

FEEL INSPIRED BY

Glass for Façades

EDITION 2018

photo: ©Victor Sukhorukov



**Inspirational architectural
design made possible
with exceptional
architectural glass**

From visionary architects shaping the world of tomorrow, to contractors striving to deliver the ultimate building envelope, our customers and partners have made it possible for SAINT-GOBAIN to become, and remain, a key glazing supplier to the global construction industry. With more than 350 years of expertise in designing and delivering architectural glazing projects, and with sustainability being engrained in our DNA, one can be sure to have the most reliable and experienced collaborator in delivering sustainable buildings.

We feel privileged to be part of an industry which challenges us daily to deliver improved performance, design and service. SAINT-GOBAIN, through the Architectural Façade Business Unit, is making sure that these expectations drive our daily operations.

Project Content

OUR CONTRIBUTION IN ARCHITECTURAL PROJECTS

1.	Lakhta Center	6
2.	European Patent Office	8
3.	Paris Courthouse	10
4.	The James A. Michener Museum Event Pavilion	14
5.	Quai Ouest	18
6.	Antwerp Harbor House	22
7.	Zagreb International Airport	26
8.	QO Hotel Amsterdam	29
9.	Futurium Exhibition Center	30
10.	Krakow Airport	32
11.	Exhibition Centre Liverpool & Pullman Hotel	34
12.	The Louvre Abu Dhabi	36
13.	Glossary	40
14.	Products	42



Offices

LAKHTA CENTER TOWER

St. Petersburg, RUSSIA

arch. RMJM company / Tony Kettle, Design Director
photo: Lakhta Center Press Service
©Stanislav Zaburdaev, Anton Galakhov
2018



Products

CLIMAPLUS integrating STADIP PROTECT with
COOL-LITE SKN 076 II and
COOL-LITE ST BRIGHT SILVER on DIAMANT

CLIMATOP with PLANITHERM ONE II DIAMANT Ob-
servation Deck

It is the 13th highest building in the world and the tallest in Europe standing at 462 meters with 87 floors, and will host the offices of Gazprom. SAINT-GOBAIN supplied 50,000 m² of glass for the colossal Lakhta Center project in Saint Petersburg, the equivalent of 9 soccer pitches, the largest surface ever used for a high-rise building.

The developer Gorpoekt with RMJM architects chose Saint-Gobain's high-performance glazing to equip the building's façades and ensure its occupants maximum comfort all year round.



One distinctive feature of the project is the complexity of its composition: the façade is formed with double glazing integrating three different glass components.

The **COOL-LITE SKN 076 II** glass combines solar control, high light transmission and appearance-neutral properties. The **COOL-LITE ST BRIGHT SILVER** solar-control glass offers extreme transparency and an aesthetic and neutral reflection. Low-e **PLANITHERM ONE II** glass on **DIAMANT** backing offer the best performance on the market in terms of energy efficiency. The glass was assembled into insulating glazing by **Glassolutions' Eckelt Glas facility in Steyr (Austria)**.

To realize the architect's vision, the glazed façade had to be perfect, tolerating no defect in the window liable to disturb the reflection of the building's environment. The project was won thanks to the advancements made by SAINT-GOBAIN in the field of **reducing anisotropy**.

Built by the German company Josef Gartner, the building's design was inspired by a simple, light and elegant organic spire with a glazing that brings the tower to life by capturing the movement and colors of the surrounding context.



Public Building

EUROPEAN PATENT OFFICE

The Hague, NETHERLANDS

arch. Ateliers Jean Nouvel + Dam & Partners
photo: ©Ossip Van Duivenbode, Ronald Tilleman
2018

Products

Double-skin Façade for the longer NW and SE facing façades composed of an outer skin SECURIT COOL-LITE ST BRIGHT SILVER and a building skin of CLIMAPLUS PLANISTAR SUN

Curtain wall façade CLIMAPLUS COOL-LITE XTREME 60/28 II for width of building

The European Patent Office (EPO) in The Hague, an impressive tower and a bold example of contemporary architecture, is designed and veiled with a SAINT-GOBAIN glass façade.

In line with SAINT-GOBAIN's pioneering spirit and creative processes to offer performant and beautifully designed materials, the **COOL-LITE ST Bright Silver** glazing brings a sense of openness and transparency to the building, symbolizing the EPO's mission to promote innovation in Europe. The elegant and crystalline building with its reflective silver aesthetic is composed of a double-skin façade. The north-west and south-east façades are paired with two curtain walls 2.5 and 7 meters apart respectively.



In addition to the feeling of openness provided in the interior, the space between the two glass walls creates a climate buffer and contributes to the thermal regulation of the building, allowing for natural ventilation and acoustic performance, and promoting a more sustainable control of energy. The design blends into the natural landscape of Holland, playfully mirroring the sky, land and water, bringing a sense of serenity while it hovers in its context.

Designed by architects Jean Nouvel and Diederik Dam, the EPO's New Main is the largest steel building in the Netherlands and the tallest and most slender in Europe. The 85,000 m² building is 156 meters long, 107 meters high and 24 meters wide. It hosts over 2, 000 employees on any given day and has been designed to make maximum use of natural light.



Public Building

PARIS COURTHOUSE

Paris, FRANCE

arch. Renzo Piano Building Workshop
photo: ©Laurent Zylberman-Graphix-Images
Project owner: Artélia, led by Bouygues Buildings Île-de-France
(PPP with the EPPJP-Ministère of Justice)
2017

HQE®



Products | Double Skin Façade with COOL-LITE ST BRIGHT SILVER
as outer pane
CLIMAPLUS COOL-LITE SKN 054 on the inside

Launched in 2012 as part of the re-organization of the justice services, the new Paris Courthouse promises to not go unnoticed in the landscape.

With a surface area of 135,000 m², the new building is able to accommodate 9,000 people daily. It also includes 3,200 m² of public reception area, a 28 meter high lobby/waiting area of 5,500 m², a dedicated 9,400 m² area for 90 hearing rooms and 1 hectare of urban forest.

With a stack of four glass parallelepipeds culminating at 160 meters with 38 floors, this makes it one of the largest architectural projects in Paris and the largest courthouse in Europe.







Architects from the Renzo Piano Building Workshop (RPBW) lead the project, along with Bouygues Bâtiment Ile-de-France.

Delivered in June 2017, the imposing building accounts for a glass surface exceeding 50,000 m². The architects aim was to symbolize the transparency of justice.

[12/ SAINT-GOBAIN BUILDING GLASS - FACADE](#)

Thanks to SAINT-GOBAIN glass solutions, the future court will provide real comfort to its occupants with acoustic and thermal insulation, solar control glass, fire protection and silk screened glass.

While choosing SAINT-GOBAIN glass, the Paris Courthouse, which meets the requirements of the Climate Plan of the

City of Paris, will consume two times less energy than the recent towers of La Defense, thus taking the spotlight in the exemplary achievements against global warming.



Museum

THE JAMES A. MICHENER MUSEUM EVENT PAVILION

Pennsylvania, USA

arch. Kieran Timberlake Architects

photo: ©Michael Moran/OTTO

Façade Constructor: Roschmann Steel & Glass Constructions Inc

Glass Processor: Thiele Glas, Wermsdorf

2012

Products

CLIMAPLUS PLANITHERM XN II on DIAMANT in
OVERLENGTH

The Concept

Founded in 1989, The James A. Michener Museum occupies the site of the former Bucks County Prison built in 1884 in Doylestown, Pennsylvania, USA. Today, it is a place dedicated to the artistic and cultural heritage of Bucks County, PA.

As part of an expansion project, the museum wanted to develop an Event Pavilion that would host lectures, seminars, musical performances, and receptions.



More daylight, less construction...

SAINT-GOBAIN team





Initially, the Museum envisioned placing the pavilion at the front of the Museum. However, Kieran Timberlake Architects, in charge of the project, recommended inserting an “all-glass structure” in the middle of the Museum’s garden. Therefore, the expansion would allow seamless views to and from the interior of the museum toward its historic site to enhance his magnificent 134 years old former prison walls.

The Challenge

The remaining question for Kieran Timberlake Architects, with this ambitious project, was “How can we create an event space to engage visitors and amplify mission for a small museum?”

To surpass this challenge, Kieran Timberlake Architects chose to demonstrate a unique and ambitious use of structural glass panels. By this approach, the Museum would not only celebrate its heritage and improve the landscape, but will also offer the visitors the impression of a clear and wide space.

By placing the pavilion in the garden at the back of the museum, the goal was to draw the attendees through the corridors of the museum itself, engaging them with the art and inspiring them to return.



The Realization

The expansion project began in 2004, but it was only in 2011 that the work started and in 2012 the Event Pavilion was officially opened.

SAINT-GOBAIN supplied overlength glass panels, up to 7 meters high. Custom made glass panels were designed to create a thin transparent wall with minimal joints. In other words, more daylight and less construction.

To ensure a clear view for the occupants, the architects chose **DIAMANT** for its high light transmission. Regarding the coating, **CLIMAPLUS PLANITHERM XN II** was used to help protect the environment, by reducing the energy consumption for heating, while increasing the visitors' comfort. Other double glazing panels were supplied with **PLANIDUR** laminated glass with a total thickness of 70mm, ensuring maximum security.

With aesthetic overlength glass panels, the Museum was able to create a new dynamic and fulfill its mission by attracting new audiences and creating an additional revenue stream.



Offices

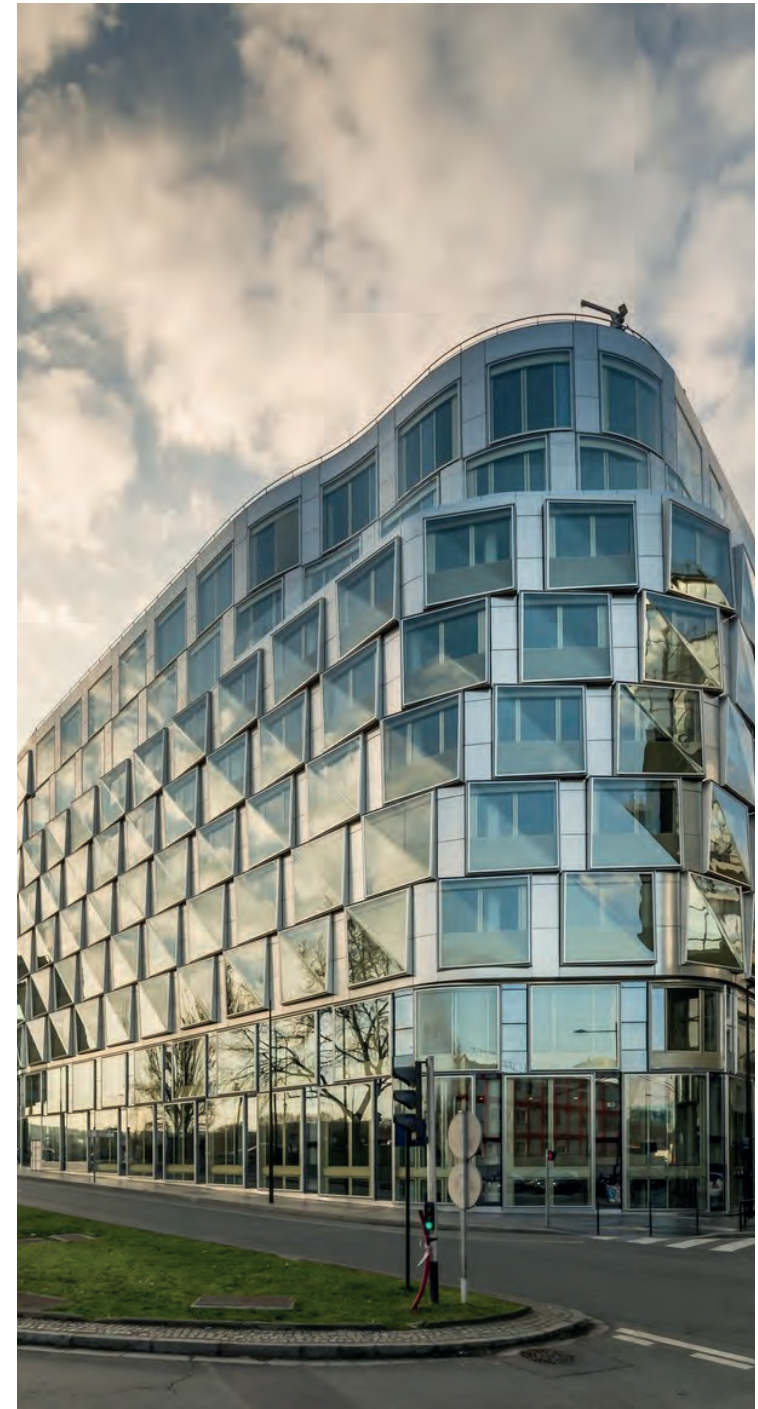
QUAI OUEST

Boulogne-Billancourt, FRANCE

arch. Brenac & Gonzalez Architects
photo: ©Stefan Tuchila
2017



Products | Double Skin Façade with CONTOUR STADIP PROTECT
Solar as outerpane





Designed by French Architects Atelier Brenac & Gonzalez, the new Quai Ouest building is located in the Paris suburb Boulogne-Billancourt.

The building has undergone a major restructuring and had previously no association with this style of architecture. Indeed, the Quai Ouest building is now a part of the modern architectural landscape with the particularity of having a widely exposed 150 meter façade.

Within this framework, the design and the materials chosen for the façade were meant to meet a specific challenge in terms of image, energy savings and respect to the environment.



20/ SAINT-GOBAIN BUILDING GLASS - FACADE

To provide a glazing that addresses all concerns, while taking advantage of the site's potential, SAINT-GOBAIN was conscious of a certain number of features.

First and positively, the building had a beautiful location in the “media” triangle, facing Canal+ and TF1, both national broadcasting channels. Quai Ouest is also known to have a large visibility with perfect exposure to the south and the west with a flexible structure in good condition. Hence, it was a good omen for a successful upgrade.

However, the previous building was suffering from a few negative aspects. It was highly exposed to traffic noise and provided poor acoustic comfort to the occupants. Moreover, the façade did not protect from the sun's heat. And finally, the outmoded architectural image of the building was starting to weaken its presence in this “media” triangle.

These observations taken into consideration, **SAINT-GOBAIN Glassolutions network** provided bent, bright and neutral colored glass to serve the building's new modern image. Regarding the composition of the glazing, **CONTOUR STADIP PROTECT** Solar enabled to answer and correct all the concerns while reaping all the benefits of the site's potential.



Public Building

ANTWERP HARBOR HOUSE

Antwerp, BELGIUM

arch. Zaha Hadid Architects (U.K.)
photo: ©Marc Sourbron, Hufton+Crow
2016

BREEAM

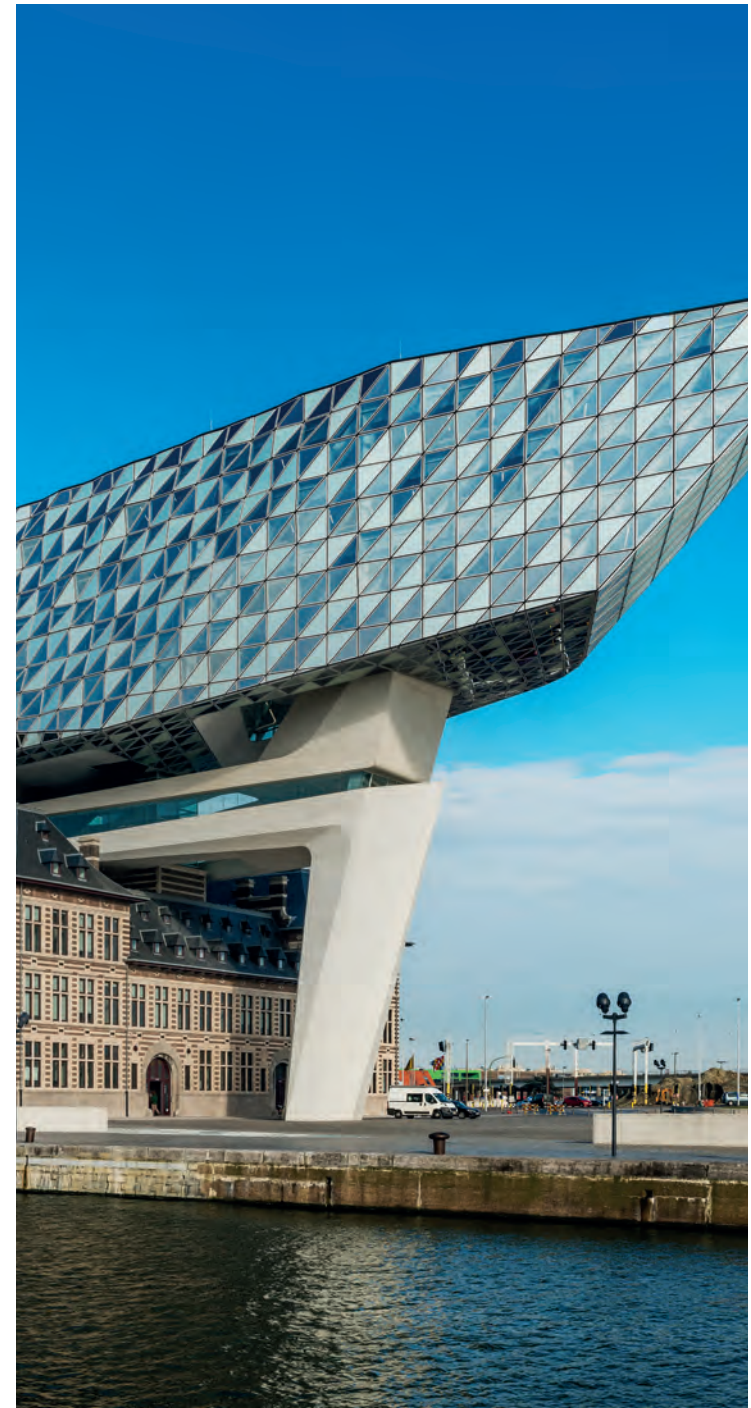
Products

Element Façade with CLIMAPLUS COOL-LITE KS 147 and EMALIT EVOLUTION on PLANICLEAR, DIAMANT and ANTELIO SILVER

Zaha Hadid Architects have designed an impressive faceted glass volume that sits on the roof of a century-old fire station at the new Antwerp Port Authority headquarters.

The volume measures over 100 meters in length which almost matches the span of the former fire station below. Thanks to this extension, the building will be able to host 500 Port Authority staff who were previously working across separate sites in the Belgian city.

The building overlooks both port and city, and shimmers as if in motion, an effect amplified by a massive angled concrete “leg”, cantilevered at one end, and faceted triangular glass panels on the other.





SAINT-GOBAIN was proud to participate in this project by providing quality glazing for this “shimmering glass cloud”.

The extension is covered in transparent and opaque triangular facets arranged to create a flat surface at the south end and a rippling texture that echoes the water at the north.

This architectural intention is to visually break up the scale of the structure. It is also been thought to provide ample daylight, shade and views out to the Schelde River, city and port for workers. One of the challenges for the project was to ensure that none of the original facades of the fire station

were concealed as it is heritage listed. This explains why the extension was to be elevated above the roof. The fire station’s central courtyard has also been enclosed with glass and now forms the main reception for Port House.

“ Surrounded by water, the new extension's facade is a glazed surface that ripples like waves and reflects the changing tones and colours of the city's sky.

Zaha Hadid Architects



24/ SAINT-GOBAIN BUILDING GLASS - FACADE





Airport

ZAGREB INTERNATIONAL AIRPORT

Zagreb, CROATIA

arch. IGH, Velimir Neidhardt and Branko Kincl
photo: ©Josip Škof
2017

Products

Façade with CLIMAPLUS COOL-LITE SKN 174 and point fixing systems LITE-WALL ISO for the elevators

The new terminal of Zagreb Airport officially opened in January 2017. Designed by Croatian architects Velimir Neidhardt and Branko Kincl, it is a state of the art infrastructure with contemporary lines.

The wing-shaped building is expected to become a new landmark for the region and boost tourism and economic growth.

SAINT-GOBAIN supplied about 15.000 m² of double glazing units with **COOL-LITE SKN 174** solar control coating for the façade, processed by two **SAINT-GOBAIN Glassolutions sites: Steyr and Brno**. The elevators are equipped with the system **LITE-WALL ISO**.





The project conforms to sustainable construction practices with the aim of securing LEED certification



The Concept

In comparison with the previous capacity of two million passengers a year at the Zagreb Airport, the new terminal is expected to initially accommodate five million passengers a year, and eight million in subsequent years through further expansion.

The Challenge

The airport carries with it both great promise and great responsibility. Not only will it contribute to strengthening the Croatian economy by representing their new indoors to the world and further increasing their tourism, but it will also be their largest infrastructure project in the last ten years.

The Realization

The construction took three years and was scheduled in two phases.

First, a building of about 65,000 m² that features four levels, with the first two being reserved for arrivals and the last two for departures. The rectangular main body was extended into two asymmetric piers, with the west pier for international operations and the east pier for domestic traffic. Our key products chosen by the architects were **COOL-LITE SKN 174**, for its solar control properties, and **LITE-WALL ISO** point fixed IGU for the elevators.

The second phase of the realization was above this concrete structure with a steel construction that was meant to combine the roof to the main body and piers with the north facade. The south, east and west facades were conceived with flat aluminium curtains and structural glazing. If you look at the roof, it is partially glazed, and partially covered by a state of the art aluminium shield.

The extraordinary undulating shape of the roof is a reminder of the surrounding mountains. The building construction was a success and we hope it will answer all promises for the country.



Hospitality

QO HOTEL AMSTERDAM

Amsterdam, NETHERLANDS

arch. Paul de Ruiter Architects, Mulderblauw Architects and Arup
photo: ©Ronald Tilleman
2018



Products

CONTOUR CLIMAPLUS PLANITHERM XN II & CONTOUR
CLIMAPLUS COOL-LITE SKN 165 II

The QO Amsterdam Hotel is a sustainable building designed by Paul de Ruiter Architects, Mulderblauw Architects and Arup, SAINT-GOBAIN supplied the solar control glazing for Europe's first LEED Platinum Certified Hotel in the Netherlands. The 258 m² of curved **COOL-LITE SKN 165 II** and **CONTOUR PLANITHERM XN II** were produced and processed by **Glassolutions' Döring facility in Berlin**, and the project was led by teams at **SAINT-GOBAIN Gevelbouw Arnhem and Blitta** in the Netherlands.

The transparent floor-to-ceiling glazing is designed to optimize solar energy use. The intelligent façade is made up of 819 individually mobile panels, of which the orientation and position can be adjusted to indoor and outdoor temperatures, saving up to 65% of the energy needed for heating. The building also has a waste-to-energy recovery system, and a greenhouse on the top floor supplying fruit and vegetables to the restaurant. QO was designed to have a positive environmental impact.

Culture

FUTURIUM EXHIBITION CENTER Berlin, GERMANY

arch. Richter Musikowski
photo: ©Arup/Rossmann
2018



Products

SR LISTRAL L Cast Glass

PLANICLEAR

CLIMATOP XN II and ONE II fixed with VARIO system



30/ SAINT-GOBAIN BUILDING GLASS - FACADE

The cloud that fell from the sky

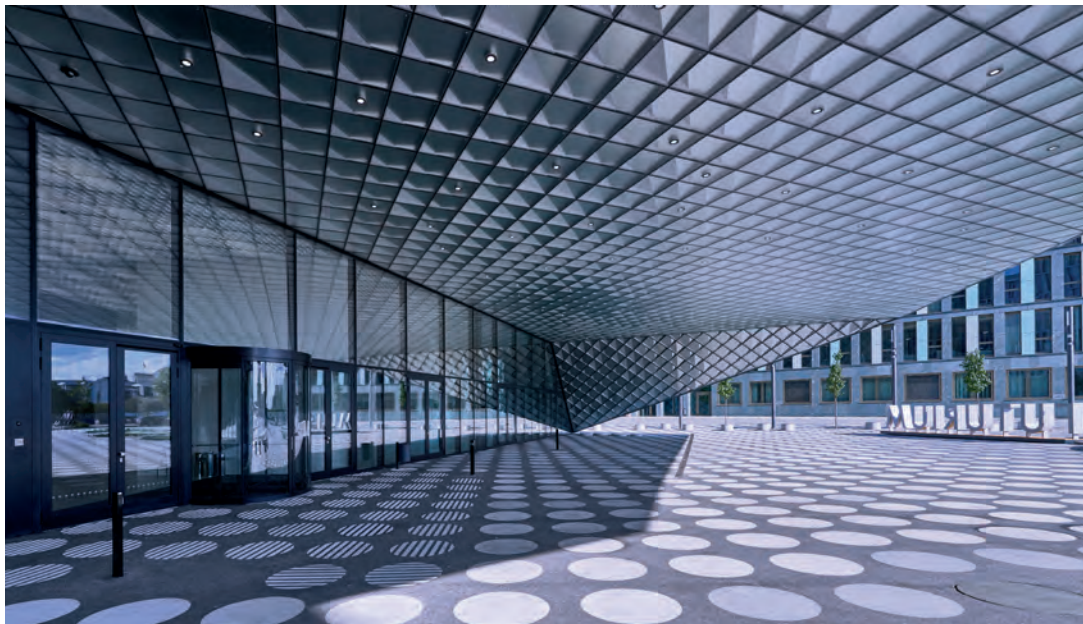
The sensational façade of the Futurium - House of the Future in Berlin consists of several thousand diamond-shaped cassette elements with metal reflectors and ceramic-printed cast glass. The ambient light creates an iridescent appearance in them. The opening is planned for Spring 2019.

The architects were guided by two essential ideas: first, the Futurium should be a "future vessel" with its own form and strong spatial sequences. On the other hand, one wanted to enclose it with a robust and at the same time fragile shell. The result is a building that, as a sort of "landed cloud", unfolds its very own appearance and effect between the stone block edifices.

The structure of the house is divided into three parts: on the ground floor, the foyer decorated in bright colors. Around the living area are grouped infrastructure blocks as well as restaurant and shop. However, the largest area occupies the flexibly configurable event forum. Upstairs, the visitor will find the real heart of the Futurium: an exhibition area of around 3,000 m², which will be divided into the "spaces of thought" of man, nature and technology in the future.



The east and west facades and the entrance soffits are covered by around 4,000 m² of ventilated, diamond-shaped cassette layer. This is composed of 8,000 large elements of 70 x 70 cm. Three quarters of them consist of differently folded metal reflectors and in the outer level of ceramic-printed cast glass. "The cast glass allows a varied play of light. Contrary to transparent glass, it diffuses and modulates the light with the ambient reflections ", explains architect Christoph Richter. "For us this is an important design effect. "The reflected light creates a constantly changing appearance with the day and the season."



The 28 meter wide and 8 or 11 meter high mullions-transom facades on the cantilevered viewing sides are completely suspended from overhead box girders. Approximately 210 **CLIMATOP** units fixed with the **VARIO** system ensure optimum thermal protection. The glazing is tinted gray, so that could be dispensed with an external sunscreen. Furthermore, around 330 m² of ceramic-printed **PLANICLEAR** were used. A "Skywalk" leads around and through the roof, which is almost completely covered by PV and solar thermal elements.

Like the glazing of the façade, it is an important building block that makes the Futurium the lowest energy house. The future has already begun here.

Airport

KRAKOW AIRPORT

Kraków, POLAND

arch. APA Czech Dulinski Wróbel
photo: ©Bartosz Makowski
2016

Products

Element Façade with
CLIMAPLUS COOL-LITE XTREME 60/28



32/ SAINT-GOBAIN BUILDING GLASS - FACADE

After a three-year extension and modernization, the Krakow Airport is now the second largest, fastest growing and the most modern airport in Poland. With 55.000 m² of facilities, the Airport is now capable of serving 8 million passengers annually.

Designed by APA Czech Dulinski Wróbel Architects, the intention was to make the new terminal front a recognizable sign identifying Krakow Airport. Thus, they decided to build the facade in the form of a glass prism with a significantly tilted front, and covered with a copper rooftop.

The design of the building allows adding not only a higher dynamic and expression to the Airport, but also rational, functional and technical solutions for the sunlit facade.

While selecting performance materials for the building, the new terminal prevents from undesired heat gain and minimizes the use of energy-consuming air-conditioning systems.

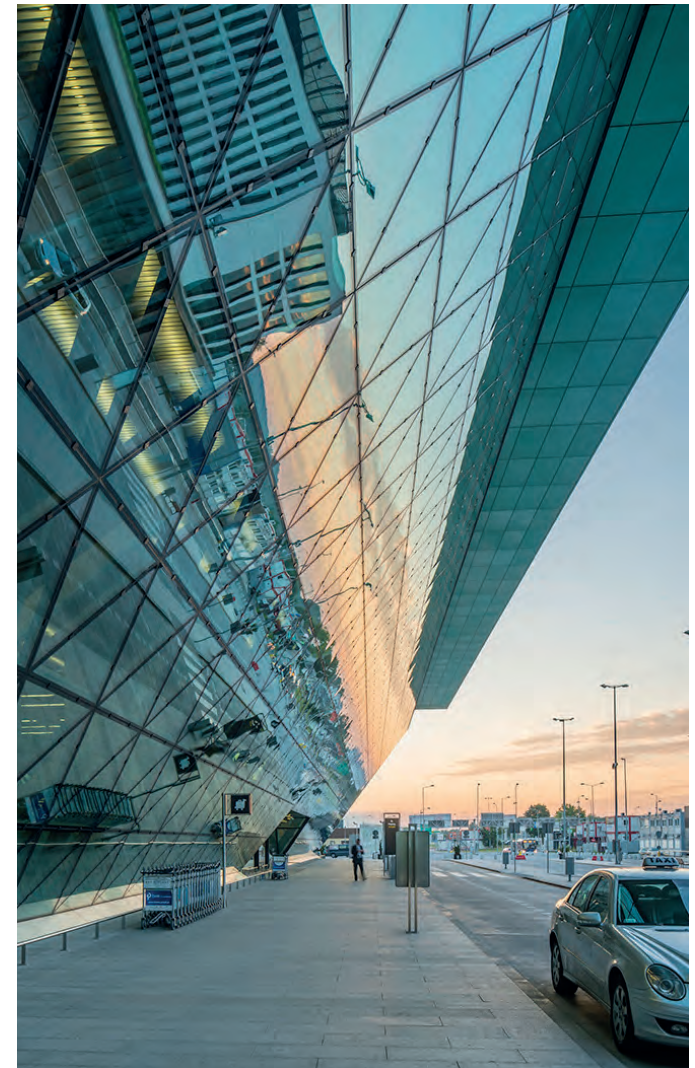
“We can easily say that we have built a new airport...passengers are provided with a much higher level of service and comfortable conditions.”

Jan Pamula, Krakow Airport President



For the facade, SAINT-GOBAIN was proud to provide the facades with a **COOL-LITE XTREME** product which has the highest selectivity (the ratio of visible light to solar heat gain) in the **COOL-LITE** range while offering advanced thermal insulation properties. This was an important criteria for the Airport to minimize the

negative effects of sunlight on the south side. Impressive architectural designs for the Krakow Airport that will further improve the standard of services offered to all visitors.



Leisure / Culture / Hotel

EXHIBITION CENTRE LIVERPOOL & PULLMAN HOTEL

Liverpool, ENGLAND

arch. Denton Corker Marshall
photo: ©Paul Scott
2015

Products | Curtain wall façade with CLIMAPLUS COOL-LITE XT 50/22 II
and STADIP SILENCE as inner pane

The Exhibition Centre Liverpool (ECL) is a new exhibition and event venue located in the famous Waterfront of Liverpool. It is the latest edition to the highly successful Arena and Convention Centre Liverpool (ACCL) and will become the only purpose-built interconnected arena, convention centre and exhibition centre in Europe. Moreover, the building can host up to 50 events and is expected to attract more than 250,000 visitors per year.

The architectural concept design was carried out by Denton Corker Marshall. They envisioned an exceptional building well integrated in the context of the King's Waterfront area.

A charismatic project which will allow thousands of visitors to enjoy the most spectacular exhibitions.





For this inspiring project, **COOL-LITE XTREME 50/22 II** was chosen for the entire facade. An ideal combination of high level of light transmission, optimal sun protection, and a high degree of neutrality. In this way, the language and materials of the main façade draw on the industrial heritage of Liverpool's historic dock structures.

The Pullman Hotel Liverpool was also part of the Exhibition Centre Liverpool (ECL) project. This new 4 star hotel houses 200 bedrooms and is situated over the Exhibition Centre. Once again, it was Denton Corker Marshall that carried out the architectural and interior design.



The hotel's external appearance is expressed as a series of horizontal 'tubes' sitting on top of each other. Its envelope creates a vertical extension to the form of the ECL. Both opened up on either end, they offer breathtaking views from the west end over the River Mersey and on to the east to the magnificent Anglican Cathedral and city skyline.

Museum

THE LOUVRE ABU DHABI

Abu Dhabi, UAE

arch. Jean Nouvel

photo: ©Mohamed Somji, Marc Domage
2018

Products

STADIP DECORGLASS in different combinations

- DECORGLASS 02bR / DECORGLASS 02bR
- ESTRIADO / ESTRIADO / MASTER-POINT
- KRALIKA / DECORGLASS 01a / ESTRIADO / MASTER-POINT
- VISIO SUN / VISIO SUN



36/ SAINT-GOBAIN BUILDING GLASS - FACADE

An Island of Happiness and Light

An atmosphere of 1001 nights conjures up architect Jean Nouvel in the exhibition areas of the newly opened Louvre of Abu Dhabi. Saadiyat - Island of Happiness - is the name of the large island just outside Abu Dhabi, which is currently developing into the new cultural center of the United Arab Emirates.

The museum area includes the recently opened Louvre of Abu Dhabi. It is the youngest member of a network of 13 French museums that borrow up to 300 works a year. Still planned are other buildings - from the feathers of Lord Norman Foster, Frank O. Gehry, Tadao Ando and Zaha Hadid.

The Island of Happiness - not only are the names in the Arab world picturesque, but the architecture is as well. Architect Jean Nouvel was inspired by the city of Medina and typical Arab settlements when designing the Louvre of Abu Dhabi. The result was a kind of museum-city in the sea, formed of 55 white buildings, which unite a large steel dome into one unit.

The buildings are of different sizes and partially surrounded by water. The museum building itself covers an area of almost 100,000 m². Its dome has a diameter of 180 meters, is only stored in four places

and consists of eight layers of steel ornaments forming a star-shaped lattice. These filter the light like a foliage, let in brightness while protecting against heat and sun. The Parisian Jean Nouvel speaks of a "light rain" that arises under the dome, highlighting individual areas.

Jean Nouvel also wanted a special lighting mood for the interior of the 23 exhibition cubicles, which are mostly located under the dome. Museums require particularly careful planning in terms of lighting. Exhibits must be put in the right light and at the same time be protected from damage caused by glare, thus requiring a possible glare-free and widely scattered exposure.

At the same time, Jean Nouvel imagined a souk-like atmosphere with diffused light through which the visitors move. Skylights made of cast glass therefore serve as the natural light source. In contrast to flat glass, their faceting effects the desired refraction of light and diffuse lighting. The skylight's additional feature consists of two laminated cast glass, which have different textures or are installed twisted to each other. They conjure up wonderful light effects and reflections in the interior of the exhibition cubes.



In order to realize this, the architect turned to the glass experts of SAINT-GOBAIN Building Glass in an early planning phase. Together, they tested the lighting effect of different combinations of cast glass until the desired effects were achieved. Finally, around 25,000 different disc dimensions were used - including 18 different types of glass.

Jean Nouvel's basic idea for the museum was to create a space for emotion and tranquility - an oasis in which one can indulge in the very sight of art. During the day, this is achieved by natural light penetrating through the ornamental dome. At night, on the other hand, the effect is reversed: the lighting radiates from the inside to the outside, giving the complex a mysterious aura.





SAINT-GOBAIN Glass Façades

GLOSSARY

Products

RAW GLASS

DIAMANT: highly transparent extra clear and low-iron glass

PLANICLEAR: high quality clear glass with lower iron content

LOW-E GLASS

ECLAZ serie: best low-e glass available in both - daylight and solar factor - with absolut neutrality in reflection color and appearance

PLANITHERM series: high-performance glass for a more comfortable home

SOLAR CONTROL GLASS

COOL-LITE XTREME series: extremely selective solar control coatings (triple silver) with high neutrality and reinforced thermal insulation

COOL-LITE SKN series: Highly selective solar control (double silver) with reinforced thermal insulation and very good aesthetics.

COOL-LITE KN(T) series: Selective solar control coatings (single silver) with thermal insulation.

COOL-LITE ST series: Standard solar control coatings for special applications and processing.

INSULATING GLAZING UNIT

CLIMAPLUS: high performance double glazing unit (DGU)

CLIMATOP: high performance triple glazing unit (TGU)

Products

CURVED GLASS

CONTOUR: curved glass with or without coating which can be laminated or assembled into glazed units

SAFETY AND SECURITY

PLANIDUR: heat treated glass providing significant increased resistance to mechanical and thermal stresses than conventional annealed glass

SECURIT: thermally toughened safety glass providing significant increased resistance to mechanical and thermal stresses than conventional annealed glass

STADIP/STADIP PROTECT/STADIP SILENCE: laminated safety, security and sound protection glass

DESIGN PRODUCT

DECORGLASS: patterned glass which has a texture printed onto its surface

EMALIT EVOLUTION: tempered glass made opaque by enamel-coating one side of the glass

SERALIT EVOLUTION: screen-printed glass coated with colored mineral enamel which can be opaque or translucent

FAÇADE SYSTEM

LITE-WALL MONO: system for point-fixed, flush-surfaced glass connections of monolithic glass

LITE-WALL ISO: point-fixed system for insulated glazing units (IGU)

VARIO: ready-to-install insulating glass system with the typical appearance of an all-glass façade

Consult our website for detailed product information : www.saint-gobain-facade-glass.com

Values given according to the standards EN 410 & EN 673 - 2011

Product	Color in Reflection	LT (%)	Solar Factor g-value	Shading coefficient SC	Selectivity LT / g	External Light Reflectance LRe (%)	U (E (V
To be tempered / Annealed coating (if available)							

WINTER AND SUMMER COMFORT

High Performance Glass COOL-LITE XTREME for double glazing (6+16+4mm) on PLANICLEAR or DIAMANT

COOL-LITE XTREME 70/33	Neutral	70	0,33	0,38	2,12	11	
COOL-LITE XTREME 70/33 II	Neutral	70	0,33	0,38	2,12	11	
COOL-LITE XTREME 70/33 DIAMANT	Extra clear	71	0,33	0,38	2,15	11	
COOL-LITE XTREME 70/33 II DIAMANT	Extra clear	71	0,33	0,38	2,15	11	
COOL-LITE XTREME 60/28	Neutral	60	0,28	0,32	2,14	14	
COOL-LITE XTREME 60/28 II	Neutral	61	0,28	0,32	2,18	14	
COOL-LITE XTREME 60/28 DIAMANT	Extra clear	61	0,28	0,32	2,18	14	
COOL-LITE XTREME 60/28 II DIAMANT	Extra clear	62	0,28	0,32	2,21	15	
COOL-LITE XTREME SILVER II	Silver	49	0,25	0,29	1,96	30	
COOL-LITE XTREME SILVER II DIAMANT	Bright Silver	50	0,25	0,29	2,00	30	
COOL-LITE XTREME 50/22 II	Neutral	47	0,21	0,24	2,24	16	
COOL-LITE XTREME 50/22 II DIAMANT	Extra clear	48	0,21	0,24	2,29	16	

* COOL-LITE SKN 154 may have a slight colour deviation in transmission with the SKN 154 II heat treated version. Validation of a prototype is recommended if both versions are used on the same facade.

*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 Validation should be taken with the digital printing inks and enamels.

*5 Screen-printing, roller coating, spray and digital printing validation required.

U-Value (EN 673) (W/m ² K)	Possible use as single glazing (coating on surface #)	Coating position on DGU	Processing				Benefits
			Temperable	Lamination (coating #2 inside the laminated)	Bending	Screen- printing & enamelling	



1,0		#2					<p>Properties: Extreme solar control coated glass with enhanced thermal insulation and neutral aesthetics</p> <p>Advantages: - Solar control with the highest selectivity (above 2) - The best of thermal comfort, energy efficiency and savings thanks to reduced loads for air conditioning in summer and heating in winter - Optimum daylight income for visual comfort and elevated mood</p>
1,0		#2	To be tempered		Yes ³		
1,0		#2					
1,0		#2	To be tempered		Yes ³		
1,0		#2		Yes ¹			
1,0		#2	To be tempered		Yes ³		
1,0		#2		Yes ¹			
1,0		#2	To be tempered		Yes ³		
1,0		#2	To be tempered		Yes ³		
1,0		#2	To be tempered		Yes ³		
1,0		#2	To be tempered		Yes ³		
1,0		#2	To be tempered		Yes ³		

Values given according to the standards EN 410 & EN 673 - 2011

Product	Color in Reflection	LT (%)	Solar Factor g-value	Shading coefficient SC	Selectivity LT / g	External Light Reflectance LRe (%)	U (E (V
To be tempered / Annealed coating (if available)							

WINTER AND SUMMER COMFORT

High Performance Glass COOL-LITE SKN for double glazing (6+16+4mm) on PLANICLEAR or DIAMANT

COOL-LITE SKN 176	Neutral	70	0,37	0,43	1,89	13	
COOL-LITE SKN 176 II	Neutral	70	0,37	0,43	1,89	13	
COOL-LITE SKN 076	Extra clear	71	0,38	0,44	1,87	13	
COOL-LITE SKN 076 II	Extra clear	71	0,38	0,44	1,87	13	
COOL-LITE SKN 165	Neutral	61	0,34	0,39	1,79	16	
COOL-LITE SKN 165 II	Neutral	61	0,34	0,39	1,79	16	
COOL-LITE SKN 065	Extra clear	62	0,35	0,40	1,77	17	
COOL-LITE SKN 065 II	Extra clear	62	0,35	0,40	1,77	17	
COOL-LITE SKN 154*	Neutral	50	0,27	0,31	1,85	18	
COOL-LITE SKN 154 II	Neutral	50	0,27	0,31	1,85	18	
COOL-LITE SKN 054 II	Extra clear	53	0,29	0,33	1,83	18	
COOL-LITE SKN 054	Extra clear	53	0,29	0,33	1,83	18	

* COOL-LITE SKN 154 may have a slight colour deviation in transmission with the SKN 154 II heat treated version. Validation of a prototype is recommended if both versions are used on the same facade.

*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 Validation should be taken with the digital printing inks and enamels.

*5 Screen-printing, roller coating, spray and digital printing validation required.

U-Value (EN 673) (W/m ² K)	Possible use as single glazing (coating on surface #)	Coating position on DGU	Processing				Benefits
			Temperable	Lamination (coating #2 inside the laminates)	Bending	Screen- printing & enamelling	



1,0		#2					<p>Properties: High performance solar control coated glass with enhanced thermal insulation</p> <p>Advantages: - Solar control with high selectivity - Thermal comfort, energy efficiency and savings thanks to reduced loads for air conditioning in summer and heating in winter - Good daylight income for visual comfort and elevated mood</p>
1,0		#2	To be tempered	Yes ^{1,2}	Yes ³		
1,0		#2					
1,0		#2	To be tempered	Yes ^{1,2}	Yes ³		
1,0		#2		Yes ^{1,2}			
1,0		#2	To be tempered	Yes ^{1,2}	Yes ³		
1,0		#2		Yes ^{1,2}			
1,0		#2	To be tempered	Yes ^{1,2}	Yes ³		
1,0		#2		Yes ^{1,2}			
1,0		#2	To be tempered	Yes ^{1,2}	Yes ³		
1,0		#2	To be tempered	Yes ^{1,2}	Yes ³		
1,0		#2		Yes ^{1,2}			

Values given according to the standards EN 410 & EN 673 - 2011

Product	Color in Reflection	LT (%)	Solar Factor g-value	Shading coefficient SC	Selectivity LT / g	External Light Reflectance LRe (%)	U (E (V
To be tempered / Annealed coating (if available)							

WINTER AND SUMMER COMFORT

High Performance Glass COOL-LITE SKN for double glazing (6+16+4mm) on PLANICLEAR or DIAMANT

COOL-LITE SKN 145	Neutral	41	0,22	0,25	1,86	19	
COOL-LITE SKN 144 II	Neutral	42	0,23	0,26	1,83	20	
COOL-LITE SKN 044 II	Extra clear	43	0,23	0,26	1,87	21	

High Performance Glass COOL-LITE KT for double glazing (6+16+4mm) on PLANICLEAR

COOL-LITE KN 166 II	Neutral	61	0,39	0,45	1,56	22	
COOL-LITE KNT 164	Neutral	58	0,47	0,54	1,23	15	
COOL-LITE KNT 155	Neutral	48	0,38	0,44	1,26	17	
COOL-LITE KNT 140	Neutral	38	0,29	0,33	1,31	23	
COOL-LITE KBT 140	Blue	37	0,29	0,33	1,28	24	

* COOL-LITE SKN 154 may have a slight colour deviation in transmission with the SKN 154 II heat treated version. Validation of a prototype is recommended if both versions are used on the same facade.

*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 Validation should be taken with the digital printing inks and enamels.

*5 Screen-printing, roller coating, spray and digital printing validation required.

U-Value (EN 673) (W/m ² K)	Possible use as single glazing (coating on surface #)	Coating position on DGU	Processing				Benefits
			Temperable	Lamination (coating #2 inside the laminates)	Bending	Screen- printing & enamelling	



1,1		#2					
1,1		#2	To be tempered	Yes ^{1,2}			
1,1		#2	To be tempered	Yes ^{1,2}			

1,0		#2	To be tempered				Properties: Modern solar control coated glass with thermal insulation Advantages: - Selective solar control - Thermal insulation for improved energy efficiency - Variety of color
1,5		#2	Yes	Yes ^{1,2}			
1,4		#2	Yes	Yes ^{1,2}			
1,3		#2	Yes	Yes ^{1,2}			
1,4		#2					

Values given according to the standards EN 410 & EN 673 - 2011

Product	Color in Reflection	LT (%)	Solar Factor g-value	Shading coefficient SC	Selectivity LT / g	External Light Reflectance LRe (%)	U (E (V
To be tempered / Annealed coating (if available)							

SUMMER COMFORT

Solar Control Glass COOL-LITE ST for double glazing (6+16+4mm PLANITHERM XN on face #3) on PLANICLEAR

COOL-LITE ST BRIGHT SILVER/DIAMANT	Silver	61	0,5	0,57	1,22	32	
COOL-LITE ST 150	Neutral	46	0,38	0,44	1,21	19	
COOL-LITE ST 136	Grey	34	0,28	0,32	1,21	23	
COOL-LITE ST 120	Silver	18	0,16	0,18	1,12	32	
COOL-LITE STB 120	Blue	20	0,18	0,21	1,11	21	

*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.

*5 Screen-printing, roller coating, spray and digital printing validation required.

*6 Project must be made from a single production batch from SGG.

U-Value (EN 673) (W/m ² K)	Possible use as single glazing (coating on surface #)	Coating position on DGU	Processing				Benefits
			Temperable	Lamination (coating #2 inside the laminate)	Bending	Screen- printing & enamelling	



1,1	#2	#2	Yes	Yes ¹	Yes ³	Yes ⁴	Properties: Standard solar control coated glass that can be toughened Advantages: - Can be curved - Can be enameled - Can be silk-screen printed
1,1	#2	#2	Yes	Yes ¹	Yes ³	Yes ⁴	
1,1	#2	#2	Yes	Yes ¹		Yes ⁴	
1,1	#2	#2	Yes	Yes ¹		Yes ⁴	
1,1	#2	#2	Yes	Yes ¹		Yes ⁴	

Values given according to the standards EN 410 & EN 673 - 2011

Product	Color in Reflection	LT (%)	Solar Factor g-value	Shading coefficient SC	Selectivity LT / g	External Light Reflectance LRe (%)	U (E (V
To be tempered / Annealed coating (if available)							

WINTER COMFORT

Low-E glass for double glazing (4+16+4mm) on PLANICLEAR

PLANITHERM XN	Neutral	82	0,65	0,75	1,26	11	
PLANITHERM XN II	Neutral	82	0,65	0,75	1,26	12	
PLANITHERM ONE	Neutral	72	0,52	0,60	1,38	22	
PLANITHERM ONE II	Neutral	72	0,53	0,61	1,36	22	

High Performance Low - E coating for double glazing (4+16+4mm) on PLANICLEAR

ECLAZ	Neutral	83	0,71	0,82	1,17	12	
ECLAZ II	Neutral	83	0,71	0,82	1,17	12	
ECLAZ ONE	Neutral	79	0,6	0,69	1,32	15	
ECLAZ ONE II	Neutral	79	0,6	0,69	1,32	15	

High Performance Low - E coating for triple glazing units (4+14+4+14+4mm) on PLANICLEAR

ECLAZ	Neutral	83	0,71	0,82	1,17	12	
ECLAZ II	Neutral	79	0,6	0,69	1,32	15	

*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.

*5 Screen-printing, roller coating, spray and digital printing validation required.

*6 Project must be made from a single production batch from SGG.

U-Value (EN 673) (W/m²K)	Possible use as single glazing (coating on surface #)	Coating position on DGU	Processing				Benefits
			Temperable	Lamination (coating #2 inside the laminate)	Bending	Screen-printing & enamelling	



1,1		#3					Properties: High performance low-emissivity glass Advantages: - Enhanced thermal insulation - High daylight income
1,1		#3	To be tempered		Yes ³		
1,0		#3					
1,0		#3	To be tempered		Yes ³		

1,1		#3					Advantages: - High thermal insulation while insuring natural light intake - Significant positive environmental impact (up to - 20% of the energy bill) - Extreme transparency
1,1		#3	To be tempered				
1,0		#3					
1,0		#3	To be tempered				
1,1		#3					
1,0		#3	To be tempered				

Values given according to the standards EN 410 & EN 673 - 2011

Product	Color in Reflection	LT (%)	Solar Factor g-value	Shading coefficient SC	Selectivity LT / g	External Light Reflectance LRe (%)	U (E (V
To be tempered / Annealed coating (if available)							

SELF CLEANING GLASS

Easy maintenance with BIOCLEAN for double glazing (6+16+4mm) on PLANICLEAR

BIOCLEAN II	Neutral	80	0,76	0,87	1,05	17,7	
BIOCLEAN	Neutral	80	0,76	0,87	1,05	17,7	
BIOCLEAN XTREME 60/28	Neutral	56	0,26	0,31	2,15	17	
BIOCLEAN SKN 176	Neutral	66	0,36	0,41	1,83	16	
BIOCLEAN SKN 165	Neutral	57	0,32	0,37	1,78	19	
BIOCLEAN SKN 154	Neutral	49	0,26	0,30	1,88	22	

ANTI-REFLECTIVE GLASS

VISION-LITE on DIAMANT

VISION-LITE (Laminated Glass 44.1) DIAMANT	Extra Clear	97	0,85	0,97	1,14	1,1	
VISION-LITE II DIAMANT (6mm)	Extra Clear	98	0,87	1,00	1,13	1,3	
Semi VISION-LITE II (6mm)	Extra Clear	94	0,88	1,01	1,07	4,9	
Semi VISION-LITE (6mm)	Extra Clear	94	0,9	1,03	1,04	4,7	

*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.

*5 Screen-printing, roller coating, spray and digital printing validation required.

*6 Project must be made from a single production batch from SGG.

*7 Screen-printing, roller coating, spray and digital printing validation required.

U-Value (EN 673) (W/m ² K)	Possible use as single glazing (coating on surface #)	Coating position on DGU	Processing				Benefits
			Temperable	Lamination (coating #2 inside the laminates)	Bending	Screen- printing & enamelling	

2,6		#1	To be tempered				Properties: Clear self-cleaning 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
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 ⁷	Properties: Antireflective glass Advantages: - Extreme transparency & High color neutrality - Very low light reflection - Security and safety when laminated - Can be tempered (SGG VISION-LITE® II)
5,6		#1 #2	To be tempered			Yes ⁷	
5,6		#1	To be tempered			Yes ⁷	
5,8		#1					



SAINT-GOBAIN

Les Miroirs

18 avenue d'Alsace

92400 Courbevoie

FRANCE

www.saint-gobain.com

bge-facade@saint-gobain.com