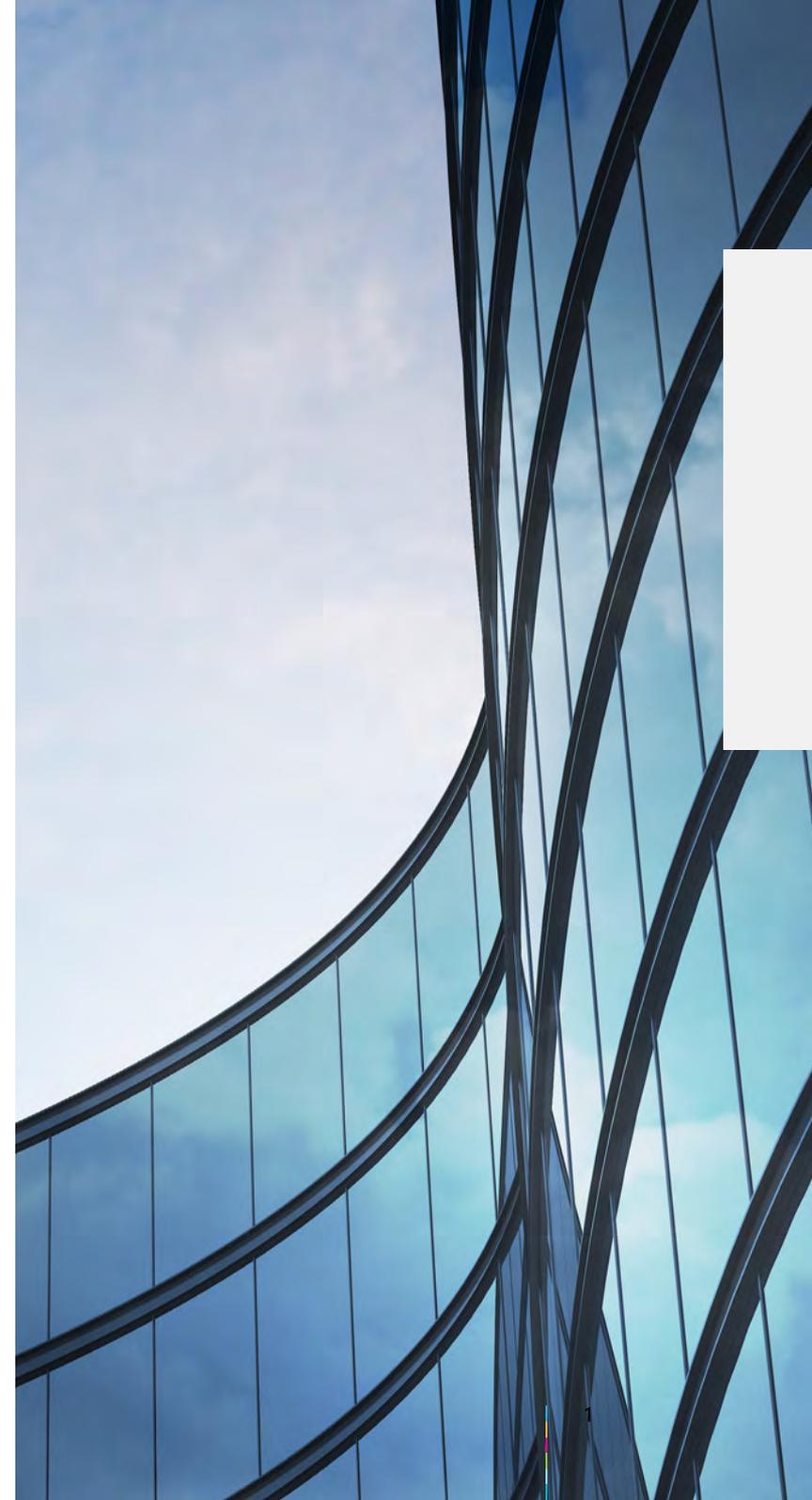


Saflex™ and Vanceva™ color PVB interlayers

High-performance interlayers
for laminated glass

saflex  vanceva 

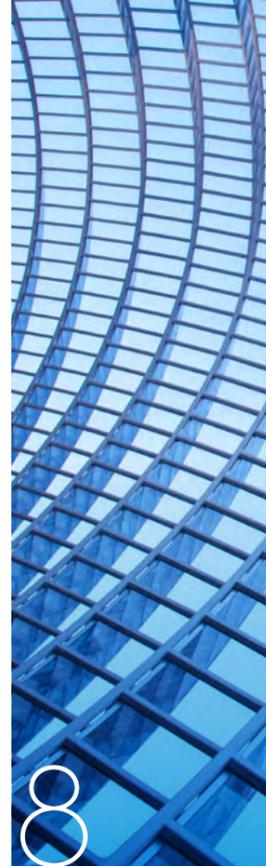




About us



Sustainability



Benefits of laminated glass



Our products



Design with more freedom

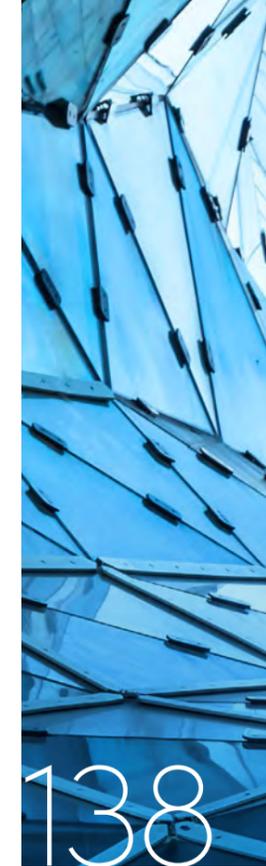


Inspiration: projects by application

- Balustrades
- Bridges
- Curtain walls
- Double-skin facades
- Facades
- Glass fins
- Interiors
- Overhead glazing



Tools and resources



Technical guide



ENHANCE YOUR VISION

Building performance through material innovation

For generations, glass fabricators have counted on Saflex™ and Vanceva™ color polyvinyl butyral (PVB) interlayers to enhance their glazing and fulfill their vision for truly remarkable architecture and construction. Introduced in 1937, Saflex has consistently delivered world-class technology and performance for laminated glass.

Today, our interlayers can be found in award-winning buildings around the globe as architects and engineers specify Saflex and Vanceva for the inherent benefits PVB brings when laminated between two pieces of glass.

Saflex and Vanceva interlayers enhance structural performance, enable weight reduction, provide effective acoustic and solar control, protect from damaging UV rays, ensure superior aesthetics and more.



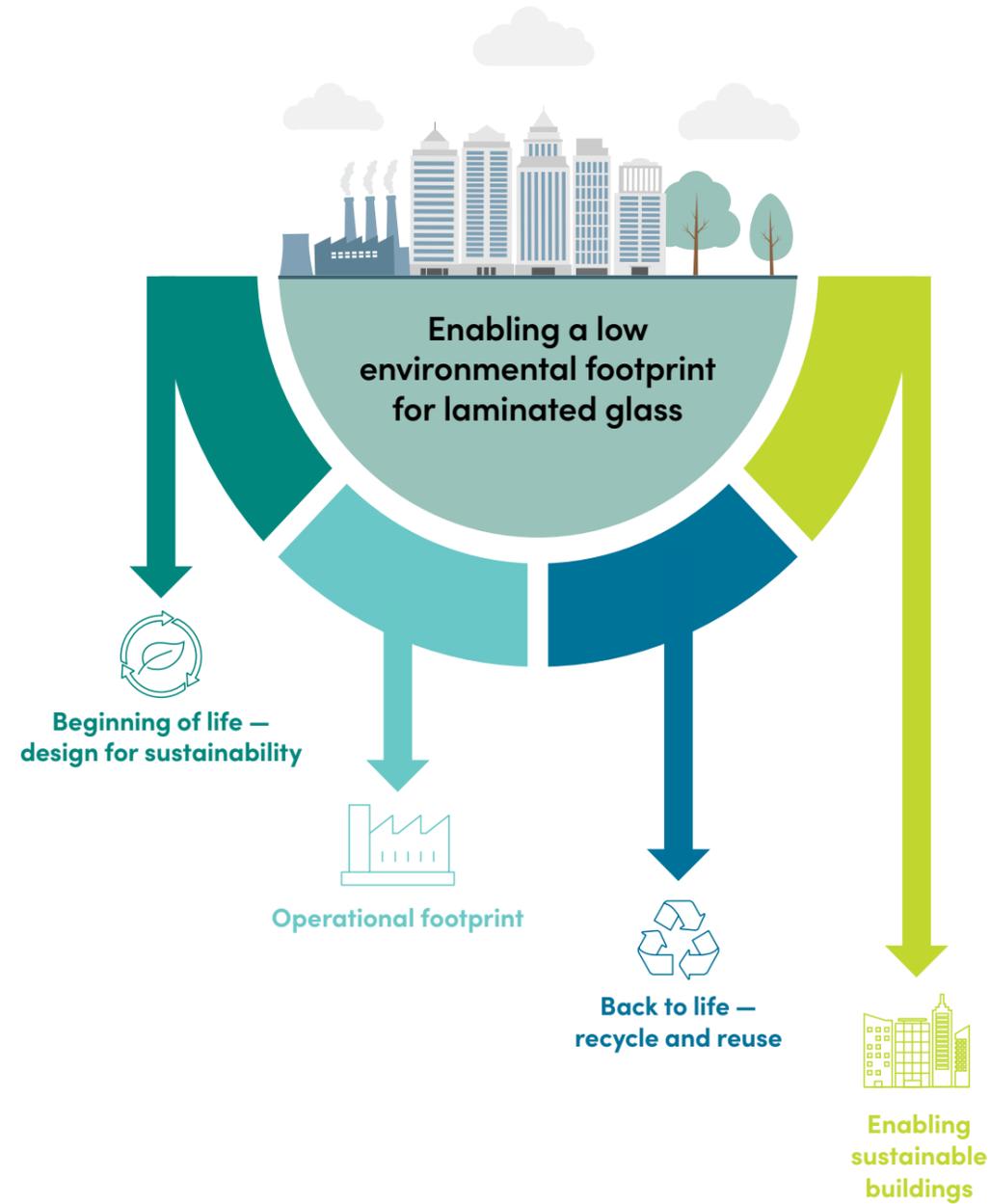


Windows of opportunity for greater sustainability

As a world leader in PVB interlayer manufacturing and development, Eastman continues to innovate its portfolio to meet the needs of the laminating industry with products that offer superior processing, performance and durability.

Our goal is to maintain our high-quality standards while increasing sustainable opportunities for our partners and customers. We want to be the sustainable, collaborative and innovative partner of choice across the entire value chain.

As such, we are committed to proactively learning about, developing and advocating for sustainable laminated glass solutions that enable more environmentally friendly buildings and vehicles.





Benefits of laminated glass

-  Safety and security
-  High performance
-  Multifunctional
-  Improved aesthetics





OUR PRODUCTS

Saflex PVB interlayers



Saflex Acoustic

Design for sound reduction.

Product benefits

- Reduces perceived loudness by up to 50% in critical frequency regions
- Protects against breakage
- Provides resistance to forced entry and wind-borne debris
- Is compatible with other Saflex and Vanceva products



Saflex Clear

Design to protect against modern threats.

Product benefits

- Transforms ordinary glass to safety glazing
- Protects people from glass shards after breakage
- Provides resistance to forced entry, ballistics and bomb blasts
- Provides resistance to wind-borne debris
- Reduces unwanted sound and fading
- Is compatible with other Saflex and Vanceva products



Saflex Crystal Clear

Design for protection with low-iron glass.

Product benefits

- Ensures high transparency
- Preserves low-iron glass beauty
- Meets safety glazing compliance
- Provides resistance to force entry, vandalism, ballistics and bomb blasts
- Meets acoustic specifications common in the industry
- Is compatible with other Saflex and Vanceva products



Saflex™ FlySafe™ 3D

Design bird-friendly structures ... beautifully.

Product benefits

- Rated by Collision Laboratories as an effective solution to prevent avian in-flight collisions with less than 13% approaches
- Extended portfolio options with two different sequin sizes, 6 mm and 9 mm in diameter, with two color options of silver matte and shiny
- Coverage < 1% of glass area
- Contributes to LEED® Innovation credit for Bird Collision Deterrence
- Does not obscure views
- Offers long-lasting collision deterrence
- Is compatible with Saflex Acoustic, Crystal Clear, Structural and Storm interlayers



OUR PRODUCTS

Saflex PVB interlayers



Saflex Solar

Design for reduced solar heat gain.

Product benefits

- Provides enhanced solar heat gain coefficient (SHGC | g value) versus conventional laminate
- Enhances performance when used in combination with robust solar control coatings
- Maintains visible light transmittance > 70%
- Blocks harmful UV rays
- Infrared absorbing technology
- Overall improved comfort
- Low reflection
- Is compatible with other Saflex and Vanceva colors

Saflex Solar SG

- Highest-performing solar PVB interlayer; strengthened glass typically required
- Infrared, solar-absorbing interlayer with high visible light transmittance
- Low-reflection glazing

Saflex Solar SH

- More color-neutral appearance; may be laminated with annealed glass
- Solar absorbing with high visible light transmittance
- Low-reflection glazing



Saflex Structural

Design for strength.

Product benefits

- Provides additional structural capacity to laminated glass
- Facilitates oversized glass design
- Enables thinner glass to reduce weight and cost
- Sustains higher load capability after breakage
- Shard retention in cold and warm climates
- Demonstrates superior edge stability and enhanced delamination resistance
- Improves throughput and reduces costs thanks to extra-large 3.2-m width
- Is compatible with other Saflex and Vanceva products



Saflex Storm

Design to be best when nature is at its worst.

Product benefits

- Protects against extreme wind and wind-borne debris penetration
- Compliant for Dade County, Florida, and other high-wind zones
- Protects people from flying or falling glass shards in the event of breakage
- Capable of small and large missile impact protection
- Provides resistance to forced entry, ballistics and bomb blasts
- Reduces sound transmission and fading from UV rays
- Is compatible with other Saflex and Vanceva products

Saflex Clear

- When assembled at the appropriate thickness, provides a well-balanced laminate

Saflex High Protection (HP)

- Higher-capacity impact protection with regard to glass size and pressure
- Used at 2.54 mm (0.100 in.) for large missile protection
- Excellent edge stability and sealant compatibility

Saflex Storm (VSO2)

- Higher severe storm protection capacity and tear resistance
- Great size and pressure capability versus Saflex Clear and HP
- Forced entry resistance and security protection
- Excellent edge stability and sealant compatibility



Saflex UV

Design to let the light in — while keeping UV rays out.

Product benefits

- Screens 99% of UV rays up to 400 nm*
- Avoids premature fading of drapes, carpet, furniture, flooring, artwork, etc.
- Protects people from glass shards in case of breakage
- Provides resistance to forced entry, wind-borne debris, ballistics and bomb blasts
- Reduces sound transmission
- Is compatible with other Saflex and Vanceva products

*Calculated in accordance with ISO 13837 method A.



OUR PRODUCTS

Vanceva color PVB interlayers

Design with style

With Vanceva color PVB interlayers, architects and designers can showcase their brilliance in an amazing spectrum of choices.

Using interlayers laminated between two pieces of glass, the Vanceva color system offers architects and designers unparalleled creative freedom to incorporate color into glass and glazing systems.

The system is based on a foundational palette of four key colors (pink, blue, grey, and yellow) in two different light transmittances to create a base palette of eight colors. As with the CMYK color system most often used in printing, architects, designers and glass fabricators can layer several different color interlayers together — in different intensity levels — to create thousands of color possibilities. By combining 16 laminates in up to four layers, the system produces more than 69,000 transparent, translucent and solid glass colors — all made with heat- and light-stable colorants to resist fading and ensure long-term color stability.

No other PVB interlayer system offers the ability to achieve the range of colors and varied translucency in glass that Vanceva does.



Product benefits

- Creates unparalleled color possibilities
- Enhances aesthetics
- Protects against breakage
- Provides resistance to forced entry, wind-borne debris, ballistics and bomb blasts
- Reduces sound transmission
- Is compatible with other Saflex products



OUR PRODUCTS

Vanceva color collections

Vanceva foundation colors

The foundation palette consists of eight basic colors available in two light-transmittance levels of pink, blue, grey and yellow. These interlayer colors can be layered in various combinations to produce a myriad of transparent color options.



Vanceva specialty colors

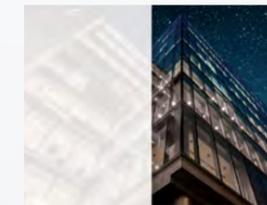
Very concentrated colorants in a single interlayer are capable of adding brilliant hues to laminated glass with these single-layer Vanceva colors.



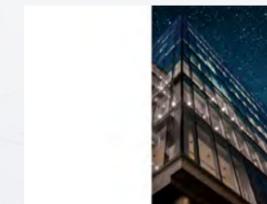
Vanceva White Collection



Vanceva Cool White



Vanceva Arctic Snow



Vanceva Polar White

For interior and exterior applications alike, the Vanceva White Collection of high-performance interlayers for laminated glass enables designers and architects to specify the exact light transmittance, solar absorption, heat gain coefficient and U-factor they need. White PVB interlayers can be used alone or combined with Vanceva colors for near-opaque laminated glass.

Vanceva Earth Tones

Available in an array of natural earth tones, Vanceva Earth Tones PVB interlayers bring greater aesthetics, warmth and serenity to any architectural space.

Select from 11 earth tones in shades of blue, grey, green, brown and bronze — colors that are all similar to industry-standard glass tints when laminated in clear glass.





OUR PRODUCTS

Vanceva color PVB interlayers

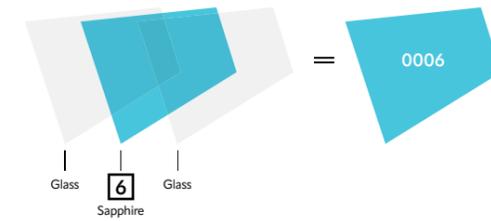
How to specify Vanceva colors

The Vanceva color system offers thousands of transparent or translucent glass colors — giving architects and designers more creative freedom with glass than ever before.

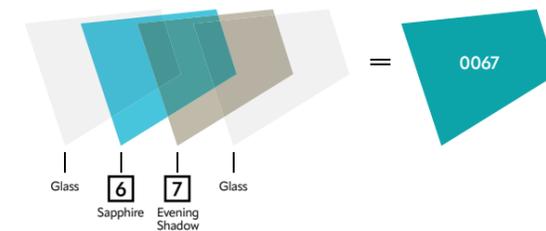
Choose from one to four layers of foundational Vanceva color interlayers to construct custom-colored laminated glass. The maximum recommended number of layers is four; therefore, each Vanceva color has been assigned a four-character number. Each character represents a layer from the Vanceva palette used to create all Vanceva color interlayer combinations.

The illustration details an example of a four-layer Vanceva color code and each corresponding color associated with the final glass makeup. An example of a one-layer combination would be Vanceva 0006, while an example of a two-layer combination would be Vanceva 0067, etc.

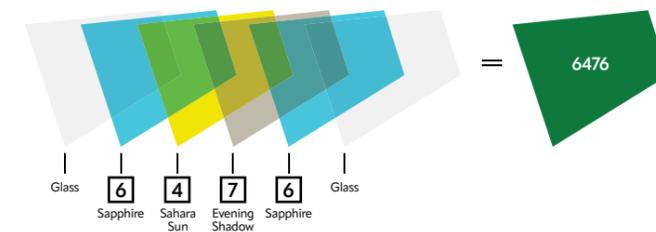
Example of one-layer color combination



Example of two-layer color combination



Example of four-layer color combination





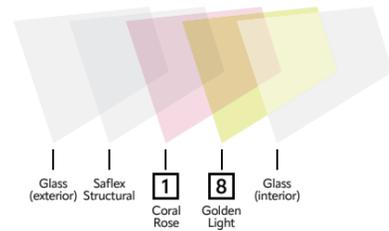
OUR PRODUCTS

Saflex + Vanceva color PVB interlayers

Design with more freedom.

To achieve all the benefits and capabilities you need in laminated glass, Saflex and Vanceva color interlayers can be combined in a variety of applications — giving you the opportunity to achieve structural support, acoustic and solar control, UV and storm protection, and beautiful aesthetics.

Example of Saflex and Vanceva interlayer combination





Inspiration

Balustrades

Bridges

Curtain walls

Double-skin facades

Facades

Glass fins

Interiors

Overhead glazing





Balustrades





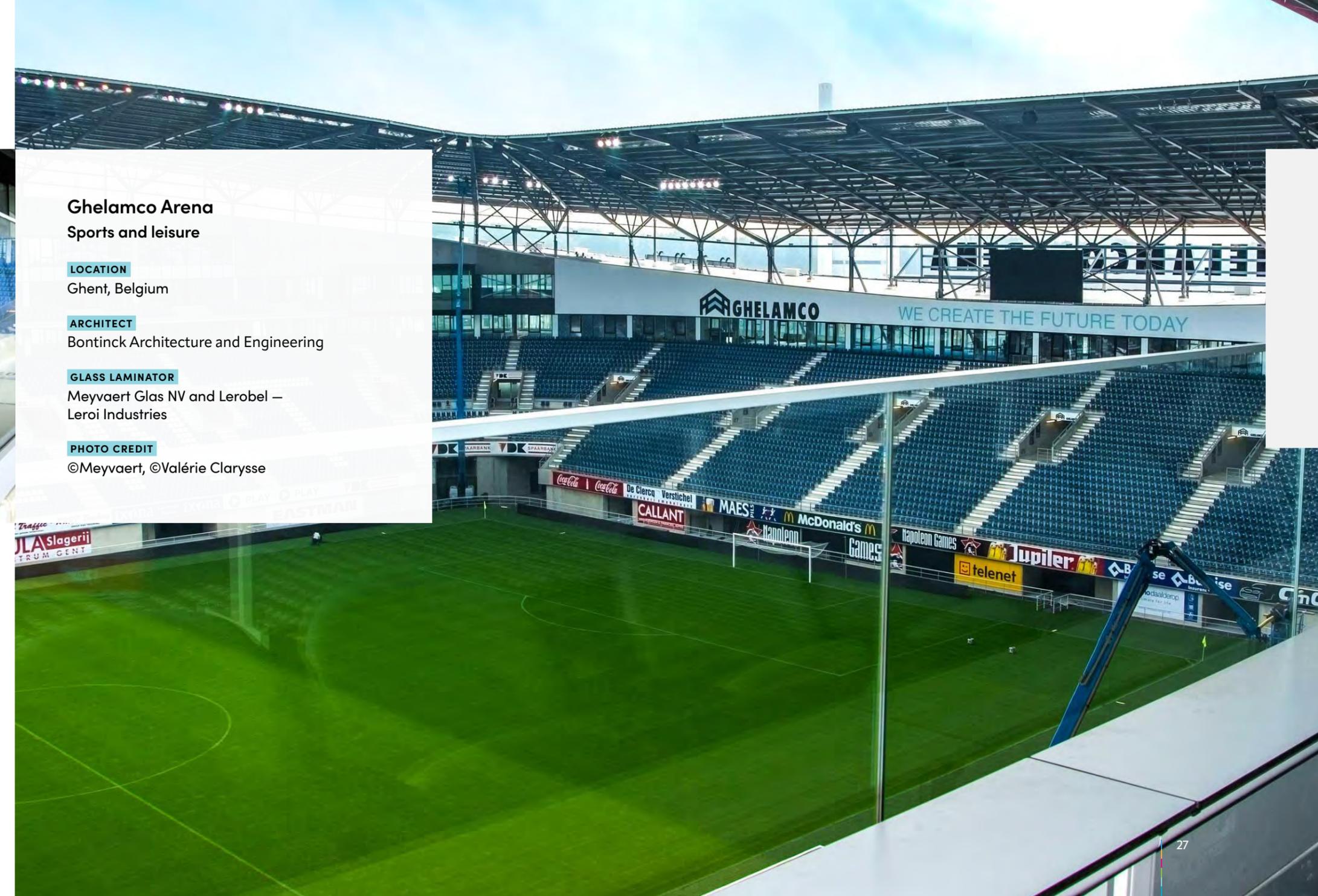
BALUSTRADES

Ghelamco Arena

Saflex Structural PVB interlayers

Throughout Ghelamco Arena, one has a view of practically everything due to the expansive use of Saflex Structural (DG41). Saflex Structural is designed specifically for applications requiring higher uniform load capacity, increased interlayer rigidity and high glass adhesion, making it ideal for glass flooring, curtain walls, overhead glazing and railing. The project used a total 3,000 m² of Saflex Structural in balconies and railings.

Ghent's multifunctional football stadium includes restaurants, bars, retail and leisure space as well as 15,000 m² of office space. Since the stadium must coexist with office space, safety and sound reduction were additional benefits of Saflex. Saflex Structural PVB interlayers (DG41), used for the balustrades and railings, combine the benefits of a rigid interlayer with the features of glass containment, UV screening, edge stability, clarity and noise abatement.



Ghelamco Arena Sports and leisure

LOCATION

Ghent, Belgium

ARCHITECT

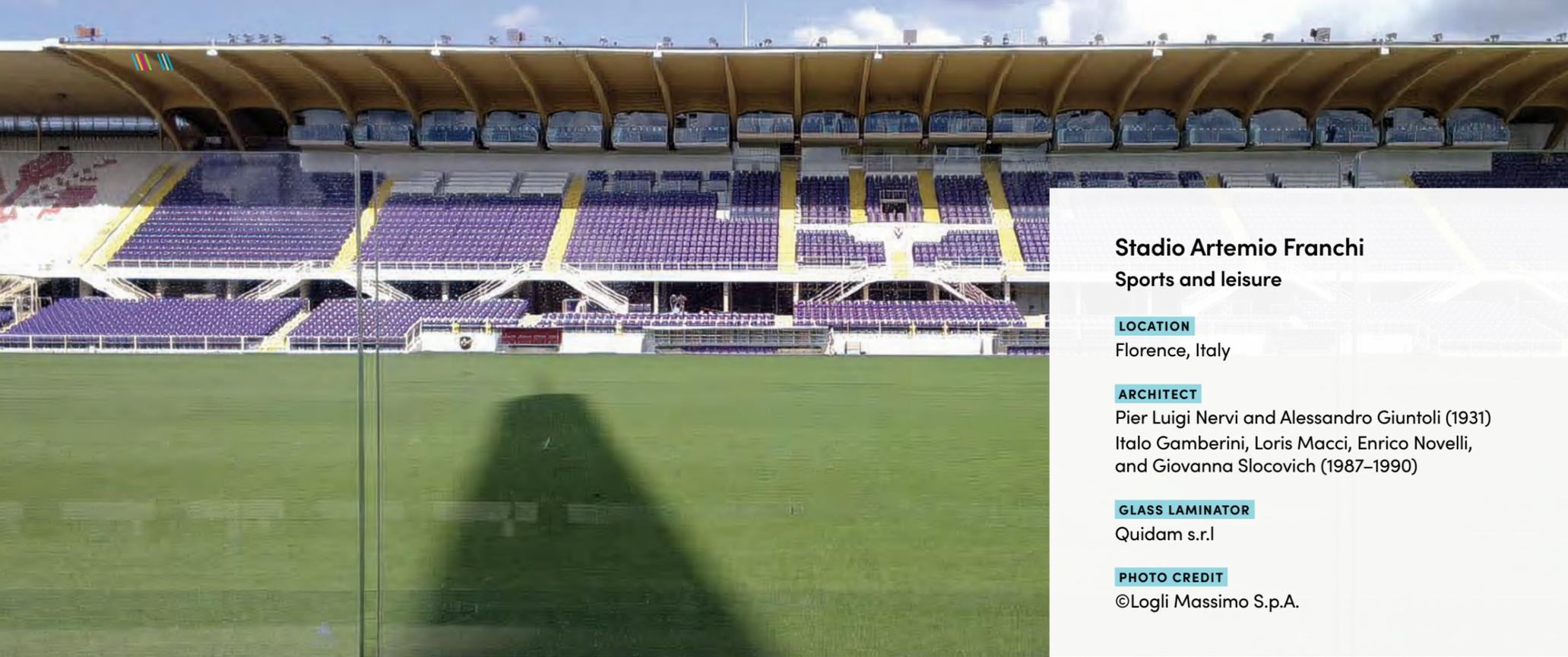
Bontinck Architecture and Engineering

GLASS LAMINATOR

Meyvaert Glas NV and Lerobel –
Leroi Industries

PHOTO CREDIT

©Meyvaert, ©Valérie Clarysse



Stadio Artemio Franchi

Sports and leisure

LOCATION

Florence, Italy

ARCHITECT

Pier Luigi Nervi and Alessandro Giuntoli (1931)
Italo Gamberini, Loris Macci, Enrico Novelli,
and Giovanna Slocovich (1987–1990)

GLASS LAMINATOR

Quidam s.r.l

PHOTO CREDIT

©Logli Massimo S.p.A.



BALUSTRADES

Stadio Artemio Franchi

Saflex Structural PVB interlayers

For the Stadio Artemio Franchi project, the architects specified Saflex Structural for the glass panels and the DEFENDER DF450 anchoring system by Logli Massimo S.p.A. This combination was used for all balustrades and as a continuous fascia around the base of the field. The products solved the visual problems, but what about safety?

Safety requirements of the Italian norm UNI 7697:2014 prescribe the use of a hard interlayer that can ensure resistance to rupture after collapse. The choice for the glass panels was easy: tempered plates 6-mm thick formed from a triple-layer laminate with Saflex Structural. Saflex is a tough, resilient interlayer produced from plasticized polyvinyl butyral (PVB) for structural glazing and is designed specifically for applications requiring higher uniform load capacity, increased interlayer rigidity and high glass adhesion.



BALUSTRADES

Mossholmen

Saflex Structural PVB interlayers

Residential

LOCATION

Sweden

ARCHITECT

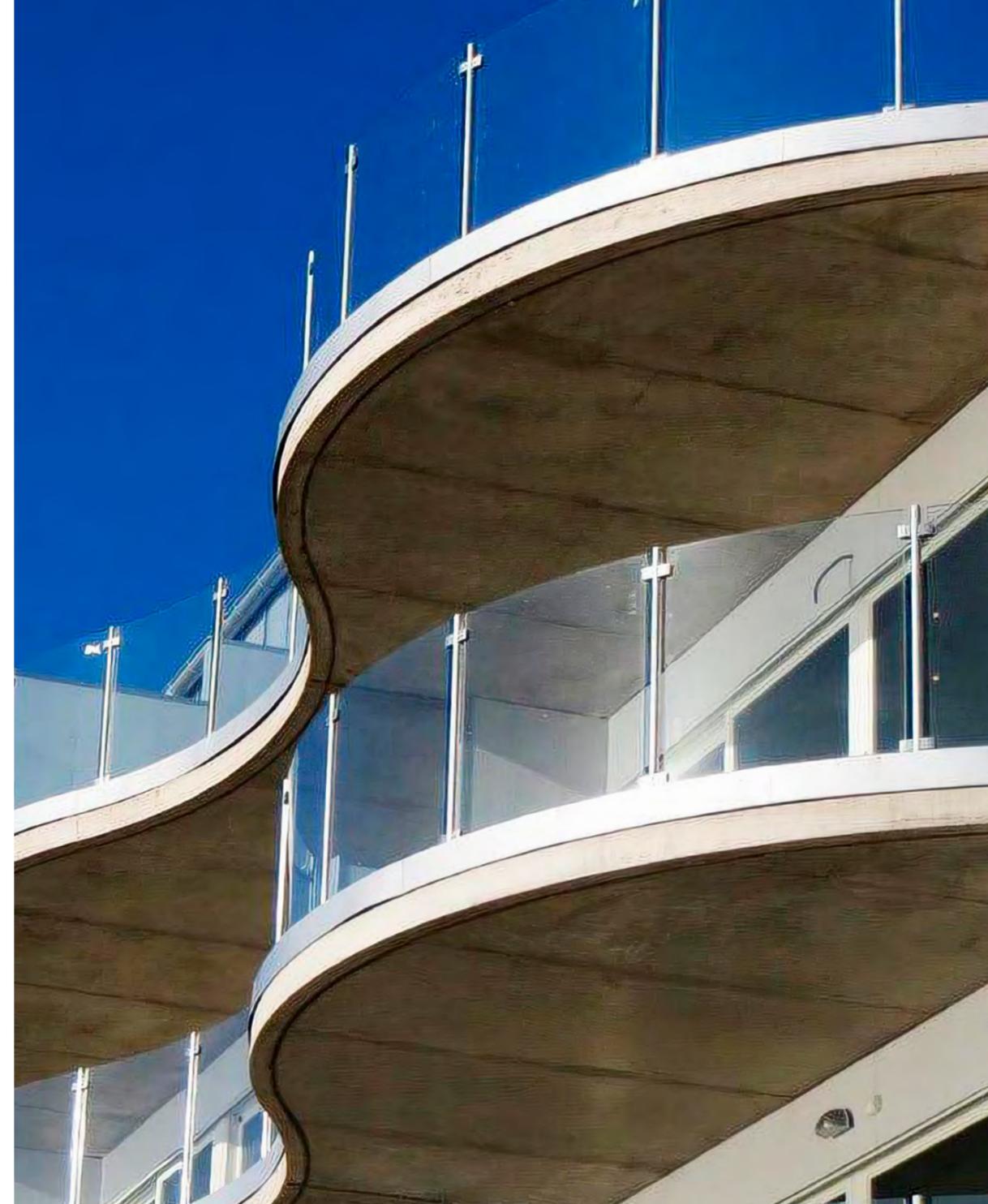
Mats & Arne Arkitektkontor

GLASS LAMINATOR

Forserum Safety Glass

PHOTO CREDIT

©Forserum Safety Glass





BALUSTRADES

The Iceberg

Vanceva color PVB interlayers

0002

Nature's stunning ice creations are reinterpreted at the Iceberg, a majestic residential building overlooking the harbor in Aarhus, Denmark. Architects used staggered roof lines that fall into peaks and valleys to create the sculptural feeling of floating icebergs. A brilliant white facade is punctuated with lightweight glass balconies, which are designed with progressively lighter blue colors as one's eye travels upward. The balconies have a shifting oblique orientation, which reflects the crystalline and unpredictable appearance of icebergs emerging from the water.

The architects used Vanceva Aquamarine interlayers to create the transparent balconies using one, two or three interlayers. The more interlayers used, the deeper the hue became. Clear laminated glass was used on the top balconies to represent the tip of the iceberg. The safety benefits of laminated glass ensure that residents can enjoy transparent views of the harbor year-round.



The Iceberg Residential

LOCATION

Aarhus, Denmark

ARCHITECT

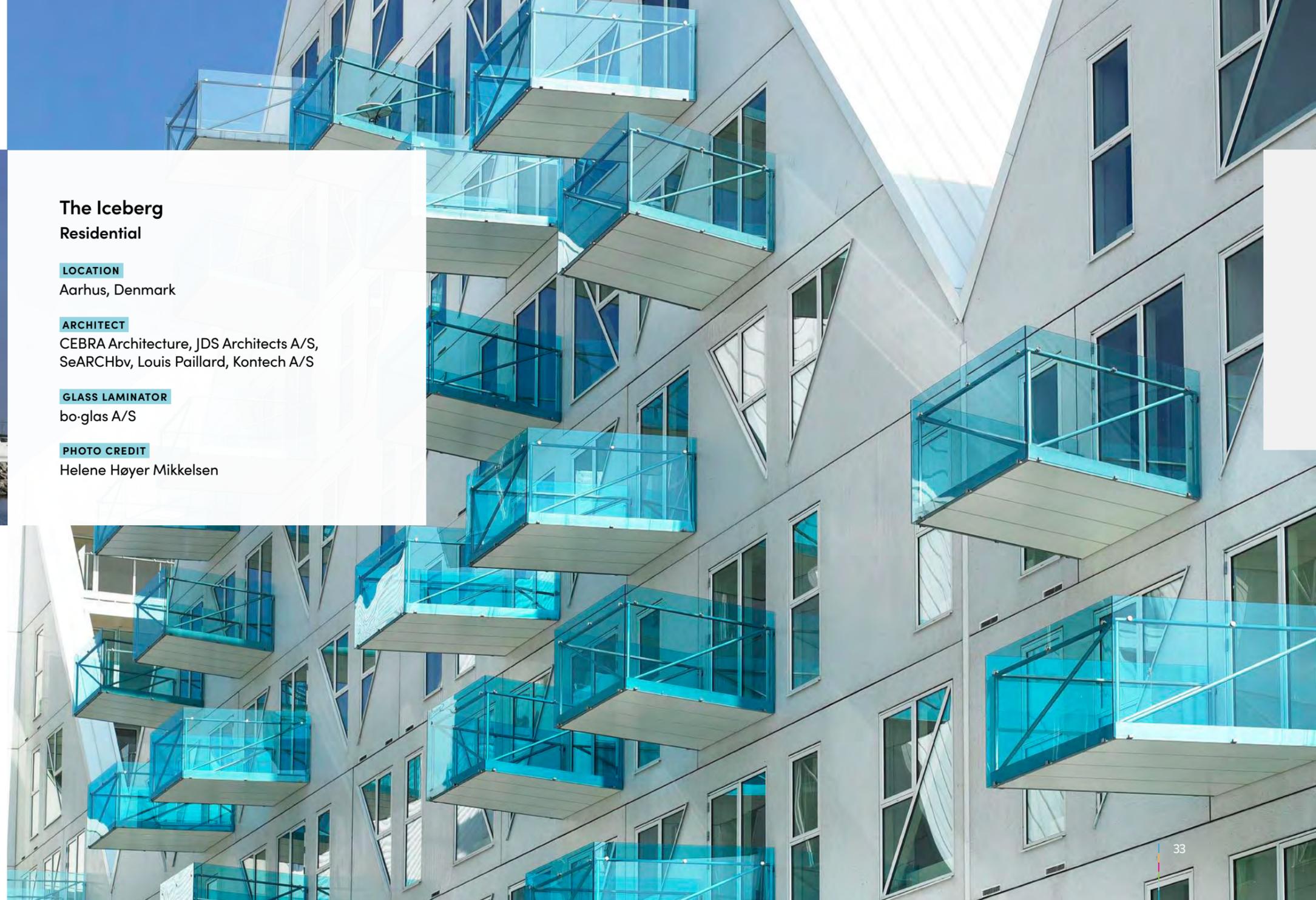
CEBRA Architecture, JDS Architects A/S,
SeARCHbv, Louis Paillard, Kontech A/S

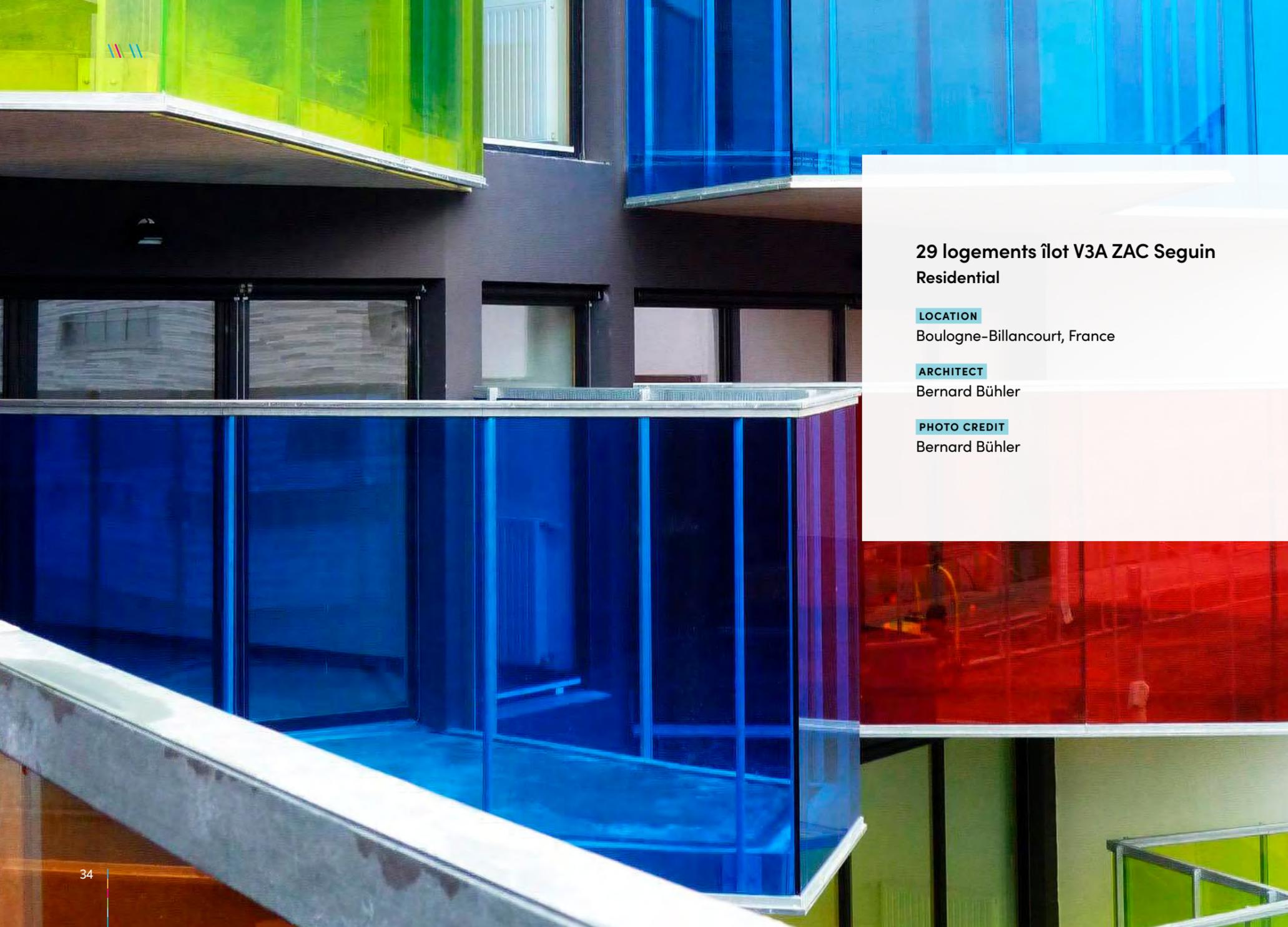
GLASS LAMINATOR

bo-glas A/S

PHOTO CREDIT

Helene Høyer Mikkelsen





29 logements îlot V3A ZAC Seguin Residential

LOCATION

Boulogne-Billancourt, France

ARCHITECT

Bernard Bühler

PHOTO CREDIT

Bernard Bühler



BALUSTRADES

29 logements îlot V3A ZAC Seguin

Vanceva color PVB interlayers

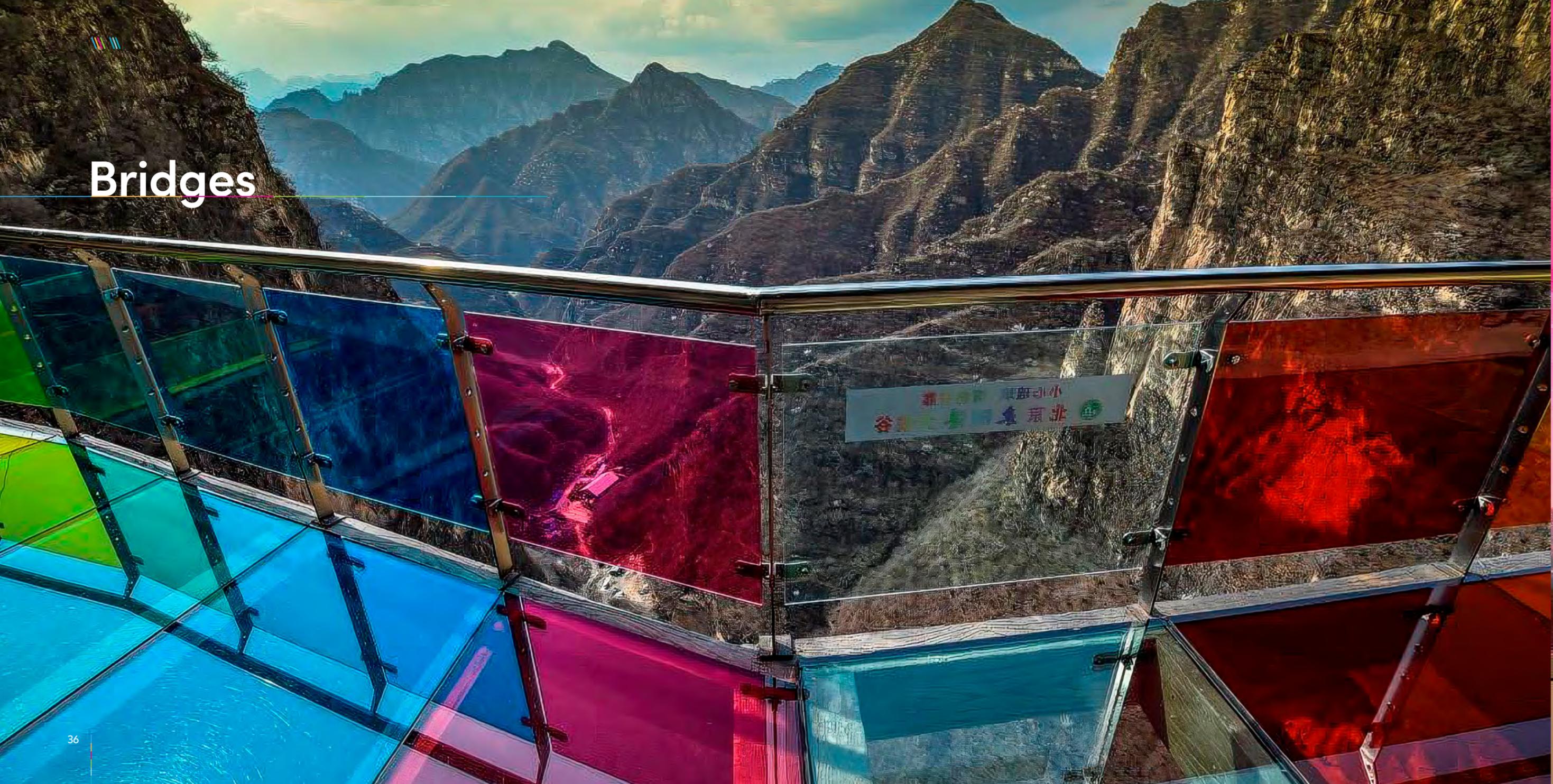
Rather than settling for a bland and conventional apartment structure, architect Bernard Bühler set out to create a dynamic space. Vanceva color PVB interlayers for laminated glass provided the perfect solution.

Bühler wanted the building's balconies to appear as weightless, colored frames floating on the facade, saying his aim was to produce a "superposition of colors" and a "mix of transparencies." He achieved this using Vanceva.

Bühler used glass for its transparency, reflection and, most of all, for the unexpected beauty that results when shadow and light crosses the material. When combined with a wide variety of playful colors, the glass elements make this apartment building a dynamic and fun place to live.



Bridges





BRIDGES

Rainbow Glass Cliff

Vanceva color PVB interlayers

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Architectural firm Beijing Xinmei delivered their interpretation of one of nature's most beautiful creations — the rainbow — using glass.

The glass balcony spans 128 meters (nearly 140 yards) across a cliff of the canyon. What makes this feat even more stunning is the colorful Vanceva used to create the progression of colors in a rainbow-like pattern on both the glass floor and railing.

Every year, about 500,000 people visit the bridge, which is only open during the summer season. From sunup to sundown on clear days or rainy days, walking along the balcony or viewing it from below, the natural lighting passing through the colored panes makes the Rainbow Glass Cliff a truly magnificent sight to see.



Rainbow Glass Cliff Tourism and travel

LOCATION

East Lake Harbor Canyon, Beijing

ARCHITECTS/DESIGNERS

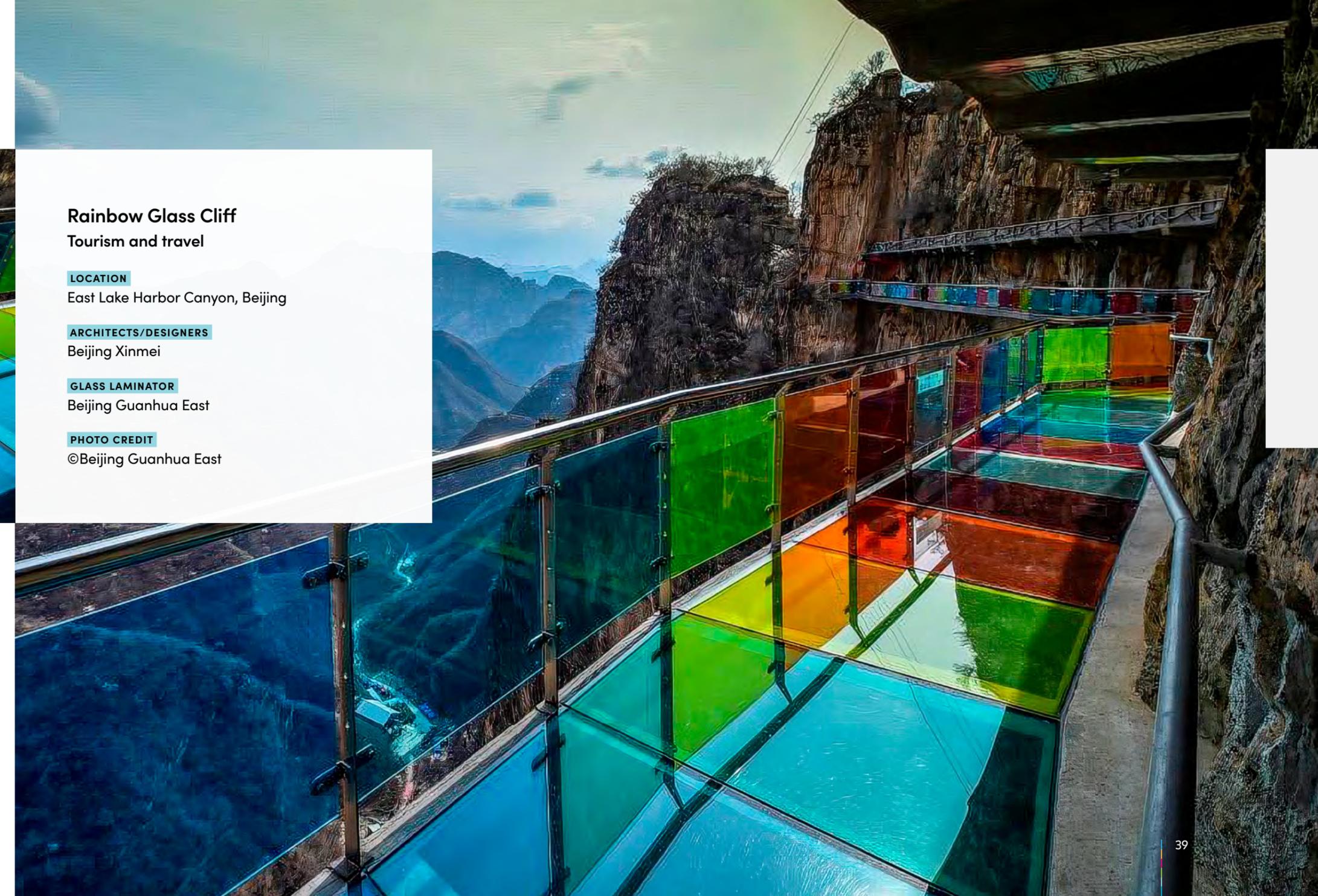
Beijing Xinmei

GLASS LAMINATOR

Beijing Guanhua East

PHOTO CREDIT

©Beijing Guanhua East





Princess Máxima Center for Pediatric Oncology Healthcare

LOCATION

Utrecht, The Netherlands

ARCHITECTS/DESIGNERS

Thomas Bögl, LIAG Architecten en Bouwadviseurs

GLASS LAMINATOR

Thiele Glas

PHOTO CREDIT

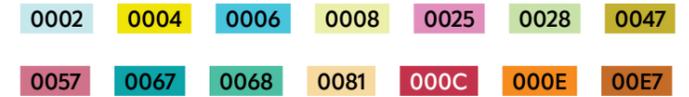
©Christiaan de Bruijne



BRIDGES

Princess Máxima Center for Pediatric Oncology

Vanceva color PVB interlayers



When designing the oncology center, LIAG Architecten en Bouwadviseurs considered multiple studies showing how natural light and colors can have a positive influence on health. Natural lighting coming through the colored panes provides an extraordinary play of light and color in the clinic. The effect is a lively, friendly atmosphere that delights both children and adults.

The Vanceva color PVB interlayers, which are laminated between two pieces of glass, offer more than whimsical color. The corridor perfectly blends into the landscape and protects against traffic noise.

Traveling from one facility to another along the colorful pathway symbolizes the collaboration of the institutes and connection between the daily hospital routine and the path to recovery. In addition, the bridge naturally evokes feelings of fun, play and good health.



Curtain walls





CURTAIN WALLS

Lidl Schweiz headquarters

Saflex Structural PVB interlayer

When Lidl Schweiz outgrew its main building in Weinfelden, Switzerland, a new two-story, headquarters was built right across the street with a glass facade.

To meet the Swiss Minergie requirements for sound insulation, construction ecology and daylight harvesting, Itten+Brechtbühl AG chose Saflex Structural (DG41) PVB interlayer. It ensures structural strength and provides exceptional color neutrality. Specifying Saflex Structural was advantageous for reducing deflections and overall product weight and provided improved edge stability compared to regular PVB, which was essential for the exposed edges of the folded facade design. Plus, it has broader compatibility with frit/coating.

Since the two upper levels house office space in an open-concept design encased in a glass facade, it was important that the windowpanes met sound insulation requirements for acoustics. It also ensures that occupants can take advantage of natural light.



Lidl Schweiz headquarters Commercial offices

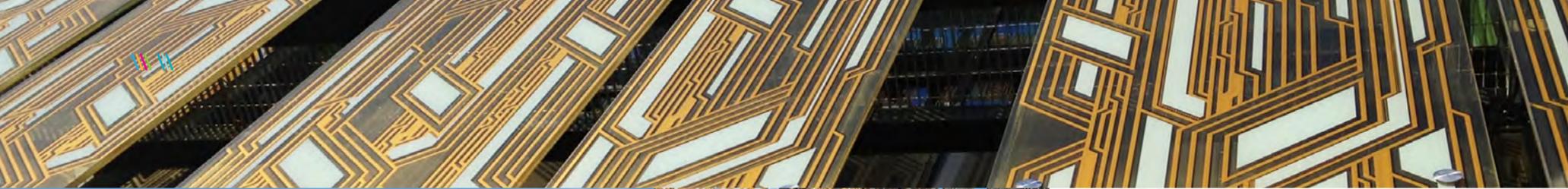
LOCATION
Weinfelden, Switzerland

ARCHITECT
Itten+Brechtbühl AG

GLASS LAMINATOR
Glas Trösch

PHOTO CREDIT
©Glas Trösch





Sensor City
Education

LOCATION
Liverpool, England

ARCHITECT
IBI Group Inc

GLASS LAMINATOR
Ariño Duglass

PHOTO CREDIT
©Julian Stocks



CURTAIN WALLS

Sensor City

Saflex Structural PVB interlayers
Vanceva color PVB interlayers

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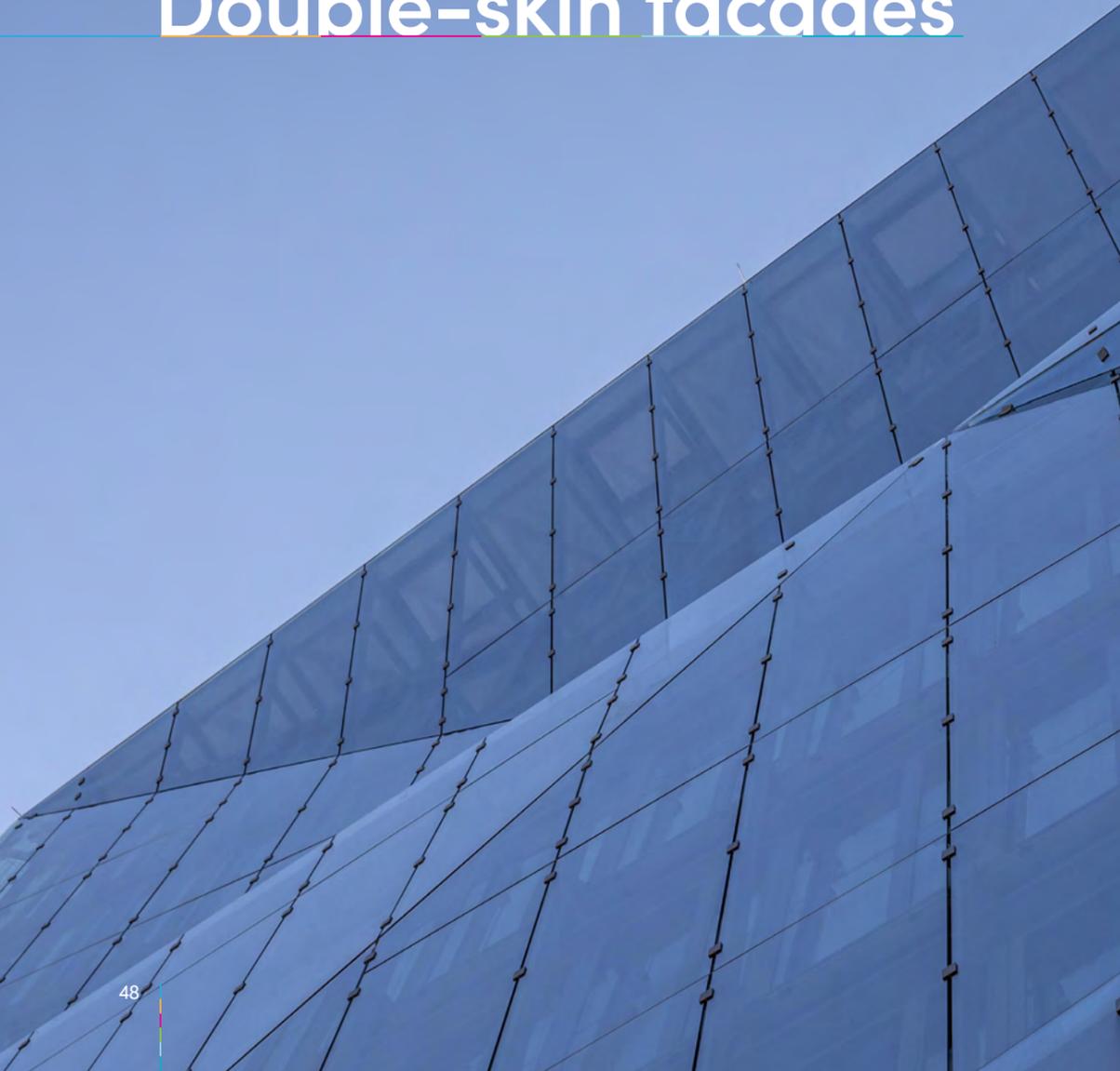
Sensor City brings together academia and business to create the first University Enterprise Zone in Liverpool, England. The building's purpose is sensor technology — studying, building and expanding sensor systems and applications.

Saflex Structural was selected for this project for numerous reasons. As a testament to its structural integrity, glass panels laminated with Saflex Structural offer very high wind load resistance of 3.7 kPa. It was the preferred product choice that could deliver structural performance in combination with colored interlayers to bring to life the designer's colorful artistic vision. Saflex Structural was paired with Vanceva color PVB interlayers for installation in the exterior applications with open edges exposed continuously to the changing environmental conditions of Liverpool.

The sensor technology theme is further carried out using the color epitomizing electronic conductors — gold. Vanceva color PVB interlayers in Golden Light and Coral Rose were used to simulate this gold color. The golden facade of Sensor City renders color differently depending on the viewer's location and amount of light.



Double-skin facades





cube berlin

Commercial offices

LOCATION

Berlin, Germany

ARCHITECT

3XN Architects Denmark

GLASS AND COATING COMPANY

Guardian Glass

PHOTO CREDIT

Matthias Haller



DOUBLE-SKIN FACADES

cube berlin

Saflex Solar PVB interlayers

Saflex Structural PVB interlayers

The cube berlin project is no ordinary, glass-covered building. The all-glass design presented multiple challenges, including energy concerns and structural requirements. That's where Saflex PVB interlayers came in.

The solution was a pioneering, double-skin facade that uses coatings and PVB interlayers in a unique combination. To address the building owner's strict energy requirements, Guardian Glass and Eastman selected, tested and used reflective solar coatings on the outer skin of the building while adding a Saflex solar-absorbing PVB interlayer to control solar heat gain in the cavity. Normally, these products are used on the inner skin. In essence, the team created a solar-absorbing and solar-reflecting effect in a single laminate.

Due to the team's expert knowledge of merging structural and solar PVB technologies, occupants of the cube are treated with floor-to-ceiling views and enjoy a comfortable yet highly energy-efficient space.



DOUBLE-SKIN FACADES

The Mist Hot Spring Hotel

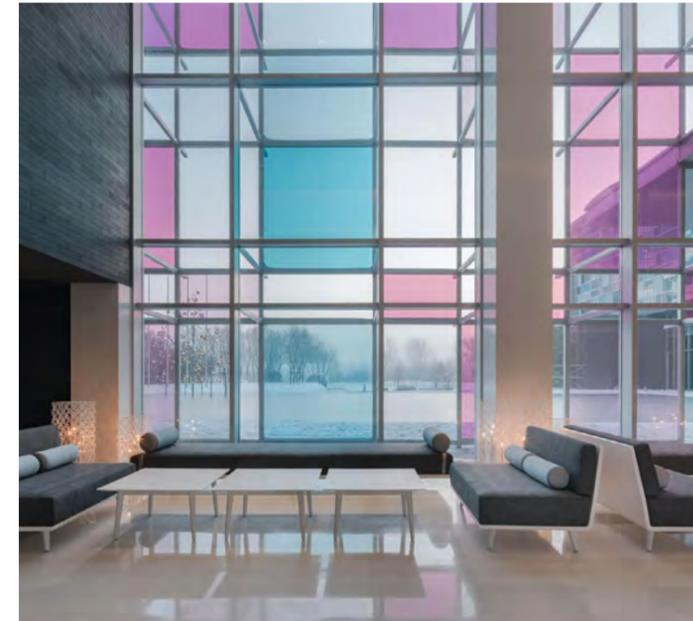
Vanceva color PVB interlayers

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The wonders of natural hot-spring steam coupled with softly colored architectural glass create a mystical experience for guests at The Mist Hot Spring Hotel in Xuchang, China.

The hotel's grey granite facade is doubled with a three-dimensional lattice structure inspired by Chinese bamboo scaffolding. The lattice is filled with varying stacks of Vanceva color PVB interlayers of Coral Rose, Ruby Red, Aquamarine, Sapphire, and Marine Blue Green to produce a variety of blue and magenta tones which represent the color of the winter sky.

The glass exterior of the double facade helps blend guest balconies into a single architectural element. The abundance of colors against the dark background and the rising steam from the natural spring create a dimensional look that also ensures privacy. Interior surfaces have a monochromatic color scheme that lets sunlight filtering through the glass be the star of the show.



The Mist Hot Spring Hotel

Tourism and travel

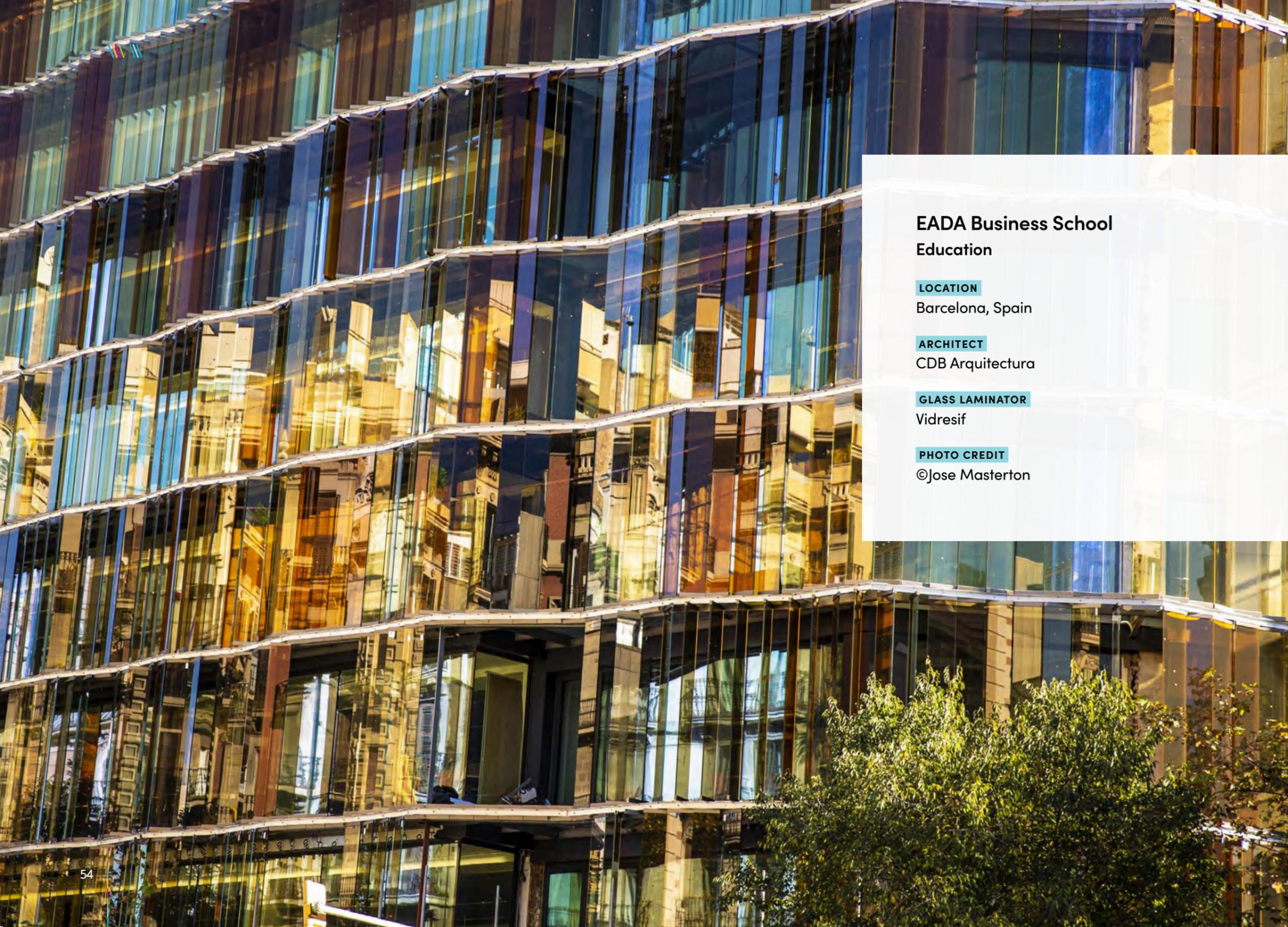
LOCATION
Xuchang, Henan, China

ARCHITECT
Amata Luphaiboon, Twitee Vajrabhaya
Teparkum, Department of Architecture

GLASS LAMINATOR
BSG Glass, Thai Techno Glass

PHOTO CREDIT
©BSG Glass





EADA Business School Education

LOCATION

Barcelona, Spain

ARCHITECT

CDB Arquitectura

GLASS LAMINATOR

Vidresif

PHOTO CREDIT

©Jose Masterton



DOUBLE-SKIN FACADES

EADA Business School

Vanceva color PVB interlayers

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CDB Arquitectura's renovation for the EADA Business School in Barcelona, Spain, adds color and dimension to the original flat, grey exterior with a facade of vertical laminated glass panels of Vanceva Sahara Sun and Sapphire Blue fabricated by Vidresif.

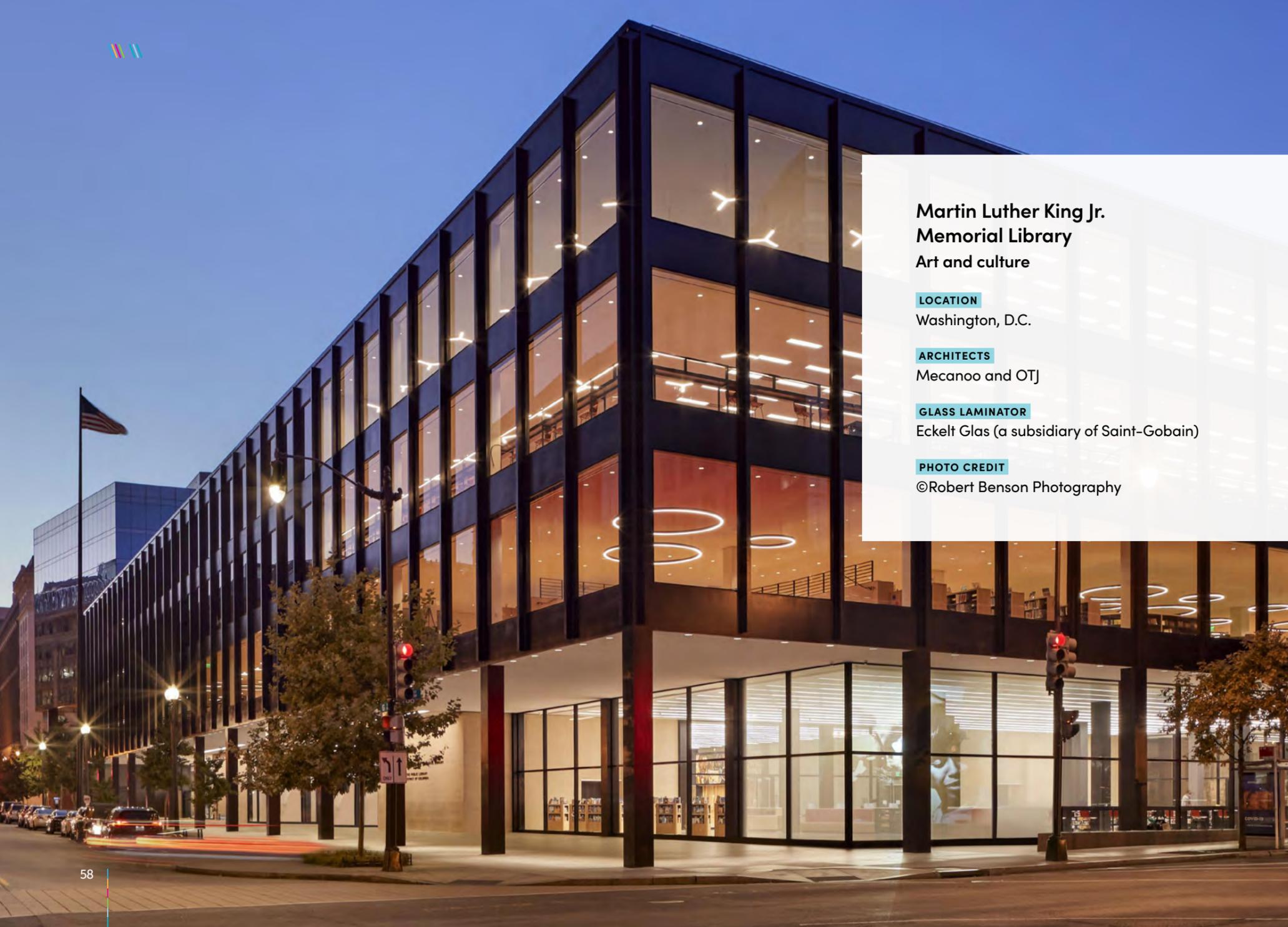
Classrooms and study rooms have access to the new facade, creating a warm and inviting learning environment. The school's ecological and technological offices feature wood-colored workstations with vertical gardens, transitional carpeting to designate areas, and interior partitions of laminated, tempered-laminated, and curved-laminated glass in shades of green. For areas requiring more privacy, a third Vanceva color interlayer, Artic Snow, was added.

The school's renovation showcases the beauty of colored glass and highlights its versatility when combined with other processes such as tempering, screen printing, insulating glass units and curved glass.



Facades





Martin Luther King Jr. Memorial Library

Art and culture

LOCATION

Washington, D.C.

ARCHITECTS

Mecanoo and OTJ

GLASS LAMINATOR

Eckelt Glas (a subsidiary of Saint-Gobain)

PHOTO CREDIT

©Robert Benson Photography



FACADES

Martin Luther King Jr. Memorial Library

Saflex Clear PVB interlayers

The Martin Luther King Jr. Memorial Library renovation weaves the great legacy of the civil rights champion and the renown of the architect, Mies van der Rohe, into one modern space.

To accommodate the building's original slender frames for single-ply glass, the new glazing needed to meet modern energy, security and acoustic requirements. The building's frames, integral to the architect's commitment to simplicity, could not accommodate a typical insulated glass unit. By laminating a solar control coating to Saflex Clear PVB interlayers in a two-ply glass makeup, the team achieved several objectives.

Saflex Clear offers protection from accidental breakage — the glass adheres to the interlayer and will not fall onto the busy street below. The acoustic properties of laminated glass also shield outside noise, providing a quieter environment for study and reading. Finally, the PVB interlayer increases UV protection, shielding library patrons and furnishings from damaging rays.



FACADES

Spectrum Brussels

Saflex Structural PVB interlayers

Commercial offices

LOCATION

Brussels, Belgium

ARCHITECTS

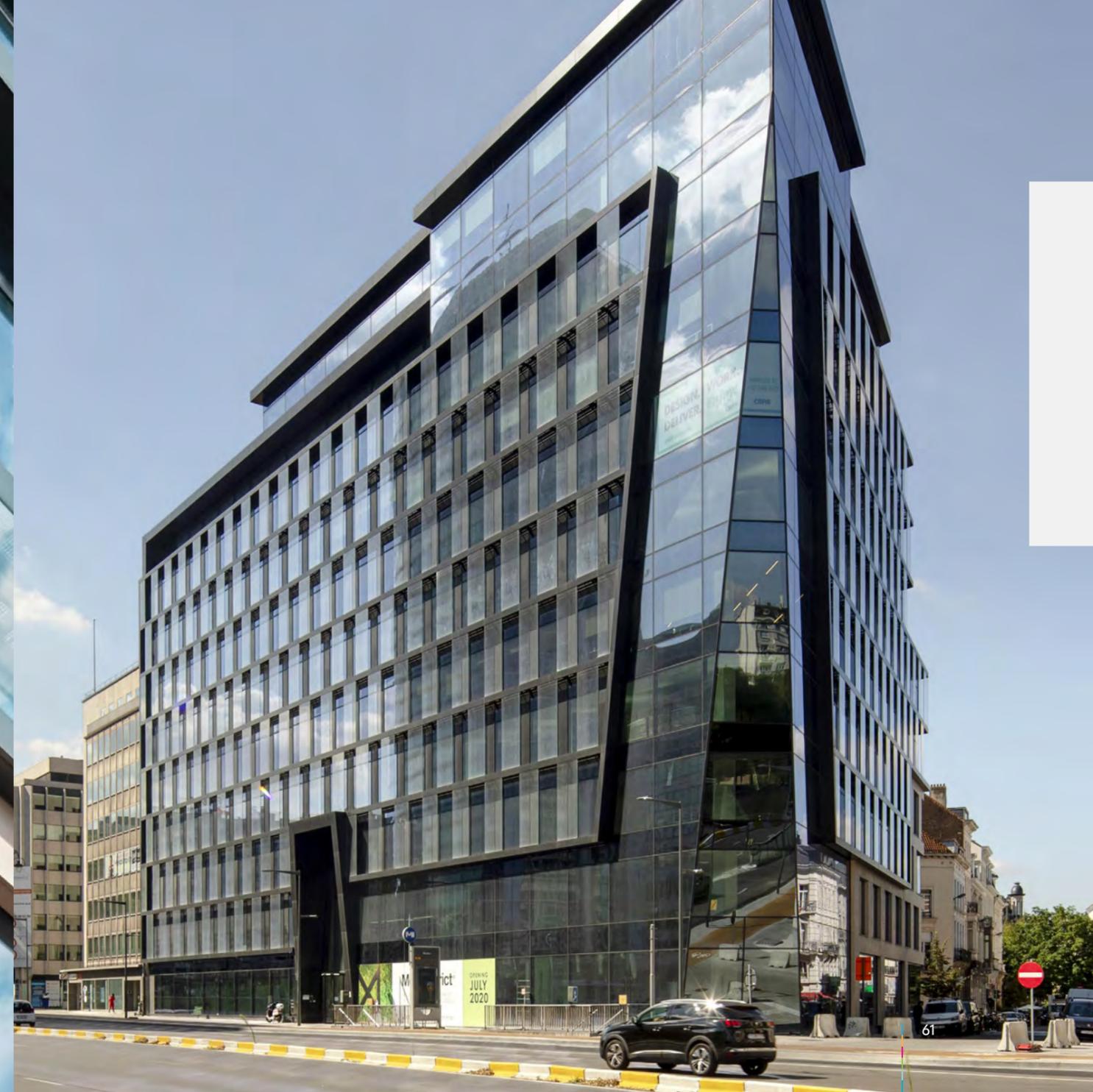
Jaspers-Eyers Architects

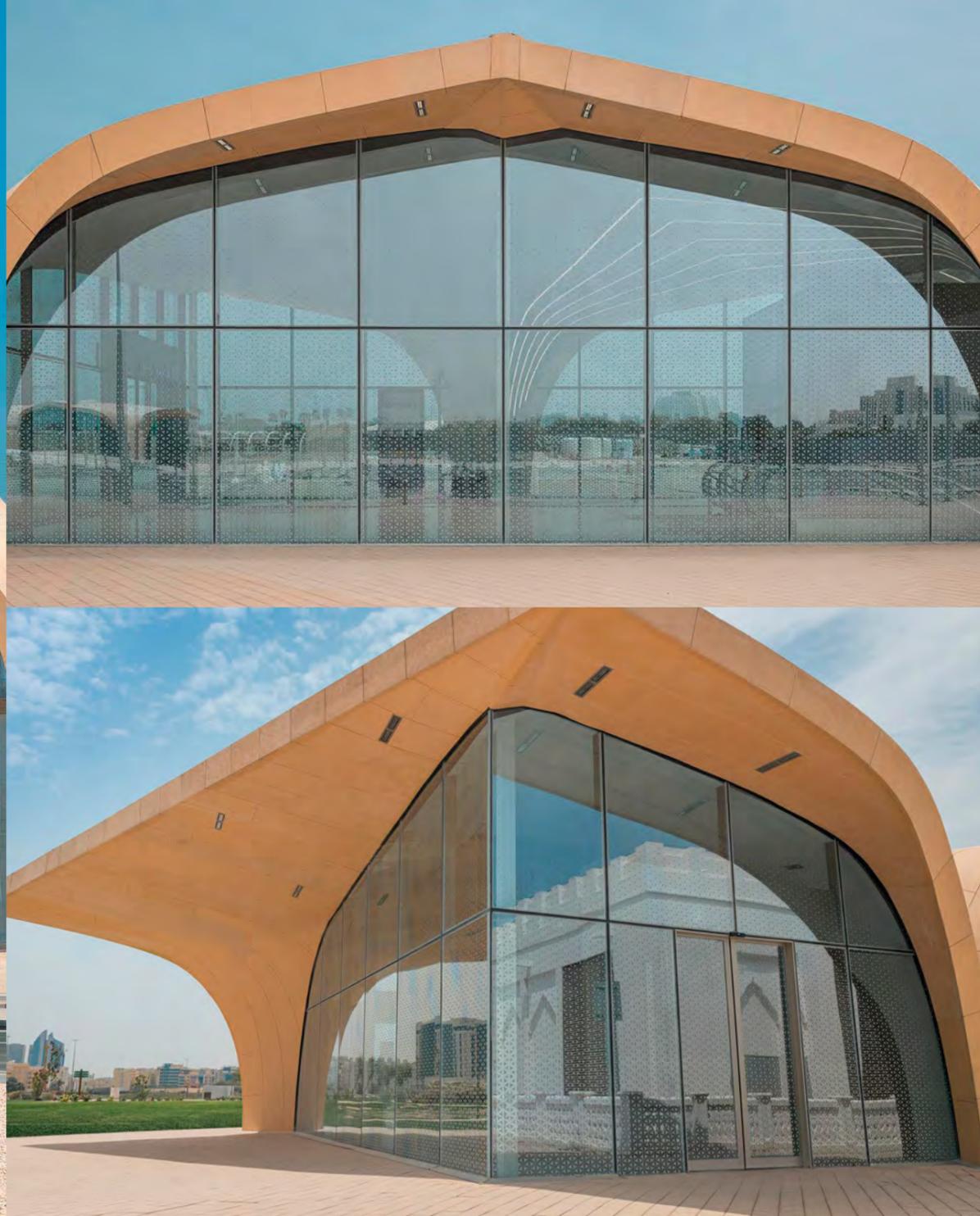
GLASS LAMINATOR

AGC

PHOTO CREDIT

©Jean-Michele Byl





FACADES

Doha Integrated Railway

Saflex Structural PVB interlayers

Tourism and travel

LOCATION

Doha, Qatar

ARCHITECT

UNstudio

GLASS LAMINATOR

BGT Bischoff Glastechnik AG

PHOTO CREDIT

©Ignacy Lukasiewicz Fotografia



FACADES

150 North Riverside

Saflex Acoustic PVB interlayers

Saflex Clear PVB interlayers

Saflex Structural PVB interlayers

On the building's city-facing side, a dramatic 90-foot glass lobby welcomes guests and tenants. An expansive and ultra-clear, nonreflective glass was used to enclose the entire space.

A clear, invisible appearance with minimal visual interruptions was needed, including a seamless transition between the lobby wall and plane of the curtain wall above.

Structural strength was a major consideration. Saflex Structural PVB interlayers were used for the back lobby wall since it was a resilient solution designed specifically for applications where increased rigidity and glass adhesion are required.

Two other Saflex interlayer innovations ensure the office space above the lobby offers acoustic control and crisp views of nature. Saflex Acoustic (QS41) PVB is an advanced, tri-layer system designed to decouple and disseminate sound waves for superior sound-damping performance. Saflex Clear (RA41) offers safety, solar and security benefits to the glazing system.



150 North Riverside Commercial offices

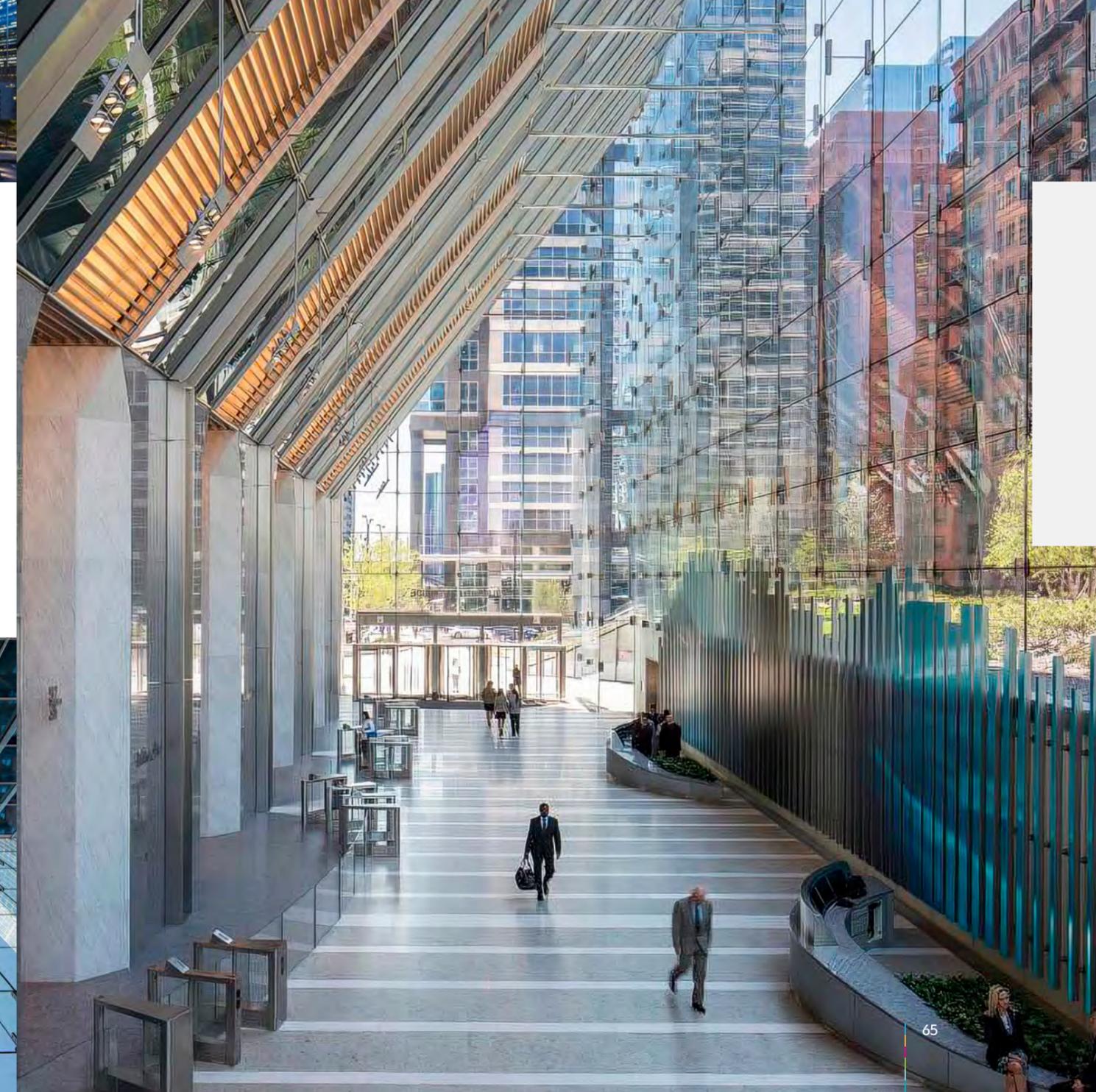
LOCATION
Chicago, Illinois, USA

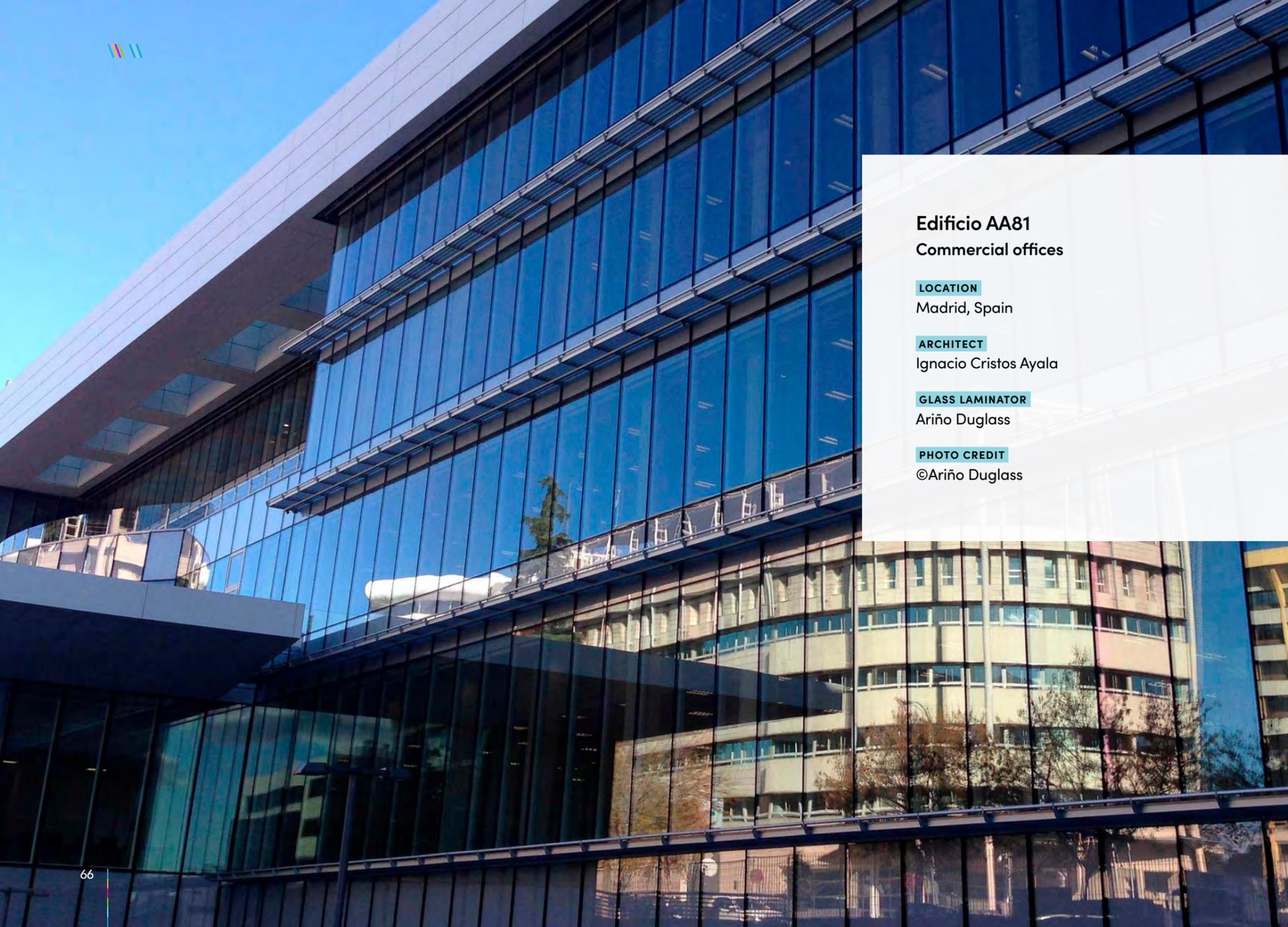
ARCHITECT
Goettsch Partners

GLASS CONTRACTOR
Permasteelisa North America Corp.

GLASS LAMINATOR
Glas Troesch and Viracon

PHOTO CREDIT
©Tom Rossiter Photography





Edificio AA81

Commercial offices

LOCATION

Madrid, Spain

ARCHITECT

Ignacio Cristos Ayala

GLASS LAMINATOR

Ariño Duglass

PHOTO CREDIT

©Ariño Duglass



FACADES

Edificio AA81

Saflex Acoustic PVB interlayers

Madrid's LEED® Platinum Edificio AA81 showcases sound damping technology of Saflex Acoustic PVB interlayers, which quiet street bustle to create an optimal workplace environment.

The glass windows on all five floors of Edificio AA81 were replaced with new windows featuring Saflex Acoustic. Saflex Acoustic can be used in place of or in conjunction with traditional glass interlayers to produce enhanced acoustical glazing systems.

Saflex Acoustic provides laminated glass the advantage of delivering a beautiful, new exterior aesthetic with up to 50% reduction in perceived loudness for the interior. Additionally, Saflex Acoustic deliver the well-known characteristics of laminated glass — safety and security, enhanced UV screening and exceptional durability — giving the Edificio AA81 a multifunctional, high-performance glazing for the facade.



FACADES

The Helios School

Saflex Acoustic PVB interlayers

Saflex FlySafe™ 3D

Designed as a peaceful sanctuary to develop young, gifted minds, the Helios School in Cologne, Germany, also provides a measure of safety to the birds that flock to the beautiful campus. The school's architects specified the use of Saflex™ FlySafe™ 3D combined with Saflex Acoustic PVB interlayers and a protective coating in the outer lite.

Due to the 3D nature of the sparkling sequins in FlySafe 3D, less coverage is required than with conventional bird screen glass; the discrete sequin pattern covers less than 1% of the glass surface. And because the sequins are layered between glass, it is a long-lasting bird protection solution. For building occupants, the sequins are barely noticeable and do not detract from views.

For architects and building owners who want assurance that the product will work, FlySafe 3D is one of the best options on the market and offers the additional benefits of laminated glass — improved acoustics, security, UV protection and solar control.



The Helios School
Education

LOCATION
Cologne, Germany

ARCHITECTS
Schilling Architects

GLASS LAMINATOR
Thiele Glas

PHOTO CREDIT
Matthias Haller





FACADES

Havenhuis

Saflex Clear PVB interlayers

Commercial offices

LOCATION

Antwerp, Belgium

ARCHITECTS

Zaha Hadid Architects

GLASS LAMINATOR

Saint-Gobain

PHOTO CREDIT

©Peter Knoop



FACADES

John Paul II International Airport

Saflex Acoustic PVB interlayers

Passengers who fly in and out of Kraków, Poland, are greeted with sunshine and natural light in the terminal thanks to a bold glass facade. Sandwiched between the layers of glass in each triangle is Saflex Acoustic PVB interlayers, which create a quiet and peaceful atmosphere despite the surrounding busy transport system that includes trains and planes.

Press Glass partnered with Aluprof to design an architectural aluminum system (MB-SR 60 EFEKT), which offers a seamless, flat surface that beautifully encapsulates the triangular panels. The choice of acoustic interlayers also offered another benefit — safety.

In the event of an impact, glass shards will remain adhered to the interlayers, avoiding the danger of glass falling on visitors. The glass wall inclines 37 degrees, which added to the installation challenge but resulted in the stunning and unusual appearance of the terminal.



John Paul II International Airport

Tourism and travel

LOCATION

Kraków, Poland

ARCHITECT

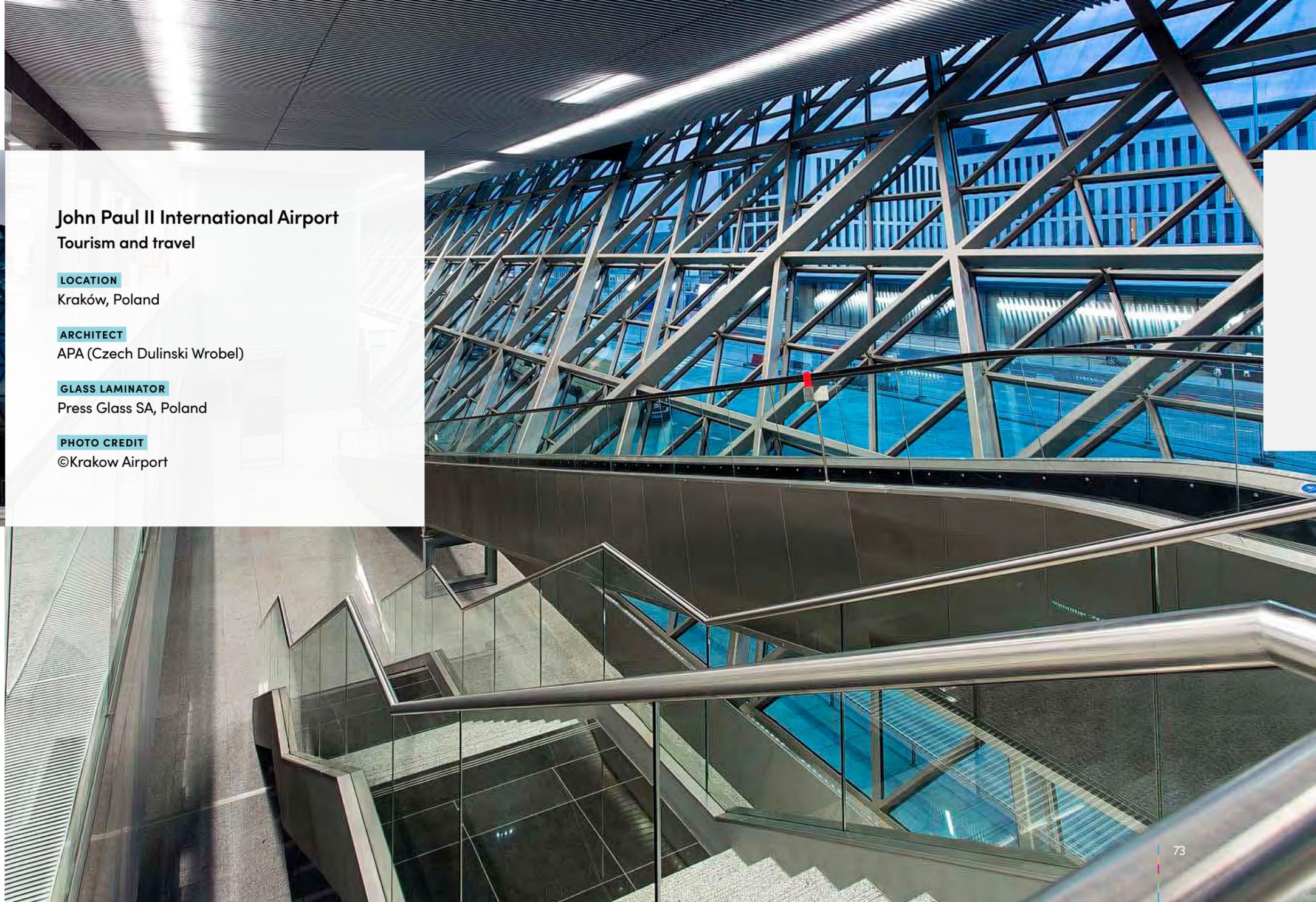
APA (Czech Dulinski Wrobel)

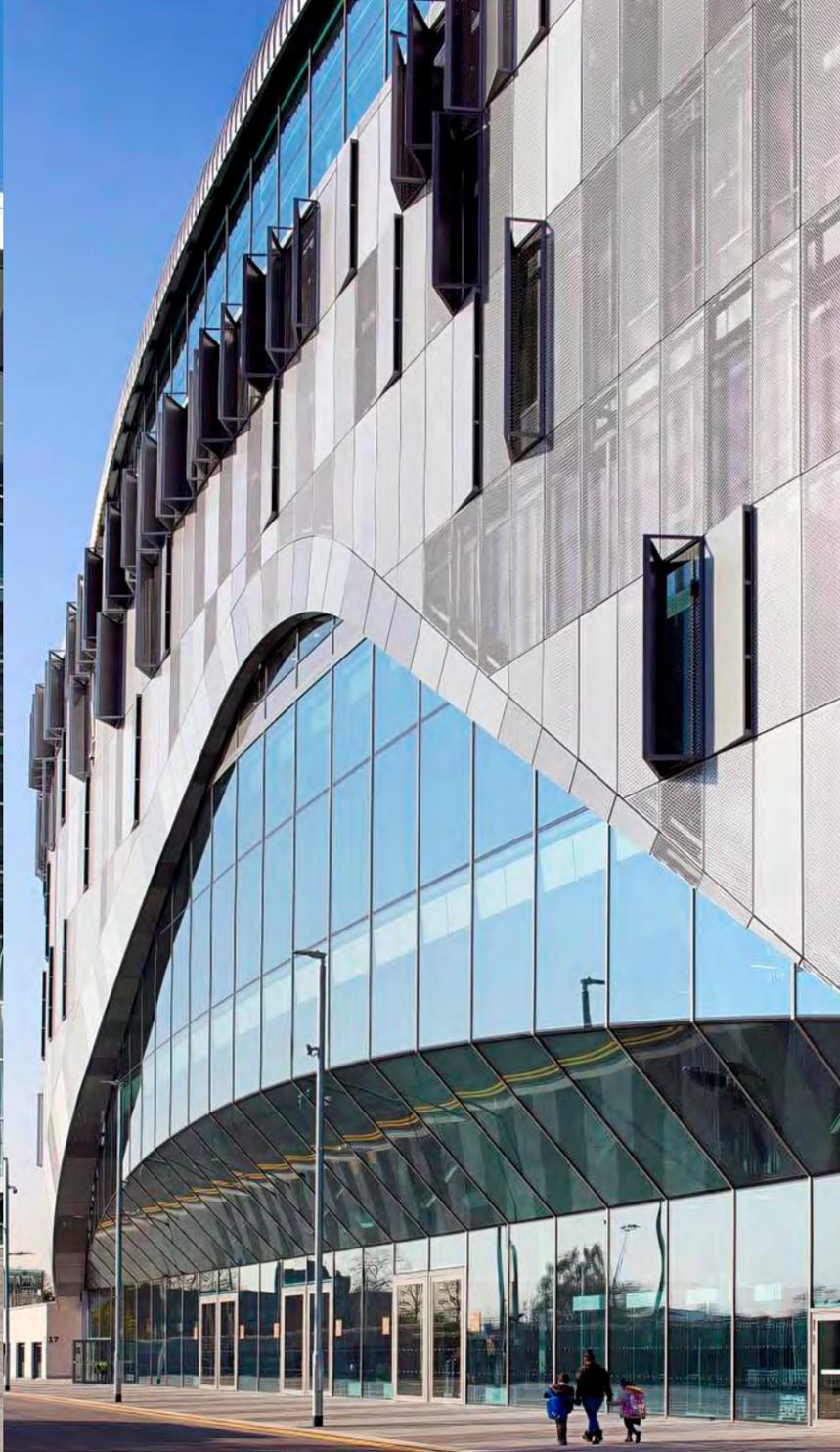
GLASS LAMINATOR

Press Glass SA, Poland

PHOTO CREDIT

©Krakow Airport





FACADES

Tottenham Hotspur Stadium

Saflex Clear PVB interlayers

Saflex Solar PVB interlayers

Sports and leisure

LOCATION

London, England

ARCHITECTS

Populous, Allies and Morrison, Donald Insall Associates

GLASS LAMINATOR

Glassolutions Austria, Saint-Gobain, Eckelt Glas

PHOTO CREDIT

©Hufton + Crow/Jack Hobhouse



FACADES

Beulah Middle School

Saflex Acoustic
Saflex Storm

Education

LOCATION

Pensacola, Florida, USA

ARCHITECT

DAG Architects Inc.

GLASS LAMINATOR

Viracon

PHOTO CREDIT

©Shawn Sandusky





Corning Museum of Glass

Art and culture

LOCATION

Corning, New York, USA

ARCHITECT

Thomas Phifer and Partners,
New York, USA

GLASS LAMINATOR

Thiele Glas

PHOTO CREDIT

©Iwan Baan



FACADES

Corning Museum of Glass

Saflex Structural PVB interlayers

Vanceva Color PVB interlayers in Polar White

With its greenhouse-style use of glass, the North Wing expansion of the Corning Museum of Glass fuses the line between built and natural environments. The square, minimalist design features a 16-meter-high glass facade that spans 2,000 square meters, offering a sweeping, panoramic view of the museum grounds.

Saflex Structural PVB interlayers was an ideal choice for this prestigious project as it met the technical and aesthetic requirements necessary to achieve the architect's vision. With its superior structural capacity, the rigid and robust interlayer offers safety and security for the large-format panes comprising the exterior facade. It also provides UV control and noise abatement essential for a museum environment. Vanceva Polar White PVB interlayers were selected for an opaque effect and were paired with a white dot matrix pattern.



FACADES

Nancy and Rich Kinder Building at The Museum of Fine Arts, Houston

Vanceva color PVB interlayers in four layers of Arctic Snow

The new addition to the Museum of Fine Arts, Houston, boasts an unusual treasure — natural light.

Using an ingenious system of laminated, translucent glass tubes on the outside walls of the buildings, the architect found a way to control the light coming in while protecting the priceless, classical art inside. Punched openings in the weather wall are opaque and offer a different experience of light behind the glass tubes.

Daylight also flows in from clerestory glazing, making the experience of visiting a naturally lit museum unique. At night, the glass tubes glow with a soft, artificial light, creating a luminous streetscape. The glass tubes have an acid-etched surface on the outside with four translucent Vanceva Arctic Snow PVB interlayers, which precisely control the amount of daylight passing through them.

Vanceva color PVB interlayers in the glass tubes also significantly contribute to the reduction of the energy transmission and the associated cooling loads.



Nancy and Rich Kinder Building at The Museum of Fine Arts, Houston

Art and culture

LOCATION

Houston, Texas, USA

ARCHITECT

Steven Holl Architects

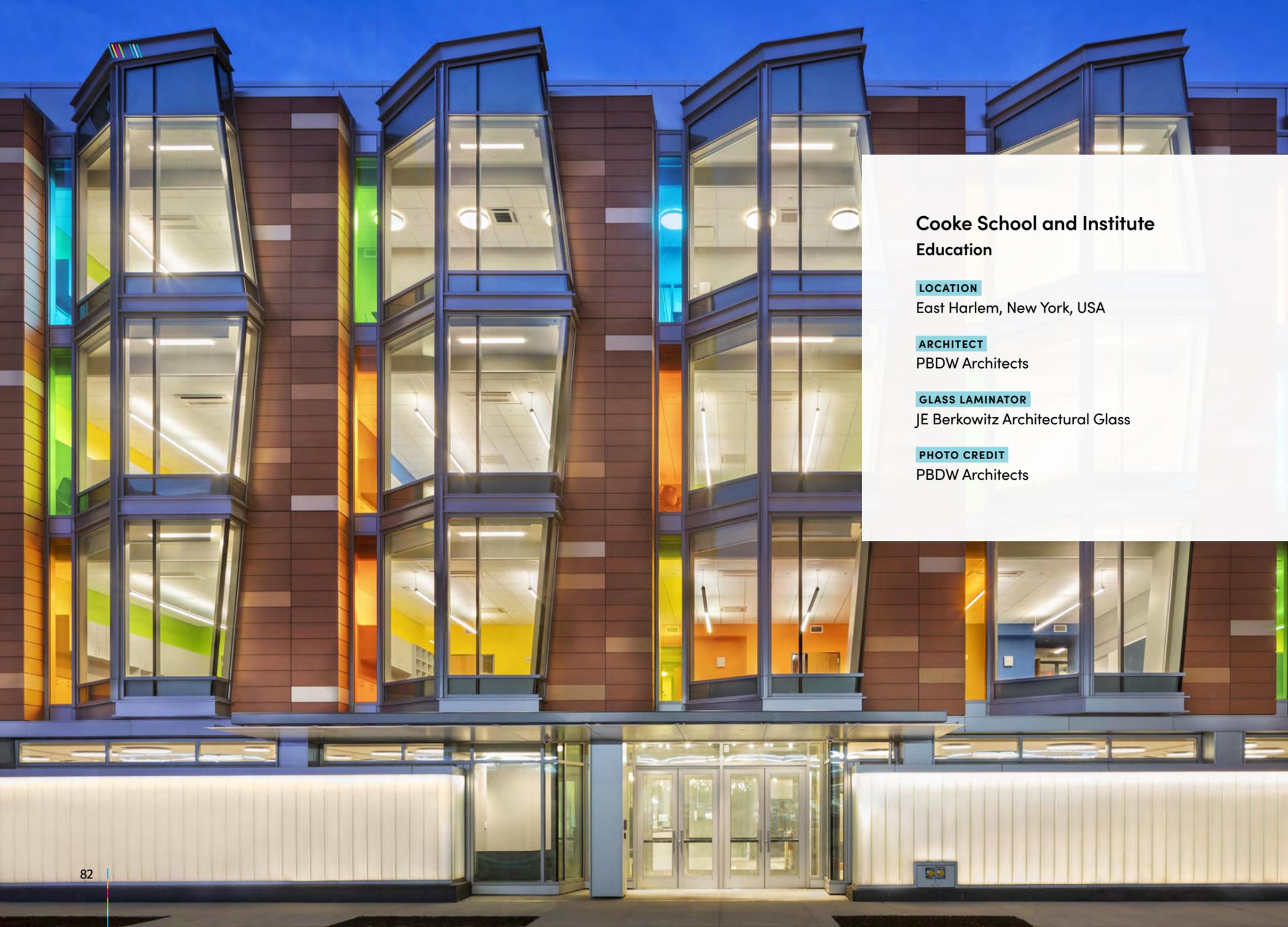
GLASS LAMINATOR

ShenZhen ShenNanYi Glass Product Co., Ltd

PHOTO CREDIT

©Richard Barnes and Olaf Schmitt





Cooke School and Institute Education

LOCATION

East Harlem, New York, USA

ARCHITECT

PBDW Architects

GLASS LAMINATOR

JE Berkowitz Architectural Glass

PHOTO CREDIT

PBDW Architects



FACADES

Cooke School and Institute

Saflex Structural PVB interlayers

Vanceva color PVB interlayers

0048 058C 1266 134E 1846

As playful as the kids who attend classes there, the Cooke School and Institute in East Harlem, New York, is awash in jewel tones that glow through the building's colored glass sidelights that frame its abundant bay windows. The glass sidelights are made with Vanceva color PVB interlayers to coordinate with walls and floors, enabling students to easily identify their classroom — even from the outside.

By maximizing the glazing along the front and back facades, PBDW Architects ensured that the school is illuminated and spacious both inside and out. While natural sunlight is conducive to learning, classrooms have integrated window shades for easy adjustment to better manage daylight for various learning activities and solar control.

Due to the school's urban location, care was given in selecting materials for their acoustical properties. PBDW Architects specified unbalanced, insulated glazing units with thicker laminated glass at the outer light to provide enhanced acoustics while limiting traffic noise and ensuring that classrooms remain quiet.



FACADES

Audrey Irmias Pavilion

Vanceva color PVB interlayers

The Audrey Irmias Pavilion in Los Angeles, California, is a monolithic, trapezoidal silhouette standing in juxtaposition to the Byzantine-revival, dome-topped temple it serves. Its mesmerizing design with glowing green glass features made it the 2022 exterior winner of the Vanceva™ World of Color Awards™.

The 55,000-square-foot pavilion was designed to host religious and cultural activities, celebrations and performances on a shared campus with the Wilshire Boulevard Temple, a synagogue that has been serving the Los Angeles Jewish community since it was built in 1929.

Between the ground-level grand ballroom and the top of the building lies an incredible green glass jewel — the Diane and Guilford Glazer Chapel. Surrounded by green glass made of eight Vanceva PVB interlayers combined with a metal mesh interlayer, the chapel is visible from its oversized trapezoidal window on the east side. The chapel opens onto the west terrace, facing the historic temple and providing yet another amazing view of the green glass.



Audrey Irmias Pavilion Art and culture

LOCATION

Los Angeles, California, USA

ARCHITECTS

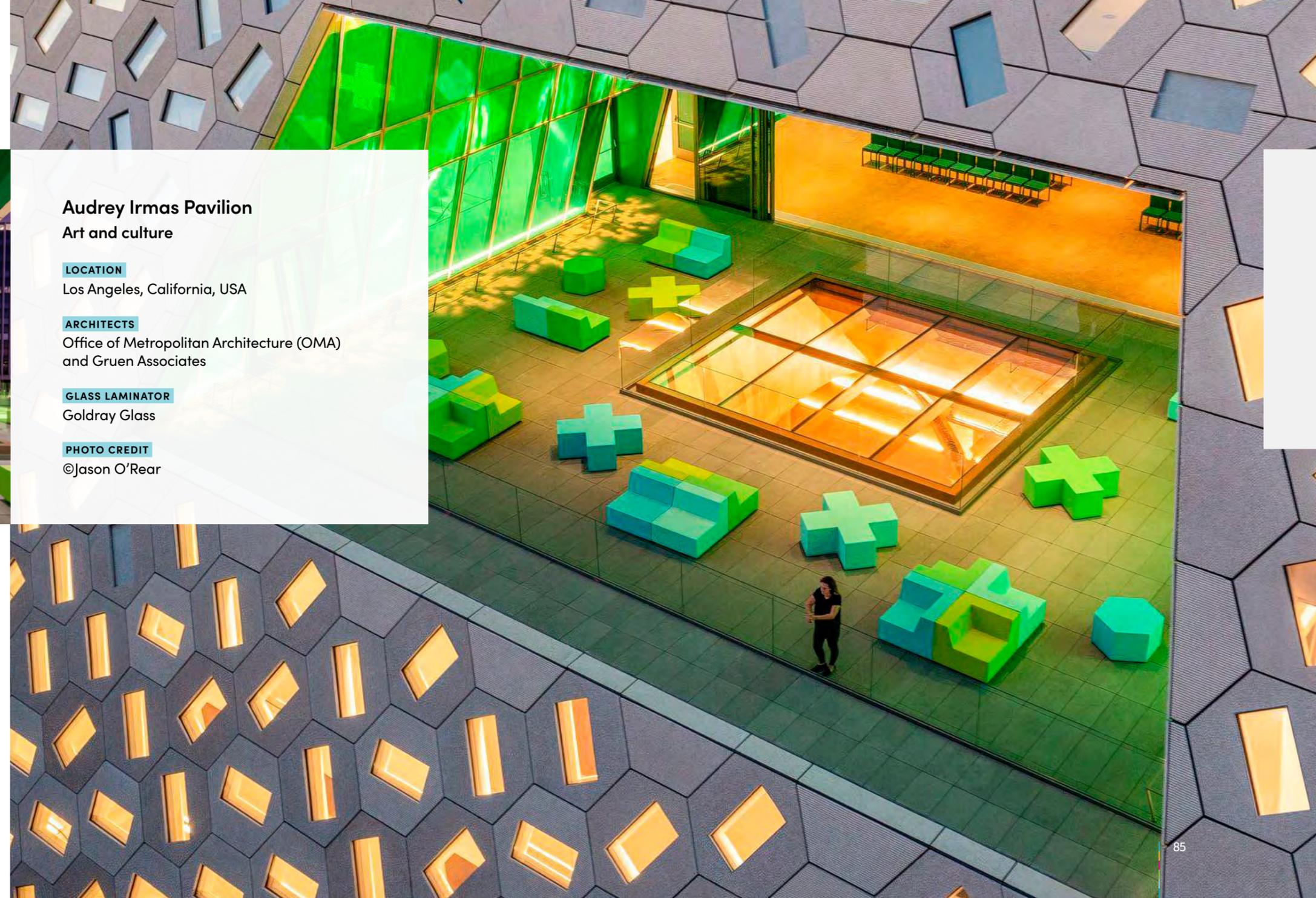
Office of Metropolitan Architecture (OMA)
and Gruen Associates

GLASS LAMINATOR

Goldray Glass

PHOTO CREDIT

©Jason O'Rear





Ambulatory Care Center Healthcare

LOCATION

Omaha, Nebraska, USA

ARCHITECT

Leo A Daly

GLASS LAMINATOR

Viracon

PHOTO CREDIT

©AJ Brown Imaging



FACADES

Ambulatory Care Center

Vanceva color PVB interlayers

American military members wear bars on their dress uniforms to represent years of service, rank, special units, achievements and valor. Even those outside the military recognize that these ribbons, awards and medals have special significance.

The colorful bars were the inspiration for the western elevation of the Ambulatory Care Center on the campus of the Omaha VA Medical Center in Omaha, Nebraska.

With the windows stacked in four rows of colored glass, the three-story care center's western facade resembles an officer's multitiered color bar. The windows are all the same height but vary in width and color. To create this look, dozens of Vanceva color PVB interlayers were used in varying shades of red, plum, purple, light aqua, dark aqua, blue, Kelly green, dark green, yellow, harvest gold and orange.

As the day begins and ends, the sunlight pushes the interlayer colors onto walls and floors, enveloping pathways and rooms in mood-lifting ribbons of color.



FACADES

Emporia

Vanceva color PVB interlayers

0001 0003 0006 0008

The Emporia shopping complex, situated in Hyllie on the south side of Malmö, Sweden, is one of the largest and most sculpturally beautiful shopping malls in Scandinavia.

The amber glass entrance at Hyllie Station Square draws shoppers in with its diagonal chasm cut deep into a block of gold. From the opposing side of this complex, a similar collapsed glass entrance of sea blue pulls people in like the tide. Together, these openings are like the sun and the sea and, in between, the Emporia offers three stories of rainbow-hued architecture arranged in a figure eight.

To build both curvaceous glass entrances, glass manufacturer CRICURSA created 567 molds to slump 815 curved glass panels. A key point in achieving the architect's concept was the selection of the right product to convey color to the glass while maintaining high transparency and low hazing. Vanceva color PVB interlayers were used to achieve the ideal color.



Emporia Retail

LOCATION
Malmö, Sweden

ARCHITECT
Gert Wingårdh of Wingårdh arkitektkontor

GLASS LAMINATOR
CRICURSA

PHOTO CREDIT
©CRICURSA



FACADES

Faria Lima Plaza

Vanceva Earth Tones

Commercial offices

LOCATION

São Paulo, Brazil

ARCHITECT

KPF

GLASS LAMINATOR

GlassecViracon

PHOTO CREDIT

©GlassecViracon



FACADES

Taipei Performing Arts Center

Vanceva Earth Tones

Shale

The multi-theater Taipei Performing Arts Center in Taiwan consists of three theaters attached to a central cube that consolidates the stages, backstages and support spaces into a single, efficient whole. The exterior resembles a silver planet docking into a huge cube made of S-shaped, laminated curved glass in Vanceva's Earth Tone, Shale Grey PVB that was fabricated by CRICURSA.

The annealed glass measures 5 meters in height with a 330 mm radius and 8 x 8, 10 x 10, and 12 x 12 laminated assemblies. The combination interlayer of clear PVB, XIR 72-47 solar control film and Shale Grey Vanceva PVB provides solar control performance and natural light ingress.

A neutral colorway emphasizes the dramatic architecture, and the curves of the laminated glass echo the vibrancy of performing arts through movement. As light passes through the glass curves, a dazzling, twinkling effect makes the cultural center's exterior design a source of enjoyment for theatergoers and the general public.



Taipei Performing Arts Center

Art and culture

LOCATION

Taipei, Taiwan

ARCHITECT

OMA

GLASS LAMINATOR

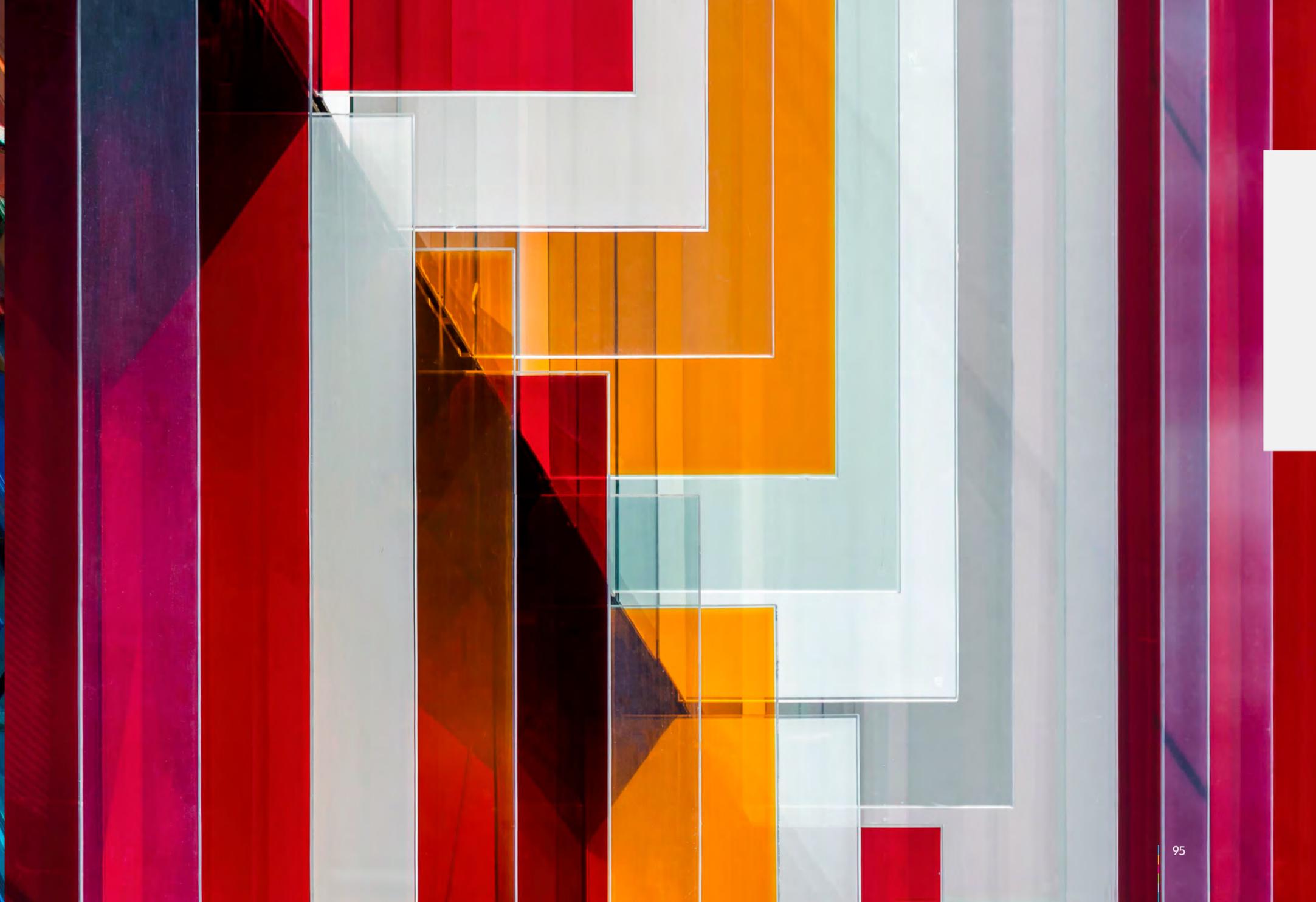
CRICURSA

PHOTO CREDIT

©Chris Stowers



Glass fins





GLASS FINS

Amazon headquarters

Saflex Acoustic PVB interlayers

Saflex Structural PVB interlayers

The Amazon headquarters in Milan, Italy, blurs the lines between indoor and outdoor spaces. The solar-control glass facade provides natural daylighting and maintains a quiet, comfortable environment with the use of low-iron laminated glass, combining Saflex Acoustic PVB interlayers with Saflex conventional PVB interlayers.

For the 1,100 integrated shading glass fins, Tvittec selected Saflex Structural PVB interlayers because of their increased edge stability and compatibility with print. Saflex Structural is typically compatible with inks and frits, reducing the risk of delamination. The glass fins have fastening holes and processed edges at 45 degrees. The silk screen printing on the fins provides decoration as well as shading.

With close attention to function, efficiency, longevity and artistry, the newly redesigned and refurbished Amazon Italy headquarters will continue to be an iconic building.



Amazon headquarters
Commercial offices

LOCATION
Milan, Italy

ARCHITECT
GBPA Architects

GLASS LAMINATOR
Tvittec

PHOTO CREDIT
©GBPA Architects





Computer Science Building, Queen's University Belfast Education

LOCATION
Belfast, Northern Ireland

ARCHITECT
Kennedy Fitzgerald Architects LLP

GLASS LAMINATOR
GlasSeal (NI)

PHOTO CREDIT
©GlasSeal



GLASS FINS

Computer Science Building, Queen's University Belfast

Vanceva color PVB interlayers

00C5 0666 08E1 4274 5653

Multicolored Vanceva color PVB interlayers were used extensively both inside and outside on the Computer Science Building. The building's original 1970 concrete cladding was stripped away with portions of the building demolished.

For the exterior facade, the Vanceva laminated fins visually create digital code that is striking in sunlight and when illuminated at night. Extensive glazing at the front elevation and the bridge link gives the building an updated look and creates a beautiful new landmark on the campus.

The brightly colored glass theme continues inside. Natural light brightens the interior with the use of light tunnels, while brightly hued balustrades provide a pop of color throughout the facility's four floors.



GLASS FINS

Dakar Arena

Vanceva color PVB interlayers

0007 0014 0024 0045 0046 0077 000C 00EE 04DH

The Dakar Arena, located in Senegal, is a multipurpose sports hall. The venue is an urban plaza that serves as an eye-catching meeting and event space.

The rich and colorful local culture is the main inspiration of the design of the arena. Many prominent aspects of African culture — including fashion, handicraft, works of art and traditional local dwellings — give the main identity to the building. A variety of locally inspired colors and patterns stand out in the facade. The selected colors derive from the flag of Senegal and follow a rhythm while functioning as sunshades. The shape of the sunshades is inspired by the local leaves.

Reflections of the colorful leaves on the facade shine on the white walls of the main circulation area, giving color to the space and signaling the motion of the sun throughout the day. The visual movement of the facade turns color into a performance element.



Dakar Arena Sports and leisure

LOCATION
Dakar, Senegal

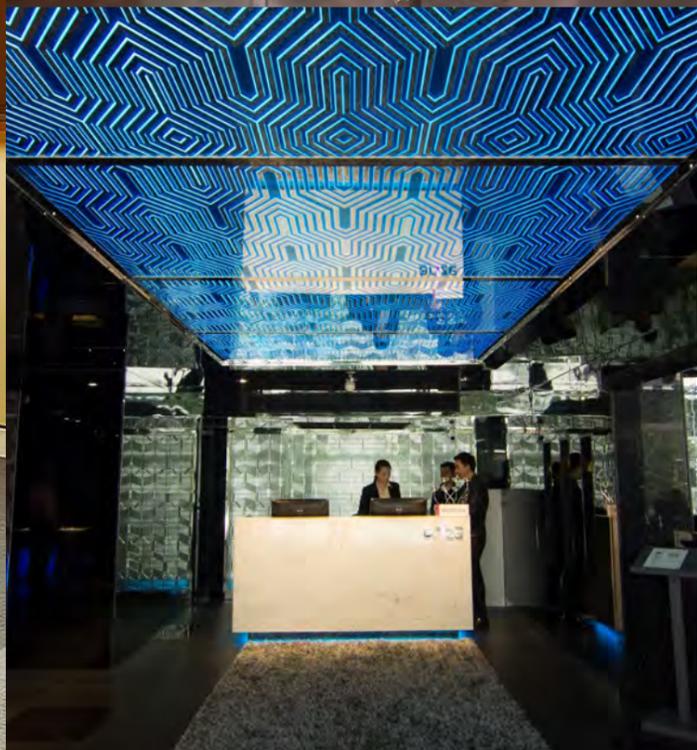
ARCHITECT
Yazgan Design Architecture

GLASS LAMINATOR
Sisecam

PHOTO CREDIT
©Emre Dörter



Interiors





INTERIORS

Featherston House Unit 2

Saflex Structural PVB interlayers

Residential

LOCATION

Ivanhoe, Victoria, Australia

DESIGNER

Julian Featherston, Two Feathers

GLASS LAMINATOR

Cooling Brothers Glass Company

PHOTO CREDIT

©John Gollings Photography





INTERIORS

Utah Schools for the Deaf and the Blind and the Blind

Vanceva color PVB interlayers

The Utah Schools for the Deaf and the Blind in Salt Lake City, Utah, provides education, therapy and services for varying levels of sensory, behavioral, physical and cognitive abilities. The liberal use of bright, glowing red glass adds a stunning pop of color — in the stairwells, throughout the clubhouses and on the exterior where a striking red staircase is visible from the street.

Believing that color is a powerful tool with the ability to impact minds and moods, Jacoby Architects selected red glass made with Vanceva color PVB interlayers as a focal point. Red because it draws attention. Glass because it takes advantage of natural lighting.

The overall color canvas is light with high contrast accents of bright red illuminated features that create landmarks throughout. Aside from its prominent visual effect, the bright, glowing red glass helps low-vision children and the public find their way through the education center to the front doors and clubhouses.



Utah Schools for the Deaf and the Blind Education

LOCATION
Salt Lake City, Utah, USA

ARCHITECT
Jacoby Architects

GLASS LAMINATOR
Northwestern Industries

GLASS INSTALLER
LCG Facades

PHOTO CREDIT
©Jacoby Architects





Kaleidoscope Education

LOCATION

Tianshui, Gansu Province, China

ARCHITECT

SAKO Architects

GLASS LAMINATOR

Shanxi Jingfeng Glass Co., Ltd.

PHOTO CREDIT

©CreatAR Images



INTERIORS

Kaleidoscope

Vanceva color PVB interlayers

0015 0125 0126 0244 0268 0448 1558 2224 4445

SAKO Architects recreated a magical child's toy when they designed Kaleidoscope, a kindergarten in Tianshui, Gansu Province, China. Its squat shape and all-white exterior create the perfect backdrop for rows of colorful glass.

Ten vibrant Vanceva color PVB interlayers were fabricated into laminated glass by Shanxi Jingfeng Glass Co., Ltd., for repetitive use in arches above doors and windows as well as inside on the handrails of corridors and stairs.

When sunlight shines into the school's atrium onto the central stairway, it forms colorful shadows of varying shapes. These free-flowing rainbows overlap to create a beautiful kaleidoscope effect that rotates with the sun's movement throughout the day. At night, interior lighting turns the building into a breathtaking piece of art.



INTERIORS

The Spa at the Mandarin Oriental

Vanceva color PVB interlayers

The atmosphere of the Mandarin Oriental Hotel spa is certainly one of relaxation, health and pleasure; the use of laminated glass in the design was fundamental in creating this serene mood.

A subtle chromatic palette and tasteful incorporation of the glass allows visitors to perceive an "oasis of tranquility" and generates the spa's crisp, contemporary style.

This elegant use of laminated glass, in conjunction with warm wood touches, also creates an inspired look that makes the spa unique. Like the therapeutic treatments at the spa, the architectural design is anything but conventional.



The Spa at the Mandarin Oriental

Tourism and travel

LOCATION

Barcelona, Spain

ARCHITECT

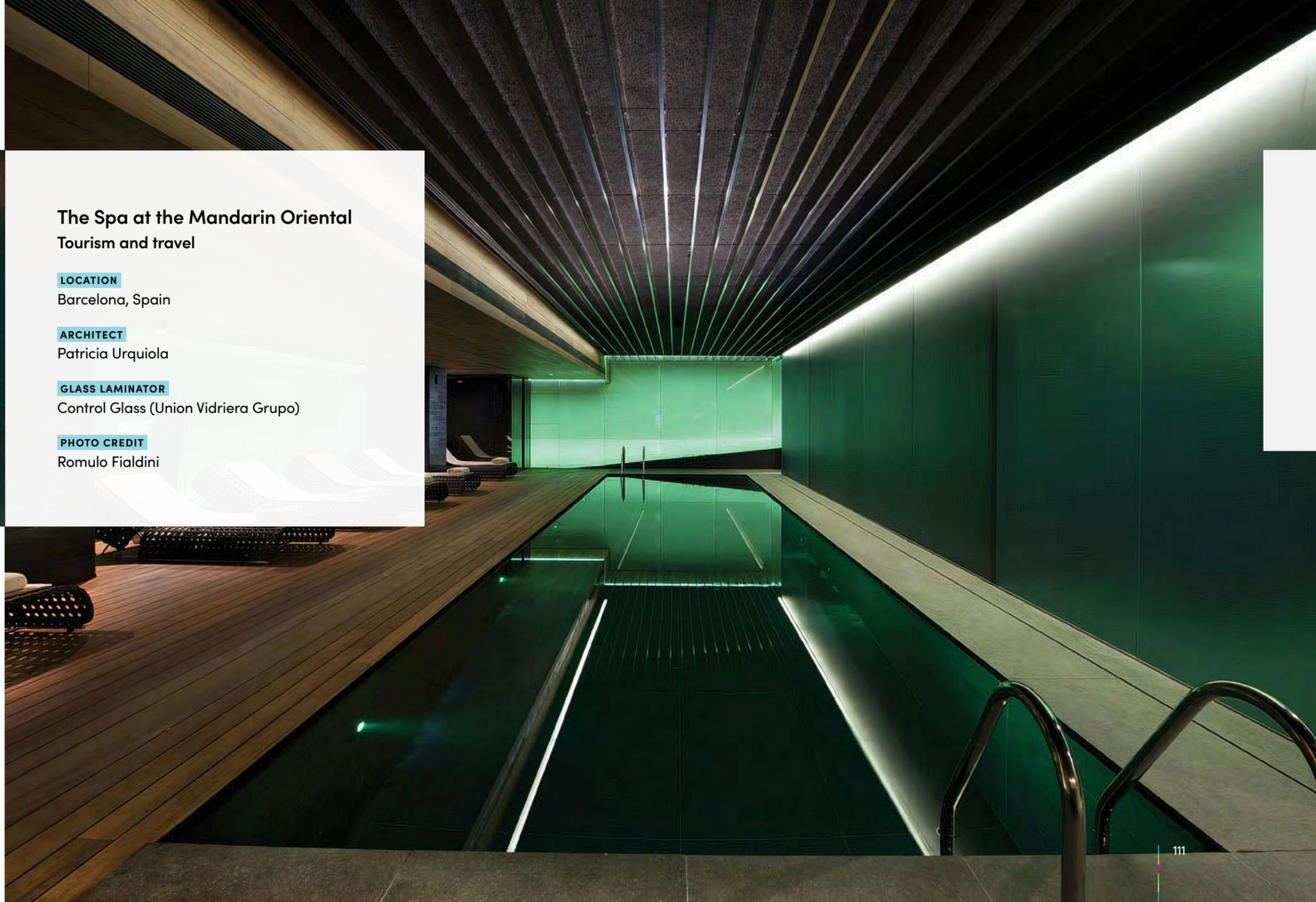
Patricia Urquiola

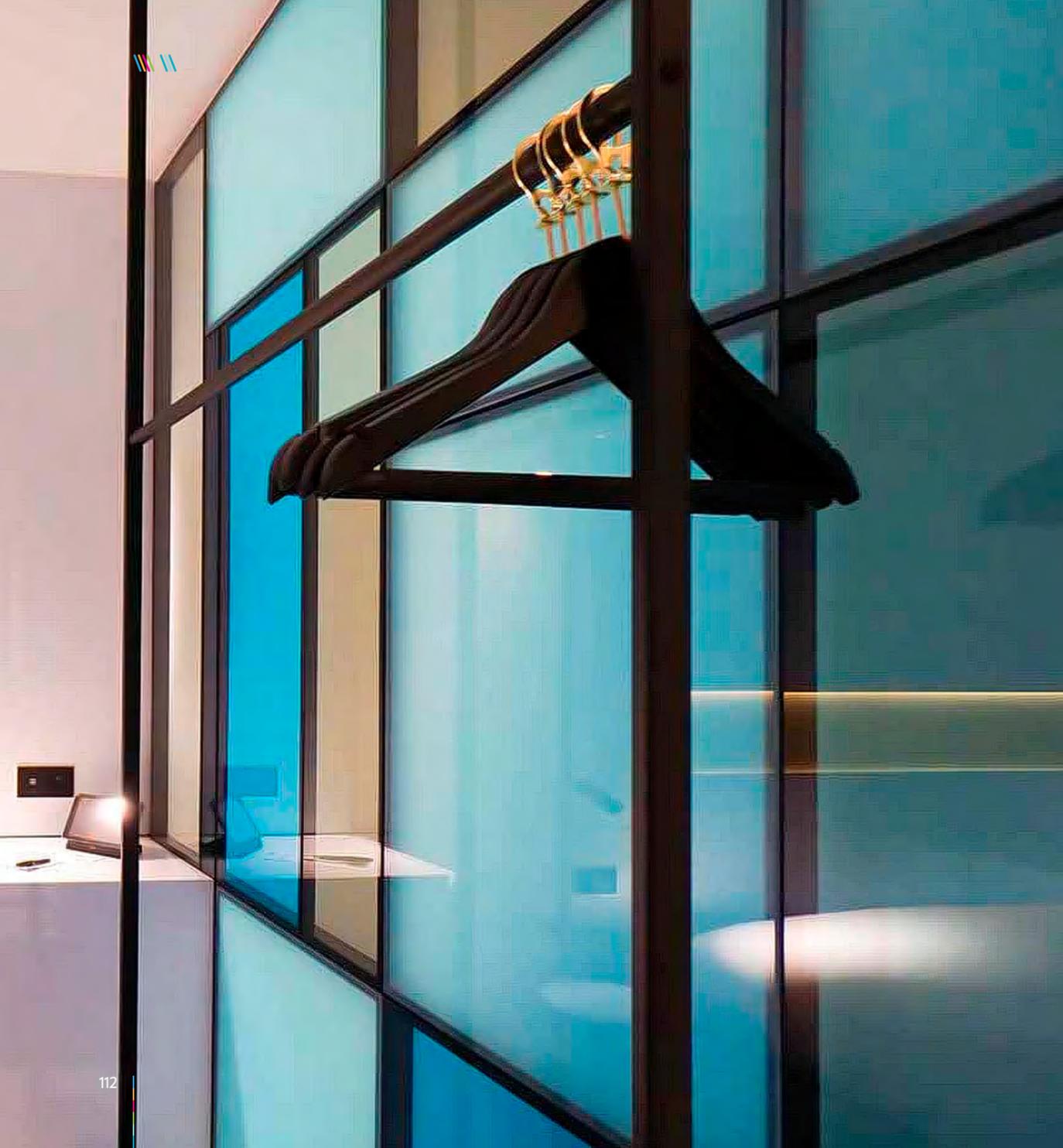
GLASS LAMINATOR

Control Glass (Union Vidriera Grupo)

PHOTO CREDIT

Romulo Fialdini





Hotel Damier

Tourism and travel

LOCATION

Kortrijk, Belgium

ARCHITECT

Verhamme + De Vel Architecten

GLASS LAMINATOR

Sprimoglass

PHOTO CREDIT

©AVCGemino



INTERIORS

Hotel Damier

Vanceva color PVB interlayers

0029

0136

014D

023H

0H3H

2278

Hotel Damier is the premium hotel in Kortrijk, Belgium. The historical building was recently extended with a new minimalistic-designed wing. The project is a demonstration of craftsmanship and customized design.

The playful and colorful wall design is the eye-catcher of every room. The designer combined functionality and aesthetics by using this wall to separate the bathroom from the bedroom. The wall is a specific collage of different colors and shapes made with Vanceva color PVB interlayers for laminated glass that draws your attention and interest and is unique to every floor. With Vanceva, the architect created a Mondrian-style piece of art.



INTERIORS

Implant Logyca

Vanceva color PVB interlayers

Color has been shown to have healing benefits, and this dental office in Arlington, Virginia, sought to use colored architectural glass not only as a therapeutic device but also as a positive distraction for patients undergoing periodontal and implant surgery.

CARVART color architectural glass made with Vanceva color PVB interlayers was selected in primary colors — red, yellow and blue — as well as vivid orange and green to give each operating unit its own personality. Etched into each glass wall is a description of its color and the benefits of that hue. Messages such as “Green is a calming and refreshing color” foster well-being.

The five operating units are laid out along the perimeter to benefit from the urban views while allowing the natural light to filter through the laminated glass. The translucent walls open communication lines in the interiors, fostering a collaborative culture for staff.



Implant Logyca Healthcare

LOCATION

Arlington, Virginia, USA

ARCHITECT

Antonio Sofan

GLASS FABRICATOR

CARVART

PHOTO CREDIT

Halkin Mason Photography





Oficinas Tecnológica Espublico Commercial offices

LOCATION

Zaragoza, Spain

ARCHITECT

Espublico/ATRI,
Mobiliario de Oficina S.S.L.

GLASS LAMINATOR

Control Glass, Acústico y Solar

PHOTO CREDIT

©ATRI, Mobiliario de Oficina, S.L.



INTERIORS

Oficinas Tecnológica Espublico

Vanceva color PVB interlayers

0004 0006 0009

Tecnológica Espublico is an organization dedicated to legal, economic and technological advice for public administrations. When designing this office, architects put their energy into creating relaxing and welcoming work spaces that enhance work and creativity with environments that simulate nature. To accomplish this, they needed glass elements without limits. Required shapes and color tones can be guaranteed with our glass products combined with Vanceva color PVB interlayers.

The partitions between offices are made with laminated, tempered-laminated and curved-laminated glass with Vanceva in green tones that create a friendly environment. For areas where privacy is required, a third Vanceva interlayer, Artic Snow, was added.

Overhead glazing





OVERHEAD GLAZING

Academy Museum of Motion Pictures

Saflex Structural PVB interlayers

The Academy Museum of Motion Pictures in Los Angeles is as unique as the industry it represents. And because one part of the museum — the sphere — has a glass rooftop dome, it required the superior structural capacity found in Saflex Structural PVB interlayers.

The dome consists of a single-layered, braced steel structure covered in shingled glass panels manufactured with Saflex Structural (DG41) PVB interlayers. While the inner glass pane is supported by an invisible, custom dead-load pin connection, the outer glass pane is supported by the interlayer — making a stiff interlayer essential. Due to Saflex Structural's strength and rigidity, the engineers found that it met both requirements.

Since the glass edges are exposed to varying weather conditions, Saflex Structural helps protect against delamination, preserving the dome's beautiful appearance. Low-iron glass without a coating created the final effect.



Academy Museum of Motion Pictures Art and culture

LOCATION
Los Angeles, California, USA

ARCHITECT
Renzo Piano Building Workshop

GLASS LAMINATOR
Saint-Gobain

ENGINEERING FIRM
knippershelbig

PHOTO CREDIT
©Patrick W. Price



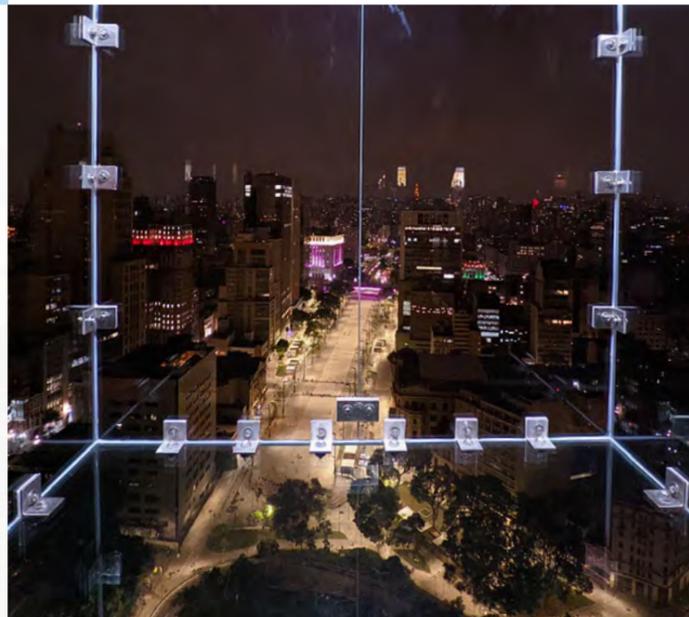
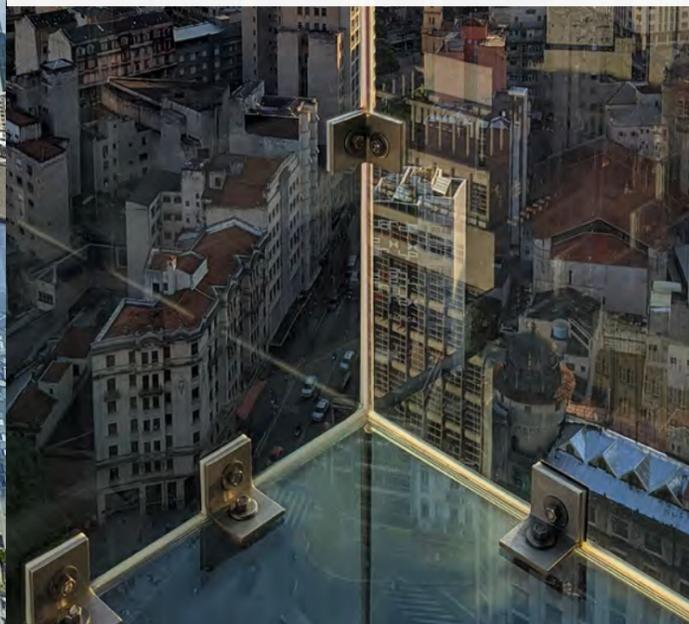


Sampa Sky

Tourism and travel

LOCATION
São Paulo, Brazil

GLASS LAMINATOR
Guardian Glass



OVERHEAD GLAZING

Sampa Sky

Saflex Clear PVB interlayers

Saflex Structural PVB interlayers

Sampa Sky gives visitors a clear, unprecedented and breathtaking view of São Paulo, Brazil — from 150 meters over the city streets.

For a fully immersive experience, the glass platforms slide up to 2 meters out of the building. The decks include 10-mm glass from Guardian Glass and three 10-mm layers of Saflex Structural PVB interlayers, ensuring the strength to accommodate 30 tons with total safety. The facade features two layers of 6-mm Guardian Sunlight with Saflex Clear PVB interlayers.

Safety and structural integrity are vital to Sampa Sky's success. After all, each deck weighs approximately 4 tons. But superior aesthetics and transparency are equally important. There were other considerations, including solar control, edge delamination and UV protection. Saflex PVB interlayers have inherent properties and can be combined with other Saflex PVB interlayers to ensure greater visitor comfort and acoustic control while reducing the environmental impact and energy consumption.



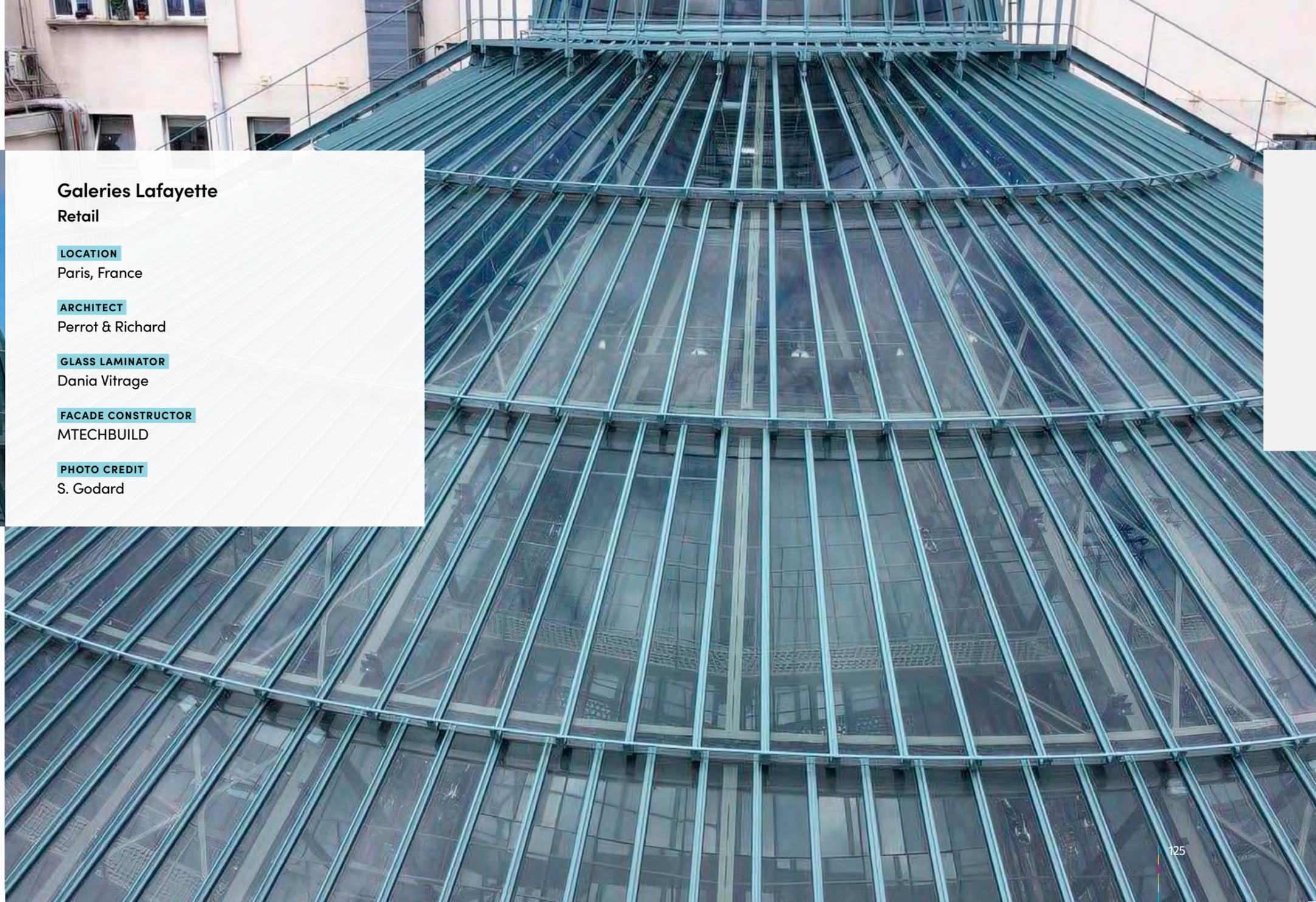
OVERHEAD GLAZING

Galleries Lafayette

Saflex Solar PVB interlayers

For the Galleries Lafayette dome's restoration, solar control and transparency were top priorities. The exterior envelope protects the original stained glass cupola, so a transparent protective glazing with excellent clarity was required. Saflex Solar PVB interlayer (SH41) was chosen for its balanced combination of solar performance and neutrality while maintaining the safety benefits of laminated glass.

The new overhead glazing consists of flat and curved glass made by Dania Vitrage. For the flat panes, French facade constructor MTECHBUILD used tempered glass laminated with Saflex Solar. For the curved panes, tempered glass laminated with Saflex Solar interlayer was used. The interlayer will provide years of protection for the dome's interior stained glass masterpiece. Saflex Solar (SH41) provides a pure light while providing improved solar performance.



Galleries Lafayette Retail

LOCATION
Paris, France

ARCHITECT
Perrot & Richard

GLASS LAMINATOR
Dania Vitrage

FACADE CONSTRUCTOR
MTECHBUILD

PHOTO CREDIT
S. Godard



Galerie Artem Education

LOCATION

Nancy, France

ARCHITECT

Nicolas Michelin & Associés

GLASS LAMINATOR

Ariño Duglass

PHOTO CREDIT

©Guillaume Guerin



OVERHEAD GLAZING

Galerie Artem

Vanceva color PVB interlayers

0001 0002 0003 0005 0006

Mountains were the inspiration for the 300-meter glass promenade connecting three prestigious universities specializing in art, technology and management in Nancy, France. Nicolas Michelin & Associés replicated the sawtooth profile of the surrounding terrain in an overhead glazing fabricated by Ariño Duglass and made with laminated glass with Vanceva color PVB interlayers in Coral Rose, Sapphire Blue, Aquamarine, Smoke Grey and Ruby Red polygons.

The play of light and color on the fine white structure, the other buildings, and the floor and street is remarkable. Galerie Artem shows a high quality in planning in context of the play with the surrounding small-scale, historic cityscape. The project doesn't just casually feature color laminated glass. It is so striking specifically because of the colorful laminated glass.



OVERHEAD GLAZING

Oszo 44 – The Chromatic Circle of Johannes Itten

Vanceva color PVB interlayers

0001 0002 0004 0006 0007 0008 000C 000D 0028

Simple yet dynamic, the colored glass roof over the entrance at the power station of Terlinden, the former textile dyeing company in Küsnacht, Switzerland, is a moving work of art. Using concept colors from the Chromatic Circle of Johannes Itten, artist Ritchie Riediger filled the 100 m² glass roof with colored rectangular panels interspersed with grey panels.

As daytime passes, the artful shadows of the glass roof move across the building's facade, main entrance and the adjacent road to create a transient work of art that everyone can enjoy. The glass canopy is a functional piece of art that was fabricated by the Flachglas Group using red, yellow, blue, orange, violet, green and grey Vanceva color PVB interlayers.



Oszo 44 – The Chromatic Circle of Johannes Itten
Commercial offices

LOCATION
Küsnacht, Zurich, Switzerland

ARCHITECT
Ritchie Riediger

GLASS LAMINATOR
Flachglas Group

PHOTO CREDIT
©Matthias Riediger





The Kaleidoscopic Station

Tourism and travel

LOCATION

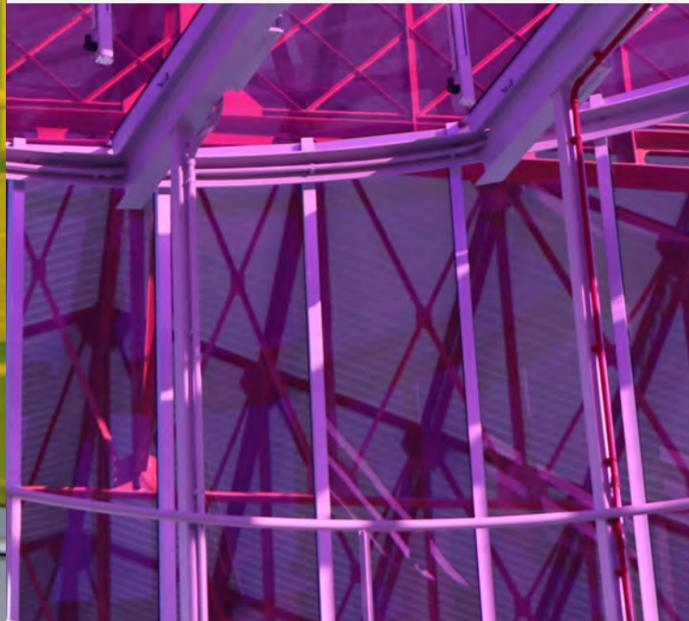
León, Spain

ARCHITECTS

Adif, Ineco, and Fernando Liébana

GLASS LAMINATOR

Tvitec



OVERHEAD GLAZING

The Kaleidoscopic Station

Vanceva color PVB interlayers

0002

0004

0005

000C

000D

000E

Travel by high-speed rail underground has been upgraded in León, Spain, with an 11-station transformation visible above and below ground.

The skylights are fabricated by Tvitec and are made of laminated and tempered safety glass integrated with varying ranges of Vanceva color PVB interlayers. Eastman's colored interlayers were autoclaved between pieces of 6 to 8-mm-thick safety glass. A combination of six different Vanceva color interlayers was used alone or stacked to create even more unique shades.

Skylights were created to provide light and transparency to the underground railway, while the use of vibrant colors contrasts with traditional architecture of the historic station. Above ground, the skylights deliver a modern and colorful aesthetic to the surrounding environment. Vanceva also offers added security and safety by helping to prevent falling glass if impacted and providing UV protection from the sun's harmful rays.



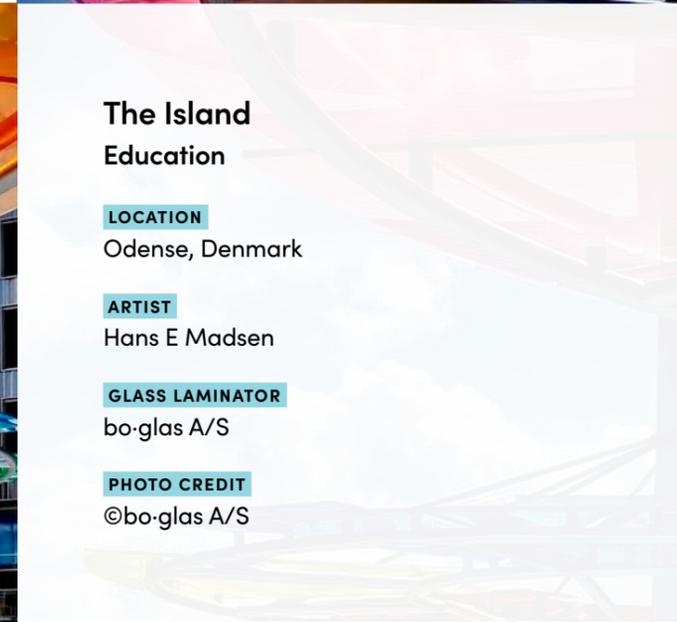
OVERHEAD GLAZING

The Island

Vanceva color PVB interlayers

Danish artist Hans E Madsen developed the art piece The Island for the business school Erhvervsakademiet Lillebælt in DK-5000 Odense. The Island consist of three large umbrella-like structures each with a diameter of 7800 mm. Each "umbrella" consists of 16 to 18 self-bearing, 2550 x 1435 mm glass pieces for a total of 51 glass pieces. The glass was manufactured with 14 different Vanceva color PVB interlayers, each with up to three Vanceva interlayers. The single pieces of glass were then mounted to overlap.

Madsen considered how passersby would experience the transparent colors when looking through the glass into the sky as well as looking down to the ground as light passes through the umbrella glass during the shifting daylight.



The Island Education

LOCATION

Odense, Denmark

ARTIST

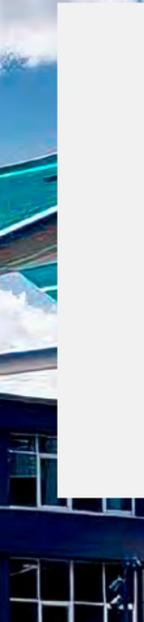
Hans E Madsen

GLASS LAMINATOR

bo-glas A/S

PHOTO CREDIT

©bo-glas A/S





Tools and resources





Expert advice. Online tools.

As a world leader in PVB interlayer manufacturing and development, Eastman continues to innovate its portfolio to meet the needs of the laminating industry with products that offer superior processing, performance and durability.

Our goal is to maintain our high-quality standards while increasing sustainable opportunities for our partners and customers. We want to be the sustainable, collaborative and innovative partner of choice across the entire value chain.

As such, we are committed to proactively learning about, developing and advocating for sustainable, laminated glass solutions that enable more environmentally friendly buildings and vehicles.



Architectural Acoustic Demo

Design for effective sound reduction. Saflex Acoustic Demo is an online noise simulator that demonstrates the performance of Saflex Acoustic and Saflex Clear PVB interlayers in various configurations.



Saflex SoundPro

With the Saflex SoundPro online tool, you can determine optimal glazing configurations to meet your acoustic target. This proprietary software, developed by Eastman, is an intuitive and flexible tool that provides performance data for tested glass configurations and allows for estimates on custom glass configurations.



Saflex StructuralPro

Calculate the load bearing you need with our StructuralPro online tool. This proprietary software, developed by Eastman in conjunction with industry glass experts, is based on the methodologies of European (EN) and international (ASTM and ISO) standards for glass characteristics and design.



Vanceva Color Selector

Explore the vast color combinations available using the Vanceva color system. With the virtual color selector, you can create any RAL, Pantone or NCS color system possibilities. Then you can order samples online to perform lighting tests, share with customers and compare for compatibility with other project materials.



Saflex and Vanceva glass configurator

With this online glass configurator, you can model a variety of transparent colors for multilayered laminated glass tailored to your exact needs. Developed in partnership with glassAdvisor, this web app simulates how various Saflex interlayers, Vanceva Earth Tones and Vanceva Colors combine — complete with key spectral properties and color information.

Education opportunities and free accredited courses

AIA CEU credit

Barbour Product Search CPD

Free webinars

In-depth webinars to share and discuss new products, tools, findings and research

Online technical documents

Access all technical documents for our portfolio of products.

Contact us

For additional product or education resources, contact a member of our support team or visit [saflex.com/contact-us](https://www.saflex.com/contact-us).



Technical guide





TECHNICAL GUIDE

Saflex Acoustic

Acoustic data^a

	STC	Rw	C	Ctr
Laminated glass with Saflex Acoustic				
3,3.Q	36	36	-1	-3
4,4.Q	37	37	-1	-3
5,5.Q	38	38	-1	-3
6,6.Q	39	39	-1	-2
8,8.Q	41	41	-1	-3
10,10.Q	43	43	-1	-3
12,12.Q	44	44	-1	-3
Laminated glass with Saflex Acoustic in insulating units				
3[12]3,3.Q	38	38	-1	-5
3[12]4,4.Q	38	38	-1	-5
6[12]3,3.Q	41	41	-2	-5
6[12]4,4.Q	41	41	-1	-5
6[12]5,5.Q	42	42	-2	-5
8[12]3,3.Q	42	42	-1	-4
8[12]4,4.Q	44	44	-1	-4
Double laminated glass with Saflex Acoustic in insulating units				
3,3.Q[12]3,3.Q	43	43	-2	-6
6,6.Q[12]8,8.Q	49	49	-1	-5
6,6.Q[20]4,4.Q	50	49	-3	-8
8,6.Q[20Ar90]5,5.Q	51	51	-2	-7

^aData valid for unit as tested +/- 1 unit for all thicknesses of Saflex Acoustic interlayer. Single-unit laminated glass values are averages of multiple tests on the same configuration. Data tested in accordance with ASTM E90 or ISO 10140 and calculated with ASTM E413, E1332, and ISO 717-7. All samples are glass-only tests at ambient temperature. Acoustic data for laminated triple glazing available on request.

Saflex Acoustic performance properties

Impact and pendulum test	Product	EN12600	EN356	Comply
	QS31	1B1	NA	3-mm glass
	QS41	1B1	P2A	4-mm glass
	QS71	1B1	P2A	4-mm glass
Acoustic data	Product	Rw, ISO 717-7	MIM	Comply
	QS31	37 dB	> 0.25	4-mm glass
	QS41	37 dB	> 0.25	4-mm glass
	QS71	37 dB	> 0.25	4-mm glass

Saflex Acoustic products

Product	Thickness	Standard widths (cm) ^a	Standard lengths (m)	Color
Saflex QS31	0.63 mm (0.025 in.)	100 ~ 280	300	Clear
		322	300, 600	
Saflex QS41	0.76 mm (0.030 in.)	100 ~ 280	250	Clear
		322	250, 500	
Saflex QS71	1.52 mm (0.060 in.)	100 ~ 280	125	Clear
		322	125, 250	

^aConsult your regional Saflex sales representative for availability of widths in each region.

TECHNICAL GUIDE

Saflex Clear

Saflex Clear performance properties

Technical data	Property	Test method	Units	Test conditions	Saflex Clear
Physical ^a	Specific heat	ASTM E1269	joules/kg•°C	50°C	1980
	Specific gravity	ASTM D792	g/cm ³	23°C	1.07
	Hardness	ASTM D2240	Shore D	Cut/stacked to 12.5 mm	52
Mechanical ^a	Elongation at failure	ISO 527-3	%	23°C/50% RH 50 mm/min	266
	Young's modulus of elasticity ^b (E)	Calculated	MPa	20°C/3 sec	42
	Poisson's ratio	ASTM D638	—	23°C/50% RH	0.5
	Shear storage modulus ^b (G')	Calculated	MPa	20°C/3 sec	14
	Tensile strength	ISO 527-3	MPa	23°C/50% RH 50 mm/min	25
Thermal	Coefficient of thermal expansion ^a	ASTM D831	10 ⁻⁶ /°C	30°-100°C	155
	Conductivity, thermal, K ^a	ASTM F433	W/m/(m ² °C)	65°C	0.2
Solar and optical ^c	Haze	ASTM D1003	—	3-mm clear	< 1
	Refractive index	ASTM D542	—	23°C	1.478
	Yellowness index	ASTM E313	—	3-mm clear	< 1
	Solar transmittance	NFRC 300 ISO 9050 EN410	D65	3-mm clear	0.72
	Visible transmittance	NFRC 300 ISO 9050 EN410	D65	3-mm clear	0.89
	UV screening	Calculated	300-380 nm	3-mm clear	> 99%

^aData as measured/calculated for nominal 0.76-mm Saflex Clear RB formulation interlayer and represent typical values; other formulations may differ. ^bAdditional values for shear and Young's modulus are available for select temperatures and durations at www.saflex.com. ^cData as measured/calculated for laminate with 3-mm clear glass/interlayer/3-mm clear glass.

Saflex Clear products

Product	Thickness (mm)	Lengths (m) ^a	Widths (cm) ^a	Form	Color
RB11	0.38	450-1500	45-331	Interleaved refrigerated	Clear
RA41/RB41	0.76	247-790	45-331	Interleaved refrigerated	Clear
RA61/RB61	1.14	167-134	45-331	Interleaved refrigerated	Clear
RA71/RB71	1.52	125-400	45-331	Interleaved refrigerated	Clear
RA91	2.28	83-167	45-246	Interleaved refrigerated	Clear

^aRange of available widths and lengths. Consult your Saflex representative for width, length and form availability for your region.



TECHNICAL GUIDE

Saflex Crystal Clear

Saflex Crystal Clear performance properties

Optical (%) and thermal properties ^a			SI	IP
Solar transmittance	83	U factor, W/m ² ·K (Btu/hr·ft ² ·°F)	5.70	50°C
Visible light transmittance	90	Solar heat gain coefficient (SHGC), g	0.86	23°C
Absorptance (solar)	9	Light to solar gain (LSG)	1.04	
Tuv	<1			

Color properties ^a	Dom. WL
Color rendering index (transmittance)	100

^aAs laminated with 3-mm low-iron glass
Data reported in metric (SI) units with inch-pound (IP) standard units calculated

Saflex Crystal Clear products

Product	Nomenclature	Thickness (mm)	Length (m) ^a	Width (cm) ^a	Form	Color
Saflex Crystal Clear	RB4N	0.76	250	45–322	Refrigerated	Crystal Clear
			500	322		
Saflex Crystal Clear	RB4N	0.76	247	45–280	Interleaved	Crystal Clear

^aRange of available widths and lengths. Consult your Saflex representative for width, length and form availability for your region.

TECHNICAL GUIDE

Saflex FlySafe 3D

Saflex FlySafe 3D performance properties

Technical data	Property	Test method	Units	Test conditions	Saflex Clear
Physical	Specific heat	ASTM E1269	joules/kg • K	50°C	2108
	Specific gravity/density	ASTM D792	kg/m ³	23°C	1064.3
	Hardness ^a	ASTM D2240	Shore A	Cut/stacked to 12.5 mm	77
Mechanical	Elongation at failure	ISO 527-3	%	23°C/50% RH; 50 mm/min	—
	Young's modulus, E(t) ^b	EN 16613	MPa	20°C/3 sec	33
	Poisson's ratio	ASTM D638	—	23°C/50% RH	0.5
	Shear modulus, G(t) ^b	EN 16613	MPa	20°C/3 sec	11
	Tensile strength	ISO 527-3	MPa	23°C/50% RH; 50 mm/min	—
Thermal	Coefficient of thermal expansion	ASTM E831	ppm/°C	30°–100°C	183
	Thermal conductivity	ASTM D5930	W/m • K	60°C	0.2
Solar and optical	Haze	ASTM D1003	%	3-mm clear	<1
	Refractive index ^a	ASTM D542	—	23°C	1.479
	Yellowness index	ASTM E313	YI	3-mm clear	<1
	Solar transmittance ^c	LBNL WINDOW 70 NFRC 100	%	—	70%
	Visible transmittance ^c	LBNL WINDOW 70 NFRC 100	%	—	86%
	UV screening	Calculated	300–380 nm	3-mm clear	>99%

^aData based on 0.76-mm Saflex Clear R series and NOA for Saflex formulation unless otherwise indicated. ^bAdditional values for shear and Young's modulus are available for select temperatures and durations at saflex.com. ^cSolar, thermal and optical data based on 1.52-mm clear Saflex FlySafe 3D PVB interlayer with clear nominal 3-mm glass 9|90 sequin grid pattern. Calculations performed using OPTIC and WINDOW 70 by Lawrence Berkeley National Laboratory with area weighted average applied.

FlySafe 3D products

Product	Thickness (mm)	Lengths (m) ^a	Widths (cm) ^a	Form	Sequin	Grid pattern (mm)	Approaches (%)
RA42 and RB42	0.76	Varies	Up to 322	Interleaved/ refrigerated	Shiny sequin Black dot	6 90	13
					Matte sequin Black dot		
					Shiny sequin Black dot	9 90	9
					Matte sequin Black dot		
Shiny sequin Shiny sequin							

^aRange of available widths and lengths. Consult your Saflex representative for width, length and form availability for your region.



TECHNICAL GUIDE



Saflex Solar performance properties

Technical data	Property	Test method	Units	Saflex Solar results
Solar	Solar transmittance	ISO 9050, NFRC 100	%	37
	Solar reflectance		%	5
	Solar absorptance		%	58
	Solar heat gain coefficient (SHGC)		—	0.55
	Shading coefficient		—	0.64
Thermal	Light to solar gain (LSG)	ISO 9050, NFRC 100	—	1.40
	U-factor		W/m ² ·K BTU/h·ft ² ·°F	5.66 1.00
UV	Transmitted UV	ISO 9050, NFRC 100	%	< 0.01
	Damage weighted factor (Tdw)		—	0.23
Solar and optical	Visible light transmittance	ISO 9050, NFRC 100	%	76
	Visible light reflectance		%	7

Saflex Solar products

Product	Thickness	Std. widths	Std. lengths	Form	Color
SH41/SG41	0.76 mm	100, 120, 140, 160, 180, 200, 225, 244, 322 cm	250 m	Refrigerated	Clear
		100, 120, 140, 160, 180, 200, 225, 244, 280 cm	247 m	Interleaved	

TECHNICAL GUIDE



Key solar performance parameters as calculated to EN410

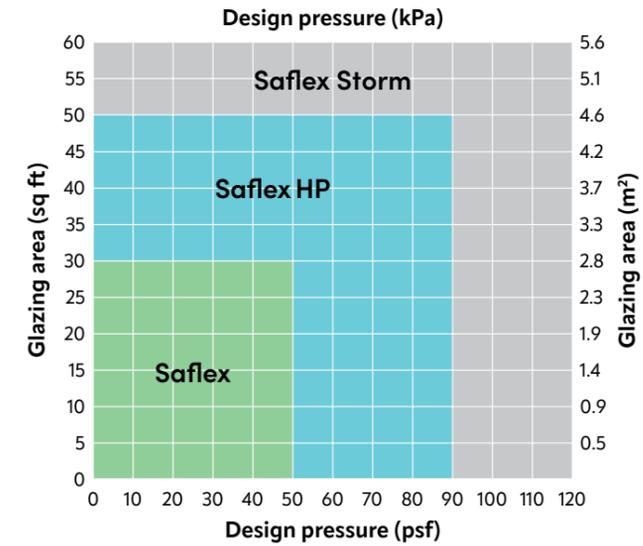
Technical data	VLT (%)	g-value	CRI
Configuration 1: Basic			
Saflex Solar SH	83	0.63	96
Saflex Solar SG	76	0.53	93
Configuration 2: Double-skin facade – outer surface			
Saflex Solar SH	61	0.52	99
Saflex Solar SG	55	0.44	95
Configuration 3: Retail window IGU; low reflection			
Saflex Solar SH	78	0.47	96
Saflex Solar SG	71	0.38	93



TECHNICAL GUIDE

Saflex Storm

Typical glass performance for standard four-side glazing using recommended conditions



Note: Experienced product performance. Based on panels glazed with structural silicone, minimum 12-mm (0.5-in.) glass bite; standard test temperatures 15°–35°C (59°–95°F). Not guaranteed for all samples.

Extreme wind and impact — glass constructions

Missile	Code/standard	Glass configuration
Large	FBC TAS 201/3 Dade	Glass — 2.29-mm (0.090-in.) Saflex — glass
		Glass — 2.54-mm (0.100-in.) Saflex HP — glass
		Glass — 1.91-mm (0.075-in.) Saflex Storm — glass
Large	ASTM E1996	Glass — 2.29-mm (0.090-in.) Saflex — glass
		Glass — 2.54-mm (0.100-in.) Saflex HP — glass
		Glass — 1.91-mm (0.075-in.) Saflex Storm ^a — glass
Small	FBC TAS 201/3 Dade	Glass — 1.52-mm (0.060-in.) Saflex ^b — glass
Small	ASTM E1996	Glass — 1.52-mm (0.060-in.) Saflex ^b — glass

^aSaflex Storm is also known as Saflex VS02. ^bTypical minimum-gauge interlayer for indicated performance. Large missile automatically qualifies for small missile applications. Glass thickness and type determined by use of ASTM E1300.



TECHNICAL GUIDE

Saflex Structural

Saflex Structural performance properties

Technical data	Property	Test method	Units	Test conditions	Saflex Structural	
Physical	Specific heat	ASTM E1269	J/kg°C	28°–80°C	2150	
	Specific gravity	ASTM D792	g/cm ³	—	1.09	
	Hardness	ASTM D2240	Shore D	Cut/stacked to 12.5 mm	52	
Mechanical	Elongation at failure	JIS K6771	%	23°C/50% RH	190	
	Tensile strength	JIS K6771	kg/cm	23°C/50% RH	330	
	Tear strength	ASTM D624	N/mm	23°C/50% RH	106	
	Poisson's ratio	ASTM D638	—	23°C/50% RH	0.476	
Thermal	Coefficient of thermal expansion	ASTM D831	10 ⁻⁶ /°C	-18° to 30°C	129 x 10 ⁻⁶	
	Thermal conductivity, K	ASTM F5930	W/m/(m ² °C)	36°C	0.213	
					DG	DG XC
Solar	Solar transmittance	NFRC 300	D65	Clear 3-mm glass	76%	76%
	Visible transmittance	NFRC 300	D65	Clear 3-mm glass	89%	88%
	UV screening	NFRC 300	280–380 nm	Clear 3-mm glass	> 99%	> 99%

Note: The designed high adhesion may render this product inappropriate for lamination with thin, annealed lites of glass when used as a single-layer interlayer where penetration resistance is required. Information regarding the safe handling and storage of Saflex Structural can be found in the safety data sheet that is available from the advanced interlayers sales organization or at eastman.com. The modulus values of Saflex Structural as a function of load duration and temperature are provided in the product technical sheet that can be found on saflex.com.

Saflex Structural products

Product nomenclature	Thickness	Std. widths	Std. lengths	Transparency
Saflex DG	0.76 mm (0.030 in.)	45–322 cm	250 m	Clear



TECHNICAL GUIDE

 **Saflex UV**

Saflex UV performance properties

Technical data	Property	Test method	Units	Test conditions	Saflex UV PVB interlayers
Solar ^a	Solar transmittance	LBNL Window 70 NFRC 100	%	—	72
	Solar reflectance		%	—	6
	Solar absorptance		%	—	22
	Solar heat gain coefficient	NFRC 300	SHGC g-value	—	0.79
	Light to solar gain	Calculated	LSG	—	0.08
	Sun protection factor	Calculated	SPF ^b	—	50+
	U factor	NFRC 100	W/m ² -K	—	5.68
	UV factors	Damage weighted (Tdw-ISO)	300–500 nm	—	0.21
300–600 nm			—	0.53	
300–400 nm			—	< 1%	
Thermal	Coefficient of thermal expansion	ASTM E831	ppm/°C	30°C to 100°C	155
	Thermal conductivity	ASTM D5930	W/m*K	65°C	0.2

^aSolar, thermal, optical and color data based on 0.76-mm clear Saflex UV PVB interlayers with clear nominal 3-mm glass. Calculations performed using OPTIC and WINDOW 7.0 by Lawrence Berkeley National Laboratory. ^bSPF is calculated value based on the spectral data from the laminate and not a result of direct testing.

Saflex UV products

Product nomenclature	Thickness	Std. widths	Std. lengths	Form	Color
RB4U	0.76 mm	45–322 cm	250 m	Refrigerated	Clear





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eastman.com/locations

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