



CERTIFICATE OF APPROVAL

No CF 628

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

ESG GROUP LTD

1 Freebournes Road, Withan, Essex, CM8 3UN
Tel: 01376 520061

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

ESG PYROTECH™ 630 and 660
Glass Panes

TECHNICAL SCHEDULE

TS 25 Fire Resistant Glass,
Glazing Systems and Materials

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

Paul Duggan
Certification Manager



Issued: 11th July 2008
Revised: 20th October 2020
Valid to: 17th February 2024





CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 and 660 single panes and IGUs (including ESG Laminated glass variants)

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 ESG PYROTECH™ 630 and 660 safety glass when used in the following applications, as defined in BS 476: Part 22: 1987 (ESG PYROTECH™ 630) or BS EN 1364-1: 1999 (ESG PYROTECH™ 660) subject to the undermentioned conditions. Further evidence for ESG PYROTECH™ 630 and 660 in accordance with EN 1364-1: 1999 is available from ESG Group Ltd.

Application	Fire Resistance Performance Integrity - (mins)	Page No.
ESG PYROTECH™ 630 in Timber Screens	30	4-5
ESG PYROTECH™ 630 IGUs in Timber Screens	30	6
ESG PYROTECH™ 630 in a Timber Framed Plasterboard Screen	30	7
ESG PYROTECH™ 630 (single IGUs) in a Timber Framed Plasterboard Screen	30	8
ESG PYROTECH™ 630 in single beaded Timber Screens	30	9
ESG PYROTECH™ 630 in Timber Doors	30	10-13
ESG PYROTECH™ 630 in Timber Stile & Rail Doors	30	14
ESG PYROTECH™ 630 IGUs in Timber Doorsets	30	15
ESG PYROTECH™ 630 in Steel Screens	30	16
ESG PYROTECH™ 630 IGUs in Steel Screens	30	17
ESG PYROTECH™ 630 in Single Steel Doorsets	30	18
ESG PYROTECH™ 630 IGUs in Single Steel Doorsets	30	19
ESG PYROTECH™ 630 in Double Steel Doorsets	30	20
ESG PYROTECH™ 630 IGUs in Double Steel Doorsets	30	21
ESG PYROTECH™ 660 IGUs in Steel Doorsets	60	22
ESG PYROTECH™ 660 in Steel Screens	60	23
ESG PYROTECH™ 660 IGUs in Steel Screens	60	24
Supplementary Tables 1 and 2 ESG Fire Resistant Laminated Security glazing products satisfying Standard EN356, EN1063 ballistic attack. Product also approved for use in privacy and acoustics applications.	30 & 60	25-28

Page 2 of 28 Signed
E/382

Issued: 11th July 2008
Revised: 20th October 2020
Valid to: 17th February 2024



CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 and 660 single panes and IGUs (including ESG Laminated glass variants) (continued)

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: 2015.
- iv) Inspection and surveillance of factory production control.
- v) Audit testing.

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

General Requirements

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

There is no restriction to the direction of exposure for the glass i.e. the glass is symmetrical. Orientation may, however, be restricted by the requirements of a non-symmetrical framing system.

The expansion allowance shall be a minimum of 1 mm per 150 mm glass length (both vertical and horizontal) or if in doubt, minimum 5 mm to all edges (10 mm to head if expansion is not possible at the bottom edge).

The edge cover to each pane shall be 10 mm.

Where hardwood is specified, Ash is specifically excluded.

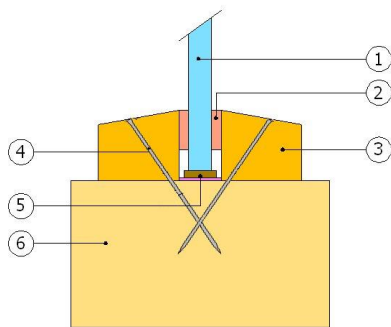
CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630, single panes (including ESG Laminated glass variants) in Timber framed screens for periods of 30 minutes integrity

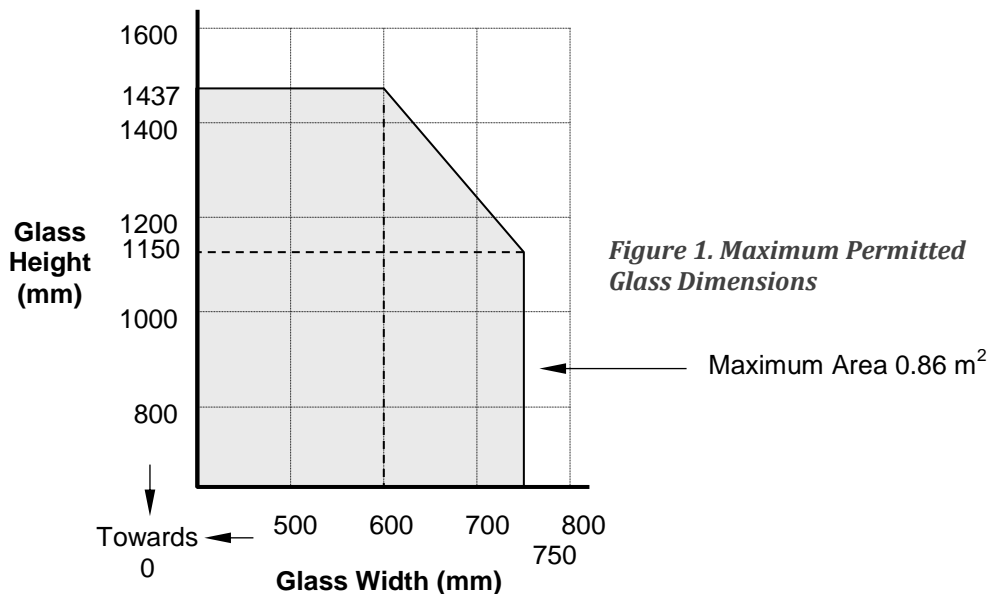
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate construction s utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s). See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).
- ② Hodgson Sealants Firestrip/Lorient System 36 range/Lorient Flexible Figure 1/ISL Therm-A-Strip/ Pyroplex 8193 U Channel/Sealmaster FireGlaze/Mann McGowan Pyroglaze 30/Mann McGowan Pyrostrip 30/Mann McGowan Pyroglaze Channel/Pyroplex 30049/Pyroplex 30054.
- ③ 15mm high, X 22mm long (chamfered by 15°) softwood, MDF or hardwood glazing beads, minimum density 510 kg/m³. The beads shown in the drawing can be extended in width to form a bolection bead.
- ④ 40 mm long Ø1.5 mm steel pins at 150 mm centres and 50 mm from corners (35° to glass).
- ⑤ Optional non-combustible setting blocks (not required).
- ⑥ 90 mm by 40 mm (minimum) hardwood framing sections, minimum density 640 kg/m³.

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 glass shown in Figure 1 below, when used in conjunction with the above system. The maximum permitted overall screen height is 4000 mm.



The aspect ratio of the glass may be unlimited within these aperture dimensions. This system may also be included in previously tested doorset fan and side-lights.

Paul Duggan

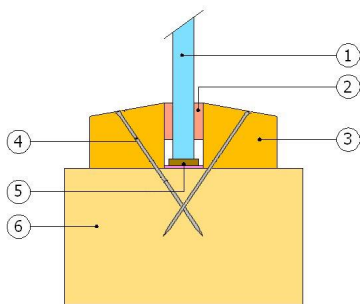
CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630, single panes (including ESG Laminated glass variants) in Timber framed screens for periods of 30 minutes integrity (continued)

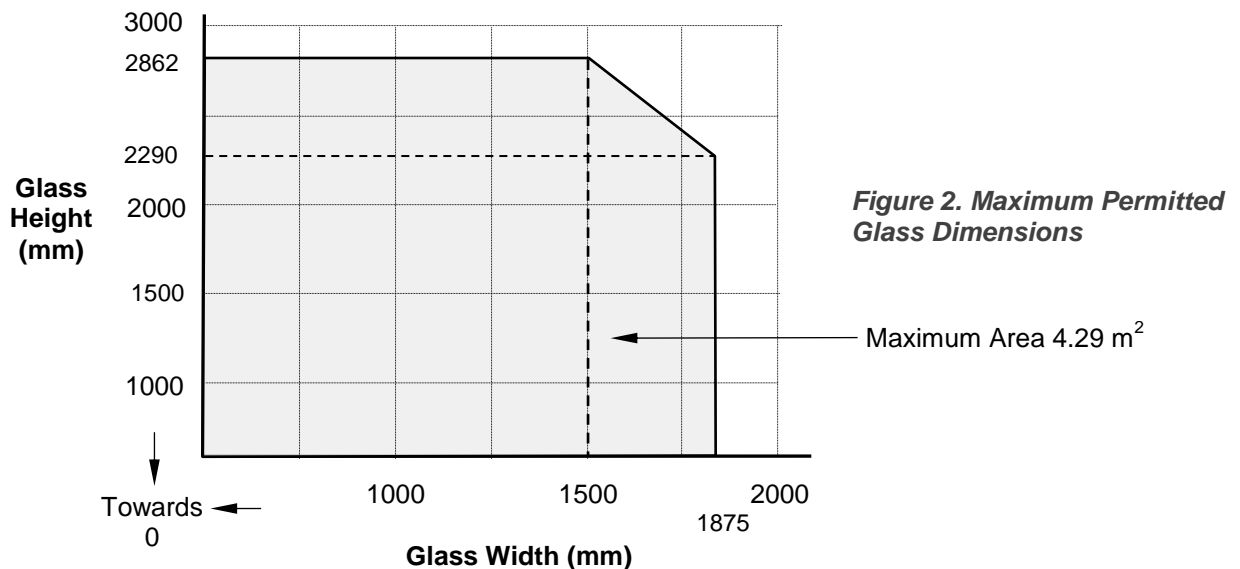
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate construction s utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s). See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).
- ② 15 mm by 3 mm Sealmaster Black Glazing Tape.
- ③ 21 mm high by 22 mm wide (chamfered by 18°) hardwood glazing beads, minimum density 640 kg/m³. The beads shown in the drawing can be extended in width to form a bolection bead.
- ④ 50 mm long Ø2 mm steel pins at 150 mm centres and 50 mm from corners (35° to glass).
- ⑤ Non-combustible setting blocks and 10 x 1 mm Interdens liner (liner to all edges).
- ⑥ 90 mm by 40 mm (minimum) hardwood framing sections, minimum density 640 kg/m³.

This Certificate of Approval relates to the sizes of PYROTECH™ 630 glass shown in Figure 2 below, when used in conjunction with the above system. The maximum permitted overall screen height is 4000 mm.



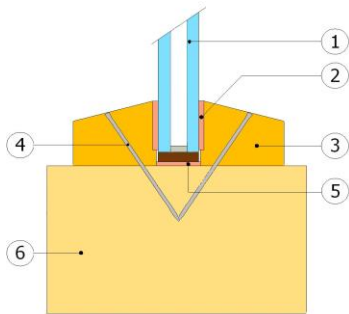
The aspect ratio of the glass may be unlimited within these aperture dimensions. This system may also be included in previously tested doorset fan and side-lights. Radiation performance of 21 minutes to 15 kW/m² up to a maximum screen area of 9 m²

CERTIFICATE No CF 628

ESG GROUP LTD

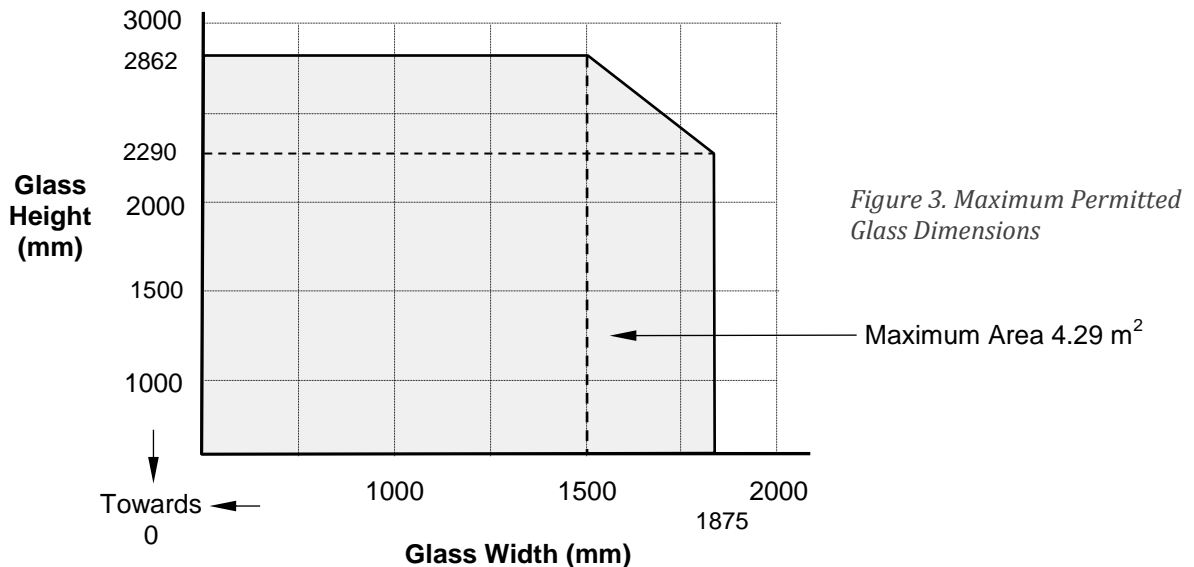
ESG PYROTECH™ 630 IGUs*, (including ESG Laminated glass variants) in Timber framed screens for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:



- ① IGU* comprising ESG PYROTECH™ 630 glass, 12 mm to 16 mm steel spacer with 4 mm or greater float, toughened or laminated glass (edge of glass wrapped with Aluminium foil)*. See Table 1 For Fire Resistant ESG Laminated Security glazing products (determined by ESG Group Ltd) as satisfying EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG group Ltd and have not been verified by Warrington Certification Limited).
- ② 15 mm by 3 mm Sealmaster Black Glazing Tape.
- ③ 19 mm high by 19 mm wide (chamfered by 16°) hardwood glazing beads, minimum density 640 kg/m³. The beads shown in the drawing can be extended in width to form a beolection bead.
- ④ 50 mm long Ø2 mm steel pins at 150 mm centres and 50 mm from corners (35° to glass).
- ⑤ Non-combustible setting blocks and 10 x 1 mm Interdens liner (liner to all edges).
- ⑥ 90 mm by 40 mm (minimum) hardwood framing sections, minimum density 640 kg/m³.

This Certificate of Approval relates to the sizes of PYROTECH™ 630 IGUs* shown in Figure 3 below, when used in conjunction with the above system. The maximum permitted overall screen height is 4000 mm.



* The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

Radiation performance was not measured on this size. On a previous test for an IGU of size 632 mm wide by 789 mm high, maximum area 0.5 m², a performance of 15 kW/m² was measured after 21 minutes.

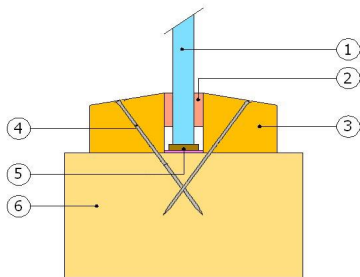
CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630, single panes (including ESG Laminated glass variants) in single paned Timber framed plasterboard screen for periods of 30 minutes integrity

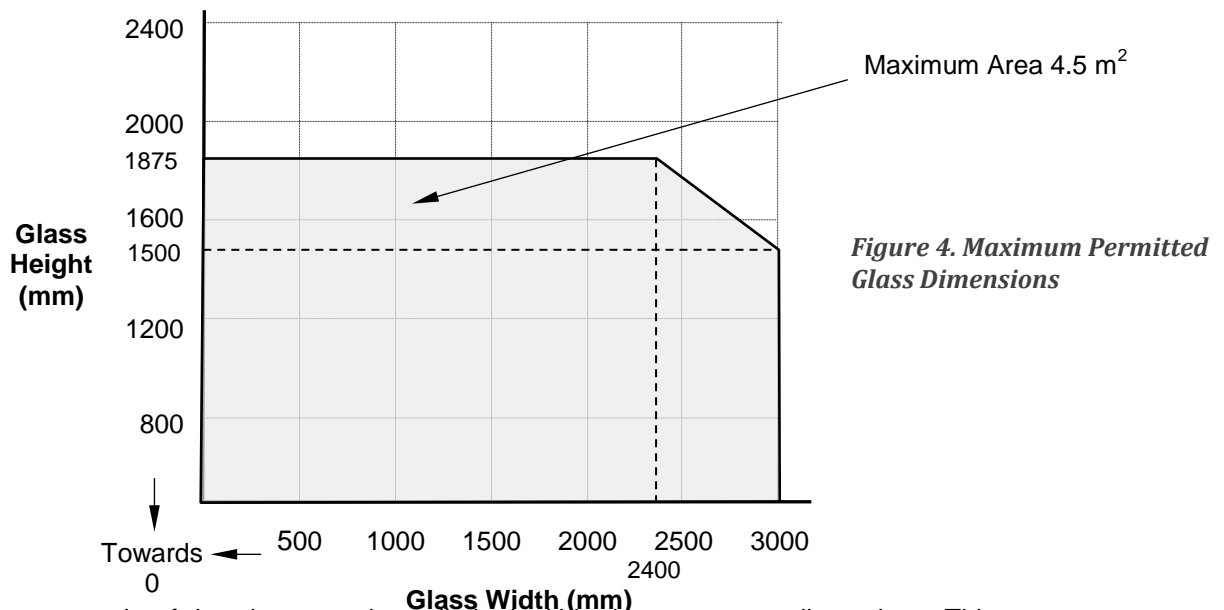
For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate construction s utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s). See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).
- ② 15 mm by 3 mm Sealmaster Black Glazing Tape.
- ③ 20 mm high by 35 mm wide (chamfered by 15⁰) softwood glazing beads minimum density 530 kg/m³. The beads shown in the drawing can be extended in width to form a bolection bead.
- ④ 50 mm long pins at maximum 150 mm centres.
- ⑤ Two non-combustible setting blocks, 6 mm x 10 mm by 80 mm.
- ⑥ 80 mm by 40 mm softwood framing sections minimum, density 530 kg/m³.

This Certificate of Approval relates to the sizes of PYROTECH™ 630 glass shown in Figure 4 below, when used in conjunction with the above system. The maximum permitted overall screen height is 4000 mm.



The aspect ratio of the glass may be unlimited within these aperture dimensions. This system may also be included in previously tested doorset fan and side-lights.

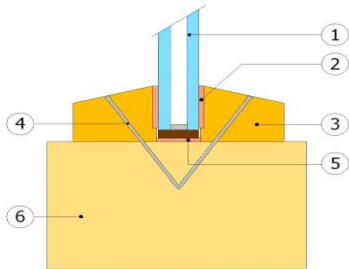
Paul Egger

CERTIFICATE No CF 628

ESG GROUP LTD

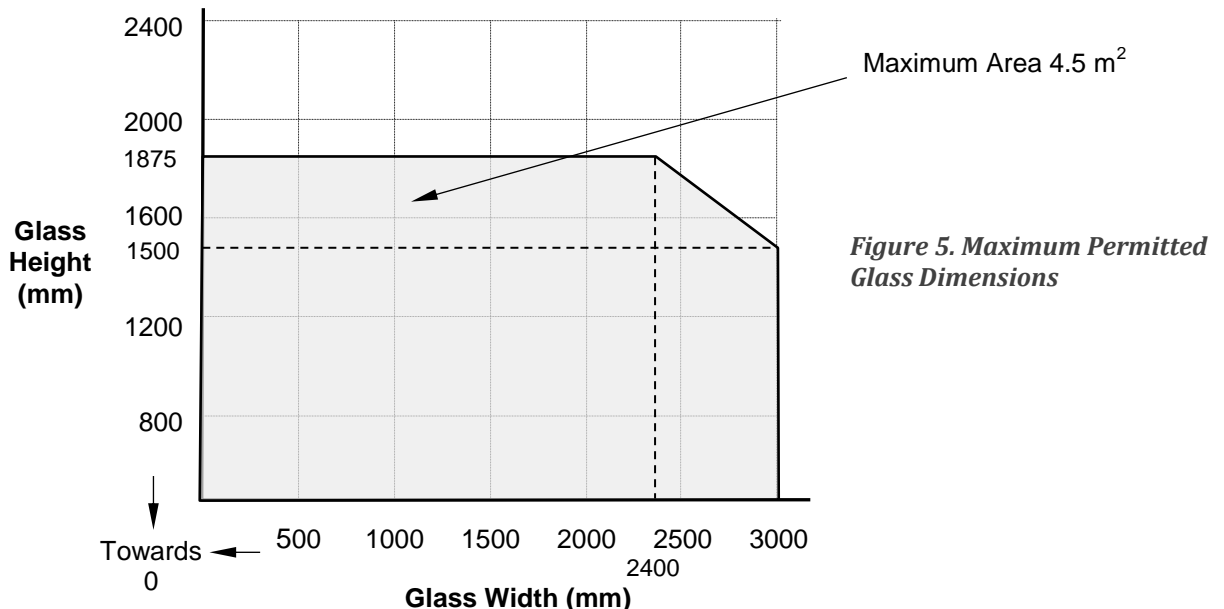
ESG PYROTECH™ 630 as Single Glazed IGUs*, (including ESG Laminated glass variants) in Timber framed plasterboard screen for periods of 30 minutes integrity

The glass shall be glazed utilising the following basic specification:



- ① IGU* comprising ESG PYROTECH™ 630 glass, 12 mm to 16 mm steel spacer with 4 mm or greater float, toughened or laminated glass (edge of glass wrapped with Aluminium foil)*. See Table 1 For Fire Resistant ESG Laminated Security glazing products (determined by ESG group Ltd) as satisfying EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).
- ② 15 mm by 3 mm Sealmaster Black Glazing Tape.
- ③ 20 mm high by 35 mm wide (chamfered by 15°) softwood glazing beads minimum density 530 kg/m³. The beads shown in the drawing can be extended in width to form a collection bead.
- ④ 50 mm long pins at maximum 150 mm centres.
- ⑤ Two non-combustible setting blocks, 6 mm x 10 mm by 80 mm.
- ⑥ 80 mm by 40 mm softwood framing sections minimum, density 530 kg/m³.

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 IGUs* shown in Figure 5 below, when used in conjunction with the above system. The maximum permitted overall screen height is 4000 mm.



* The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

Paul Duggan

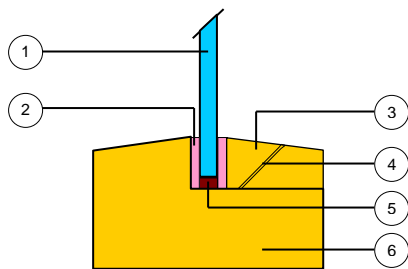
CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 (including ESG Laminated glass variants) glazed in Single bead Timber framed screens for periods of 30 minutes integrity

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- 1 ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate construction utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s). See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).
- 2 20 mm by 3 mm Sealmaster Black Glazing Tape.
- 3 20 mm high by 34.5 wide including a 5x5 mm bolection return (chamfered by 15°) hardwood glazing beads, minimum density 680 kg/m³. The beads shown in the drawing can be extended in width to form a bolection bead.
- 4 50 mm pins at maximum 150 mm centres.
- 5 Two non-combustible setting blocks, 6 mm x 10 mm by 80 mm.
- 6 60 mm by 80 mm hardwood framing sections minimum density 680 kg/m³.

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 glass shown in Figure 6 below, when used in conjunction with the above system with beads fitted on the non-fire side. The maximum permitted overall screen height is 4000 mm.

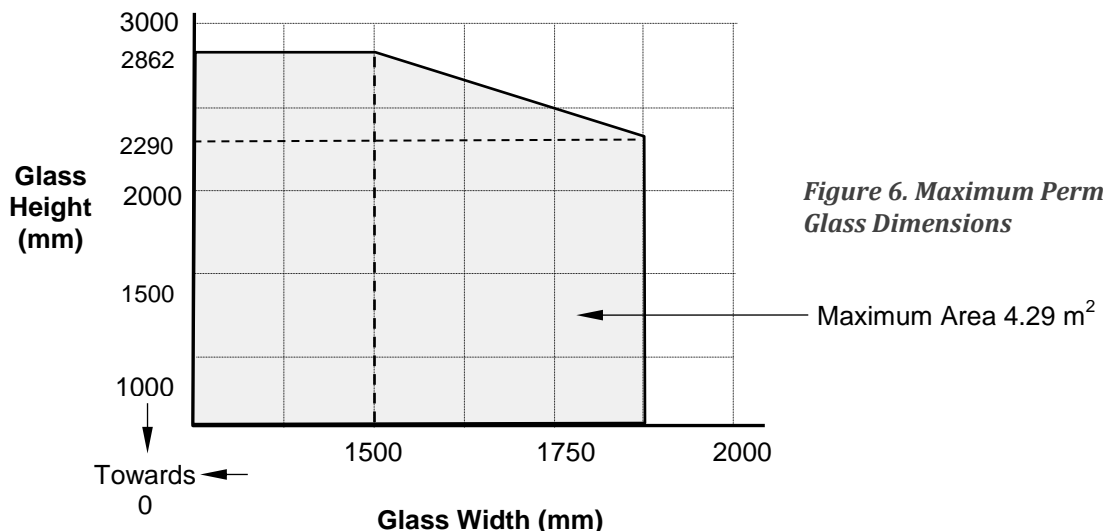


Figure 6. Maximum Permitted Glass Dimensions

The aspect ratio of the glass may be unlimited within these aperture dimensions. This system may also be included in previously tested doorset fan and side-lights.

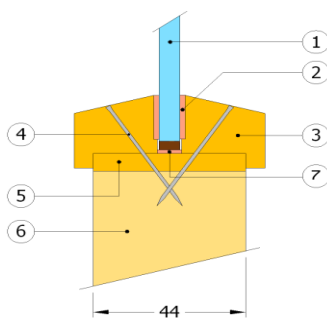
Radiation performance of 15 minutes at 15 kW/m²

CERTIFICATE No CF 628 ESG GROUP LTD

ESG PYROTECH™ 630 (including ESG Laminated glass variants) when glazed in Timber doors for periods of 30 minutes integrity

For this application the following conditions shall apply:

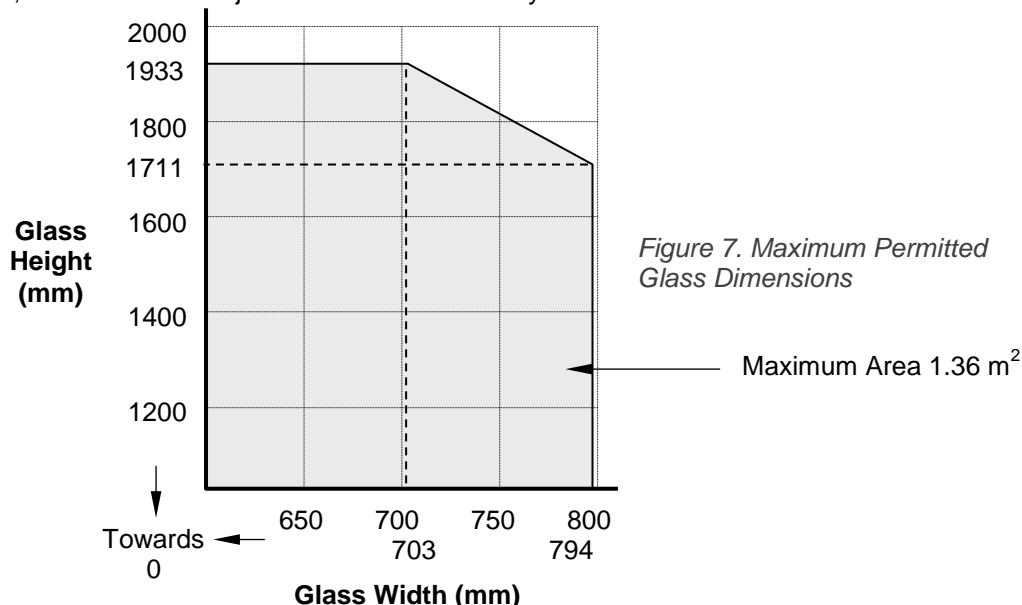
The glass shall be glazed utilising the following basic specification:



- ① ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate constructions utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s). See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).
- ② 15 mm by 3 mm Sealmaster Black Glazing Tape.
- ③ 26 mm high by 22 mm wide including a 5x5 mm bolection return (chamfered by 18°) hardwood glazing beads, minimum density 640 kg/m³.
- ④ 50 mm long Ø2 mm steel pins at 150 mm centres and 50 mm from corners (35° to glass).
- ⑤ Hardwood liner minimum 6 mm thick and 640 kg/m³ density.
- ⑥ Nominally 44 mm thick FD30 timber based door leaf (thicker leaf may be required to accommodate laminated glass with required bead dimensions).
- ⑦ Non-combustible setting blocks and 10 x 1 mm Interdeners liner (liner to all edges).

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 ESG PYROTECH™ 630 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.
Radiation performance of 21 minutes to 15 kW/m² up to a maximum glazed area of 1.2m²

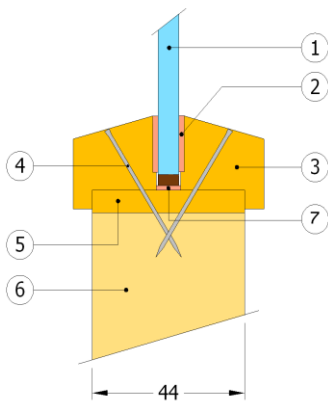
CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 (including ESG Laminated glass variants) when glazed in Timber doors for periods of 30 minutes integrity (continued)

For this application the following conditions shall apply:

The glass shall be glazed utilising the following basic specification:



- ① ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate construction s utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s). See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG group Ltd and have not been verified by Warrington Certification Limited).
- ② Hodgson Sealants Firestrip/Lorient System 36 range/Lorient Flexible Figure 1/ISL Therm-A-Strip/ Pyroplex 8193 U Channel/Sealmaster FireGlaze/Mann McGowan Pyroglaze 30/Mann McGowan Pyrostrip 30/Mann McGowan Pyroglaze Channel/Pyroplex 30049/Pyroplex 30054.
- ③ 20 mm high by 22 mm wide including a 5x5 mm bolection return (chamfered by 15°) softwood, MDF or hardwood glazing beads, minimum density 510 kg/m³.
- ④ 40 mm long Ø1.5 mm steel pins at 150 mm centres and 50 mm from corners (35° to glass).
- ⑤ No liner required (except where specifically required in the door certificate).
- ⑥ Nominally 44 mm thick FD30 timber based door leaf (thicker leaf may be required to accommodate laminated glass with required bead dimensions).
- ⑦ Optional non-combustible setting blocks (not required).

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

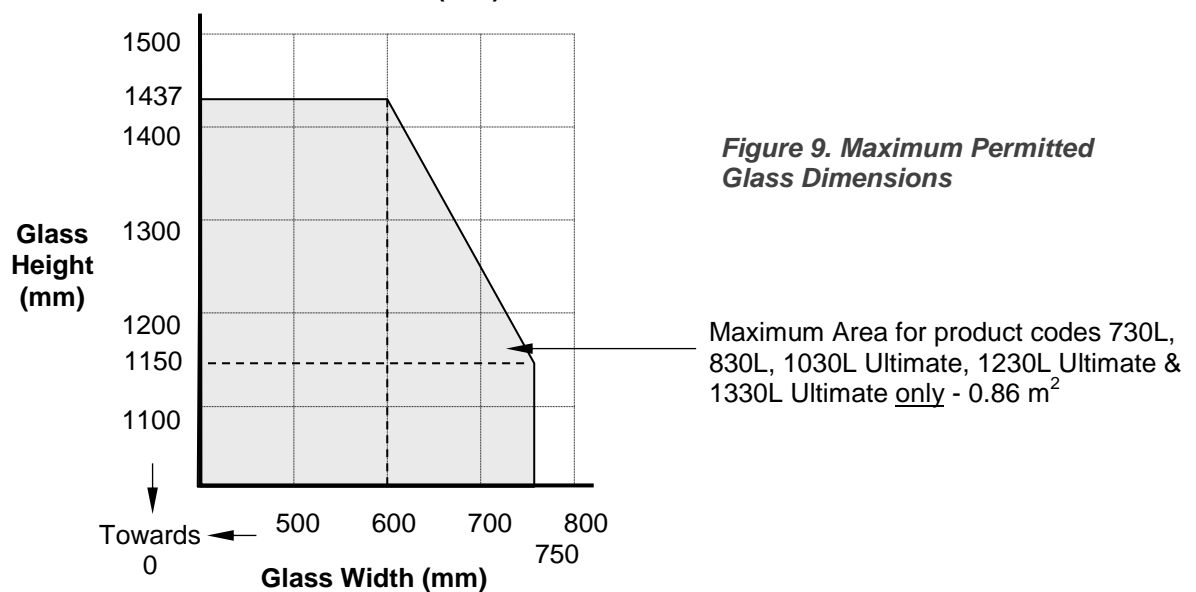
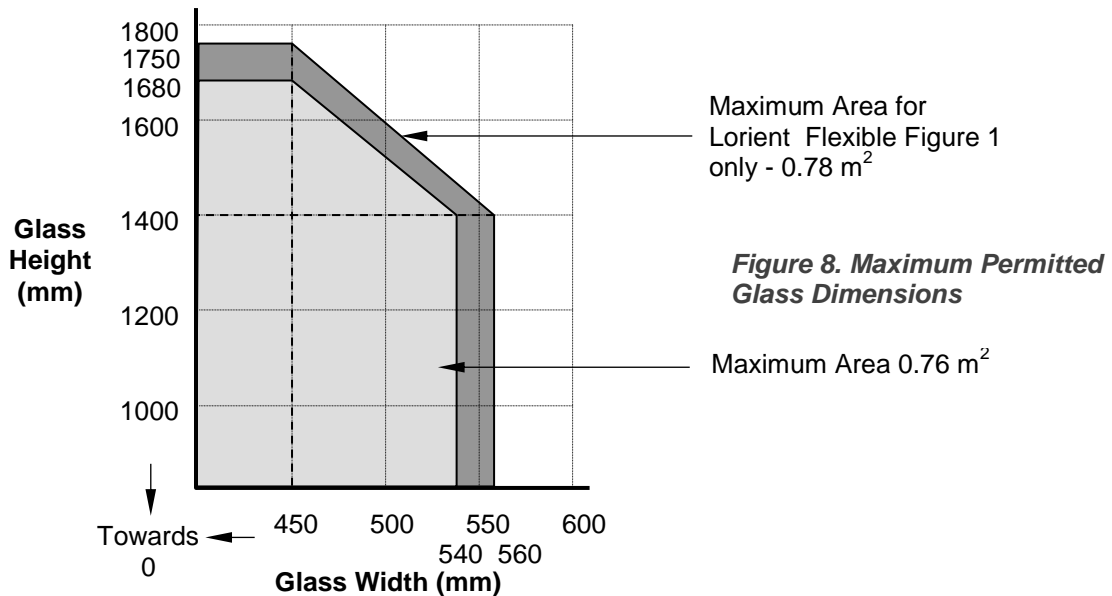
Specifically, the following door types may incorporate this glazing system (aperture dimensions subject to CERTIFIRE approval or test evidence):

Halspan	Prima 30
Pacific Rim	Flamebreak 30
Falcon Panel Products	Strebord 44
Baillargeon	Blankfort 30
All CERTIFIRE approved doors	

CERTIFICATE No CF 628 ESG GROUP LTD

ESG PYROTECH™ 630 (including ESG Laminated glass variants) when glazed in Timber doors for periods of 30 minutes integrity (continued)

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 glass shown in Figures 8 & 9 below, when used in conjunction with the above system.



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

Paul Dyer

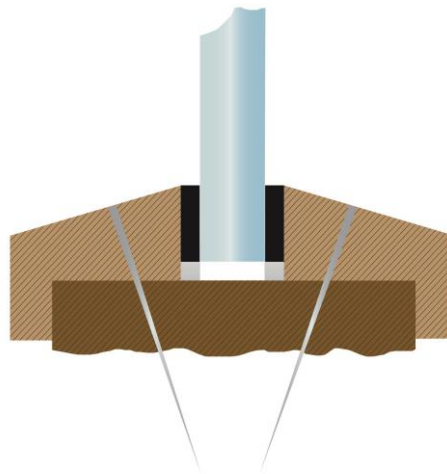
CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 when glazed in Timber doors for periods of 30 minutes integrity

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

- ESG PYROTECH™ 630
- Sealmaster Intumescent Foam Glazing Tape, 15x5 mm
- Ø1.6 x 40mm long steel pins or No. 8 x 40 mm long screws at 150 mm maximum centres and 50mm from corners (fixed at 45° to glass).
- 15 mm high beads
- Bolection – 5mm x 5mm minimum.
- Nominally 44 mm thick timber based FD30 door leaf. The doorset shall be CERTIFIRE approved or have test evidence for the inclusion of apertures of the proposed dimensions. Only solid cored timber based or cellulosic cores are suitable for being glazed with this system. Core incorporating voids or hollow tubes should not be glazed using this system unless a 6 mm hardwood aperture liner is fitted within the perimeter of the aperture.
- Glazing Bead from:
 - Softwood: min. density 510kg/m³, 20° chamfer
 - Hardwood: min. density 620kg/m³, 20° chamfer
 - MDF: min. density 700kg/m³, 15° chamfer



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

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 ESG PYROTECH™ 630 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.

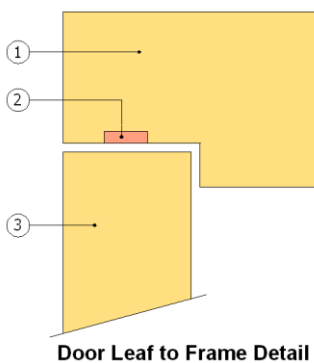
Glass	Bead Height / Tape Dimension (mm)	Maximum Glass Height (mm)	Maximum Glass Width (mm)	Maximum Glass Area (m ²)
ESG PYROTECH™ 630	15 / 10x5	1875	313	0.47

CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 (including ESG Laminated glass variants) when glazed in Single-acting, single leaf only, latched or unlatched Timber doors for periods of 30 minutes integrity

The doorsets to be as detailed within the figure below:



- ① 90 mm by 40 mm hardwood door frame with 12 mm integral, pinned or screwed stop, minimum density 640 kg/m³. ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate constructions utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s). See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG group Ltd and have not been verified by Warrington Certification Limited).
- ② Intumescent Seal Ltd Therm-A-Seal 15 x 4mm intumescent seals, positioned centrally within the reveal of the frame, at the head and vertical edges. The leaf to frame gap must not exceed 4 mm.
- ③ Minimum 100 mm by 44 mm hardwood stiles and rails (bottom rail 205 mm minimum) minimum density 640 kg/m³. Stiles and rails must be mortice & tenon jointed.

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

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

Glazing specification must be as shown earlier on Page 13 (with the exception of the hardwood liner).

The maximum permitted door dimensions are as follows:

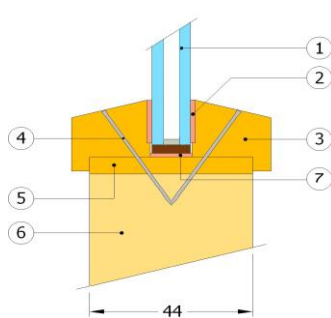
Maximum Door Leaf Height	Maximum Door Leaf Width	Maximum Door Leaf Area
2233 mm (at 926 mm wide)	994 mm (at 2040 mm high)	2.07 m ²

CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 IGUs*, (including ESG Laminated glass variants) when glazed in timber doors for periods of 30 minutes integrity*

The glass shall be glazed utilising the following basic specification:

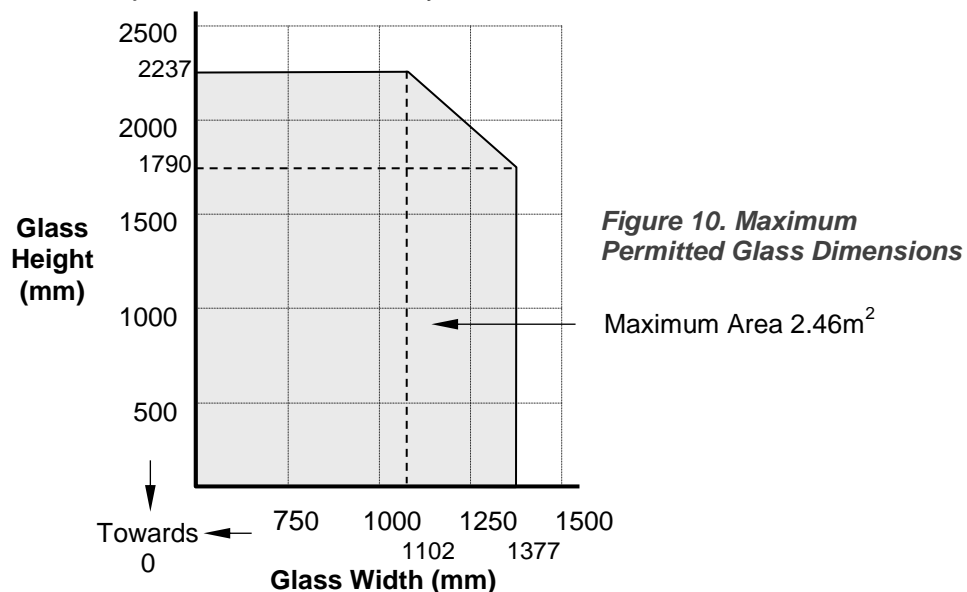


- ① IGUs* comprising ESG PYROTECH™ 630 glass, 12 mm to 16 mm steel spacer with 4 mm or greater float, toughened or laminated glass (edge of glass wrapped with Aluminium foil)*. See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).
- ② 15 mm by 3 mm Sealmaster Black Glazing Tape.
- ③ 19 mm high by 14 mm wide with a 5x5 mm bolection return (chamfered by 16°) hardwood glazing beads, minimum density 640 kg/m³.
- ④ 50 mm long Ø2 mm steel pins at 150 mm centres and 50 mm from corners (35° to glass).
- ⑤ Hardwood liner min. 6mm thick & 640 kg/m³ density.
- ⑥ Nominally 44 mm thick FD30 timber door leaf.
- ⑦ Non-combustible setting blocks and 10 x 1 mm Interdens liner (liner to all edges).

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

* The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 IGUs 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. Radiation performance was not measured on this size. On a previous test for an IGU of size 632 mm wide by 789 mm high, maximum area 0.5 m², a performance of 15 kW/m² was measured after 21 minutes.

CERTIFICATE No CF 628 ESG GROUP LTD

ESG PYROTECH™ 630 (including ESG Laminated glass variants) when glazed in steel framed screens for periods of 30 minutes integrity

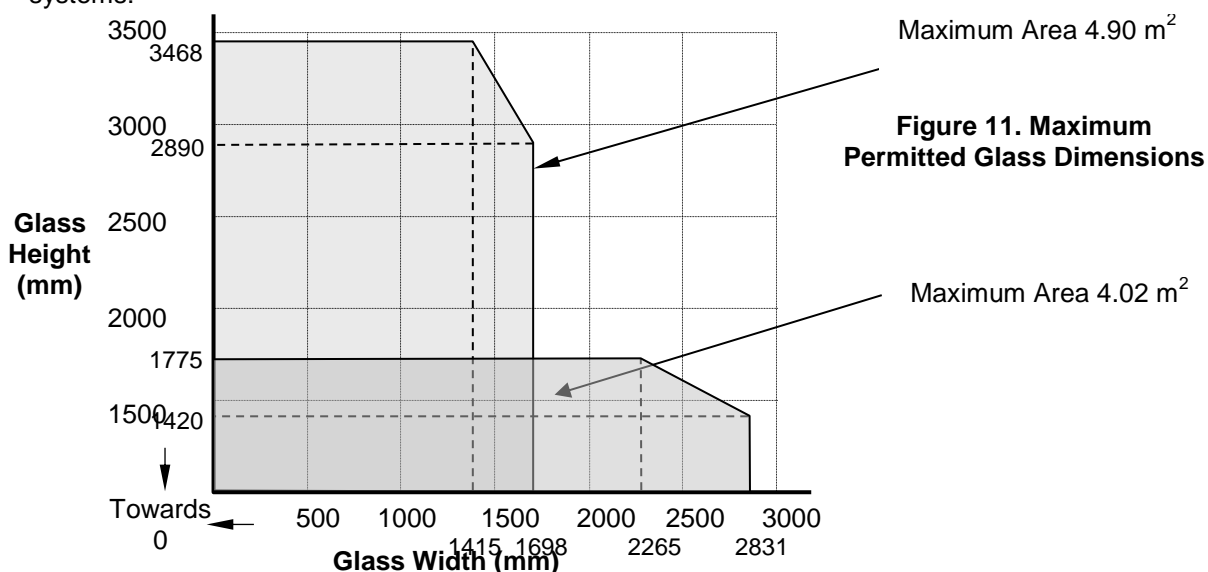
The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided. The glass shall be ESG PYROTECH™ 630 glass (edge of glass wrapped with Aluminium foil) or laminate constructions utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s) installed into a previously tested framing system (which is covered appropriately by test or assessment evidence) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems, using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The glass shall be glazed into the screen with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover. For 60 minute ratings, the top edges of the panes shall be bonded to the gasket on both faces, with Autostic adhesive.

See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).



Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 glass & ESG Laminated Fire Resistant Glass variants shown in Figure 11 below, when used in conjunction with the above systems:



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

Paul Dwyer

CERTIFICATE No CF 628 ESG GROUP LTD

ESG PYROTECH™ 630 IGUs* (including ESG Laminated glass variants) when glazed in steel screens for periods of 30 minutes integrity

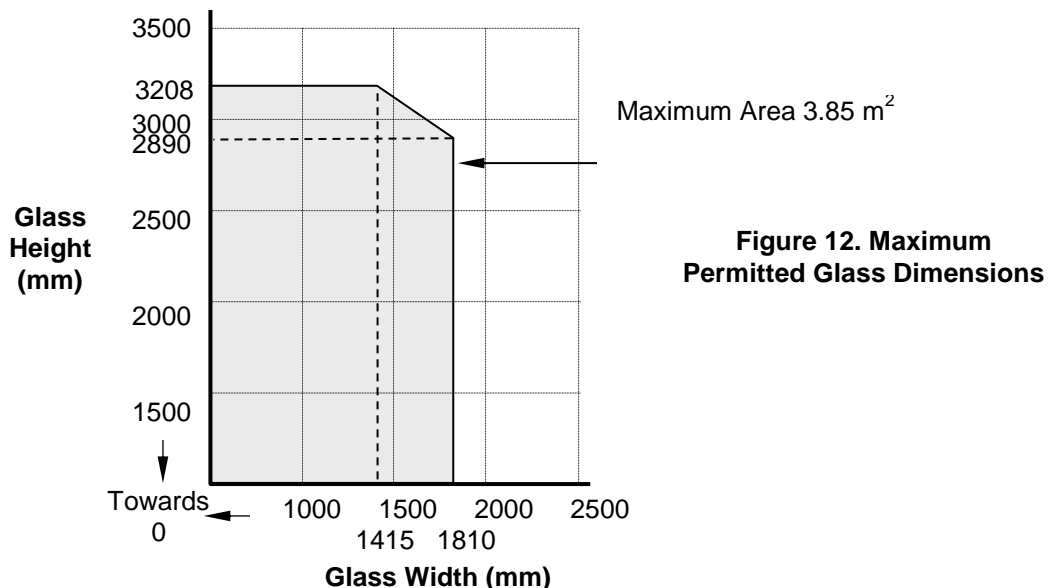
The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided.

The glass shall be installed into a previously tested framing system (which is covered appropriately by test or assessment evidence) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems, using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The IGU* shall comprise 6 mm ESG PYROTECH™ 630 glass, a 12 mm to 16 mm spacer bar and 4 mm or greater float, toughened or laminated glass. The glass shall be glazed into the screen with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover. For 60 minute ratings, the top edges of the panes shall be bonded to the gasket on both faces, with Autostic adhesive.

See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 IGUs & ESG Laminated Fire Resistant Glass variants shown in Figure 12 below, when used in conjunction with above systems



- * The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

CERTIFICATE No CF 628 ESG GROUP LTD

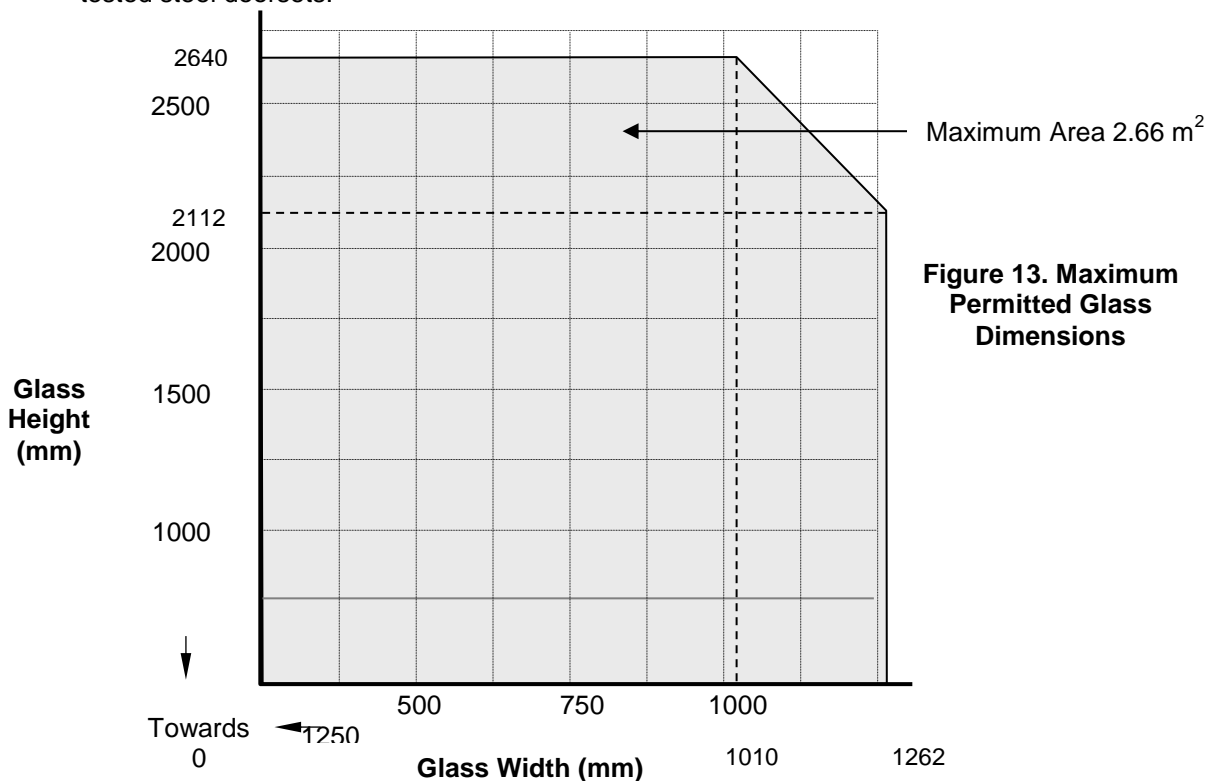
ESG PYROTECH™ 630 (including ESG Laminated glass variants) in single steel framed doors for periods of 30 minutes integrity

The glass shall be installed into a previously tested steel doorset (which is covered appropriately by test, assessment evidence or CERTIFIRE approval) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems. The glass pane shall comprise single 6 mm ESG PYROTECH™ 630 glass, and approved ESG Laminated glass, glazed into the door with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on PU setting blocks to determine the correct edge cover and expansion allowance.

See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 glass & ESG Laminated Fire Resistant Glass variants shown in Figure 13 below, when used in conjunction with previously tested steel doorsets:



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

Paul Duggan

CERTIFICATE No CF 628

ESG GROUP LTD

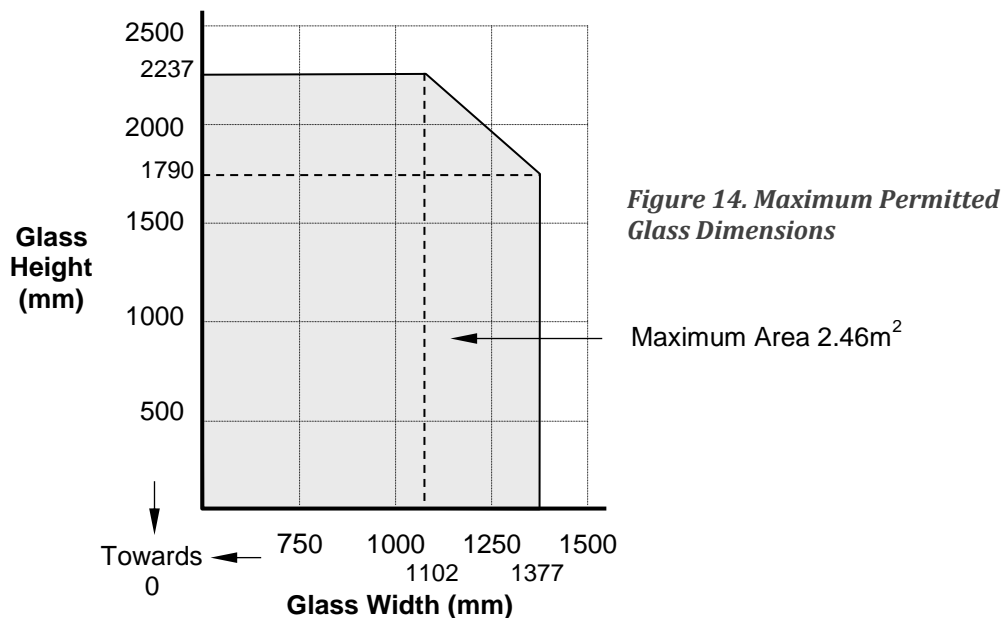
ESG PYROTECH™ 630 IGUs* (including ESG Laminated glass variants) in single steel framed doors for periods of 30 minutes integrity

The glass shall be installed into a previously tested steel doorset (which is covered appropriately by test, assessment evidence or CERTIFIRE approval) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems. The IGU* shall comprise 6 mm ESG PYROTECH™ 630 glass, a 12 mm to 16 mm spacer bar and 4 mm or greater float, toughened or laminated glass. The ESG PYROTECH™ 630 and approved ESG Laminated glass IGUs* are glazed into the door with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover and expansion allowance.

See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 IGUs* & ESG Laminated Fire Resistant Glass variants shown in Figure 14 below, when used in conjunction with previously tested steel doorsets:



- * The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

Paul Egger

CERTIFICATE No CF 628

ESG GROUP LTD

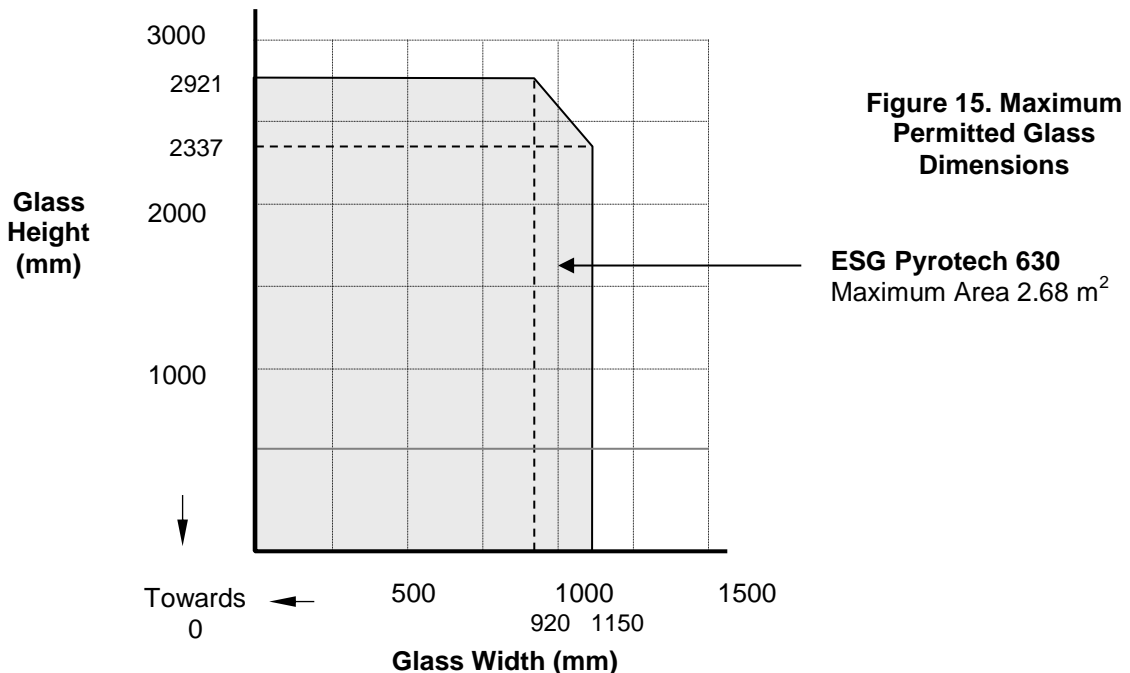
ESG PYROTECH™ 630 IGUs* (including ESG Laminated glass variants) in double steel framed doors for periods of 30 minutes integrity

The glass shall be installed into a previously tested steel doorset (which is covered appropriately by test, assessment evidence or CERTIFIRE approval) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems. The IGU* shall comprise 6 mm ESG PYROTECH™ 630 glass, a 12 mm to 16 mm spacer bar and 4 mm or greater float, toughened or laminated glass. glazed into the door with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on PU setting blocks to determine the correct edge cover and expansion allowance.

See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG group Ltd and have not been verified by Warrington Certification Limited).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 IGUs & ESG Laminated Fire Resistant Glass variants shown in Figure 15 below, when used in conjunction with previously tested steel doorsets:



- * The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

Paul Dyer

CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 IGUs* (including ESG Laminated glass variants) in double steel framed doors for periods of 30 minutes integrity

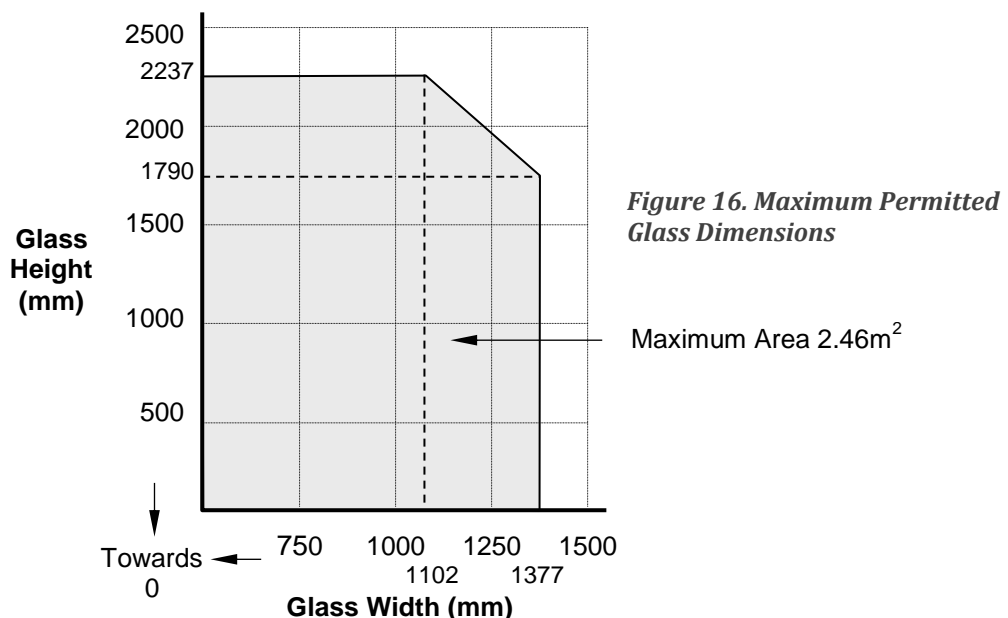
The glass shall be installed into a previously tested steel doorset (which is covered appropriately by test, assessment evidence or CERTIFIRE approval) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems. The IGU* shall comprise 6 mm ESG PYROTECH™ 630 glass, a 12 mm to 16 mm spacer bar and 4 mm or greater float, toughened or laminated glass*. The ESG PYROTECH™ 630 and approved ESG Laminated glass IGUs* are glazed into the door with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover and expansion allowance.

See Table 1 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications.

Note: (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 630 IGUs* & ESG Laminated Fire Resistant Glass variants shown in Figure 16 below, when used in conjunction with previously tested steel doorsets:



- * The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

Paul Eggen

CERTIFICATE No CF 628 ESG GROUP LTD

ESG PYROTECH™ 660 IGUs* (including ESG Laminated glass variants) in steel framed doors for periods of 60 minutes integrity

The glass shall be installed into a previously tested steel doorset (which is covered appropriately by test, assessment evidence or CERTIFIRE approval) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems. The IGU* shall comprise 6 mm ESG PYROTECH™ 660 glass, a 12 mm to 16 mm spacer bar and 4 mm or greater float, toughened or laminated glass. The ESG PYROTECH™ 660 and approved ESG Laminated glass IGUs* are glazed into the door with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover and expansion allowance.

See Table 2 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications.

Note: (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of IGUs of ESG PYROTECH™ 660 IGUs* & ESG Laminated Fire Resistant Glass variants shown in Figure 17 below, when used in conjunction with previously tested steel doorsets:

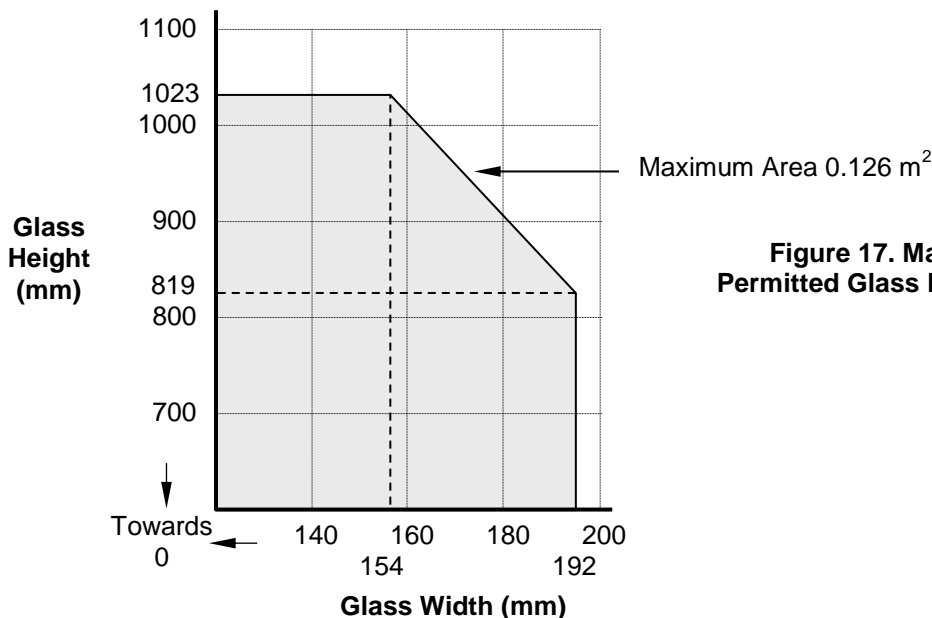


Figure 17. Maximum Permitted Glass Dimensions

- * The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

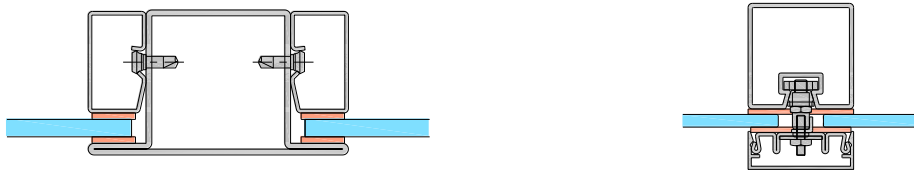
CERTIFICATE No CF 628 ESG GROUP LTD

ESG PYROTECH™ 660 (including ESG Laminated glass variants) when glazed in steel framed screens for periods of 60 minutes integrity

The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided. The glass shall be ESG PYROTECH™ 660 glass (edge of glass wrapped with Aluminium foil) or laminate constructions utilising combinations of approved ESG PYROTECH™ Fire Resistant Glass, bonded together with interlayer(s) installed into a previously tested framing system (which is covered appropriately by test or assessment evidence) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems, using pressure plate glazing, screw-fixed or clip-on retaining beads, see examples below. The glass shall be glazed into the screen with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover. For 60 minute ratings, the top edges of the panes shall be bonded to the gasket on both faces, with Autostic adhesive.

See Table 2 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications.

Note: (performance levels determined by ESG group Ltd and have not been verified by Warrington Certification Limited).



Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 660 glass & ESG laminated fire resistant glass shown in Figure 19 below, when used in conjunction with above systems:

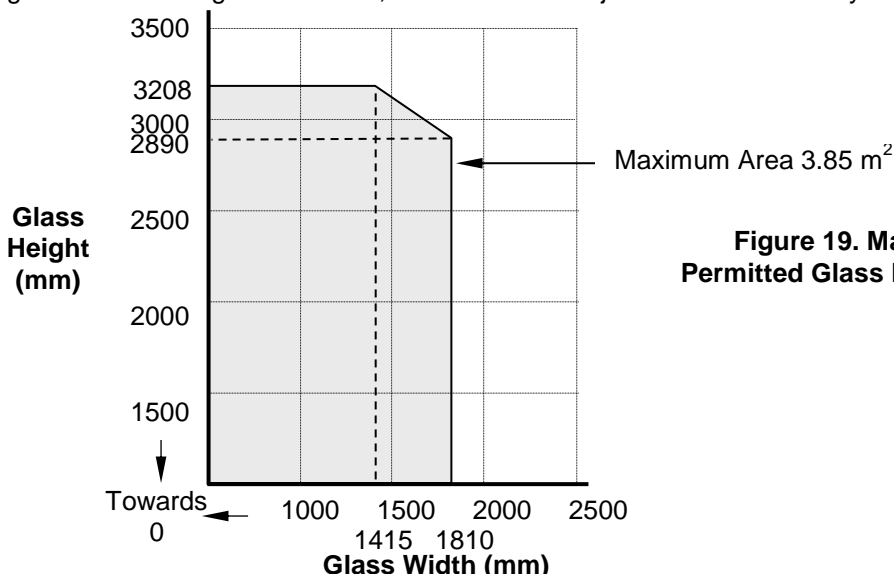


Figure 19. Maximum Permitted Glass Dimensions

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

Radiation performance of 17 minutes to 15 kW/m² up to a maximum screen area of 9 m²

CERTIFICATE No CF 628 ESG GROUP LTD

ESG PYROTECH™ 660 IGUs* (including ESG Laminated glass variants) when glazed in steel framed screens for periods of 60 minutes integrity

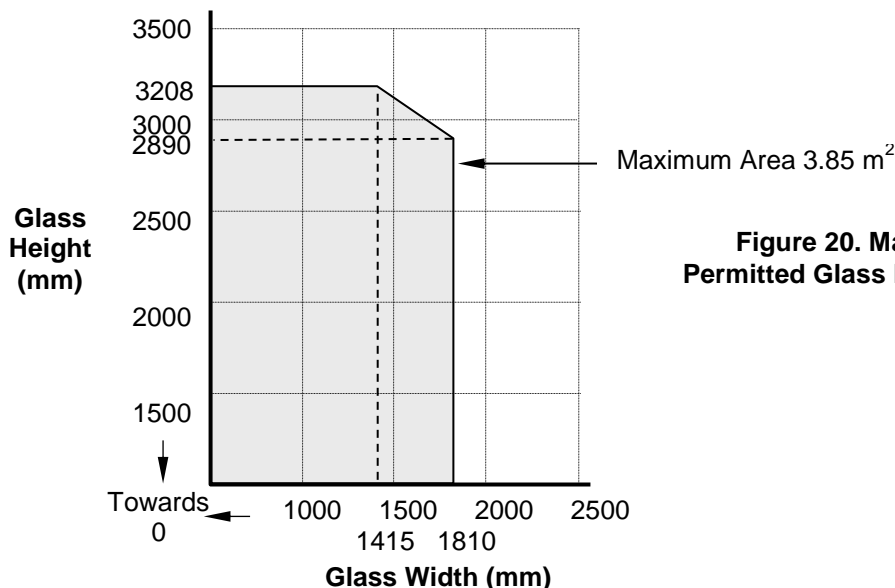
The screens shall be no greater than 4000 mm high unless suitable tie backs and/or fire protected structural supports are provided.

The glass shall be installed into a previously tested framing system (which is covered appropriately by test, assessment evidence or CERTIFIRE approval) e.g. Wrightstyle, Schuco, Forster, Jansen, including Jansen Economy 50 and 60 systems using pressure plate glazing, screw-fixed or clip-on retaining beads. The IGU* shall comprise 6 mm ESG PYROTECH™ 660 glass, a 12 mm to 16 mm spacer bar and 4 mm or greater float, toughened or laminated glass*. The ESG PYROTECH™ 660 and approved ESG Laminated glass IGUs* are glazed into the screen with Sealmaster Black Glazing Tape (15x3 mm) on both faces and set on setting blocks, which comprise calcium silicate material to determine the correct edge cover and expansion allowance. The top edges of the panes shall be bonded to the gasket on both faces, with Autostic adhesive.

See Table 2 for approved Fire Resistant ESG Laminated Security glazing products satisfying security Standards EN356 manual attack, EN1063 ballistic attack and for use in privacy and acoustics applications. **Note:** (performance levels determined by ESG Group Ltd and have not been verified by Warrington Certification Limited).

Maximum Permitted Pane Dimensions

This Certificate of Approval relates to the sizes of ESG PYROTECH™ 660 IGUs & ESG laminated fire resistant glass shown in Figure 20 below, when used in conjunction with above systems



* The IGU must be oriented such that the float, toughened or laminated glass is on the fire risk side. If the fire risk side cannot be identified or may be from either direction, then this system shall not be used.

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

Paul Duggan



CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 and 660 single panes, (including ESG Laminated glass variants) for periods of 30 minutes integrity - Table 1 supplementary

ESG PYROTECH™ Fire Resistant Laminated Security glazing products have been fire assessed for use in timber doors, timber screens, steel doors and steel screen systems as pertained in the current scope of CF628. It should be noted that when using these products, all systems and doors must be of a suitable construction and thickness to adequately incorporate these glazing products and required beads.

The direction of glazing for all product variants is to be advised by ESG group Ltd as it depends on the construction of the glazed panels and the position of the Pyrotech™ Fire resistant glass pane(s) in the construction and the direction of fire attack.

Note: The security performance levels of the combined fire resistant / security products detailed in table 1 have been determined and supplied by ESG Group Ltd and have not been verified by Warrington Certification Limited.

Product	Level	Thickness (mm)	Weight (Kg/m ²)
ESG Pyrotech 630	Single Pane	6	15
ESG Pyrotech 1330L Safe	Standard Laminate	13.5	31
ESG Pyrotech 1130L Acoustic	Acoustic Laminate	11.5	26
ESG Pyrotech 1330L Acoustic	Acoustic Laminate	13.5	31
ESG Switchable LCD Privacy Pyrotech 1230L	Switchable LCD Privacy	11.9	26
ESG Switchable LCD Privacy Pyrotech 1430L	Switchable LCD Privacy	13.9	31
ESG Pyrotech 1230L Secure P4A	EN356 P4A	12.3	26
ESG Pyrotech 1430L Secure P5A	EN356 P5A	14.3	31
ESG Pyrotech Secure P6B/E30	EN356 P6B	16.5	34
ESG Pyrotech Secure P7B/E30	EN356 P7B	15.5	33
ESG Pyrotech Secure P7B/E30	EN356 P7B	16.5	34
ESG Pyrotech Secure P8B/E30	EN356 P8B	17.5	35
ESG Pyrotech Secure P8B/E30	EN356 P8B	18.5	37
ESG Pyrotech Secure 001/17/E30	001	17	37
ESG Pyrotech Secure 012/21/E30	012	21	39
ESG Pyrotech Secure 013/23/E30	013	23	42
ESG Pyrotech Secure 123/27/E30	123	27	46
ESG Pyrotech Secure 113/34/E30	113	34	60
ESG Pyrotech Secure 224/42/E30	224	42	72
ESG Pyrotech Secure 234/46/E30	234	46	69
ESG Pyrotech Secure 235/60/E30	235	60	100

Page 25 of 28 Signed
E/382

Issued: 11th July 2008
Revised: 20th October 2020
Valid to: 17th February 2024



CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 and 660 single panes, (including ESG Laminated glass variants) for periods of 30 minutes integrity - Table 1 supplementary (continued)

ESG PYROTECH™ Fire Resistant Laminated Security glazing products have been fire assessed for use in timber doors, timber screens, steel doors and steel screen systems as pertained in the current scope of CF628. It should be noted that when using these products, all systems and doors must be of a suitable construction and thickness to adequately incorporate these glazing products and required beads.

The direction of glazing for all product variants is to be advised by ESG group Ltd as it depends on the construction of the glazed panels and the position of the Pyrotech™ Fire resistant glass pane(s) in the construction and the direction of fire attack.

Note: The security performance levels of the combined fire resistant / security products detailed in table 1 have been determined and supplied by ESG Group Ltd and have not been verified by Warrington Certification Limited.

Product	Level	Thickness (mm)	Weight (Kg/m ²)
ESG Pyrotech Secure Ballistic/BR1/NS/E30	EN1063 BR1	27	53
ESG Pyrotech Secure Ballistic/BR2/NS/E30	EN1063 BR2	27	53
ESG Pyrotech Secure Ballistic/BR3/NS/E30	EN1063 BR3	27	53
ESG Pyrotech Secure Ballistic/BR4/NS/E30	EN1063 BR4	33	62
ESG Pyrotech Secure Ballistic/BR5/NS/E30	EN1063 BR5	42	88
ESG Pyrotech Secure Ballistic/BR6/NS/E30	EN1063 BR6	50	107
ESG Pyrotech Secure Ballistic/BR7/NS/E30	EN1063 BR7	75	172
ESG Pyrotech Secure Ballistic/SG1/NS/E30	EN1063 SG1	33	67
ESG Pyrotech Secure Ballistic/SG2/NS/E30	EN1063 SG2	42	87
ESG Pyrotech Secure Ballistic/BR1/SA/E30	EN1063 BR1	38	84
ESG Pyrotech Secure Ballistic/BR2/SA/E30	EN1063 BR2	38	84
ESG Pyrotech Secure Ballistic/BR3/SA/E30	EN1063 BR3	41	95
ESG Pyrotech Secure Ballistic/BR4/SA/E30	EN1063 BR4	48	105
ESG Pyrotech Secure Ballistic/BR5/SA/E30	EN1063 BR5	52	115
ESG Pyrotech Secure Ballistic/BR6/SA/E30	EN1063 BR6	67	153
ESG Pyrotech Secure Ballistic/BR7/SA/E30	EN1063 BR7	92	214
ESG Pyrotech Secure Ballistic/SG1/SA/E30	EN1063 SG1	50	109
ESG Pyrotech Secure Ballistic/SG2/SA/E30	EN1063 SG2	61	142
ESG Pyrotech Secure Ballistic/AK47 DGU/SA/E30	EN1063 AK47	51	94

Page 26 of 28 Signed
E/382

Issued: 11th July 2008
Revised: 20th October 2020
Valid to: 17th February 2024



CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 and 660 single panes, (including ESG Laminated glass variants) for periods of 60 minutes integrity - Table 2 supplementary

ESG PYROTECH™ Fire Resistant Laminated Security glazing products have been fire assessed for use in timber doors, timber screens, steel doors and steel screen systems as pertained in the current scope of CF628. It should be noted that when using these products, all systems and doors must be of a suitable construction and thickness to adequately incorporate these glazing products and required beads.

The direction of glazing for all product variants is to be advised by ESG Group Ltd as it depends on the construction of the glazed panels and the position of the Pyrotech™ Fire resistant glass pane(s) in the construction and the direction of fire attack.

Note: The security performance levels of the combined fire resistant / security products detailed in table 2 have been determined and supplied by ESG Group Ltd and have not been verified by Warrington Certification Limited.

Product	Level	Thickness (mm)	Weight (Kg/m ²)
ESG Pyrotech 660	Single Pane	6	15
ESG Pyrotech 1160L Safe	Standard Laminate	11.5	26
ESG Pyrotech 1360L Safe	Standard Laminate	13.5	31
ESG Pyrotech 1160L Acoustic	Acoustic Laminate	11.5	26
ESG Pyrotech 1360L Acoustic	Acoustic Laminate	14.3	31
ESG Switchable LCD Privacy Pyrotech 1260L	Switchable LCD Privacy	11.9	26
ESG Switchable LCD Privacy Pyrotech 1460L	Switchable LCD Privacy	13.9	31
ESG Pyrotech 1260L Secure P4A	EN356 P4A	12.3	26
ESG Pyrotech 1460L Secure P5A	EN356 P5A	14.3	31
ESG Pyrotech Secure P6B/E60	EN356 P6B	16.5	34
ESG Pyrotech Secure P7B/E60	EN356 P7B	15.5	33
ESG Pyrotech Secure P7B/E60	EN356 P7B	16.5	34
ESG Pyrotech Secure P8B/E60	EN356 P8B	17.5	35
ESG Pyrotech Secure P8B/E60	EN356 P8B	18.5	37
ESG Pyrotech Secure 001/17/E60	001	17	37
ESG Pyrotech Secure 012/21/E60	012	21	39
ESG Pyrotech Secure 013/23/E60	013	23	42
ESG Pyrotech Secure 123/27/E60	123	27	46
ESG Pyrotech Secure 113/34/E60	113	34	60
ESG Pyrotech Secure 224/42/E60	224	42	72
ESG Pyrotech Secure 234/46/E60	234	46	69
ESG Pyrotech Secure 235/60/E60	235	60	100

Page 27 of 28 Signed
E/382

Issued: 11th July 2008
Revised: 20th October 2020
Valid to: 17th February 2024



CERTIFICATE No CF 628

ESG GROUP LTD

ESG PYROTECH™ 630 and 660 single panes, (including ESG Laminated glass variants) for periods of 60 minutes integrity - Table 2 supplementary (continued)

ESG PYROTECH™ Fire Resistant Laminated Security glazing products have been fire assessed for use in timber doors, timber screens, steel doors and steel screen systems as pertained in the current scope of CF628. It should be noted that when using these products, all systems and doors must be of a suitable construction and thickness to adequately incorporate these glazing products and required beads.

The direction of glazing for all product variants is to be advised by ESG Group Ltd as it depends on the construction of the glazed panels and the position of the Pyrotech™ Fire resistant glass pane(s) in the construction and the direction of fire attack.

Note: The security performance levels of the combined fire resistant / security products detailed in table 2 have been determined and supplied by ESG Group Ltd and have not been verified by Warrington Certification Limited.

Product	Level	Thickness (mm)	Weight (Kg/m ²)
ESG Pyrotech Secure Ballistic/BR1/NS/E60	EN1063 BR1	27	53
ESG Pyrotech Secure Ballistic/BR2/NS/E60	EN1063 BR2	27	53
ESG Pyrotech Secure Ballistic/BR3/NS/E60	EN1063 BR3	27	53
ESG Pyrotech Secure Ballistic/BR4/NS/E60	EN1063 BR4	33	62
ESG Pyrotech Secure Ballistic/BR5/NS/E60	EN1063 BR5	42	88
ESG Pyrotech Secure Ballistic/BR6/NS/E60	EN1063 BR6	50	107
ESG Pyrotech Secure Ballistic/BR7/NS/E60	EN1063 BR7	75	172
ESG Pyrotech Secure Ballistic/SG1/NS/E60	EN1063 SG1	33	67
ESG Pyrotech Secure Ballistic/SG2/NS/E60	EN1063 SG2	42	87
ESG Pyrotech Secure Ballistic/BR1/SA/E60	EN1063 BR1	38	84
ESG Pyrotech Secure Ballistic/BR2/SA/E60	EN1063 BR2	38	84
ESG Pyrotech Secure Ballistic/BR3/SA/E60	EN1063 BR3	41	95
ESG Pyrotech Secure Ballistic/BR4/SA/E60	EN1063 BR4	48	105
ESG Pyrotech Secure Ballistic/BR5/SA/E60	EN1063 BR5	52	115
ESG Pyrotech Secure Ballistic/BR6/SA/E60	EN1063 BR6	67	153
ESG Pyrotech Secure Ballistic/BR7/SA/E60	EN1063 BR7	92	214
ESG Pyrotech Secure Ballistic/SG1/SA/E60	EN1063 SG1	50	109
ESG Pyrotech Secure Ballistic/SG2/SA/E60	EN1063 SG2	61	142
ESG Pyrotech Secure Ballistic/AK47 DGU/SA/E60	EN1063 AK47	51	94

Page 28 of 28 Signed
E/382

Issued: 11th July 2008
Revised: 20th October 2020
Valid to: 17th February 2024