



The Pilkington Fire Resistant Glass Range.



PILKINGTON

Tried, tested
and trusted.

Pilkington. The name to trust in fire protection.

Pilkington has been at the forefront of fire resistant glass innovation since 1896, when we first introduced wired glass, now known as Pilkington Pyroshield™. Since then, we've developed a range of products which combine extremely high levels of fire resistance with the all-round benefits of high performance glass.

Such qualities are exemplified by Pilkington Pyroshield™, Pilkington Pyrodur™ and Pilkington Pyrostop™, which all provide outstanding performance, even under the most extreme circumstances. Indeed, our ongoing commitment to technical innovation, product testing and product improvement ensures that Pilkington Fire Resistant Glass is amongst the most tried and tested available.

Fire integrity and insulation.

Integrity

The ability of a glazing system to keep back flames, smoke and hot gasses, with no flaming on the non-fire side for the duration of the test period.

Insulation

The ability of a glazing system to restrict the temperature rise of the non-fire side to below specified levels for the duration of the test period.

Pilkington Pyroshield™

Pilkington Pyroshield™ is a monolithic, wired, safety glass that provides integrity-only fire protection, even in softwood frames. It is manufactured as Pilkington Pyroshield™ Clear, for visual clarity, and Pilkington Pyroshield™ Texture, for privacy or obscuration. The manufacturing process involves feeding a wire mesh between two pieces of semi-molten glass, so that it lies centrally within the heart of the glass. The sandwich of glass and wire then passes through a set of rollers, which apply a pattern to one surface. After cooling, this translucent form of glass can have both



Pilkington Pyrostop™ Caberboard HQ in Devon.

sides ground and polished to produce a wired glass with clear visual quality.

Two forms of glass are manufactured by this process: standard wired glass and an impact safety version which uses mesh with a thicker gauge of wire. Both forms are available in the translucent version, Pilkington Pyroshield™ Texture and Pilkington Pyroshield™ Safety Texture. Or alternatively, with the clear polished finish, Pilkington Pyroshield™ Clear and Pilkington Pyroshield™ Safety Clear.

The range boasts many benefits:

- Restricts the spread of flames, smoke and hot gases, achieving up to 120 minutes integrity in specialist steel frames.
- Achieves up to 60 minutes integrity in softwood frames.
- Maintains integrity even when fractured or sprayed with water.
- Readily available and easy to handle, stock and cut.
- Suitable for internal and external applications.
- The safety version also achieves impact safety to Class C to BS 6206.

This product has been manufactured for more than 100 years, but to this day it remains the best-selling glass for fire resistance, thanks to its long track record and the fact that it offers real value for money.

Pilkington Pyroshield™
St Mary's & St. Thomas Church
of England School, St Helens.



Pilkington Pyrodur™

Pilkington Pyrodur™ is a clear multi-laminate fire resistant glass, consisting of layers of glass laminated with intumescent layers. These expand and turn opaque when exposed to heat, forming an effective barrier to smoke, heat and flames. As such, the glass provides integrity and partial insulation with impact safety for doors and screens.

Some of the many benefits;

- 10mm Pilkington Pyrodur™ – containing one intumescent interlayer and one ultra-violet protection interlayer, achieves 30 minutes integrity and gives a Class B impact performance to BS 6206.
- 13mm Pilkington Pyrodur™ – containing 2 intumescent interlayers and one ultra-violet protection interlayer, achieves 60 minutes integrity and gives Class A performance to BS 6206.
- Partial heat insulation which facilitates evacuation through doors and escape corridors without panic.
- Use in both internal and external applications.
- Readily available direct from Pilkington or through a national network of independent stockists.

Pilkington Pyrostop™ balustrades.
Broadwalk Pub, Blackpool.



Pilkington Pyrodur™ *The Corn Exchange, London.*

Pilkington Pyrostop™

Pilkington Pyrostop™ is a clear multi-laminate fire resistant glass, which not only retains its integrity, but is heat insulating as well. As a leading fire resistant glass, it combines a high level of fire and impact protection with flexibility of application. With its aesthetically pleasing appearance, it provides the clear alternative to a solid wall.

Some of the many benefits:

- Up to 120 minutes integrity and insulation in suitable glazing systems.
- Forms an opaque barrier against smoke, flames and heat during a fire, thereby helping to reduce panic and fear during evacuation of a building.
- Readily available direct from Pilkington or through a national network of independent stockists.
- Available in a range of thicknesses from 15 to 56 mm, offering various fire protection levels.
- Provides impact safety up to Class A to BS 6206.
- Excellent sound reduction properties.
- Can be used for internal or external glazing.

Reliable and highly versatile.

As well as being extremely reliable, all our fire products can be combined in a sealed unit with other glass types to provide visual, thermal, energy management or acoustic benefits.

Excellent performance.

An ongoing
commitment to
innovation and
improvement.

As a result of our ongoing commitment to technical innovation, product testing and product improvement, we've succeeded in creating a range of fire resistant glass that meets most specification requirements. Indeed, it is a range without equal.

To ensure that you pick exactly the right product for your application, our highly experienced specialist sales team will help and guide you from the outset.



Above:
The Boots store in Swindon chose Pilkington Pyrostop™ for its ability to provide a high level of integrity and insulation. This was especially important given that the stairway is the main escape route and requires maximum protection from any fire within the shop.

Left:
The Warner Bros. Studio Store shopfront in Chester is situated on The Rows, a public walkway which serves as an escape route in case of fire. They specified Pilkington Pyrostop™ for its ability to contain a fire within the shop, thereby allowing people to escape safely via the walkway.

Below:
Pilkington Pyrostop™ was specified for the Jubilee Line Control Centre so that, in the event of a fire in the Control Centre, the continued operation of the Jubilee Line can be ensured.



Pilkington Pyrostop™ Blackburn shopping centre.



Glazing Systems.

Glass will only perform as intended when it is properly installed with appropriate glazing materials and frame. It is also important to ensure absolute compatibility between the glass, the frames, the glazing material and the fixing. The most common framing materials for Pilkington Pyroshield™, Pilkington Pyrostop™ and Pilkington Pyrodur™ are timber or steel.

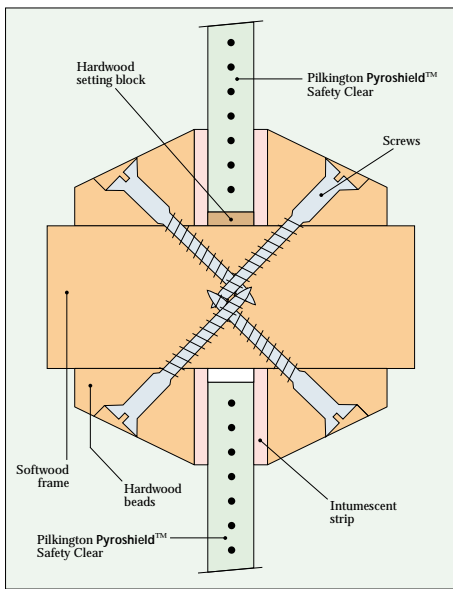


Fig. 1. Pilkington Pyroshield™ Safety Clear in Softwood Timber Screen. 30 minutes integrity. Fire Test Reference: WARRES 70068.

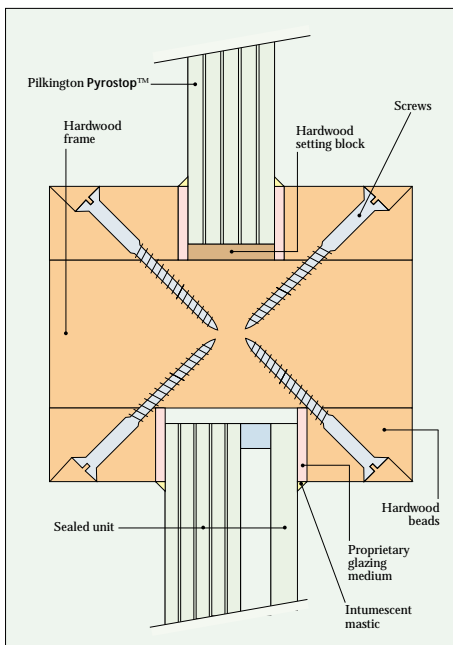


Fig. 2. Pilkington Pyrostop™ in Multi-pane Timber Screen. 60 minutes integrity and 60 minutes insulation. Fire Test Reference: C82780.

Timber frames use either hardwood or softwood. To ensure maximum integrity, the beads should be attached with long wooden screws driven at an angle. Also, the gap between the beads and the glass should be filled with an appropriate glazing material, i.e., an intumescent tape, a paste or a non-combustible glazing tape. By following such guidelines, timber frames can achieve over 60 minutes integrity. (See figures 1 & 2)

To avoid the warping normally associated with steel when it is exposed to fire, our glass is tested solely in proprietary steel framing systems. For full insulation fire resistance, a thermal insulation block is incorporated into the frame itself. The glazing materials are usually intumescent or ceramic fibre. Steel frames can achieve up to 120 minutes integrity with both Pilkington Pyroshield™ Safety and Pilkington Pyrostop™.

Note: for thermal safety, it is important to advise at specification stage if the glass is to be subject to solar radiation.

Glass must be properly installed. Glazing details appear in all our fire test summaries.



Pilkington Pyrostop™ Harvey Nichols, Knightsbridge.

Glass that combines extremely high levels of fire resistance with the benefits of flexible design.

Tests show how well it performs.

At Pilkington, we've been testing our products in every possible size, glazing system and configuration for more than 100 years. As a result, we're able to sell and recommend our products with absolute confidence. Pilkington Pyroshield™ has been comprehensively tried and tested and, as with all of our products, comfortably meets increasingly demanding safety standards in a wide variety of glazing systems.

Quality assured by testing.

The quality of our range is assured by continual development and testing. By doing so, we can ensure that our products perform to and in many cases exceed British Standards.

Furthermore, with so many different types of glass and systems available, it's almost impossible to keep up with how they all work. Consequently, fire tests are the only way to substantiate claims about their performance. At Pilkington, we test our glass in a wide range of sizes and framing materials. As a result, you can be sure that the glass type and glazing configuration you want can be confidently specified and approved.



Pilkington Pyroshield™ Safety during fire test.

But perhaps most importantly, in the event of fire, Pilkington products give people the maximum amount of time to reach safety.

Some of the tests we've passed.

Test references by application

Pilkington Pyroshield™

Steel Screen	Timber Screens	Timber doorsets
WARRES 62324	FR 1636	FR 1448
WARRES 62325	WARRES 60280	709 A
WARRES 47850	WARRES 70068	709 B
	WARRES 103033	

Pilkington Pyrodur™

Steel Screen	Timber Screens	Timber doorsets
C 80773	FR 1583	FR 1507
WARRES 68360	WARRES 60195	C 81599
	C 82442	

Pilkington Pyrostop™

Steel Screen	Timber Screens	Timber doorsets
WARRES 62326	C 81597	C 80885
FR 1198B	C 81598	
WARRES 61062	C 82781	
C 81600	C 82780	
WARRES 57295		
WARRES 46730		

For further information on the Pilkington fire resistant glass range call our technical helpline on 01744 692000.

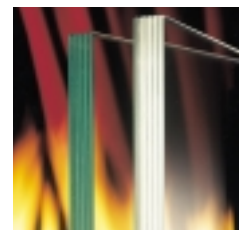


Pilkington Pyrostop™
Insulation as well as integrity.



Both sides of hotel fire door after a fire.

Product summary table.



Glass Type	Nominal Glass Thickness (mm)	Fire Resistance		Maximum Tested Size (mm) ^{1, 2, 3}	Maximum Available Size (mm) ⁴	Glass Thickness Tolerance (mm) ⁵	Sound Reduction (dB) ⁶	U-value (W/m ² K)	Light Transmittance	Approx. Weight (kg/m ²)	BS 6206 Impact ⁷
		Integrity (mins.)	Insulation (mins.)								
Pilkington Pyrodur™	10	30	16 ⁸	1400 x 2000	2010 x 3130	±1.0	34	5.3	0.87	25	B
Pilkington Pyrodur™	13	60	22 ⁸	1400 x 2000	1790 x 2050	±1.5	35	5.2	0.84	32	A
Pilkington Pyrostop™ Internal Grade	15	60	30	1600 x 2600	2010 x 3130	±1.5	38	5.1	0.85	36	B
Pilkington Pyrostop™ Internal Grade	21	60	60	1600 x 2200	2010 x 3130	±1.5	40	5.0	0.88	48	A
Pilkington Pyrostop™ Internal Grade	44 ⁹	90	90	1400 x 2000	2010 x 3130	±4.0	42	2.8	0.75	85	A/B ¹⁰
Pilkington Pyrostop™ Internal Grade	50 ¹¹	120	120	1400 x 2000	2010 x 3130	±4.0	43	2.7	0.78	97	A
Pilkington Pyrostop™ External Grade	18	60	30	1600 x 2600	2010 x 3130	±1.5	39	5.1	0.84	44	A
Pilkington Pyrostop™ External Grade	27	60	60	1600 x 2200	2010 x 3130	±1.5	42	4.8	0.87	63	A
Pilkington Pyrostop™ External Grade	47 ¹²	90	90	1400 x 2000	2010 x 3130	±4.0	43	2.8	0.74	93	A
Pilkington Pyrostop™ External Grade	56 ¹³	120	120	1400 x 2000	2010 x 3130	±4.0	45	2.7	0.77	121	A
Pilkington Pyroshield™ Clear	6	60	N/A	1760 x 3000	1985 x 3300	-0 +1.4	32	5.4	0.80	16.6	n/a
Pilkington Pyroshield™ Safety Clear	6	120	N/A	1760 x 3000	1985 x 3300	-0 +1.4	32	5.4	0.80	16.6	C
Pilkington Pyroshield™ Texture	7	60	N/A	1760 x 3000	1985 x 3500	±0.7	32	5.4	0.80	16.7	n/a
Pilkington Pyroshield™ Safety Texture	7	120	N/A	1760 x 3000	1985 x 3500	±0.7	32	5.4	0.80	16.7	C

1 Tolerance on nominal dimensions are ±2mm

2 Maximum tested size does not necessarily relate to maximum fire resistance

3 Maximum available sizes are subject to maximum fire tested size

4 Maximum available stock size – not to be confused with recommended glazing sizes

5 See BS EN 572: Part 3: 1995 and BS EN 572: Part 6: 1995. Tolerances on nominal dimensions are 4mm

6 R_w index (weight sound reduction) taking into account ear's response

7 BS 6206 classifies individual panes of glass only

8 For information only. There is no requirement in U.K. Standards or Regulations for insulation less than 30 minutes

9 21mm Pilkington Pyrostop™ / 8mm steel spacer / 15mm Pilkington Pyrostop™

10 Depending on side of impact

11 21mm Pilkington Pyrostop™ / 8mm steel spacer / 21mm Pilkington Pyrostop™

12 21mm Pilkington Pyrostop™ / 8mm steel spacer / 18mm Pilkington Pyrostop™

13 27mm Pilkington Pyrostop™ / 8mm steel spacer / 21mm Pilkington Pyrostop™

Handling & Storage – Glass should be stored in dry conditions and out of direct sunlight, stacked upright and fully supported in a manner which prevents the glass from sagging. It should be stood on edge on strips of wood, felt or other relatively soft material. Special care should be taken to protect the glass, especially the edges, from impact damage (knocks, abrasions and excessive local pressure). Upon receipt and before glazing, each glass should be checked for damage. Damaged glass should not be glazed. Water must not be allowed to reach the edges of stacked glass as it can be drawn between the plates by capillary action and cause damage which may affect fire performance. The glass must be protected from site contamination such as welding, cementitious, plaster products or adhesives.

Further details – For further advice, or to receive a copy of our CD-ROM including all performance details, please call **01744 692000**.

This publication gives a general description of the product and materials. It is the responsibility of the users of this document to ensure that the proposed application of the product is appropriate and that such application complies with all the local and national legislation, standards, codes of practice and other requirements. To the extent allowed by law, Pilkington United Kingdom Limited hereby disclaims all liability howsoever arising from any error in or omission from this publication and all consequences of relying on it. Pilkington Pyroshield™, Pilkington Pyrodur™ and Pilkington Pyrostop™ are trademarks of the Pilkington Group.



PILKINGTON

Pilkington Processing & Merchanting UK
Prescot Road St Helens WA10 3TT
Telephone 01744 692000 Fax 01744 613049
www.pilkington.com