

Fire-resistant Glass

Pilkington **Pyrostop**[®]

Pilkington **Pyrodur**[®]

Pilkington **Pyroclear**[®]



Compartmentation wall with Pilkington **Pyrostop**® – Chicago Art Institute, Chicago (US)

The NSG Group

We have been manufacturing and processing glass since 1826. This experience has been invaluable and has enabled us to invest in and develop our ideas into world leading products. Products like high-quality float glass, coated, toughened, laminated, fire-resistant and specialist glass, as well as energy saving Insulating Glass Units were developed by combining our unrivalled technical expertise with true innovation.

NSG Group supplies these products to its partners in more than 100 different countries – just one of the reasons why the brand Pilkington has become synonymous with glass. Today the NSG Group's Fire-resistant Glass business unit is part of the Group's Value Added Product strategy and enjoys an excellent reputation in the global market and has been doing so since nearly four decades.

Internal façade with Pilkington **Pyrostop**® – IKEA Furniture Store, Moscow (RU)






Front page: Fulton Centre, New York (US)

A clear sustainable choice with strong performance

Fire protection solutions have to be targeted to suit specific needs. Architects are looking for elegant, transparent and visually appealing designs which comply with the mandatory requirements of building authorities. For investors, building owners and facility managers the priority is peace of mind, with ease of maintenance, a high level of reliability, affordability and low life cycle costs. Installers and fabricators take it for granted that fire-resistant glass is available in a range of practical and approved sustainable solutions and is of high quality.

NSG Group's clear fire-resistant glass range fulfils these varying demands. Our research and development programmes for such complex products cater for the involvement of all who are part of the process. We encourage an open dialogue with architects, civil engineers, building owners and occupants, system companies, fabricators and installers as well as with authorities and test laboratories. The sharing of and furthering of knowledge and experience are part of NSG Group's business objective, aiming to constantly improve the quality and performance of both our products and services.

Three product lines – three strong performers

	Requirements	Classification (acc. to EN 13501-2)	Product line
	Full thermal insulation (basic integrity + thermal insulation)	EI...	Pilkington Pyrostop ®
	Enhanced integrity (basic integrity + reduced heat radiation)	EW...	Pilkington Pyrodur ®
	Basic integrity (barrier against smoke, flames and fumes)	E...	Pilkington Pyroclear ®

Benefits

- Reliable, repeatable, and reproducible performance
- Unrivalled range of tested and approved framing solutions for internal doors, screens and floors as well as external façade and roof applications
- Complete product range to meet the requirements for various international fire test standards (EN, BS, UL, ASTM, GB, AS, and others)
- CE-marked products acc. to EN 14449, EN 12150 and EN 1279
- More than 1000 approvals in various framing systems according to international standards
- Designed to be combined with additional functional properties such as burglar resistance, bullet resistance, sound insulation, low-emissivity, solar control performance and others
- Suitable for large projects with complex safety and security requirements to achieve high levels of protection (high-rise buildings, sport arenas and stadiums, schools, hospitals, airports, parliament buildings and railway stations)
- Technical Advice and Support for project specific solutions for prestigious designs is available
- Practical solutions for various designs, sizes and types of buildings – for new build and refurbishment
- Product development processes and factory production control are subjected to third party certification schemes
- Remarkable temperature stability (from -40 °C up to +50 °C)
- Achieving highest safety classes for body impact
- Global presence and availability
- Impressive track record of more than 40 years

Pilkington **Pyrostop**[®]

The choice for full insulation performance



EI 180-Partition with Pilkington **Pyrostop**[®]
– Shopping Centre,
Boulogne (FR)

Pilkington **Pyrostop**[®] is a clear fire-resistant glass well suited for many different applications. Pilkington **Pyrostop**[®] achieves full thermal insulation by providing basic integrity performance (forming a resilient barrier to flames, hot gases and smoke) and effectively blocking heat transfer to the protected, safe side of a fire screen. The consistently high performance of Pilkington **Pyrostop**[®] in fire tests and real fires is an attribute of its well researched and refined multilayer intumescent technology. Several float glass layers are combined with special transparent fire protection interlayers. In case of fire the glass pane facing the fire cracks and the first interlayer foams up and turns opaque, blocking the passage of fire and absorbing its energy. This continues progressively layer by layer providing a capacity by design to withstand intense fires for extended periods of time. The glass unit remains intact, heat is effectively blocked, and the robust fire and smoke resistance performance is maintained for the entire period of exposure to fire in accordance with the required classification.

Benefits

- Premium brand with international recognition
- Maximum level of protection: integrity performance with full thermal insulation against transfer of radiant heat for 30 to 180 minutes (acc. to EN 13501-2 classification EI)
- Designed for use in escape and emergency exits, emergency doors to staircases, as well as for use in compartmentation walls, floors, and roofs
- Developed for protection from flashover through the façade for transparent applications requiring high levels of fire resistance to limit fire spread in the same building and from building to building
- Tested and approved by fire test laboratories all over the world according to various fire testing standards
- Maximum reliability in fire tests and consistent intumescence function
- Wide range of applications combining additional functional properties where required
- Flush glass design options with Pilkington **Pyrostop**[®] Line range for unlimited panoramic view
- Glass compositions with maximised light transmittance using low iron glass where appropriate for enhanced visual clarity
- Withstands hose stream test (required by some fire test standards)
- Available through a network of NSG Group branches and licensed independent processors at competitive lead times



Tried and Tested



Temperature resistant



Sustainable



Extended global
10 years guarantee



Pilkington **Pyrostop**[®]
Pilkington **Pyrodur**[®]
Pilkington **Pyroclear**[®]

Double leaf door with side lights with Pilkington **Pyrostop**[®]
– National Art Gallery,
Singapore





Pilkington **Pyrodur**[®]

The choice for integrity performance with reduced radiant heat transfer

Pilkington **Pyrodur**[®] is a clear fire-resistant glass designed to meet the enhanced integrity performance criteria as an effective barrier against flames, hot gases and smoke as well as reducing the transfer of radiant heat. It relies on the same generic technology as Pilkington **Pyrostop**[®].

In addition to basic integrity performance, Pilkington **Pyrodur**[®] significantly reduces the transfer of radiant heat and may even provide a minimum level of full insulation (for periods of up to 15 minutes). Pilkington **Pyrodur**[®] is a robust, enhanced integrity fire-resistant glass, ideal for use in doors and glazed screens leading to escape ways where integrity performance is required as minimum level of protection by regulation.

Benefits

- Brand with international recognition
- Reliable level of protection: combining consistent basic integrity performance with reduced radiant heat transfer (acc. to EN 13501-2 classification EW) for 30 to 60 minutes
- Designed for use in internal partitions, façade and smoke proof door applications which need to provide E/EW levels of fire resistance
- Tested and approved by well recognised and certified fire test laboratories worldwide
- Wide range of applications combining additional functional properties where required
- Enhances the fire resistance performance of integrity framing systems
- Well suited for use in timber doors and partitions
- Available through a network of NSG Group branches and licensed independent processors at competitive lead times

Internal sloped glazing with Pilkington **Pyrodur**[®] installed 1999 – Reichstag, German Parliament, Berlin (DE)



Pilkington Fire-resistant Glass is certified for conformity to the applicable harmonised European standards. Third party inspection of the production is part of a comprehensive quality management system to ensure consistent toplevel product quality.



Partition with Pilkington **Pyrodur**[®] – International Airport, Düsseldorf (DE)



Fire-resistant roof glazing with Pilkington **Pyroclear**® in a shopping mall – Galeria, Rzeszów (PL)

Pilkington **Pyroclear**® The choice for basic integrity performance

The uniquely designed edge technology makes Pilkington **Pyroclear**® a dependable and robust performer in the event of fire. It is intended for use as a smoke retardant barrier and basic integrity fire-resistant glass where fire loads are expected to be limited. Its capability to perform in fire tests with its edges covered up to 15 mm is rather unique and makes Pilkington **Pyroclear**® a practical, convenient choice for various glazing situations.

The distinctive feature of Pilkington **Pyroclear**® is enhanced performance reliability, based on attention to detail in technology, processing quality, and knowledge of the fire risks based on more than 30 years' experience with clear fire-resistant glass. Pilkington **Pyroclear**® is the clear choice for cost effective basic integrity fire-resistant glazings, no matter if flush glazed, sloped or smoke barrier applications are required.

Benefits

- Basic integrity performance for up to 60 minutes (acc. to EN 13501-2 classification E)
- Safe and consistent performance whilst permitting pragmatic framing edge cover from 10 mm up to 15 mm and therefore being suitable for common fire-resistant glazing systems
- Safe and consistent performance due to a specially engineered edge system for providing a high degree of resilience against thermal stress in case of fire
- Its edge protection tape as an integral part of the product is a good indicator for any damage of the glass edge
- Available as monolithic and insulated glass units with high optical quality
- Impressive track record in fire tests and comprehensive fire test programmes
- Well suited for cost effective fire-resistant glazings based on risk based design requiring the basic level of fire protection



Pilkington **Pyroclear**® Line with stainless steel buttons – Pets Choice, Blackburn (GB)

Pilkington Fire-resistant glass range in a Metro Station – U2, Aspen (AT)



Sustainable Fire Protection designed to last

The NSG Group Fire-resistant glass range is well known and respected all over the world. Since four decades brands like Pilkington **Pyrostop**® and Pilkington **Pyrodur**® have taken a leading role in shaping the modern architecture, providing undisputed fire safety whilst flooding buildings with transparency and open space design. Continuous developments and improvements have led to consistent and reliable performance since 1978. Today's extended and optimized product range as well as professional support is offered by the NSG Group's network and its licensed partners with a global presence to provide reliable and sustainable solutions with short lead times all over the world.



Partition with Pilkington **Pyrostop**® Line – Turnstyle Studio, Seattle, WA (US)
Image courtesy of Technical Glass Products

Latest innovations and improvements

- Pilkington **Pyrostop**® Line for use in flush glazed internal applications, providing reliable up to EI 120 performance, allowing a panoramic view free of vertical framings between the glass panes
- Pilkington **Pyrodur**® 30-203 acting as a top performer in EW 30/EI 20 class with additional manual attack resistance performance to class P1A according to EN 356 with only 11 mm thickness
- Pilkington **Pyroclear**® Line range – monolithic solutions for flush glazed screens giving a clear and unobstructed view

- Pilkington **Pyroclear**® Plus compositions with heat reflective coating offers a cost effective solution for applications requiring an E/EW performance of up to 60 minutes
- Pilkington **Pyroclear**® Plus sloped glass solution for use in roof applications requiring E 30/EW 30 performance
- Pilkington **Pyroclear**® SB – an efficient and cost effective solution for use in smoke barrier systems complying to DH 30 classification according to EN 13501-4
- Pilkington **Pyrodur**® T range comprising toughened safety glass and fire-resistant interlayer providing up to 120 minutes integrity and reduced radiant heat transfer (E/EW 120)

Double leaf doors with side lights in partition with Pilkington **Pyrostop**® – Sheikh Essa Library, Bahrain (AE)



This publication provides only a general description of the products. Further, more detailed, information may be obtained from your local supplier of Pilkington products. It is the responsibility of the user to ensure that the use of these products is appropriate for any particular application and that such use complies with all relevant legislation, standards, codes of practice and other requirements. To the fullest extent permitted by applicable laws, Nippon Sheet Glass Co. Ltd. and its subsidiary companies disclaim all liability for any error in or omission from this publication and for all consequences of relying on it. Pilkington is a trademark owned by Nippon Sheet Glass Co. Ltd, or a subsidiary thereof.



CE marking confirms that a product complies with its relevant harmonised European Norm.
The CE marking label for each product, including declared values, can be found at www.pilkington.com/CE



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