

GLASS FOR FAÇADE

EDITION 2019

BUILDING GLASS



SAINT-GOBAIN

INSPIRATIONAL ARCHITECTURAL DESIGN MADE POSSIBLE WITH EXCEPTIONAL ARCHITECTURAL GLASS

Saint-Gobain plays its part in designing some of the world's most iconic architectural projects, offering a wide range of glazing solutions for façades.

Partners such as visionary architects or contractors striving to deliver the ultimate building envelope have helped establish Saint-Gobain as a key glazing supplier for the global construction industry.

We are proud to respond to their needs with innovative solar and heat control glass, to offer new aesthetic possibilities with large dimensions panes, fully transparent and designed solutions as well as curved glass.

We present, in this 2019 edition of our reference book, a selection of the latest and most remarkable architectural projects using modern glass solutions from Saint-Gobain. We choose different projects worldwide combining fascinating design with functionality and sustainability.

Feel inspired by these architectural designs made possible with exceptional architectural glass.

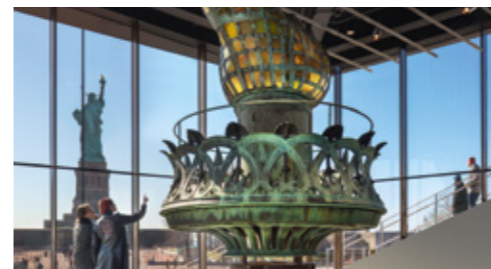
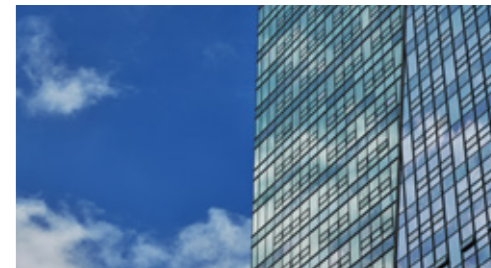
We hope to find your project here next year.

OUR CONTRIBUTION TO ARCHITECTURAL PROJECTS

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Front cover picture © Bjarke Ingels Group © Laurian Ghinitoiu
Back cover picture © John Kees



ART AND CULTURE

THE VESSEL HUDSON YARDS

NEW LANDMARK
A TRUE DIAMOND: «THE VESSEL» WITH DIAMANT GLASS BALUSTRADES
FROM SAINT-GOBAIN

Location	New York, United States
Architect	Heatherwick Studio, London, United Kingdom
Glass processor	Formator, Rijeka, Croatia
Façade maker	Permasteelisa Group, Vittorio Veneto, Italy

The walk-in sculpture «The Vessel at Hudson Yards» was opened in March 2019 in the west of Manhattan. The history of this 46-meter-high sculpture stretches back to 2013: British designer and artist Thomas Heatherwick was asked to design a generally accessible landmark that would form the heart of the new quarter in the metropolis. Heatherwick pursued the idea of «creating a memorable, identity-forming structure that visitors can use and touch». He was inspired, among other things, by the image of Indian stepped fountains.

He transferred the design idea into the built reality into a steel structure consisting of honey-comb staircases. In cubature, the building resembles a beehive or a basket. 154 stairs with a total of 2,500 steps are distributed over 16 floors and connect 80 viewing platforms. The steel construction consists of a total of 75 prefabricated segments. Each of these was lifted individually by a construction crane. The segments had been produced in Monfalcone, Italy, and transported by sea to New York City.

The stairway to nowhere in The Vessel is an lively experience that provides astounding views of construction, people and the city. 9,000 square meters of glass balustrades in DIAMANT guarantee the visitor a safe stay and, since they hardly appear as such, underline the sculptural character of the walk-in landmark.



Product

Balustrade made with extra clear DIAMANT glass (thoughened and laminated)

© brunocoelho / Shutterstock

COMMERCIAL OFFICES

SAINT-GOBAIN TOWER

A CRYSTAL SHOWCASE IN LA DÉFENSE
THE SAINT-GOBAIN TOWER IN PARIS WITH
COOL-LITE ST BRIGHT SILVER

Location Paris, France
Architect Valode & Pistre, Paris, France
Glass processor Saint-Gobain Glassolutions - Eckelt Glas, Latin, Sivaq, Pietta
Façade maker Metal Yapi, Eiffage Métal, Hefi Fischer



The Saint-Gobain Tower is the new headquarters of the Saint-Gobain Group. It was designed by the French Valode & Pistre architectes and built in the high-rise district of La Défense near Paris. The 165 metre high tower has 44 storeys and 49,000 square meters of work space for 2,700 employees. Above the actual office tower rises a multi-storey, transparent cube with interior gardens and conference rooms. A smaller glass cube marks the entrance to the tower and to the Saint-Gobain showroom at the ground floor. Saint-Gobain aimed to achieve an exemplary environmental level for its new headquarters, guaranteeing users the highest standard of comfort with low energy consumption. The construction was completely planned in BIM. Working with a digital model facilitated the complex coordination of the planning process a lot in this building project.

The Saint-Gobain Tower is evocating of a crystal, because of its shape and the fact, that the strict, geometrically structured façade is entirely made of glass – with a fine latticework application that winds around the tower like a silver ribbon and conjures up parallelograms on the façade. Naturally Saint-Gobain glass was used for the double façade: COOL-LITE ST BRIGHT SILVER on the outer skin and CLIMAPLUS PLANITHERM XN on the inner skin. COOL-LITE ST BRIGHT SILVER was also used for the shell of the two glass cubes. Built with more than 80 innovative products out of the entire product range of Saint-Gobain Group, the tower serves as a visible showcase to the know-how and product diversity of the internationally active manufacturer of building materials.



© Valode&Pistre



© Valode&Pistre

Product
Double skin façade with COOL-LITE ST BRIGHT SILVER on the external skin and CLIMAPLUS PLANITHERM XN as internal skin. The top and bottom cubes are with monolithic COOL-LITE ST BRIGHT SILVER. SageGlass Climaplus Classic were used for open-sky space and board room.

SPORT & LEISURE

TOTTENHAM HOTSPUR STADIUM

DYNAMIC COVER
COOLING DOWN THE HOTSPURS WITH
COOL-LITE SKN 165

Location	London, United Kingdom
Architect	Populous, London, United Kingdom
Glass processor	Saint-Gobain Glassolutions Eckelt Glas, Steyr, Austria
Façade maker	for the façade: Josef Gartner, Gundelfingen, Germany for the skybridge: IPIG, Glasgow, United Kingdom

With the opening of the Tottenham Hotspur Stadium in April 2019, «The Spurs» have had a new home designed by Populous. The football club's arena is located in the Tottenham borough of Haringey, North London. It replaces White Hart Lane, which was demolished there in 2017. In addition to football matches, the new building will also host matches of the US Football League NFL – the football field is located under the completely retractable lawn. In addition, concerts or private events such as banquets and conferences also take place in the multifunctional arena, which can accommodate up to 62,062 spectators. In terms of safety, acoustics and comfort, the building meets the highest standards.

The multi-layer stadium shell rises above an earthing concrete base. It consists of an outer circumferential steel level and an inner layer of 14,500 square meters of glass (CLIMAPLUS STADIP COOL-LITE SKN 165). The upper section of the building is formed by a vaulted roof clad in steel. The outer façade layer consists of 4,801 vertical, perforated steel panels, some of them are arranged like scales. In dynamic wave motions, this «veil» traces the contours of the flanking historical residential buildings. Generous views are also offered by the two-storied restaurants in the northeast and northwest. The design highlight, however, is certainly the fan zone with its five-storey atrium façade of 7,000 square meters of glass.



Product

Façade of the stadium with CLIMAPLUS STADIP COOL-LITE SKN 165 (laminated glass partially with blueish solar absorbing interlayer)
Skybridge with CLIMAPLUS STADIP PLANITHERM XN

© Chris Gorman / Big Ladder Photographer

SPORT & LEISURE

ST. JAKOBSHALLE

OPEN AND HONEST
RENOVATION AND MODERNISATION OF THE ST. JAKOBSHALLE
IN BASEL WITH OVERLENGTH GLASS FROM SAINT-GOBAIN

Location	Basel, Switzerland
Architect	architect community Degelo/Berrel Berrel Kräutler, Basel, Switzerland
Glass processor	Thiele Glas, Wermsdorf, Germany
Façade maker	Ziltener AG, Aarau, Switzerland

The St. Jakobshalle sports and event complex in Basel vis-à-vis the Basel stadium was designed in the late 1960s under the banner of brutalism and inaugurated in 1976. Its characteristic feature is its central, large hall with a curved concrete roof construction. The house was renovated in 2018 by the architects Degelo and Berrel Berrel Kräutler and rebuilt to today's standards. The now 44,000 square meter complex is designed for up to 12,000 visitors.

A cantilevered concrete canopy combines the complex of hall and annex buildings into a whole. It forms a protected exterior space and, like an inviting gesture, points to the public function of the building. Also new is the square in front of the complex. From the previously single-storey and dark entrance area, the designers created a spacious room that can be played on in a variety of ways and is double-storey towards the square. The surrounding glass front of the foyer, arranged in a corner, removes the boundary between inside and outside and integrates the complex into the urban planning situation.



© Barbara Bühler, Basel

Product

Façade with double glazing units CLIMAPLUS featuring COOL-LITE XTREME 50/22 II in OVERLENGTH



© Barbara Bühler, Basel



© Barbara Bühler, Basel

Glass panes coated with COOL-LITE XTREME 50/22 II sun protection were installed on the glass front. Some are up to 9 and 6.5 meters high and between 2 and 2.8 meters wide. The proportion of frames in the façade is very small compared to the proportion of glass. In addition, the large glass formats achieved a high degree of spatial transparency. The type of glass used is characterized by excellent figures in light transmission and g-value/solar factor. The low external reflection of the panes made external sun protection obsolete.



© Barbara Bühler, Basel

ART AND CULTURE

THE TWIST KISTEFOS MUSEUM

TWISTING VIEWS
A WALK IN THE PARK,
STEPS IN THE ARTS

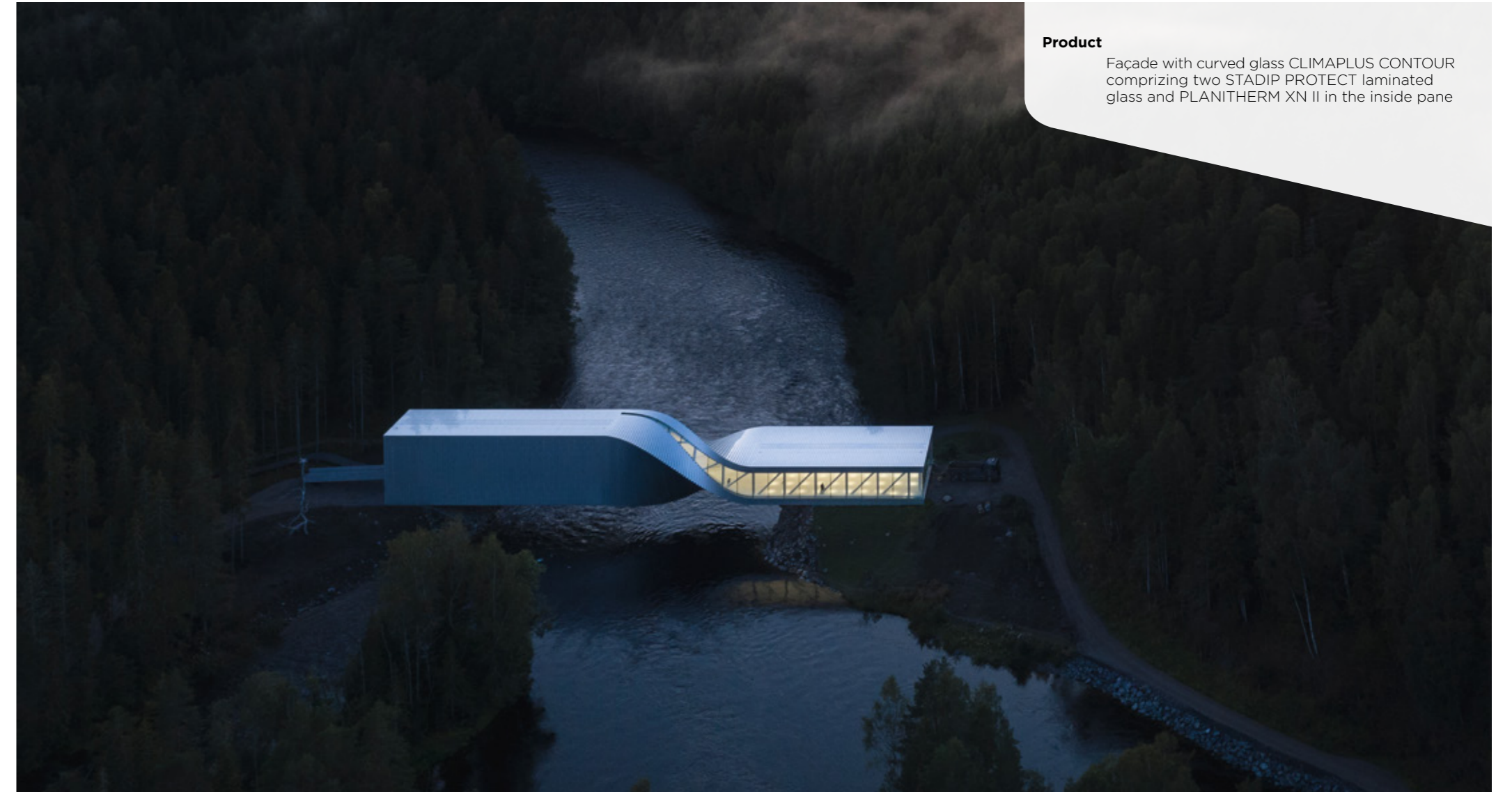
Location	Jevnaker, Norway
Architect	Bjarke Ingels Group (BIG), Copenhagen, Denmark
Glass processor	Saint-Gobain Glassolutions Glas Döring, Berlin, Germany
Façade maker	Skandinaviska Glassystem, Göteborg, Sweden

The Twist was opened in September 2019. It is a hybrid of bridge, gallery and art object which bridges the Randselva River near Jevnaker. Furthermore it closes a circular path in the existing sculpture park of the Kistefos Museum. The new building presents itself as a white cuboid that rotates 90 degrees on its own axis. While it is flat and «lies» on one side of the river, it becomes high and «stands» on the other side.

The 60 meter long volume, wrapped in aluminium and glass, absorbs the difference in height between the two bank zones by twisting. Inside the building, the winding creates three areas of different characteristics: To the north, this is the bridge section with a panoramic view to the river and to the museum building, a former pulp factory. The gallery room in the south is characterised by high ceilings and the resulting glass façade, tapering skylight. In the intermediate area, the actual twist, the vertical and horizontal dissolve. In a flowing movement, the wall becomes a floor. The transformation of the ceiling into a wall is also a fluid motion.

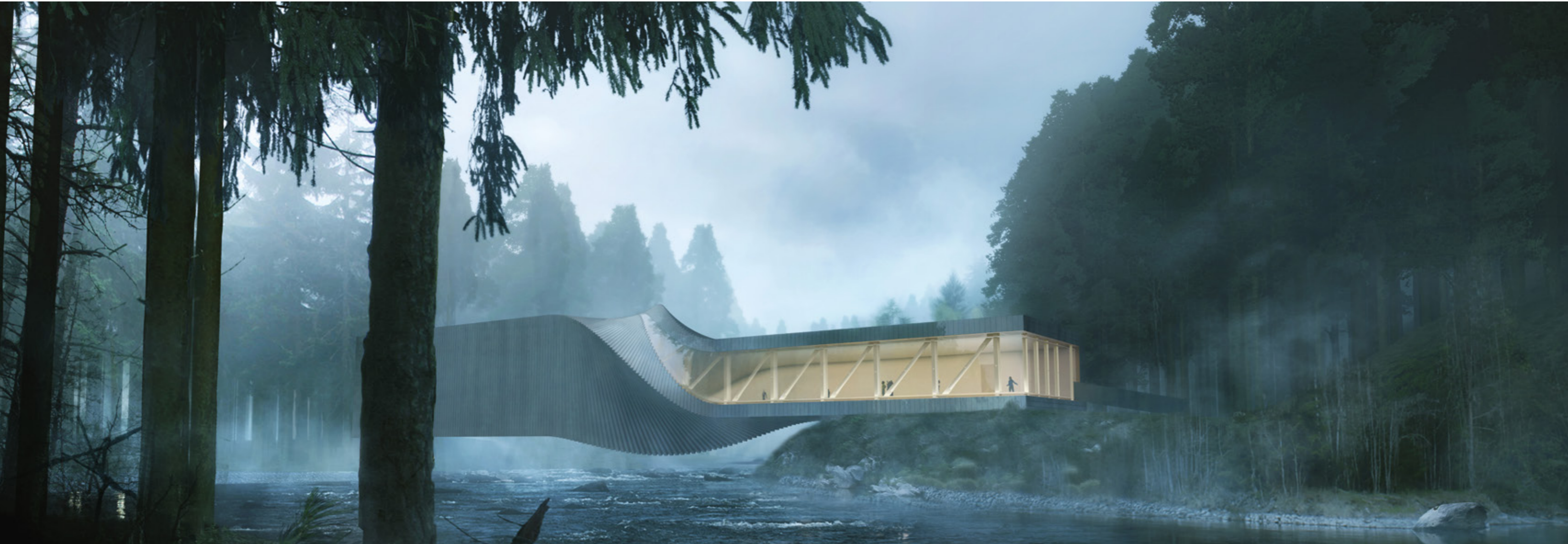


© Bjarke Ingels Group © Laurian Ghinitoiu



Product
Façade with curved glass CLIMAPLUS CONTOUR
comprizing two STADIP PROTECT laminated
glass and PLANITHERM XN II in the inside pane

© Bjarke Ingels Group © Laurian Ghinitoiu



© Bjarke Ingels Group © Laurian Ghinitoiu

The outer skin consists of 40 cm wide aluminium panels. These narrow metal sheets fan out in the area of the spiral by phase shifting. The metal cladding absorbs the curvature of the building with straight elements, while the glass skin follows the spiral movement with three-dimensionally shaped panes. These were bent using highly complex gravity bending in CLIMAPLUS CONTOUR. The largest of the ten panes measures 5.2 by 2.5 meters and weighs 1.2 tons. A 3D free-form was created for each element, whose bending shape is in turn based on the architect's 3D BIM model.

COMMERCIAL OFFICES

GLOBALWORTH TOWER

HIGH-RISE BUILDING WITH STRUCTURAL GLAZING
ROMANIA'S SECOND TALLEST BUILDING
BUT FIRST IN SUSTAINABILITY

Location Bucharest, Romania
Architect Architect Service, Bucharest, Romania
Glass processor Cristal Brad, Bucuresti, Romania



The Globalworth Tower in Bucharest, formerly known as Bucharest One Tower, is Romania's second tallest building with a height of 118 meters. The Sky Tower of the Floreasca City Center, less than 200 meters away, is the tallest building (137 meters). Globalworth Tower was the first building in Romania to be awarded the LEED Platinum Certificate - the highest certification from the U.S. Green Building Council.

The site is located in Barbu Vacarescu, the new business center in the northern part of Bucharest. With a total of 27 floors, including three basements with 638 parking spaces, one ground floor and 23 upper levels, a total of 48,732 square meters of high-quality office space will be provided. The ground floor houses a supermarket, a cafeteria, a café, numerous restaurants and a flower shop. Construction of the building began in 2014 and was completed within just 20 months in 2015 for a total of EUR 60 million.



© Vlad Patru

Product

Façade with double glazing units CLIMAPLUS with COOL-LITE KN 166 II and COOL-LITE ST 136



© Vlad Patru



© Vlad Patru



© Vlad Patru

The all-glass façade was realized as a structural glazing façade in which the glass elements are held in place by gluing in the load-bearing system. Each of the 2,510 insulating glass panes is fixed by ten brackets specially developed for this façade. The CLIMAPLUS COOL-LITE KN 166 II and COOL-LITE ST 136 solar control glasses produced in Calarasi, Romania, were used for the glazing. The manufacturing processes with several metal coatings based on clear glass give the high-quality façade glass extreme durability.

COMMERCIAL OFFICES

VILLA METRO BUSINESS HOUSE

A FAÇADE AS A TRADEMARK
LEED GOLD AS RECOMMENDATION

Location Warsaw, Poland
Architect DA Dziuba Architects, Warsaw, Poland
Glass processor Q4 Glass, Koszalin, Poland
Façade maker BOGARD Ryszard Szulc i Wspólnicy, Warsaw, Poland



The Villa Metro Business House is a modern office complex in Warsaw, in the immediate vicinity of the Wilanowska metro station, which also gave the building its name. With its characteristic aluminium rhomboid structure which graphically refers to the letters «V» and «M» (for Villa Metro), the façade has become a trademark of the elegant office building, whose glass façade appears to be cast in one piece from a distance.

The eight-storey building has a basement with two underground parking levels. The total usable area of the offices on all eight floors is 7,200 square meters. Each floor is 900 square meters large and 2.75 m high. On the ground floor there are facilities for employees and guests, including a retail shop and a coffee shop. The investor and architects attached great importance to the variability of the floor plan; the flexible floor structure means that the office space can be designed either as open space or with individual offices.



Architect: DA Dziuba Architects © Saint-Gobain

Product

Façade with triple glass unit and with
COOL-LITE SKN 176 II

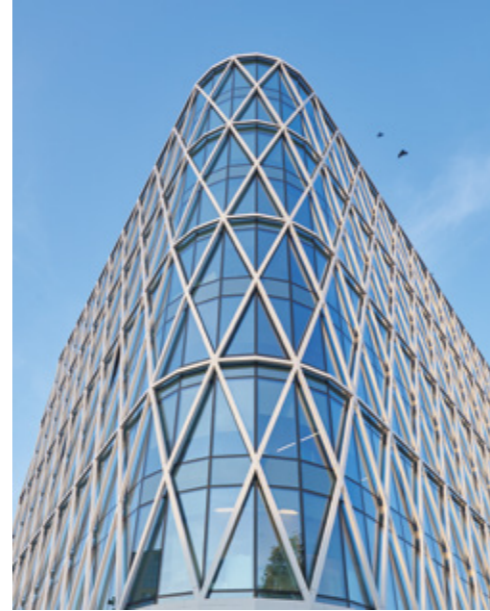


Architect: DA Dziuba Architects © Saint-Gobain

The office building was awarded the LEED Gold certificate. This is mainly due to the implemented environmentally friendly solutions, such as FSC certification for all installed wooden elements, innovative wastewater technologies, water use reduction, a white island roof that reflects solar radiation. Special attention was granted to acoustic comfort and a good level of daylighting for well-being. Thanks to the two-chamber glass façade of COOL-LITE SKN 176 II and sunsreen blinds, excellent energy consumption parameters were achieved for the fully glazed façade. The glazing protects the interior from excessive heating and providing a high degree of light transmission at the same time.



Architect: DA Dziuba Architects © Saint-Gobain



Architect: DA Dziuba Architects © Saint-Gobain



Architect: DA Dziuba Architects © Saint-Gobain

SPORT & LEISURE

THE IVY, HARDMAN SQUARE PAVILION

URBAN OASIS
TIMBER-FRAMED STRUCTURE A STRIKING GREEN FAÇADE
AND COOL-LITE SKN 176 II

Location Manchester, United Kingdom
Architect Sheppard Robson, London, United Kingdom
Glass processor Saint-Gobain Glassolutions, United Kingdom
Façade maker Gray & Dick Ltd, Glasgow, United Kingdom



The Spinningfields area in downtown Manchester is the city's new financial district. Over an area approaching 430,000 square meters there are about 20 ultra-modern commercial buildings for offices and retail stores, but also various restaurants and apartments. Spinningfields' project developer, Allied London, commissioned Sheppard Robson Architects to design a pavilion to complete the development of the last remaining plot in Hardman Square.

In contrast to the neighbouring buildings, the «Hardman Square Pavilion» surprises with a timber-framed structure and a striking green façade. Together with the small public square «The Field», which was also designed by Sheppard Robson, the many green areas with their varied plantings create an urban oasis in an environment dominated by steel and glass constructions.



© John Kees



Product
Façade with CLIMAPLUS COOL-LITE SKN 176 II
and STADIP SECURIT PLANICLEAR

© John Kees

The four-storey building offers 1,300 square meters of space for retail and high-end gastronomy and has two cantilevers on both sides. The façade is dominated by wood and glass, while the surrounding balconies are lavishly planted with modern pergola constructions and trellis walls. The roof terrace is also lavishly landscaped.

Chosen for the glazing was CLIMAPLUS COOL-LITE SKN 176 II, a highly transparent, colour-neutral solar control glass, which enables particularly natural light effects both in the interior and in the exterior.



© John Kees



© John Kees

COMMERCIAL OFFICES

NIVY TOWER

NEW STANDARDS
MODERN BUSINESS CENTER STANICA NIVY TOWER

Location	Bratislava, Slovakia
Architect	BENOY, London, United Kingdom & Siebert + Talaš, Bratislava, Slovakia
Glass processor	Saint-Gobain Glassolutions Brno, Czech Republic
Façade maker	INGSTEEL, Bratislava, Slovakia

The Nivy Tower is part of a large modern business center in the heart of Bratislava with leasable area around 30,000 square meters. The design for the Nivy Tower comes from the British architectural firm BENOY and the Slovakian studio Siebert + Talaš, who have also collaborated on the concept for the new Nivy station. Both Nivy Tower and Nivy Station are part of newly developed city zone called New Nivy. New Nivy is with a five-storey shopping center, a modern market hall with a fresh market and office space in the Nivy Tower, the quarter offers almost 100,000 square meters of retail and leasable office spaces. The international bus station located in ground floor is an important transport hub for up to 20,000 people a day.

With a height of 125 meters and 29 floors, the Nivy Tower is currently the tallest building in the city. From its roof restaurant you have a breathtaking view over the city. The office and commercial areas complement each other with further high-quality service and leisure facilities, also in the neighborhood. Urban development and architecture set completely new standards here.

As the first building in Slovakia, the Nivy Tower aims to obtain BREEAM and WELL certification. The glass façade covers an area of 19,000 square meters and has two different views, using premium glass from Saint-Gobain Building Glass: CLIMATOP COOL-LITE XTREME 70/33 II, CLIMATOP COOL-LITE SKN 176 II and ECLAZ ONE. These insulating glasses offer highly efficient solar protection. A new low-E coating technology enables very high daylight input with thermal resistance – in summer and winter.



© Ondrej Synak

Product

Façade with 2 different optics, one CLIMATOP COOL-LITE XTREME 70/33 II and PLANITHERM XN and the other one CLIMATOP COOL-LITE SKN 176 II and ECLAZ ONE. As well as the corresponding spandrel featuring the coating and EMALIT EVOLUTION glass

© Ondrej Synak



ART AND CULTURE

STATUE OF LIBERTY MUSEUM

CELEBRATING THE HOPE OF MILLIONS OF EUROPEAN REFUGEES
A GIFT FROM THE PEOPLE OF FRANCE TO THE PEOPLE OF THE
UNITED STATES

Location	New York, United States
Architect	FXCollaborative, New York, United States
Glass processor	Saint-Gobain Glassolutions Covipor, Portugal
Façade maker	Josloff Glass, Newark, United States

The Statue of Liberty on Liberty Island is one of the most popular tourist destinations in New York. Since May 2019, its origins, history and significance have been presented interactively in the newly created Statue of Liberty Museum. Designed by FXCollaborative architecture, it covers around 2,400 square meters and is located just behind the Statue of Liberty, at the opposite end of Liberty Island. Here it replaces the previous museum.

The construction of the single-storey, glazed exhibition building cost around 100 million dollars (around 86 million euros), financed entirely from donations. Custom-fritted “bird-friendly” glass was used to mitigate bird-strikes on the double-height façade. The client and architects attached great importance to sustainability, they targeted a LEED Platinum certification. Materials that were available on the island were therefore used, such as the pink granite stones that make up the staircase, the viewing platform and all other seating. They have already been used for the base of the Statue of Liberty and Fort Wood’s star-shaped fortress. The elevated location and the use of saltwater-resistant materials are also intended to protect the building from storm surges. From the walk-on green roof, visitors have a panoramic view of New York Harbour and the Manhattan Skyline.

The double-height windows of the exhibition rooms utilize 380 square meters of COOL-LITE XTREME 70/33 II on DIAMANT Glass to reduce the energy consumption for cooling in summer and heating in winter. Visitors benefit from very bright rooms thanks to the high amount of daylight.



© David Sundberg / Esto



© David Sundberg / Esto

Product

Façade with insulated glazing units comprising of COOL-LITE XTREME 70/33 II on DIAMANT glass

SPORT & LEISURE

NEW F1 PADDOCKS GRAND PRIX OF CANADA

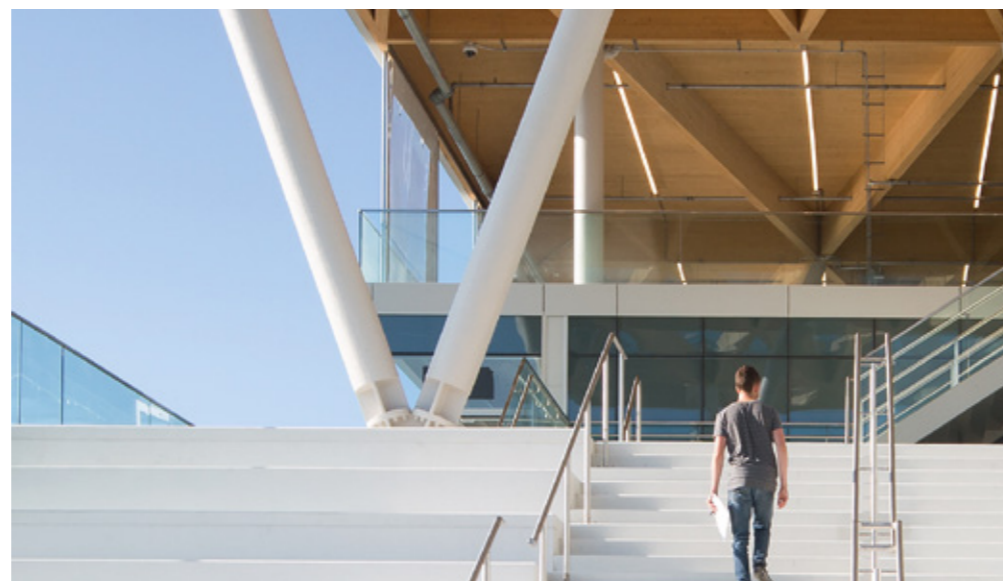
LUMINOUS AND VERSATILE
F1 GRAND PRIX OF CANADA:
CIRCUIT GILLES-VILLENEUVE, MONTRÉAL

Location Montréal, Canada
Architect Les Architectes FABG, Montréal, Canada
Glass processor Multiver, Quebec, Canada

The Canadian Grand Prix has been held on an artificial island since 1978: The Circuit Gilles-Villeneuve in the Saint-Laurent river of Île Notre-Dame. The organisers of Formula 1 agreed on the continuation of the Grand Prix in Canada until 2029 dependent on the city of Montréal replacing the temporary facilities with a permanent building that would meet the current requirements of the event. In the record time of only ten months – between the 2018 and 2019 races – the buildings on the 4,361 kilometer Circuit Gilles-Villeneuve were converted for almost 50 million US dollars.

The new paddock now comprises three levels of racing stable boxes, offices for the International Automobile Federation (FIA) and the promoters as well as a grandstand for 5,000 people. There is also a multimedia Center for journalists and broadcasters.

Due to the short construction time, Les Architects FABG in Montréal, opted for a solution consisting of prefabricated parts with concrete slabs, steel columns and girders, CLT wooden panels, curtain-type façades and partition walls that can be dismantled. All materials can be dismantled at the end of the Grand Prix and reused later.



© Steve Montpetit



Product

Façade with insulated glazing units featuring
COOL-LITE XTREME 70/33 II

© Steve Montpetit

Unlike other international Grand Prix venues, the lounges have neither exterior walls nor air conditioning, the surfaces are reduced and the electricity for the lighting is generated by solar panels. Around 3,600 square meters of COOL-LITE XTREME 70/33 II, with their extremely transparent and selective solar control coating, provide natural daylight and thermal comfort for visitors and teams during the race days.



© Steve Montpetit

ART AND CULTURE

MOHAMMED BIN RASHID LIBRARY

SAGEGLASS®
AT THE MOHAMMED BIN RASHID LIBRARY IN DUBAI:
MAKING KNOWLEDGE READABLE

Location	Dubai, United Arab Emirates
Architect	Architectural Consultancy Group; competition design: Arat, Siegel und Partner (asp) together with Obermeyer Planen + Beraten and ACG
Glass processor	SageGlass and Gulf Glass Industries, Sharjah, United Arab Emirates



The Mohammed Bin Rashid Library in Dubai is the largest building project to date in the United Arab Emirates equipped with smart glass. A very efficient sun protection solution was required to protect the books, and a comfortable atmosphere had to be created for the library visitors without restricting the view of the surroundings. The SageGlass Climaplus Classic dynamic solar control glass proved to be the ideal solution for these requirements. By automatically or manually adjusting the tint, the glass also reduces heat input and, as a result, the energy and cost of cooling the building.

The 60,000 square meter library is located in the Al Jaddaf district on the Dubai Creek estuary. Its exterior is reminiscent of an open book on a traditional Arabic «Rahle» reading desk. Spread over the entire cubature, the self-tinting glass accounts for 5,700 square meters or 72 percent of the total glass area: On the two-sided, flatly rising base of the building with the public functional areas, the glasses are located in several window bands arranged parallel to the floor. The central, seven-storey main volume with the cantilevered superstructure rises above it. Dynamic glass was also used here. Furthermore 3,500 square meters of COOL-LITE XTREME 50/22 II were used, a high-quality solar control glass.

The Mohammed Bin Rashid Library houses eight specialist libraries with over 4.5 million books in printed and digital form. With more than 100 art and cultural events and an expected nine million visitors per year, it will enrich Dubai's cultural and literary life and be another important attraction for locals and tourists.



© Shutterstock



Product
Façade with SageGlass Climaplus Classic dynamic solar control glass and COOL-LITE XTREME 50/22 II

© Shutterstock

COMMERCIAL OFFICES

INNOVATION CAMPUS

SAGEGLASS®
AT CUBIC INNOVATION CAMPUS OF THE BÜHLER AG
SMART FAÇADE FOR INNOVATION CAMPUS

Location	Uzwil, Switzerland
Architect	Carlos Martinez Architekten AG, Berneck, Switzerland & Architekturabteilung der Uze AG
Glass processor	SageGlass
Façade maker	Bühler-Immo Betriebs AG, Uzwil, Switzerland

The Swiss technology company Bühler AG built an innovation center to foster the cooperation with its customers. In the building, all key functions for innovations are developed – from the initial exchange of ideas to the testing of new process technologies. The façade is as technologically sophisticated as the smart building concept of the CUBIC Innovation Campus: The electronically tintable glass façade is entirely made of SageGlass, which provides sun protection and supports the special aesthetics of the building.

SageGlass Vario Climatop Classic has been installed in the structural glazing façade. Thanks to its switchable electrochromic coating, the intelligent glass is able to control the heat gain by solar radiation – by constantly maintaining unobstructed views and the connection to the outdoors. Therefore, CUBIC did not require any external sun protection at all. A total of 1,600 square meter of SageGlass Vario Climatop Classic has been installed – 450 square meters on the atrium façade. The façade circuit is connected via a BACnet interface to the internal building management system, which monitors and controls the entire building. In the CUBIC, the façade can also be individually switched via touch panels in addition to the automatic switching mode via the external sensors, which react directly to the changes of the sun.



© Faruk Pinjo / Bühler AG



Product
Façade with SageGlass Vario Climatop Classic
dynamic solar control glass

© Faruk Pinjo / Bühler AG



© Faruk Pinjo / Bühler AG



© Faruk Pinjo / Bühler AG

THE TECHNICAL NOTEBOOK

OUR TECHNICAL SUPPORT

Professional high level service is our priority.

We offer tailor-made advice about glass products and technical solutions.

Static calculations: deflection and stress calculations are performed for different types of glazing under permanent and variable loads combination.

Thermal stress analysis: calculation of maximum temperatures and analysis of the risks of thermal breakage.

Acoustic calculations: computation of sound transmission loss and calculation acoustic insulation parameters.

Spectrophotometric calculations: the most important glazing parameters such as light transmission, light reflection, energy absorption, Ug, etc.

Daylight analysis and energy simulation: penetration of natural light on the building floor plan or at working plane level.

If you want more information, please contact us at: bge-façade@saint-gobain.com.

PRODUCT To be tempered / Annealed coating (if available)	COLOR IN REFLECTION	LT %	SOLAR FACTOR G-VALUE	SHADING COEFFICIENT SC	SELECTIVITY LT/G	EXTERNAL LIGHT REFLECTANCE LRE (%)	PROCESSING				BENEFITS
							TEMPERABLE	LAMINATION (coating #2 inside the laminate)	BENDING	SCREEN- PRINTING & ENAMELLING	
EASY TO CLEAN GLASS											
EASY MAINTENANCE WITH BIOCLEAN FOR DOUBLE GLAZING (6 + 16 + 4 MM) ON PLANICLEAR											
BIOCLEAN II	NEUTRAL	80	0,76	0,87	1,05	17,7					Properties: Clear easy to clean glass Advantages: •Easy maintenance: the dirt is less adherent •Low cleaning frequency •High and clear vision with cloudy weather •Visual appearance very close to a classic glass
BIOCLEAN	NEUTRAL	80	0,76	0,87	1,05	17,7					
BIOCLEAN XTREME 60/28	NEUTRAL	58	0,27	0,31	2,15	17					
BIOCLEAN SKN 176	NEUTRAL	68	0,36	0,41	1,89	16					
BIOCLEAE SKN 165	NEUTRAL	59	0,33	0,38	1,79	19					
BIOCLEAN SKN 154	NEUTRAL	51	0,27	0,31	1,89	22					

ANTI-REFLECTIVE GLASS						
VISION-LITE ON DIAMANT						
VISION-LITE (LAMINATED GLASS 44.1)	EXTRA CLEAR	97	0,65	0,97	1,14	1,1
VISION-LITE II DIAMANT (6 MM)	EXTRA CLEAR	98	0,65	1,00	1,13	1,3
SEMI VISION-LITE II (6 MM)	EXTRA CLEAR	94	0,52	1,01	1,07	4,9
SEMI VISION-LITE (6 MM)	EXTRA CLEAR	94	0,53	1,03	1,04	4,7

U-Value (EN 673) (W/m².K)	POSSIBLE USE AS A SINGLE GLAZING (coating on surface#)	COATING POSITION ON DGU	PROCESSING			
			TEMPERABLE	LAMINATION (coating #2 inside the laminate)	BENDING	SCREEN- PRINTING & ENAMELLING
2,6		#1	TO BE TEMPERED			
2,6		#1	YES			
1,0		#1 #2				
1,0		#1 #2				
1,0		#1 #2				
1,0		#1 #2				

5,6		#1 #4				YES ⁵
5,6		#1 #2	TO BE TEMPERED			YES ⁵
5,6		#1	TO BE TEMPERED			YES ⁵
5,8		#1				

Properties:
Clear easy to clean glass

Advantages:
 •Easy maintenance: the dirt is less adherent
 •Low cleaning frequency
 •High and clear vision with cloudy weather
 •Visual appearance very close to a classic glass

Properties:
Antireflective glass

Advantages:
 Extreme transparence & High color neutrality
 Very low light reflection
 Security and safety when laminated
 Can be tempered (VISION-LITE II)

1 Solar control coating in contact with PVB modifies performances and aesthetics. Please contact us to get the approved PVB list.
 2 This coating can be laminated for use on a facade up to 1500m² and project must be made from a single production batch from SGG.
 3 Bending results depend on the process; trials should be done for validation.
 4 Screen-printing, roller coating, spray and digital printing validation required.
 5 Project must be made from a single production batch from SGG.

GLOSSARY

CATEGORY	PRODUCT	EXPLANATION
FLOAT GLASS	PARSOL	Body Tinted Glass
	PLANICLEAR	High quality clear glass with mid-iron content
	DIAMANT	Highly transparent extra-clear and low-iron glass
SOLAR CONTROL GLASS	COOL-LITE ST	Standard solar control coatings offering full flexibility for processing
	COOL-LITE KN(T)	Selective solar control coatings (single silver) with thermal insulation
	COOL-LITE SKN	Highly selective solar control (double silver) with reinforced thermal insulation
	COOL-LITE XTREME	Extremely selective solar control coatings (triple silver) with reinforced thermal insulation
LOW-E GLASS	PLANITHERM	Standard Low-E coating
	ECLAZ	High performance Low-E coating with high light transmission
PATTERNED GLASS	DECORGLASS	Translucent glass with special texture rolled into Glass
	MASTERGLASS	Translucent glass with special texture rolled into extra-clear Glass
PRINTED GLASS	EMALIT EVOLUTION	Tempered Glass made opaque by enameling one side of the glass (one or two colors, full face coverage, no pattern)
	SERALIT EVOLUTION	Screen-printed tempered enamelled glass (monochromatic, full or partial coverage with regular pattern)
	PICTUREIT	Tempered Enamelled Glass with digitally printed image
CURVED GLASS	CONTOUR	Curved Glass with or without coating which can be laminated or assembled into IGU
SAFETY AND SECURITY (HEAT TREATED & LAMINATED GLASS)	PLANIDUR	Heat-strengthened glass
	SECURIT	Thermally toughened safety glass
	SECURIT-H	Thermally toughened safety glass with Heat-Soak-Test
	STADIP	Laminated safety glass
	STADIP PROTECT	Laminated safety glass for protection of goods and people
INSULATING GLAZING UNIT	CLIMALIT	Basic double glazing unit
	CLIMAPLUS	High performance double glazing unit (DGU)
	CLIMATOP	High performance triple glazing unit (TGU)
ACTIVE & DYNAMIC GLAZING	PRIVA-LITE	Electric swicheable glass from translucent to transparent
	EGLAS	Electric swicheable heating glass
	SAGE GLASS	Swicheable electrochromic glass
FIXING SYSTEMS	POINT S (SPIDERGLASS)	Point fixing systems for monolithic toughened or laminated glazing with articulated fixing
	POINT D (SPIDERGLASS)	Point fixing systems for double-glazed applications with articulated fixing
	POINT SLW (LITE WALL MONO)	Point fixing system for monolithic glass with fixed-bolt fixings
	POINT DLW (LITE WALL ISO)	Point fixing system for insulated glazing units (IGU) with fixed-bolt fixings
	POINT XS	Point fixing system for monolithic or laminated glazing with fixed-bolt fixing which do not pass through the glass
	VARIO	Integrated invisible toggle system for insulated glazing units



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