



FIRE  
SAFETY

It's time to fight  
fire with glass!



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<https://fgglass.com/fire-safety/>





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Berlin, Germany  
Product: PYRAN® S  
Application: Glazed Partitions and Atrium  
Photo Credit: SCHOTT AG



## THE NEED FOR FIRE PROTECTION

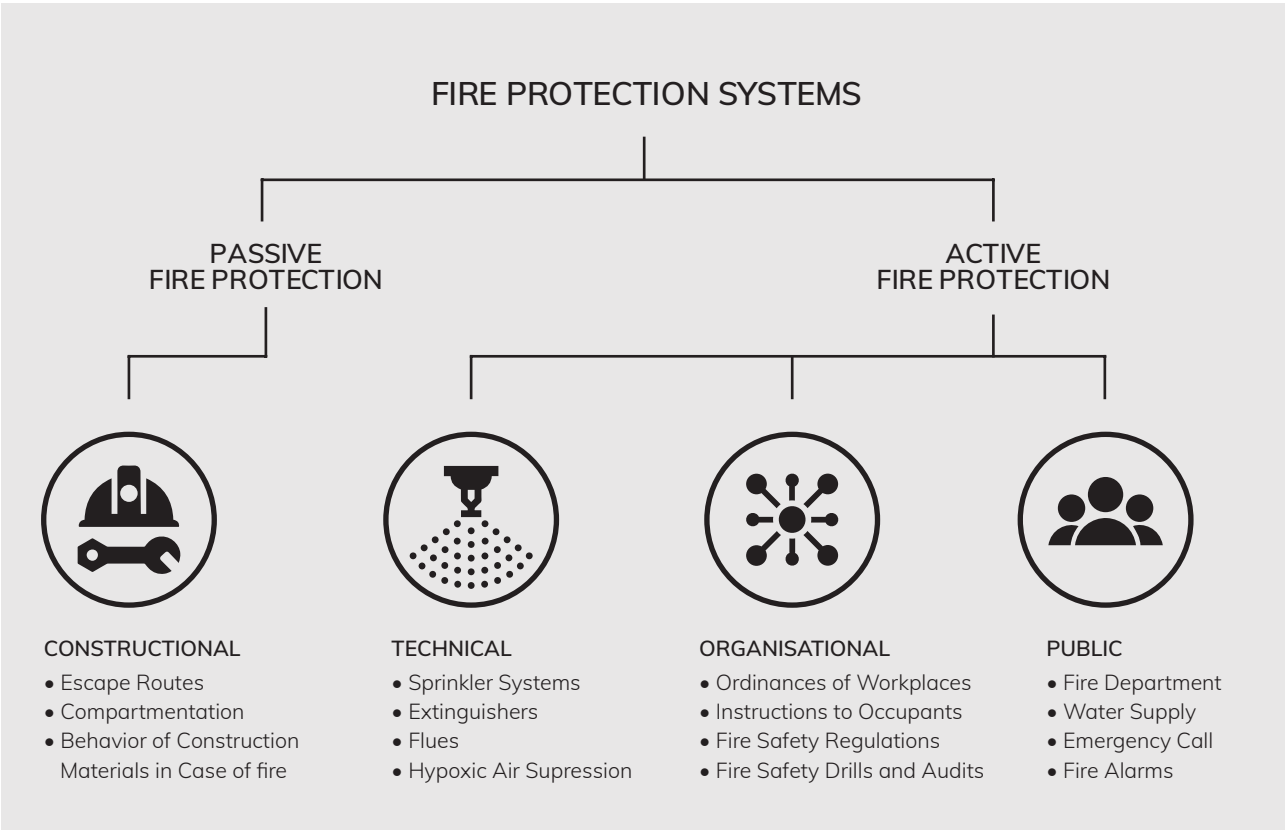
Globally, cities are getting denser. Our buildings are creating new, cluttered skylines which makes it increasingly difficult to easily access each structure. This is why it has become crucial that we design our buildings to be self-sufficient for in case of a fire.

The least we can do is ensure that the materials we use will help save people – either through a well-defined and structured passage to safety or by giving them enough time to gather at a safe place to wait for the fire department to arrive. People's lives and their property can only be protected if proper active and passive fire-protection systems are in place.



# FIRE PROTECTION SYSTEMS

Broadly speaking, there are two types of fire protection systems – Passive Fire Protection and Active Fire Protection. Every well-equipped fire-fighting network will be a synthesis of both active and passive fire protection systems working together to protect both property and life.



## ACTIVE FIRE PROTECTION

Active Fire Protection systems include sprinkler systems, extinguishers, fire safety regulations and drills, fire alarms, emergency calls and the support of the fire department. These typically require a certain motion and response to combat fire and could be automatic (such as sprinklers) or manual (firefighters). Most of these systems require periodic maintenance and audits to ensure that they are in working condition.

## PASSIVE FIRE PROTECTION

Passive Fire Protection systems rely on fire-resistant walls, doors and floors to create compartments through the building’s floor plate to prevent the fire from spreading. These systems rely on steps being taken during the construction process, including the laying out of escape routes and understanding the behaviour of construction materials in case of a fire, and relies on compartmentalization to contain the fire as far as possible. That’s where we step in. Our fire-rated glass can help contain fires and keep you safe!



# FIRE PROTECTION REGULATIONS

Across the globe, Passive Fire Protection is determined by regulations. There are local codes in place in every country which determines the appropriate fire-protection requirements for that region.

REGION	INDIA	EUROPE	UK	USA
Regulations	IS 16945, IS 16947, IS 3614	EN 1363, EN 13501	BS 476	UL 9
Institute	CBRI, Spectro	efectis, DIBT, MPA, APPLUS	Warrington	Intertek, UL
Test	Impact Test Fire Test Hose Stream Test	Impact Test Fire Test	Impact Test Fire Test	Impact Test Fire Test Hose Stream Test

In 2018, the new National Building Code (NBC 2016) came into effect across India. The NBC has provided clarity on the mandated use of fire-rated glazing in construction projects to ensure that buildings are designed and constructed to uphold the most stringent safety standards.

# TYPES OF FIRE RATED GLASS AVAILABLE

Conventional soda-lime silicate glasses (with a coefficient of thermal expansion of  $9 \times 10^{-6} \text{ K}^{-1}$ ) do not offer much resistance when exposed to fire and often shatter within a couple of minutes – causing more harm than anything else. Heat-treated glasses would last slightly longer, but the duration would generally be less than three minutes. Special glass types such as wired, borosilicate and intumescent inter-layered glasses are available that offer varying levels of protection when amalgamated with fire-resistant doors and framing systems. To understand the performance levels, the European standard (EN 13501-2) defines three classifications: E, EW and EI. The American UL standard requires all fire-resistant materials to withstand the hose stream test.

	FIRE - PROTECTIVE		FIRE - RESISTIVE	
	E Integrity	EW Radiation Control	EI Insulation	UL
Prevention of passage of flames	✓	✓	✓	✓
Prevention of passage of hot gases and smoke	✓	✓	✓	✓
Limits radiation to 15kW/m² at a distance of 1 meter		✓	✓	
Prevents increase in temperature to 140°C average temperature or maximum 180°C at any point			✓	
Ability to withstand hose stream test				✓

# INDIA'S NATIONAL BUILDING CODE

In 2018, the latest edition of the Indian National Building Code (NBC 2016) was launched which, amongst other things, outlines use of fire-resistant glass and glazing across different building types. Part 4 - Fire and Life Safety deals with the requirements of such materials.

There is no requirement of EW (Radiation Control) in NBC 2016. The guideline mandates use of stability (E) and only in the case of exit doors, insulation (EI) as requirements for fire-resistant glazing.

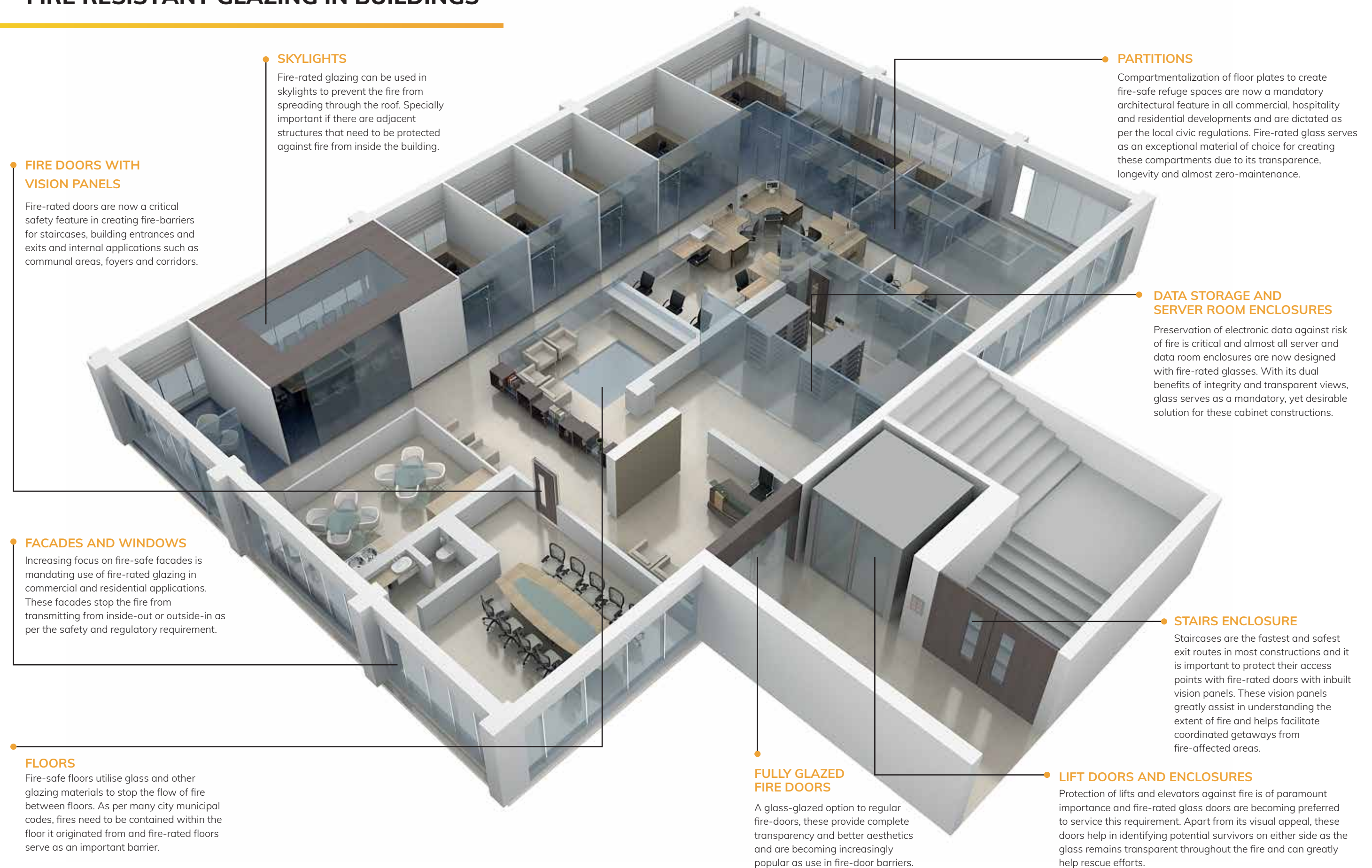
- Recommended Products
- PYRAN® S for uninsulated glazing - Page 16
  - PYRAN® Fusion for partially insulated glazing - Page 20



By ensuring that every building meets these standards, the NBC will help save lives.



# FIRE RESISTANT GLAZING IN BUILDINGS



## FIRE DOORS WITH VISION PANELS

Fire-rated doors are now a critical safety feature in creating fire-barriers for staircases, building entrances and exits and internal applications such as communal areas, foyers and corridors.

## SKYLIGHTS

Fire-rated glazing can be used in skylights to prevent the fire from spreading through the roof. Specially important if there are adjacent structures that need to be protected against fire from inside the building.

## FACADES AND WINDOWS

Increasing focus on fire-safe facades is mandating use of fire-rated glazing in commercial and residential applications. These facades stop the fire from transmitting from inside-out or outside-in as per the safety and regulatory requirement.

## FLOORS

Fire-safe floors utilise glass and other glazing materials to stop the flow of fire between floors. As per many city municipal codes, fires need to be contained within the floor it originated from and fire-rated floors serve as an important barrier.

## PARTITIONS

Compartmentalization of floor plates to create fire-safe refuge spaces are now a mandatory architectural feature in all commercial, hospitality and residential developments and are dictated as per the local civic regulations. Fire-rated glass serves as an exceptional material of choice for creating these compartments due to its transparency, longevity and almost zero-maintenance.

## DATA STORAGE AND SERVER ROOM ENCLOSURES

Preservation of electronic data against risk of fire is critical and almost all server and data room enclosures are now designed with fire-rated glasses. With its dual benefits of integrity and transparent views, glass serves as a mandatory, yet desirable solution for these cabinet constructions.

## STAIRS ENCLOSURE

Staircases are the fastest and safest exit routes in most constructions and it is important to protect their access points with fire-rated doors with inbuilt vision panels. These vision panels greatly assist in understanding the extent of fire and helps facilitate coordinated getaways from fire-affected areas.

## FULLY GLAZED FIRE DOORS

A glass-glazed option to regular fire-doors, these provide complete transparency and better aesthetics and are becoming increasingly popular as use in fire-door barriers.

## LIFT DOORS AND ENCLOSURES

Protection of lifts and elevators against fire is of paramount importance and fire-rated glass doors are becoming preferred to service this requirement. Apart from its visual appeal, these doors help in identifying potential survivors on either side as the glass remains transparent throughout the fire and can greatly help rescue efforts.





Together with SCHOTT, we pride ourselves on being leading providers of not just fire-resistant glass but also glazing solutions in the country. In less than 10 years, our customer base has grown from single digits to over 500 fire-door manufacturers, developers and even home and office owners, bringing German product technology into the Indian and global markets.

Together, we have worked on multiple corporate and government projects and have helped maintain the basic fire-resistant standards set in the NBC. We offer the widest range of glass products, which enables us to meet multiple architectural needs while still satisfying the requirements for fire-safe glazing. Our products like PYRAN® S, PYRAN® Fusion and PYRAN® Platinum have become the glass of choice for fire-resistant glazing across multiple application spaces.

## ABOUT SCHOTT

An international technology group based in Germany, SCHOTT has over 130 years of experience with speciality glasses and materials. The company is known around the world for their high-quality products, intelligent solutions, and technological expertise. As market leaders, SCHOTT works in the areas of digital connectivity, health and wellness, mobility and urbanisation. They've created a truly diverse product spectrum from ultra-thin glass for wearables and smartphone displays and use of fibre optics in the fight against cancer to producing vials for leading vaccine producers globally.



Years since establishment



Years of experience in the fire protection industry



Ultra-thin glass



Used in nuclear installations



Indian customer base



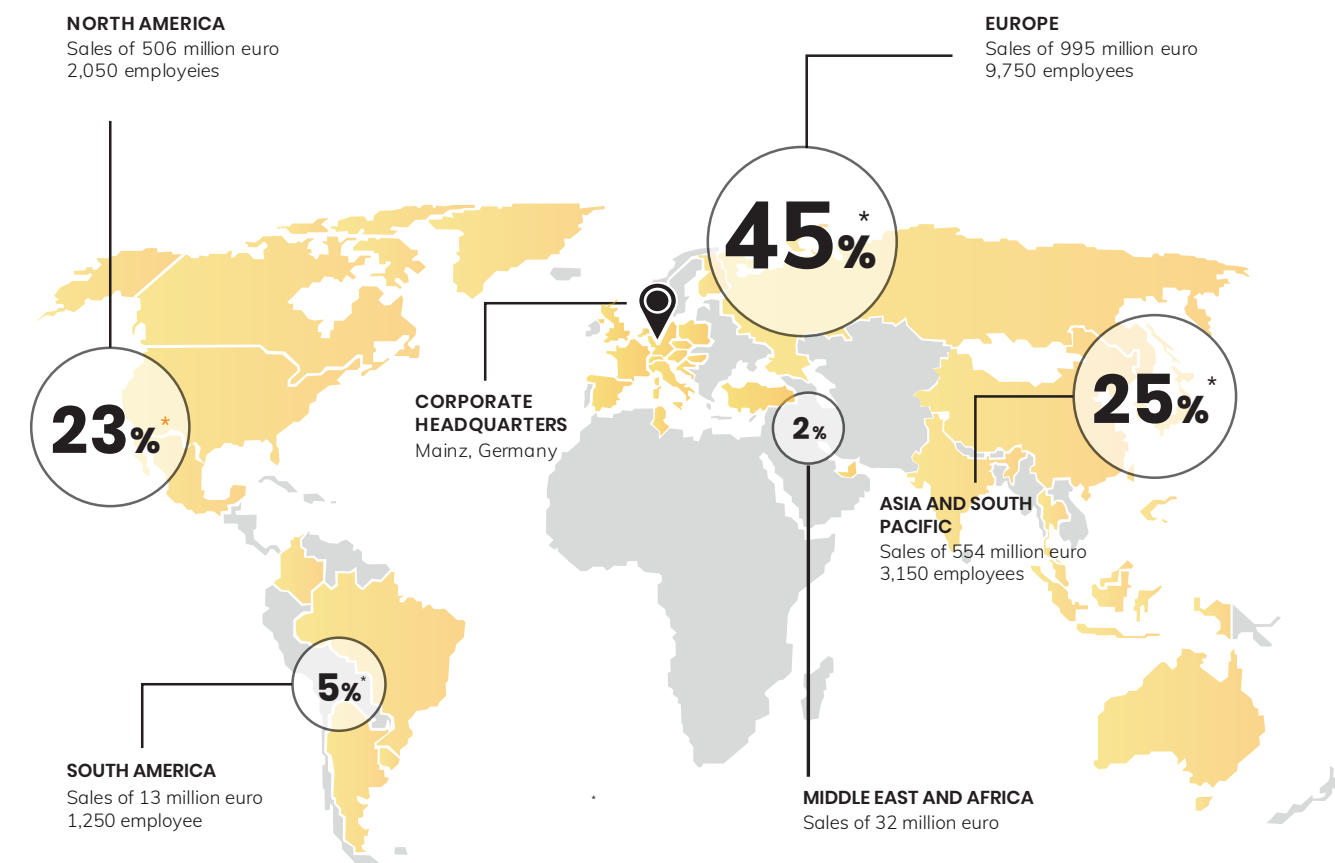
**€2.2 Billion**  
GLOBAL SALES



**16,200**  
EMPLOYEES WORLDWIDE

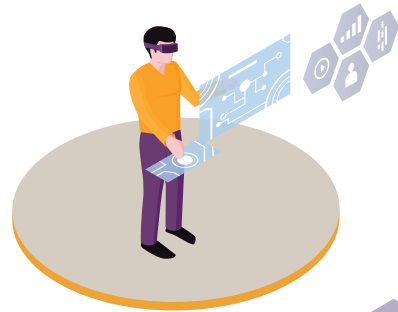


**34** PRODUCTION SITES  
countries AND SALES OFFICES



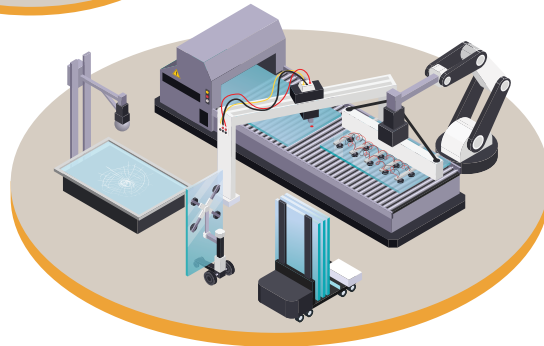


## HOW DO WE WORK?



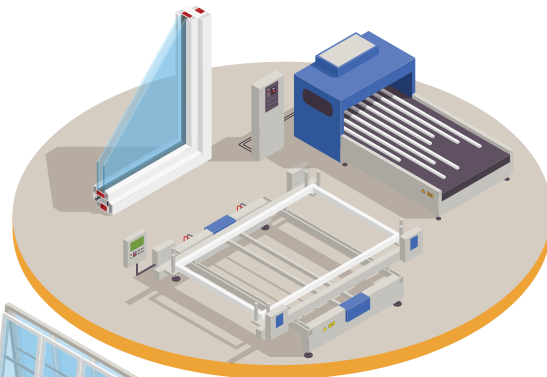
### 1 DESIGN SERVICES

- Complete design solutions including shop drawings, structural calculations and related technical support.



### 2 GLASS MANUFACTURING

- Advanced machinery to produce the most demanding glass types.
- End-to-end control on quality and production.



### 3 GLAZING SERVICES

- Fabrication of steel and aluminum sections.
- Powder coating or paint finishes as per your aesthetic needs.



### 4 INSTALLATION SERVICES

- Site surveys.
- Installation of glass and framing systems.
- Snag resolution.
- Complete site handover.



### 5 POST INSTALLATION SUPPORT

- Issuance of performance and quality certificates.
- Annual maintenance contracts.

**CET BUDAPEST**  
 Budapest, Hungary  
 Architect: Oosterhuis Lénárd  
 Glass: SCHOTT PYRAN® S  
 Application: Facade  
 Photo Credit: SCHOTT AG



# SOLUTIONS



PRODUCT GUIDE

	PYRAN® S	PYRAN® COMBI	PYRAN® Fusion	PYRAN® Fusion COMBI	PYRAN® Plus		PYRAN® Platinum	PYRAN® Platinum F	PYRAN® Platinum L	PYRAN® Star	PYRAN® Star F	PYRAN® Star L	PYRANOVA®
STANDARDS													
EUROPEAN STANDARDS													
EN 13501-2 (Protection Level)	E Glazing	E Glazing	E, EW, EI Glazing	E, EW, EI Glazing	E, EW, EI Glazing		E Glazing	E Glazing	E Glazing	E Glazing	E Glazing	E Glazing	E Glazing
Duration	Up to 120 min	Up to 120 min	Up to 180 min	Up to 180 min	Up to 180 min		Up to 240 min	Up to 240 min	Up to 240 min	Up to 240 min	Up to 240 min	Up to 240 min	Up to 180 min
EN 12600	1C1	1C1/1B1	1B1	1B1	1B1		-	-	-	-	-	-	1B1
INDIAN STANDARDS													
IS 16945: 2018	Integrity	Integrity	Integrity, Radiation, Insulation	Integrity, Radiation, Insulation	Integrity, Radiation, Insulation		Integrity	Integrity	Integrity	Integrity	Integrity	Integrity	Insulation
IS 16947: 2018	Integrity	Integrity	Integrity, Radiation, Insulation	Integrity, Radiation, Insulation	Integrity, Radiation, Insulation		Integrity	Integrity	Integrity	Integrity	Integrity	Integrity	Insulation
AMERICAN STANDARDS													
ANZ97.1	-		-	-	-		-	Class A	Class A	-	Class A	Class A	-
CPSC 16CFR1201	-		-	-	-		-	Cat. 1 & II	Cat. 1 & II	-	Cat. 1 & II	Cat. 1 & II	-
UL 10C	-		-	-	-		Hose Stream Tested	Hose Stream Tested	Hose Stream Tested	Hose Stream Tested	Hose Stream Tested	Hose Stream Tested	-
APPLICATIONS													
ARCHITECTURAL APPLICATIONS													
INTERNAL													
Vision Panels in Fire Doors	Yes	-	Yes	-	Yes		Yes	Yes	Yes	Yes	Yes	Yes	-
Lift Lobbies	Yes	Yes	Yes	-	Yes		-	Yes	Yes	-	Yes	Yes	Yes
Compartmentation and Partitions	Yes	Yes	Yes	-	Yes		-	Yes	Yes	-	Yes	Yes	Yes
Office Entrances	Yes	Yes	Yes	Yes	Yes		-	Yes	Yes	-	Yes	Yes	Yes
Lift Shaft Glazing	Yes	Yes	Yes	-	Yes		-	Yes	Yes	-	Yes	Yes	Yes
Data Server Rooms	Yes	Yes	Yes	Yes	Yes		-	Yes	Yes	-	Yes	Yes	Yes
Exit Doors Leading to Egress	-	Yes	Yes	Yes	Yes		-	-	-	-	-	-	Yes
Atriums	Yes	Yes	Yes	Yes	Yes		-	Yes	Yes	-	Yes	Yes	Yes
Smoke Screens	Yes	-	-	-	-		-	-	-	-	-	-	-
Kitchen Enclosures	Yes	-	-	-	-		Yes	-	-	-	-	-	-
EXTERNAL													
Facades	Yes	Yes	Yes	Yes	-		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Refuge Areas	Yes	Yes	Yes	Yes	-		Yes	Yes	Yes	Yes	Yes	Yes	Yes
External Staircase Enclosures	Yes	Yes	Yes	Yes	-		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Skylights and Roofs	-	Yes	-	Yes	-		-	-	Yes	-	-	Yes	Yes
INDUSTRIAL APPLICATIONS													
Lift Doors	-	Yes	-	-	-		-	-	Yes	-	Yes	-	-
Furnaces	-	-	-	-	-		Yes	-	-	Yes	-	-	-
Fireplaces	-	-	-	-	-		Yes	-	-	Yes	-	-	-
MARINE APPLICATIONS													
Commercial Carriers	Yes	Yes	Yes	Yes	-		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Passenger Ships and Cruise Liners	Yes	Yes	Yes	Yes	-		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Oil Rigs	Yes	Yes	Yes	Yes	-		Yes	Yes	Yes	Yes	Yes	Yes	Yes



**BMW WELT**  
Munich, Germany  
**Architect:** COOP HIMMELB(L)AU  
**Glass:** SCHOTT PYRAN® S  
**Application:** Facade, Glazed Doors, Glazed Partitions

## SCHOTT PYRAN® S

The versatile fire-protection champion

PYRAN® S is a pre-stressed, monolithic, borosilicate single-pane fire-rated safety glass that provides up to 120 minutes fire-protection in a wide application space. Its ability to withstand heat is superior to traditional fire-resistant glasses, but what truly sets it above its competition is its ability to remain transparent, even in the event of a fire. This is especially crucial when it comes to coordinating evacuation and rescue efforts, which is why PYRAN® S has become the glass of choice for most projects.

Manufactured in a one-of-its-kind patented micro-float facility in Germany, PYRAN® S combines the unique properties of borosilicate glass and the float process to produce an extremely high-quality product. As a component in fire-resistant glazing that meets the requirements of resistance classes E 30, E 60, E 90 and E 120, and has proven its outstanding optical and mechanical characteristics over the years across thousands of buildings.


FG brings you this bespoke fire-resistant glass under our FLAMESHIELD banner. With FG, you get the advantage of super-quick delivery time (typically under a week), as the glass is processed locally. Not just that, our expert team is on standby to provide you comprehensive support on the complete glazing solution.




WHY SHOULD I CHOOSE PYRAN® S?

120


minutes complete fire protection




Fully toughened glass for safety and flexibility




Complete transparency even during a fire




Zero probability of spontaneous breakage




Very high resistance to chemicals as glass is free of interlayers and coating




Super-clear transparent glass for aesthetic appeal



Unlimited life and fire-performance warranty



Ability to reuse glass in case of minor fires that are extinguished quickly




Super-quick same week delivery time

TECHNICAL SPECIFICATIONS

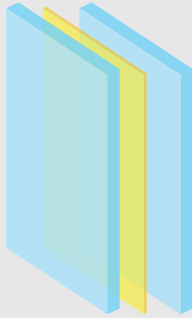
DESCRIPTION	6mm	8mm	10mm	12mm
Fire Resistance Class	E30 to E120	E30 to E120	E30 to E120	E30 to E120
Weight	13.70 kg/m²	18.20 kg/m²	22.80 kg/m²	27.40 kg/m²
Light Transmission	92%	92%	91%	91%
U-Value	5.80 W/m²K	5.80 W/m²K	5.80 W/m²K	5.80 W/m²K
Sound Insulation	31 dB	32 dB	33 dB	34 dB
Impact Rating*	1C1	1C1	1C1	1C1
Product Enhancement	Can be converted to CLIMACOOOL (insulated glass) and LAMISECURE (laminated glass)**			
Additional Process Compatibility	Ceramic-frit, digitecture™ digital printing, sand-blasting, holes, cutouts and notches**			
Edge Types	Rough grind, super polished			

\*According to EN 12600:  
\*\* Please check fire rating for this type before ordering


PYRAN® S TYPES



**PYRAN® S**  
Monolithic, toughened borosilicate fire-rated glass



**PYRAN® S COMBI**  
Insulated and/or laminated fire-rated glass assemblies



**PYRAN® S DECOR**  
Digital, screen printed or etched toughened, borosilicate fire-rated glass

PYRAN® S SIZE

**Note :** According to Warrington Certifire CF291 Assessment Report and based on the framing system  
Minimum size is 200 mm x 300 mm

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Solutions 18

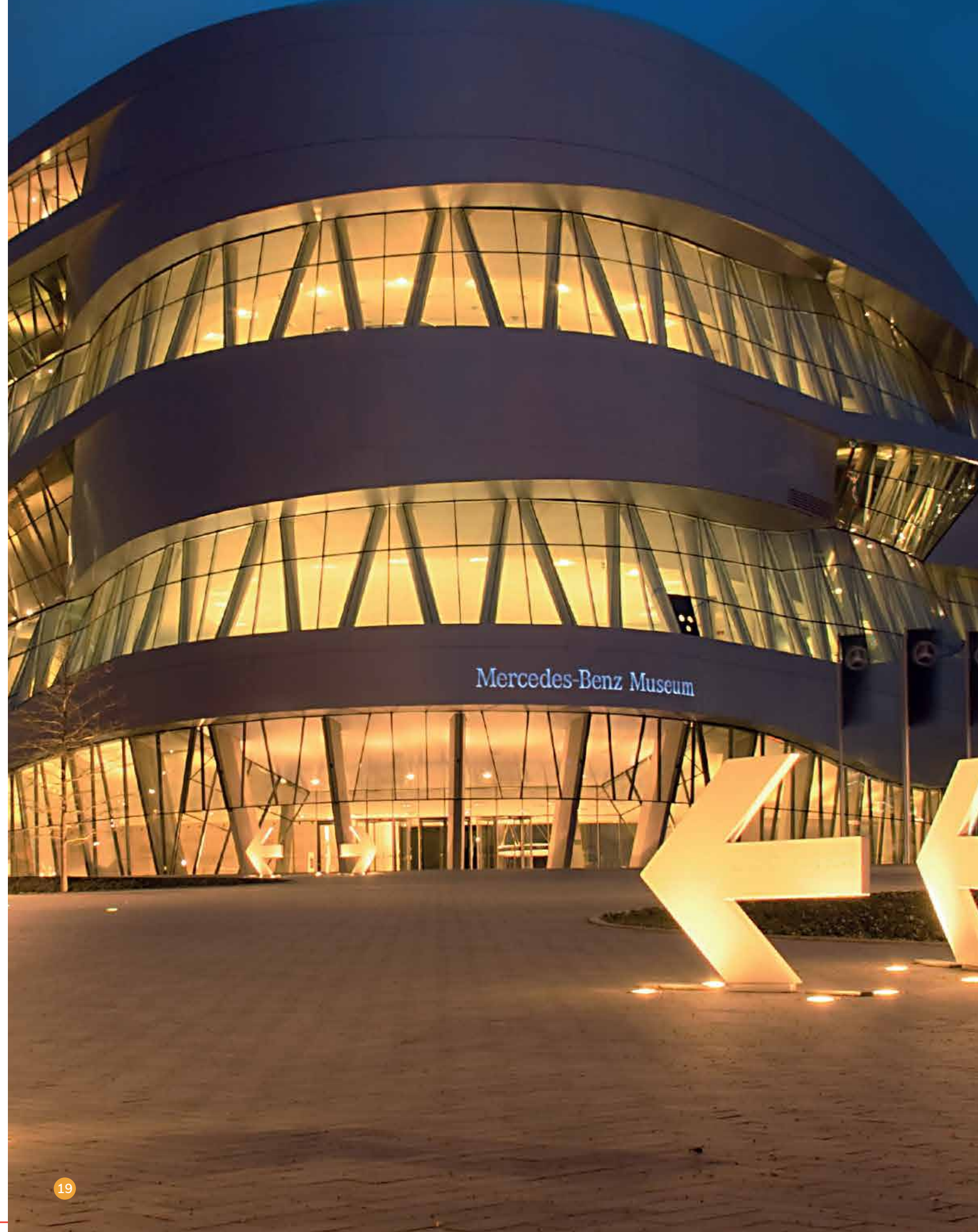
## MERCEDES MUSEUM

Location: Stuttgart, Germany

Architect: UNStudio

Glass: SCHOTT PYRAN® S

Application: Facade, Glazed Doors, Glazed Partitions



## SCHOTT PYRAN® Fusion

Fire-resistant glass for the India of tomorrow

Our latest innovation, PYRAN® Fusion is manufactured with path-breaking materials to meet the most exacting worldwide fire-safety standards. These panels are specifically designed to satisfy the fire glazing requirements that have been outlined in India's National Building Code (NBC 2016) and the Delhi Schedule of Rates (DSR). These panels are interlayered with advanced gel technology and offer 120 minutes of integrity and radiation control (as per EW 120) and also allows for 30 minutes of insulation (EI 30).


These panels have a customised processing technique that allows us to create supremely thin glass in large sizes, and when you add this to our legendary clarity, you'll get a product that enables you to meet all your fire-safety glass needs with ease.




WHY SHOULD I CHOOSE PYRAN® Fusion?

120


minutes complete fire protection




Industry-leading clarity and aesthetics




Best in class insulation (up to 30 mintues)




Made in India with high-tech products from Germany



Extremely bespoke and adaptable



Satisfies the highest impact resistance levels



High sound insulation for incredibly quiet interiors

TECHNICAL SPECIFICATIONS

DESCRIPTION	11 MM	14 MM
Glazing Type	Clear, toughened, interlayered and non-wired	
E (Integrity)	Minimum 120 Minutes	
EW (Radiation Control)	120 Minutes	
EI (Insulation)	Minimum 20 Minutes	
Light Transmission	89%	88%
Weight	23 kg/m <sup>2</sup>	26 kg/m <sup>2</sup>
U Value	5.20 W/m <sup>2</sup> K	5.20 W/m <sup>2</sup> K
Sound Insulation	37 dB	39 dB
Impact Rating*	1B1	1B1
Additional Process Compatibility	Ceramic-frit,digitecture™ digital printing, sand-blasting, acid-etching	

\*According to EN 12600

**PYRAN FUSION TEST**  
Location: Thomas Bell Wright, Dubai  
Glazing: PYRAN® Fusion in Single Leaf and Double Leaf Door Assembly  
Result: EI30/EW120

PYRAN® Fusion SIZE

**Note :** Minimum size is 200 mm x 300 mm

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Solutions 22



## MUMBAI INTERNATIONAL AIRPORT

Location: Mumbai, India

Architect: Skidmore Owings and Merrill

Glass: SCHOTT PYRAN® Platinum

Application: Vision Panels for Fire Doors

EMERGENCY EXIT ONLY



EMERGENCY EXIT ONLY



ALARM DOOR  
DO NOT OPEN



ALARM DOOR  
DO NOT OPEN

## SCHOTT PYRAN® Platinum

The world's clearest and most sophisticated glass ceramic

As the world's only fire-resistant floated glass-ceramic, PYRAN® Platinum meets the highest American standards for fire-resistance. As per the UL test guidelines, our PYRAN® Platinum panels are able to offer up to 90 minutes of fire protection for windows and up to 120 minutes of protection for doors, even when hot glass is blasted with cold water at incredibly high pressure.

The composition of the glass ensures that it remains stable, even when exposed to ultraviolet light rays and heat. The glass is clear and colourless, without the amber or orange tint that is most often associated with glass-ceramics. We have been able to achieve this unique attribute by specially designing decolorisation agents that are added to the glass melt. To meet the most stringent impact requirements, this glass-ceramic has also been made available in filmed (PYRAN® PLATINUM F) and laminated (PYRAN® PLATINUM L) variants.



WHY SHOULD I CHOOSE PYRAN® Platinum?

240  
minutes complete  
fire protection



As clear as conventional glass with all the benefits of ceramic glass



Meets the highest UL test standards



Complete transparency even during a fire



Unlimited life and fire-performance warranty



Very high resistance to chemicals as glass is free of interlayers and coating



Ability to reuse glass in case of minor fires that are extinguished quickly



The world's first and only C2C-certified fire-resistant glass-ceramic



For additional protection, can be laminated for impact resistance



Manufactured with precision in Germany and customised in India



Super-quick same week delivery time



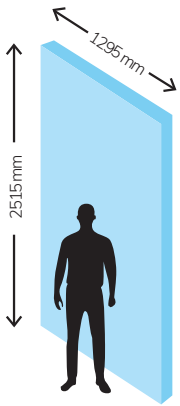
TECHNICAL SPECIFICATIONS

FIRE RATING (MINS)	LOCATION	MAX EXPOSED GLAZING AREA	MAX EXPOSED GLAZING WIDTH	MAX EXPOSED GLAZING HEIGHT	MAX EXPOSED GLAZING DEPTH	BUILDING CODE MARKING	IMPACT SAFETY RATED*
FLAMESHIELD SCHOTT PYRAN® Platinum - 5mm							
Up to 90	Transom lites, sidelites, windows	4933" (3.194 m²)	98 1/4" (2495 mm)	98 1/4" (2495 mm)	5/8" (16 mm)	OH-90	No
FLAMESHIELD SCHOTT PYRAN® Platinum F (FILMED) - 5mm							
Up to 90	Doors (non-temp rise)	3708" (2.39 m²)	37 3/4" (958 mm)	98 1/4" (2495 mm)	5/8" (16 mm)	D_H_NT_90	Yes
Up to 180	Doors (non-temp rise and temp rise)	100" (0.0645 m²)	12" (305 mm)	33" (838 mm)	1/2" (12.7 mm)	D_H_NT_180	Yes
Up to 90	Other than doors	4933" (3.194 m²)	98 1/4" (2495 mm)	98 1/4" (2495 mm)	5/8" (16 mm)	OH-90	Yes
FLAMESHIELD SCHOTT PYRAN® Platinum L (LAMINATED) - 9mm							
Up to 90	Doors (non-temp rise)	2736" (1.765 m²)	36" (914 mm)	75" (1905 mm)	5/8" (16 mm)	D_H_NT_90	Yes
Up to 180	Doors (non-temp rise and temp rise)	100" (0.0645 m²)	12" (305 mm)	33" (838 mm)	1/2" (12.7 mm)	D_H_NT_180	Yes
Up to 90	Other than doors	3143" (2.027 m²)	75" (1905 mm)	75" (1905 mm)	5/8" (16 mm)	OH-90	Yes
Appearance: Clear, without amber tint							
Additional Process Capability: Can be slightly sand-blasted							
Edge Type: Super polished							

\*According to ANSI Z97.1 and CPSC 16 CFR 1201 (Cat. I and II)

PYRAN® Platinum SIZE

Note : Minimum size is 50 mm x 50 mm



VISION PANELS FOR UL RATED FIRE DOORS



## SCHOTT PYRAN® Star

Fire-rated glass-ceramic from industry experts

A ceramic fire-rated glass, PYRAN® STAR is built to uphold the most stringent American fire-resistance standards. Under the UL hose stream test, our panels are able to withstand thermal shock, when a hose of high-pressure water is directed on the hot surface of the glass. In order to provide maximum protection, PYRAN® STAR glass offers up to 90 minutes of protection in windows and up to 180 minutes of protection in door systems.


The unique composition of the glass ensures that it remains stable, even when exposed to ultraviolet light rays and heat. To meet the most stringent impact requirements, this glass-ceramic has also been made available in filmed (PYRAN® STAR F) and laminated (PYRAN® STAR L) variants.




WHY SHOULD I CHOOSE PYRAN® Star?

240


minutes complete fire protection




Complete transparency even during a fire




Meets the highest UL test standards




Very high resistance to chemicals as glass is free of interlayers and coating




Unlimited life and fire-performance warranty




Manufactured with precision in Germany and customised in India



Ability to reuse glass in case of minor fires that are extinguished quickly



For additional protection, can be laminated for impact resistance



Super-quick same week delivery time

TECHNICAL SPECIFICATIONS

FIRE RATING (MINS)	LOCATION	MAX. EXPOSED GLAZING AREA	MAX. EXPOSED GLAZING WIDTH	MAX. EXPOSED GLAZING HEIGHT	MAX. GLAZING CHANNEL DEPTH
FLAMESHIELD SCHOTT PYRAN® Star (5mm), PYRAN® Star F (5mm) and PYRAN® Star L (9mm)					
Up to 90	Other than doors	2.06 m²	1930 mm	1930 mm	15.9 mm
Up to 90	Doors (temp rise)	0.06 m²	304 mm	838 mm	15.9 mm
Up to 90	Doors (non-temp rise)	1.77 m²	914 mm	1930 mm	15.9 mm
APPLIES TO FLAMESHIELD SCHOTT PYRAN® Star L ONLY					
Up to 180	Doors (non-temp rise and temp rise)	0.06 m²	304 mm	304 mm	12.7 mm
Appearance: Transparent, wireless (87% light transmission)					
Additional Process Capability: Can be slightly sand-blasted					
Edge Type: Super polished					

PYRAN® Star SIZE

Note : Minimum size is 200 mm x 300 mm

HOSE STREAM TEST

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Solutions 30



**ABZ ALTMUENSTER**  
Location: Salzburg, Austria  
Glass: SCHOTT PYRANOVA®  
Application: Glazed Doors and  
Partitions in Butt Joint System

## SCHOTT PYRANOVA®

The ultimate fire protector

Made with several thin panes of float glass, PYRANOVA® is a clear, laminated composite glass that offers truly comprehensive fire safety. A unique, transparent fire-resistant layer is placed between the panes, which foams up. In the event of a fire, the glass pane closest to the flame will shatter, and the transparent fire-resistance layer will foam up, forming an opaque heat shield that prevents the passage of heat radiation. As a component of fire-resistant glazing, PYRANOVA® meets the requirements of fire-resistance classes EI 15 to EI 120, ensuring the temperature rise on the non-fire side does not exceed 180°C in any one position. As part of fire barriers, it meets the requirements of T 30 to T 90.



WHY SHOULD I CHOOSE PYRANOVA®?

120  
minutes complete  
fire protection



Can be combined with high-performance glasses for better functionality



Offers high transparency while maintaining stability in extreme conditions



Not just fire, provides insulation against sound as well



Conforms to protection against falling requirements



Meets the highest safety guidelines as outlined by EN 12600



Super quick deliveries to help you meet your commitments



Manufactured with precision in Germany and customised in India



Can be combined with high-performance glasses.



EUROPEAN INVESTMENT BANK  
Location: Luxembourg  
Architect: Ingenhoven Architects  
Glass: SCHOTT PYRANOVA®  
Application: Facade, Glazed Doors, Glazed Partitions

TECHNICAL SPECIFICATIONS

SCHOTT PYRANOVA® S3 FOR INTERNAL USE

FEATURE	7 mm	11 mm	15 mm	19 mm	23 mm	37 mm	52 mm
Fire Resistance Class	EW 30	EI 15/ EW 30	EI 30	EI 45	EI 60	EI 90	EI 120
Weight	17 kg/m²	26 kg/m²	35 kg/m²	44 kg/m²	55 kg/m²	86 kg/m²	108 kg/m²
Light Transmission	89%	87%	86%	85%	84%	84%	74%
U-Value	5.6W/m²K	5.4W/m²K	5.1W/m²K	5.0W/m²K	4.8W/m²K	4.2W/m²K	2.5W/m²K
Sound Insulation	33 dB	36 dB	38 dB	38 dB	41 dB	44 dB	44 dB
Impact Rating*	-	-	1B1	1B1	1B1	1B1	1B1

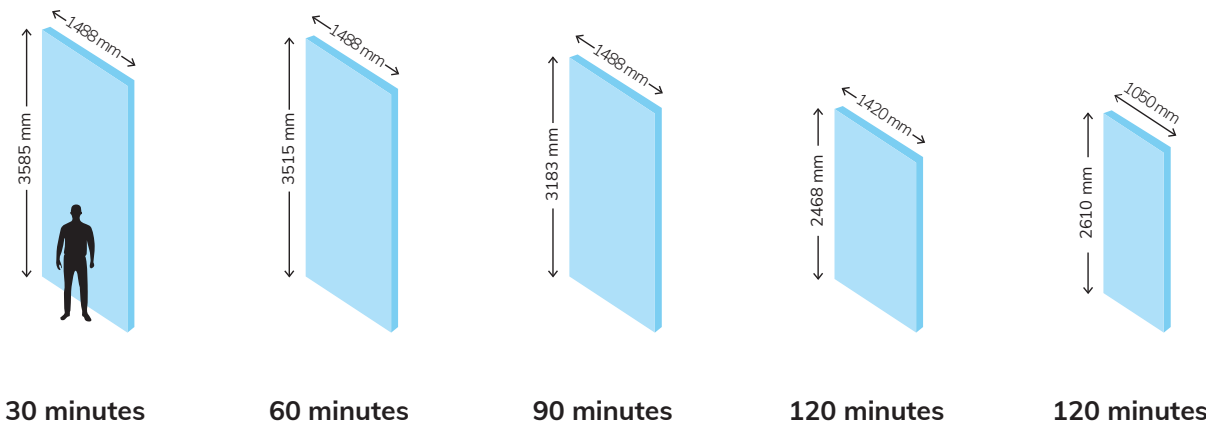
\*According to EN 12600

SCHOTT PYRANOVA® S3 FOR EXTERNAL USE

THICKNESS	10 MM	14 MM	19 MM	21 MM	27 MM	40 MM	54 MM
Fire Resistance Class	EI 15/ EW 30	EI 20/ EW 30	EI 30	EI 45/ EW 60	EI 60	EI 90	EI 120
Weight	24 kg/m²	32 kg/m²	44 kg/m²	44 kg/m²	61 kg/m²	93 kg/m²	116 kg/m²
Light Transmission	87%	86%	86%	85%	85%	83%	74%
U-Value	5.4W/m²K	5.2W/m²K	5.0W/m²K	5.0W/m²K	4.7W/m²K	4.1W/m²K	2.5W/m²K
Sound Insulation	36 dB	38 dB	38 dB	38 dB	41 dB	44 dB	44 dB
Impact Rating*	-	1B1	1B1	1B1	1B1	1B1	1B1

\*According to EN 12600

PYRANOVA® SIZE



Note : Minimum size is 200 mm x 300 mm





**ROLFKUHN**GMBH  
PASSIVER TECHNISCHER BRANDSCHUTZ

## FIRE PROTECTION ACCESSORIES



**KERAFIX® 2000**  
Glazing tape vision panels  
and glazed panels



**KERAFIX® Flexit**  
Intumescent tapes for  
fire-rated glazed panels

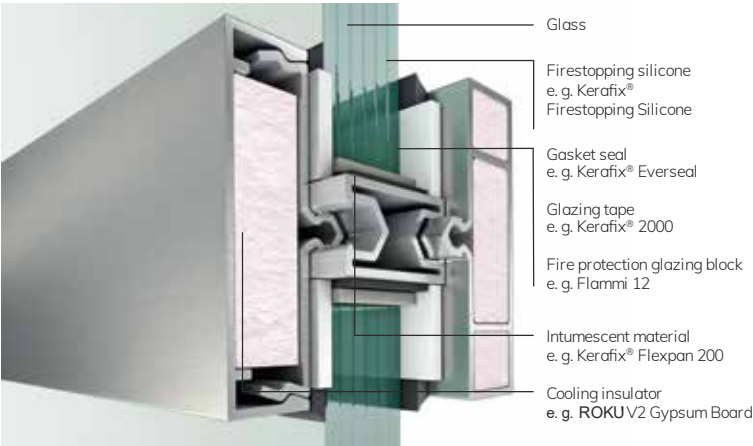
Ever since its foundation in 1976, SVT-Rolf Kuhn has pioneered the assembly and marketing of intumescent and foaming materials. They are constantly working on improving passive fire protection systems and take full responsibility for the safety of people. Their decades of experience coupled with their wide variety of products has allowed them to become leading suppliers in the fire protection space. At FG, we're proud to work with SVT-Rolf Kuhn to bring the brilliance of German innovation and fire-safety to the Indian landscape.

VERIFICATION	P-3074/3439-MPA BS	VERIFICATION	ETA-17/0815
BUILDING MATERIAL CLASSIFICATION	B2 according to DIN 4102-1 E according to DIN EN 13501-1	BUILDING MATERIAL CLASSIFICATION	E according to DIN EN 13501-1
GROSS DENSITY (kg/m³)	approx. 250	GROSS DENSITY (kg/m³)	approx. 670
TEMPERATURE STABILITY (C°)	1,200	START EXPANSION TEMPERATURE (C°)	from approx. 350
MELTING POINT (C°)	from approx. 1,330	EXPANSION RATE	2 to 5.5 times (400°C; 30min; with load) <sup>3)</sup>
TENSILE STRENGTH (g/m²)	from approx. 1,330	FOAM BODY <sup>1)</sup>	Fibrous
COLOR	White, black	PRESSURE <sup>2)</sup> (N/mm²)	> 0.1
THERMAL CONDUCTIVITY (W/mk)	0.10	THERMAL CONDUCTIVITY (W/mk)	0.057
PLASTICISER-FREE	Yes	PLASTICISER-FREE	Yes
STANDARD THICKNESS (mm)	1 to 10 (white) 2 to 6 (black)	STANDARD THICKNESS (mm)	1.5 & 5
DESIGN VARIANTS	• Self-adhesive • Not self-adhesive	DESIGN VARIANTS	• Self-adhesive • Not self-adhesive



FOR COMPLETE  
FIRE PROTECTION

Fire protection components include glazing blocks, sealant strips, silicones and other intumescent materials that can be used in frame constructions. These elements are suitable for all kinds of glass constructions, ranging from common and everyday projects to even more complex ones.



Glazing blocks for  
all fire-rated glasses

FLAMMI 12



High performance  
fire-rated silicone

KERAFIX  
Fire protection silicone



High-performance tapes  
for special applications

SILICON BASED  
Palusol®

VERIFICATION	-	VERIFICATION	-	VERIFICATION	ETA-15/0345
BUILDING MATERIAL CLASSIFICATION	E according to DIN EN 13501-1	BUILDING MATERIAL CLASSIFICATION	E according to DIN EN 15651	BUILDING MATERIAL CLASSIFICATION	A2-s1, d0 according to DIN EN 13501-1
MATERIAL STRUCTURE	Hard material	GROSS DENSITY (kg/m³)	approx. 1,000 (transparent) approx. 1,200 (colored)	GROSS DENSITY (kg/m³)	approx. 1,600
GROSS DENSITY (kg/m³)	approx. 1,000	SHORE HARDNESS (SHORE A)	approx. 20 (transparent) approx. 25 (colored)	AREA DENSITY (kg/m²)	approx. 3,00 (type 100) <sup>1)</sup> approx. 5,80 (type 104) <sup>1)</sup>
TEMPERATURE RESISTANCE (C°)	1,100	ELONGATION AT BREAK (%)	approx. 550	START EXPANSION TEMPERATURE (C°)	approx. 550
IMPREGNATION (g/m²)	40 to 80	TENSILE STRENGHT (N/mm²)	approx. 1.5	EXPANSION RATE	approx 7 times (550°C; 10min; with load) <sup>3)</sup>
STANDARD LENGTH (mm)	80	OPERATTING TEMPERATURE RANGE (C°)	-40 to +150	FOAM BODY <sup>2)</sup>	Solid, ceramicised
STANDARD WIDTH (mm)	8 to 40	COLORS	White, black and transparent	PRESSURE <sup>3)</sup> (N/mm²)	min. 0.95 max. 1.60
STANDARD THICKNESS (mm)	3,4, & 5	pH VALUE	-	THERMAL CONDUCTIVITY (W/mk)	-
		DELIVERY FORM	310ml Cartridge	STANDARD THICKNESS (mm)	1.9 & 3.6
				INSENSITIVE TO FROST, UV, MOISTURE <sup>5)</sup>	-
				RESISTANT TO AGEING	

FIRE RATED STAIRWELL

Location: Auckland, New Zealand  
Glass: SCHOTT PYRAN® S  
Application: Glazed Internal Curtain Wall



APPLICATIONS





**HILTON HOTEL**  
Location: Frankfurt, Germany  
Glass: SCHOTT PYRAN® S  
Application: Glazed Doors, Glazed Partitions

## ARCHITECTURAL APPLICATIONS

Fire-resistant glazing is limited not just to architectural applications but transcends boundaries to industrial and marine applications too. These fire-safety glasses and glazing are used to create barriers against flames and smoke, while still maintaining the aesthetic beauty of the space. Glass has started to play an integral role in every building's passive fire-protection strategy since it is both durable and transparent. Our panels can provide over two hours of protection, giving you more than enough time to find a safe place to wait for assistance. More importantly, we have over fifteen years of experience in façades alone and we rely on this knowledge to provide each of our clients with complete solutions for their needs. Our universal approach to glass and fire-safety solutions is what gives us an edge over our competitors.





**SHIV NADAR UNIVERSITY**  
 Location: Greater Noida, India  
 Glass: SCHOTT PYRAN® S  
 Application: Vision Panels in Fire Doors

## VISION PANELS FOR FIRE DOORS

SCHOTT glasses have been the ubiquitous choice for vision panels for fire doors - whether it is the PYRAN® S with its unbeatable characteristics of transparency, strength and durability or PYRAN® Platinum and PYRAN® Star for UL-rated, hose-stream certified fire-doors. With over 70% market share of the Indian vision panel market and installations running in several hundred thousand doors, our fire-rated glass is a common sight on almost every fire-door you will see. These vision panels are an indispensable aspect of all modern fire-doors, and greatly facilitate rescue at the time of fire.

Recommended Products: **PYRAN® S, PYRAN® Platinum, PYRAN® Star**

## LIFT LOBBIES

Lift lobbies are the first point of assembly for every building floor and it is imperative that these critical spaces are well protected in the case of fire. Fire-rated glass doors and partitions have become the preferred tool to service this particular need, and are also emphasized in NBC 2016. Apart from being aesthetically-pleasing, transparent glazed systems also help facilitate fire-fighting and rescue operations.

Recommended Products: **PYRAN® S, PYRAN® Fusion**



**CLASS NK HEAD OFFICE**  
 Location: Navi Mumbai, India  
 Glass: SCHOTT PYRAN® S  
 Application: Lift Lobby Glazing



## COMPARTMENTATION AND PARTITIONS

Fire-rated compartments and partitions are the first line of defense against fire. According to the local civic regulations, it is now mandatory to compartmentalise floor plates in all commercial, hospitality and residential properties to create fire-safe refuge spaces. Fire-rated glass is used to create safe spaces that are transparent, last long, and require minimal maintenance. Our fire-rated safety glass is highly transparent, even in the event of fire, which makes it the obvious choice here as it can help firefighters locate trapped individuals. While these panels definitely ward off fire threats, they also create stunning partition systems and compartments, leaving you free to create visually-appealing spaces without compromising on safety.

Recommended Products: **PYRAN® S**, **PYRAN® Fusion**



**CBI HEADQUARTERS**  
Location: Mumbai, India  
Glass: SCHOTT PYRAN® S  
Application: Glazed Doors, Glazed Partitions



**OMKAR 1973 RESIDENCES**  
Location: Mumbai, India  
Architect: Fosters & Partners, London  
Glass: SCHOTT PYRAN® S  
Application: Glazed Doors, Glazed Partitions





**DASSAULT SYSTEMS OFFICE**  
Location: Mumbai, India  
Glass: SCHOTT PYRAN® S  
Application: Glazed Door System for Office Entrance



**YOKOHAMA OFFICE**  
Location: Mumbai, India  
Glass: SCHOTT PYRAN® Fusion  
Application: Glazed Doors for Office Entrance

## OFFICE ENTRANCES

Protecting the common areas from fires in office spaces is of paramount importance. Fire-rated glass doors have become the preferred tool to service this particular need. Apart from being aesthetically pleasing, and therefore the best choice for office entrance doors and the exit doors for staircases, these doors and partitions also help firefighters identify victims on either side of the door as it is completely glass and remains transparent. As per the NBC 2016, all lift lobbies and office entrances must provide at least 120 minutes fire-protc. Our PYRAN® S borosilicate glass offers the required protection while providing optimum customer satisfaction.

Recommended Products: **PYRAN® S**, **PYRAN® Fusion**



LIFT SHAFT GLAZING

During a fire, it's crucial to protect lifts and lift shafts as individuals may get trapped inside. If glass doors are used, the NBC requires that glass lift doors provide fire-protection for at least 60 minutes in case of a fire. Our PYRAN® S and PYRAN® Fusion offerings perfectly meet the requirements and serve as the ideal choice for buildings and architects looking to create sound buildings that provide optimum safety against fires.

Recommended Products: **PYRAN® S**, **PYRAN® Fusion**



**SPJIMR**  
**Location:** Mumbai, India  
**Glass:** SCHOTT PYRAN® S  
**Application:** Lift Shaft Fixed Glazing



**EUROPEAN INVESTMENT BANK**  
**Location:** Luxembourg  
**Architect:** Ingenhoven Architects  
**Glass:** SCHOTT PYRANOVA®  
**Application:** Facade, Glazed Doors, Glazed Partitions





## DATA SERVER ROOMS

Cloud computing has exploded globally and in India, which has led to numerous data server rooms cropping up all over the country. These small but important rooms store and secure data from our computers and phones. Given the nature of the room, a small electric failure or short circuit could lead to a huge fire. So, fire-rated glass is mandatory. Our fire-rated safety glass can provide up to four4 hours of comprehensive protection, and the right system can be recommended based on the requirement.

Recommended Products: **PYRAN® S**, **PYRAN® Fusion**, **PYRAN® Platinum**, **PYRANOVA®**





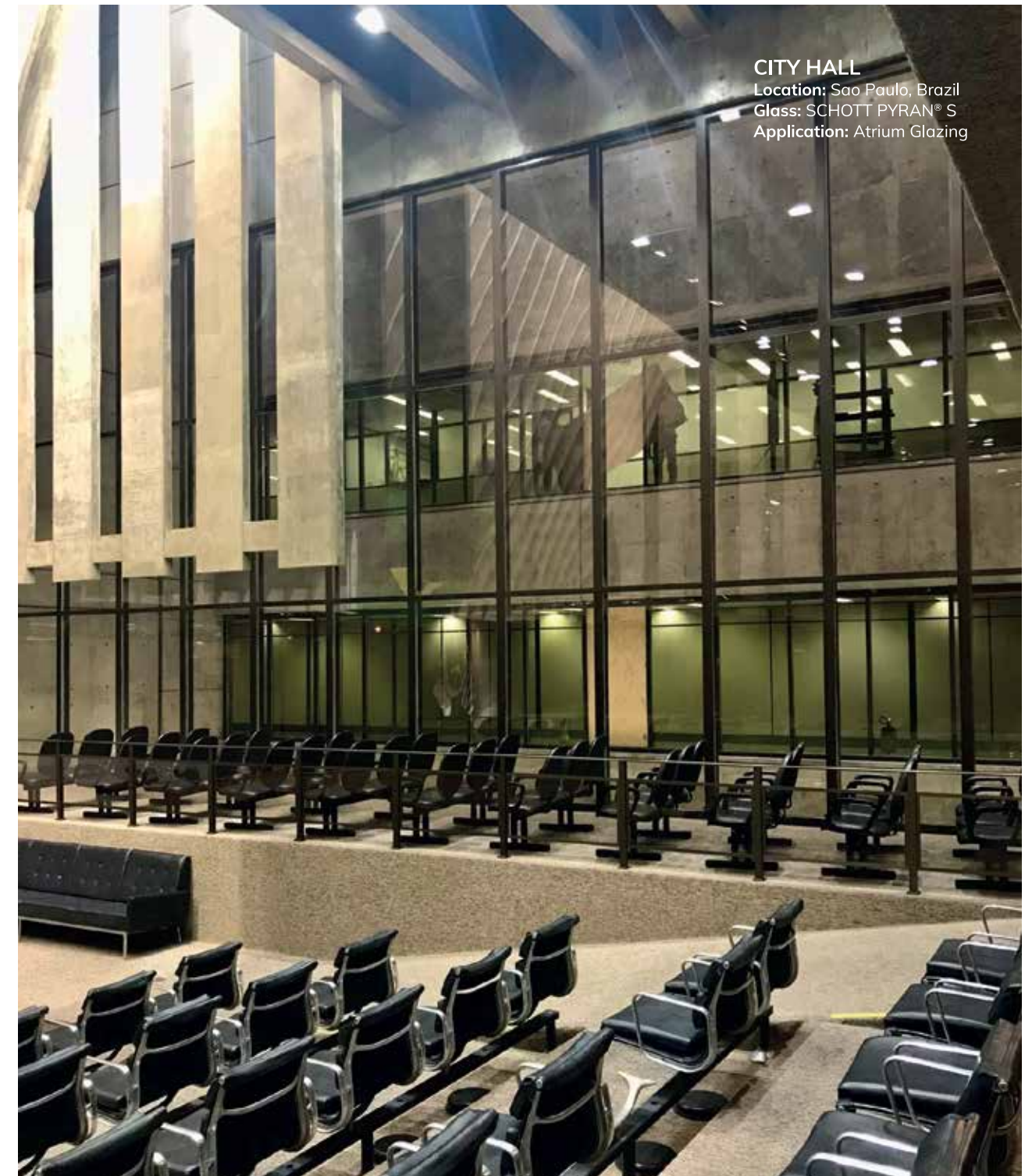
## EXIT DOORS LEADING TO EGRESS

While evacuating people from a building during a fire, it's imperative to provide safe passage. So, all exit doors that lead to an eventual egress must provide minimum insulation of 20 minutes and fire-protection up to 120 minutes as per NBC 2016. The 2-hour requirement can easily be met by our PYRAN® S glass for vision panels and PYRAN® Fusion glass for fully glazed doors.

Recommended Products: **PYRAN® S, PYRAN® Fusion**



**IKEA**  
Location: Hyderabad, India  
Glass: SCHOTT PYRAN® S  
Application: Fire-Exit Doors



**CITY HALL**  
Location: Sao Paulo, Brazil  
Glass: SCHOTT PYRAN® S  
Application: Atrium Glazing

## ATRIUMS

Atriums are created to brighten up spaces, but with fire-rated glazing, they can also prevent fires from spreading through the building core. These spaces become absolutely critical when it comes to fire-safety as they invariably create escape routes through their passages. It's vital that these passages are protected from fire and provide quick and safe access to the nearest fire-exit point in an emergency. Most importantly, our fire-rated safety glass ensures that these atriums add visual appeal to the overall beauty of the building with glass that is completely transparent and highly customisable.

Recommended Products: **PYRAN® S, PYRAN® Fusion, PYRANOVA®**





**UNIQLO**  
 Location: Gurgaon, India  
 Glass: SCHOTT PYRAN® S  
 Application: Smoke Screen System



**CURVED SMOKE SCREENS**  
 Location: Paris, France  
 Glass: SCHOTT PYRAN® S  
 Application: Curved Smoke Screen System

## SMOKE SCREENS

Fires cause a lot of smoke, which makes the air heavy and greatly impairs vision. To ensure that people can locate the nearest exit and safely evacuate a space that is on fire, it is now mandated that smoke screens must be used to create smoke compartments that prevent vertical spread of smoke through escalator and staircase shafts.

As per the NBC, smoke barriers or screens must be provided within the ceiling at platform and concourse levels and should withstand temperatures of up to 250°C for up to 60 minutes. Additionally, smoke barriers will also be provided around all openings containing staircases, escalators, and lifts in public areas.

Recommended Product: **PYRAN® S**





**ISHAARA**  
**Location:** Mumbai, India  
**Glass:** SCHOTT PYRAN® S  
**Application:** Glazed Kitchen Enclosure with Doors

## KITCHEN ENCLOSURES

Entrepreneurs and architects have picked glazed glass for commercial kitchens and restaurants for years, which helps greatly enhance the overall dining experience. Now, national and municipal building codes mandate the use of fire-rated glass, especially in partitions that separate cooking areas from the rest of the space. As detailed in Annexe G, Part 4 – Fire and Life Safety of the NBC, these panels must provide at least 60 minutes of protection. The huge advantage that comes with PYRAN® S glazing for such applications is its crystal clear appearance as well as resistance to very high temperatures.

Recommended Product: **PYRAN® S**

## FACADES

Given the implementation of the new National Building Code in India, it has become increasingly important to create fire-rated façades in both commercial and residential spaces. As market-leaders in the fire-rated glazing space, we have the experience required to provide you with complete fire-rated façade installations. Generally, our façades are used to seal off open refugee spaces or when there's a high risk that the fire will spread from one building to another. Most importantly, our fire-rated façade solutions stop fires from transmitting from inside-out or outside-in, as per the safety and regulatory requirements.

Recommended Products: **PYRAN® S COMBI**, **PYRAN® S Fusion COMBI**



**CET BUDAPEST**  
**Location:** Budapest, Hungary  
**Architect:** Oosterhuis Lénárd  
**Glass:** SCHOTT PYRAN® S  
**Application:** Facade Glazing



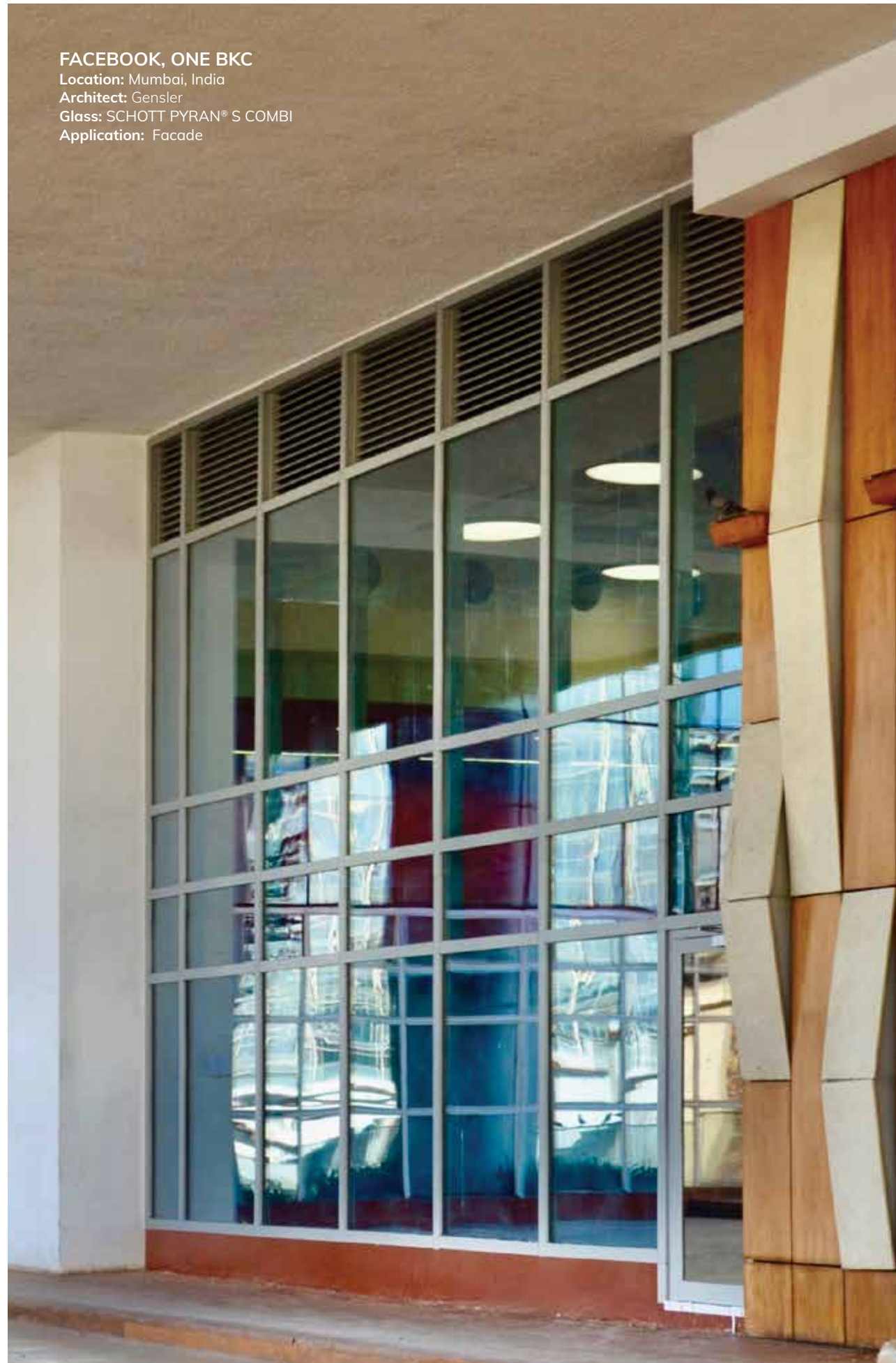
**FACEBOOK, ONE BKC**

**Location:** Mumbai, India

**Architect:** Gensler

**Glass:** SCHOTT PYRAN® S COMBI

**Application:** Facade

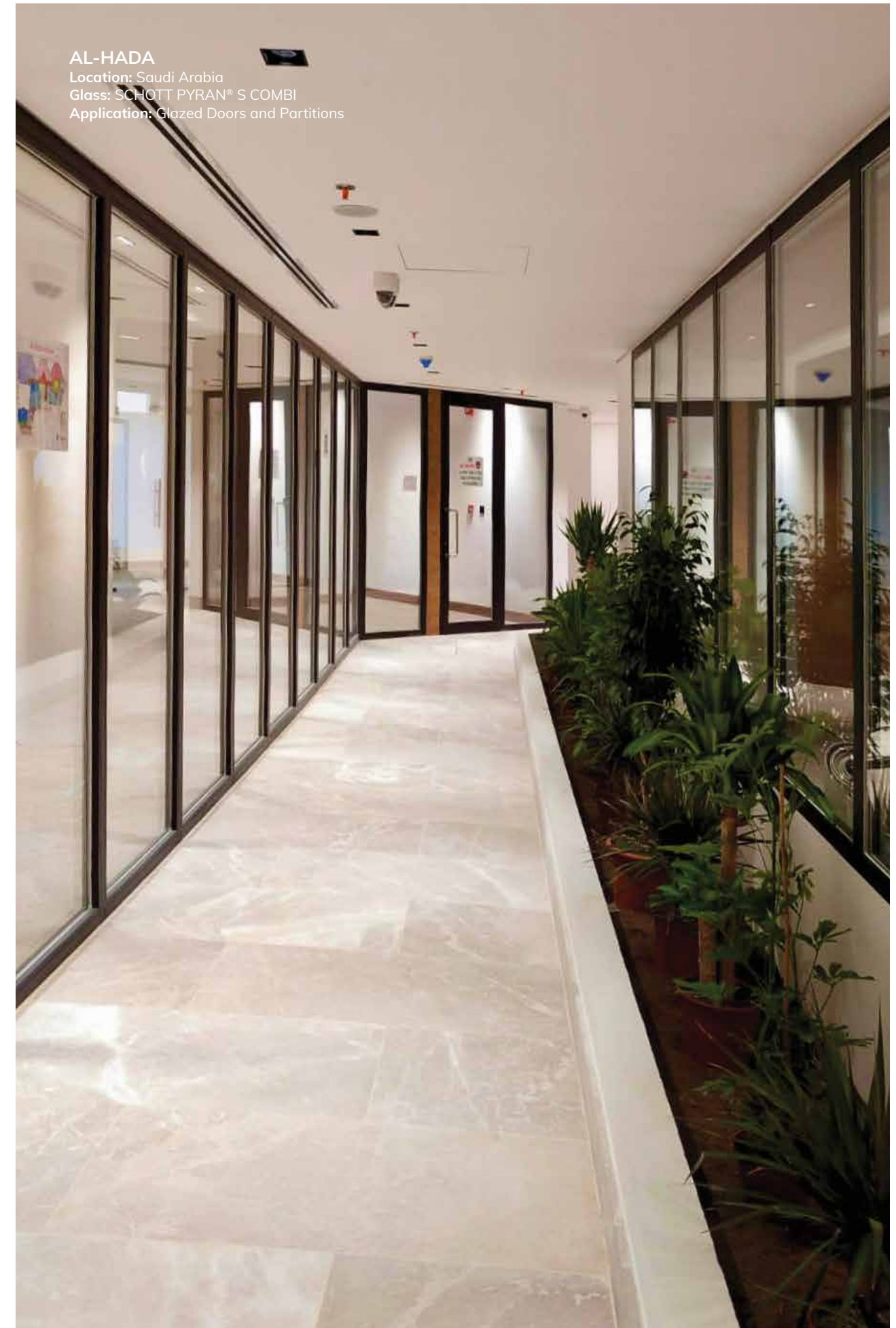


**AL-HADA**

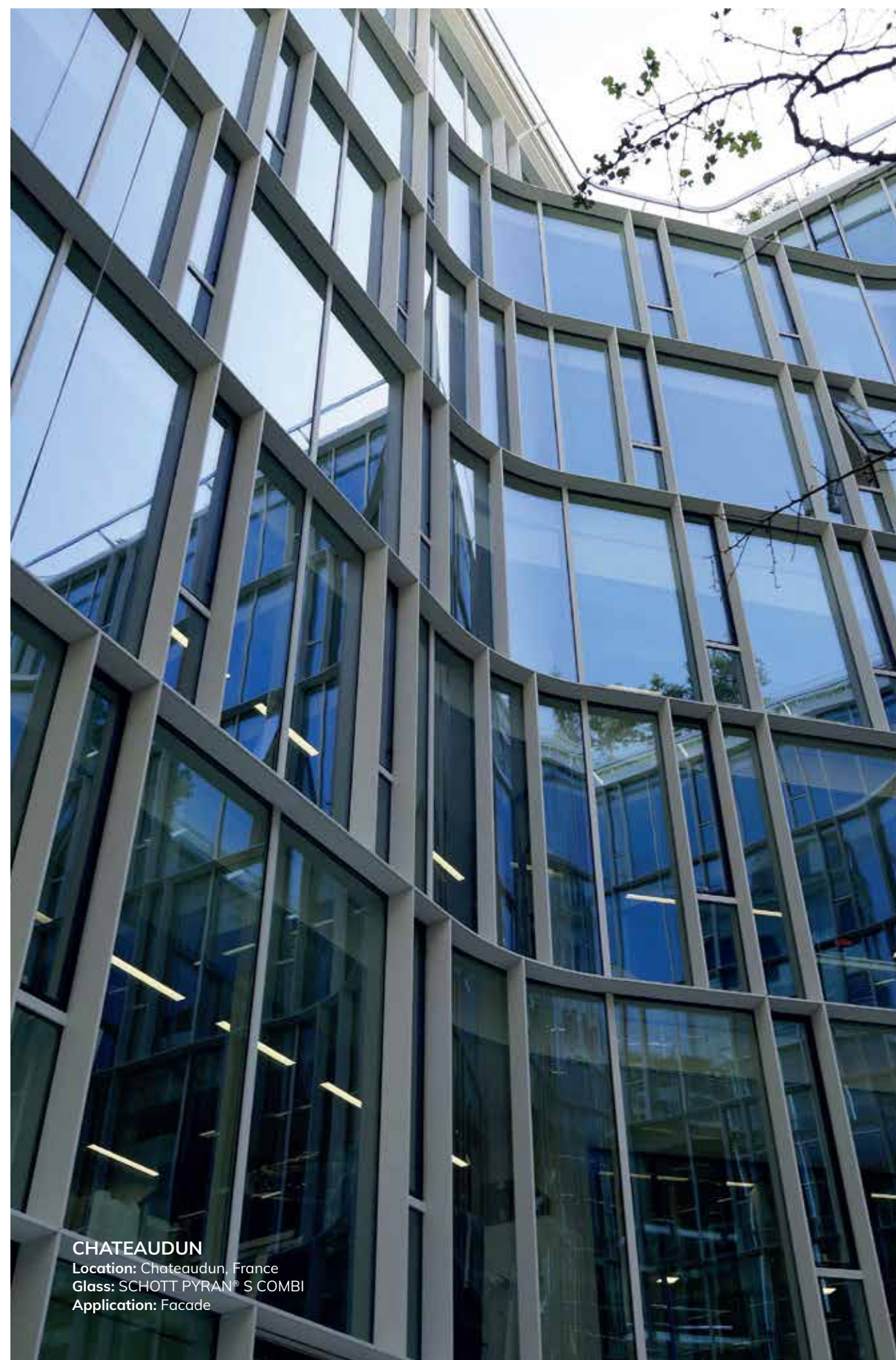
**Location:** Saudi Arabia

**Glass:** SCHOTT PYRAN® S COMBI

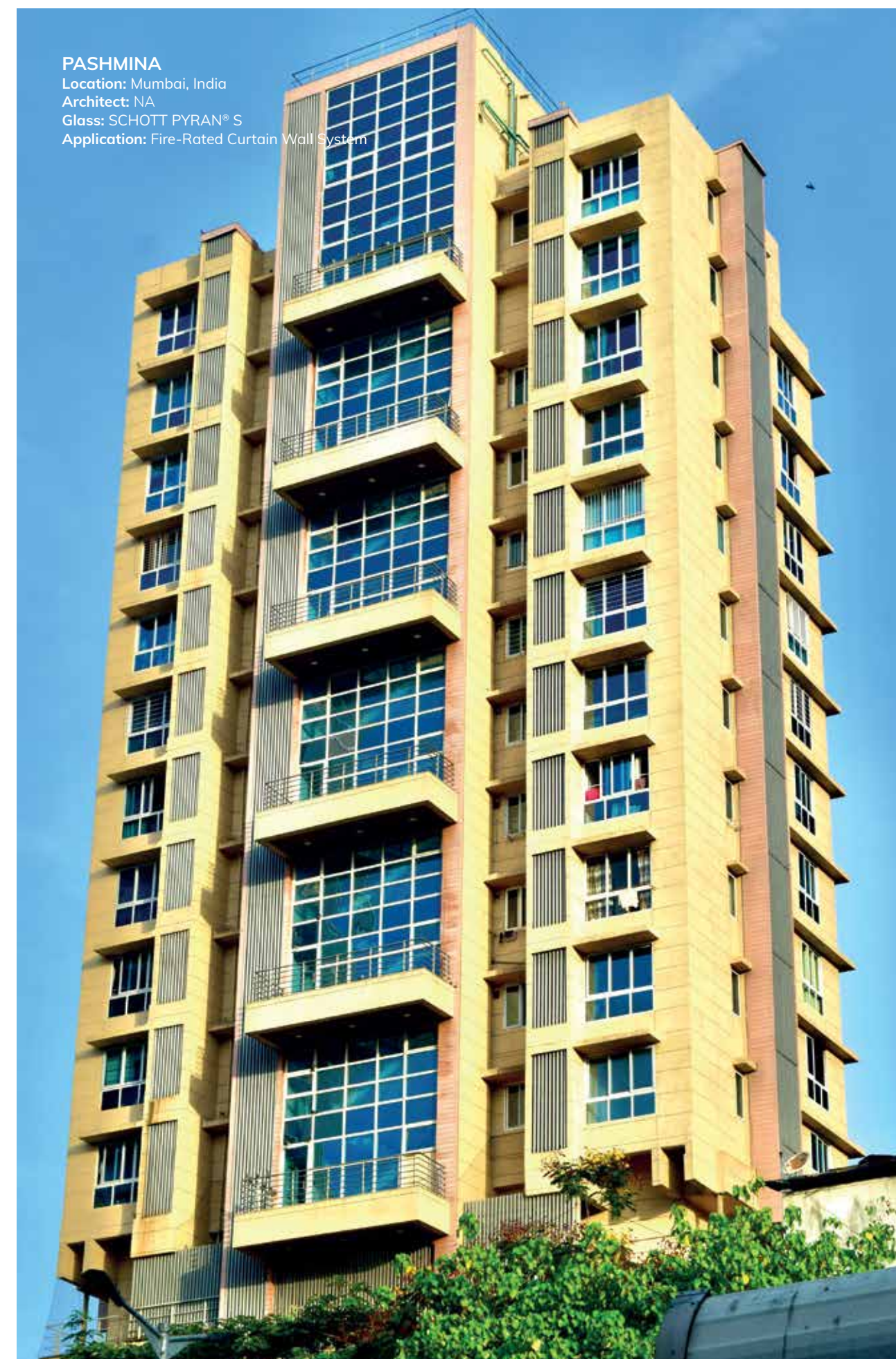
**Application:** Glazed Doors and Partitions







**CHATEAUDUN**  
 Location: Chateaudun, France  
 Glass: SCHOTT PYRAN® S COMBI  
 Application: Facade



**PASHMINA**  
 Location: Mumbai, India  
 Architect: NA  
 Glass: SCHOTT PYRAN® S  
 Application: Fire-Rated Curtain Wall System



## REFUGE AREAS

Every high-rise building must provide a refuge or safe area where residents and occupants can gather in case of a fire or emergency. The refuge area is often exposed to the outside environment and needs to be protected by a fire-rated wall or partition. Glass is ideal for this application since it provides safety and visibility, aiding in rescue operations. Both PYRAN® S and PYRAN® Fusion provide the required 120 minutes of protection as required by the Indian NBC. Additionally, these panels can be laminated or insulated to match the building's aesthetic and solar control requirements.

Recommended Products: **PYRAN® S**, **PYRAN® S COMBI**, **PYRAN® Fusion**, **PYRAN® Fusion COMBI**



**GODLEY HIGH SCHOOL**  
Location: Texas, USA  
Glass: SCHOTT PYRANOVA®  
Application: Glazed Partitions



**WEWORK**  
Location: Mumbai, India  
Glass: SCHOTT PYRAN® S  
Application: Glazed Staircase Enclosure

## STAIRCASE ENCLOSURES

Whenever there's a fire, staircases become the fastest and safest exit routes in buildings. It is vital to protect these exit routes and their access points and fire-rated doors with vision panels, or more recently, fully glazed systems, have become the protective tool of choice. Our glass for these applications are unique as they remain completely transparent even during fires, providing you with unmatched clarity that allows you to understand the extent of the fire while letting you find the safest exit route. If you're looking for maximum safety with an aesthetic benefit, our fully-glazed door systems are the perfect choice.

Recommended Products: **PYRAN® S**, **PYRAN® Fusion**

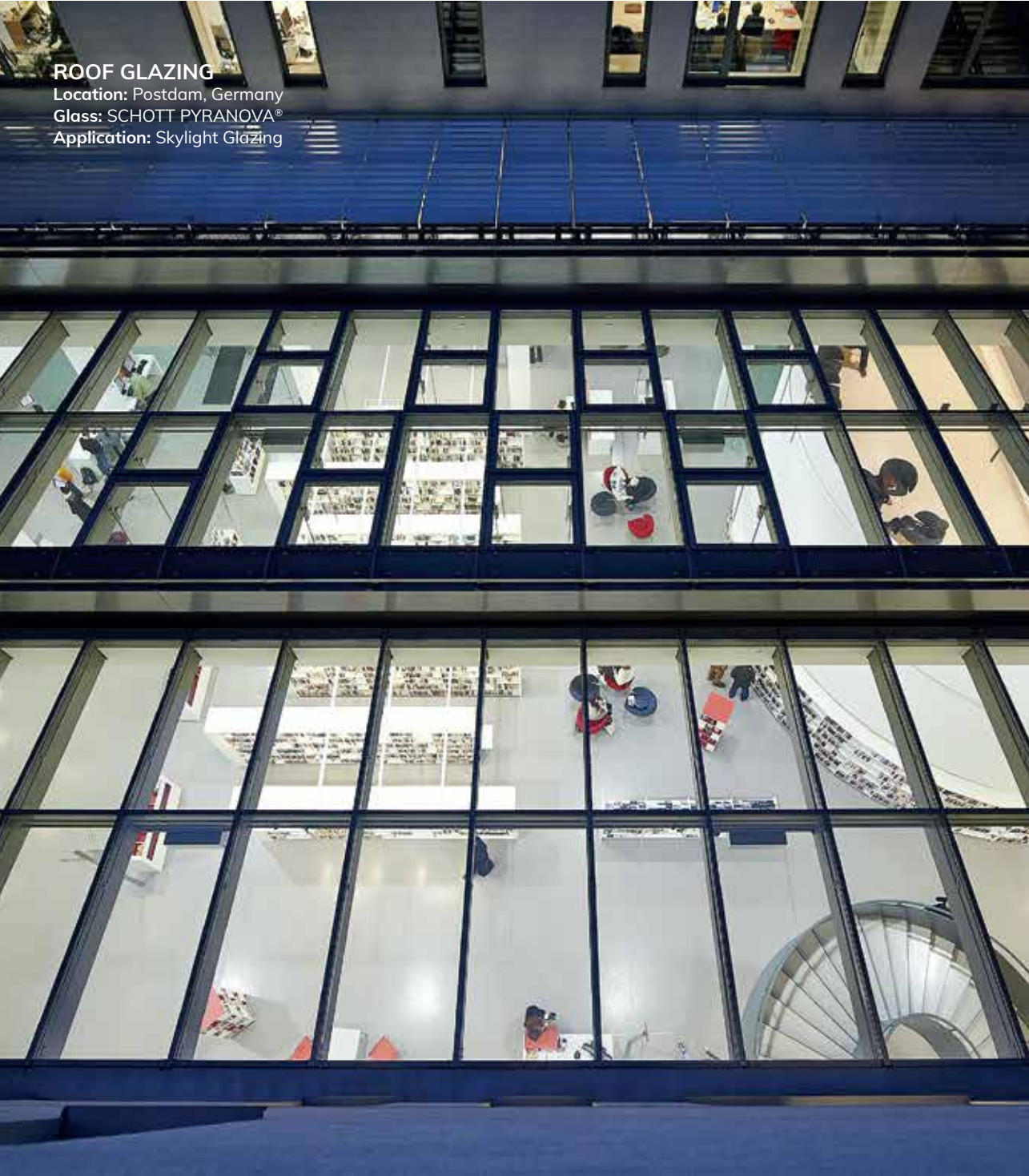


SKYLIGHTS

Skylights create gorgeous bright spaces in buildings. Now, with fire-rated glazing, they are potential life-savers. Fire-rated skylights stop fires from spreading from the building roof to the adjacent building.

SCHOTT fire-rated panels offer up to 120 minutes of protection for skylights. Our experienced team has the knowledge and know-how required to complete the complicated horizontal installation of these fire-rated panels. Depending on project requirements, our team can help you select the right thickness, shape, size and level of protection.

Recommended Products: **PYRAN® S**, **PYRAN® Fusion**, **PYRAN® Platinum**, **PYRANOVA®**



**ROOF GLAZING**  
Location: Postdam, Germany  
Glass: SCHOTT PYRANOVA®  
Application: Skylight Glazing



**PRESIDENT MUSEUM**  
Location: New Delhi, India  
Glass: SCHOTT PYRAN® Platinum COMBI  
Application: Skylight



**WALKABLE GLAZING**  
Location: France  
Glass: SCHOTT PYRAN® PYRANOVA  
Application: Facade





## INDUSTRIAL APPLICATIONS

In large industries and manufacturing units, a fire is almost always just a small misstep away. These fires can spread rapidly and cause serious damage to you and your business. This makes the need for fire-rated glazing all the more important. At FG, we're proud to bring you the widest range of fire-rated safety glass that can provide you with the protection you need, whenever you need it. Our panels from SCHOTT provide upwards of two hours of protection and can protect against more than just flames, and some even provide comprehensive protection against sustained flaming and heat.





## LIFT DOORS

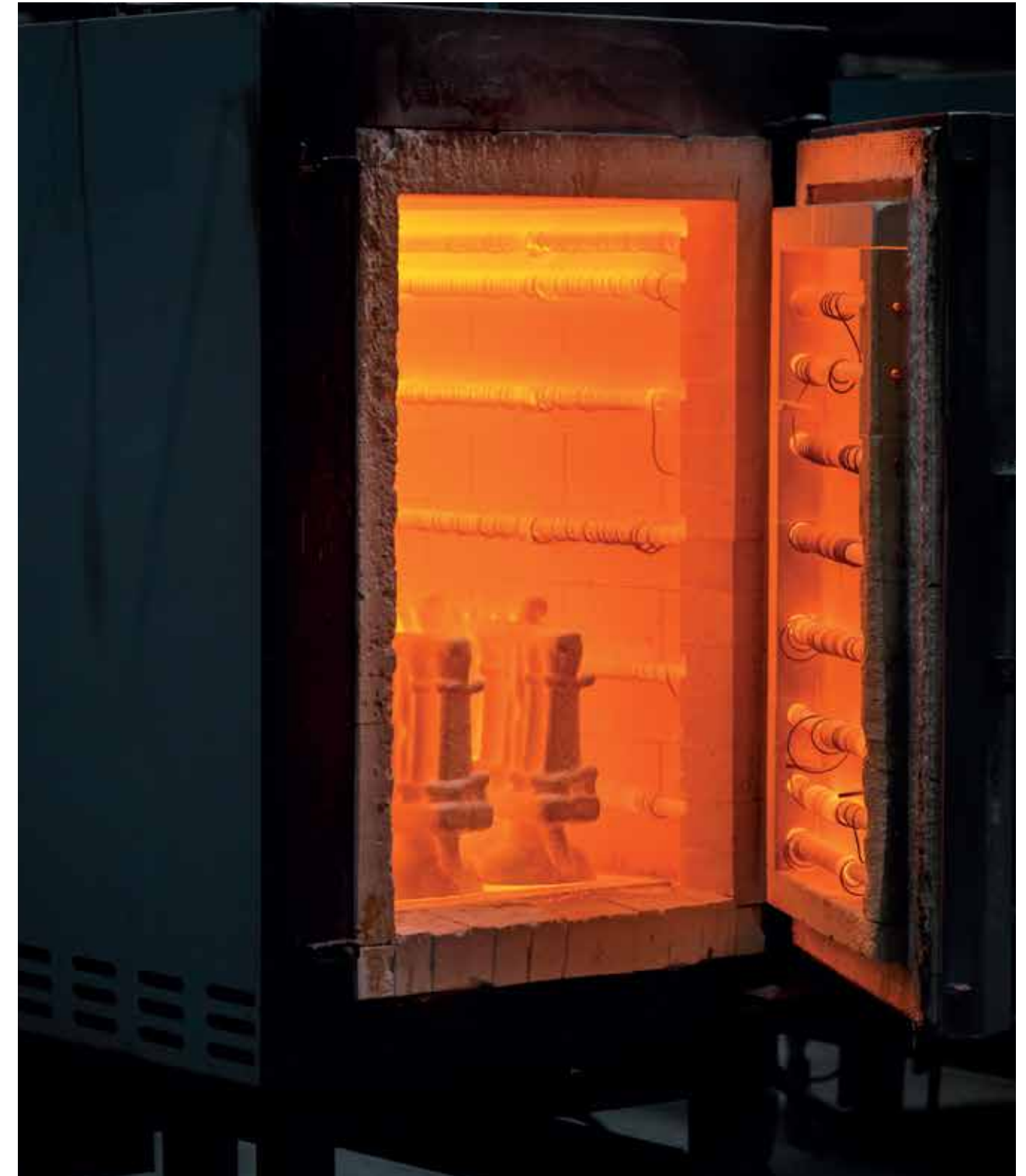
Lifts provide easy and quick access to large spaces that are built on multiple levels. But, in the event of a fire, these lifts are often shut down, leaving people trapped and helpless. Now, with the mandate that certain lifts have to be used in firefighting efforts, it's crucial that lift doors are made fire-resistant. Not only will these doors allow firefighters to coordinate swift evacuations, but they will also prevent suffocation and keep anybody trapped in the lift as safe as possible.

Recommended Product: **PYRAN® S COMBI**

## FURNACES

Industrial furnaces are built to reach temperatures over 400°C, so it's crucial that these furnaces have fire-resistance doors and are kept in rooms that use fire-resistant glazing to prevent fires from spreading should anything go wrong. Moreover, several furnaces have a critical requirement of vision panels through which the furnace operations can be monitored. SCHOTT's glass ceramics are the ideal products for use here, with their zero coefficient of expansion coupled with crystal clear aesthetics allowing for prolonged exposure to very high temperatures without loss of form or colour.

Recommended Products: **PYRAN® Star**, **PYRAN® Platinum**





## FIREPLACES

Managing and maintaining a fire is always difficult. This is precisely why it's crucial to ensure that you have fire-resistant glazing in place to protect areas around your fireplace. The use of fire-resistant glass will ensure that the fire doesn't spread outside a small and specified area, allowing you to safely and securely use the fireplace as required for all your heating needs, and at the same time providing beautiful vision for the flames.

Recommended Products: **PYRAN® Star**, **PYRAN® Platinum**







# MARINE APPLICATIONS

In order to ensure safety at sea, the International Maritime Organisation (IMO) has a maritime treaty known as SOLAS (Safety of Life at Sea). Although initial versions of SOLAS date back to 1914, the current standards in place were set in 1974. SOLAS 1974 is followed by 164 contracting states that are a part of the IMO and follow the minimum safety standards set by the treaty.

The Fire Safety Systems (FSS) Code is defined under Chapter II-2 of the treaty. The FSS deals with Active Fire Protection Systems, such as the use of extinguishers, fire alarms, smoke detectors and escape routes on the ship. The IMO also developed a Fire Test Procedures (FTP) code in July 1998 to outline the standardized tests to be used to ensure that fire-safe constructions and materials were used aboard all ships.



CLASSIFICATION OF GLASS UNDER FTP CODE

TYPE A GLASS	TYPE B GLASS
60 minutes fire rating testing	30 minutes fire rating testing
Classification rating describes the insulation property against heat radiation	
Temperature on the non-fire side: <140K – average <180K – individual	Temperature on the non-fire side: <140K – average <225K – individual

TYPE A GLASS	TYPE B GLASS
A0	60 min <56kW/m²
A15	15 min <2.34kW/m², 60 min <8kW/m²
A30	30 min <2.34kW/m², 60 min <6.4kW/m²
A60	60 min <2.34kW/m²
B0	30 min <37kW/m²
B15	15 min <2.34kW/m², 30 min <4.3kW/m²
B30	30 min <2.34kW/m²

COMMERCIAL CARRIERS

While transporting goods and cargo from one location to another, it goes without saying that fire safety is a top concern. A small fire could rapidly spread on a ship and destroy a lot of property. The use of fire-resistant glass and glazing helps contain fires and limit the damage done on carrier ships. In order to help you keep your cargo safe, our glass-rated panels meet the standards set by SOLAS, which comply with the latest International Maritime Regulations.

Recommended Products: **PYRAN® S, PYRANOVA®**





PASSENGER SHIPS & CRUISE LINERS

With passenger ships and cruise liners, safety, design and comfort all go hand-in-hand. Our fire-resistant glasses can help create beautiful spaces that offer both privacy and safety as required. The panels can be clear or opaque, as per your unique design requirements, and is built to prevent fires from spreading, ensuring safety is of the highest priority.

Recommended Products: **PYRAN® S, PYRANOVA®**

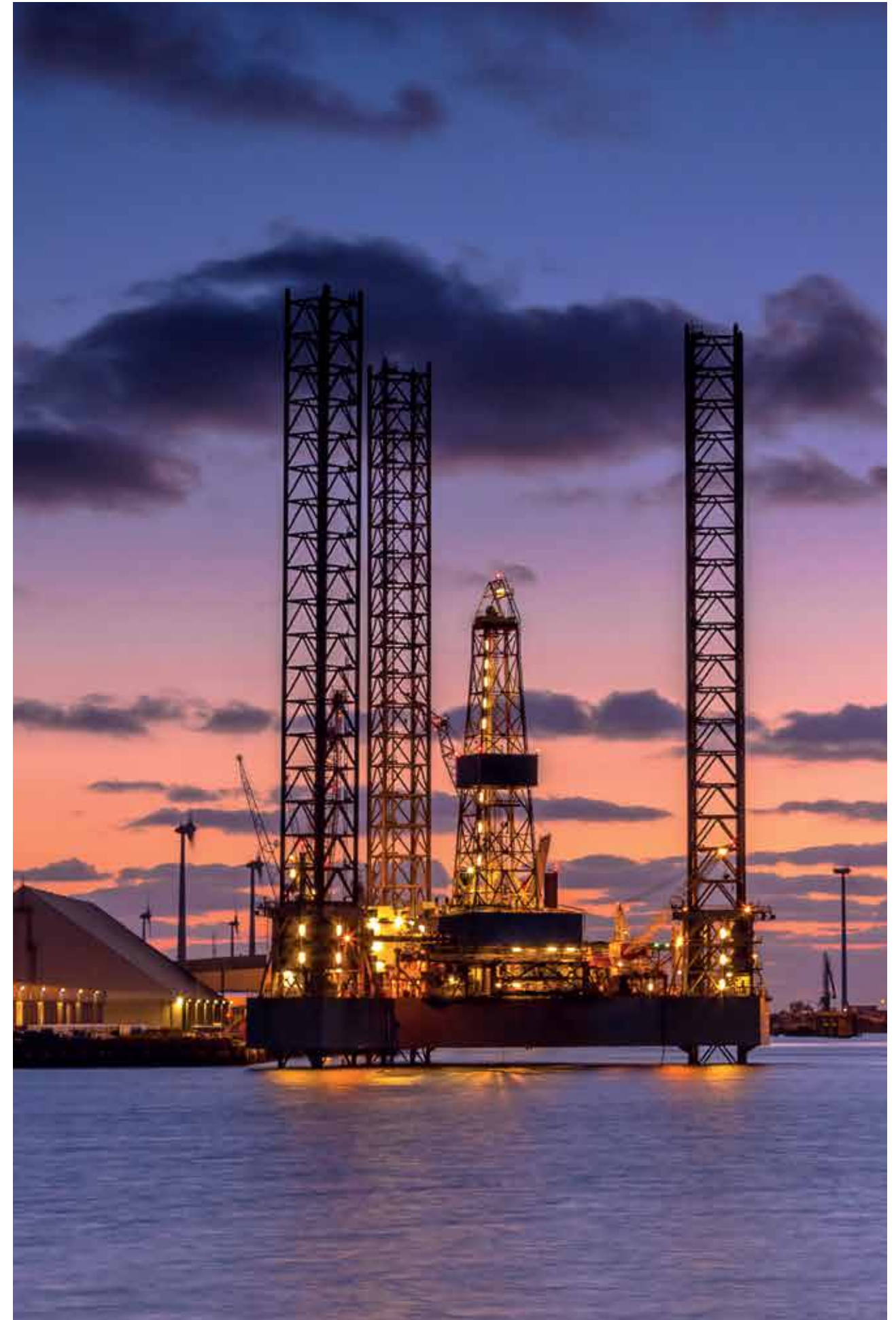




## OIL RIGS

Drilling for oil is a difficult and dangerous job. One small mishap could lead to dire consequences. With the use of fire-resistant glass on rigs, it's possible to prevent small accidents from turning into large catastrophes as these panels can help contain the fire, giving people enough time to find a way to safety.

Recommended Products: **PYRAN® S**, **PYRAN® Platinum**, **PYRANOVA®**







1976

Group Founding Year

11

Factories and Offices

5 Million

Panels Installed

35

Countries Exported to

700

Projects Successfully Executed

1000+

Family Strength

650,000

Square Feet Factory Area

6

Group Companies

## WHO WE ARE

Part of the Fishfa Group, FG Glass is among the world's leading architectural glass manufacturers. Over the last two decades, we have successfully completed a wide range of projects in more than 35 countries across 5 continents. Our rigorous quality standards and robust project management processes have been key factors in ensuring that our projects are delivered on time and on budget.

We have a well-established supplier network in Europe and the Americas and state-of-the-art manufacturing facilities in India and the UAE, which has enabled us to leave our footprint in multiple locations across the globe. We're constantly working on setting new standards in the glass industry and this has led to us being the glass supplier of choice for businesses around the world. Our partnership with Kuraray, a leading Japanese brand, has allowed us to bring the thinnest, clearest and fully-certified security glass to India.