SAINT-GOBAIN

GLASS FOR FAÇADE

EDITION 2022

SAINT-GOBAIN GLASS

INTRODUCTION

This year again, we are very proud and excited to share with you our new 'GLASS FOR FAÇADE' Reference Book.

As usual, you will find a selection of iconic projects all around the world, that our teams have realized with their passion, and in cooperation with major stakeholder partners. We would like to thank everyone here.

Through these extraordinary projects, we wish to highlight the know-how of our customers and partners and the way they showcase our best performing glass products as well as many other Saint-Gobain products that you will discover throughout the projects, highlighting the Group's entire expertise in providing high performance and sustainable products in the most iconic projects.

As sustainable development is at the heart of our strategy - and this book and these projects are proof of this - we also wanted to add a specific focus via a chapter dedicated to our innovations in sustainability.

And in 2022, we did a lot to innovate:

By launching the world's first low carbon glass, ORAÉ®, with a first product range dedicated to the façade market, allowing to reduce both embodied and operational carbon.

By initiating the network Saint-Gobain Glass Recycling in several countries to increase the cullet collection at the end-of-life of glass products.

By introducing an offer of photovoltaic solutions for façades, combining performance and wide selection of visual aspects.

By presenting a full range of bird-friendly glass products to protect biodiversity.

In line with our purpose «Making the World a Better Home», sustainability is an integral part of the DNA of our teams, who are committed to offering you the best performing and most sustainable solutions in the façade market.

Enjoy this new edition of our Reference Book!

GLASS FOR FAÇADE

EDITION 2022

SUSTAINABLE INNOVATIONS

SUSTAINABLE INNOVATIONS BY SAINT-GOBAIN GLASS

In everything we do at Saint-Gobain Glass, we are guided by the engaging purpose of the Saint-Gobain Group: Making the World a Better Home.

Our mission is to facilitate the shift towards sustainable construction by offering solutions that prioritize both sustainability and performance. This means that we strive to deliver innovation, design and cost-efficiency through better buildings, reduced environmental impacts and improved indoor conditions for the health and well-being of occupants.

We understand that sustainable construction is not just about the process but also how the building will be used. For this purpose, we provide our customers with innovative solutions that support their journey towards sustainability, and we advocate for better policies, standards, and practices within the construction market.

In this chapter, we present several key topics in which Saint-Gobain Glass is strongly involved and demonstrates its commitment to the development of sustainable construction, accompanied by illustrations of representative projects recently completed or in the process of being completed.

RESSOURCES & CIRCULARITY

RECYCLED GLASS PROJECT

PIRAEUS TOWER

AN EXAMPLE OF FULLY RECYCLED FAÇADE

PRODUCTS

COOL-LITE® XTREME 70/33 II ON DIAMANT®

Location	Piraeus Port, GR
Developer	Piraeus Tower (Dimand, Ebrd, Prodea Investments)
General contractor	Terna
Façade engineer	Eckersley O'Callaghan
Façade builder	Cimolai Spa, IT & Technikal, GR
Façade system consultant	Avantech OE
Glass processors	Vetrodomus, IT & CH. Mitrogiannis - I. Tsiamas SA, GR
Photos	©Nikos Daniilidis /Cgi Konstantinos Koudounis

The Piraeus Tower is a landmark building coming back to life after more than 40 years of emptiness.

The full renovation of the second tallest building of Greece has been performed with a special focus on climate change and increased occupant's health.

Regarding the façade, Saint-Gobain Glass and Dimand S.A., the leading developer in Greece, adopted a holistic sustainable approach through a close partnership to recycle the tower's old façade.

The result: in 2022, 125 tons of end-of-life glass were collected from the tower, then treated and recycled as external cullet in the furnace of the Saint-Gobain Glass float plant in Calarasi, Romania.

The new façade has been refurbished with glazing units composed of the high-performance solar control glass COOL-LITE® XTREME 70/33 II on DIAMANT®, to provide energy efficiency, thermal and visual comfort to the occupants.

This project is currently registered in the WELL Core program and is targeting the LEED Platinum certification.

This project is an excellent example of what we are working on to reach 40% cullet in our flat glass production by 2030, highlighting a shared commitment to promote sustainable construction worldwide.

LOW CARBON GLASS

ORAÉ

THE WORLD'S FIRST LOW CARBON GLASS AND PROJECTS ASSOCIATED

In September 2022, Saint-Gobain Glass took a major step towards decarbonising the glass industry by announcing the commercial launch of ORAÉ®, the world's first low carbon glass.

By committing to its innovative spirit and continuous pursuit of sustainability, Saint-Gobain Glass has successfully reduced the carbon footprint of its clear glass substrate without compromising on the technical, quality or aesthetic performance of its products.

A third-party confirmation of ORAÉ®'s environmental performance

In April 2023, a new significant step has been taken forward: ORAÉ® has now a verified EPD, that confirms ORAÉ® as the glass with the world's lowest carbon footprint, setting a new standard at 6.64 kg CO_2 eq./m^2 (from Cradle-to-Grave, for a 4mm substrate), a reduction of 42% compared to the Saint-Gobain Glass European baseline for clear glass.

An EPD is an Environmental Product Declaration, a third-party verified document that indicates the environmental impact of a product during its life cycle.

The remarkably high content of external cullet in ORAÉ® production made it possible to reach an official recycled content of 64% according to ISO 14021.

Saint-Gobain Glass is also applying for a Cradle to Cradle certification, with assessment expected in 2023.

COOL-LITE® XTREME ORAÉ® in the product range for low carbon façades

Saint-Gobain Glass has integrated the new low carbon glass substrate ORAÉ® in its portfolio of solutions. The aim is to combine this innovation with the most advanced coating technologies in terms of energy efficiency. This will help drastically reduce greenhouse gas emissions caused by cooling, heating and lighting when using a building.

COOL-LITE® XTREME ORAÉ® is indeed a perfect match of performance and sustainability, reducing both operational and embodied carbon in buildings' façades.

A 2022 study conducted in partnership with the engineering consulting firm Arup revealed the importance of considering and acting upon these two parameters jointly in order to shrink the carbon footprint of buildings[1].

Real Estate pioneers leading the way towards more sustainable constructions

As a sign of the market's enthusiasm for this major innovation, several major real estate partners have chosen Saint-Gobain Glass to reduce the carbon footprint of some of their pioneer projects.

This attests to the key role that ORAÉ® plays towards a more sustainable industry and in accelerating the development of the circular and low carbon economy.

ORAÉ® now available in Calumen® to help calculating the footprint of projects

Thanks to the detailed environmental data now available, ORAÉ® is integrated in Calumen®, Saint-Gobain's all-in-one glazing digital configuration tool, to facilitate the understanding of ORAÉ®'s footprint and boost sustainability in construction. Building professionals, regardless of their level of expertise, can now evaluate the impact of ORAÉ® on the carbon footprint of their architectural projects.

A window to the future

COOL-LITE® XTREME ORAÉ® is a first step towards an expanded low carbon offer. These achievements are in line with Saint-Gobain's commitment to reach carbon neutrality by 2050 and ambition to be the worldwide leader in light and sustainable construction.

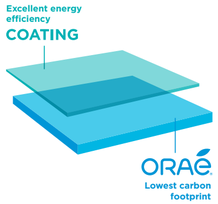
To learn more about this product go to
www.saint-gobain-glass.com/products/ORAE

1. See study "Carbon footprint of façades: significance of glass." conducted in partnership with Arup in 2022.

FIRST LOW CARBON GLASS OFFER FOR FACADES

COOL-LITE® XTREME ORAÉ

Performance meets sustainability



Kalifornia

Real Estate Partner: Bouygues

Architect: Atelier 123

Carré Invalides

Real Estate Partner: Nexity

Polyclinique du Parc, Caen

Real Estate Partner: Icade Santé

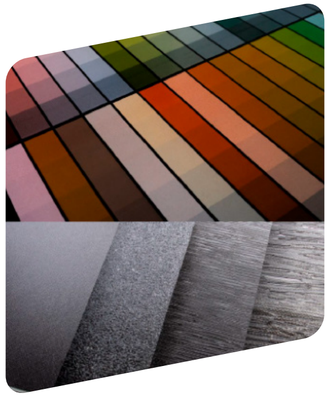
Schwyz Hospital
© Megasol Energie AG

Coop-Hauptsitz Basel
© Megasol Energie AG,
Aepli Metallbau AG

Münsingen Apartments
© Megasol Energie AG

Ostermundigen Apartments
© Megasol Energie AG

BUILDING INTEGRATED PHOTOVOLTAIC



BIPV

FULL OFFER OF SUSTAINABLE SOLUTIONS FOR ENERGY GENERATION

At Saint-Gobain Glass we want to help our customers to decarbonising their activities. This is the reason we offer, with our partner **Megasol**, Building Integrated Photovoltaics (BIPV) solutions, turning the façade to a source of energy.

Reducing the environmental impact of buildings

BIPV panels are designed solar modules that replace conventional façade coverings and are integrated in the building skin. More than just traditional covering, they deliver renewable energy to the building.

Solar façades are one of the cleverest ways to reduce the environmental impact of a building. BIPV helps designers to comply with building codes that specify the maximum primary energy consumption of the building or even the amount of renewable energy to be generated on-site by the building. Furthermore, BIPV for vertical façades and pitched roofs are generating financial earnings by reducing the electricity need from the grid, as well as revenues by selling excess electricity to the grid.

From translucent to fully colored for several uses on the building

Thanks to the latest technologies it is today possible to have modules combining high efficiency and appealing aesthetics, with a large range of colors and textures that can meet any design requirement of the architect. The module integrates perfectly into the façade and the solar technology becomes invisible. Moreover, solar modules with translucent cell spacing, can be used in skylights or in vertical façade or open structure, letting light coming in.

©Eastman

4BIRD®

4BIRD®Etch 4BIRD®Frit 4BIRD®Lami

BIRD PROTECTION

PRODUCTS

4BIRD®Etch
4BIRD®Frit
4BIRD®Lami

4BIRD®

THE GLASS THAT PROTECTS BIRDS

To prevent accidental bird collisions on building glazed façades, the 4BIRD® product family offers various solutions to bring more visibility to these transparent surfaces without compromising on their technical performances. This is also what sustainable construction is all about.

With the 4BIRD® product family, Saint-Gobain Glass offers a range of COOL-LITE® solar control glass with a special focus on an effective bird protection, offering both sustainable solutions for the preservation of the biodiversity and a wiser energy consumption of the building, while keeping a homogeneous and neutral external aesthetic.

Following existing guidelines and expert's recommendations in Europe and North America, the 4BIRD® product family offers different ways to protect birds:

- The **4BIRD®Frit** series features silk-screened patterns on the double glazing to make it easier for birds to spot the obstacle at close range.
- The **4BIRD®Etch** series features acid-etched patterns directly on face 1 together with selected COOL-LITE® solar control coatings on face 2 of the same glass pane. This is made possible by the EASYPRO® protective coating technology. This more technical solution is also more discreet to the human eye, but no less effective.
- The **4BIRD®Lami** series features visible dots for the birds, directly integrated into the PVB film (PolyVinylButyral) of the laminated glass, in a first collaboration with EASTMAN, 4BIRD®Lami also combines COOL-LITE® solar control coating for energy efficiency.

The 4BIRD® solutions have been evaluated by the American Bird Conservancy and recognized as effective in protecting birds. To be sustainable, construction looks at its carbon footprint, and what materials are used; with such anti-collision glazing solutions, construction also takes care of the biodiversity that lives alongside us.

PROJECTS

COMMERCIAL OFFICES

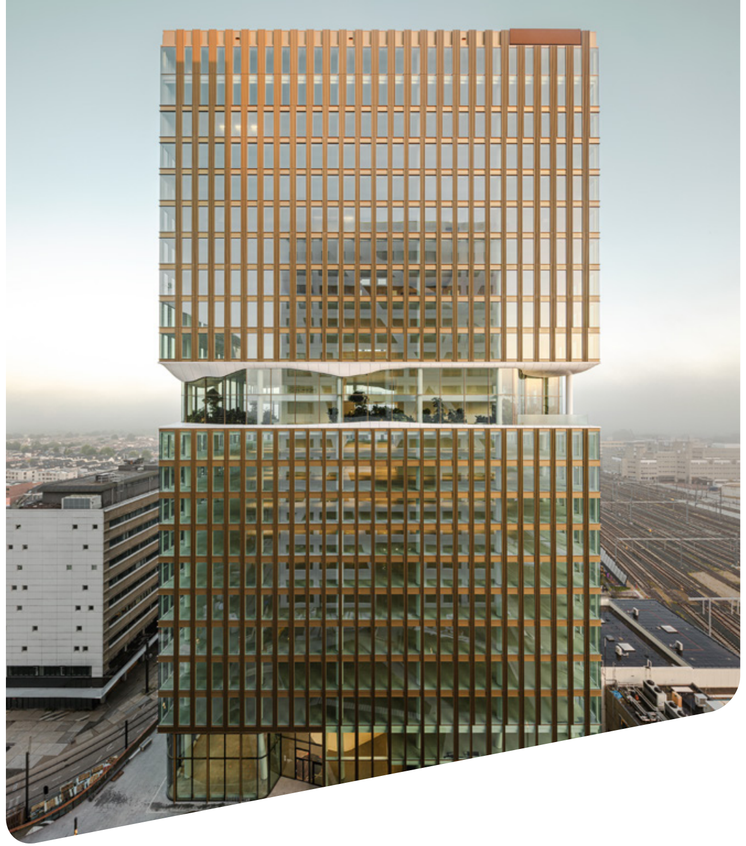
CENTRAL PARK

SUSTAINABLE TOWER WITH GREEN BELT

Location	Central Park Utrecht, Mineurslaan, NL
Architect	Group A, Rotterdam
Biophilic design	MOSS Makers Of Sustainable Spaces, Amsterdam
Glass processor	Vandaglas GmbH, Radeburg
Developers	APF International & PEAK Development
Photos	©Sebastian van Damme
Certifications	Paris Proof Standard, BREEAM NL – Excellent

The 90-metre-high «Central Park» office tower is a new highlight on the Utrecht skyline. Together with the «Stadskantoor» municipal offices and the «De Syp» residential tower, it is a key part of the redevelopment around the rail station. The new building has 23 floors providing around 30,000 m² of flexible office space and potential for new workplace concepts. «Central Park» has a state-of-the-art feel as well as a two-storey centrally positioned indoor park designed by Group A Architects at a height of 45 metres. The effect is to combine nature with architecture. The storeys occupied by the park use an ingeniously recessed glass façade encircling the «waist» of the tower like a green belt. The 500 m², partially public park on the 11th and 12th floors not only provides full 360° panoramic views, but also a meeting centre with a café and quiet spaces for relaxing or working. When planning the urban oasis, the green-design architects at MOSS were inspired by the subtropical flora of the Azores Islands. More than 50 trees, 1,500 other plants and flowers and an artificial stream were used in its creation. The natural look is underscored by organically shaped ceilings and glass façades. The office floor façade forms a strong contrast with a grid comprised of vertical and horizontal metal cladding in a light sand-gold anodized finish.

In respect to its high sustainability standards, Central Park Utrecht has BREEAM Excellent certification with energy label A+, and further seeks the Dutch «Paris Proof Commitment» certification by achieving a two-thirds reduction in energy consumption compared with the current average for similar buildings. The highly selective COOL-LITE® XTREME 70/33 II solar control glass, used on façade makes a contribution to this, by providing ample natural light to the workplace, overheating protection and cooling loads reduction.



PRODUCT
COOL-LITE® XTREME 70/33 II

MIXED USE

FOREST CAMPUS

ONE OF THE GREENEST OFFICE COMPLEX IN POLAND'S CAPITAL

Location	Ul. Burakowska 14, Warsaw, PL
Architect	HRA Architekci, Warsaw
Glass processor	Q4 Glass
Façade maker	Widok
Photos	©Saint-Gobain Glass
Certifications	PLGBC Green Building Award 2021, BREEAM and WELL certification

Nature has been the inspiration for the Forest Campus in Warsaw. The new office building complex is one of the most environmentally friendly projects in the Polish capital and, according to the real estate developer company HB Reavis, is bringing nature back into the metropolis. The ambitious project was awarded the Polish Green Building Award PLGBC 2021 and has a BREEAM certificate on excellent level and also a WELL certificate.

The buildings range from six to ten floors and form an open-ended rectangle enclosing a lushly planted courtyard. The complex's crowning glory is a tripartite, 120-metre high tower. The Campus provides almost 80,000 m² of innovative floor space with flexible room layouts, and in addition co-working spaces especially for start-ups and new companies from the creative sector. Retail and restaurant space is also available on the ground floor. The publicly accessible courtyard, planted with 200 trees, and meticulously laid out roof terraces connect the Forest Campus with the neighbouring residential area.

The façade's colour scheme use bronze-coloured vertical louvres evoking the bark of a tree. The interiors have been designed by HRA Architects from Warsaw and feature plenty of flora and natural colouring.

The architects focused on reducing the carbon footprint and improving energy performance. The Saint-Gobain glazing used on the façade also contributes to the Campus' high energy efficiency standards. The highly selective COOL-LITE® XTREME 70/33 II solar control glass and the highly transparent COOL-LITE® SKN 176 II protect interiors from overheating, reduce both cooling and heating loads and provide plenty of natural light to workplaces.

In addition to the glass products for the façade, 21 other Saint-Gobain solutions were used on this project, among them: Isover stonewool panels (such as Polterm Max and Fasoterm), Rigips® plasterboards (Aquaroc®, Glasroc® X, 4PRO®) and Ecophon® acoustic ceilings (Advantage®, Gedina, Focus and Solo series).

PRODUCTS

COOL-LITE® XTREME 70/33 II
COOL-LITE® SKN 176 II

OFFICES

eLement

DYNAMIC PERSPECTIVES IN CONTINUOUS MOVEMENT FROM FLOOR TO FLOOR

Location	Marousi, Athens, GR
Architect	Rena Sakellaridou SPARCH P.C.
Glass processor	MITROGIANNIS-TSIAMAS
Façade maker	Technikal
Photos	©Yiorgis Yerolymbos
Certifications	First Prize, Invited Architectural Competition, LEED Platinum

Architect Rena Sakellaridou realised the eLement office building in the Athens suburb of Marousi in 2022. The property, surrounded by roads on three sides, is bordered by residential houses to the west and an olive grove to the East. A building already existed in the middle of the site, so the new building needed to enclose it in an L-form. A shared courtyard includes a glass pavilion with a restaurant, a Mediterranean garden and a wide, dynamically shaped path that crosses the eLement office building and creates a connection between the main and rear roadways.

A glass structure covered with a sweeping, overhanging exposed concrete roof guides arrivals to the main building. This four-to five-storey building opens up towards the courtyard in a light and ethereal manner. The architect's basic idea was that the canopies, or projecting floor slabs, "with their sharp corners and soft curves fly, in their continuous movement from floor to floor". In keeping with this concept, the façades have a transparent design throughout – floor-to-ceiling panes of Saint-Gobain COOL-LITE® XTREME 70/33 II solar control coating, which provide optimal solar protection under even extreme UV conditions, are used. STADIP SILENCE® laminated safety glass provides effective sound insulation against the busy main road.

For street-facing elevations, i.e. to the East and South, Rena Sakellaridou inserted a layer of vertical, movable aluminium louvres in front of the glass façade. These filter light while giving a sense of vibrancy to the building's exterior. In addition to the courtyard, green roof terraces on level 4 and the roof of the pavilion also offer high-quality functional spaces. The LEED Platinum-certified eLement has a total floor area of 13,000 m² and features flexible, rentable office units.

PRODUCTS

COOL-LITE® XTREME 70/33 II
STADIP SILENCE®
SWISSPACER®
CONTRAFLAM®

RESIDENTIAL BUILDING

ZALMHAVEN

IMPRESSIVE VIEWS FROM THE HIGHEST RESIDENTIAL TOWER IN THE NETHERLANDS

Location	Houtlaan, Rotterdam, NL
Architect	High-rise tower: Dam & Partners Architecten Mid-rise towers and plinth: KAAN Architecten
Glass processor	Vandaglas GmbH, Emmen/Berlin
Façade (cladding)	Rollecate B.V., Staphorst
Photos	©Fred Smulders, Studio Hoge Heren

The Rotterdam skyline has a new skyscraper, the "Zalmhaven Tower". It is part of the "De Zalmhaven" complex, located right on the banks of the Maas river, that includes two other 70-metre-high buildings. The tower itself is 215 metres high to the top of its mast, making it the Netherlands' tallest building and one of Europe's tallest residential towers.

"Zalmhaven Tower" has 60 floors providing 295 residential units. Every apartment, including the highest levels, has an outdoor area with at least one balcony. These, as well as the publicly accessible top floor restaurant, provide breath-taking views of the Maas and Erasmus Bridge, the historic place "Scheepvaartkwartier" and the constantly expanding skyline of the Dutch port city.

The architecture, designed by the architectural firm Dam & Partners, evokes the classic skyscraper design: tapering to the top with a glass façade and a 12-metre high mast. State-of-the-art construction technologies have made Zalmhaven Tower the tallest «prefabricated building» in the world: from the fourth floor upwards, the reinforced concrete structure was built entirely from prefabricated elements and completed floor by floor using a self-climbing lifting platform, with a new floor being added every week.

700 façade elements were fully prefabricated ex-works, including natural stone cladding, insulated concrete exterior wall elements and windows. COOL-LITE® SKN 165 solar control coating from Saint-Gobain Glass was used, providing excellent light transmission and thermal insulation. The glass façades of the crown of the tower were constructed using COOL-LITE® XTREME coating, with its aesthetically appealing modern look.

In addition to the glass product, 5 other Saint-Gobain products were used in this project for the façade, partitions and ceilings, of the following brands:

- Mupan Façade and Sonepanel (Isover)
- Duragyp® and Gyproc® RF (Gyproc®)
- Master F® (Ecophon).

PRODUCTS

COOL-LITE® SKN 165
COOL-LITE® XTREME

CULTURE

HOUSE OF MUSIC

IN HARMONY® WITH NATURE

Location	Budapest, HU
Architect	Sou Fujimoto, Sou Fujimoto Architects Inc.
General designer	Varga Bence, M-Teampannon Kft.
Glass façade specialist designer	Stocker György DLA, Stokplan Kft.
General contractor	Magyar Építő Zrt.
Glass processors	Thiele Glas GmbH Flachglastechnik, Radeberg, DE IGU: Orosházaglas Kft, HU
Façade maker	Orosházaglas Kft., HU
Photos	©Sz. Nagy Judit
Certifications & Awards	CNN – The world's most expected building in 2021; Time Out – Best new things to do in the world in 2022; MIPIM Awards – Special Jury Award, 2022; World Travel Awards – Europe's leading new touristic destination, 2022; Architecture Masterprize – Architectural Design of the Year, 2022; BREEAM Very Good

The House of Music, Hungary, a new contemporary cultural landmark dedicated to music in Budapest, built as part of the Liget Budapest Project, Europe's largest and most ambitious, multiple award-winning urban cultural development.

The new building, designed by Japanese architect Sou Fujimoto, features a vast undulating roof and houses a range of interactive musical experiences in celebration of music-making. The House is designed across three levels to encourage visitors to participate and interact with sound and music: subterranean exhibition level, ground floor performance area, and roof top level with museum education. The designers have taken inspiration from the synergy between sound and nature; presenting the building as a continuation of its park context and an ambitious rethinking of a 21st century museum space.

Surrounded on all sides by tall trees, the circular building has a full-circumference highly transparent glass façade that eliminates the boundaries between its exterior and interior space. The glass shell comprises 94 frameless highly efficient, up to 12-metre high COOL-LITE® SKN 176 II solar control coated glass from Saint-Gobain Glass. The glass significantly contributes to reducing the building's cooling requirements with a special coating blocking up to 67% of solar heat gain. Semi-toughened, self-supporting, frameless panes provide plenty of internal light for the event halls and spaces.

The roof is as unique as the façades with a slightly undulating, bulbous-rounded shape reminiscent of the top of an oversized mushroom cap. To create this organic form, the architect was inspired by sound wave oscillations. The roof construction is built on a steel structure supported by slender, round columns resembling thin tree trunks. Fujimoto inserted around 100 large and small openings in the roof skin to create a reference to the sky. The glass used here is high security laminated glass from Saint-Gobain Glass. 30,000 leaf-like metal plates hang from the ceiling, forming the upper boundary of the space, which creates the impression of standing under treetops.

In addition to the glass products for the façade, 3 other Saint-Gobain solutions have been successfully specified in this project: Isover Akustic SSP2 glasswool for sound absorption, Isover Climaver® Neto self supporting air duct panels and Isover TDPT glasswool sound insulation panels for floors.

PRODUCTS

COOL-LITE® SKN 176 II
PLANICLEAR®
STADIP®
STADIP SILENCE®
CONTRAFLAM® 90

MIXED USE

AXIS TOWERS

DANCING TWIN TOWERS: UNIQUE ARCHITECTURE FOR THE CITY

Location	Tbilisi, GE
Architects	Alexander Mezhevidze (author and developer of the project), Gega Astakhishvili, Nino Mosulishvili and Nika Kilasonia
Glass processors	Elita Burji, Pietta Glass Working
Façade maker	Elita Burji LLC
Photos	©Saint-Gobain, Courtesy of AXIS TOWERS

Tbilisi is Georgia's capital and the country's cultural and economic centre, with a population of almost 1.2 million and an area covering around 500 km². And it still has plenty of potential. Recent investments, especially in infrastructure and tourism, testify to the city's commitment to further increasing its appeal and economic performance. This is also evident in the construction of the Axis Towers, whose unique architecture has made them new landmarks in the city. The two 147-metre-high twin towers are located in Tbilisi's city centre and resemble a «city within the city». The multifunctional complex, comprising 37 floors above ground and four floors below, includes a public pedestrian zone with retail space, restaurants and cafés, a fitness centre, office space, an hotel and residential units.

The towers stand on the same plinth and rotate along their axes in opposite directions by two degrees per storey. Even though the towers share the same basic shape, they differ in key respects: one has a dark, shimmering solar control glass façade, while the other is clad in light-coloured natural stone. The contrasting dark and bright as well as light and solid underline the two towers' interconnectedness. This is further accentuated by the mirroring effect of one tower in the glass exterior of the other. Saint-Gobain Glass solar control glass COOL-LITE® KN 166 II ensures exceptionally good natural light conditions at the interior and combines high levels of solar and thermal protection. This lowers cooling loads, reduces the use of primary energy and cuts CO_2 emissions.

PRODUCTS

COOL-LITE® KN 166 II
STADIP SILENCE®

COMMERCIAL OFFICES

FLOW EUROPA-CENTER

GOES WITH THE FLOW

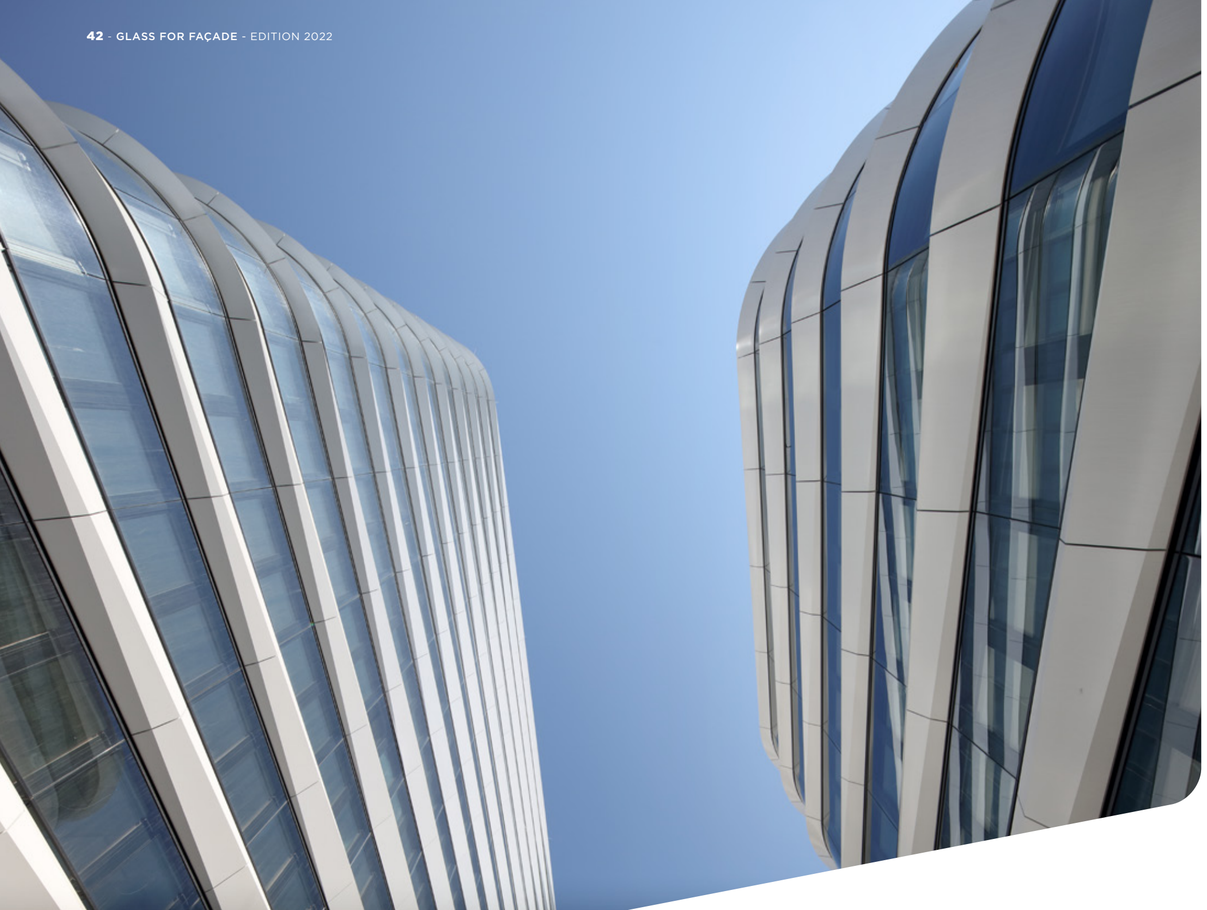
Location	Frankfurt, DE
Architect	KSP ENGEL
Glass processor	Vandaglas GmbH, Radeburg
Photos	©Conné Van D'Grachten

North of Frankfurt Airport, the architectural firm KSP Engel has realised the sustainable business complex FLOW EUROPA-CENTER Frankfurt Gateway Gardens, which includes 31,500 m² of office and 800 m² of restaurant and retail space - with solar control glass from Saint-Gobain Glass. Thanks to the sustainability concept, the development has already received a DGNB pre-certificate in gold. In addition to ecological aspects, this certification system also evaluates questions of user-friendliness.

The name says it all at FLOW EUROPA-CENTER Frankfurt Gateway Gardens: everything seems to be in a state of flux. When you approach the complex, the first thing you notice is the curved shape of the buildings. The comprehensive sustainability concept includes a number of different factors. For example, the planting emphasises the link between the buildings and nature and makes it possible to experience them in seasonal changes. The building materials were selected for their environmental friendliness, high potential for reuse and recyclability. Both the element and the material level played a role.

In terms of design, dark window strips on the upper floors create a rich contrast to the iridescent white, three-dimensionally shaped façade panels. On the ground floor, floor-to-ceiling glazing in the form of a mullion and transom construction opens up the view into the building and to the outside.

Due to the location near the airport, a special structure of the glass façades was necessary. On the standard storeys, a so-called impact pane construction with triple glazing units CLIMATOP® with COOL-LITE® SKN 176 II solar control coating from Saint-Gobain Glass is placed in front of the actual façade. The baffle panes ensure very good sound insulation. Designed as laminated safety glass, they also have a fall-preventing effect. While the windows of the façade with CLIMATOP® PLANITHERM® XN triple glazing are arranged polygonally at the corners of the building, rounded glass in the baffle panes reinforces the dynamic effect of the façade. Thanks to the high proportion of window area, the users of the buildings enjoy optimal natural lighting right into the depths of the rooms. But the views from the offices and the possibility to open the windows also contribute to the feeling of well-being inside the building. Excellent solar and thermal protection ensures energy-efficient operation of the building ensemble. The glass used thus plays a decisive role in the sustainability concept. A total of 4,146 panes for 8,217 m² of glass surface were manufactured and supplied by CLIMAplusSECURIT partner Vandaglas GmbH from Radeburg.



PRODUCTS

COOL-LITE® SKN 176 II
PLANITHERM® XN

MIXED USE

ShAKe

URBAN ECOSYSTEM
IN THE CENTRE OF LILLE

Location	Avenue Willy Brandt, Lille, FR
Architect	PCA-Stream Architecture, Philippe Chiambaretta, Paris, FR
Glass processor	Saint-Gobain Vitrage Batiment Saultain
Façade maker	PMN
Photos	©Jean-Philippe Mesguen
Certifications	BREEAM Excellent, Label Effinergie+

«ShAKe» stands for share and work and is the name given to a large mixed-use building complex in the centre of Lille. The latest working trends have been incorporated across 30,000 m² in the vibrant business district of Euralille. These trends include the blurring of the boundary between private and professional lives and the increase of shared spaces. The ambitious building design also includes childcare and fitness facilities, shared green spaces, restaurants and space for art and culture.

The building was designed by the architects PCA-Stream who took an imaginative approach to overcome the constraints of the site. The structure winds its way upwards on the narrow site, like a spiral. A slender Southern façade acts as a screen to the adjacent railway station area, while towards the city the building presents itself as welcoming and open. Tree-lined terraces link the property to the nearby Parc des Dondaines and form a gently sloping promenade up to the ShAKe roof. Sections of the elaborately landscaped roof gardens are also open to the public.

The ShAKe's façade gives the building its form while also acting as a kind of protective screen. The supporting structure of vertical U-profiles follows the spiral upwards movement and protrudes protectively over the terrace levels. The shimmering golden colour of the steel sections gives the building a radiant aura by day and night. For the glazing, the designers opted for the highly efficient COOL-LITE® XTREME solar control coating on DIAMANT®. This glass combines extremely low energy intake with high light transmission. The façade therefore significantly contributes to the building's sustainable and ecological performance, which has been awarded both English BREEAM Excellent and French Label Effinergie+ certification.

PRODUCT
COOL-LITE® XTREME
on DIAMANT®

COMMERCIAL OFFICES

TANDEM OFFICES

EYE-CATCHING LANDMARK
IN THE HEART OF BUCHAREST

Location	5 Matei Millo Street, Universitate, Bucharest, RO
Architect	Concept & DTAC, Supervision PTh+DE Technical assistance: ADN Birou De Arhitectură, PTh+DE: DECO Architects
Glass processor	Pietta Glass Working
Façade maker	Everest International S.A.
Property developer	Forte Partners
Photos	©Vlad Pătru
Certification	BREEAM Outstanding

The TANDEM OFFICES complex is located in close proximity to the well-known Palatul Telefoanelor, an Art Deco office tower built in the 1930s. High-end hotels, theatres and other office and commercial buildings are also within walking distance. TANDEM OFFICES, as well as the nearby "MATEI MILLO Offices", both designed by the ADNBA planning company, are part of an urban regeneration project developed by Forte Partners. The buildings have excellent road and public transport connections.

TANDEM OFFICES extends over eight above-ground and three below-ground floors comprising a gross floor area of approximately 34,000 m². Projections and recesses characterise the exterior and each level has one or more spacious roof terraces. The building elevations have curtain wall façades that are designed to be transparent throughout, with deep profiles and narrow profile elevations.

The clients prioritised high-quality materials, furnishings and fittings, which is evident in the façade's use of Saint-Gobain Glass COOL-LITE® XTREME 70/33 (II) solar control coatings. The panes have a triple silver solar control coating on PLANICLEAR® glass with outstanding selectivity. The neutral glass aesthetic provides the best ratio between incoming daylight and protection against overheating from solar radiation. The façade played an important role for achieving "BREEAM Outstanding" - the highest achievable certification within the BREEAM assessment.

In addition to the glass products for the façade, 10 other Saint-Gobain products were used on this project, among them: gypsum plasterboards from Rigips®, Isover AKUSTO glasswool and Isover stonewool, and Ecophon Advantage™ demountable ceilings.

PRODUCTS

COOL-LITE® XTREME 70/33
COOL-LITE® XTREME 70/33 II
STADIP® PROTECT

COMMERCIAL OFFICES

BUDAPEST ONE

SUSTAINABLE OFFICE BUILDING
WITH AN ELEGANTLY CURVED FAÇADE

Location	Balatoni út 2, 1112 Budapest, HU
Architect	Dr. Paulinyi Gergő DLA, Dr. Reith András PhD
Project leader	Vámossy István
Developer	Futureal Group Budapest, HU
Façade engineering	cutting edge face mérnökiroda kft. (c.e.f.)
Glass processor	Jüllich Glas Holding, Székesfehérvár, HU
Façade maker	Schal-Tech kft., Budaörs, HU
Photos	©Sz. Nagy Judit
Certifications & Awards	2022: CIJ Awards, The Best Upcoming Office Development, BREEAM Excellent , WELL Platinum 2021: FIABCI, Special Award of the National Association of Construction Entrepreneurs, 2019: Europa Property CRE Awards

The «Budapest ONE» office building was opened in 2022 on the western outskirts of the Hungarian capital. The exclusive office building, with its unique shape and form, has become an iconic landmark at one of the city's major transport hubs. The ambitious project has already won several real estate awards. Furthermore, it received the WELL Platinum certification and also the sustainability label BREEAM Excellent.

On an almost oblong site, architects have created a nine-storey building with organically curved façades enclosing a landscaped inner courtyard. The ground floor houses retail, gastronomy, service, and leisure facilities. The office floors provide approximately 66,500 m^2 of stylish co-working spaces, state-of-the-art offices as well as conference and meeting rooms.

The impressive office complex has a glass façade that is both simple and vibrant with its horizontal structure underscoring the dynamic curvature of the building. Vertical fins on the façade in shades of green and blue create softly shimmering colours that change depending on the viewer's position.

Sustainability was already a top priority during the project's planning phase. The building's shape, form and façade were designed and configured according to solar exposure and wind flow parameters. This makes the building's energy consumption extremely low. Contributing to this is the highly efficient COOL-LITE® XTREME 70/33 II solar control glass from Saint-Gobain Glass. The high light transmission of the glazing creates a pleasant indoor atmosphere, while indoor temperatures also remain comfortable even under intense sunlight. Its thermal properties also provide very good insulation from outside winter conditions, further reducing heating costs.

In addition to the glass products for the façade, several types of boards and systems for the partition walls have been supplied by Saint-Gobain Rigips® in this project: Habito® walls for impact resistance, Blue Acoustic walls for sound insulation, and DF Boards for fire protection. Furthermore, Ecophon Solo™ Matrix system has been installed for the ceilings.

PRODUCTS

COOL-LITE® XTREME 70/33 II
STADIP® PLANITHERM® ONE
STADIP SILENCE®
PLANITHERM® ONE

MIXED USE

SUPERHUB MEERSTAD

A MARKETPLACE FOR THE FUTURE: SUSTAINABLE, FLEXIBLE, URBAN

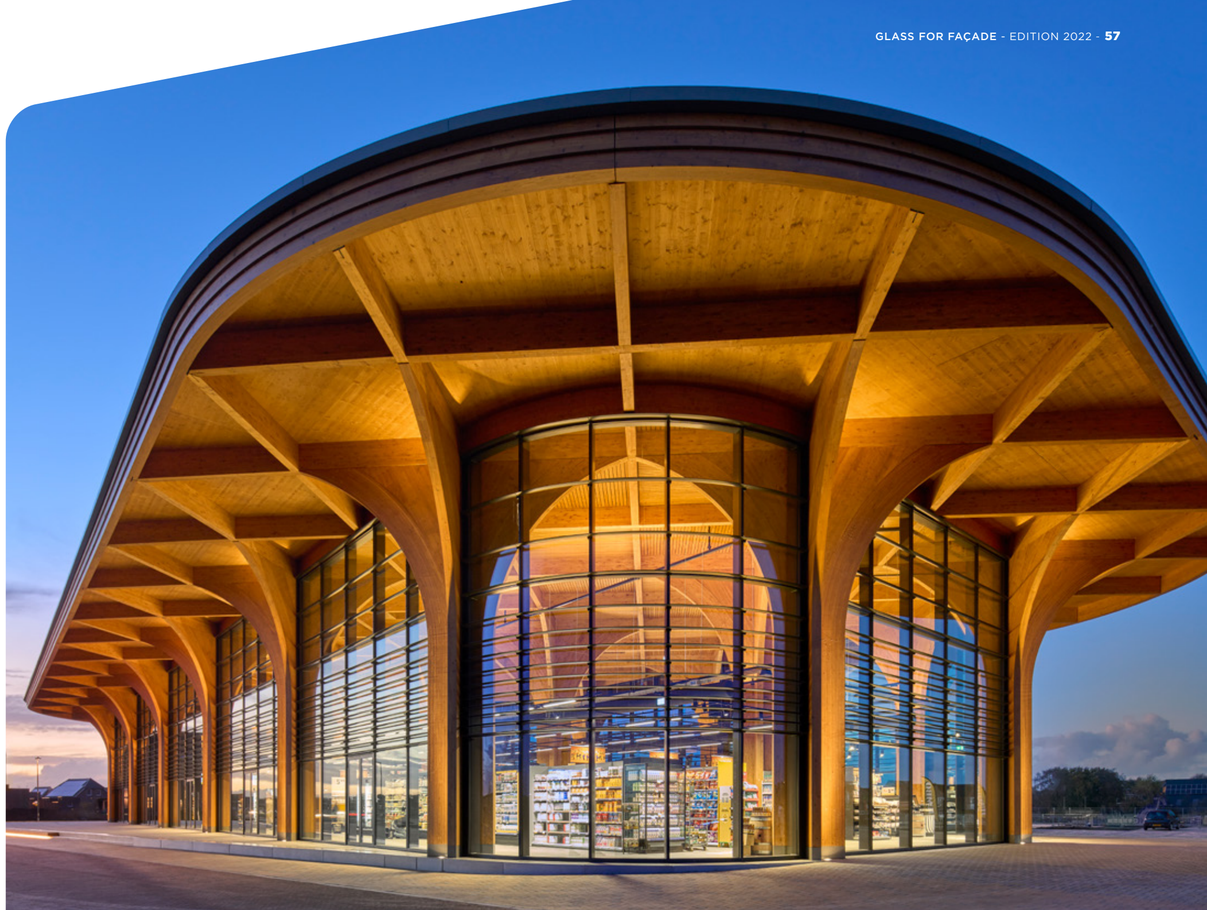
Location	Vossenburglaan 184-186, Groningen, NL
Architect	De Zwarte Hond, Groningen/Rotterdam/Köln
Glass processor	Vandaglas Emmen/Radeburg/Berlin
Façade maker	Aluminium Ramenfabriek Alraf B.V.
Photos	©Ronald Tilleman for De Zwarte Hond
Awards	Canadian Wood Design & building Award, category : non-residential

The new Meerstad planned district on the outskirts of the Dutch provincial capital of Groningen was to be given an attractive centre, a place that will thrive together with the burgeoning urban district, that will shape and strengthen it over the long term and enable a variety of social activities. The Groningen-based architecture firm "De zwarte Hond" developed the SuperHub, a multifunctional hall that represents an investment in the future of this new neighbourhood through the flexibility of its design and potential application. The SuperHub will initially be used as a supermarket and café.

The building has a rectangular floor plan, rounded corners and is open and transparent on all sides. The interior is solely furnished with a two-storey cube to accommodate ancillary rooms for sanitary facilities and administration. Timber tree-like columns support a flat roof made of a diagonally arranged wooden lattice structure. The wide-spanned, 9-metre-high ceiling gives the building a lightweight appearance, enhancing its inviting character. The flat, landscaped roof with insect garden and solar collectors extends 5.4 metres beyond the glazed façade to provide all-weather outdoor activity areas.

The 9-metre-high glass façade is set between the tree-like columns and forms the SuperHub's vertical exterior shell. Movable horizontal louvres provide glare protection and create a fine linear structure on the façade. Each of the 9 x 11 metre façade panels has a door opening, with a main entrance located on the north façade. The circular façades were created with highly selective COOL-LITE® XTREME 70/33 II from Saint-Gobain Glass. The glass elements combine several functions including sun and heat protection, sound insulation and security.

In this project, another Saint-Gobain solution has been installed: Isover Sonepanel for sound insulation of partition walls.



PRODUCTS

COOL-LITE® XTREME 70/33 II
STADIP®
PLANICLEAR®

INSTITUTIONAL BUILDING

CNESST HEADQUARTERS

BUILT FOR THE FUTURE

Location	1600 Av. D'Estimauville, Québec, CA
Architect	Coarchitecture | LemayMichaud
Glass processor	Multiver
Façade maker	Epsylon Concept
Photos	©Stephane Groleau
Certifications & Awards	LEED v4 and WELL 2022 Architectural Design Award, International Grand Laureate in Architecture, Grands Prix du Design, Platinum and Gold, Winner Award of The Year

In Quebec's Estimauville district, an inner-city neighbourhood with ambitious sustainability goals is currently being developed. One pioneering project is the new headquarters of CNESST, Commission des Normes de l'Equité de la Santé et de la Sécurité du Travail - the Canadian government organisation for labour law, health and safety at work. The building meets the highest environmental standards and will acquire LEED and WELL certification.

The eight office floors have an elegant aluminium ribbon façade. The main structure's strict compactness reduces the enveloping surfaces, thereby improving the building's energy performance. A total of 1,850 workplaces have been created within 34,500 m² arranged around an eight-storey atrium. The spectacular interior has an ornamental lattice glulam roof structure supported by slender steel rods. A gigantic glass façade opens the forum to the neighbourhood's green spaces. The glass wall is supported by huge wooden V-shaped supports.

This structural design is also found in the V-shaped concrete columns in the building's entrance area. The impressive, sculptured atrium stairway saw the architects recognised with the Grands Prix du Design 2022 platinum award.

The glass façades comprise COOL-LITE® SKN 154 II solar control glass from Saint-Gobain Glass, which guarantees highly efficient solar control without compromising the light coming in. Maximised daylighting and low carbon timber construction reflect CNESST's commitment to sustainability and workplace health. This is an integrated concept that meets the goals of the eco-quarter down to the finest detail.

In addition to the glass product for the façade, 10 other Saint-Gobain solutions were used in this project and supplied by CertainTeed: finishing products, tapes and gypsum boards of different types.

PRODUCT
COOL-LITE® SKN 154 II

PUBLIC TRANSPORT

AIRPORT CHIBOUGAMAU -CHAPAIS

ARCTIC WHITE WITH TRANSPARENT AIRINESS

Location	10 Chemin de l'Aéroport, Chibougamau, CA
Architect	EVOQ Architecture, Quebec, CA and ARTCAD Architectes, Rouyn-Noranda, CA
Glass processor	Multiver, Quebec, CA
Façade maker	Unicel Timber Curtain Wall, Longueuil, CA
Photos	©Maxime Brouillet
Certifications & Awards	Gold Certification, awarded by Grands Prix du Design / 15th Edition (Public Building / Institutional Building)

In Canada's Northern provinces, air travel is often the only link to the outside world – to major centres in the south as well as between remote towns. For the expansion of Chibougamau-Chapais Airport, the EVOQ and ARTCAD architectural firms designed a modern glazed steel-wood terminal construction in reference to the locally natural resource rich forest region.

The new terminal building marks the transition area between the passenger carparks and runways. Two elongated structures incorporate a reception and waiting hall at their centre, which in turn connects all the terminal's functions and services. The hall's south-facing, single-pitch roof provides a light-flooded interior. Its glass façades are protected from extreme Arctic conditions by broad roof overhangs.

Local glulam and cross-laminated timber panels were used in the construction. In addition to wood, glass and the colour white are the dominant features. The hall's overhanging wooden roof spans twelve metres and is supported by a slender, white steel structure. This delicate supporting structure fully reflects the architectural concept of transparency and airiness. Also adhering to this concept are the two glass façades, which are supported by a post-and-beam construction comprising local timber.

For the glazing, the architects opted for the neutral COOL-LITE® XTREME 70/33 II solar control coating from Saint-Gobain Glass, which combines high light transmission with maximum thermal interior comfort. The Canadian artist Emmanuelle Gendron created an art project for the glazing as a tribute to the Eeyou Istchee region, its forests, lakes and a culture deeply rooted in Cree traditions.

In addition to the glass product for the façade, 7 other Saint-Gobain solutions were used in this project and supplied by CertainTeed: finishing products, tapes and gypsum boards of different types.

PRODUCT
COOL-LITE® XTREME 70/33 II

COMMERCIAL OFFICES
AND SERVICES

WORLD TRADE CENTER

COMBINATION OF DYNAMISM
AND SUSTAINABILITY

Location	Lisbon, PT
Architect	JQVP | Arquitetos Associados
Glass processor	Vidromax, Portugal
Façade maker	Jofebar, Portugal
Photos	©emontenegro / architectural photography

The World Trade Center Lisboa is a futuristic space promoting physical and emotional well-being, with practical solutions for mobility and sustainability.

Architecturally, it is an emblematic building that had the power to redefine while respecting the landscape that surrounds it. It presents itself with a fully glazed façade, where the glass is highlighted in all its splendor and architectural identity.

It includes three imposing towers and a series of support structures, such as a hotel, an auditorium, and the World Trade Center Club Lisboa a business development centre.

This building promises to offer a new concept, combining well-being with flexibility and digital technology. All this with a criterion of innovation and design reflected throughout its structure, as well as in its green areas, used for the practice of sports and restaurants, that greatly contribute to the physical, emotional, and intellectual well-being of users.

There are 17,000 m^2 of glass that make up its entire façade. To respond to greater comfort and efficiency, the solution chosen was an COOL-LITE® SKN 154 II glass and STADIP SILENCE® laminated glass, this one to guarantee safety and acoustic requirements.

The specific dimensions of this project led to the production of glass panels with a special dimension of 4.5 m to avoid a waste of glass and thus meet the building's purpose of sustainability.

This is an emblematic project that was born by the initiative of the FVC Group, which definitively marks the architectural landscape of the city of Lisbon, and which reflects the ambition of this group - to transform and innovate in the concept of workspaces and business centres, with a future concept in mind.

Plasterboard laminated with stonewool solution Isover Geowall has also been successfully specified on this project for the partition walls.

PRODUCTS

COOL-LITE® SKN 154 II
STADIP SILENCE®

COMMERCIAL OFFICES

THE SPARK

LANDMARK OFFICE SPACE WITH SOLAR CONTROL GLASS BY SAINT-GOBAIN GLASS

Location	Newcastle, UK
Architect	Ryder Architects
Glass processor	Pressglass
Façade maker	Charles Henshaw & Sons Ltd
Photos	@John Kees Photography

Part of the Helix in Newcastle, The Spark is a landmark office space, supporting both established and new businesses looking for an inspiring working environment. It includes both exclusive occupancy accommodation and large, open informal collaboration space.

Arranged over 12 floors, around 9850 m² Grade A office building has been designed from the ground up with the evolving needs of businesses in mind. This is a space that champions collaboration, a space where people, meet, chat, share ideas and challenge each other. A space where innovative new businesses sit side by side with big international brands. Connectivity and sustainability principles add to cutting-edge architecture and state-of-the-art amenities to meet the needs of the modern worker.

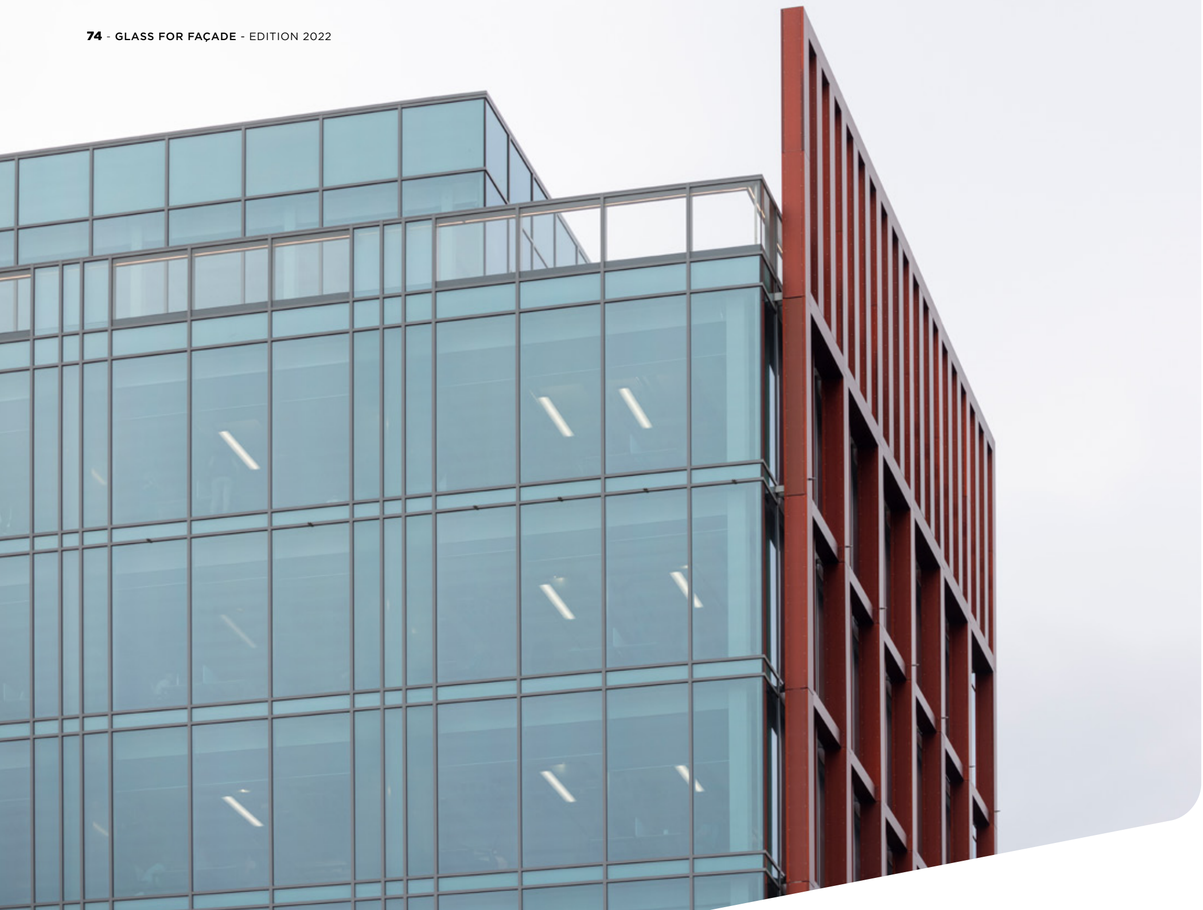
The mixed development, which includes co-working space and staff amenities, is crowned with a bespoke event / restaurant.

The office space is designed to British Council for Office standards with a ratio of occupancy of one person per 8m² NIA and to BREEAM Excellent with an EPC rating of A.

The Spark features a fully glazed façade with curtain wall and red aluminium cladding, both building materials that at 100% recyclable; helping the business to attain the highest sustainability credentials.

The glazing includes Saint-Gobain Glass' COOL-LITE® SKN 144 II, a product designed to offer exceptional solar and thermal performance, with a very low g-value. It also provides a neutral appearance both in transmission and exterior reflection.

COOL-LITE® SKN 144 II was used to improve the energy efficiency of buildings by considerably reducing overheating and the need for costly air conditioning in summer. It is particularly suited to large areas of glazing where superior, solar control performance is required whilst at the same time noticeably reducing excessive heat loss in cold weather conditions.



PRODUCT
COOL-LITE® SKN 144 II

HEALTH CARE

VACCINOPOLIS CENTER

VACCINE RESEARCH IN THE FIGHT AGAINST CURRENT AND FUTURE DISEASES

Location	Drie Eikenstraat 663, 2650 Edegem, BE
Architect	Proof of the sum, Amsterdam, NL
Glass processor	IGP and Polypane Glasindustrie NV
Façade maker	Limeparts Drooghmans
Photos	©Marcel van der Burg

Vaccinopolis, the new vaccine research centre for the University of Antwerp and the Université Libre de Bruxelles, is playing a key role in the fight against current and future diseases. Research there is based on the CHIM principle, «Controlled Human Infection Model», i.e., vaccine testing on the basis of clinical trials. The research centre opened in March 2022 and, at 6,200 m², is the largest of its kind in the European Union. Comparable CHIM studies have only previously been possible in the USA and Great Britain.

The new building on Antwerp's Drie Eiken campus was constructed in a record time of 14 months. It is a compact, elongated structure with a metallic façade whose reflective properties enable a «merging» with the surroundings. The building's plinth is largely open with an embedded entrance set slightly back from the outer plane of the façade. A light-filled staircase leads to the administration and laboratory areas on the first floor, to patient rooms on the second floor and up to a residential floor and a roof terrace.

The single-storey narrow windows, window bands and a two-storey atrium façade using both COOL-LITE® XTREME and COOL-LITE® SKN 183 solar control coatings from Saint-Gobain Glass provide interiors that are bright and sun-protected as well as giving extended views. The south-facing window band around the patients' rooms projects diagonally outwards from the façade plane. By using highly efficient solar control glass, optimal protection is provided against excessive solar heat gain, while also ensuring generous amounts of daylight.

In addition to the glass products for the façade, other Saint-Gobain products have been successfully specified in this project: 25,000 m² of plasterboard complete systems from Gyproc® were delivered for the partition walls, liners and ceilings of the laboratories, offices, and rooms, while Weber supplied its flooring solution Weberfloor®.

PRODUCTS

COOL-LITE® SKN 183
COOL-LITE® XTREME
ECLAZ® ONE

COMMERCIAL OFFICES

CARSON GROUP

SAGEGLASS, A SOLUTION SUITABLE FOR COMFORTABLE AND ADAPTABLE BUILDINGS

Location	Nebraska, US
Architect	Leo A Daly
Building owner	Tetrad Property Group
Glass processor	SageGlass
Photos	©Leo A Daly

Several years ago, Carson group, a financial services company based in Nebraska, started to design its new headquarters. The building needed to embody the "work-live-play" culture of the group in order to attract and retain employees. The building itself has been named "Ascend", a nod to both its ascending aesthetic and its company mission: to continuously move forward and move up.

Designed by the architecture and design firm Leo A Daly, the 18,000 m² headquarters provides a comfortable, bright, innovative, and modern workspace. Employees have access to numerous amenities, including a rooftop bar, a café, a large lobby area (which is also a meeting space), high-tech video walls, ergonomic furniture systems, etc. Everything has been designed to make employees feel comfortable and valued. The building also aligns with the group's commitment to implementing green practices.

4,831 m² of SageGlass Harmony® provide comfort and adapt to the needs of the occupants. The smart windows allow unobstructed views to the beautiful environment surrounding the building and let plenty of natural light to flow in the building. Research has shown that natural light is a highly ranked amenity smart glass can contribute to the happiness, well-being and productivity level of people.

PRODUCTS

SageGlass HARMONY®
SageGlass

COMMERCIAL OFFICES

INTENCITY
SCHNEIDER ELECTRIC

A SOLUTION SUITABLE FOR THE WORLD'S GREENEST BUILDINGS

Location	Grenoble, FR
Architect	Groupe 6
Glass processor	SageGlass
Photos	©Valentin Napoli

Schneider Electric's ambition to reduce its energy footprint has recently reached a turning point: the group has decided to lead a huge reorganization by restructuring its presence in the Grenoble area. By consolidating their presence to four sites – instead of 13 – the group wants to limit the number of trips between locations and promote a collaborative workplace culture.

One of these buildings is IntenCity, the brand-new flagship building showcasing the group's capabilities. This building, which houses about 1,500 employees, has been designed with three key priorities: occupant well-being; digital energy management and sustainable development. This smart building combines green energy management solutions – 4,000 m² of photovoltaic panels, electric batteries & 2 wind turbines – making it a net-positive energy building. Thanks to the choice of suitable materials, they aim to be certified LEED-Platinum.

The heart of the site is the cafeteria. Called "le Bistro", this space full of glass was created so that people can relax in a comfortable environment while enjoying the beautiful mountain views surrounding the building. The group decided to install SageGlass smart windows to keep the view while controlling heat and light with precision. Thanks to its agreeable ambiance, "le Bistro" is the favorite place of all employees.

PRODUCTS

SageGlass CLIMAPLUS® CLASSIC
SageGlass

COURT

NEW AMSTERDAM COURT HOUSE

SPARKLING FUNCTIONAL BUILDING
WITH HIGH-QUALITY FIRE-RESISTANT
AND SAFETY GLASS

Location	Amsterdam, NL
Architect	KAAN Architecten, Rotterdam, NL
Glass processor	Vetrotech Saint-Gobain
Photos	©Fernando Guerra, Saint-Gobain

Since May 2021, the proceedings of the Amsterdam jurisdiction have taken place in a new building, which combines function and aesthetics in a clearly structured and simultaneously inviting way. Fire resistant and high-security glass from Vetrotech Benelux, complying to the classifications EW30, EI30, EW60 as well as EI60, contribute to the security of this large-scale complex.

With fifty different courtrooms, over one thousand employees, among them two hundred judges, and 140,000 judgements per year, the Amsterdam Court House is by far the biggest of the eleven courts in the Netherlands. Glass plays an important role, being used as fire-resistant and high-security glazing in a multitude of different superstructures.

Openness as a design principle

The sparkling functional building in the Zuidas quarter was designed and built by the NACH (New Amsterdam Court House) consortium on behalf of the Rijksvastgoedbedrijf (RVB). The central hall with its escalators opens along an enclosed garden and a series of courtrooms, creating a sea of space and light.

New solutions for complex challenges

A distinctive feature in the new courthouse is the special combination of fire-resistant and high-security glazing, for which Vetrotech conducted development tests on a project basis.

Approximately 400 m² of fire-resistant glass CONTRAFLAM® and CONTRAFLAM® LITE were used in various combinations and in the classifications EW30, EW60, EI30 and EI 60. In addition, there are more than 200 m² of CONTRAFLAM® LITE EW60 and almost 90 m² of VETROGARD® BULLET.

From complexity to simplicity

A particular challenge was combining the different requirements regarding glass and profile. Together, Vetrotech and Agentor thus developed solutions which were inspected by a recognised authority or verified through a fire test. For example, the requirements of the anti-burglary protection were achieved with a combination of fire-resistant glass EW60 with RC2 and RC3 classifications.

In addition to the fire-resistant glass products, a large number of Saint-Gobain Gypsum solutions were successfully specified for the walls in this project: Habito®, DuraGyp®, Aquaroc® and Gyproc® Stuc.

PRODUCTS

CONTRAFLAM®
CONTRAFLAM® LITE
VETROGARD® BULLET

RESEARCH BUILDING

HILO

CUSTOM-MADE FIRE PROTECTION FOR INNOVATIVE LIGHTWEIGHT CONSTRUCTION

Location	Zürich, CH
Architects	ROK Architekten /ETH Zürich's Block Research Group
Glass processor	Vetrotech Saint-Gobain
Photos	©Roman Keller

The current challenges faced by the construction sector primarily concern how to provide the ever-growing global population with more living and working space. At the same time, the construction industry is responsible for a large proportion of the resource and energy consumption. The HiLo building on the roof of the NEST building of the ETH Zürich in Dübendorf shows that this is not always the case: The lightweight design impresses with its innovative construction and a self-learning building technology. Custom-made, fire-resistant glazing ensures the necessary security.

A delicate, curved concrete roof and self-learning building technology are the distinctive characteristics of the HiLo building unit on the roof of the ETH Zürich's NEST research building in the Swiss Dübendorf. The two-storey building module was planned and built with the latest design and manufacturing methods. HiLo stands for «High Performance –Low Emissions". Vetrotech's fire-resistance glazing CONTRAFLAM® 30 CLIMATOP® - which was custom-made for the curved façade in different geometrics and special forms - ensures the necessary fire protection in the lightweight construction. Furthermore, it provides security and climate comfort through the appropriate construction.

Solar protection and security in an adaptive façade

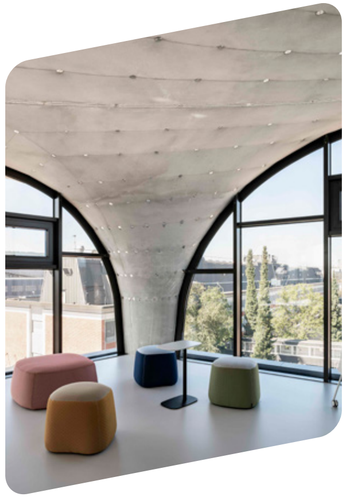
Significant elements of the construction principle in the HiLo unit are, in addition to the conservation of material, the reduction of emissions and energy requirement. This is achieved through a combination of different measures, among which is the use of innovative components of the building technology which efficiently regulate the indoor climate. These include an adaptive solar façade developed especially for the HiLo unit, made from photovoltaic modules. There is also electrochromic glazing by SageGlass which regulates the brightness in the building and serves as solar and heat protection at the same time. The individual glass was directly adapted to the curved roof shape, for which no mechanical solar protection would have been possible. Where fire protection was required due to the proximity to other buildings, fire-resistant glazing in the form of CONTRAFLAM® 30 CLIMATOP® triple glazing by Vetrotech was used.

Self-learning technology for spatial comfort

All of the solutions used in the HiLo building contribute to offering the inhabitants a high degree of comfort with minimal energy consumption. A holistic concept was thus developed so that HiLo functions as an intelligent and adaptive establishment. The modern heating, shading and ventilation systems learn with the aid of operating data, for example from the inhabitants' preferred temperatures, lighting conditions and air quality.

PRODUCTS

CONTRAFLAM® 30 CLIMATOP®
SageGlass



THE TECHNICAL NOTEBOOK

OUR TECHNICAL SUPPORT

We play our part in designing some of the world's most iconic architectural projects, offering a wide range of innovative glazing solutions for façades. Partners such as visionary architects or contractors striving to deliver the ultimate building envelope have helped establish Saint-Gobain Glass as a key glazing supplier to the global construction industry.

Saint-Gobain offers a complete range of energy efficient coated glass, as well as fire resisting and smart glass product range. With solar control, low emissivity, or transparency, our glass meets the requirements of low energy consumption buildings. We answer the needs with an adapted offer in Europe and in the different regions of the world, thanks to innovation and the technology developed by Saint-Gobain Glass, to serve comfort and well-being for sustainable construction.

We also offer tailor-made advisory about glass products and technical solutions. Our local sales and specification team can help in choosing the best solutions for your project, proving advice on static calculations, thermal stress analysis, acoustic or spectrophotometric calculations and daylight analysis or energy simulation.

In complete transparency, to find a suitable glazing for your project, Saint-Gobain Glass also provides several digital resources and tools, helping to determine the optimal glazing based on its performance values, aesthetic, or carbon footprint, and to compare different solutions. On demand, we also offer virtual rendering of coated glass and physico-realistic image of different glazing products on your own building façade.

PRODUCT OFFER
EUROPE

CHECK OUT THE ESSENTIAL EUROPE

COOL-LITE® RANGE

				Selectivity	Insulation	Insulated glazing unit	Monolithic glass	Homogeneity of façade aesthetic	Low carbon glass	Easypro®	Overlength (Up to 18m)	Matching spandrels propositions	Bird-friendly solutions	Versatility	Enameling	Bending
COOL-LITE® XTREME	PREMIUM	EXTREMELY SELECTIVE SOLAR CONTROL GLASS WITH HIGHLY NEUTRAL AESTHETICS	annealed and to-be-tempered versions with comparable performances and aesthetics	****	***	#2		***	ORAÉ	✓ standard	✓	✓	✓			✓
COOL-LITE® SKN	BEST	HIGHLY SELECTIVE SOLAR CONTROL GLASS WITH NEUTRAL AESTHETICS	annealed and to-be-tempered versions with comparable performances and aesthetics	***	***	#2 #3 (SKN 183 II)		***		✓ standard	✓	✓	✓	✓ SKN 183 II		✓
COOL-LITE® K II & KNT	STANDARD	SELECTIVE SOLAR CONTROL GLASS WITH NEUTRAL TO SILVER AESTHETICS	to-be-tempered or one stock products	**	**(*)	#2		***		✓ for KN II						✓
COOL-LITE® ST	FLEXIBILITY	DURABLE SOLAR CONTROL GLASS WITH FULL FLEXIBILITY FOR PROCESSING	temperable products	*	*	#2	#2	***							✓	✓
PLANITHERM® & ECLAZ®	COMPLEMENTARITY	HIGHLY TRANSPARENT LOW-E GLASS WITH NEUTRAL AESTHETICS	annealed and to-be-tempered versions		**(*)	#3 #5 (TGU)		*	ORAÉ	✓ on demand for PLANITHERM® II	✓					✓
				PERFORMANCES AND USAGE					SERVICES AND SPECIALITIES					PROCESSING		

PRODUCT OFFER
EUROPE

KEY PRODUCT FAMILIES

Solar Control Glass - COOL-LITE®
Solar control glass reduce overheating within buildings while letting the daylight in. Offering homogeneous aesthetic for large façade, they also help to reduce heat loss to the exterior.

Low-E glass - PLANITHERM® and ECLAZ®
In complementarity to solar control glass in double or triple glazing, Low-E glass significantly reduce heat loss to the exterior, saving the energy need for internal heating.

Easy maintenance - BIOCLEAN®
BIOCLEAN® reduces the required cleaning frequency of glazing, and also reduces the occurrence of external condensation.

Anti-reflective glass - VISION-LITE®
Anti-reflective glass is a key asset, especially for shop front projects, where reflections on glass must not block the visibility of products.

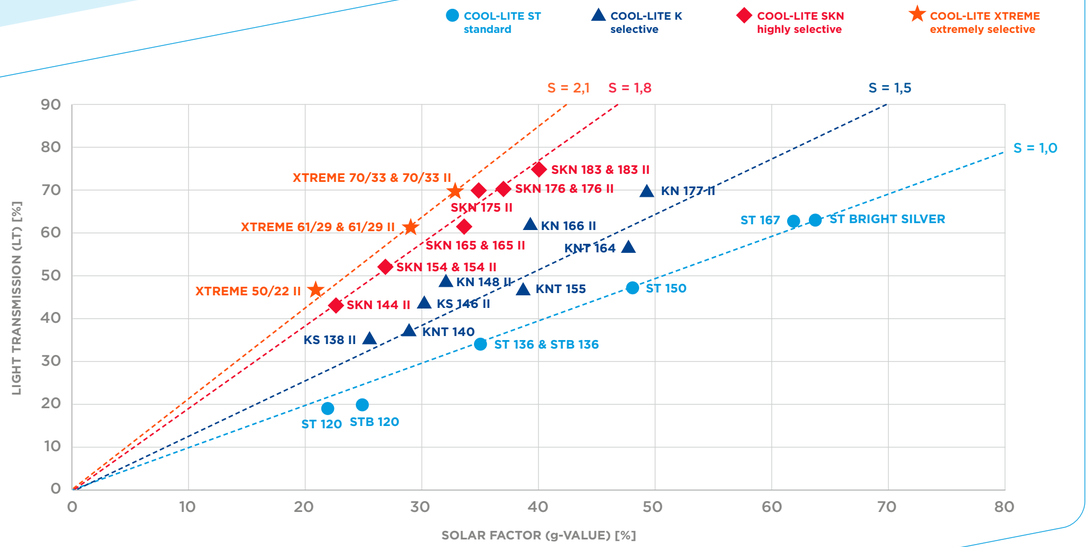
Bird protection - 4BIRD®
Series of products combining COOL-LITE® solar control glass and visible pattern by birds to help protecting wildlife.

Transparency: clear and extra-clear glass - PLANICLEAR® and DIAMANT®
PLANICLEAR® high quality clear glass and DIAMANT® highly transparent extra-clear glass provide extreme transparency and insure more daylight in.

Easy processing - EASYPRO®
Revolutionary and unique temporary surface protection for to-be-tempered coatings.
Developed for the ease of processing, EASYPRO® offers flexibility and productivity and reduces environmental impact.

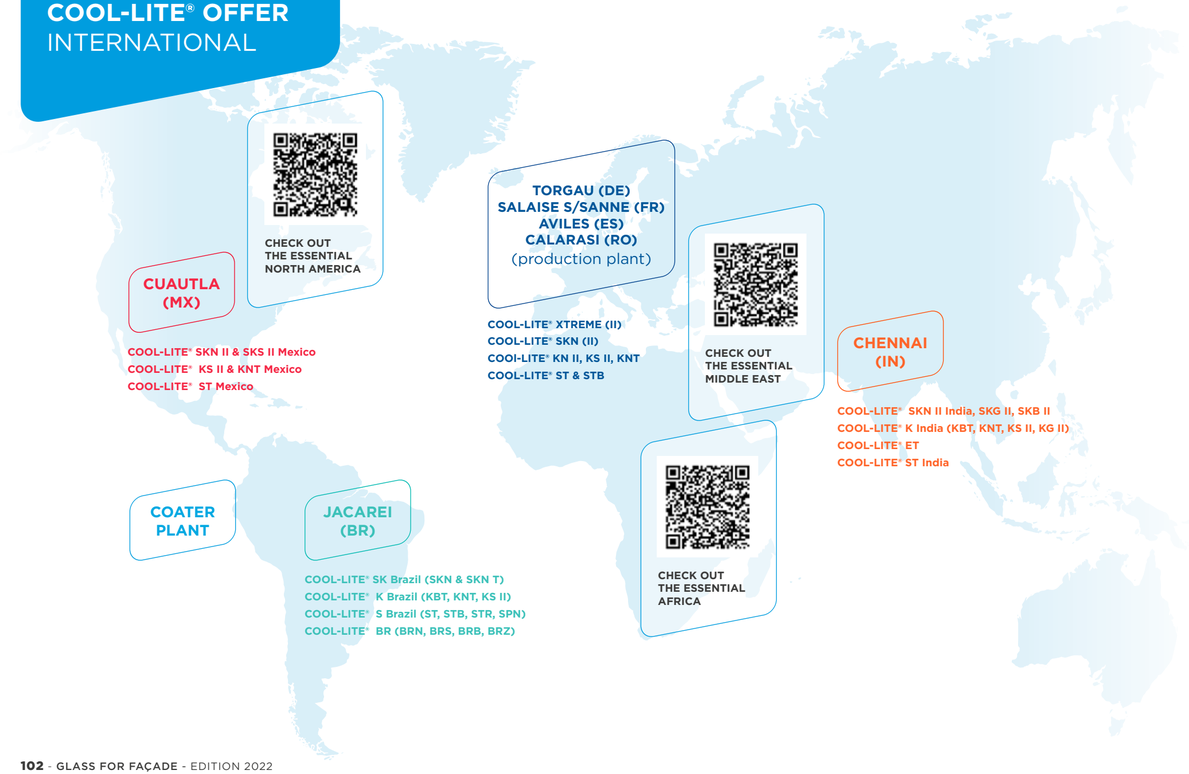
Low Carbon Glass - ORAÉ®
First low carbon glass on the market with exceptionally low carbon footprint, produced by combining high recycled glass content and renewable electricity.

COOL-LITE®
EUROPE



Status 03/2023
All values according to EN 410 for standard configuration 6/16/4mm with COOL-LITE® coating on face #2, all panes PLANICLEAR®

COOL-LITE® OFFER
INTERNATIONAL



SageGlass

SageGlass® SAINT-GOBAIN

SMART TINTABLE GLASS

CHECK OUT SAGEGLASS-HARMONY®

CHECK OUT SAGEGLASS-CLASSIC

HARMONY®™ STATES

FULL TO CLEAR	CLEAR TO FULL	LIGHT TO CLEAR	CLEAR TO LIGHT
1%	60%	18%	60%
60%	1%	60%	18%

SageGlass Harmony® panes can tint on a gradient, giving the perfect balance of daylight and glare control.

UNIFORM STATES (STANDARD STATES)

CLEAR	LIGHT	MEDIUM	FULL TINT
60%	18%	6%	1%

SageGlass Classic offers four distinct tint states, to get just what is needed at the time, no more no less.

CHECK OUT
VETROTECH
SOLUTIONS GUIDE

VETROTECH

vetrotech
SAINT-GOBAIN

Glass solutions for the protection of people and property

Vetrotech Saint-Gobain designs, produces and markets glazed solutions for the safety of people and property: fire protection, attack, bullet and blast resistance. With its own ballistic and fire resistance testing laboratories, Vetrotech assists and responds to the specific resistance requirements of each project, all while innovating with you.
Saint-Gobain Glass glazing solutions provide aesthetics, design and comfort and can be combined with Vetrotech solutions to offer optimum protection for people and property and thus meet the highest architectural demands.

Safety
Fire protection
Alarm
EMS shielding
Radar interference
Spy mirror

Sustainability
Double or triple glazing
Solar control
Self-cleaning

Comfort
Acoustic insulation
Dynamic privacy
Thermal insulation
Anti reflection

Design
Coloring
Digital printing
Screen printing

Vetrotech's mastery of tertiary building environments, acquired over more than 40 years of experience, enables it to provide advice and support for all your projects and developments.
For more information, please do not hesitate to contact us: **vetrotech.com**

Fire-resistant glass

Glass from the following ranges, PYROSWISS, PYROSWISS SBS, VETROFLAM, CONTRAFLAM LITE, CONTRAFLAM LITE STRUCTURE, CONTRAFLAM, CONTRAFLAM MEGA and CONTRAFLAM STRUCTURE, are all types of fire-resistant glass, composed of one or several layers of tempered safety glass. These types of glass, all tested in specific environments and frames, in steel, wood or aluminium, meet the different resistance classes of the EN 357 standard:

E

Class E, integrity, stop flames, smoke and hot gases: PYROSWISS.

EW

EW class, radiation control, keep the level of radiant heat transmission low: VETROFLAM, CONTRAFLAM LITE, CONTRAFLAM LITE STRUCTURE.

EI

Class EI, insulation, compartmentalize fire and block heat transfer: CONTRAFLAM, CONTRAFLAM MEGA and CONTRAFLAM STRUCTURE.

The glass elements have a resistance time of between 30 and 120 minutes.

Markets and applications

Hospitals, schools, hotels, shopping centres, airports, offices or even collective housing, Saint-Gobain's fire-rated glass solutions, in addition to the fire resistance they provide, meet the specific requirements of each of their environments.
For outdoor applications, fire-rated solutions can be mounted in double or triple glazing. Vetrotech Saint-Gobain provides solutions for any kind of applications: partitions, façades, windows, doors, smoke barrier systems, skylights or even floors.

High-security glass

VETROGARD and POLYGARD high-security glass solutions are resistant to attack, bullet or blast, and are all tested in a specific frame and environment.
In addition to meeting regulatory requirements, these glass units are only sold on the basis of official reports: documents issued by an approved laboratory, certifying the successful completion of a resistance test on a glazed element (specific glass, frame and environment). Testing this element ensures the reliability and resistance of the solution.
VETROGARD - Laminated glass solutions composed of 2 or more panes of glass, PVB interlayer(s).
POLYGARD - Laminated glass solutions composed of 2 or more panes of glass and polycarbonate interlayer(s). POLYGARD solutions are less than half as thick as the VETROGARD range but provide the same level of resistance. These solutions are available with or without splinter (S or NS) on the opposite side of the impact and meet the highest levels of resistance defined by European standards (EN).

Attack resistance,
EN 356B security glass standard (P6B to P8B). We also carry out specific developments to meet the EN 1627 standard (resistance classes for construction elements).

Bullet resistance,
EN 1063 security glass standard (BR1 to BR7 + SG1/SG2 specific to shotguns). We also carry out specific developments according to market needs.

Blast resistance,
EN 13541 security glass standard (ER1 to ER4). We also carry out specific developments according to market needs.

Markets and applications

VETROGARD and POLYGARD glass solutions are specifically intended for the ERP [public access building] and HRB markets. Specific needs also exist in the private residential sector.

OUR SERVICES AND TOOLS

CALUMEN® - FIND TODAY YOUR TOMORROW'S GLAZING

Calumen® is a glazing configurator designed for all building professionals, whatever their level of expertise in glass products: architects, designers, engineering offices, consultants, façade makers, window manufacturers, glass processors and general contractors.

- Determine the light, energy, thermal or acoustic performances of your glazing
- Find a suitable glazing for your project based on its required performance values
- Personalize settings such as type of glazing, type of coating, glass and cavity thickness
- Get an illustration of the aesthetic of the façade
- Make comparisons between our products to do the best choice
- Save your glazing configuration for further access at any time
- Calculate the carbon footprint of your glazing*, from raw material extraction to its end of life.

DISCOVER AND TRY OUR NEW CALUMEN®

In February 2023, Saint-Gobain Glass has announced the creation of **Calumen® Suite**, its new suite of digital services, and launched the first online tool in this suite, new Calumen®, replacing the previous CalumenLive service. With its all-in-one design and ease-of-use features, **new Calumen® is the perfect tool for finding the right glass for architectural projects of any size.**

Available for worldwide users in 13 languages, new Calumen® is accessible at https://calumen.com

*Carbon footprint values presented are estimations based on the Life Cycle Analysis of our products. Only complete Environmental Product Declaration can be verified by an external third party.

GLASSPRO - THE VIRTUAL RENDERING OF COATED GLASS

The GLASSPRO app and GLASSPRO Live are unique services of Saint-Gobain Glass, bringing new perspectives on building design and glazing prototyping through digital simulation. Accurate predictive glass façade physico-realistic rendering reduces the need for physical glass mock-ups, which opens the door to a more sustainable approach for prototyping, and accelerates the decision-making process with regards to selecting the ideal glazing with the desired aesthetics corresponding to your design intention.

GLASSPRO APP - THE IPAD APPLICATION

GLASSPRO app is an application for Apple iPad which enables the user to visualize virtually all Saint-Gobain Glass' standard glazing products.

Choose and compare two types of glazing under a variety of lightning conditions and several interior design settings through two different environments.

This app, downloadable on the Apple store, shows an accurate and realistic virtual rendering, based on physical properties of the glass.

GLASSPRO LIVE - THE ON-DEMAND SERVICE

GLASSPRO Live is Saint-Gobain Glass' on-demand service of glass façade rendering. It allows architects to appreciate the look of Saint-Gobain Glass glazing products on their own building, as if it was real, before it's even built!

Ask for your glazing configuration to be represented on high definition "physico-realistic" images under a variety of lightning conditions and even on your own building 3D rendering.

To request the service, please contact your local sales and specifier team.

WEBSITE SAINT-GOBAIN GLASS

Discover our product range to find the ideal glass for your project which responds the best to your expectations.

Find also our services, the apps and calculation tools you need in the website **www.saint-gobain-glass.com**

You may select your area/country to have our local offer and dedicated products.

INSTAGLASS - THE REFERENCE PROJECT WEBSITE FOR GLASS FAÇADES

Come and explore our architectural references showing a wide range of glass solutions, innovations and aesthetic options for the building envelope.

Discover inspirational sustainable design of living spaces and distinctive building that make our environment worth living in

www.saint-gobain-glass.com/instaglass

NEW SUSTAINABILITY WEBSITE - SUSTAINABLE CONSTRUCTION BY SAINT-GOBAIN GLASS

Saint-Gobain Glass cares about building better for people and the planet. We design glass solutions for façades that deliver sustainability, comfort and performance.

Get to know our commitments and ongoing efforts towards implementing a sustainable future of construction through our innovative solutions.

Discover how all Saint-Gobain Glass products and solutions can contribute to achieving credits in green building certifications.

Explore our certifications among different international labels such as LEED, BREEAM, DGNB, HQE or even WELL.

Find all the needed documentation for certification process.

www.saint-gobain-glass.com

CHECK OUT OUR SUSTAINABILITY PAGES

SCAN ME AND DISCOVER ALL OUR PRODUCTS, SERVICES, REFERENCES AND MORE ON WWW. SAINT-GOBAIN-GLASS.COM

SAINT-GOBAIN

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