Pyroguard

TECHNICAL FIRE SAFETY GROUP

Pyroguard Vision System

Technical guidance document

Contents

1 Introduction

This document summarises the installation details for Pyroguard's Vision System and its approved glazing products. Pyroguard's Vision System is part of the Pyroguard Infinity range.

Please note that not all information is applicable in all regions.

The following terms are used:

RV – Double Sided "Recto Verso"

SWS – Structural Wall System "Bord à Bord"

T – Toughened "Verre Trempé"

TVI – Triple Glazed Unit "Triple Vitrage Isolant"

VI – Double Glazed Unit "Vitrage Isolant"

VF – Laminated "Vitrage Feuillete"

The **Pyroguard Infinity** range consists of Pyroguard T SWS. It is a toughened nanocomposite gel laminate with a black edge seal 13 mm thick.

Users of this document should consult the original approvals before proceeding to specification and installation. In general, the constructions detailed in this document may be installed as 'infinite' screens or as single 'punch out' walls; the screens may be repeated without restriction (see Figure 1). The approved height of the construction is directly related to the approved height of the glazing, plus the necessary framing.

This installation guide provides instructions that will assist **Pyroguard Infinity** installers to construct a structural wall for all fire resistant classifications claimed. The installer must verify the application conditions for the building in advance. The assembly of **Pyroguard Infinity** glazing shall only be performed by suitably trained specialist staff. This document does not fully constitute a training document.

In the building exterior envelope or atria, which are subject to the influences of sun, wind and weather, the function of the joints and glazing may vary from that under normal interior conditions. Seek technical approval from the sealant supplier and Pyroguard UK Ltd before planning such an installation.

Furthermore, the function in case of a fire cannot be ensured if the installation deviates from that described in this document and in the approvals. Only recommended sealants that have been fire-tested in conjunction with the glazing and compatible materials, are approved for application with Pyroguard Infinity. Unfortunately, in the event of defects, the warranty shall be void with the use of

other silicones, solvents, intumescent and other materials, or the disregard of generally recognised technical guidelines and failure to follow these guidelines. Additionally, Pyroguard do not warrant the installation or the structural safety of the installation, only the glass itself according to product standard EN14449.

The recommendations for application of sealant are given, these are to be followed by the installer.

Pyroguard Infinity panes are frequently of considerable weight and of large dimensions and must therefore be handled according to industry guidelines (refer to the Glass and Glazing Federation for details); in order to ensure they are installed without any damage and within regional safety at work guidelines.

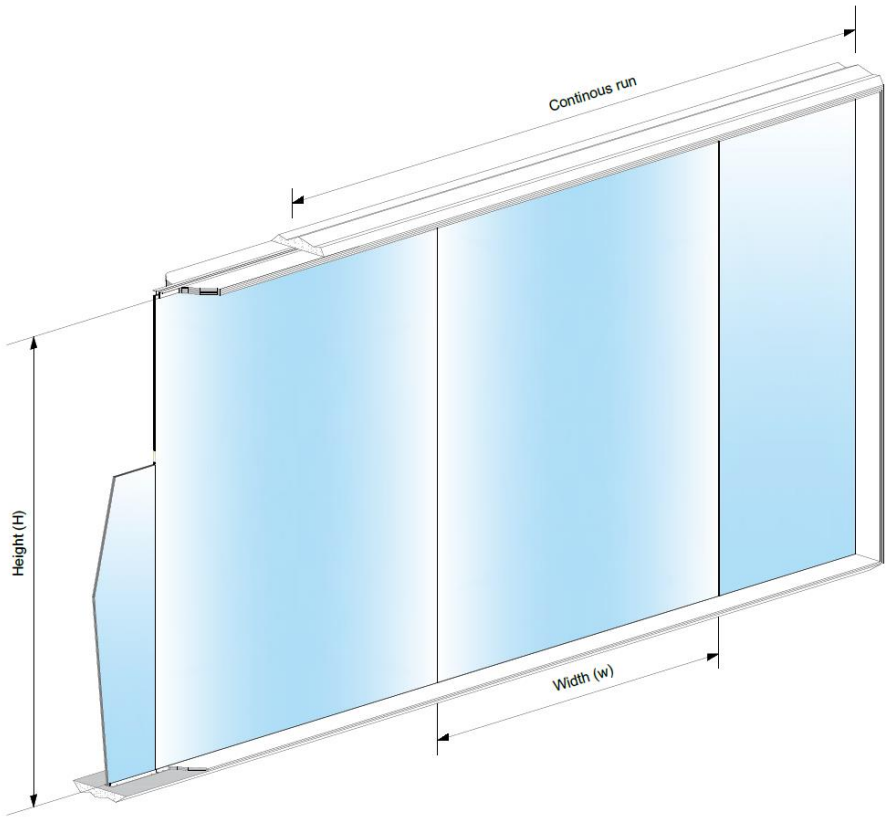


Figure 1 Illustration of a repeating partition a.k.a. infinite screen for EI30 or EI60

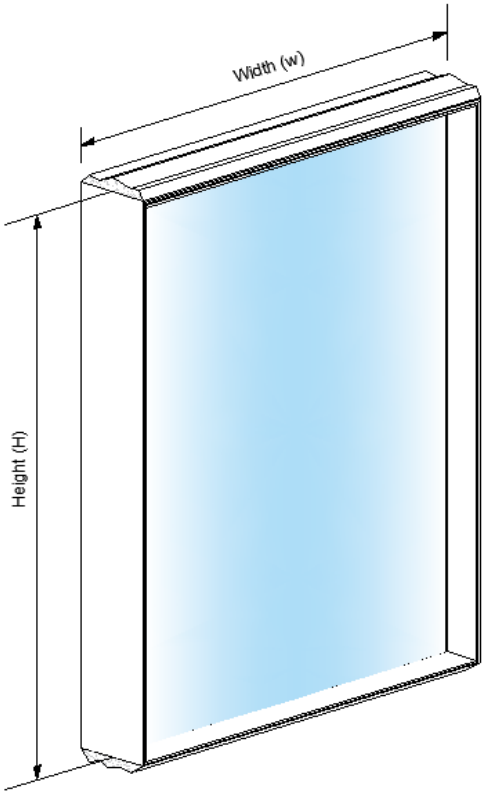


Figure 2 Illustration of a ‘punch out’ single frame installation for EI30 and EI60

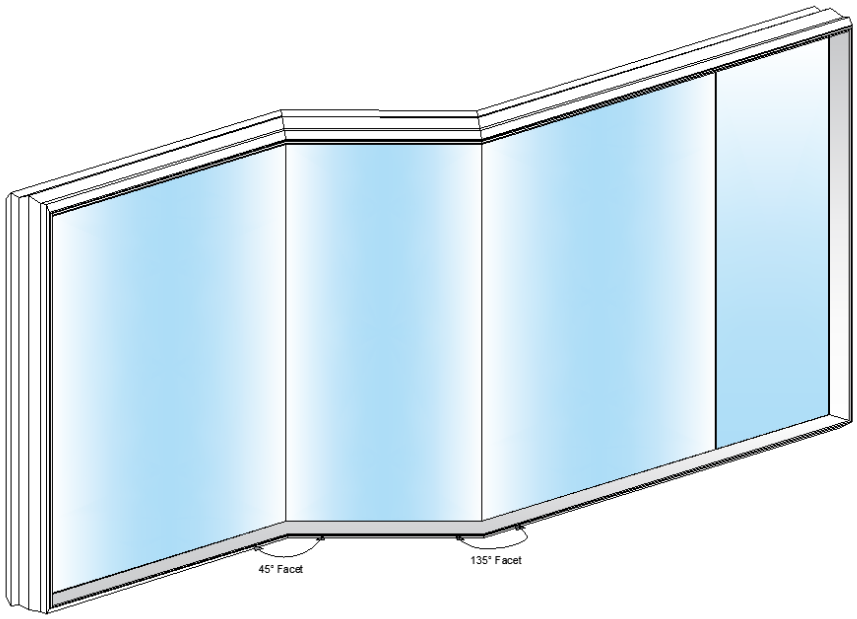


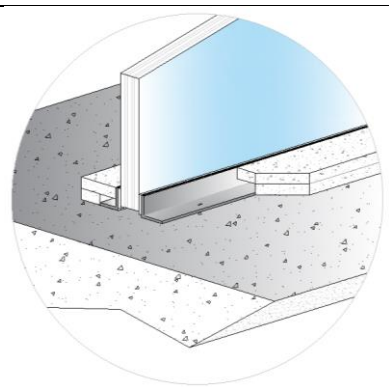
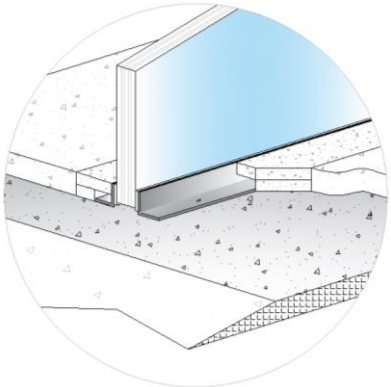
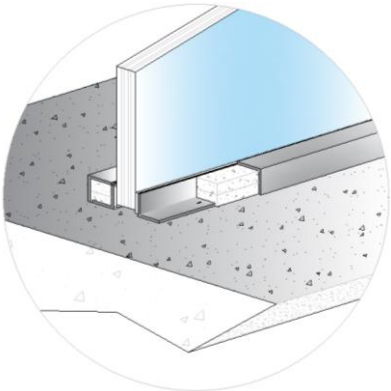
Figure 3 Illustration of a ‘faceted’ elevation installation approved only for EI30

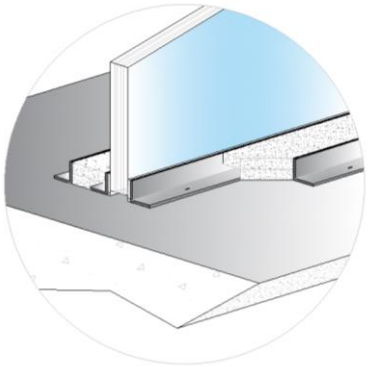
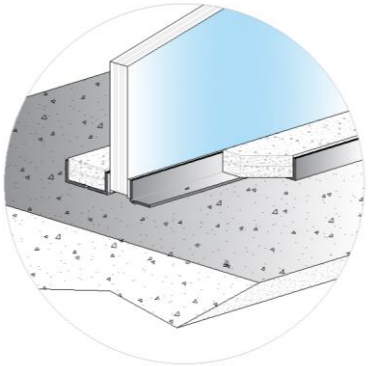
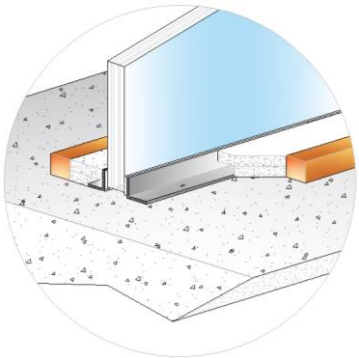
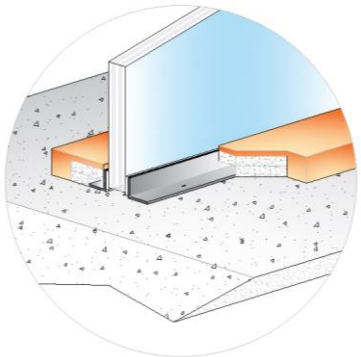
2 Introduction to the framing system

The Pyroguard Vision System is a new partition glazing system within the Pyroguard Infinity range and provides installation and aesthetic flexibility to the installer and designer with economic considerations at the forefront. The components of the system are readily available at short notice and installation is facile even within a difficult to access space.

3 Finishing options

3.1 Optional components to provide aesthetic finish

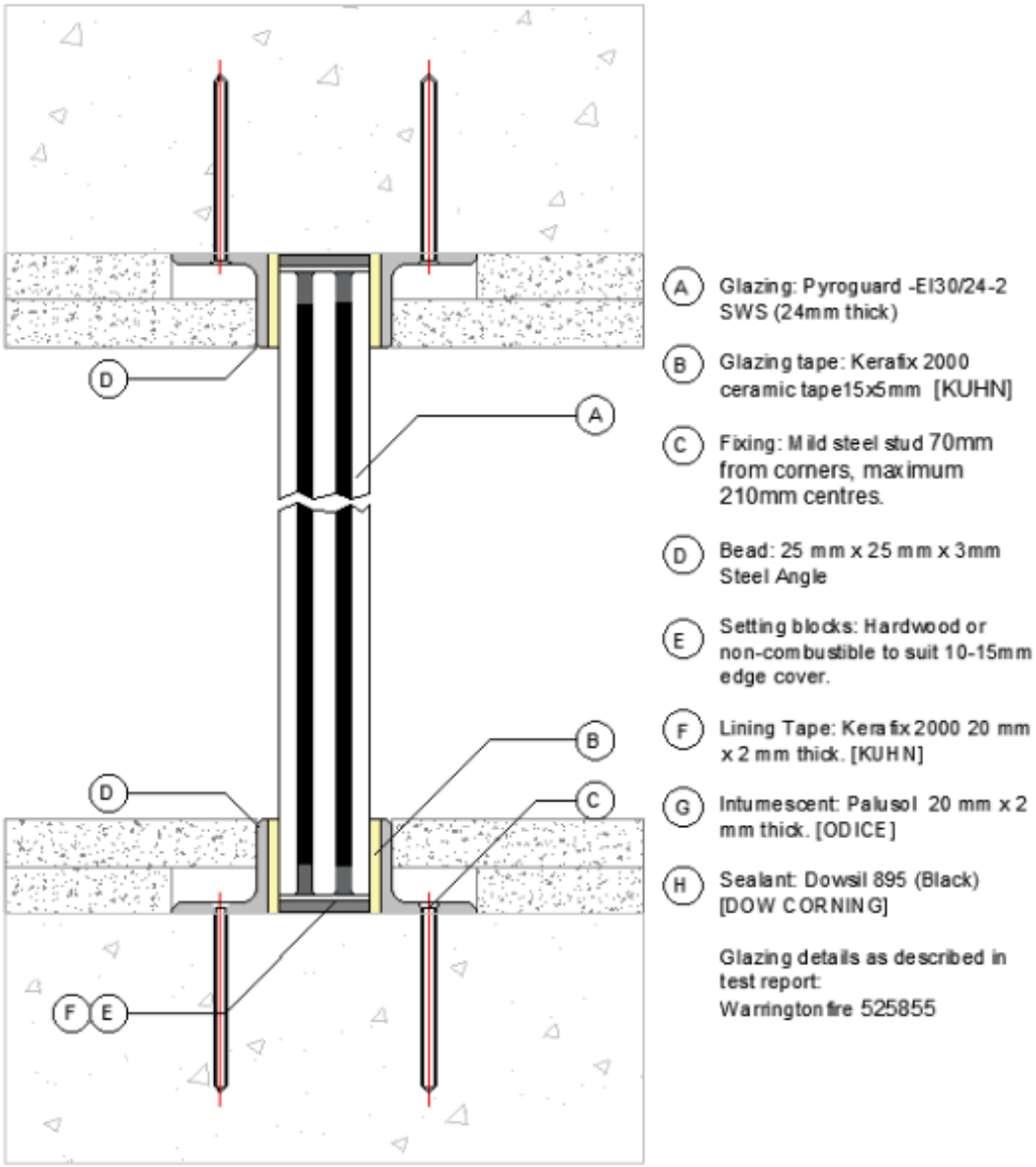
Plasterboard strips	
Plasterboard strips and concrete screed	
Plasterboard strips and steel or aluminium trim	

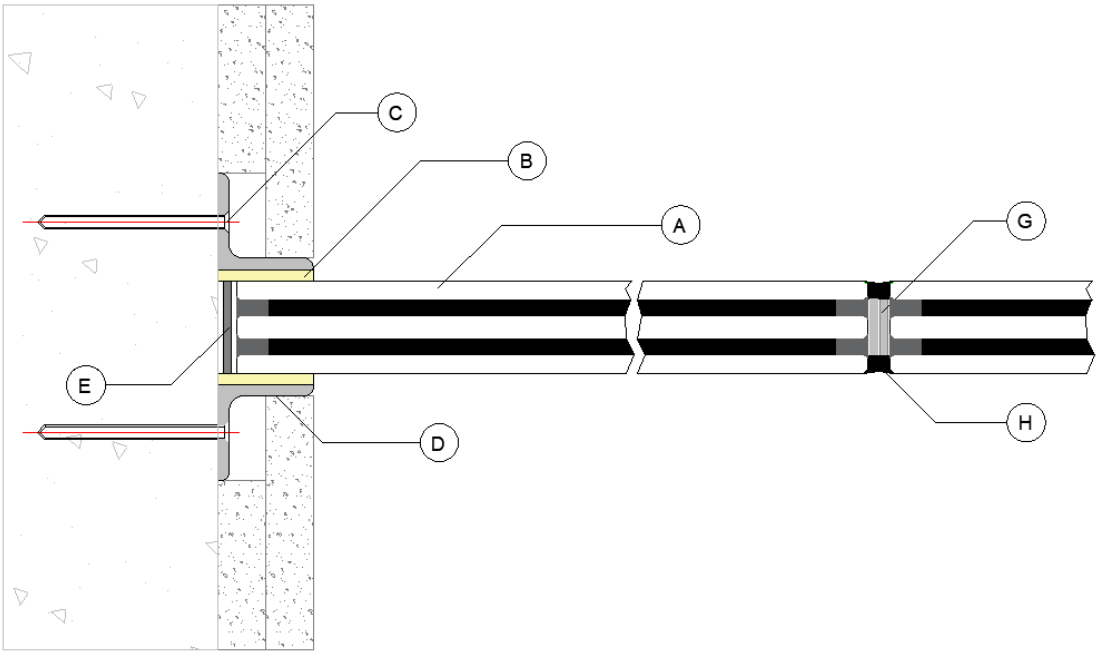
Plasterboard strips and steel or aluminium angle (with the flange of the angle bead placed on the outside)	
Plasterboard strips and steel or aluminium angle (with the plasterboards encased by the angle)	
Plasterboard strips and timber trim	
Plasterboard strips and profiled timber trim	

4 Summary of approvals

Approvals are based on test reports and interpolation according to the national rules. Installations are carried out in concrete and may be with or without the expansion head. Faceted installations are currently approved for EI30 only.

4.1 General diagram of EI30 system (illustrated without expansion head)

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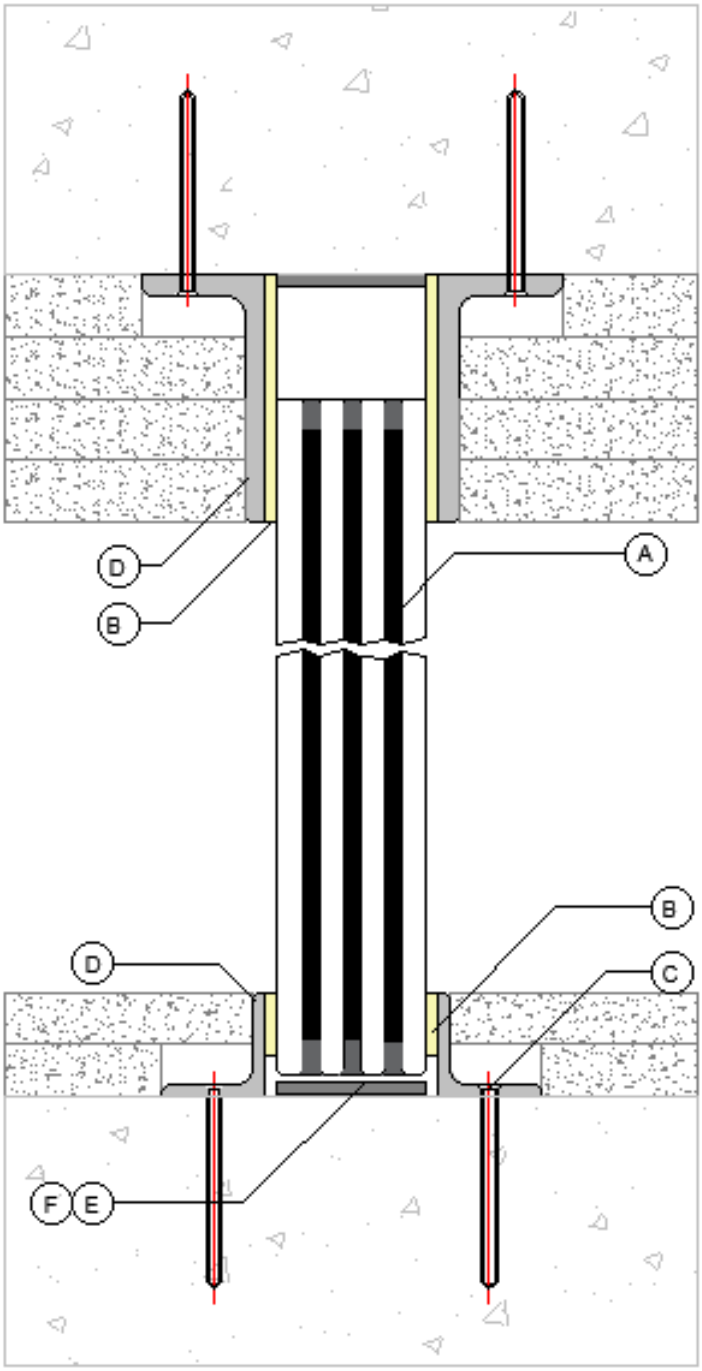
4.2 General diagram of EI60 system (illustrated with expansion head)



(A) Glazing: Pyroguard -EI60/36-3 SWS (36mm thick)

(B) Glazing tape:
- Pyrostrip CF ceramic tape15x3mm
- Pyrostrip CF ceramic tape 60 mm x 3 mm

[Mann McGowan]

(C) Fixing: Mild steel stud 70mm from corners, maximum 210mm centres.

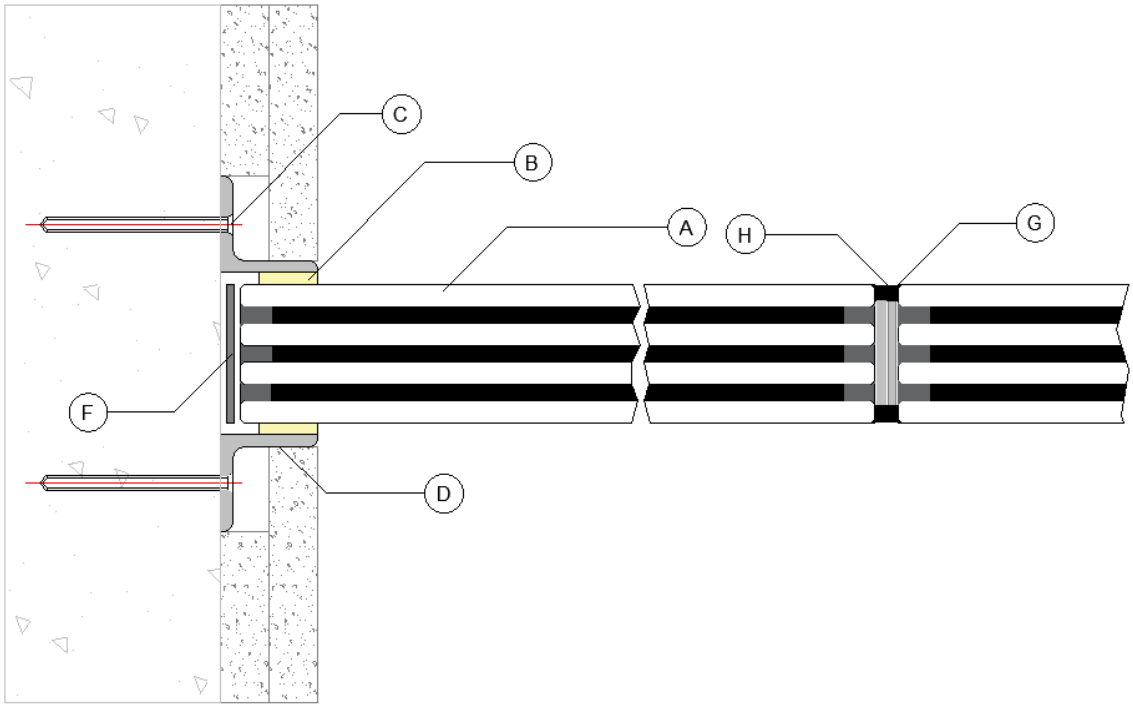
(D) Bead:
- 25 mm x 25 mm x 3 mm Steel Angle
- 60 mm x 30 mm x 5 mm Steel Angle

(E) Setting blocks: Hardwood or non-combustible to suit 10-15mm edge cover.

(F) Lining Tape: Kerafix 2000 32 mm x 2 mm thick. [KUHN]

(G) Intumescent: Palusol 20 mm x 2 mm thick. [ODICE]

(H) Sealant: Dowsil 895 (Black) [DOW CORNING]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4.3 United Kingdom Certifire approval

4.3.1 EI30 CF5024

- Pyroguard T-EI30/24-2 SWS

4.3.1.1.1 SWS screen

Width	Height	Smax M
1.800 m	3.612 m	5.46 m^2

4.3.1.1.2 Single frame

Width	Height	Smax M
1.800 m	3.612 m	5.460 m^2

4.4 EI60 European test WF543751

4.4.1.1 Glass options

- Pyroguard T-EI60/36-3 SWS

4.4.1.1.1 SWS screen

Width	Height	Smax M
1.500 m	2.973 m	4.460 m^2

4.4.1.1.2 Single frame

Width	Height	Smax M
1.500 m	2.973 m	4.460 m^2

4.5 Process-Verbal approval Efectis, France

4.5.1 EI30 EFR-24-001061

4.5.1.1 Glass options

- Pyroguard T-EI30/24-2 SWS

4.5.1.1.1 SWS screen

Width	Height	Smax M
1.800 m	3.612 m	5.400 m^2

4.5.1.1.2 Single frame

Width	Height	Smax M
1.800 m	3.612 m	5.400 m^2

4.5.1.2 Glass options

Pyroguard T-EI30/32-2 SWS

4.5.1.2.1 SWS screen with straight, and 0-180° angle option

Width	Height	Smax M
1.800 m	4.080 m	6.200 m^2

4.5.1.2.2 Single frame

Width	Height	Smax M
1.800 m	4.080 m	6.200 m^2

4.5.1.3 Glass options

- Pyroguard T-EI30/32-2 SWS VI fire both directions

4.5.1.3.1 SWS screen

Width	Height	Smax M
1.800 m	3.444 m	6.200 m^2

4.5.1.3.2 Single frame

Width	Height	Smax M
1.800 m	3.444 m	6.200 m^2

4.5.1.4 Glass options

- Pyroguard T-EI30/32-2 SWS VI with the counterpane on the fire side

4.5.1.4.1 SWS screen

Width	Height	Smax M
2,454 m	3,444 m	7,100 m^2

4.5.1.4.2 Single frame

Width	Height	Smax M
2,454 m	3,444 m	7,100 m^2

5 Installation of SWS glazing

5.1 Introduction

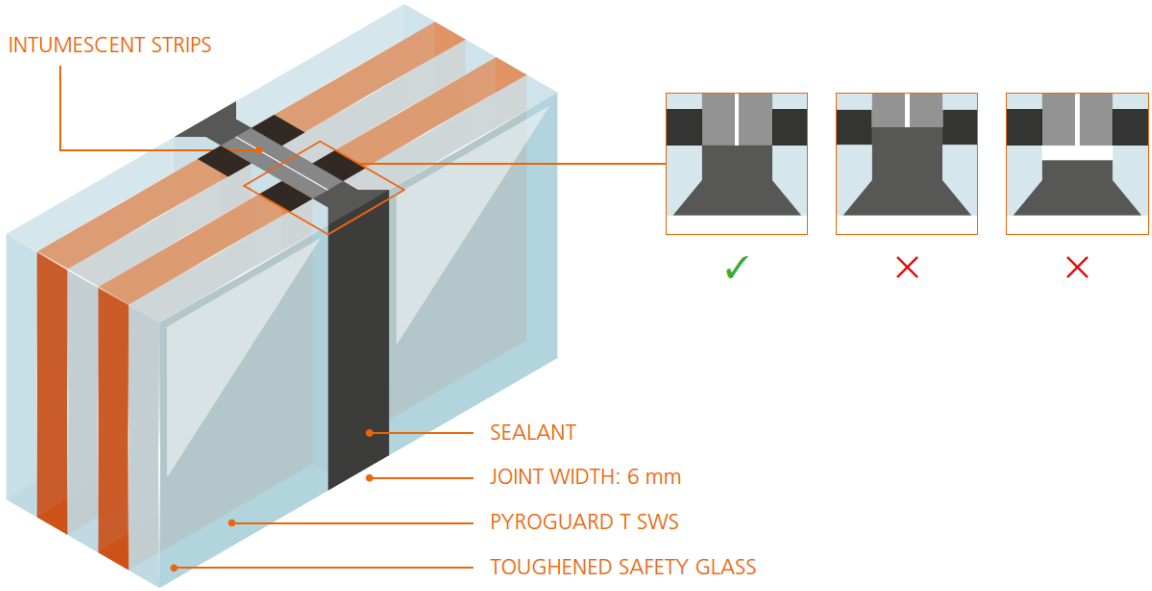


Figure 3 Installation of Pyroguard T SWS

5.2 Choosing sealants

The sealants listed in these documents cannot be substituted for near equivalents unless a specific choice of sealant has been approved. In this case, choose the sealant most suitable to the installation site.

5.2.1 Dow Corning 895 High Quality Structural Glazing Sealant

One component silicone sealant for structural glazing. Designed specifically for the structural bonding of glass, metal, and other building components. Meets the newly developed European standards for structural glazing application, as developed by EOTA. Excellent adhesion. Odourless and non-corrosive cure system. One-component product resistant to ozone and temperature extremes. It is supplied in a single cartridge and it is available in black, white and grey.

5.3 Two cloth cleaning method (ref ‘Dow Corning Americas Technical Manual’)

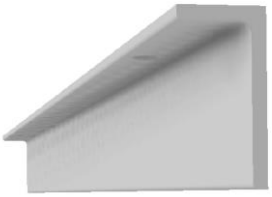
“Two-Cloth” cleaning method – clean, soft, absorbent, lint-free cloths, along with the appropriate choice of solvent, must be used to remove excess sealant from the substrate surface. The “two-cloth” cleaning method consists of a solvent wipe followed by a dry cloth wipe to lift and remove the solvent and contaminants suspended in the solvent. Multiple cleanings may be required to properly clean a substrate.

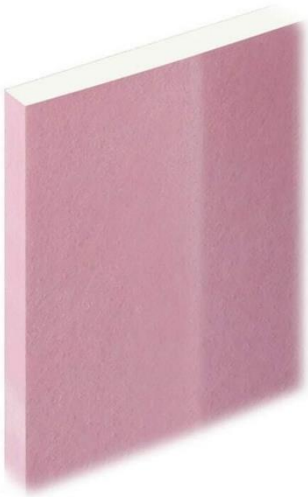
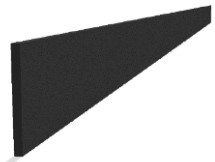
1. Pour or dispense an acceptable cleaning-grade solvent onto the cloth. A plastic (solvent-resistant) squeeze bottle works best for organic cleaning solvents. Do not dip the cloth into the container of solvent, as this will contaminate the cleaning agent.

2. Wipe vigorously to remove contaminants. Check the cloth to see if it has picked up contaminants. Rotate the cloth to a clean area and re-wipe until no additional dirt is picked up.

3. Immediately wipe the cleaned area with a separate clean, dry cloth before the solvent has evaporated. This technique will allow dirt and contaminants suspended in the solvent to be lifted and removed with the second dry cloth. Multiple cleanings may be required to adequately clean a substrate. Organic solvents must be removed with the dry cloth before the solvent evaporates or the cleaning will be less effective. Some surfaces or weather conditions will allow a small amount of residual organic solvent to remain. If this is the case, the surface must be allowed to dry before continuing with the sealant installation.

6 Component list

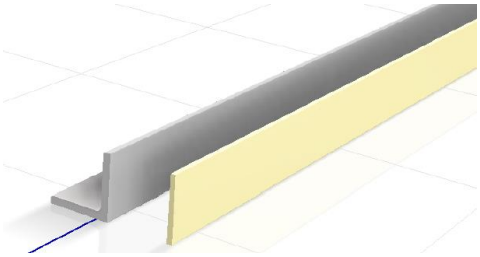
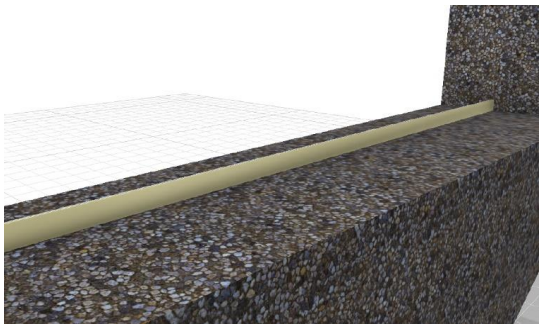
		Fire Rating	
	Illustration	**EW30/EI30**	**EW60/EI60**
Glazing		T-EI30/24-2 SWS (24 mm) T-EI30/32-2 SWS (32 mm)	T-EI60/36-3 SWS (36 mm)
Steel angle		25 x 25 x 3 mm (length of angled steel can be chosen to aid installation)	25 x 25 x 3 mm (length of angled steel can be chosen to aid installation)
Optional steel angle expansion head		60 x 30 x 5 mm	60 x 30 x 5 mm
Fixing screws		Easydrive TC CSK Concrete screws 7.5 x 80 mm or equivalent	Easydrive TC CSK Concrete screws 7.5 x 80 mm or equivalent

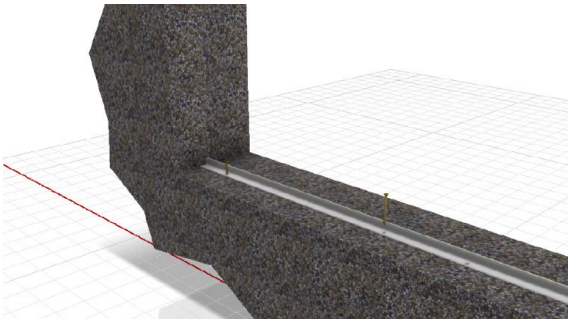
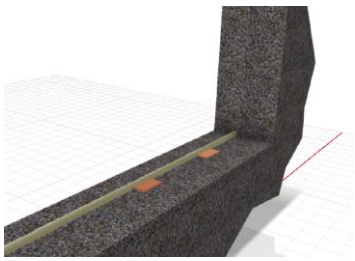
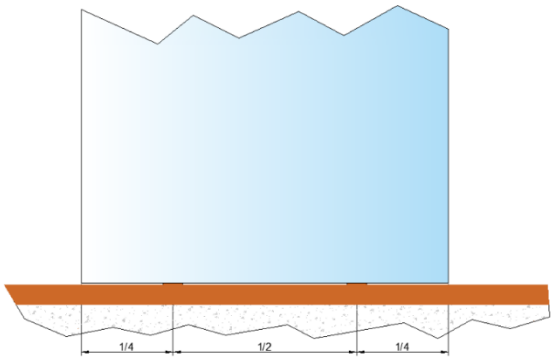
Plasterboard facing		Gyproc Fireline 12.5 mm [British Gypsum] or equivalent	Gyproc Fireline 15 mm [British Gypsum] or equivalent
Glazing tape lower		Kerafix FXL 200 20 x 3 mm [KUHN]	Pyrostrip CF [Mann McGowan] or Kerafix 2000 [KUHN] 15 x 3mm
Glazing tape side		Pyrostrip CF [Mann McGowan] or Kerafix 2000 [KUHN] 15 x 3 mm	Pyrostrip CF [Mann McGowan] or Kerafix 2000 [KUHN] 15 x 3 mm
Glazing tape upper [when using expansion head]		Pyrostrip CF [Mann McGowan] or Kerafix 2000 [KUHN] 15 x 3 mm	Pyrostrip CF [Mann McGowan] or Kerafix 2000 [KUHN] 60 x 3 mm
Glazing tape upper [when not using expansion head]		Pyrostrip CF [Mann McGowan] or Kerafix 2000 [KUHN] 15 x 3 mm	Pyrostrip CF [Mann McGowan] or Kerafix 2000 [KUHN] 20 x 3 mm
Glazing rebate perimeter		Flexpress 100 20 x 2 mm [KUHN]	Pyrostrip CF 32 x 2 mm [Mann McGowan] or Kerafix 2000 32 x 2 mm (KUHN]

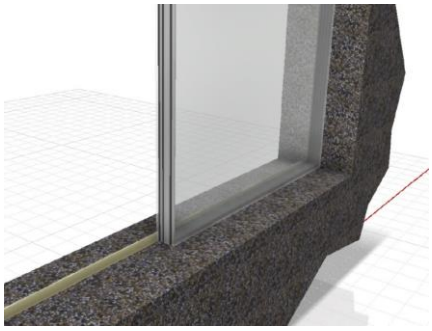
Silicone seal capping		Kerafix Fire Rated Silicone [KUHN]	Kerafix Fire Rated Silicone [KUHN]
Glass joint intumescent		Palusol 100 [Mann McGowan, Odice]	Palusol 100 [Mann McGowan, Odice]
Glass joint structural silicone seal		DOWSIL 895 [DOW CORNING]	DOWSIL 895 [DOW CORNING]
Setting blocks		Hardwood packing shims, 100 x 30 x 1, 2, 5 mm	Hardwood packing shims, 100 x 30 x 1, 2, 5 mm

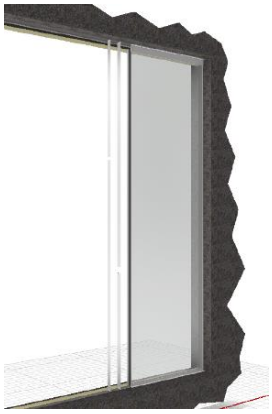
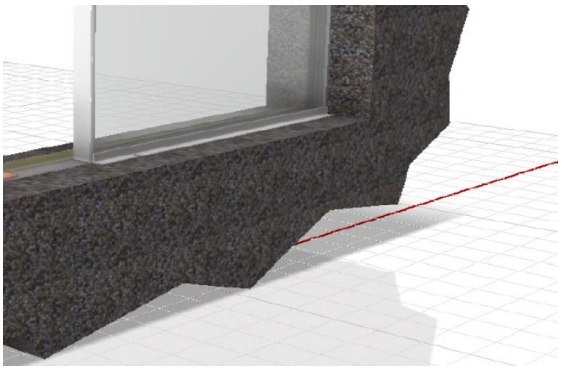
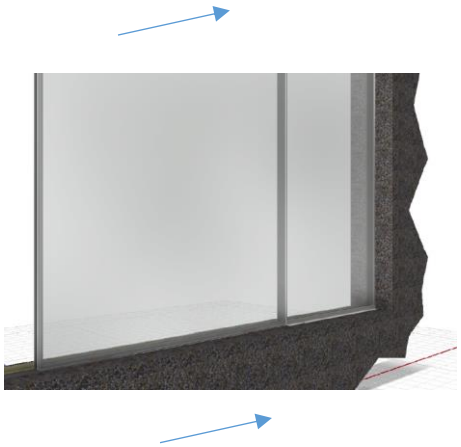
7 Installation procedure

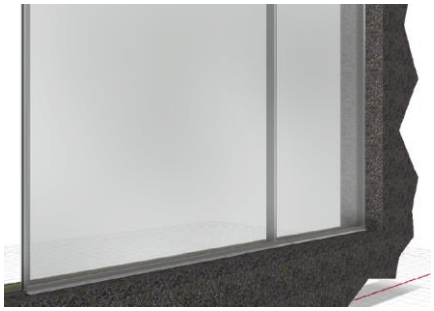
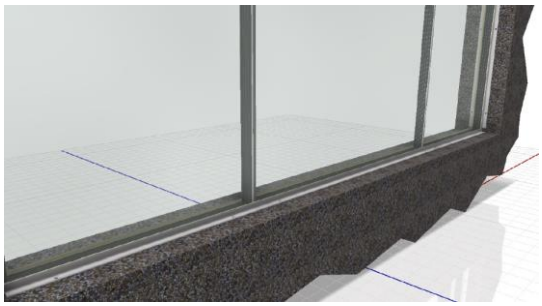
Installation should be carried out by experience or trained glaziers. It is not suitable to construct alone and appropriate safety measures should be put in place before beginning work including the use of lifting equipment and appropriate PPE.

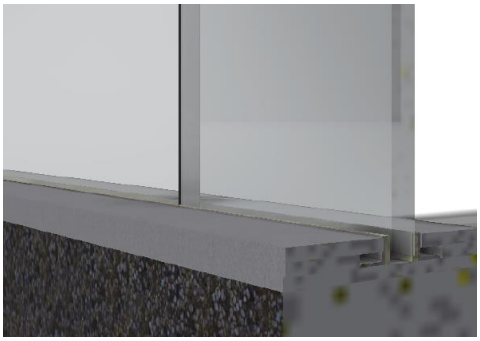
1. Check all parts are present and are as they should be. 2. Check glass sizes and ensure the glasses are stored in the sequence you need for installation. 3. Thoroughly clean all glass edges to be sealed. Remove any excess sealant on the perimeter of the glass, this could prevent the glass from sitting flush and horizontal. Clean glass faces with white spirit or isopropanol.	
4. Clear and prepare installation area ready for the build. 5. Check levels to ensure base angles will sit flush and level. Glass will need to be horizontal as joints of adjoining glasses are required to be parallel. 6. Apply the required tapes to the horizontal support angles.	
7. Any angle spanning more than one glass must be installed first. Align and level the angle in position.	

8. Anchor the angle into place using Easydrive tx concrete screws or approved equivalent, 7.5 x 80 mm.	
9. Prepare the upper angle ready for application. Apply the required intumescent and or ceramic tapes.	
10. Apply the upper angle, ensuring the glass will rest with the glass top sitting centrally on the angle, this will allow for live load movement.	
11. With the rebate tapes secured, position the setting blocks ensuring the glass will be correct. Position the setting blocks at quarter points.	
12. Only ever use 2 setting blocks per pane, this ensures the panes do not rock	

13. An adhesive sticker placed on the glass indicates that this corner must be glazed this side down. For warranty reasons, it is imperative to follow this instruction. Glaze the Pyroguard glass with the stamp installed at the bottom edge as the sticker indicates.	
14. Load the glass into position. Ensure the glazing is sitting level and vertical joints are perpendicular do the floor. Adjust the glass with setting blocks, trying to keep a minimum of 20 mm edge cover. 15. Secure the glass ready to proceed.	
16. With the glass secured, it is now time to fit the top and bottom angles in place. 17. Be careful to ensure that the angle does not pass the joint and expose the steel past the glass edge, the adjacent panel will need to be slid into position, therefore care is needed to try and prevent glass to metal contact. Prevention of glass to metal contact is always a priority when glazing an installation. 18. Securing the top angle in place first will make the fitting of the lower angles more secure.	 

19. The next step is to prepare the joint protection, in the illustration we use Palusol 100. 20. Palusol should have staggered joints as shown and be applied to the edge of adjoining glass. They should also sit centrally on the glass.	
21. Place setting block for the next glass to be installed. Trim any liner to allow the setting block to sit flush on the floor. 22. Note for sequence of glass installation my vary due to the unit size and available access.	
23. Load the next glass into position. Ensure the glazing is sitting level and vertical joints are perpendicular to the floor. Adjust the glass with setting blocks, trying to keep a minimum of 20 mm edge cover. 24. Pull the glass panel together. Check to ensure the joints are tight and parallel. 25. Check the joints between glass are vertical and parallel. If the glasses are not flush, adjust using setting blocks. 26. Clamp the glass with the trigger clamps and prepare the top and bottom angles for fittings.	 

27. Fit the upper and lower angles. 28. Move to the next panel and repeat the installation process.	
	
29. With the glass in position, the vertical angles will need to be installed. Both internal and external angles are the same size and have the same tapes, therefore the order of installation can be chosen by the installer.	
30. With the system installed, the next step is to apply the structural silicone. Guidelines of application will be listed on the DC895 datasheet. A minimum of a 6 mm thick bead shall be applied.	

31. The last step before cleaning for handover is the application of plasterboard panels with the desired finishes.	
	

8 Disclaimer

The configurations mentioned in these documents shows materials/products that Pyroguard UK Ltd has successfully used in its own fire tests. Nevertheless, Pyroguard UK Ltd does not guarantee durability, tightness, fitness, or quality of the joint when using the shown materials/products. Pyroguard UK Ltd highly recommends that customers carry out their own tests to verify the durability, tightness, fitness, or quality of the joint.

Pyroguard's Technical brochure summarises the approved glazing, glazing dimensions and approved framing system/glazing assembly. All dimensions are given in millimetres (mm) unless otherwise stated. All glass dimensions are given width first and height second. All glass sizes are maximum allowable dimensions and either/both dimensions may be reduced but not increased. Where a 'max area' is shown the glass size may be taken to the maximum dimension in either width or height as long as the size used for the second dimension does not take it above the maximum area allowed. Where no maximum area is shown then both dimensions may be taken to the maximum allowed.

To fully comply with the approval, the original document referenced should be studied. All components of the glazing assemblies installed must be as described in the original test reports, classification reports, national approvals, global assessments, or other certification. If there is an option given in the assembly drawing for any of the components used in the glazing assembly then only the options given can be used.

Pyroguard's Technical brochure is provided for information purposes only. The information contained in this document is offered for assistance in the applications of Pyroguard UK Ltd.'s products. Pyroguard UK Ltd may change the contents hereof without notice. The document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. Pyroguard UK Ltd specifically disclaims any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document. The technologies, functionality, services, and processes described herein are subject to change without notice. Pyroguard's Technical brochure is only valid for one year after publication.

Please contact your Pyroguard representative to receive the latest edition of the Technical brochure.

9 Warranty

Pyroguard UK Ltd. warrants that its products will be free of substantial obstruction of vision from dust or other foreign substances due to defective materials or workmanship for a period of ten years from the date of delivery. Full details of the Limited 10-year warranty are available on request.

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