

The World's Leading Structural Glass System

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Pilkington Planar™

GLASS FIN WALLS
TENSION STRUCTURES & CABLE NETS
ROOFS, SKYLIGHTS & CANOPIES

W&W GLASS, LLC

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For further Pilkington **Planar™** information, details and specifications contact **W&W at 1-800-452-7925** or visit our web site at **wwglass.com**

The Pilkington Planar™ System

Unrivalled Performance for Over 40 Years - There is no equal!

Pilkington **Planar™** structural glass systems have a proven track record in the most demanding applications. Architects can have absolute confidence in our ability to create soaring facades, roofs, canopies or even clad an entire building knowing that the client will receive the most highly engineered system in the market backed by the most respected glass manufacturer in the world. Pilkington **Planar™** readily adapts to the design team's requirements for designing backup structures elegantly light or highly expressive.

The combined experience of one of the oldest and largest glass makers in the world along with one of the largest glaziers in the United States assures a safe and successful result!

Manufacturer

Pilkington **Planar™** is exclusively made by Pilkington, the world's leading glass manufacturer for over 150 years. One of the world's largest glass research facilities supports an ongoing, extremely rigorous, in-house Pilkington testing program. Pilkington provides the complete glazing system as a sole source to insure undivided responsibility. This allows Pilkington to offer their 12 year comprehensive warranty.

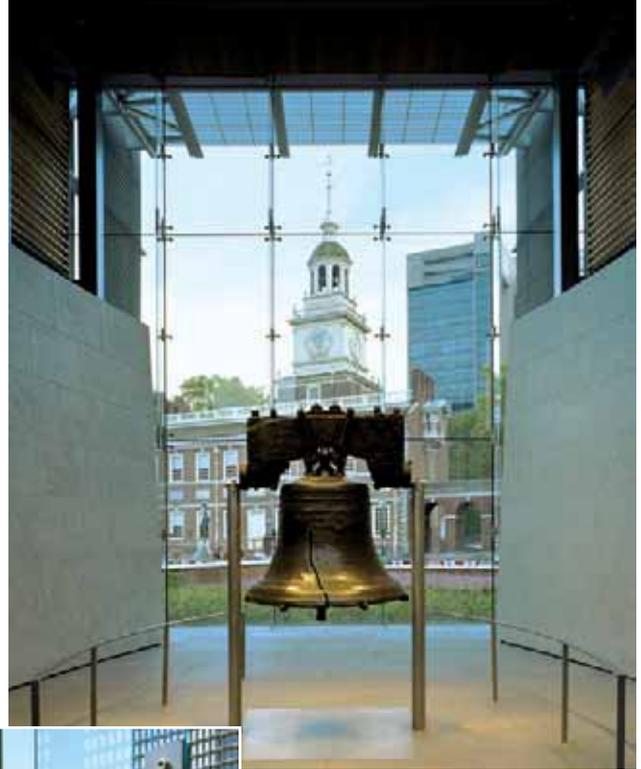
Pilkington maintains a separate and exclusive facility designed strictly for the manufacturing of the Pilkington **Planar™** system. This results in exclusive glass features found only in the Pilkington **Planar™** system (see page 3).

Route to Market

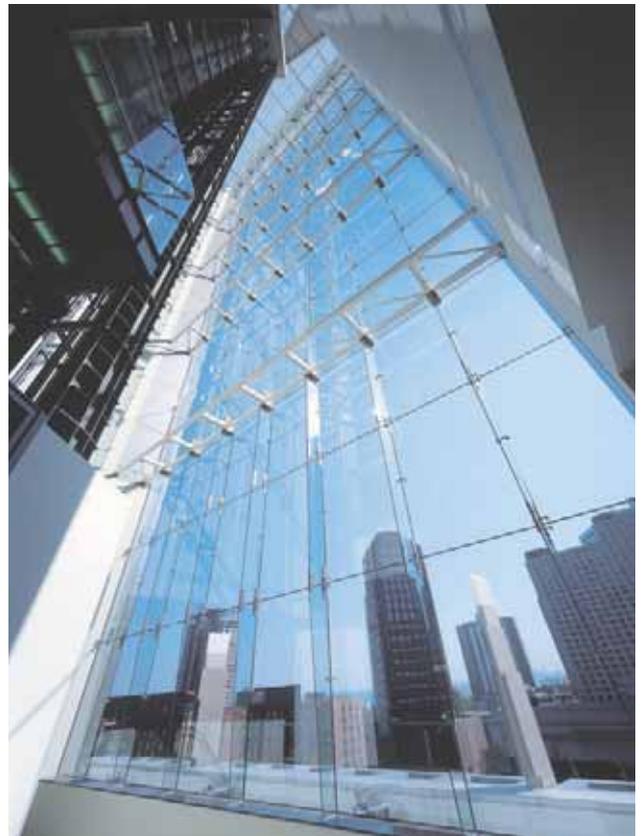
The system is represented in the North American market only by W&W Glass LLC. W&W is a family owned business with over a 60 year history. The company is one of the largest glass and glazing companies in the US and the largest supplier/erector of structural glass systems in the country. We have over two decades of experience designing, engineering and erecting structural glass systems. Pilkington has chosen W&W exclusively to be the accredited designer, installer and sole distributor of the Pilkington **Planar™** system in the US. This experience insures tight quality control, superior project management and job site performance.

The system is sold only through the top glass and glazing companies in the US. All projects are supervised on site by an experienced W&W field supervisor to insure that the quality of the installation is equal to the quality of the product.

Together, the two companies and the chosen installer represent a level of experience and a proven track record that is unequalled in every aspect.



Liberty Bell Center, Philadelphia, PA
Bolin, Cywinski & Jackson, Arch.



River East Center, Chicago, IL
DeStefano & Partners, Ltd., Arch.

Major Advantages

1. Sole Source Manufacturer

In-house, sole source quality assured system totally manufactured and controlled by Pilkington. The system is never sold by mixing outside glass or hardware suppliers. This allows Pilkington to offer a single source *direct* manufacturer's warranty to the end user.

2. Engineering

Both Pilkington and W&W maintain dedicated in-house engineering staffs that review every detail of each system from initial concept and project submittals all the way through to manufacturing and installation.

3. Superior Tempering

Minimum compressive strength of 16,000 psi in an exclusive modern furnace versus typical domestic tempering of approximately 11,500 psi. This gives the glass added strength so that even when the glass is subjected to required high static and dynamic loading, there will be very high factors of safety at the hole locations where maximum stress occurs.

4. Rollerwave Distortion Control

Rollerwave distortion (the visual waviness inherent in tempered glass) is reduced to an average of 0.0008" peak to valley in lieu of the published norm of 0.05". This exclusive feature virtually eliminates the visual rollerwave making the glass an accurate reflection of its surroundings (see pages 14 & 15).

5. Research And Testing

Pilkington maintains one of the world's largest glass research and testing facilities and regularly tests, in house, for various Pilkington **Planar™** projects as well as new products.

6. 12 Year Warranty Gives You Absolute Confidence

Continual and rigorous testing programs have given us a wealth of knowledge concerning structural glass systems. This has allowed us to introduce a Code of Practice for structural glass facades, and every part of every Pilkington **Planar™** solution is designed in accordance with this criteria. This means we can give Pilkington **Planar™** a 12 year design and materials warranty, and give you total confidence in the system's performance and reliability.

INTRODUCTION & ADVANTAGES

Pilkington Planar™



Columbus Ave. Pavilion at the American Museum of Natural History
New York City, NY Polshak Partnership Architects LLP, Arch.



55 Water Street, New York, NY
Harman Jablin, Arch.



Music & Dance Theatre, Chicago, IL
HBRA Associates, Arch.

Pilkington Planar™ – Most Tested... Most Trusted...

Always Striving to Reach New Heights!

Architects, engineers and consultants are continually demanding higher performance and creating newer and more complex designs. These design requirements require new research and testing. Pilkington's in house engineering team and research center can answer the call. In the US, we have successfully tested for new projects at M.I.T.s' Brain and Cognitive Center, The West Midtown Ferry Terminal in NY as well as The Brooklyn Museum of Art's floating glass roof (see page 17).

Pilkington has been and continues to test for bomb blast resistance as well as the development of a concealed fitting within the glass called Pilkington **Integral**, energy efficient triple insulated glass called Pilkington **Triple** and Pilkington **Activ**™ (see pages 14 & 23).

It is this intense level of testing backed by over forty years of experience that gives the end user the confidence to know that Pilkington **Planar**™ delivers the safest product on the market.

Bomb-Blast Testing...

Pilkington Architectural continues to lead the field in expanding the possibilities for structural glazing, by further increasing the range of Pilkington **Planar**™ glazing tested to bomb blast specifications.

Pilkington recently completed a further round of government sponsored range testing in the UK using various Pilkington **Planar**™ constructions to different US and draft international standards. This testing further compliments the existing results for the Pilkington **Planar**™ System allowing Pilkington engineers to design glazing systems to pass the Level 1 standard when tested to both GSA-C and GSA-D.

Pilkington Architectural is now uniquely able to assist architects, specifiers, developers and consultants in developing their specifications for blast resistant structural glazing, whatever the desired level of protection.

Testing: The Way To Innovation!

Fail Safe Redundancy of Fins –

The consultant demanded an unprecedented FAIL-SAFE, REDUNDANCY TEST that had never been done before. Under design load (40 psf), we remotely broke a glass fin to prove that the system would stay in place with a broken structural element on the wall! In addition we tested for dynamic, air, water and seismic loading.



Water Penetration Test



Long Span Truss Test Rig



Bomb Blast Range Testing



High Strength Laminated Fin Test



Redundant Fin Test

Steel Support Structures

Steel backup structures can be simple pipe columns all the way to extremely complicated and expressive truss systems. W&W and Pilkington can design and supply, as a sole source system, both the glass and steel. In some instances when the design is very simple, it may be advantageous to allow the steel to be furnished and erected within the steel package, with coordination by Pilkington and W&W. When the steel design becomes expressive and close integration of the two products is needed, then we will supply both steel and glass as a single source.

TESTING & APPLICATIONS

Pilkington Planar™



American Bible Society, New York City, NY
FX Fowle, Arch.



100 Cambridge Street, Boston, MA
Elkus/Manfredi, Arch.



Afognak, Anchorage, AK
Koonce Pfeffer Bettis, Arch.

Glass Mullion Systems

The glass mullion system uses glass fins as a means of support for maximum transparency. These tall facades must be suspended from the structure above with the glass panels fastened to the mullions by Pilkington **Planar**™ fittings. This means the combined weight of both the panels and the mullions is carried by the connection at the head of each fin. This allows you to design very high facades that do not exert large in-plane loads on the Pilkington **Planar**™ panels. All projects in high seismic zones must be suspended in this way. Pilkington **Planar**™ has been thoroughly tested for use in areas of high seismic activity, which has been demonstrated by the system's excellent performance in the Northridge and Kobe earthquakes.

The system is continually evolving and was used to support the 170 ft. tall River East project in Chicago (see page 2)! Pilkington leads the way in the development and testing of this technology. **In fact, a Pilkington Planar™ glass mullion facade has been designed and tested to wind loads of 270 psf (320 mph) for 15 minutes.**



Harlem USA, New York City, NY
Skidmore, Owings & Merrill LLP, Arch.



Ontario Convention Center, Ontario, CA
HMC, Arch.

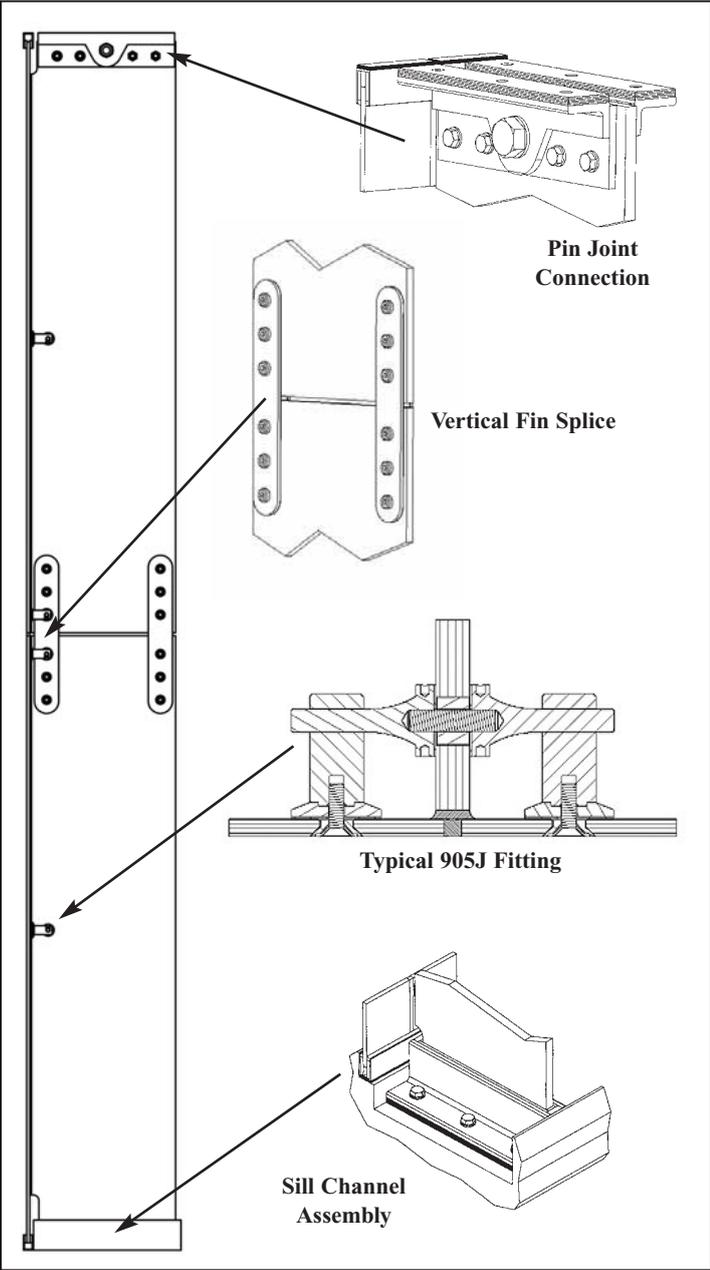


Baltimore Washington International Airport, Baltimore, MD
URS, Arch.



VOB-BMW
Rockville, MD
DNC, Arch.

Typical Glass Mullion Section/Details



APPLICATIONS
Pilkington Planar™



Technologies Parametric, 140 Kendrick St., Needham-MA
Tsoi /Kobus & Associates, Arch.
Photograph: © Robert Benson



AMC Theater, Los Angeles, CA, STK Architecture, Inc., Arch.



Tension Structures

Various forms of cable-stayed backup system designs can be used to support a Pilkington **Planar**™ facade. They can take the form of simple trusses or Pilkington **Planar**™ T.S. (tension structures). With either custom truss designs or Pilkington **Planar**™ T.S., we can combine the backup structure and the glass into one sole source system. This allows us to guarantee the delivery, compatibility and performance of the complete facade.

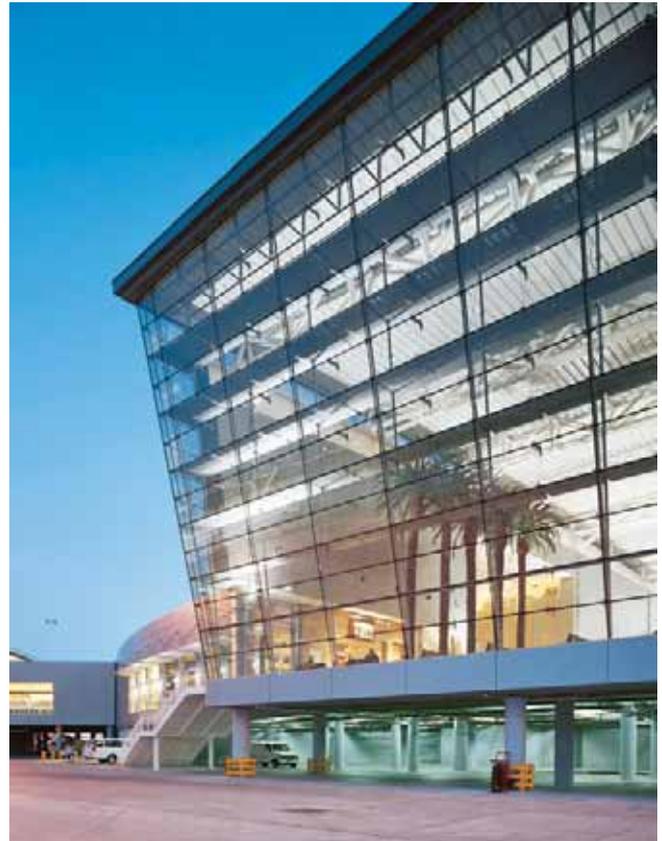
In all instances, the capabilities and loading of the glass must be used as the basis of the design for the backup structural system.

Proven Performance

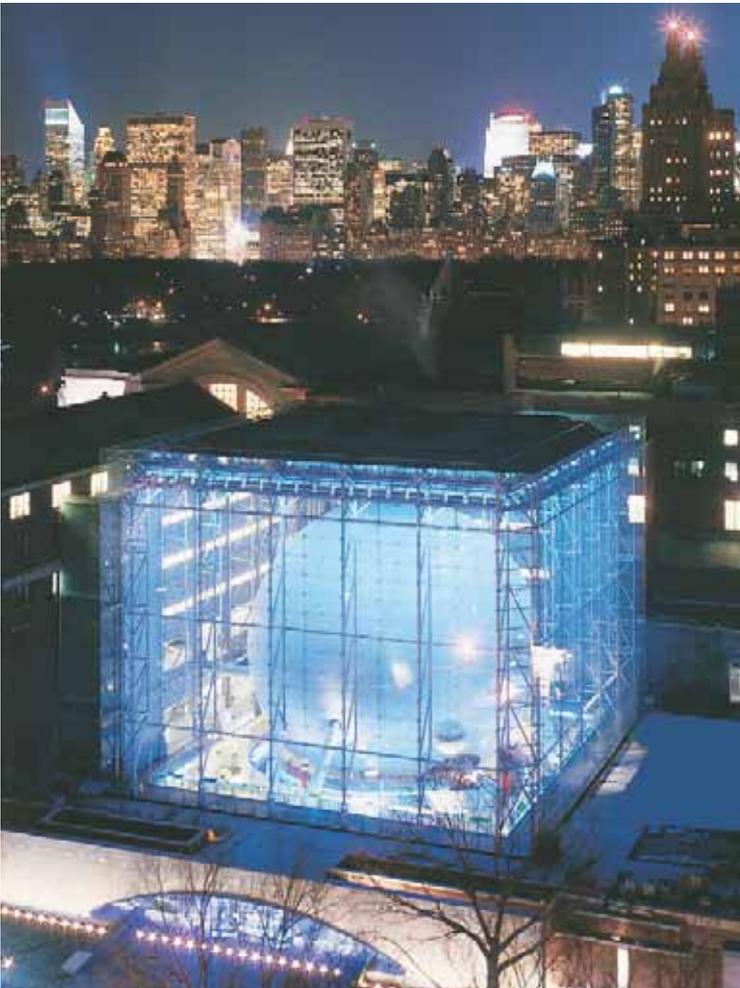
Pilkington **Planar**™ Tension Structures have already met high performance requirements for seismic loads, live and dead loads and wind loading including hurricane force winds.

These structures require early cooperation between the design team and W&W Glass to solve both design and budget questions. We offer full technical design services, starting from the basic concept through 2D and 3D analysis, up to full design and performance specifications, design drawings and guaranteed maximum pricing.

Widely acclaimed examples of Pilkington **Planar**™ T.S. type projects include The Rose Center for Earth and Space, Harvard Medical School in Boston, MA, NASDAQ Marketsite in New York and the Brooklyn Museum of Art.



McCarran Airport Terminal D, Las Vegas, NV
Tate & Snyder, Arch.



The Rose Center for Earth and Space, American Museum of Natural History
New York City, NY
Polshek Partnership Architects LLP, Arch.

University of Connecticut, Stamford, CT
Perkins & Eastman, Arch.



Tension Structure Design Concepts

Pilkington is leading the way in tension structure technology worldwide with projects throughout the US, Europe and the Far East. It is critical that the design and specifications for these special facades require a sole source responsibility for the entire structure to coordinate the very tight tolerances needed for their successful implementation.

Three forms of tension assisted glass wall systems form the basis of the standard Pilkington **Planar**™ T.S. system. They vary from simple steel tubular trusses all the way to complete rod or cable tension structures. Various combinations of these systems can be created and, of course, custom applications are possible.

SERIES 1: Primary truss with secondary rigging system

- Most conventional truss fabrication
- Most rigid
- Most economical

SERIES 2: Bow string truss

- No tension forces are transferred into boundary structure
- Erects quickly
- Middle range of transparency
- Middle range of pricing

SERIES 3: Cable truss

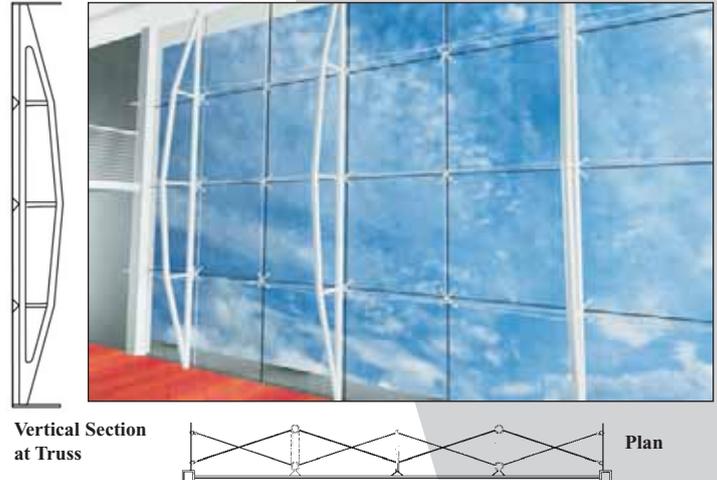
- Generates high tensile loads into boundary structure
- Requires increased support stiffness
- Lightweight
- Maximum Transparency
- Upper range of pricing



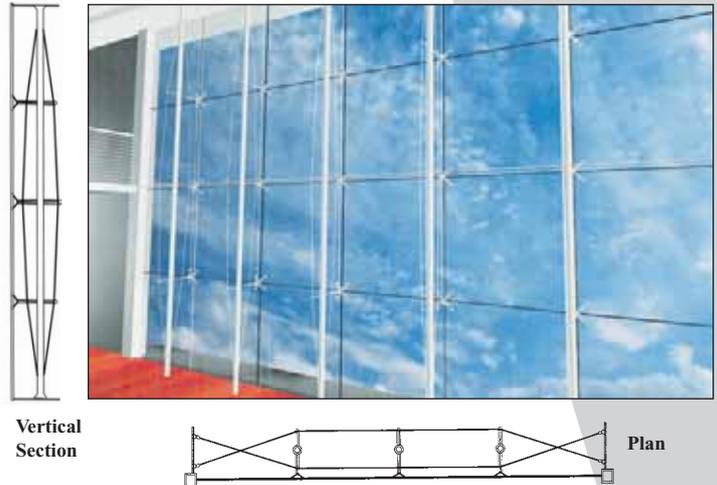
Tampa International Airport Remote Parking Garage
Tampa, FL
Gresham Smith & Partners, Arch.

APPLICATIONS Pilkington Planar™

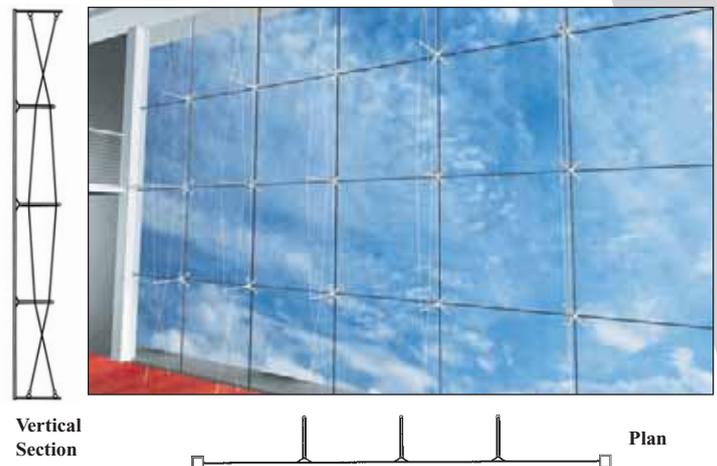
SERIES 1



SERIES 2



SERIES 3



Canopy Systems

The design flexibility of Pilkington **Planar**™ and the reduction of metal framing, which can cause maintenance problems over time, make Pilkington **Planar**™ the perfect choice for horizontal and overhead glazing. Pilkington **Planar**™ overhead glazing has undergone extensive seismic, bomb blast, impact, water and wind load testing.

Backup structures can be supplied as a completely engineered sole source package for guaranteed performance of the complete skylight or canopy.

Technical Considerations

The backup structure is required to carry snow and other loads and resist negative wind pressures through the fixing locations. Large spans are possible if underlying purlins are reinforced with cable tension rod rigging. Pilkington **Planar**™ requires a minimum of 3 degrees of slope to eliminate ponding of water in the center of the glass.



New Research Building – Harvard Medical School, Boston, MA
Architectural Resources Cambridge, Inc., Arch.



Fox Plaza, Century City, CA
Johnson, Fain & Pereira Associates, Arch.



Chagall Secondary Roof Structure, Chicago, IL
Skidmore, Owings & Merrill LLP, Arch.



Rockefeller University, New York City, NY
Wendy Evans Joseph Arch.



Museum of Contemporary Art
Los Angeles, CA
Arata Isozaki, Design Arch.
Gruen Assoc., Arch.

APPLICATIONS

Pilkington Planar™

Roofs & Skylights

Similar to the use of Pilkington **Planar**™ for canopies, roof and skylight applications have an extensive in-service track record for safety and durability. Horizontal applications are warranted for 12 years against delamination, leakage and seal failure (IG units).

Early coordination with the building structure is needed, as well as consideration of snow and drift loads, seismic zone, drainage, etc. Steel can be engineered to use combinations of glass mullions and/or cable and steel structures.



Orlando International Airport - Airside 2 Terminal, Orlando, FL
HOK, Arch.

Imperial Bank Tower - Segerstrom Building, Costa Mesa, CA
Murphy/Jahn, Arch.



NYU Kimmel Center, New York City, NY
Roche, Dinkeloo & Assoc., Arch.



Anne Arundel County Courthouse, Annapolis, MD
Spillis, Candela, Warnecke, Arch.

Planar™ | SentryGlas® Plus System



Glass Laminating Solutions

The world's leading forces in structural glass systems and laminate interlayers have joined together to create the ultimate in strength, safety, durability and appearance in laminated structural glass – the **Planar™ | SentryGlas® Plus System**.

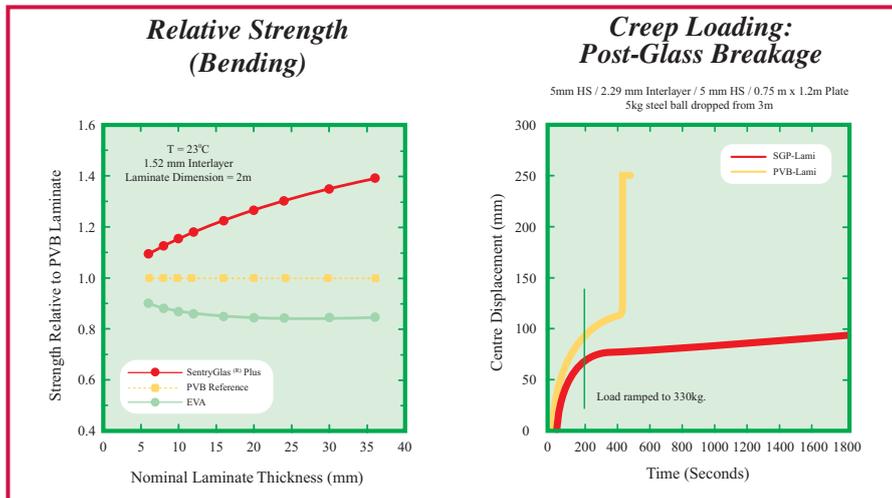
Pilkington has been at the forefront of frameless glazing technology for more than 30 years, and Pilkington **Planar™** is the most tested and most trusted structural glass system, chosen by architects and engineers for their most challenging applications. Now Pilkington engineers working with DuPont™ scientists have combined their leading edge technologies to develop the **Planar™ | SentryGlas® Plus System**: the latest advance in frameless glazing.

Applications of the **Planar™ | SentryGlas® Plus System** are not just confined to complex projects.

Significant benefits can be realized on any project in which increased strength or enhanced appearance are considered to be of importance. The versatility of the **Planar™ | SentryGlas® Plus System** can now match the demands of projects on all levels.

12 year warranty

The **Planar™ | SentryGlas® Plus System** is subject to a design and engineering check by Pilkington engineers, and carries the full Pilkington **Planar™** 12 year warranty.



Benefits

Stronger

The laminated glass in the **Planar™ | SentryGlas® Plus System** is substantially stronger than traditional PVB laminated systems. Therefore, while the system still offers the same high levels of performance synonymous with Pilkington **Planar™**, it can be made with a thinner glass.

Lighter

The use of custom designed Pilkington **Planar™** fittings in combination with stronger laminated glass panels results in a **Planar™ | SentryGlas® Plus System** typically being much lighter than its more conventional PVB counterpart.

This can result in longer panels, a reduced number of support fixings and lighter weight support structures. This reduces their visual impact, as well as provides cost savings.

Safer

Tests have proven that the **Planar™ | SentryGlas® Plus System** has residual strength, even with both glass components broken. This brings greater peace of mind in locations subject to typhoons or hurricanes, and makes it possible to specify laminated glass for canopies and skylights which can be accessed for maintenance.

Edge Stable

SentryGlas® Plus has been subjected to intensive testing to ensure its long term edge stability as well as compatibility with silicone sealants.



DuPont™, the DuPont Oval and SentryGlas® are registered trademarks or trademarks of E.I. DuPont De Nemours & Co. or its affiliates and are used under license from the trademark owner.



Benefits

The **Planar™** | SentryGlas® Plus System can also be designed to withstand a variety of bomb blast performance requirements. Subject to local regulations and safe working practices.

The **Planar™** | SentryGlas® Plus System can be supplied using the revolutionary Pilkington Planar™ Integral System where our fasteners are hidden within the laminate (see page 14). This allows a much wider choice of glass than traditional structural laminates.

Maximum Clarity

The SentryGlas® Plus structural interlayer is significantly clearer than traditional interlayers. When used with Pilkington **Optiwhite™** exceptional clarity is achieved.

Design

To gain maximum benefit from the enhanced properties of the toughened laminated glass, Pilkington engineers have developed customized fittings incorporating advanced engineering plastic technology. The connections have been upgraded from standard Pilkington **Planar™** fittings to provide a number of additional functions including developing maximum strength while eliminating compression in the interlayer – which can reduce load bearing capacity and durability.



Pilkington Glass – More Than Ordinary Glass

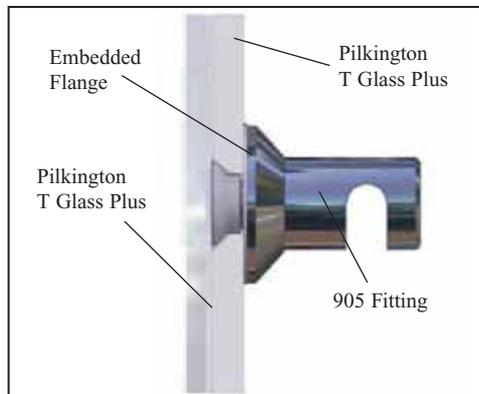
Since Pilkington **Planar**™ is produced in a facility that is exclusively designed for structural glass applications, we can produce glass with unequalled characteristics:

Tempering strength – In order to assure that the end product maintains superior factors of safety and develops the needed strength for the use, Pilkington typically tempers to a minimum of 16,000 psi versus normal tempering requirements of 11-12,000 psi. This is an important 40-50% gain in strength in the tempered glass which allows us to keep our hole sizes to a minimum as well as closer to the edge of the glass.

Heat soak – Pilkington absolutely requires that every piece of glass put into service is heat soak tested for 8 hours to 290 degrees C. This process has virtually eliminated nickel sulfide caused spontaneous breakage in glass produced to this standard. The Pilkington Warranty exclusively warrants against this type of glass breakage in our projects.

Pilkington Planar™ Integral

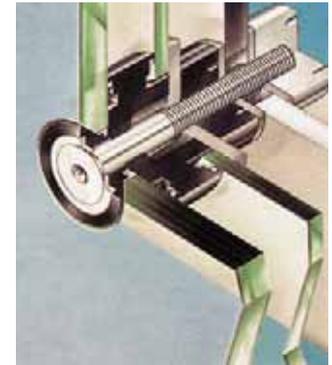
A fully tested and patented method of fixing laminated glass panels to a backup structure without any exterior bolts, caps or washers! All fixings are concealed within the laminated glass. This fixing system allows a much wider variety of glass types, including art and textured glass, to be used in a structural glass application. Integral allows us to horizontally glaze an entire roof or canopy without any fasteners in the exterior glass!



Detail of Pilkington **Planar**™ Integral



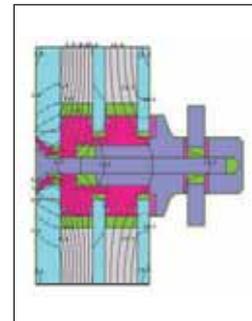
Our countersunk fitting is the smallest in the market.



Cutaway view of 902 fitting for insulated glass.

Pilkington Planar™ Triple Insulated Glass®

Pilkington introduces the world's first triple glazed frameless glass system. Triple glazing offers substantially lower U Values than traditional double glazed Pilkington **Planar**™. There are three layers of glass giving the architect multiple choices for increased solar performance and noise control. Performance figures available upon request.



Pilkington Planar™ Glass

COMPARING FLAT GLASS

Rollerwave Distortion – Structural glass facades are usually designed for ultimate transparency. Seeing through the glass to the interior should not be hindered by rollerwave distortion. Pilkington produces Pilkington **Planar**™ in a special tempering oven that allows the glass to accurately reflect its environment.

Typical, standard rollerwave specifications require a peak to valley average rollerwave of 0.05". Pilkington's standard average is 0.0008" - VIRTUALLY FLAT!

Brain and Cognitive Sciences Complex
Massachusetts Institute of Technology
Cambridge, Mass.

Lead Designer: Charles Correa
design of laboratories and research spaces: Goody Clancy and Associates
Photograph: © Anton Grassl/Esto



Pilkington Planar™ Fittings

Superior Aesthetics are the Key

The concept is clear: Design, test and place into service the best-engineered and yet the smallest, most aesthetically pleasing fitting without compromising performance.

Rigorous testing has led to the development of a standard set of fittings using 316 grade stainless steel. However, custom fittings are always available such as rotational and over-sized fittings capable of withstanding extraordinary forces from seismic, snow and wind loads.



Sliding spider casting with spring loaded arms allow for high seismic loading.

Four and two point castings, as well as various 905 series fittings, represent only some of the many types of stainless steel connectors designed to connect the glass fitting to the backup structure. The connectors shown are 316 grade stainless steel.



Nexus type 4 point spider mounted to steel seat.

Other Fabricated Glass Products

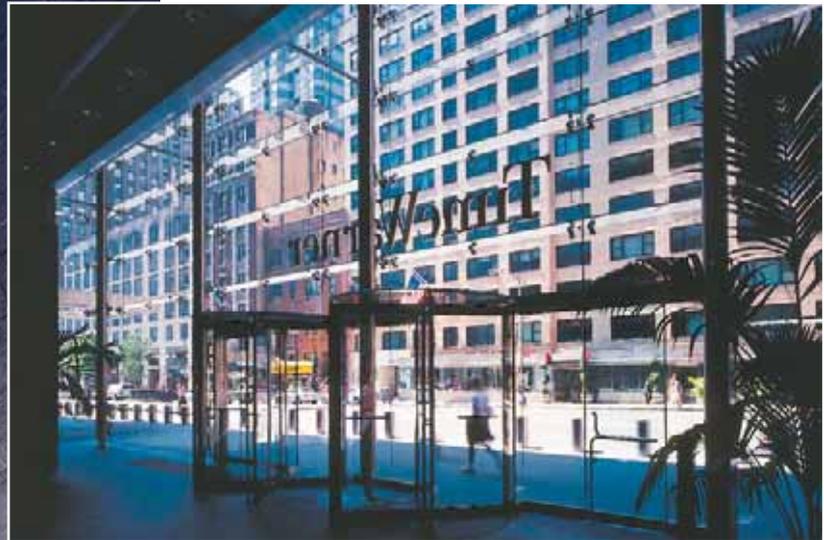
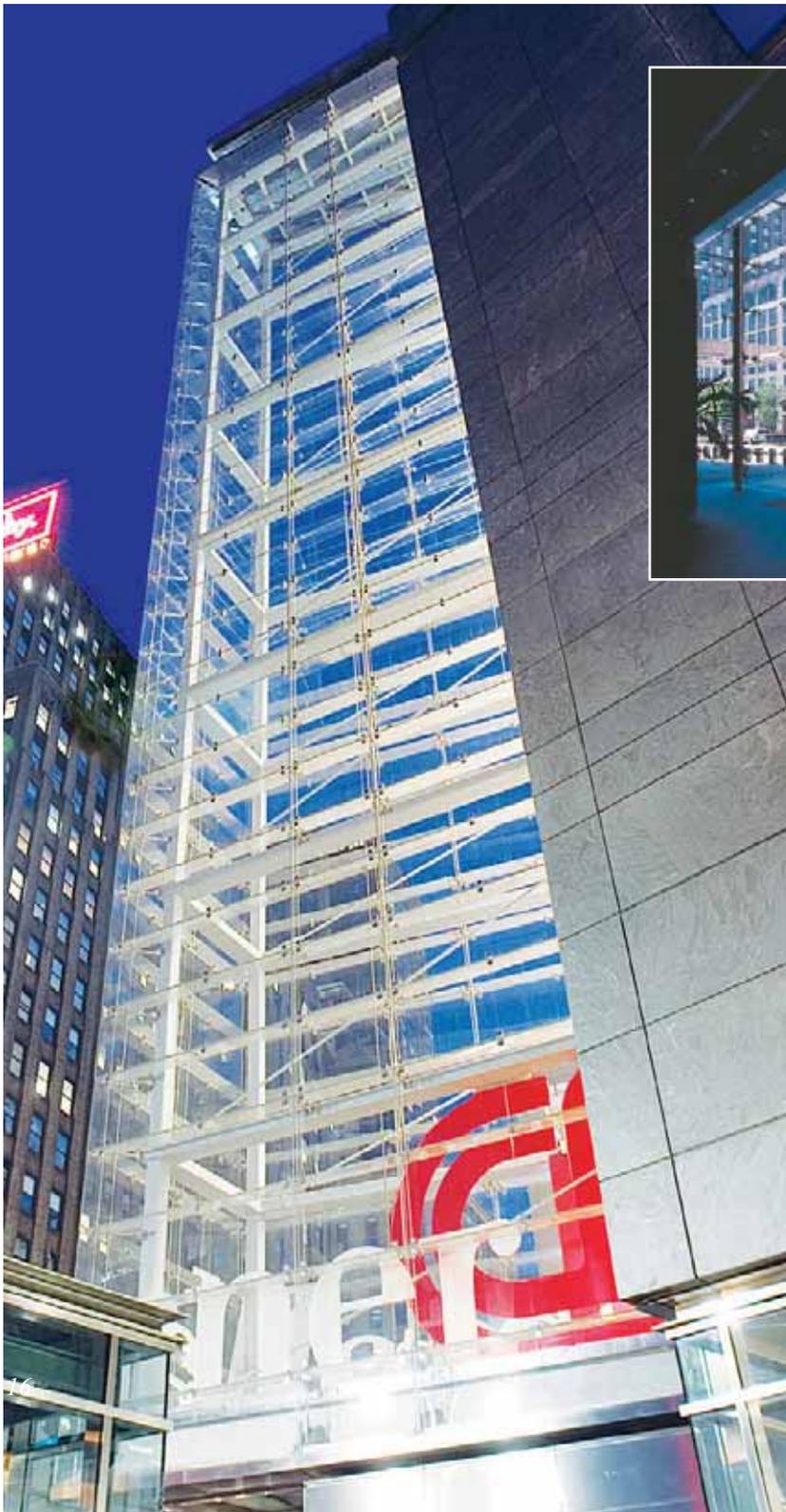
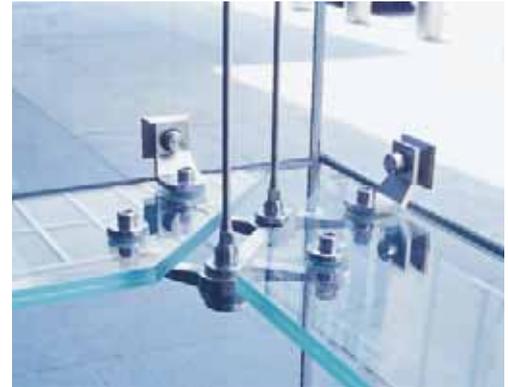


Time Warner Center

New York City, NY

Architect: Skidmore, Owings & Merrill LLP

The prow is a 3 sided glazed structure that spans 150 feet in height and has a surface area of over 20,000 sq. ft. of glass. The facade features low iron Pilkington **Optiwhite™** laminated panels supported by a combination of stainless steel rods, laminated horizontal glass fins and custom made stainless steel castings.



Brooklyn Museum of Art

Brooklyn, NY
Architect: Polshke Partnership Architects LLP

The 15,000 sq. ft. shingled glass pavilion creates a new entrance area to the one hundred and seven year old museum.

The glazing system is made up of a series of laminated glass panels with a ceramic frit silk screen pattern for solar control. It is supported by a combination of painted steel plates and stainless steel truss assemblies. Pilkington **Optiwhite™** low iron glass and custom stainless steel castings make up the vertical enclosure around the glass roof.

W&W was responsible for the entire enclosure including engineering, glass and steel, fabrication and erection.

This project truly represents a coming of age for classic architecture combined with state of the art glazing technology!

CASE STUDY

Pilkington Planar™



The Mall at Millenia

Orlando, FL

Architect: JPRA Architects

The Pilkington **Planar**[™] system was used to provide two main entry lobby enclosures. The first is a cylindrical design measuring 72' in diameter by 56' high and comprises over 10,000 sq. ft. of 10mm green tinted solar control glazing. These panels are supported by 19mm clear tempered glass fins suspended from the structure above. The face glass is attached by 905J Pilkington **Planar**[™] fittings.

The second area is triangular shaped with 3 facades totaling 150' x 40' also with 10mm green tinted tempered glass and suspended from 19mm glass fins.

One of the unique features of this project is the horizontal ring truss on the cylindrical wall. It is located 40' up from the floor and allows for the glass fin to be only 32" deep on a 56' span. This was the maximum the fin could span without buckling.



West Midtown Ferry Terminal

New York City, NY

Architect: William Nicholas Bedouva + Associates

W&W worked closely with the design team to create 2 distinct glazing systems for the new ferry facility. Facing the Hudson River, is a long span glass fin supported facade with Low E coating insulated units. The vestibules are made of arching tubular steel sections with insulated laminated glass panels mounted with “Nexus” Castings and articulated 902 Planar fittings. Ceramic frit and Low E coating were used for solar control in the space. The Pilkington System was used to create a warm friendly atmosphere in a very large space.

CASE STUDY

Pilkington Planar™



The Rose Center for Earth and Space

American Museum of Natural History

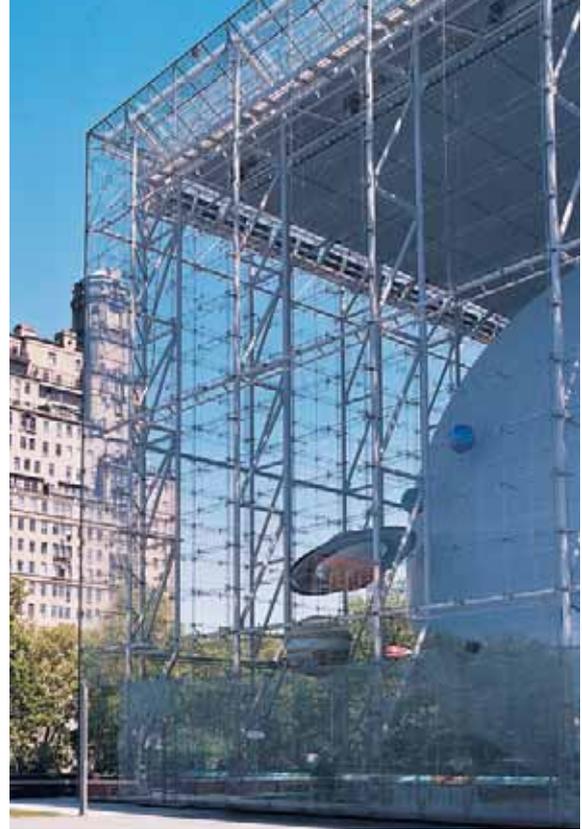
New York City, NY

Architect: Polshek Partnership Architects LLP

The Rose Center for Earth and Space represents the pinnacle of cable stayed structural glazing in the United States today. It pushes the limits of structural glass technology and transparency to their fullest potential.

The two main Pilkington **Planar**[™] facades soar 95 ft. above the terrace level, to a continuous, insulated, laminated low-E coated glass skylight that runs around the full 490 ft. perimeter of the building. Each facade is glazed in Pilkington **Optiwhite**[™] low iron glass, over 34,000 sq. ft. in all. Each glass panel is held in place by custom designed and manufactured stainless steel castings with a custom shot-peened finish.

W&W had overall contract responsibility for the entire enclosure including not only the Pilkington Planar[™] system, but also the complex tubular steel trusses and the stainless steel rigging/tension structure.



Harborside Plaza 5

Jersey City, NJ

Architect: *Grad Associates*

A series of 3"x6" painted steel tubes were installed to support 10,000 sq. ft. of Pilkington **Optiwhite**™ low iron tempered and heat soaked glass panels. This created a truly transparent and distinctive facade to this modern high rise. Uniquely simple 905 type Planar fittings were used to mount the glass to the structure. This project also features a sloping laminated glass roof over the facade which lets even more daylight enter the space.



Avaya

Basking Ridge, NJ

Architect: *FX Fowle*

The goal was an open, airy feeling in the lobby to the telephone equipment company's New Jersey headquarters. W&W worked closely with Fox & Fowle Architects to create this "wedge of glass" feature. Low iron, low E coated insulated glass panels were treated with a gray dot ceramic frit pattern for solar control. These panels are suspended from 19mm clear tempered and heat soaked glass fins, supported by custom "pin joint" brackets at their back edge. This allows for a sloped glass roof to be anchored to the top of the fin with no additional support members. The project also features an underslung, textured glass Pilkington **Planar**™ canopy over the entrance.



Harvard Medical School – New Research Building

Boston, MA

Architect: Architectural Resources Cambridge, Inc.

W&W worked closely with both the architect and structural engineer early in the design phase on this design build project to create this first of its kind facade. This twin span cable truss supported wall spans 60 feet in height and covers over 25,000 sq. ft. in area, including multiple sloping glass roofs and canopies. Low-E coated insulated glass panels were used to comply with the stringent Massachusetts energy code. Stainless steel Nexus castings and articulated 902 fittings were used to secure the glass to the cable trusses. The cable trusses were designed to stop and start half way up the facade, effectively splitting the span in half. The results are only a 3 foot deep cable truss for a 60 foot span!

The Pilkington **Planar**™ system was chosen due to its track record, superior engineering, sole source manufacturing, as well as the 12-year comprehensive warranty issued by Pilkington to the owner. The result is a truly flat all glass wall (see cover).



The William J. Clinton Presidential Center & Library

Little Rock, AR

Architect: Polshek Partnership Architects LLP

The Polshek Partnership team and W&W designed a 12,900 s.f. laminated glass screen wall that is transparent from the inside looking out and appears white to the exterior. The laminated glass panels are made from 2 lites of 10 mm tempered and heat soaked Pilkington **Optiwhite**™ low iron glass with an SGP interlayer. The fittings were custom designed two point minimal profile stainless steel castings allowing the glass to be held in place with only six points of support and open joints.



Pilkington Activ™

Self Cleaning Glass

Pilkington Activ™ has a special, extremely durable, coating on its' exterior surface. Intensive, specialized testing has been ongoing at Pilkington's test facilities to develop the product in such a way that we can offer it for Planar facades, roofs and canopies where, to date, it has not been available. This will allow us to provide, for the first time, self cleaning glass for facades and roofs. Large savings in life cycle maintenance costs will result.

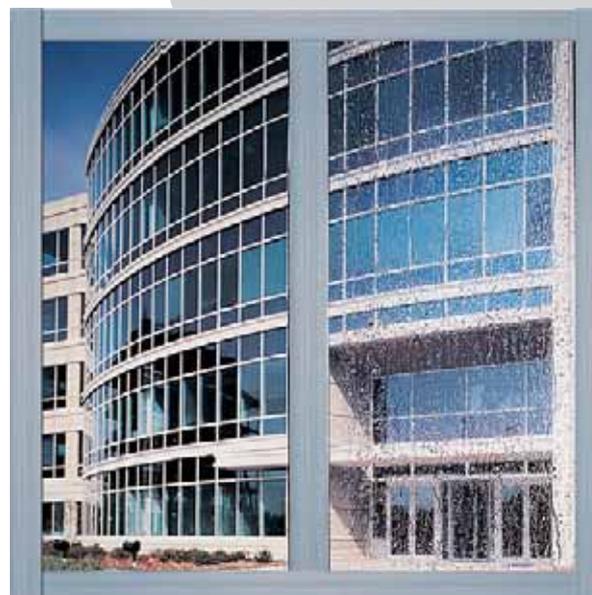
Exactly what is self-cleaning glass?

Pilkington Activ™ is an ordinary glass with a special coating on the outside surface that has a unique dual-action. Once exposed to daylight, the surface chemically reacts in two ways. First, it breaks down any organic dirt deposits and second, rain water 'sheets' down the glass to wash the loosened dirt away.



New Products

Pilkington Planar™

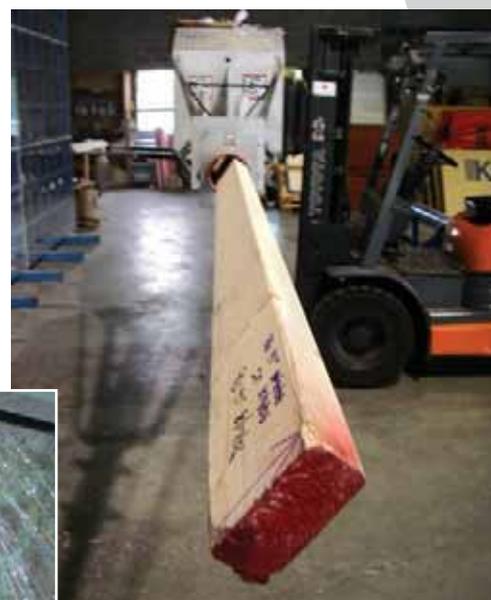


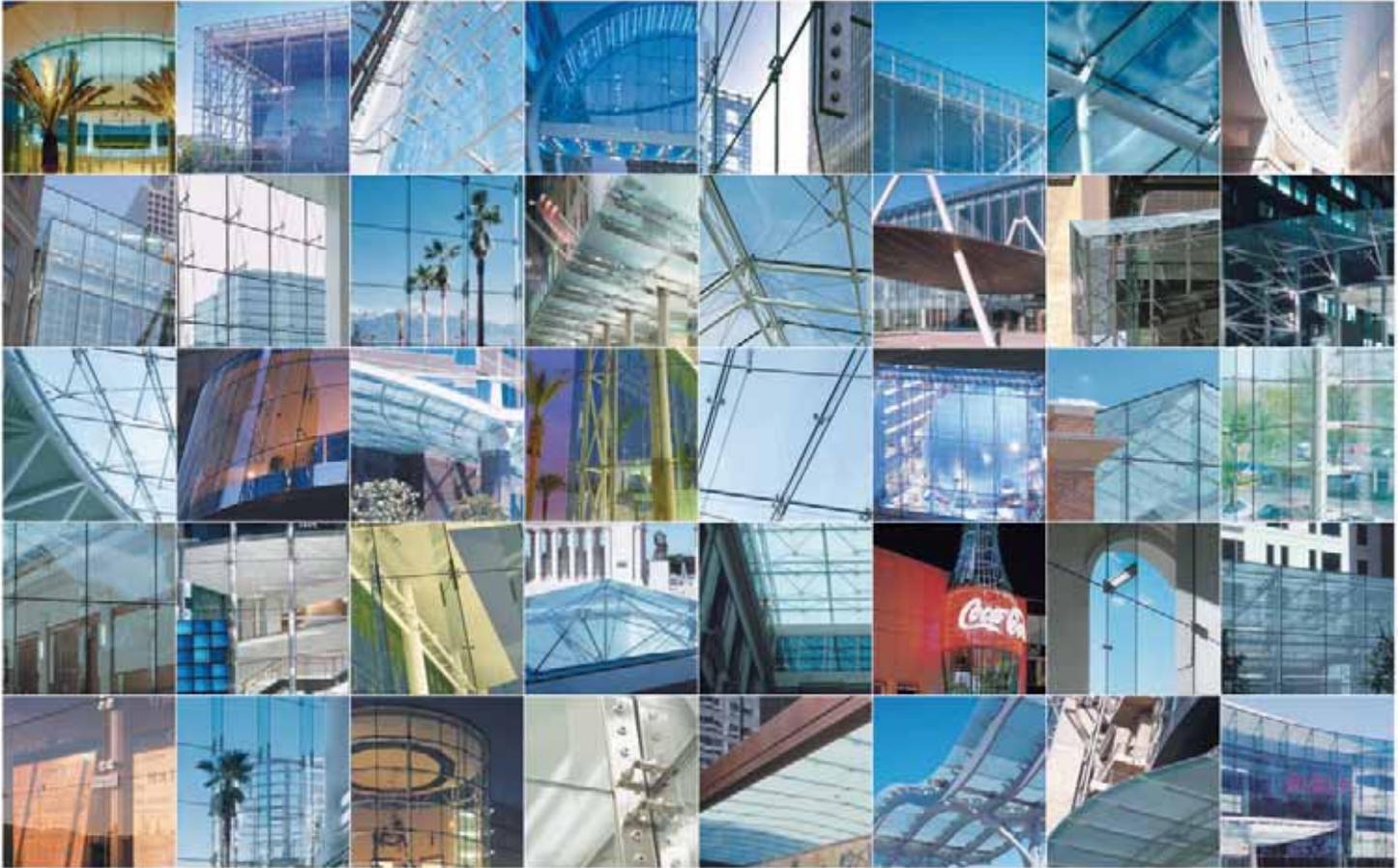
Hurricane Testing

Hurricane Impact Structural Glass Facades

With the growth of Hurricane Impact Codes, and based on the knowledge of impact glazing from bomb blast testing as well as working on the development of the Planar™ | SentryGlas® Plus System (see pages 12 & 13), Pilkington will be moving forward in late 2006 and early 2007 with full scale testing for a Pilkington Planar Hurricane Impact System. Pilkington and W&W have already completed successful preliminary testing.

Based on these results and Pilkington's work for over a decade in bomb blast facades, special hardware and glass combinations for hurricane impact loading have been developed.





GLASS
FIN WALLS

TENSION
STRUCTURES
& CABLE NETS

ROOFS,
SKYLIGHTS
& CANOPIES

All glazing components in this brochure have been supplied by Pilkington. Certain backup structural elements displayed in photographs within this brochure have been supplied by others.

This publication gives a general description of the product. It is the responsibility of the user to ensure that any use of the system fully complies with all relevant building codes, industry standards and other requirements.

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W&W GLASS, LLC

302 Airport Executive Park
Nanuet, NY 10954-5285
1-800-452-7925 (845) 425-4000
Fax: (845) 425-6156

Visit our web site at wwglass.com