

Pilkington Pyrostop[®]
Pilkington Pyrodur[®]



Glazing and Handling Guidelines for Fire-resistant Glazing

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Important Note:

This publication provides general guidance on the handling and installation of Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®]. It is the responsibility of the user to ensure that the installation is appropriate for the application and that the application complies with relevant local and national legislation, standards, codes of practice or other requirements covering the use of fire-resistant glasses and fire-resistant glazings respectively. Consideration of the Pilkington handling and glazing guidelines on no account releases

users from their obligations in ensuring that any such regulatory requirements are met.

These glazing guidelines alone are not sufficient to ensure that the installation achieves its stated fire resistance performance. In all cases Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] must be installed as part of a fire-resistant system, tested and approved according to the appropriate regulations, as applicable.

1.0 General Product Advice

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] are high performance, clear multi-laminated fire-resistant glasses, composed of alternate sheets of annealed glass and a special glassy interlayer which intumesces on exposure to fire. In the event of fire, the glass pane facing the fire cracks and the first interlayer foams evenly to provide a uniform barrier against fire, hot gases and heat. In products with more than one interlayer, the interlayers intumesce progressively in turn as heat travels

gradually through the structure. The whole laminate bonds together to give a resilient, tough and opaque shield against fire, hot gases and heat.

It is because Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] are special fire-resistant laminates, which differ in certain respects from other float glasses and laminates, that attention needs to be given to certain basic guidelines in their handling and use.

2.0 Framing

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] must only be used as part of an approved fire-resistant system – that is, the glass in a purpose-designed frame together with the associated glazing materials and fixings to the surrounding structure. The system as a whole has to be approved as an integral fire-resistant assembly, and the frame must be of the same equi-

valent fire rating as the glass, as appropriate.

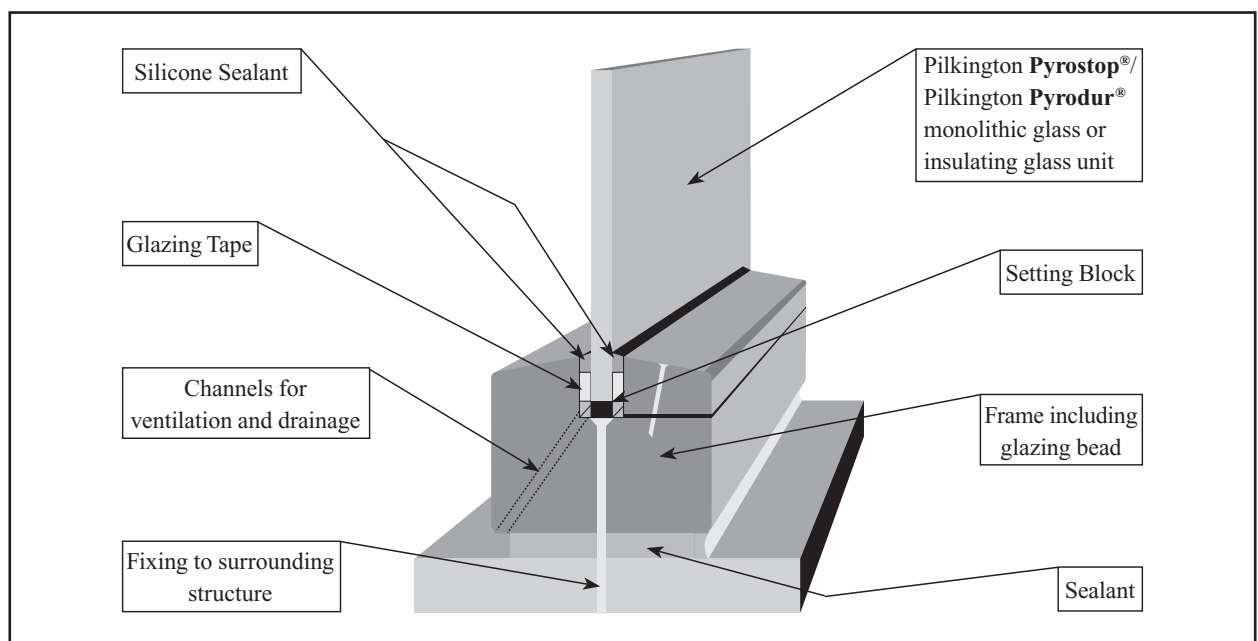
For insulating glass units the designed deflection of the unit in its frame under the maximum potential design load should be no more than the span of the glass unit in mm divided by 300, or 8 mm, whichever of these two numbers is the lower.

3.0 Glazing Examples – Principles

The principles that apply in the glazing of Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] in fire-resistant frames are shown in

figures 1 and 2. Examples are shown in a representative timber fire-rated system.

figure 1: Glazing Materials and Components



For details specific to particular approved systems and framing materials, users must always refer to the specific approval report, in each and every case.

In all cases, the glazing rebate must be free of any loose material before and after glazing, and the glass must be framed along all edges. Suggested locations for setting blocks and drainage channels for external frames are shown in figures 3 and 4.

figure 2: Glazing Principles - Illustration

Example: hardwood frame

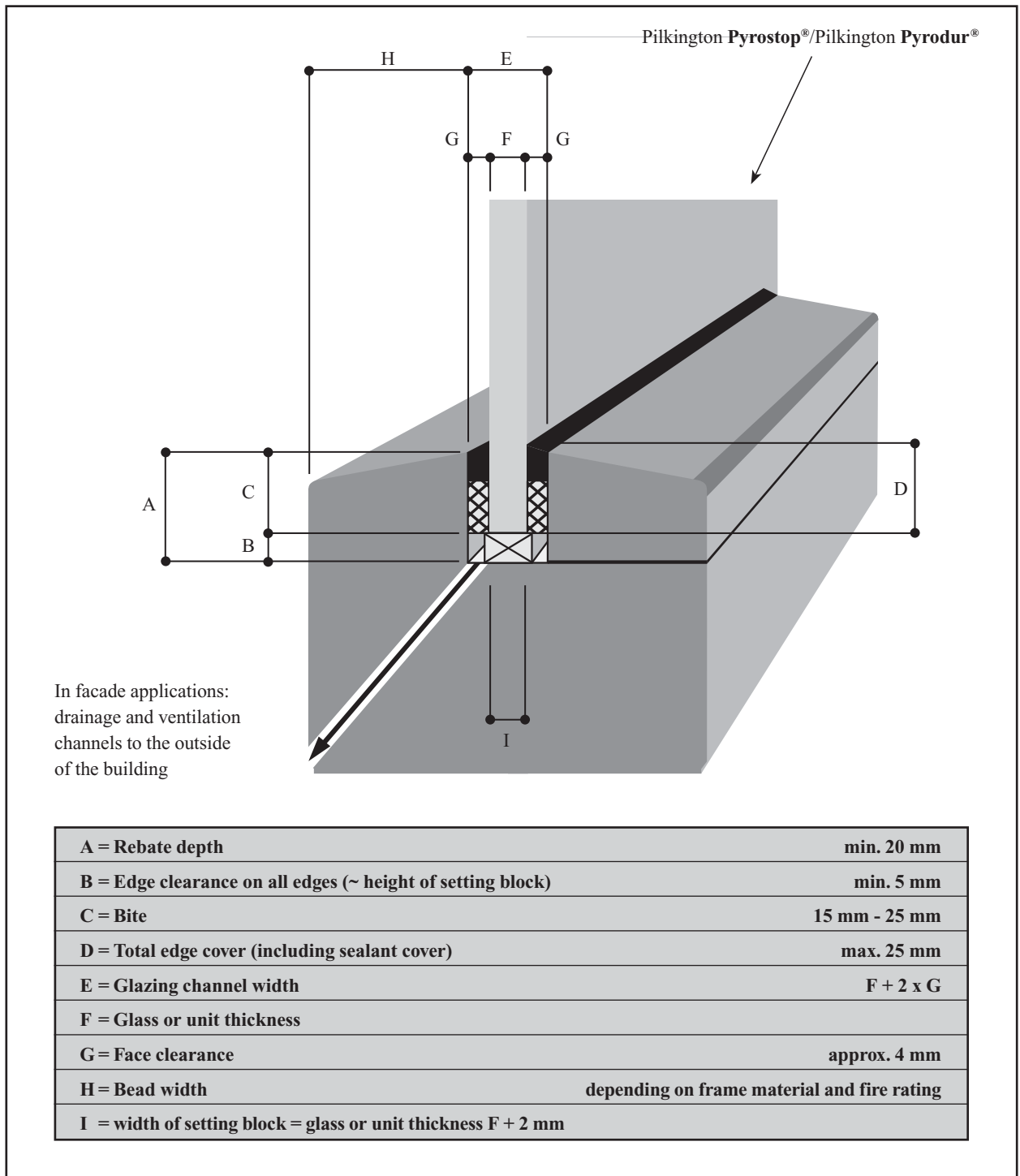


figure 3: Suggested Location of Setting Blocks

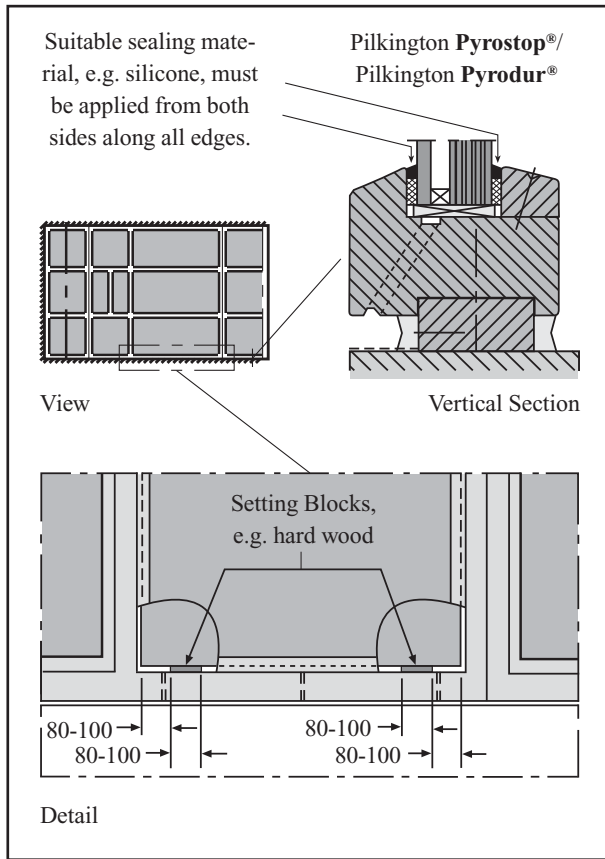
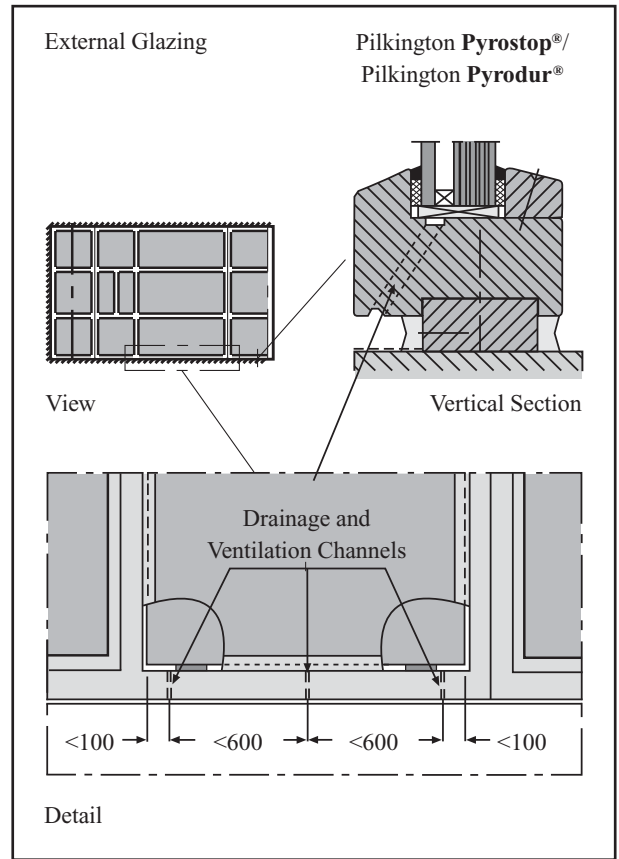


figure 4: Suggested Location of Drainage Channels



It is expected that best defined general glazing practice will be followed according to appropriate standards and guidelines.

4.0 Important Glazing Details

4.1 General Guidance

All glazing beads, glazing tapes, strips or channels, sealants and setting blocks should be used as specified in the appropriate approval document for the particular system being used.

We usually recommend that only hardwood setting blocks be used, suitably treated against humidity, in the sizes and positions as normally used for glazing. Other options may also be available in some tested systems as approved.

4.2 Glazing Pressure

It is not necessary to put heavy pressure on the glass through the glazing beads, sealing profiles or glazing tapes.

The glazing pressure on the glass edges should be low and

Glazing tapes should be non-combustible and flexible.

Non-combustible silicone capping sealants are recommended, and the seal between glass and frame should be fully continuous, without breaks, along the full edge of the glass and frame.

Any direct contact between the glass and the frame material, or between glass and glass, is not allowed under any circumstances.

uniform, no greater than 20 N/cm edge length at the border of the pane. Point loading is not permitted.

4.3 Edge Protection Tape

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] monolithic glasses and insulating glass units are supplied with a special edge protection tape which has been specifically tested by Pilkington for resistance against water as liquid and vapour. This tape has been especially selected on the basis of its performance in these tests. The edge tape is an integral part of the product as supplied. Insulating glass units also have a second tape for further protection during handling.

This tape must not be removed or tampered with, either temporarily or permanently. It must not be replaced by any other tape. If the edge tape should be damaged then do not install the glass and please at first contact your local Pilkington representative for guidance.

When glazed, the edge of the tape should be sufficiently covered and not extend beyond the sealant or the sealant profiles.

5.0 Applications

5.1 Facade

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] supplied for use in a facade carry a label applied to the glass which gives specific instructions as to the installation orientation. The glass must be installed in accordance with these instructions.

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] for a facade application must be installed in a frame system specifically designed for this application. Normally this will require that the system is a drained and ventilated framing system designed for external use.

As standard for the installation of insulating glass units, the drain system of the frame must allow ventilation as well as the

collection, and ready removal, of any condensed moisture to the dryer side, depending on climatic conditions.

When glazed, there should be a free gap of at least 5 mm between the underside of the glass unit and the base of the glazing channel.

It is important to check that free drainage is not inhibited by blockage of the drain holes or channel by glazing, sealing or any other materials, at any time. This includes normal maintenance inspection of the frames to ensure that the drain holes remain unblocked.

5.2 Special Internal Situations

If the potential application is one where the conditions could be different from those normally expected for internal glazing situations, then advice should be sought from Pilkington specialists in the early stage of the planning process. Examples

could be high humidity situations (such as swimming baths), direct exposure to high intensity sunlight (e.g. direct location immediately below a glazed roof or close to a glazed facade), or exposure to intense artificial light or heat sources.

6.0 Product Identification

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] glasses and units are supplied with a specific identifying brand mark near to one corner stamped on the fire-resistant glass pane. Information required by national legislation has to be

considered for the design of this brand mark. The Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] brand marks must not be covered or removed. They must also remain visible after installation.

7.0 Transportation, Storage, Handling and Maintenance

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] must be kept dry and not be exposed to temperatures outside the range -40 degree C to +50 degree C. This applies at all times, including storage, handling, transport, temporary storage on site during construction, installation and normal use after installation, otherwise there may be some slight visible change in appearance. Considerations in this respect, for example, may include the likelihood of direct exposure to localised heating

7.1 Storage

Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] must be stored in dry conditions, stacked upright – at an absolute maximum 6 degree declination from the vertical – fully supported on suitable racks in a manner, and on a firm surface, that prevents the glass from sagging. The bottom of the glass or units must

7.2 On-Site

Under no circumstances must Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] be left exposed to direct sunlight and local weather.

The glasses must not be left temporarily held in frames without fixing of the glazing beads and completion of the capping silicone sealant.

If installed before the external facades have been fully completed, then Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] must

7.3 Handling

At all times the correct handling equipment and procedures must be applied in consideration of the weight of the Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] monolithic glasses or insulating glass units being installed. The glass or units should be carefully placed in the framed opening without tilting or

7.4 Maintenance

It is the responsibility of the user to ensure that normal maintenance is carried out after installation.

Normal practice applies as for standard glazing, especially to ensure that the glazing sealant system remains in good condition

or intense lighting sources inside a building which could cause the temperature of the glazing to stay above 50 degree C during use. This consideration also applies to applications in a facade, including the use of surface film, if prolonged exposure to direct solar heating is likely to keep the temperature of the unit above 50 degree C. Such cases need to be considered individually. In these cases seek the advice of a Pilkington specialist in the early stage of the planning process.

be evenly in contact with the support surface along the entire length.

Stacked glasses or insulating glass units should be separated by soft pads, such as cork.

be fully protected temporarily until the facade is complete.

It is also not acceptable practice to install the Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] monolithic glasses or insulating glass units in frames that have been left exposed to weather. The installation conditions and the frames must be dry throughout the entire glazing.

The sawing or modification of delivered Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] glasses is not permitted.

sliding. Pilkington would draw the attention of those responsible for handling the glasses to consider this factor, but responsibility for ensuring that the correct procedures are in place on site, or in the place of assembly, and that safe practice is followed, rests with those handling or installing the glass or units.

and water tight. The drain and ventilation holes in external framing systems must also be kept clear.

Normal cleaning solutions and procedures may be used as generally recommended for glazing.

Whilst this document was prepared, and is presented, in good faith, Pilkington hereby disclaims all liability howsoever arising from any error in or omission from this publication and for all consequences of relying on it.

For detailed design, handling or specification information regarding particular applications of Pilkington **Pyrostop**[®] and Pilkington **Pyrodur**[®] Pilkington recommend that you contact your local Pilkington representative for specific advice.



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