



CERTIFICATE OF APPROVAL

No CF 5140

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

PILKINGTON UK LIMITED

Hall Lane, Lathom, Ormskirk Lancashire L40 5UF
United Kingdom

Tel: 0169550000

E mail: Enquiries@pilkington.com

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

Pilkington Pyroclear® and
Pyroclear® Plus - Fire
resisting glass

TECHNICAL SCHEDULE

TS25 Fire Resisting Glass,
Glazing Systems and
Glazing Materials

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

Paul Duggan
Certification Manager

Issued:
Reissued:
Valid to:

20th March 2013
25th June 2024
6th January 2029





CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

This certification is provided to the client for their own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

This Certificate of Approval relates to the fire resistance of Pilkington Group Limited Pyroclear® glass products when used in the following applications, as defined in BS 476: Part 22: 1987 or BS EN 1364-1: 1999 and BS EN 1634-1: 2000 subject to the undermentioned conditions.

Glass Specification	Application	Fire Resistance Performance (mins)		Page No.
		Integrity	Insulation	
Pyroclear®	Steel Doors	30	-	6-7
Pyroclear® (single panes)	Steel Screen	30	-	8
Pyroclear® (multiple panes)	Steel Screens	30	-	9
Pyroclear® (multiple laminated panes)	Steel Screen	30	-	10
Pyroclear® (multiple IGU's panes)	Steel Screens	30	-	11-12
Pyroclear® (multiple IGU's panes)	Façade Screens	30	-	13
Pyroclear®	Steel Doors	60	-	14-15
Pyroclear® (multiple panes)	Steel Screens	60	-	16
Pyroclear®	Timber Doors	30	-	17-23
Pyroclear®	Timber Doors	60	-	24-25
Pyroclear® (IGU's)	Timber Doors	30	-	26-27
Pyroclear®	Timber Screens	30	-	28-35
Pyroclear® (IGU's)	Timber Screens	30	-	36-37
Pyroclear® Line 30-603	Butt Jointed Steel framed screen with or without glazing buttons	30	-	38-40
Pyroclear® Line 30-602 or 30-603	Butt Jointed Timber framed screen with or without glazing buttons	30	-	41-43
Pyroclear® Line 60-603	Butt Jointed Steel framed screen with glazing buttons	60	-	44
Pyroclear® Plus EW60 IGUs	Steel Screens	60	15	45
Pyroclear® Plus 30-008 EW60	Steel Screens	60	-	46
Pyroclear® Plus 30-402 EW30	Horizontal Steel Roof System	30	-	47

Page 2 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029



CERTIFICATE No CF 5140

PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

This product is approved on the basis of:

- i) Initial type testing.
- ii) A design appraisal against TS25.
- iii) Certification of quality management system to ISO 9001.
- iv) Inspection and surveillance of factory production control.
- v) Audit testing at a frequency defined within TS25.

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

General Requirements

- Any 6, 8 or 10 mm thick Pyroclear® glass pane can be used in the applications described.
- There is no restriction to the direction of fire exposure for single glass panes as the glass is symmetrical.
- The edge cover to each Pyroclear® glass pane shall be a maximum of 15mm when glazed in steel doors or screens with a 5 mm clearance to all edges.
- In the case of a non-symmetrical metal framing system, glazing beads can be positioned to either the fire side or non-fire side.
- The orientation of the screen shall be no more than $\pm 10^\circ$ from the vertical.
- For steel framed systems only, shaped apertures may be provided. Maximum linear dimensions and overall areas defined within the scope of this document, which may be dependent on fire resistance period and frame specification, should be complied with.
- Shaped aperture in timber framed systems are allowed in the specified glazing system,
- For timber framed systems a 10 mm edge clearance must be provided and edge cover can be between 10 mm and 15 mm edge depending on application (see individual application pages).

Acid Etching, Tinting, Screen Printing and Sandblasted Glass

The Pyroclear® glass pane may be provided with surface finishes including sandblasted, acid etching, tinting and screen printing in both single and insulating glass units. The printing may cover any area of the glass surface.

Page 3 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029



CERTIFICATE No CF 5140

PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Insulated Glazed Units (IGU's)

Pyroclear® IGUs are normally constructed from one pane of Pyroclear®, a steel spacer bar between 6 mm to 27 mm wide and one pane of any thickness of coated, toughened, laminated patterned, acid etched, screen printed, painted or enamelled glass. The non-fire glass should be placed to the fire side. Alternatively, if the fire risk is from either side, the IGU may comprise one pane of Pyroclear® and one pane of toughened or toughened coated glass glazed in either orientation.

The Pyroclear® IGUs as described above may be used in any steel framed and timber framed screens for up to 30 minutes integrity as covered by this certificate.

Interstitial Blinds/Internal Fretwork

Pyroclear® IGUs may incorporate blinds/fretwork within the cavity. In this situation, the 'non-fire' glass and the blind must be orientated such they face the fire risk side of the assembly.

Applied Films

Polyester, PET or PVC films in thicknesses up to 250 µm may be applied to the vision area of the glass pane on the fire side only.

Page 4 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029



CERTIFICATE No CF 5140

PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® PLUS FIRE RESISTING GLASS

General Requirements

- Pyroclear® Plus laminated and IGUs are restricted to being installed with the Pyroclear® Plus on the non-fire side.
- The Pyroclear® Plus may be heat soaked.
- In the case of a non-symmetrical metal framing system, glazing beads can be positioned to either the fire side or non-fire side.
- Where the glass is installed in a vertical screen the orientation of the screen shall be no more than $\pm 10^\circ$ from the vertical.
- Where the glass is installed as in a horizontal screen the orientation of the screen shall be no more than 80° from the horizontal.

Pyroclear® Plus laminated

Pyroclear® Plus laminated is made from one pane of 8mm to 12mm Pyroclear® Plus, up to 1.52mm PVB, SGP and EVA types of laminate and one pane of any thickness which can be coated, toughened, laminated, patterned, sandblasted, acid etched, tinted, screen printed, painted or enamelled glass. The non-fire glass must be placed to the fire side.

Pyroclear® Plus IGUs

Pyroclear® Plus IGUs are constructed from one pane of 8mm to 12mm Pyroclear® Plus, a 6mm to 27mm wide steel spacer bar and one pane of any thickness of coated, toughened, laminated, patterned, sandblasted, acid etched, tinted, screen printed, painted or enamelled glass. The non-fire glass must be placed to the fire side.

Interstitial Blinds/Internal Fretwork

Pyroclear® IGUs may incorporate blinds/fretwork within the cavity. In this situation, the 'non-fire' glass and the blind must be orientated such they face the fire risk side of the assembly.

Applied Films

Polyester, PET or PVC films in thicknesses up to 250µm may be applied to the vision area of the glass pane on the fire side only.

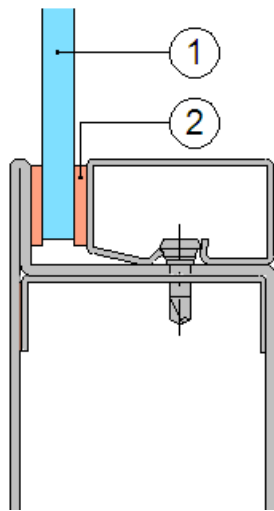
Page 5 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in steel doors for periods of 30 minutes integrity



Typical Section

1. Pyroclear®glass pane
2. Kerafix 2000 tape, Sealmaster FG2000 tape or ceramic/mineral fibre tape, maximum 5mm by 15 mm

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 when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987 or EN 1634-1:2000.
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, retained by screw-fixed or clip-on retaining beads.
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.

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in steel doors for periods of 30 minutes integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in the Figures 1 and 2 below, when used in conjunction with the above system:

Figure 1 - Maximum Permitted Glass Dimensions for 6 mm Pyroclear®30-001

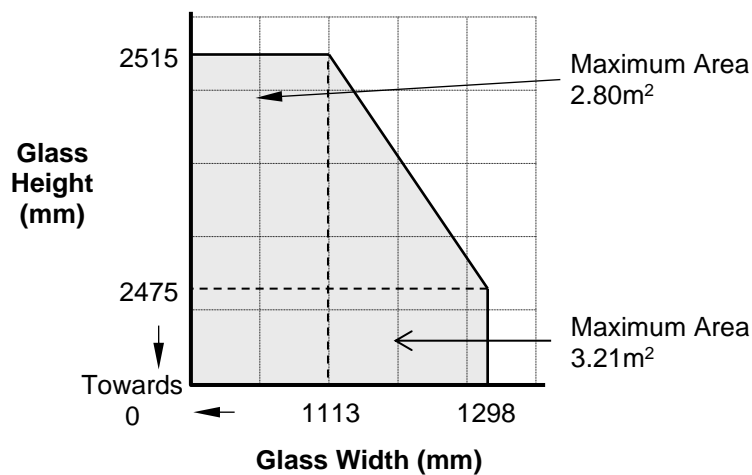
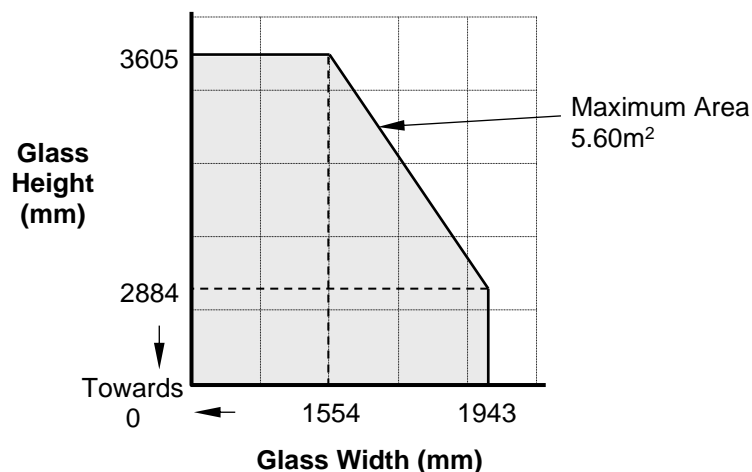


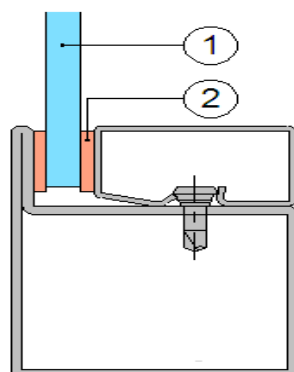
Figure 2 - Maximum Permitted Glass Dimensions for 8 mm and 10 mm Pyroclear®30-002 and 30-003



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

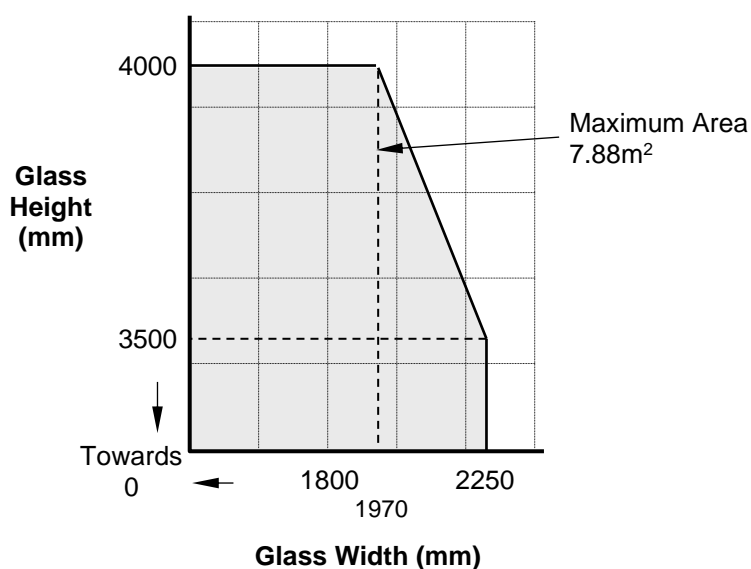
Single Pyroclear® Glass in steel screens for periods of 30 minutes integrity



1. The framing system shall be covered by test or assessment evidence e.g. Forster, Schuco, Jansen, R P Profiles, Wrightstyle, Voest Alpine or Mannesmann sections using pressure plate, screw-fixed or clip-on retaining beads or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions
2. Kerafix 2000 tape, Sealmaster FG2000 tape or ceramic/mineral fibre tape, maximum 5mm by 15 mm

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in the Figure 3 below, when used in conjunction with the above system. Multi-pane screens are not permitted.

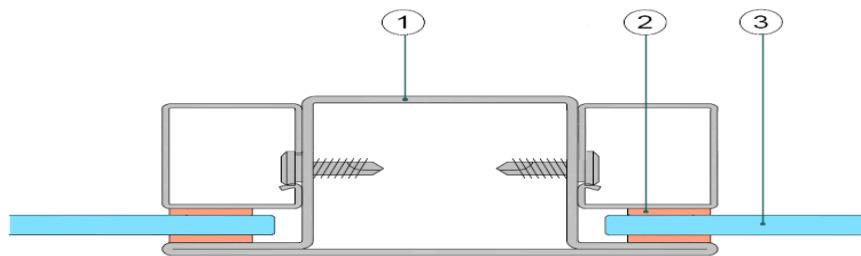
Figure 3 - Maximum Permitted Glass Dimensions for 10 mm Pyroclear®30-003



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

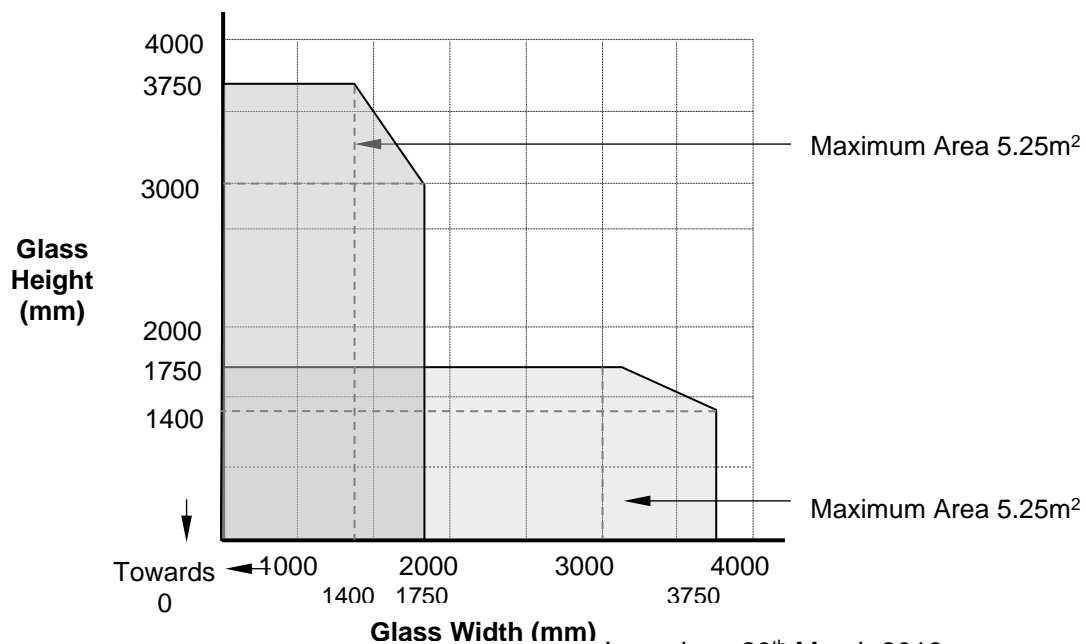
Pyroclear® Glass in steel screens for periods of 30 minutes integrity



1. The framing system shall be covered by test or assessment evidence e.g. Forster, Schuco, Jansen, R P Profiles, Voest Alpine or Mannesmann sections using pressure plate, screw-fixed or clip-on retaining beads or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions
2. Kerafix 2000 tape, Sealmaster FG2000 tape, max 5 mm by 15 mm or ceramic/mineral fibre tape, maximum 5mm by 15 mm
3. Pyroclear®glass pane

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in the Figure 4 below, when used in conjunction with the above system:

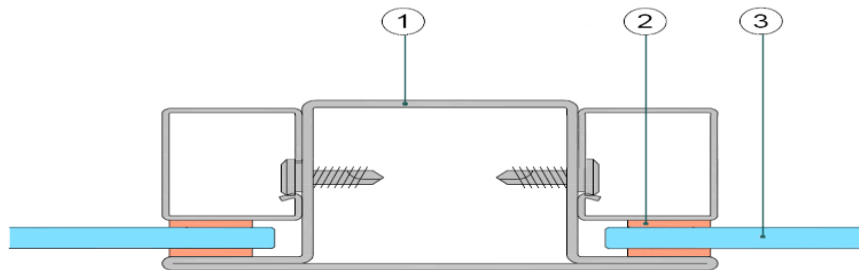
Figure 4 - Maximum Permitted Glass Dimensions for 6 mm, 8 mm and 10 mm Pyroclear®30-001, 30-002 and 30-003



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

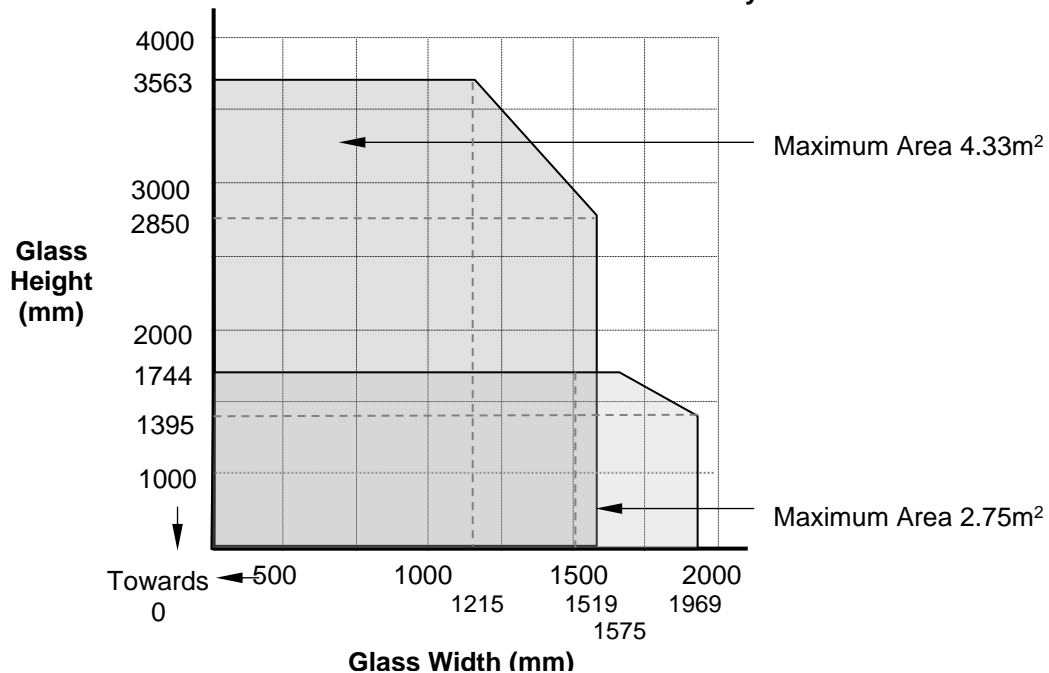
Laminated Pyroclear® Glass in steel screens for periods of 30 minutes integrity



1. The framing system shall be covered by test or assessment evidence e.g. Forster, Schuco, Jansen, R P Profiles, Wrightstyle, Voest Alpine or Mannesmann sections using pressure plate, screw-fixed or clip-on retaining beads or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions
2. Kerafix Flexlit tape, max 5 mm by 15 mm
3. Two panes of Pyroclear® laminated together with upto 1.52 mm interlayer. Pyroclear®30-007 for impact and enhanced acoustic properties, Pyroclear®30-008 with impact safety properties.

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in the Figure 5 below, when used in conjunction with the above system:

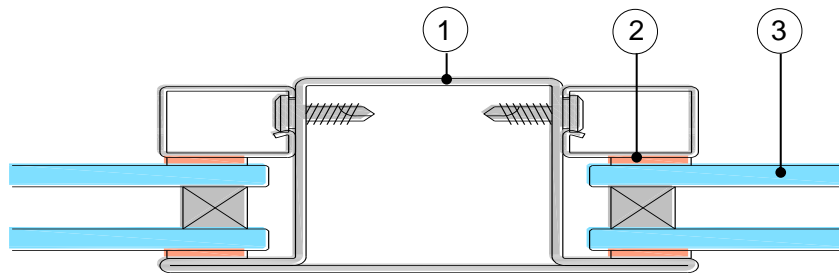
Figure 5 - Maximum Permitted Glass Dimensions for laminated Pyroclear®30-007 and 30-008



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

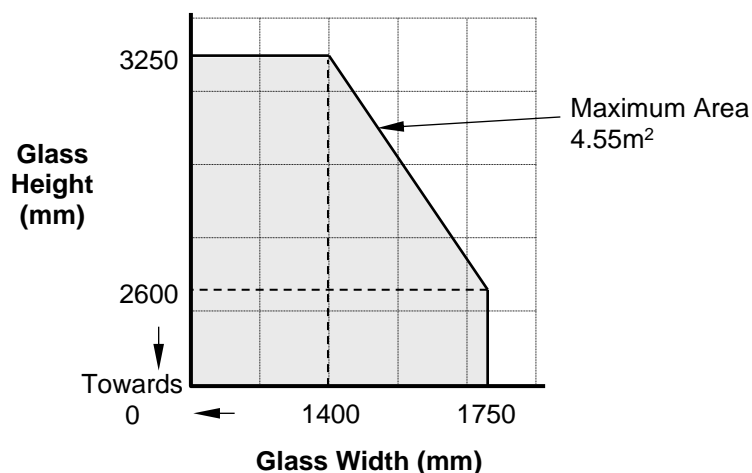
Insulating Glass Unit (IGUs) with Pyroclear® glass in steel screens for periods of 30 minutes integrity



1. The framing system shall be covered by test or assessment evidence e.g. Forster, Schuco, Jansen, R P Profiles, Wrightstyle, Voest Alpine or Mannesmann sections using pressure plate, screw-fixed or clip-on retaining beads or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions
2. Kerafix 2000 tape, Sealmaster FG2000 tape or ceramic/mineral fibre tape, maximum 5 mm by 15 mm
3. Pyroclear® 30-361, Pyroclear® and toughened (with or without coating) counter pane.
Pyroclear® 30-381, Pyroclear® and laminated (with or without coating) counter pane.

This Certificate of Approval relates to the sizes of the IGUs shown in the Figures 6 and 7 below, when used in conjunction with the above system:

Figure 6 - Maximum Permitted Glass Dimensions for IGU with Pyroclear®30-361 and Toughened glass with or without coating



Note: The Pyroclear® IGUs can be glazed in either orientation.
Warm edge spacer bar may be used if the Pyroclear® is on the non-fire side.

Page 11 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029



CERTIFICATE No CF 5140

PILKINGTON UK LIMITED

Insulating Glass Unit (IGUs) with Pyroclear® glass in steel screens for periods of 30 minutes integrity (continued)

Figure 7 - Maximum Permitted Glass Dimensions for IGU with Pyroclear®30-381 Laminated glass

	Maximum Height	Maximum Width	Maximum Area
Portrait	3586mm high (at 1400mm wide)	1750mm wide (at 2869mm high)	5.02m ²
Landscape	1500mm high (at 2403mm wide)	3003mm wide (at 1200mm high)	3.60m ²

Note: The Pyroclear® IGUs must be glazed with the Pyroclear to the non-fire side.
Warm edge spacer bar may be used in this orientation.

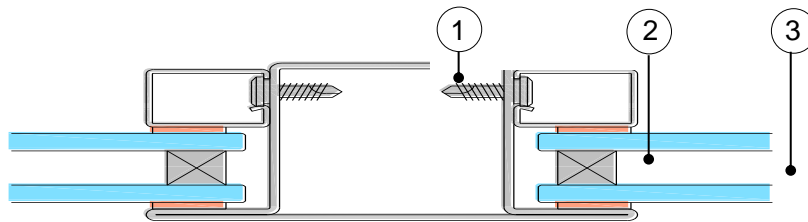
Page 12 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

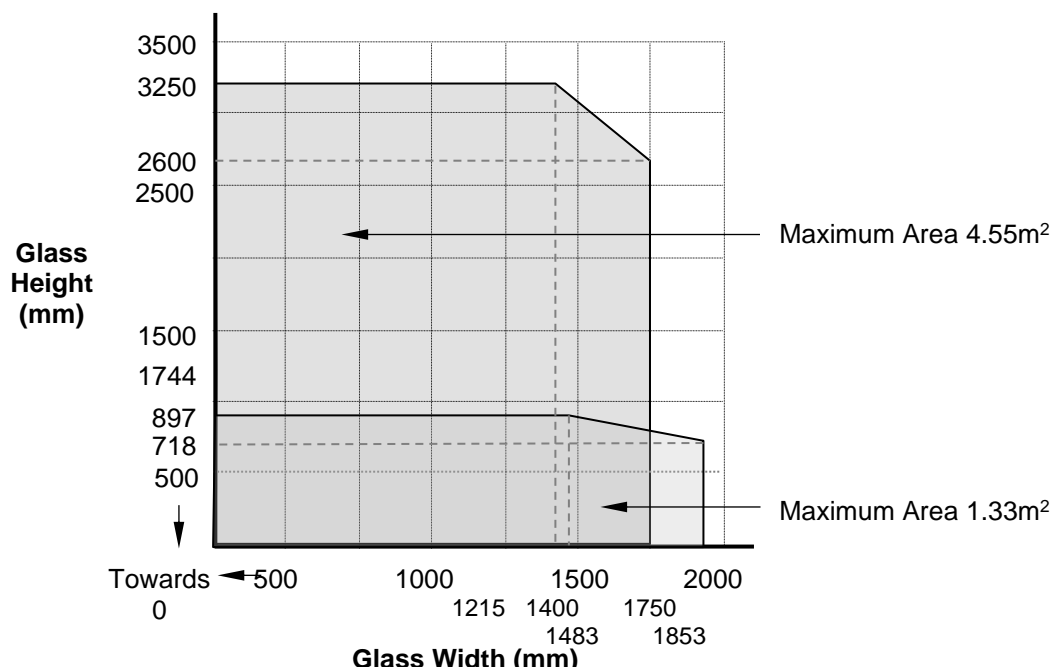
Insulating Glass Unit (IGUs) with Pyroclear® glass in steel façade screens for periods of 30 minutes integrity (tested inside to outside)



1. The framing system shall be covered by test or assessment evidence e.g. Forster, Schuco, Jansen, R P Profiles, Wrightstyle, Voest Alpine or Mannesmann sections using pressure plate, screw-fixed or clip-on retaining beads or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions
2. Dry glazing gasket CR 935706 or equivalent
3. IGU with Pyroclear® 30-361 on the non- fire side with toughened glass (with or without coating) to the fire side. Warm edge spacer bar may be used in this orientation.

This Certificate of Approval relates to the sizes of IGUs shown in the Figure 8 below, when used in conjunction with the above system:

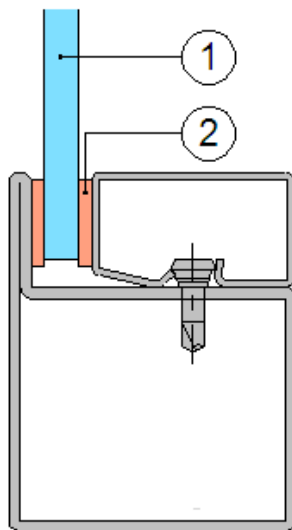
Figure 8 - Maximum Permitted Glass Dimensions for 6 mm Pyroclear®30-361



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in steel doors for periods of 60 minutes integrity



Typical Section

1. Pyroclear® glass pane (8 mm or 10 mm)
2. Kerafix-Flexit tape, maximum 5mm by 15 mm

For this application the following conditions shall apply:

1. The doorset, including door frame and associated building hardware, should have achieved at least 60 minutes integrity when tested, or subsequently assessed by one of the laboratories approved by CERTIFIRE as acceptable for this purpose, to BS 476: Part 22: 1987 or EN 1634-1:2000.
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, retained by screw-fixed or clip-on retaining beads.
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.

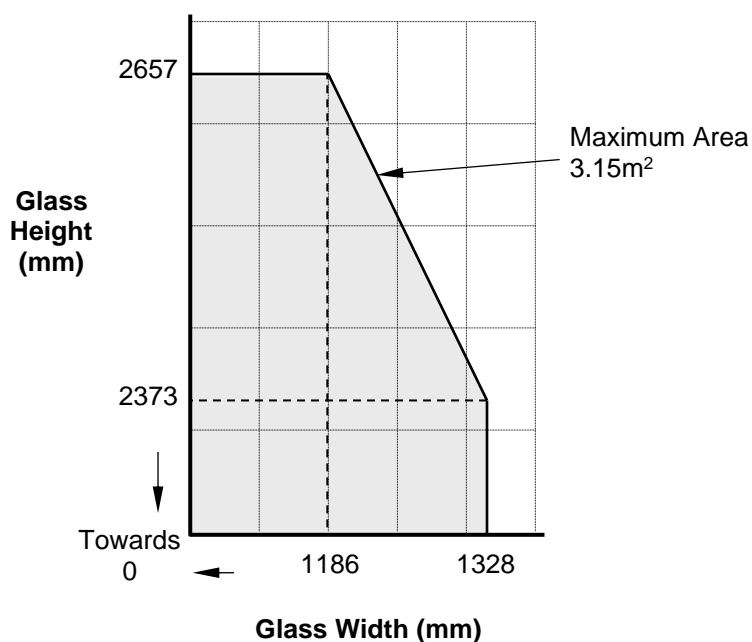
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in steel doors for periods of 60 minutes integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 9 below, when used in conjunction with the above system:

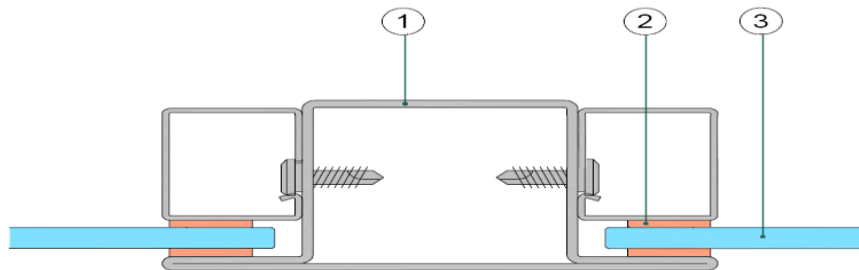
**Figure 9 - Maximum Permitted Glass Dimensions for 8 mm and 10 mm
Pyroclear® 60-002 & 60-003**



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

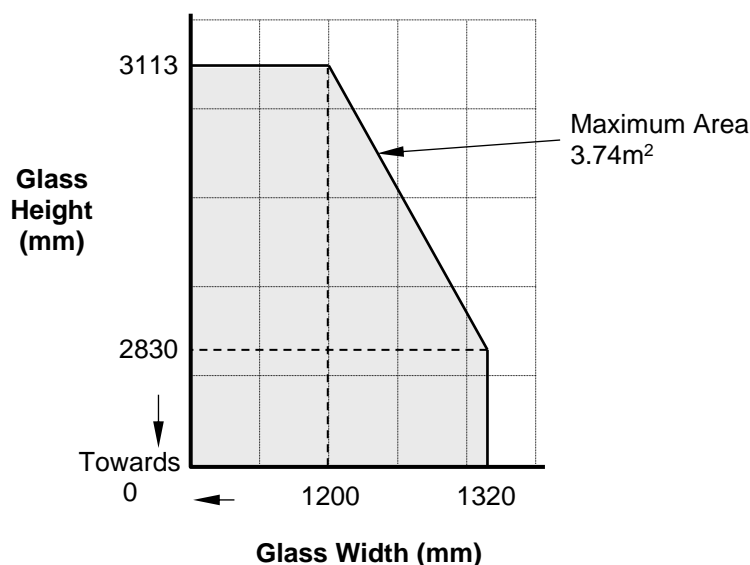
Pyroclear® Glass in steel screens for periods of 60 minutes integrity



1. The framing system shall be covered by test or assessment evidence e.g. Forster, Schuco, Jansen, R P Profiles, Wrightstyle, Voest Alpine or Mannesmann sections using pressure plate, screw-fixed or clip-on retaining beads or be CERTIFIRE approved for the inclusion of apertures of the proposed dimensions
2. Kerafix-Flexlit tape, maximum 5 mm by 15 mm.
3. Pyroclear® glass pane

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 10 below, when used in conjunction with the above system:

**Figure 10 - Maximum Permitted Glass Dimensions for 8 mm and 10 mm
Pyroclear®60-002 & 60-003**



Page 16 of 47 Signed
CON82057-3

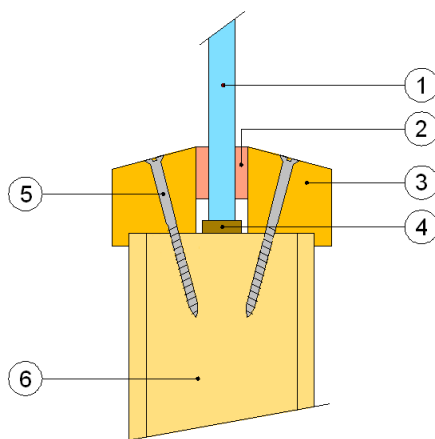
Paul Rogers

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Doors for Periods of 30 Minutes Integrity –



Item	Description
1	Pyroclear®
2	Sealmaster FG2000 tape or Ceramic / Mineral fibre Tape 20 x 5 mm, compressed to 20 x 3 mm
3	Hardwood glazing beads (min. 640 kg/m ³ density), minimum 21mm wide by 25mm high, including 5 mm x 5 mm bolection return, chamfered by approximately 22°
4	Dufaylite Interdens liner 10 x 2 mm fitted to the glazing aperture. Non Combustible setting blocks on the bottom edge of the aperture, 6 mm thick x 10 mm high x 25 mm long
5	Minimum 50mm long steel screws fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
6	Single European Redwood Stile and Rail door and frame of size 80 mm deep by 44 mm thick and density of at least 510 kg/m ³ or FD30 timber based door leaves (liner may be required as detailed in door test certificate)

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

Page 17 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

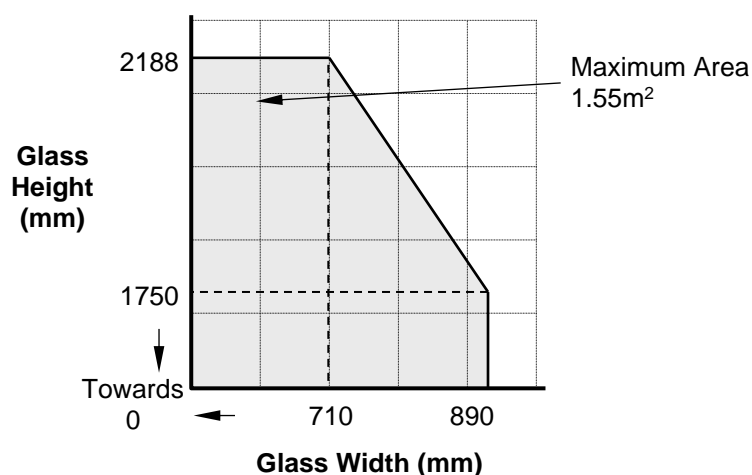
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Doors for Periods of 30 Minutes Integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 11 below, when used in conjunction with the above system:

Figure 11 - Maximum Permitted Glass Dimensions for Pyroclear®

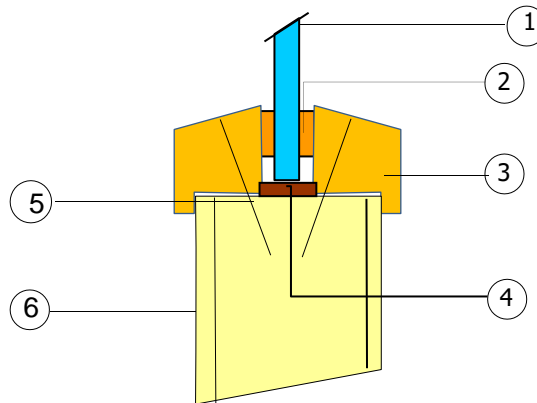


This system may also be included in previously tested doorset fan and side-lights.

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Doors for Periods of 30 Minutes Integrity



Item	Description
1	Pyroclear®
2	Sealmaster FG2000 tape or Ceramic / Mineral fibre Tape 20 x 5 mm, compressed to 20 x 3 mm
3	Hardwood glazing beads (min. 640 kg/m ³ density), minimum 21 mm wide by 25 mm high including 5 mm x 5 mm bolection return, chamfered by approximately 20°
4	Non combustible setting blocks 6 mm thick x 10 mm high x 25 mm long setting blocks on the bottom edge of the aperture
5	Minimum 50mm long steel screws (or 40 mm steel pins) fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
6	European Redwood Stile and Rail door and frame of size 80 mm deep by 44 mm thick and density of at least 510 kg/m ³ or FD30 timber based door leaf (limited to solid cored doors only unless lined with 6 mm hardwood).

Item	Description
2	The following alternative intumescent based glazing systems Lorient Flexible Figure 1, Lorient System 36/6 (36plus), Pyroplex 30049, Mann McGowan Pyroglaze 30 and ISL/Sealmaster Therm-A-Glaze 45 may be used as alternative glazing materials at this position.

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

Page 19 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

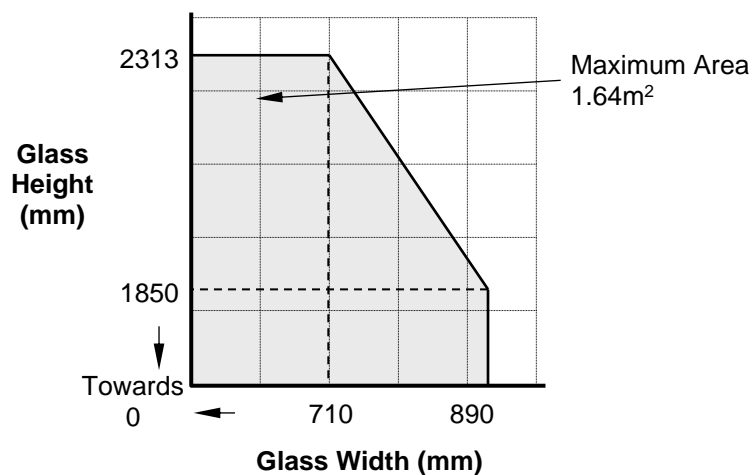
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Doors for Periods of 30 Minutes Integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 12 below, when used in conjunction with the above system:

Figure 12 - Maximum Permitted Glass Dimensions for Pyroclear®



This system may also be included in previously tested doorset fan and side-lights.



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Doors for Periods of 30 Minutes Integrity –

Specification of glazing system is as follows:

Item	Description
Glass	Pyroclear®
Glazing System	Sealmaster Intumescent Foam Tape 20 x 4.5 mm, compressed to 20 x 3 mm
Bead Specification	Hardwood (min. density 500 kg/m ³), softwood (min. density 500 kg/m ³) or MDF glazing beads (min. 595 kg/m ³ density), minimum 22mm wide by 25mm high, including 6 mm x 10 mm bolection return, chamfered by approximately 7° for MDF and 15° for softwood or hardwood beads. Edge cover to glass to be 15 mm maximum. Note – glazing aperture should be 6 mm larger (in height and width) than the glass dimension)
Setting blocks	Not required, although if used should be non-combustible. Note: the minimum edge cover and expansion allowance detailed above should be adhered to.
Bead Fixings	Minimum 1.6 mm diameter, 40mm long steel pins fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
Doorset	44 mm thick door leaf core, particle board or timber

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

Page 21 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

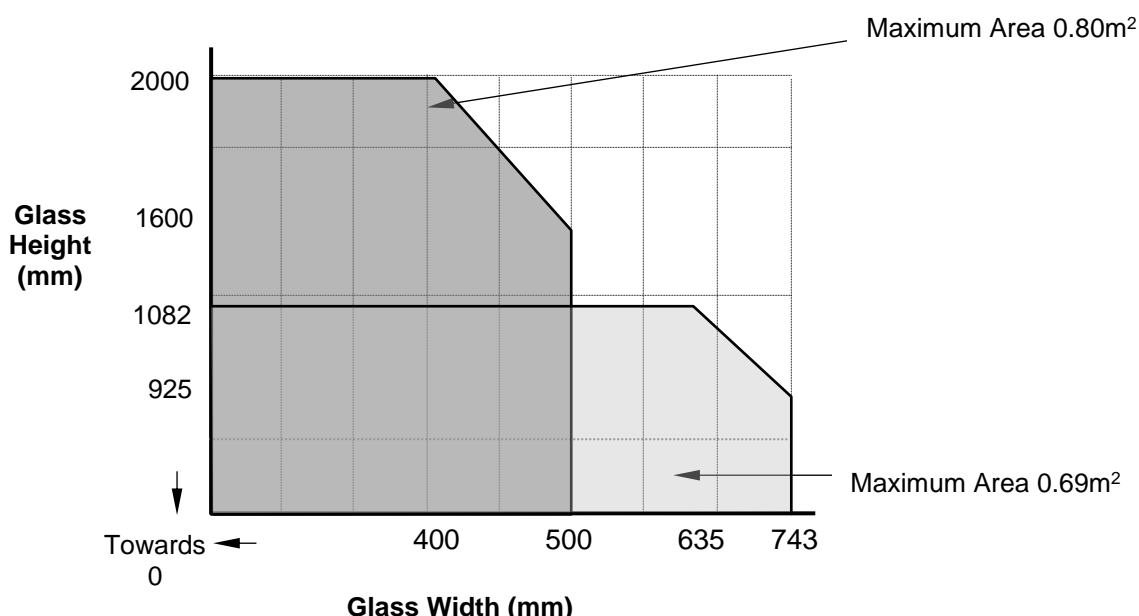
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Doors for Periods of 30 Minutes Integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 13 below, when used in conjunction with the above system:

Figure 13 - Maximum Permitted Glass Dimensions for Pyroclear®



This system may also be included in previously tested doorset fan and side-lights.

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

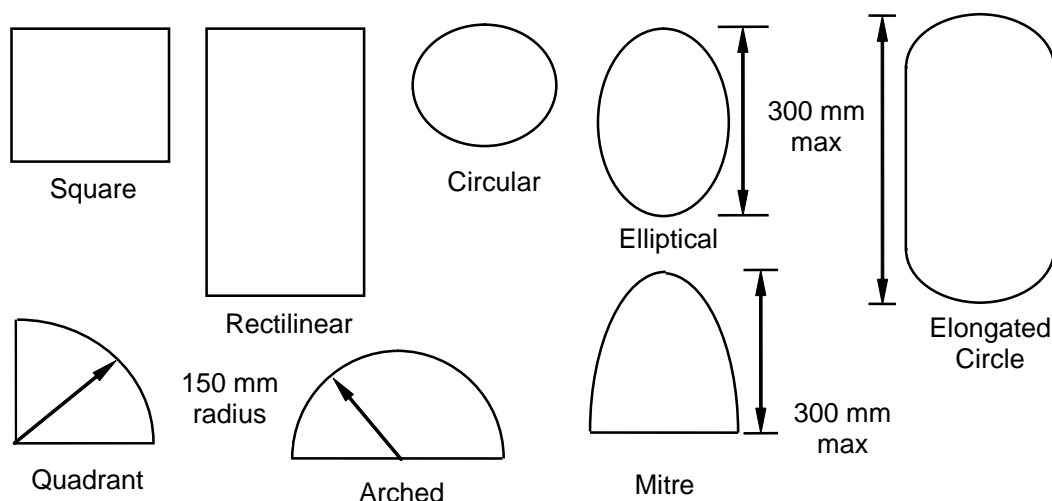
PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Doors for Periods of 30 Minutes Integrity (continued)

GLAZING SYSTEM - LORIENT SYSTEM 36/6 (36 Plus)

Shapes

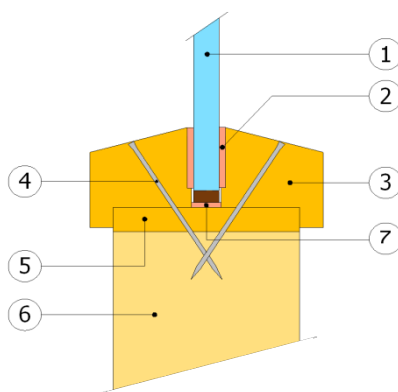
It is also acceptable to include System 36/6(36 Plus) Glazing Gasket in shaped apertures, as shown below, within timber door leaves. Where shaped apertures are included, only finger jointed glazing beads are acceptable



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® in Timber Based Doorsets for Periods of 60 Minutes Integrity



Item	Description
1	Pyroclear®
2	Kerafix flexit seal 20 x 5 mm, compressed to 4 mm
3	Hardwood glazing beads (min. 640 kg/m ³ density), minimum 25mm wide by 25mm high, including 5 mm x 5 mm bolection return, chamfered by approximately 20°
4	Minimum 50mm long steel screws or pins fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
5	Palusol ELSA 1000 liner 54 x 2 mm fitted to the glazing aperture
6	54 mm thick particleboard door leaf, 630-635 kg/m ³ density
7	Interdens 10 x 2mm, non combustible 8mm high x 6mm thick x 25mm long setting blocks in the glazing aperture

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

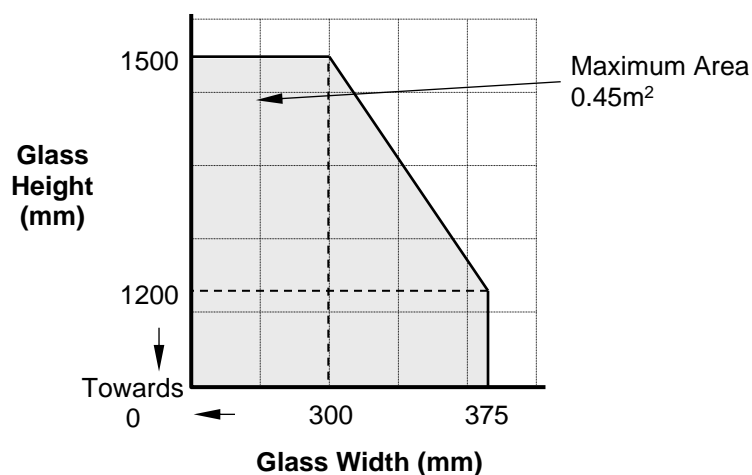
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® in Timber Based Doors for Periods of 60 Minutes Integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 14 below, when used in conjunction with the above system:

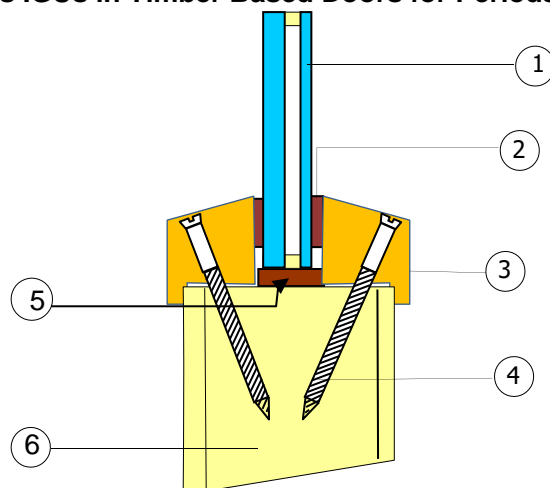
Figure 14 - Maximum Permitted Glass Dimensions for Pyroclear®



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass IGUs in Timber Based Doors for Periods of 30 Minutes Integrity



Item	Description
1	Pyroclear® 30-361 and a toughened (coated or uncoated) counterpane
2	Sealmaster FG2000 tape or Fiberfrax Ceramic Tape 20 x 3 mm, compressed to 20 x 2 mm
3	Hardwood glazing beads (min. 640 kg/m³ density), minimum 22 mm wide by 25 mm high including 5 mm x 5 mm bolection return, chamfered by approximately 20°
4	Minimum 50mm long steel screws fitted at nominally 70 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass. Non Combustible, 2 off 16 mm thick x 10 mm high x 40 mm long setting blocks on the bottom edge of the aperture.
5	Dufaylite Interdens liner 10 x 2 mm fitted to the glazing aperture
6	44 mm thick particleboard door leaf, 630-635 kg/m³ density (door thickness may be increased to accommodate thicker IGU's)

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

Pyroclear® 30-361 IGU may be glazed in either orientation, whereas Pyroclear® 30-381 must be glazed with the Pyroclear® to the non fire side.

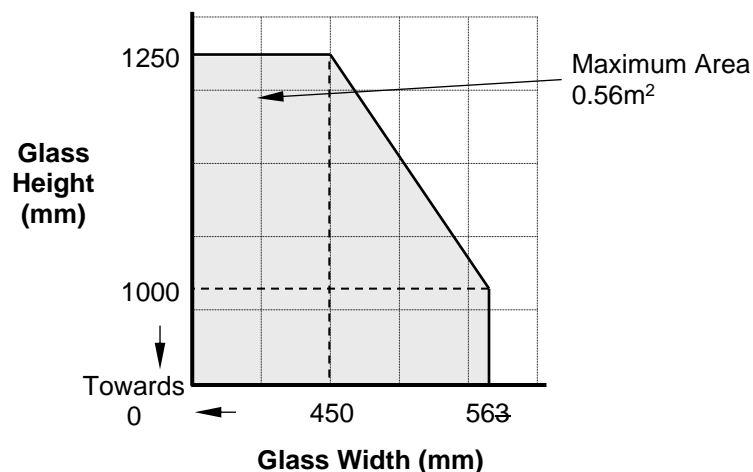
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass IGUs in Timber Based Doors for Periods of 30 Minutes Integrity

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 15 below, when used in conjunction with the above system:

Figure 15 - Maximum Permitted Glass Dimensions for Pyroclear®

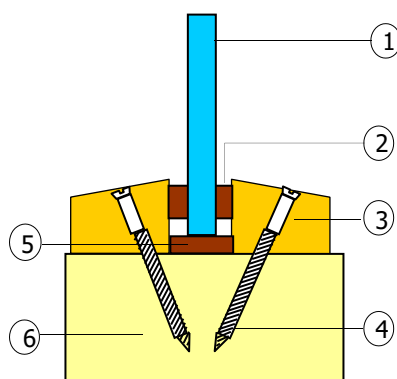


This system may also be included in previously tested doorset fan and side-lights

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Screens for Periods of 30 Minutes Integrity



Item	Option 1 - Description
1	Pyroclear®
2	Sealmaster FG2000 tape or Ceramic / Mineral fibre Tape, 20 x 5 mm, compressed to 20 x 3 mm
3	Hardwood glazing beads (min. 640 kg/m ³ density), minimum 25mm wide by 20mm high, chamfered by approximately 22°
4	Minimum 50mm long steel screws fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
5	Dufaylite Interdens liner 10 x 2 mm fitted to the glazing aperture and Non Combustible, 6 mm thick x 10 mm high x 25 mm long setting blocks fitted at 300 mm centres along the bottom edge of the glass
6	European Redwood frame of size 80 mm deep by 44 mm thick and density of at least 510 kg/m ³

Item	Option 2 - Description
1	Pyroclear®
2	Sealmaster Intumescent Foam Glazing Tape, 20 x 4.5 mm, compressed to 3 mm
3	Softwood glazing beads (min. 510 kg/m ³ density), minimum 25mm wide by 20mm high, chamfered by approximately 20°
4	Minimum 50mm long x 2 mm steel pins fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
5	No liner required
6	European Redwood frame of size 80 mm deep by 40 mm thick and density of at least 510 kg/m ³

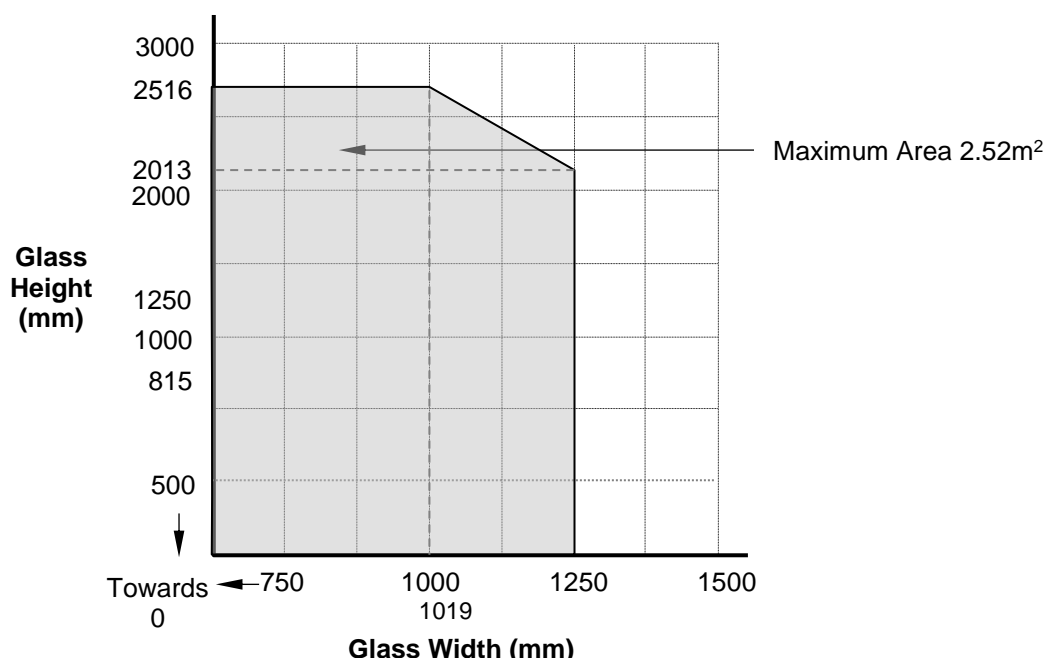
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Screens for Periods of 30 Minutes Integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 16 below, when used in conjunction with the above system: The maximum permitted overall screen height is 4000 mm.

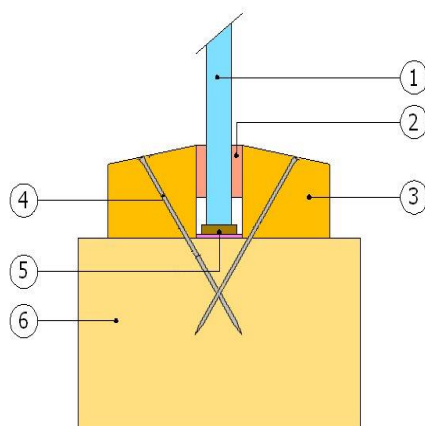
Figure 16 - Maximum Permitted Glass Dimensions for Pyroclear®



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Screens for Periods of 30 Minutes Integrity



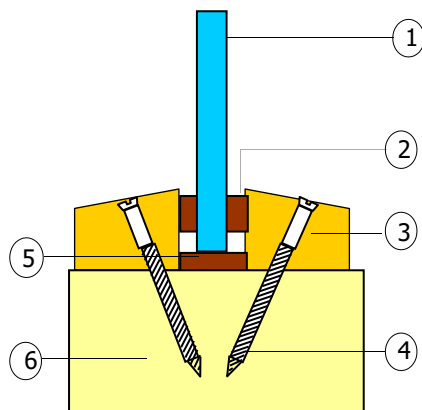
Item	Glazing Description 1
1	Pyroclear®
2	Sealmaster FG2000 tape Ceramic / Mineral fibre Tape 20 x 5 mm, compressed to 20 x 3 mm
3	Hardwood glazing beads (min. 640 kg/m ³ density), minimum 25mm wide by 20mm high, chamfered by approximately 20°
4	Minimum 50mm long steel screws fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
5	Non Combustible, 6 mm thick x 10 mm high x 40 mm long setting blocks fitted along the bottom edge of the glass
6	European Redwood frame of size 80 mm deep by 44 mm thick and density of at least 510 kg/m ³

Item	Glazing Description 2
2	The following alternative intumescent based glazing systems Lorient Flexible Figure 1, Lorient System 36/6 (36plus), Pyroplex 30049, Mann McGowan Pyroglaze 30 and ISL/Sealmaster Therm-A-Glaze 45 may be used as alternative glazing materials at this position.

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Single Pyroclear® Glass in Timber Based Screens for Periods of 30 Minutes Integrity.



Item	Option 1 - Description
1	Pyroclear® with edge tape
2	Fireglaze 2000 or ceramic/mineral fibre between glass to bead, 20 x 5mm compressed to 20 x 3mm
3	Sapele Hardwood glazing beads (min. 640 kg/m ³ density), minimum 25mm wide by 25mm high, chamfered by approximately 20°
4	50mm long steel countersunk screws fitted at nominally 150mm centres, angled at 20° to the face of the glass.
5	14 x 2 Sealmaster LP14 at frame reveal to glass edge. Non combustible setting block 6 mm thick x 10 mm high x 40 mm long setting blocks fitted along the bottom edge of the glass
6	European Redwood frame of size 94 mm deep by 44 mm thick and density of at least 510 kg/m ³

Item	Option 2 - Description
1	Pyroclear®
2	Sealmaster Intumescent Foam Glazing Tape, 20 x 4.5 mm, compressed to 3 mm
3	Softwood glazing beads (min. 510 kg/m ³ density), minimum 25mm wide by 20mm high, chamfered by approximately 20°
4	Minimum 50mm long x 2 mm steel pins fitted at nominally 50 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
5	No liner required
6	European Redwood frame of size 80 mm deep by 40 mm thick and density of at least 510 kg/m ³

Page 32 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

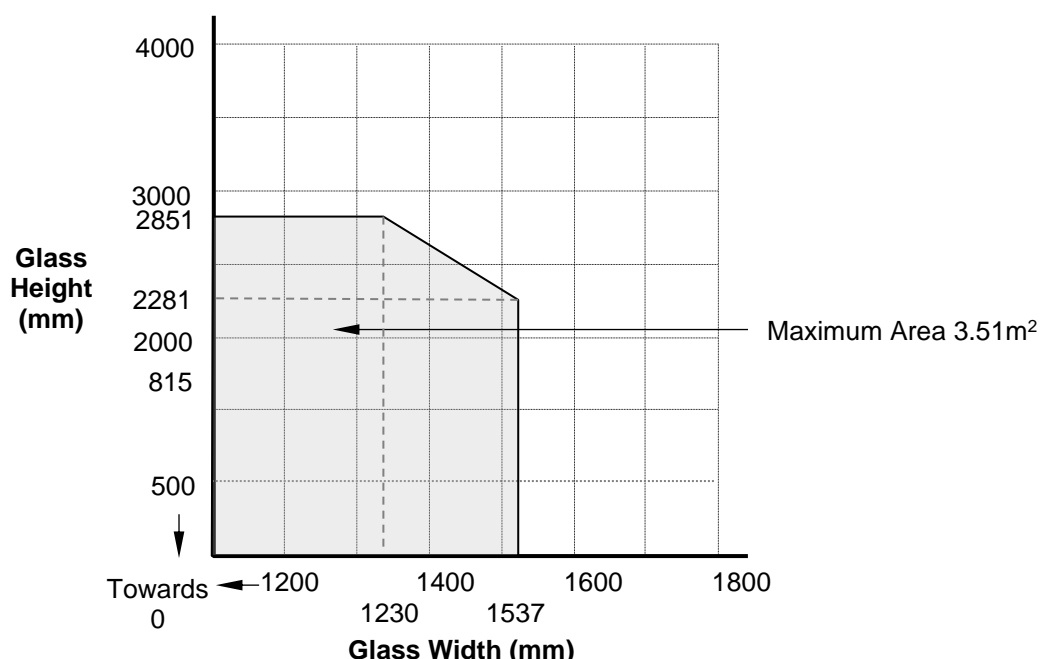
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Single Pyroclear® Glass in Timber Based Screens for Periods of 30 Minutes Integrity.

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 18 below, when used in conjunction with the above system: The maximum permitted overall screen height is 4000 mm.

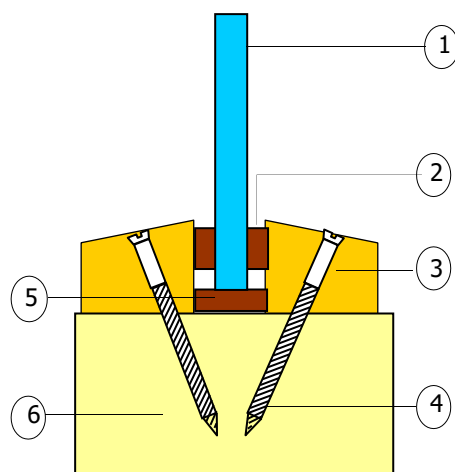
Figure 18 - Maximum Permitted Glass Dimensions for 6mm Pyroclear®



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Screens for Periods of 30 Minutes Integrity.



Item	Description
1	Pyroclear® with edge tape
2	20 x 5 mm Intumescent Seals Ltd Therm- A- Fix or ceramic/mineral fibre tape
3	Sapele Hardwood glazing beads (min. 640 kg/m ³ density), minimum 25mm wide by 25mm high, chamfered by approximately 20°
4	50mm long steel countersunk screws fitted at 120 mm to 150mm centres, angled at 20° to the face of the glass
5	15 x 2 Intumescent Seals Ltd Therm-A-Strip at frame reveal to glass edge. Non Combustible setting block 6 mm thick x 10 mm high x 40 mm long setting blocks fitted along the bottom edge of the glass
6	Pine frame of size 80 mm deep by 44 mm thick and density of at least 510 kg/m ³

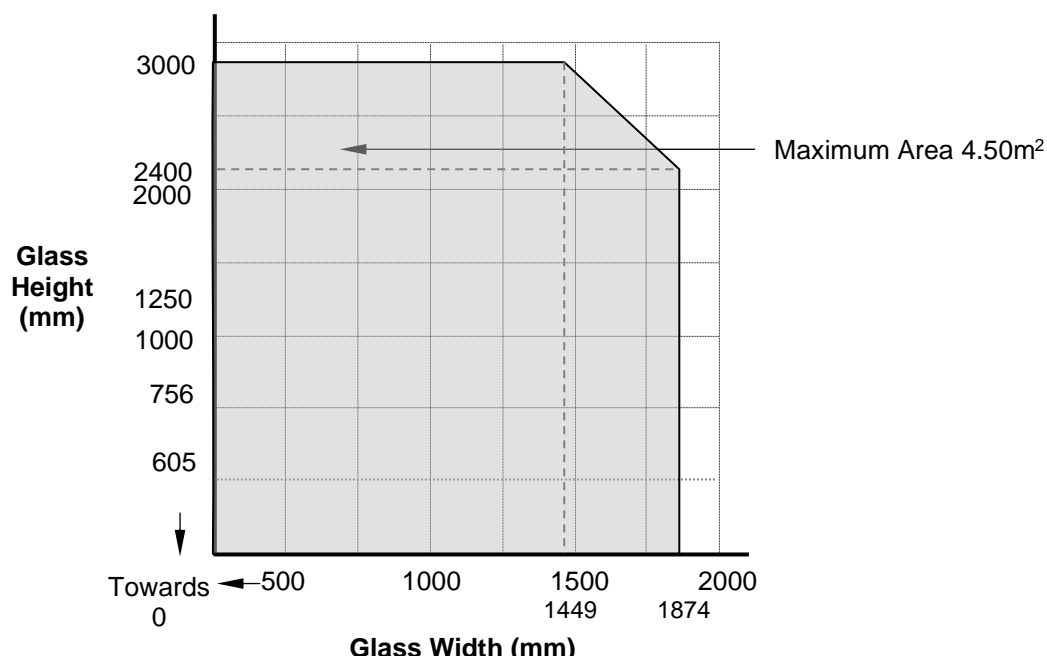
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass in Timber Based Screens for Periods of 30 Minutes Integrity.

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 19 below, when used in conjunction with the above system: The maximum permitted overall screen height is 4000 mm.

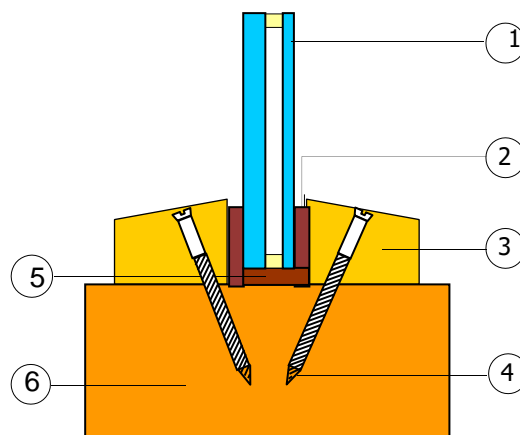
Figure 19 - Maximum Permitted Glass Dimensions for 8mm and 10mm Pyroclear®



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass IGUs in Timber Based Screens for Periods of 30 Minutes Integrity



Item	Description
1	Pyroclear® 30-361 and a toughened (coated or uncoated) counterpane
2	Sealmaster FG2000 tape Ceramic / Mineral fibre Tape 20 x 3 mm, compressed to 20 x 2 mm
3	Hardwood glazing beads (min. 640 kg/m ³ density), minimum 25 mm wide by 20 mm high chamfered by approximately 20°
4	Minimum 50mm long steel screws fitted at nominally 70 mm in from the corners, at a maximum of 150mm centres, angled at 45° to the face of the glass
5	Dufaylite Interdens liner 10 x 2 mm fitted to the glazing aperture and Non Combustible, 2 off 16 mm thick x 10 mm high x 40 mm long setting blocks on the bottom edge of the aperture
6	European Redwood frame of size 80 mm deep by 44 mm thick and density of at least 510 kg/m ³

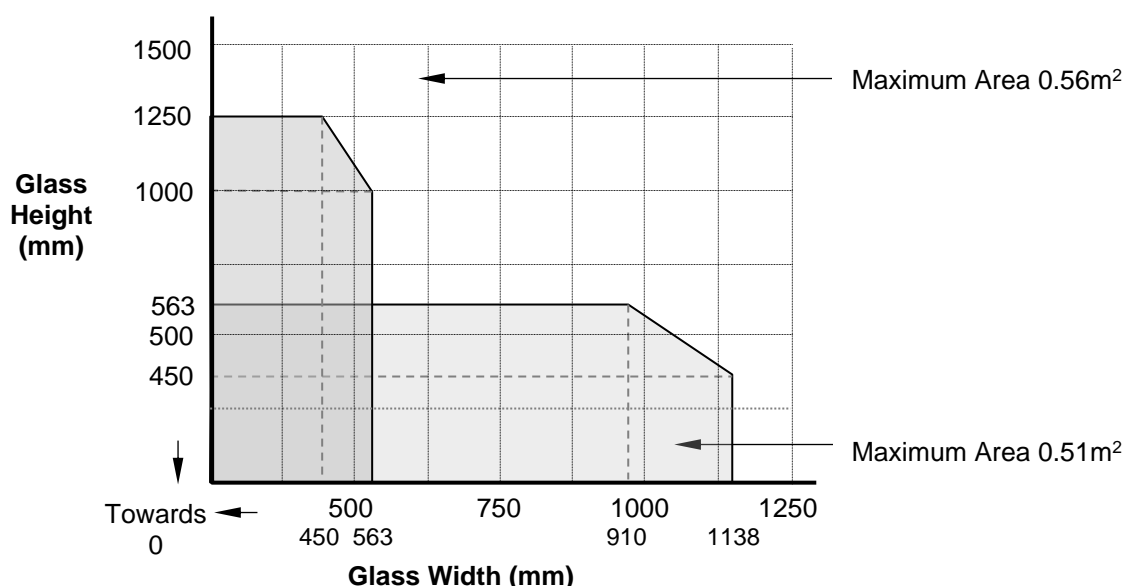
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Glass IGUs in Timber Based Screens for Periods of 30 Minutes Integrity (continued)

This Certificate of Approval relates to the sizes of Pyroclear® glass shown in Figure 20 below, when used in conjunction with the above system: The maximum permitted overall screen height is 4000 mm.

Figure 20 - Maximum Permitted Glass Dimensions for Pyroclear®



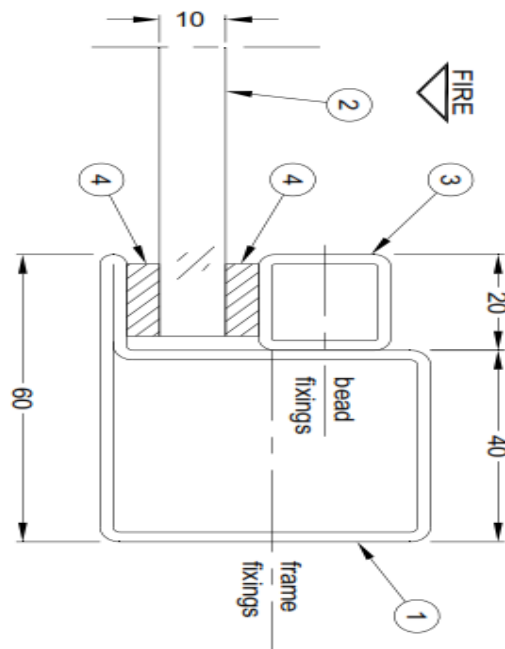
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Line 30-603 in a R. P. Technik non- loadbearing, uninsulated, butt jointed glazed screens assembly for Periods of 30 minutes Integrity assembled with or without glazing buttons

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.

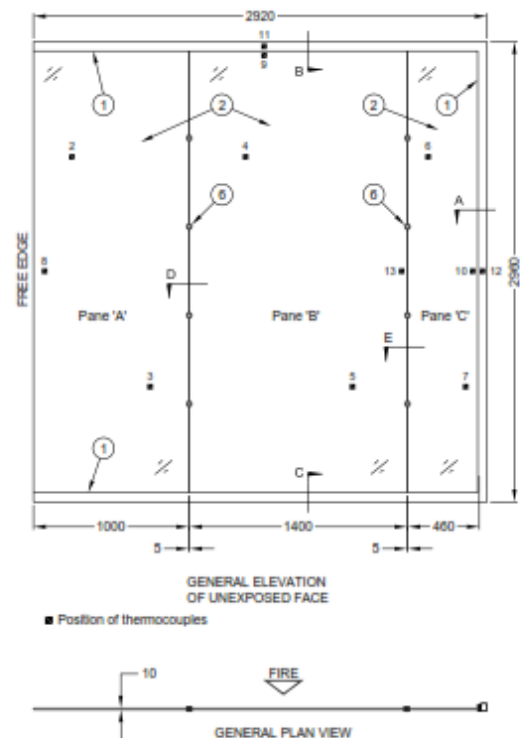
Typical Details of Test Specimen



Items

1. Perimeter Frame - R P Technik 1072, line 50 60 mm x 50 mm x 2 mm
2. Glass Type - Pyroclear Line 30-603, thickness 10 mm
3. Glazing Beads - 20 x 20 mm thickness 2 mm, Standard Steel Tube
4. Glass Edge seal - Kerafix® Flexlit, 15 mm wide x 5 mm thick, self adhesive fixed (for clip on beads one seal will be 2 mm and other will be 5 mm)
6. Glazing Button, 2 screw fixed discs, 35 mm diameter fixed with M4 steel screw at nominally 570 mm centre along each butt joint as shown in general elevation drawing.

General elevation of test specimen



Do not scale. All dimensions are in mm

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

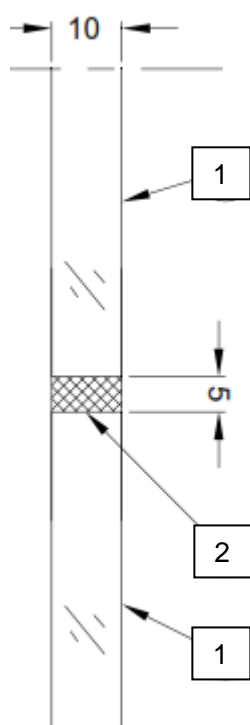
PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Line 30-603 in a R. P. Technik non- loadbearing, uninsulated, butt jointed glazed screens assembly for Periods of 30 minutes Integrity assembled with or without glazing buttons (continued)

Section D and E Glazing Butt joint

Items

1. Glass Type: - Pyroclear Line 30-603
2. Glazing Pyroclear Line Sealant - 5 mm wide
(Confidential material name held on file)

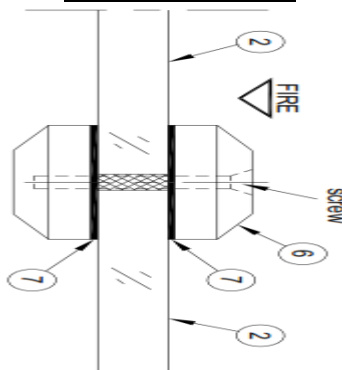


CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Line 30-603 in a R. P. Technik non- loadbearing, uninsulated, butt jointed glazed screens assembly for Periods of 30 minutes Integrity assembled with or without glazing buttons (continued)

Section through glazing joint at button positions (item 6)



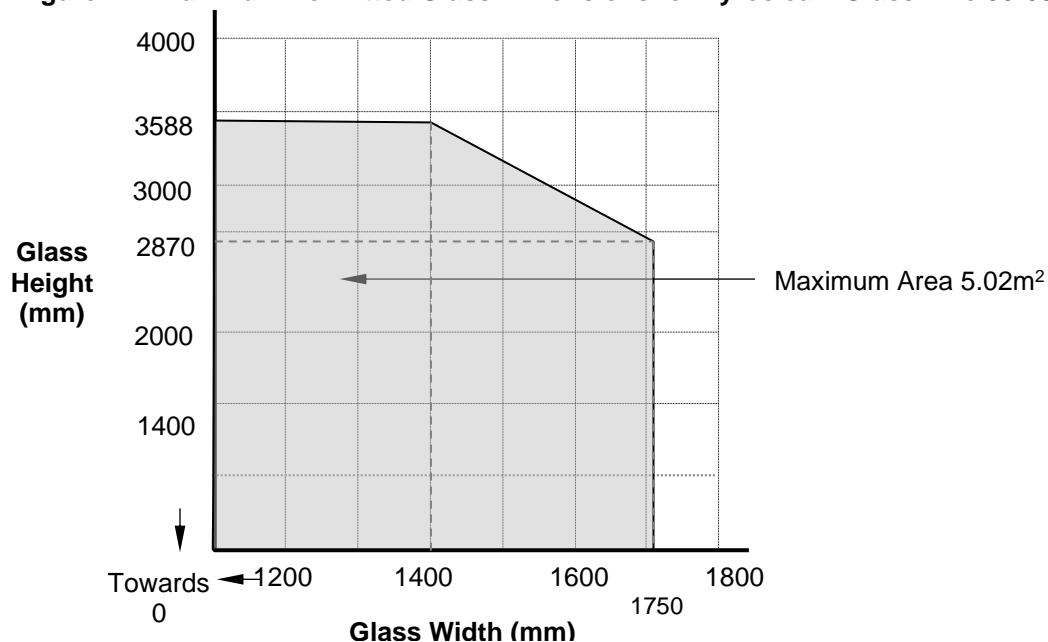
Items

- 2 Glass Type - Pyroclear Line 30-603.
- 6 Glazing Button, 2 screw fixed discs, 35 mm diameter fixed with M4 steel screw fitted at nominally 570 mm centre along each butt joint as shown in general elevation drawing.
- 7 Glazing Button Pad – Insulfrax Ceramic Fibre, 1 mm thickness, 35 mm diameter, fitted between buttons and both glass surfaces.

Note: The glazing buttons have been shown by test report number DMT-DO-61-032 to be not necessary provided the joints between glass are constructed with 'Pilkington Pyroclear line sealant' and constructed as described in the referenced test.

This Certificate of Approval relates to the sizes of **Pyroclear® Glass Line 30-603** glass shown in Figure 21 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Figure 21 - Maximum Permitted Glass Dimensions for Pyroclear® Glass Line 30-603



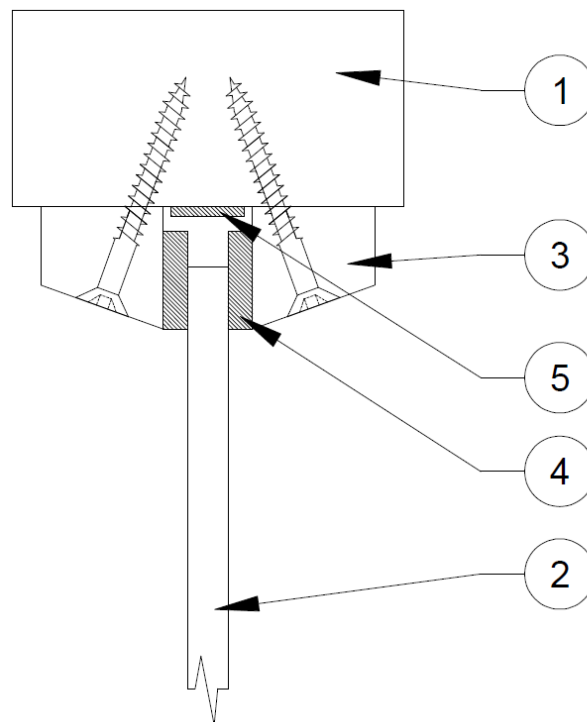
CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Line 30-602 or 30-603 in timber non- loadbearing, uninsulated, butt jointed glazed screen assemblies for periods of 30 minutes Integrity assembled with or without glazing buttons

The glass shall be glazed within a timber screen, utilising a glazing system, as detailed below:

Typical Details of Timber Framing System



Items

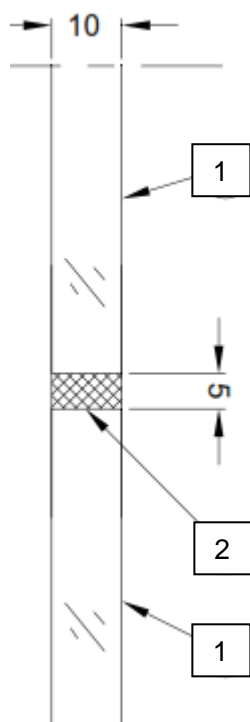
1. Softwood or hardwood timber frame – minimum section size 80 mm x 40 mm, minimum density 475kg/m³
2. Glass Type - Pyroclear® Line 30-602 - 8 mm or Pyroclear® Line 30-603 - 10 mm
3. Glazing beads – hardwood, minimum density 650kg/m³, 25 mm by 25 mm with a 20° chamfer, fixed with Ø5.6mm x 50 mm long steel screws at 150mm centres
4. Intumescent Seals Ltd Therm-A-Fix, 20mm x 5mm
5. Intumescent Seals Ltd Therm-A-Strip, 15mm x 2mm

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Line 30-602 or 30-603 in timber non- loadbearing, uninsulated, butt jointed glazed screen assemblies for periods of 30 minutes Integrity assembled with or without glazing buttons

Butt Joint Detail



Items

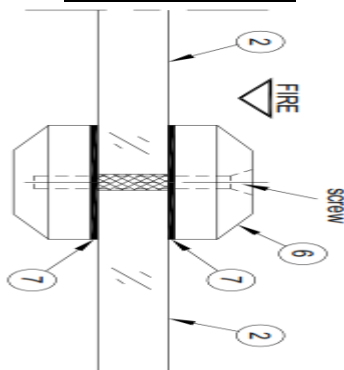
1. Glass Type: - Pyroclear® Line 30-602 or 30-603 (shown)
2. Glazing Pyroclear Line Sealant - 5 mm wide (Confidential material name held on file)

CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Line 30-602 or 30-603 in timber non- loadbearing, uninsulated, butt jointed glazed screen assemblies for periods of 30 minutes Integrity assembled with or without glazing buttons

Section through glazing joint at button positions (item 6)



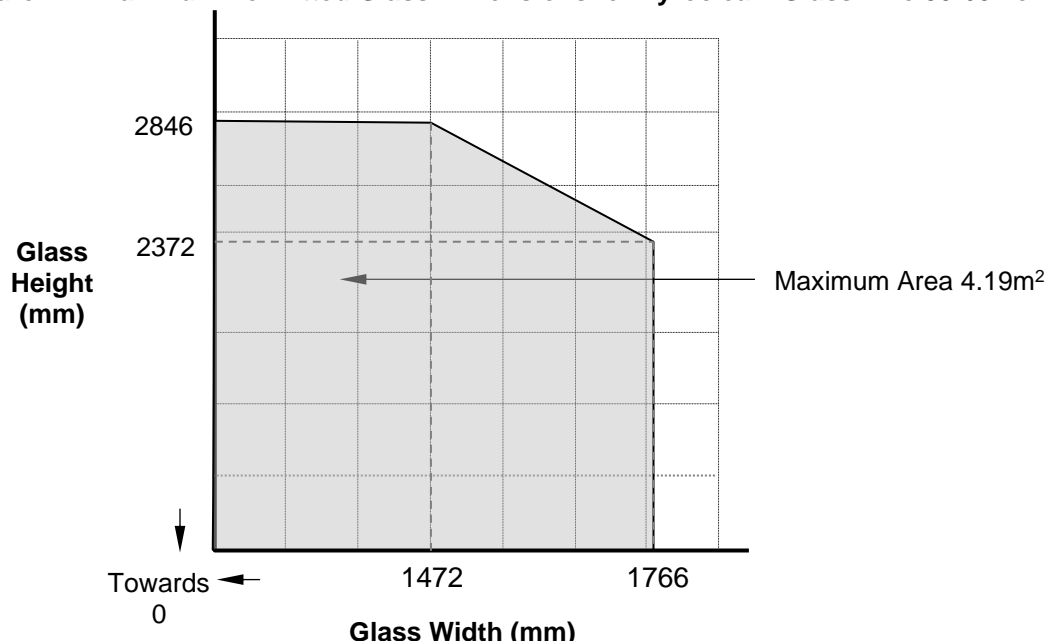
Items

- 2. Glass Type - Pyroclear® Line 30-602 or 30-603
- 6. Glazing Button, 2 screw fixed discs, 35 mm diameter fixed with M4 steel screw fitted at nominally 570 mm centre along each butt joint as shown in general elevation drawing.
- 7. Glazing Button Pad – Insulfrax Ceramic Fibre, 1 mm thickness, 35 mm diameter, fitted between buttons and both glass surfaces.

Note: The glazing buttons have been shown by test report number DMT-DO-61-032 to be not necessary provided the joints between glass are constructed with 'Pilkington Pyroclear line sealant' and constructed as described in the referenced test.

This Certificate of Approval relates to the sizes of **Pyroclear® Glass Line 30-602 or Pyroclear® Glass Line 30-603** glass shown in Figure 22 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Figure 22 - Maximum Permitted Glass Dimensions for Pyroclear® Glass Line 30-602 or 30-603



CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

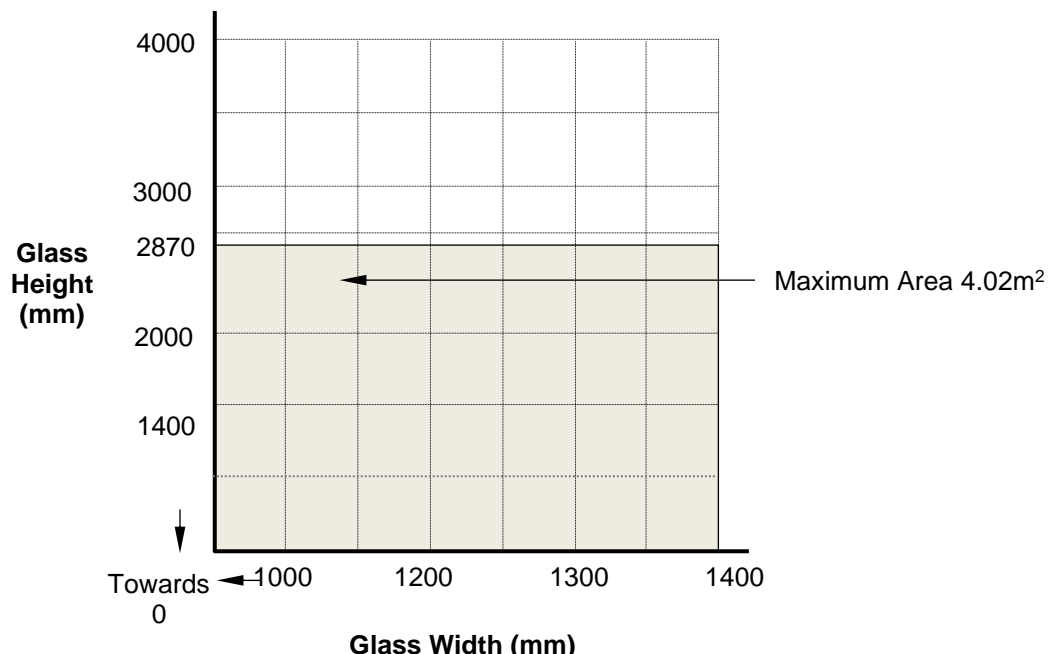
PILKINGTON PYROCLEAR® FIRE RESISTING GLASS

Pyroclear® Line 60-603 in a R. P. Technik non- loadbearing, uninsulated, butt jointed glazed screens assembly for Periods of 60 Minutes Integrity assembled with glazing buttons

Note: The glazed screen assembly method for 60 minutes integrity fire resistance is identical to that described for 30 minutes integrity fire resistance except that all joints between glass panes and at the head of glass panes must be glazed with 'Pilkington Pyroclear line sealant' and glazing buttons must be used as described for 30 minutes integrity.

This Certificate of Approval relates to the sizes of **Pyroclear® Glass Line 60-603** glass shown in Figure 23 below, when used in conjunction with the above system. The aspect ratio of the glass may be unlimited within these aperture dimensions.

Figure 23 - Maximum Permitted Glass Dimensions for Pyroclear® Glass Line 60-603





CERTIFICATE No CF 5140 PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR PLUS® FIRE RESISTING GLASS

Pyroclear Plus® EW60 IGUs in steel screens for periods of 60 minutes integrity and 15 minutes insulation

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

The unit shall be 8mm to 12mm Pyroclear Plus®, 6mm to 27mm steel or warm edge spacer bar and the counterpane.

The Pyroclear® Plus may be heat soaked.

The counterpane can be any thickness or combination of coated, toughened, laminated and patterned glasses.

There shall be 5mm clearance between the frame and the edge of the unit being supported at the bottom on non-combustible setting blocks.

The IGU must be oriented such that the Pyroclear Plus® pane is to the non-fire side.

Kerafix 2000 glazing tape max 5mm x 15mm or other system tested EPDM or CR seals between the glass and the beads.

Flexipan 200 intumescent tape 2mm x 24mm either lining the glazing aperture or around the perimeter of the glazing unit.

This Certificate of Approval relates to the sizes of Pyroclear Plus® glazing units shown in the table below.

	Maximum Height	Maximum Width	Maximum Area
Portrait	3390mm high (at 1498mm wide)	1693mm wide (at 3000mm high)	5.08m ²
	3580mm high (at 1504mm wide)	1880mm wide (at 2864mm high)	5.38m ²
Landscape	1680mm high (at 2830mm wide)	3396mm wide (at 1400mm high)	4.75m ²
	1725mm high (at 2360mm wide)	2950mm wide (at 1380mm high)	4.07m ²

Page 45 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029



CERTIFICATE No CF 5140

PILKINGTON UK LIMITED

PILKINGTON PYROCLEAR® PLUS FIRE RESISTING GLASS

Pyroclear® Plus 30-008 EW60 laminated glass in steel screens for periods of 60 minutes integrity

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

Pyroclear® Plus laminated is made from one pane of 8mm to 12mm Pyroclear® Plus, up to 1.52mm PVB, SGP and EVA types of laminate and one pane of any thickness which can be coated, toughened, laminated, patterned, sandblasted, acid etched, tinted, screen printed, painted or enamelled glass.

There shall be 5mm clearance between the frame and the edge of the glass being supported at the bottom on non-combustible setting blocks.

The glass must be oriented such that the Pyroclear® Plus pane is to the non-fire risk side.

Kerafix 2000 glazing tape max 5mm x 15mm between the glass and the beads. The edge cover torame be 20mm.

Flexipan 200 intumescent tape 1mm x 20mm lining the glazing aperture.

This Certificate of Approval relates to the sizes of Pyroclear® Plus glass shown in the Table below.

Maximum Height	Maximum Width	Maximum Area
3650mm high (at 1800mm wide)	2250mm wide (at 2920mm high)	6.57m ²

Page 46 of 47 Signed
CON82057-3

Issued: 20th March 2013
Reissued: 25th June 2024
Valid to: 6th January 2029

