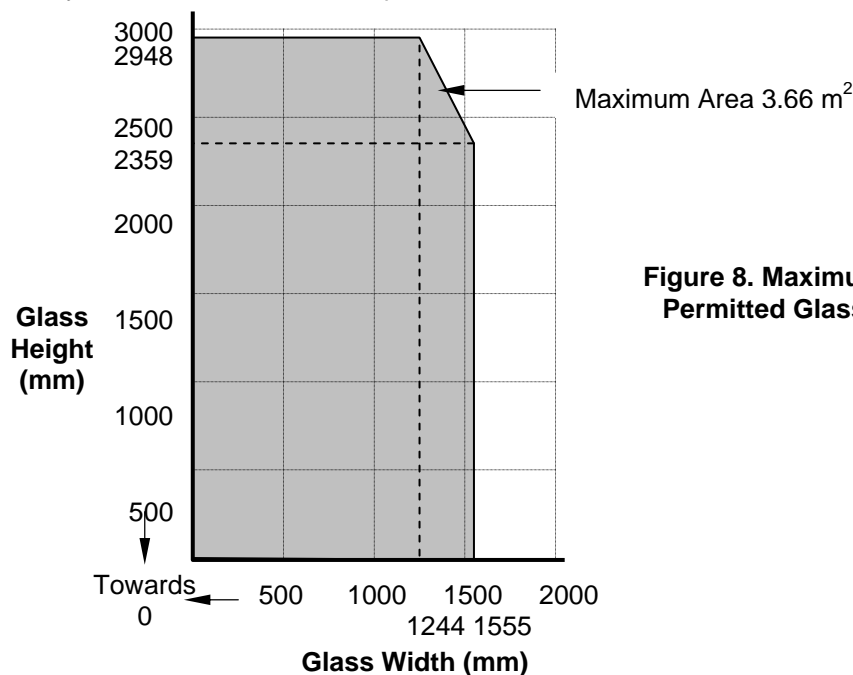
For this application the following conditions shall apply:

1. The doorset, including door frame and associated building hardware, should have achieved at least 30 minutes integrity and insulation when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987.
2. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations.
3. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets.
4. The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
5. When used to glaze CERTIFIRE approved doorsets which have smaller apertures than allowed in this certificate, the aperture sizes specified in the doorset certificate shall take precedence.

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

- Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O' IGU, comprising Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O' an 11 mm air gap and 9 mm laminated float glass
- The edge cover to each pane shall be no less than 15 mm minimum

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O' IGU shown in Figure 8 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.





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Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O', Insulated Glazed Units in steel framed screens for periods of 30 minutes integrity and insulation

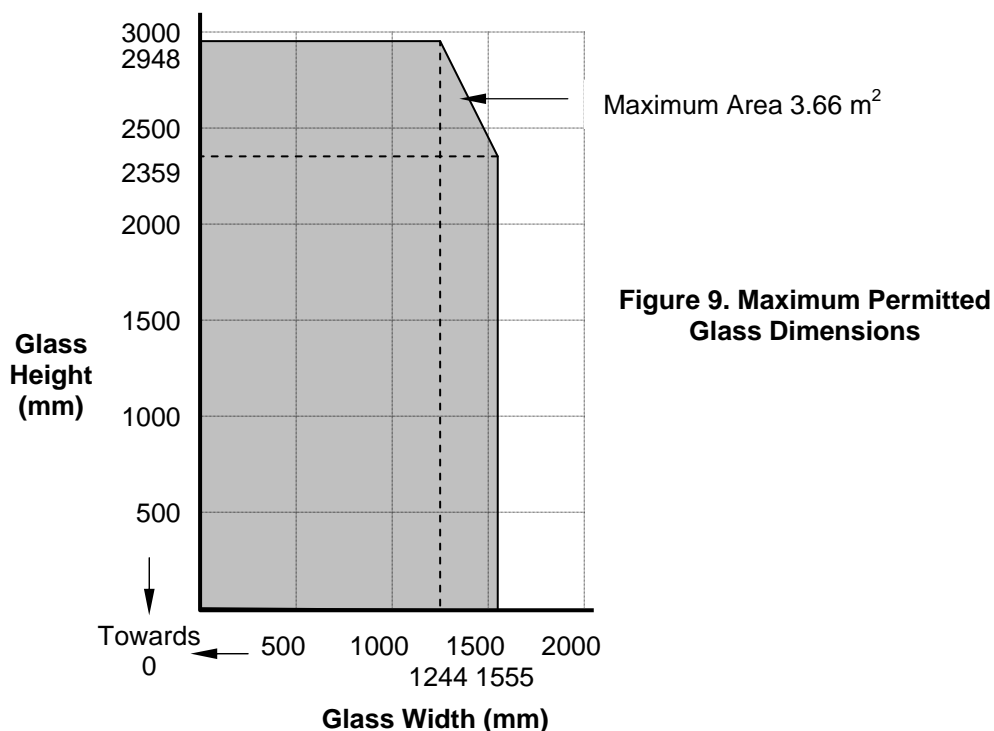
For this application the following conditions shall apply:

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

- Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O' IGU, comprising Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O' an 11 mm air gap and 9 mm laminated float glass
- The edge cover to each pane shall be no less than 15 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15, 30-16 O, 30-19, 30-20 O' IGU shown in Figure 9 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



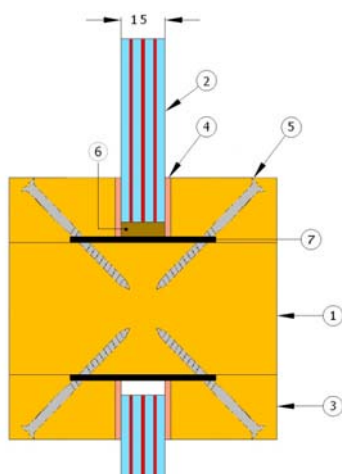
CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass in timber framed screens for periods of 60 minutes integrity and 30 minutes insulation

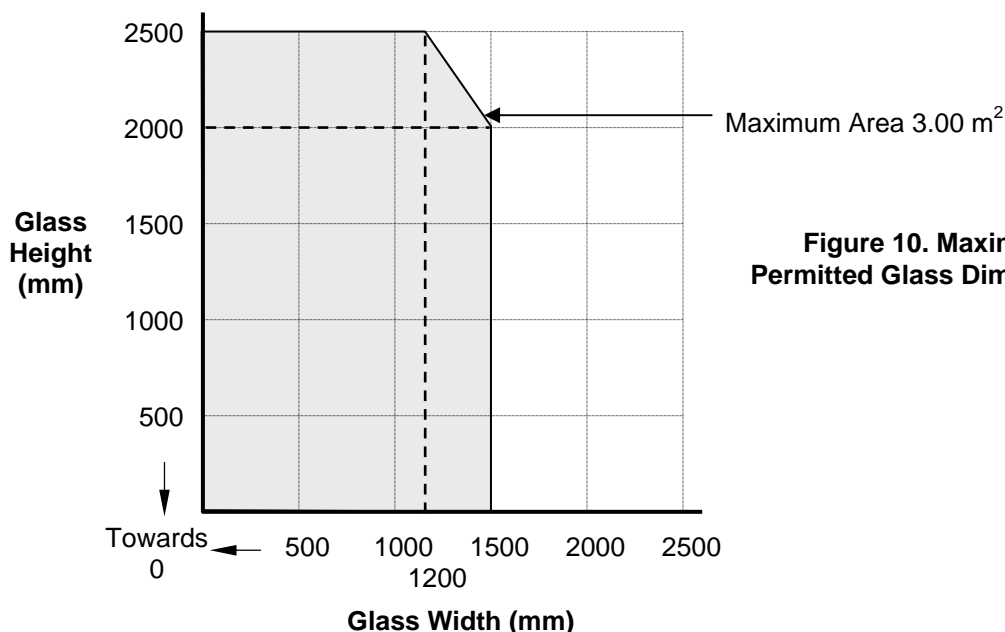
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① 92 mm by 45 mm (minimum) hardwood framing sections, minimum density 580 kg/m³
- ② Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass
- ③ 22 mm high by 36.5 mm wide square or chamfered (up to 10°) hardwood glazing beads, minimum density 580 kg/m³
- ④ 20 mm by 3 mm ceramic fibre based glazing tape (eg. CGI 'K' tape)
- ⑤ 50 mm long steel screws at 200 mm centres (45° to glass)
- ⑥ Hardwood or non-combustible setting blocks
- ⑦ Sealmaster GL60 Liner (50 x 2 mm)

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-15', '30-16 O', '30-19' and '30-20 O' glass shown in Figure 10 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



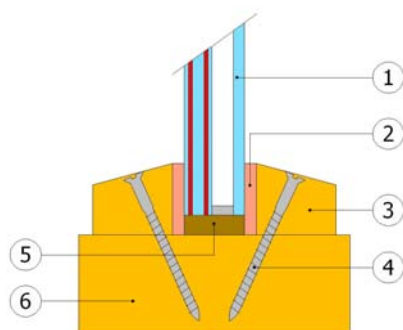
CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-30 ISO VSG', Insulated Glazed Units in timber framed screens for periods of 30 minutes integrity and insulation

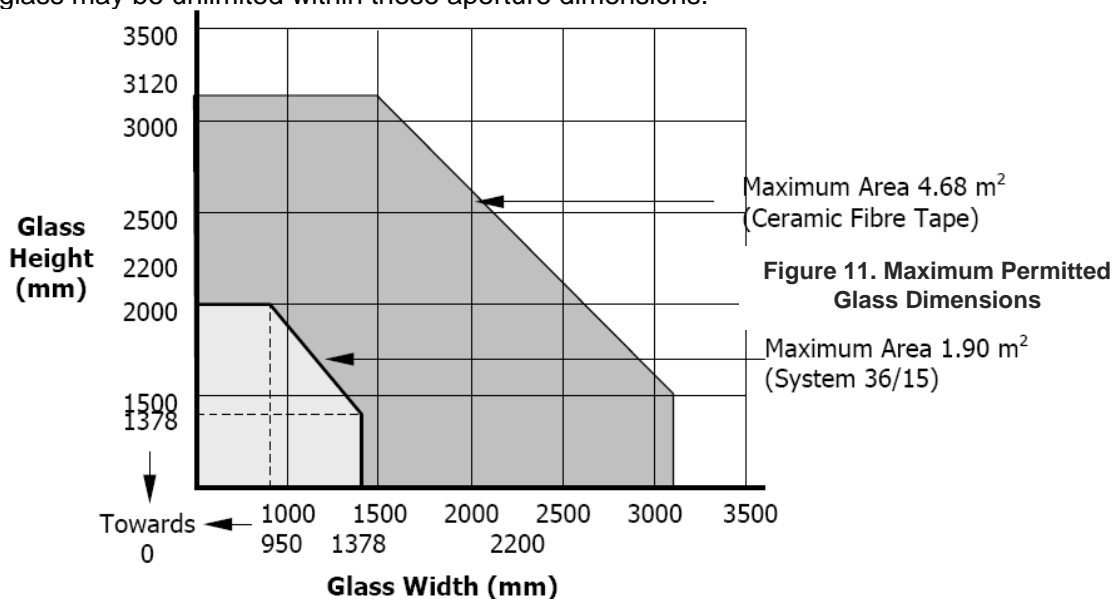
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① Pyroguard Insulation '30-30 ISO VSG' IGU, comprising Pyroguard Insulation '30-15', '30-16 O', '30-19' or '30-20 O' glass an 8 mm air gap and non-fire rated glass up to 7 mm thick
- ② 20 mm by 6 mm ceramic fibre based glazing tape (eg. CGI 'K' tape) or Lorient System 36/15
- ③ 20 mm high by 23 mm wide square or chamfered (up to 10°) hardwood glazing beads, minimum density 640 kg/m³. (17 mm high for System 36/15)
- ④ 40 mm long steel screws at 400 mm centres (30° to glass)
- ⑤ Non-combustible setting blocks
- ⑥ 83 mm by 40 mm (minimum) hardwood framing sections, minimum density 640 kg/m³ non-combustible setting blocks

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-30 ISO VSG' IGU shown in Figure 11 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.





CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-30 ISO VSG', Insulated Glazed Units in steel framed screens for periods of 30 minutes integrity and insulation

For this application the following conditions shall apply:

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

- Pyroguard Insulation '30-30 ISO VSG' IGU, comprising Pyroguard Insulation '30-15', '30-16 O', '30-19' or '30-20 O' an 8 mm air gap and 7 mm laminated float glass
- The edge cover to each pane shall be no less than 15 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-30 ISO VSG' IGU shown in Figure 12 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

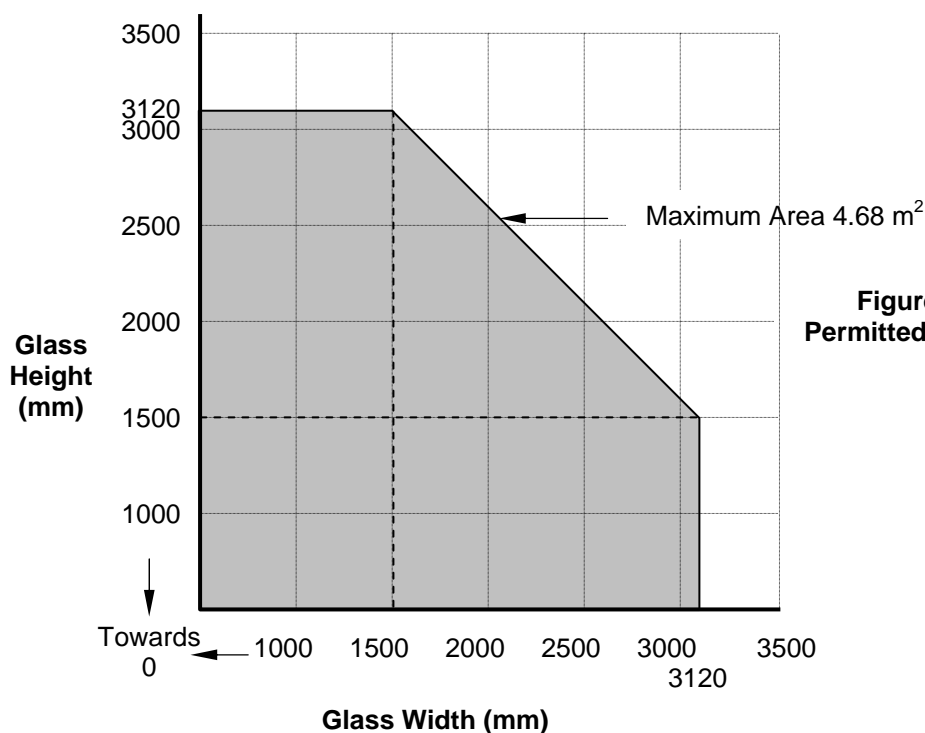


Figure 12. Maximum Permitted Glass Dimensions



CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-19 VSG 10-8' and '30-20 O VSG 10-8', glass in steel based doorsets for periods of 30 minutes integrity and insulation

For this application the following conditions shall apply:

1. The doorset, including door frame and associated building hardware, should have achieved at least 30 minutes integrity and insulation when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987.
2. If the proposed doorset is to be used in double-leaf configuration, the test or assessment evidence should be applicable to double-leaf configurations.
3. Likewise, if the proposed doorset is to be used in the unlatched configuration, the available evidence should be applicable to unlatched doorsets.
4. The proposed doorset should also have included a glazed aperture or apertures of the intended size, shape, area and number.
5. When used to glaze CERTIFIRE approved doorsets which have smaller apertures than allowed in this certificate, the aperture sizes specified in the doorset certificate shall take precedence.

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

- Pyroguard Insulation '30-19 VSG 10-8' glass, comprising Pyroguard Insulation '30-19' or '30-20 O' and 10 mm '55.8' glass
- The edge cover to each pane shall be no less than 15 mm minimum

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-19 VSG 10-8' and '30-200 VSG 10-8' glass shown in Figure 13 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

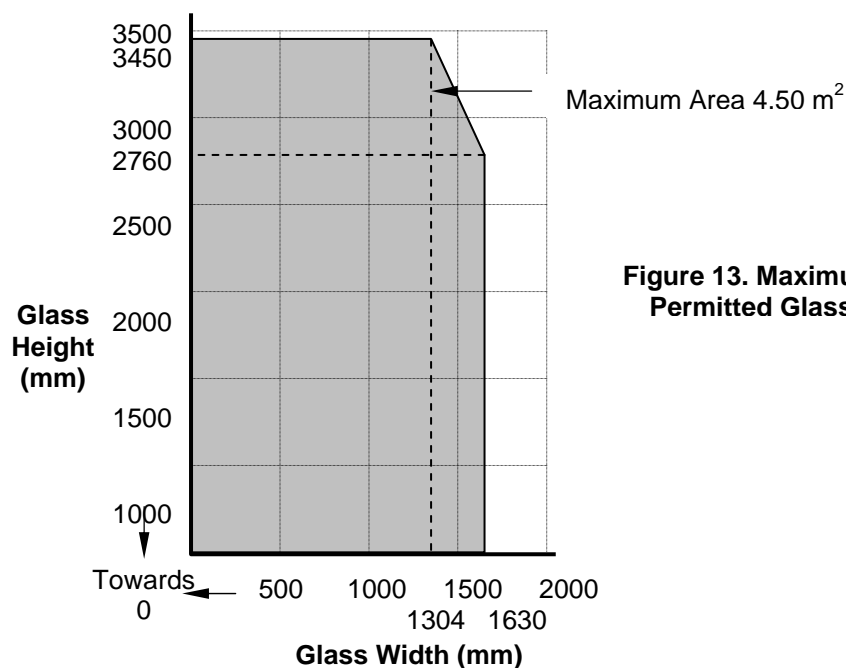


Figure 13. Maximum Permitted Glass



CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '30-19 VSG 10-8' and '30-20 VSG 10-8', glass in steel framed screens for periods of 30 minutes integrity and insulation

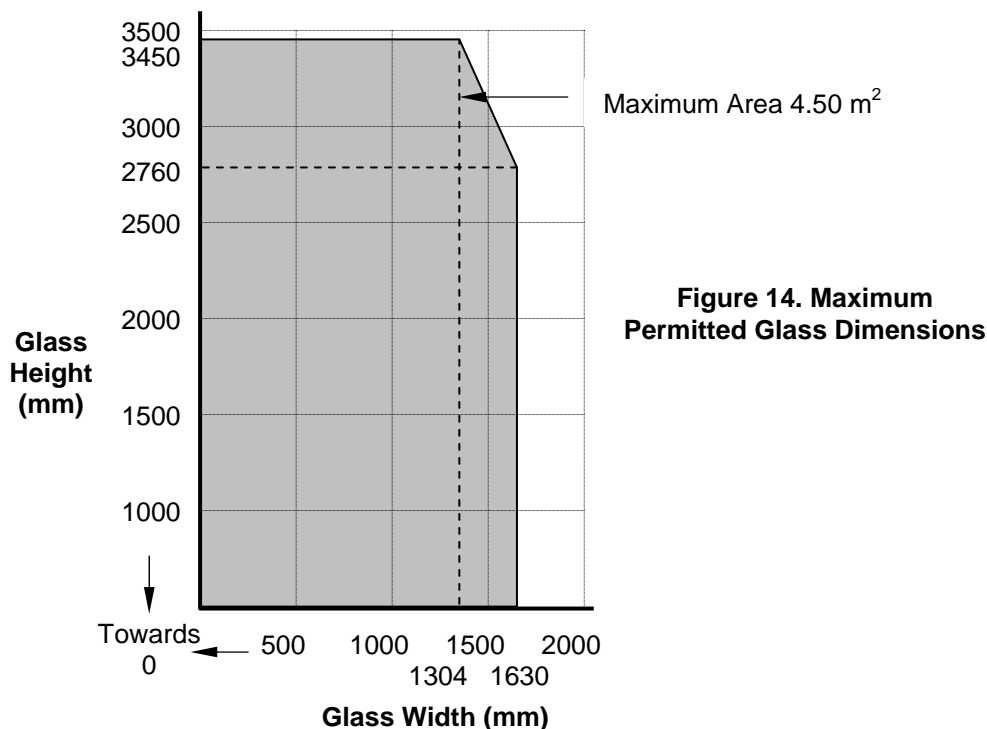
For this application the following conditions shall apply:

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

- Pyroguard Insulation '30-19 VSG 10-8' glass, comprising Pyroguard Insulation 30-19' or '30-20 O' and 10 mm '55.8' glass
- The edge cover to each pane shall be no less than 15 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '30-19 VSG 10-8' and '30-20 O VSG 10-8' glass shown in Figure 14 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



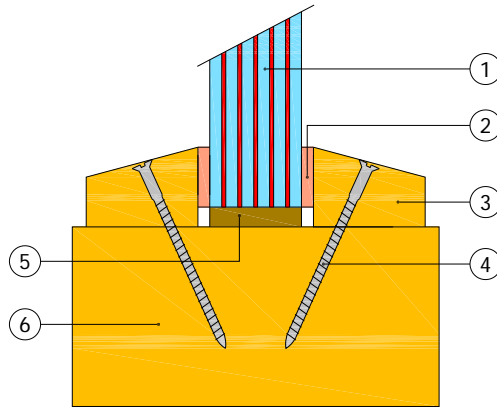
CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

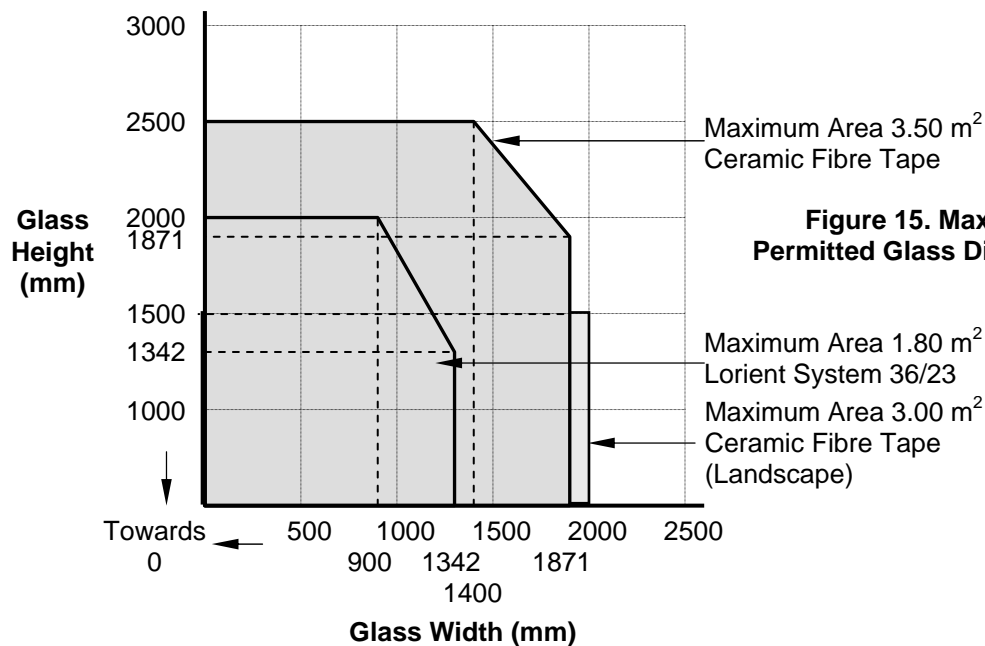
Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass in timber framed screens for periods of 60 minutes integrity and insulation

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:

- 
- ① Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass
 - ② 15 mm by 3 mm ceramic fibre based glazing tape (eg. CGI 'K' tape), or Lorient System 36/23
 - ③ 20 mm high by 30 mm wide square or chamfered (up to 10°) hardwood glazing beads, minimum density 640 kg/m³ (20 mm high for System 36/23)
 - ④ 50 mm long steel screws at 200 mm centres (30° to glass)
 - ⑤ Non-combustible setting blocks
 - ⑥ 92 mm by 45 mm (minimum) hardwood framing sections, minimum density 640 kg/m³

This Certificate of Approval relates to the sizes of Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass shown in Figure 15 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.



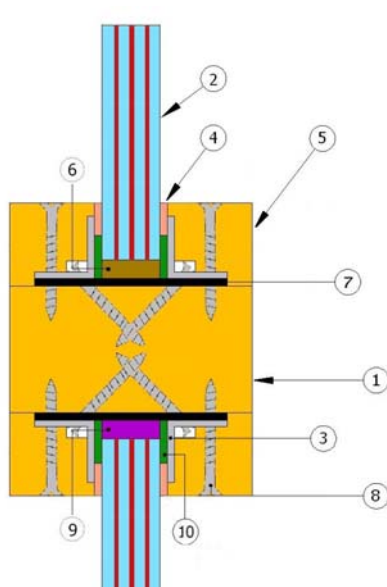
CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass in timber framed screens for periods of 60 minutes integrity and insulation

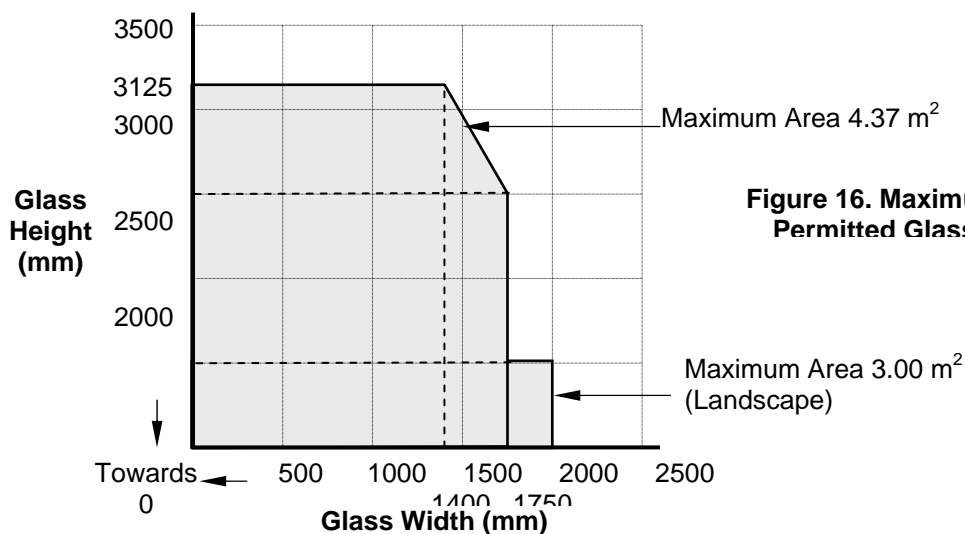
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① 100 mm by 50 mm (minimum) hardwood framing sections, minimum density 580 kg/m³
- ② Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O'
- ③ Mild steel glazing angle 20 x 20 x 2 mm
- ④ 10 mm by 3 mm ceramic fibre based glazing tape (eg. CGI 'K' tape)
- ⑤ 26 mm high by 26 mm wide square or chamfered (up to 10°) hardwood glazing beads, minimum density 580 kg/m³
- ⑥ Non-combustible setting blocks
- ⑦ Sealmaster GL60 Liner 90 x 2 mm
- ⑧ 50 mm long steel screws at 200 mm centres (45° and parallel to glass)
- ⑨ Sealmaster intumescent glazing compound
- ⑩ Unifrax CXL715 adhesive

This Certificate of Approval relates to the sizes of Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass shown in Figure 16 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.





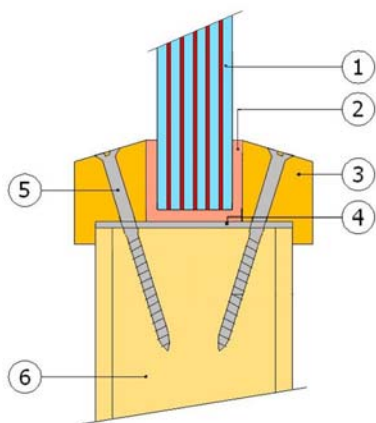
CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O', glass in timber based doorsets for periods of 60 minutes integrity and insulation

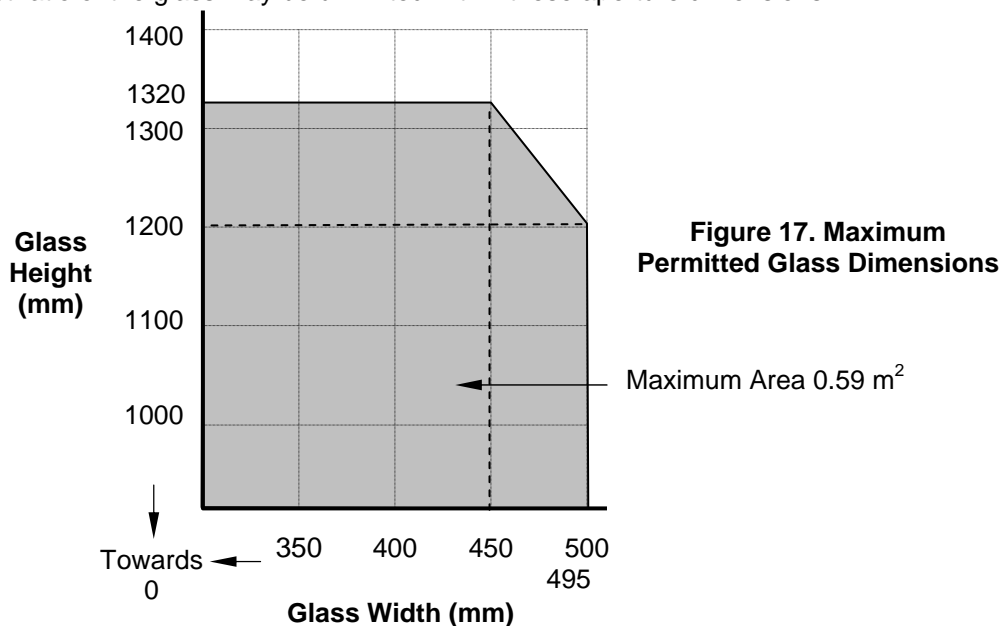
For this application the following conditions shall apply:

The glass shall be glazed within a previously fire tested doorsets, as specified below (with test evidence for the inclusion of apertures of the proposed dimensions) utilising the following basic specification:



- ① Pyroguard Insulation '60-23' and '60-24 O' glass
- ② Lorient System 36/23 glazing seal
- ③ Hardwood glazing beads 25 mm high by 17 mm wide including 5 mm high by 5 mm wide bolection return. Min. density 650 kg/m³
- ④ 2 mm thick mono ammonium phosphate liner (M.A.P.), full width
- ⑤ 8 x 45 mm screws at 45° and minimum 200 mm centres. Maximum distance from corners 50 mm.
- ⑥ Minimum 54 mm thick FD60 door leaf incorporating a flaxboard core and 10 mm thick Anti-Flam Chipboard faces. (or thicker if required to accommodate glazing beads)

This Certificate of Approval relates to the sizes of Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass shown in Figure 17 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.





CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' Glass in steel framed screens for periods of 60 minutes integrity and insulation

For this application the following conditions shall apply:

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

- Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass
- 20 mm by 6 mm ceramic fibre based glazing tape (eg. CGI 'K' tape)
- The edge cover to each pane shall be no less than 15 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' glass shown in Figure 18 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

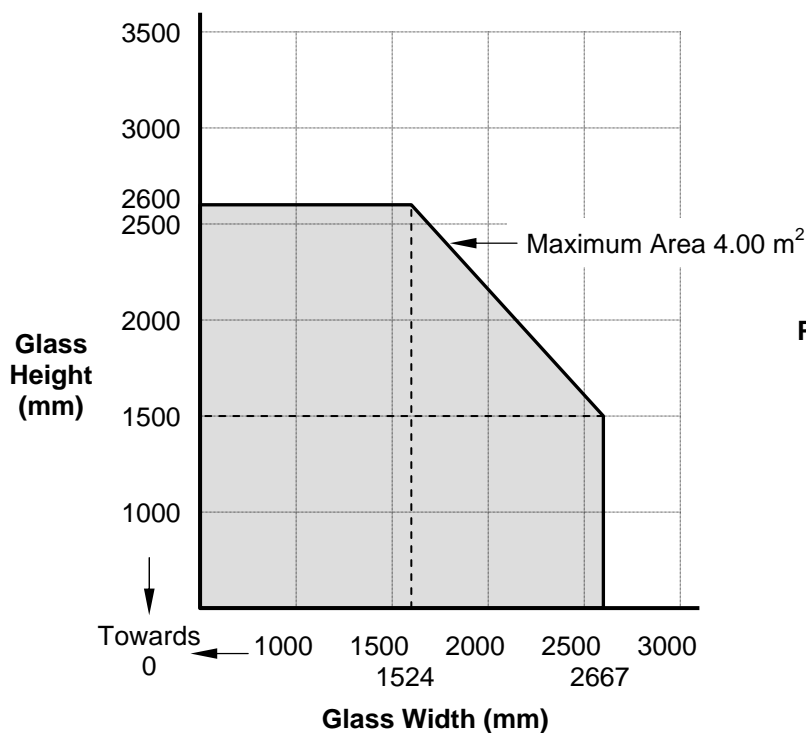


Figure 18. Maximum Permitted Glass Dimensions

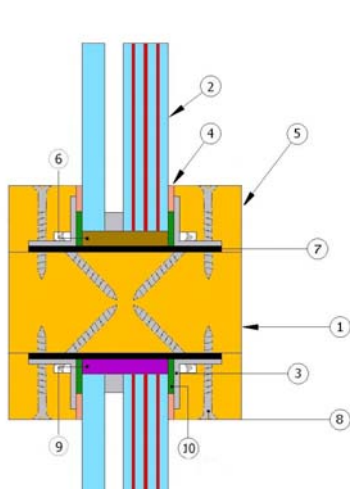
CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '60-44 ISO VSG' IGUs in timber framed screens for periods of 60 minutes integrity and insulation

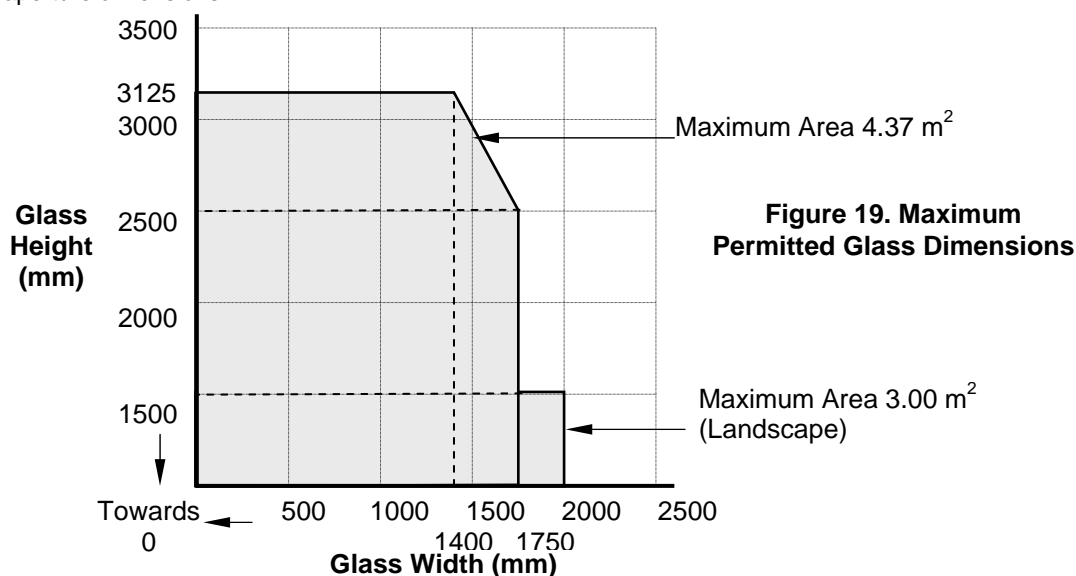
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① 100 mm by 50 mm (minimum) hardwood framing sections, minimum density 580 kg/m³
- ② Pyroguard Insulation '60-44 ISO VSG', comprising 23 mm Pyroguard Insulation '60-23', '60-24 O', '60-27', or '60-28 O' a steel spacer and 8.8 mm clear laminated/annealed or float glass
- ③ Mild steel glazing angle 20 x 20 x 2 mm
- ④ 10 mm by 3 mm ceramic fibre based glazing tape (eg. CGI 'K' tape)
- ⑤ 26 mm high by 26 mm wide square or chamfered (up to 10°) hardwood glazing beads, minimum density 580 kg/m³
- ⑥ Non-combustible setting blocks
- ⑦ Sealmaster GL60 Liner 90 x 2 mm
- ⑧ 50 mm long steel screws at 200 mm centres (45° and parallel to glass)
- ⑨ Sealmaster intumescent glazing compound
- ⑩ Unifrax CXL715 adhesive

This Certificate of Approval relates to the sizes of Pyroguard Insulation '60-44 ISO VSG' IGU shown in Figure 19 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.





CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '60-44 ISO VSG' IGUs in steel framed screens for periods of 60 minutes integrity and insulation

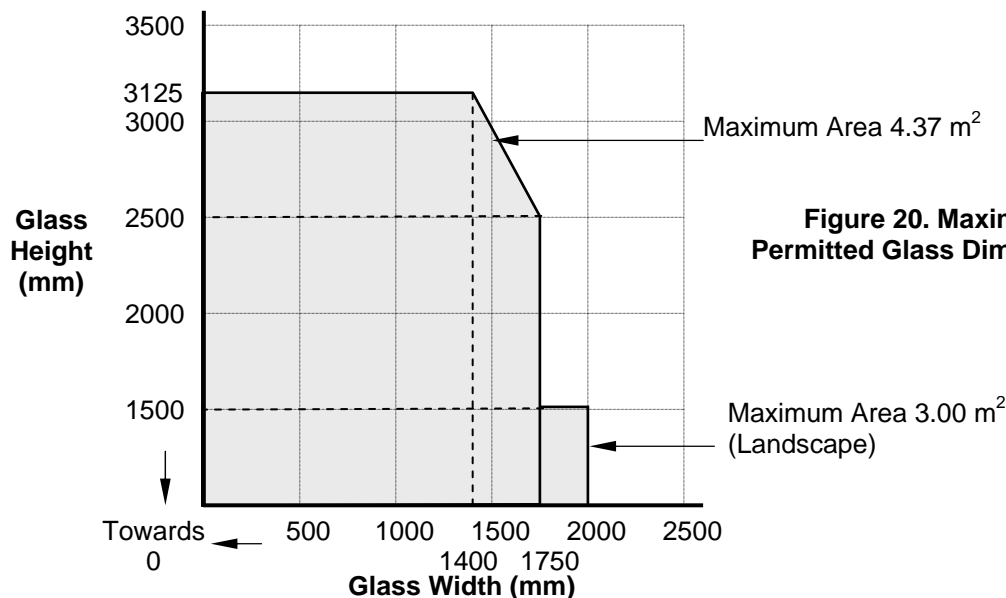
For this application the following conditions shall apply:

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

- Pyroguard Insulation '60-44 ISO VSG' IGU, comprising Pyroguard Insulation '60-23', '60-24 O', '60-27', or '60-28 O' an 12 mm air gap and 8.8 mm laminated/annealed or float glass
- The edge cover to each pane shall be no less than 15 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '60-44 ISO VSG' IGU shown in Figure 20 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.





CERTIFICATE No CF 437

CGI INTERNATIONAL LIMITED

Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' laminated glass units in single pane horizontal steel framed screens for periods of 60 minutes integrity and 30 or 60 minutes insulation

For this application the following conditions shall apply:

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

- Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' laminated to 8 mm toughened glass with a 2mm cold pour resin, to form a glazed 33 mm thick glazed unit with the tempered/toughened glass on the upper/unexposed face
- 30 mm by 6 mm (2 x 15 by 6) ceramic fibre based glazing tape (eg. CGI 'K' tape)
- The edge cover to each pane shall be no less than 30 mm minimum

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

This Certificate of Approval relates to the sizes of Pyroguard Insulation '60-23', '60-24 O', '60-27', and '60-28 O' laminated glazed units shown in Figure 21 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions. Approval is limited to single pane systems.

