

StoVentec Glass A

More than just a pretty facade

Facade



Glass is a long-lasting, weather-resistant and recyclable material that can be used in a multitude of ways in facade design.

With its inherent strength and limitless design possibilities, StoVentec Glass panels provide the imagination and practicalities for a unique rainscreen cladding system.

Glass: an impressive finish

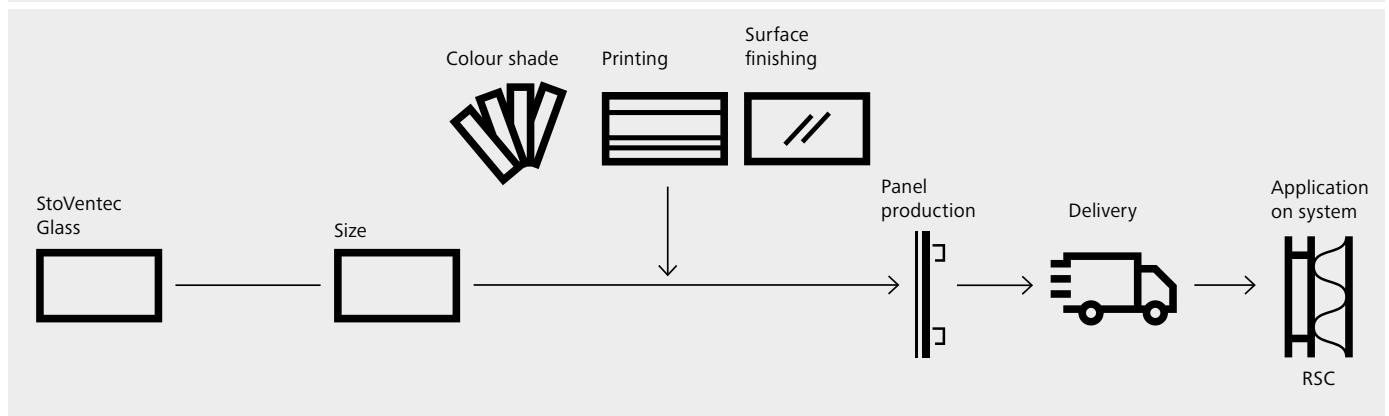
Thanks to its unique properties, glass is one of the most important materials in modern architecture, and Sto offers custom solutions for glass facade design.

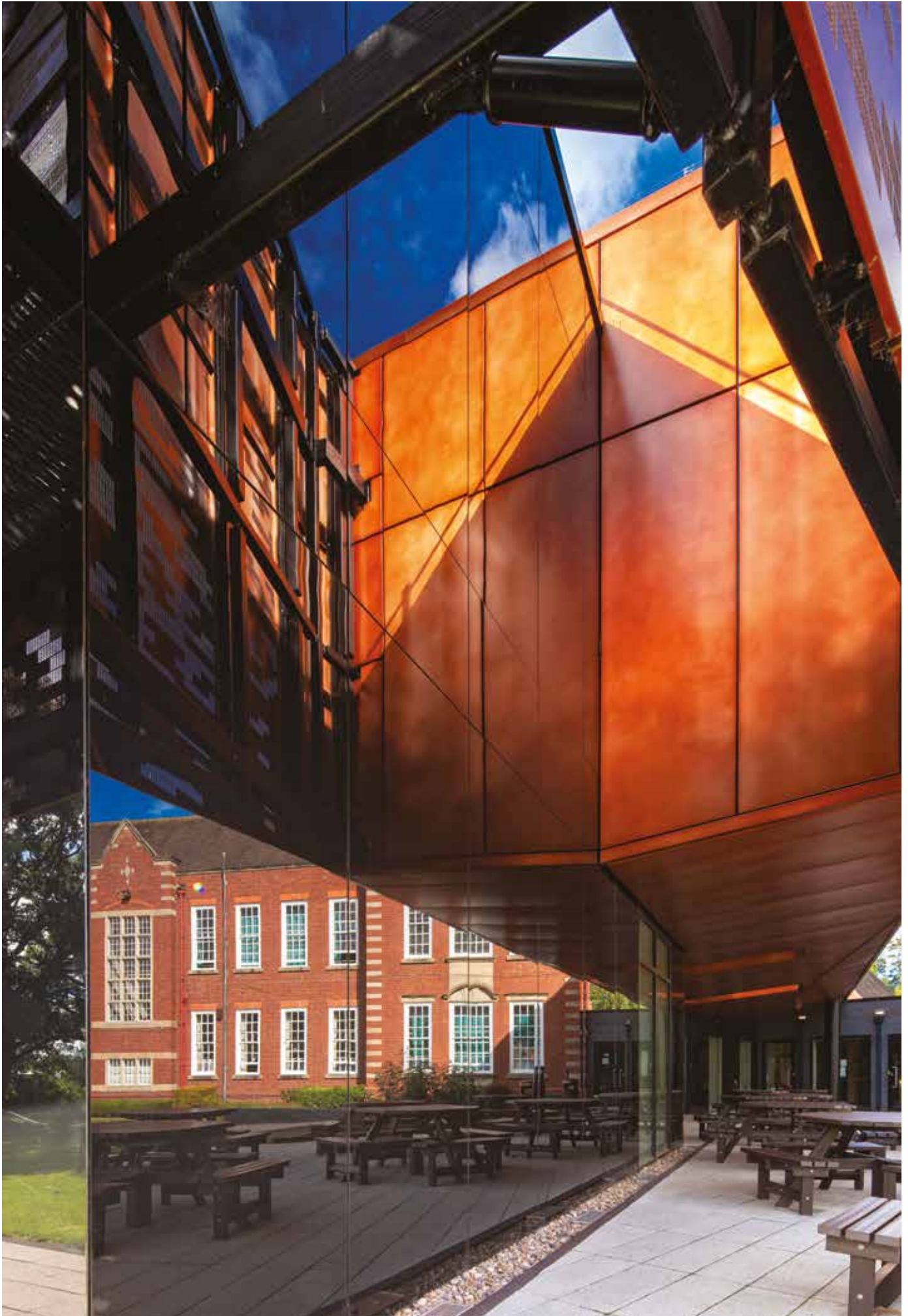
People have been enthralled by glass since ancient times. It's easy to see why: the material is not only attractive, but also weather-resistant, long-lasting, and 100% recyclable. Sourced from quartz sand and other mineral raw materials, glass is a versatile material that can be polished, engraved, etched, printed, or sand-blasted, depending on the effect you're looking for.

StoVentec Glass A enables the creation of open-jointed external facades or internal wall linings with composite glass panels that can vary in size, shape, colour and texture.

**Wolverhampton
Girl's High School,
West Midlands (UK)**
Execution: Craft
Interior, UK
Sto expertise:
StoVentec Glass

Manufacturing and application of glass







StoVentec Glass A

- a polished look

StoVentec Glass A, manufactured bespoke to your requirements for size, shape, colour and finish, offering great aesthetic potential for facade designs, with a reaction to fire classification of A2-s1, d0.

The StoVentec Glass A system consists of a glass faced composite panel, thermal insulation and sub-construction. Tempered safety glass is bonded to a carrier board to produce a composite panel, which helps protect the insulation and substrate from the elements.

A circulating air layer is formed between the hung panel and the mineral wool insulation, fixed directly onto the substrate. Insulation on the outside of the construction keeps the wall warm and reduces the risk of condensation and minimizes temperature fluctuations. On internal surfaces, StoVentec Glass A can be mounted to the load-bearing substrate directly, with no need for insulation.

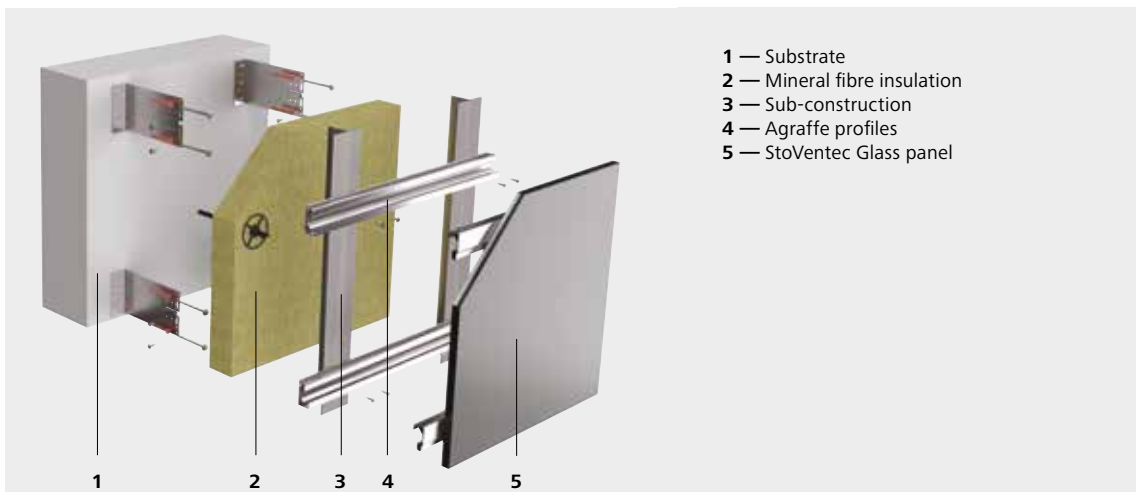
Properties of StoVentec Glass

- For internal and external use, new build or refurbishment
- Huge range of colours, shapes, screen printing and glass surface options
- Tested against impact, smoke emission and bomb blast
- Reaction to fire classified A2-s1, d0 to EN 13501-1
- Bespoke panel formats available in sizes up to 4.5m long
- Technically superior composite construction on an inert, unique backer panel
- BBA accredited

Science and Innovation Centre, Hull, UK
Building Owner: Reckitt Benckiser
Architecture: Ryder
Sto expertise: StoVentec Glass, internal



System detail - external facade system







StoVentec Glass: shapes follow inspiration

Glass is not only a remarkable material in terms of appearance, but also its design flexibility.

StoVentec Glass panels can be supplied in virtually any shape, including curves and arcs. Furthermore, the panels can be cut to allow incorporation of lighting or control panels.

The invisible sub-construction results in an open-jointed grid, with no visible frames, rails or fixings.

Part of our manufacturing process includes the fusing of colours on to the back of the glass, before the toughening process. The colour is baked into the rear face providing permanent coloured glass panels that will not wear, scratch, fade or incur water damage. Sto can also match to almost any colour.

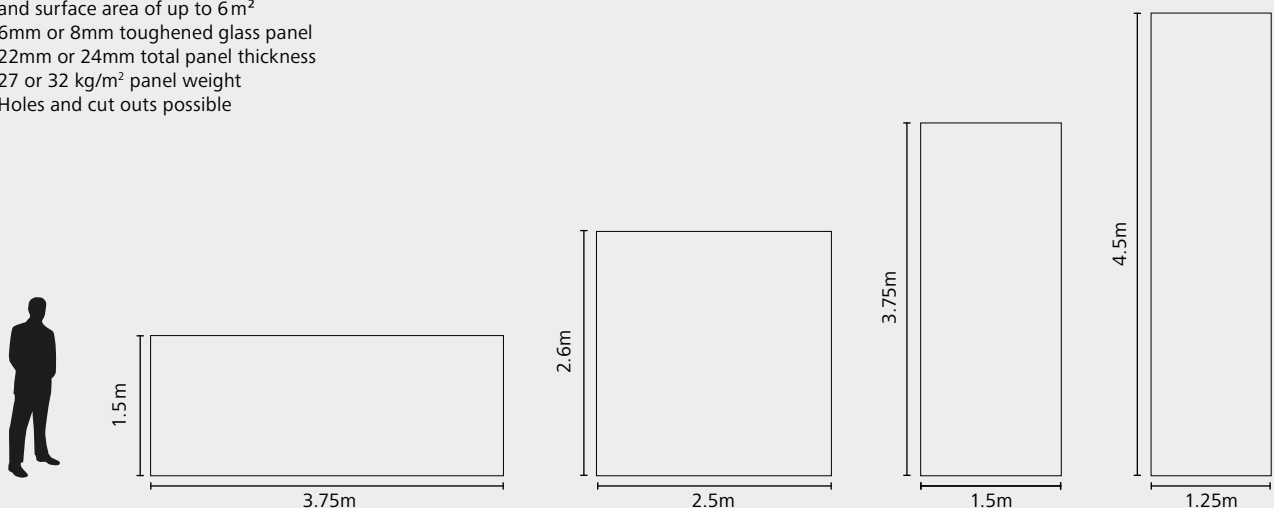
Screen printing offers additional design possibilities - patterns, illustrations, photographs or corporate logos - these are applied to the rear side of the glass panels, expanding the scope for individuality.

Choose single-colour, multi-colour or metallics for your bespoke design, with a gloss, reflective or matt finish. Textured glass is also available, adding a three-dimensional element to the surface.

With StoVentec Glass, the joints are open, making them an important element of the overall design. This allows the creation of regular or irregular grids and coordination with window and door openings.

Panel sizing

- Rectangular panel sizes up to 1250 x 4500mm; 1500 x 3750mm or 2200 x 2600mm and surface area of up to 6m²
- 6mm or 8mm toughened glass panel
- 22mm or 24mm total panel thickness
- 27 or 32 kg/m² panel weight
- Holes and cut outs possible





Above: Residence Unik residential complex – Zac Seguin, Paris, FR

Building owner: Nexity, Paris, FR

Planning: BECKMANN N'THEPE ARCHITECTS, Paris, FR

Sto expertise: StoVentec Glass, StoVentec R, StoTherm Classic®

Photo: Manuel Panaget, FR

Left: Manchester Airport Terminal 2 extension, UK

Building owner: Manchester Airports Group Plc (MAG)

Execution: MICAM Ltd, IE

Sto expertise: StoVentec Glass





StoVentec Glass: tried and tested

The most intensively tested glass rainscreen system in the UK - StoVentec Glass A is fully tested for reaction to fire, wind load, impact, blast and durability.

Rigorous testing under extreme conditions has resulted in BBA accreditation, conformity with relevant NHBC standards, reaction to fire classification in line with current national Building Regulations requirements, and a minimum expected life of 30 years. With every component designed and tested by Sto from the sub-construction through to the panel itself, everything works together perfectly and enables us to provide a single warranty on the entire system.

The composite glass panels will not fail as a result of thermal shock that can occur with sudden changes in temperature. In the event a panel is broken from physical impact, the composite construction ensures the shattered fragments of toughened glass remain bonded to the backing board, avoiding risk from flying debris. Such properties are critical in areas of public access.

Impact and Blast Testing

StoVentec Glass is suitable for specification within high traffic areas. The system has passed all industry standard soft-body and hard-body impact tests to CWCT standards.

The system has also passed stringent bomb blast tests, demonstrating its suitability for use in public safety zones, commonly found within airports, train stations and large capacity venues. Compliance with ASIAD 2017 (Aviation Security in Airport Development), SIDOS 2018 (Security in the Design of Stations) and CPNI (Centre for the Protection of National Infrastructure) means the product is often found in railway stations, airports and stadiums, and specified by consultants working for clients such as rail operators and airport authorities. StoVentec Glass A proves to be the safest and most robust rainscreen cladding system available.



StoVentec Glass panels remain intact with little or no spalling after impact and blast.



Above: Manchester Airport Terminal 2 extension, UK
 Building owner: Manchester Airports Group Plc (MAG)
 Execution: MICAM Ltd, IE
 Sto expertise: StoVentec Glass
Left: Reading Railway Station, UK
 Architect: Grimshaw Architects
 Sto expertise: StoVentec Glass

Because functionality and energy efficiency are part of the system

Our innovative StoVentro sub-construction has a material combination of stainless steel and aluminium to provide a strong and durable system.

The sub-construction is designed bespoke to your project, and is a combination of stainless steel wall brackets, aluminium T-profiles and horizontal rails. Stainless steel brackets have an extremely low thermal conductivity and do not require thermal breaks to avoid cold bridges. They far outperform aluminium brackets, even when a thermostop is included, so less insulation can be used to achieve the same u-value. The inherent high strength of StoVentro brackets means that fewer brackets are usually required and the stainless steel grade is also suitable for use in marine environments.

In addition, Sto can offer an independently approved and tested sub-construction to Passivhaus standards, as well as tailored advice on the sub-construction design, joint detailing and penetrations.

In exterior applications, the substrate typically has the insulation applied on the air barrier. This keeps the inner leaf at a similar temperature to the internal air and minimises the risk of condensation forming or temperature fluctuations. The outer glass panel, which also prevents the majority of rain wetting the insulation surface, forms a ventilated cavity to its rear face, ensuring any moisture from the interior is quickly dispersed.

- Can be mounted onto virtually all substrates; as a soffit or vertically
- Adjustable for levelling uneven substrates
- Lightweight, yet extremely strong and durable
- Wall brackets with excellent thermal properties
 - minimal cold bridging, resulting in a reduction of insulation thickness

Reduce insulation thicknesses with StoVentro stainless steel brackets



To achieve total thermal conductivity of $0.24 \text{ W/m}^2\text{K}$.
Assumes 25 cm concrete substrate with $\lambda = 2.5 \text{ W/m}^2\text{K}$,
insulation $\lambda = 0.035 \text{ W/m}^2\text{K}$ and 2.5 brackets per m^2 .

Insulation thicknesses can be almost halved with the use of the StoVentro sub-construction.



The components

1 Anchorage elements

- Frame anchors or screws to secure the wall bracket to the substrate
- Selection and design in accordance with structural requirements
- Range of screws and anchors available to match the substrate type (concrete, solid brick, lightweight concrete, sheathing board, etc.)

2 Wall brackets

- Fixed and sliding point wall brackets
- In stainless steel
- Anchored to the substrate
- Possible to level unevenness of the substrate thanks to large range of sizes
- Integrated retaining clip for easy installation of carrier profiles

3 Carrier/agraffe profiles

- Vertical or horizontal carrier profiles (T or L-profiles or agraffe profiles)
- Made of aluminium
- Fixed to the wall bracket to hold the cladding

4 Connecting and fixing elements

- Self-tapping screws for connecting sub-construction components
- For fixing facade panels and carrier boards to the carrier profiles
- Made of stainless steel



For the love of building. Building with conscience.

What drives us – and you – forwards? We work together with you, driven by our love of building, to achieve the sustainable design of living space tailored to human needs. Worldwide.

For us as leading specialists in facades, external wall insulation systems and interiors, this means developing responsible innovations and solutions for the future. As your reliable partner, we produce proven, innovative, and durable products and systems for use in creating and shaping building elements and surfaces in exteriors and interiors. So you can always be confident of delivering a perfect result while also remaining practical, efficient, and cost-effective.

Sustainability

Building with Sto means acting sustainably. With our products, you are contributing towards a sustainable future. Glass facades are extremely hard-wearing and weather-resistant and the carrier boards for the panels are manufactured using perlite and a small amount of epoxy binder.

Functionality

Building with Sto means being in good hands – with outstanding, reliable products and solutions that meet today's requirements and tomorrow's.

Aesthetic appeal

Building with Sto means realising attractive, personalised solutions. Our solutions are of high quality as well as of high aesthetic appeal.

Service

Building with Sto means being able to rely on perfect service from experts. As your reliable partner, we will provide you with dedicated support from the initial planning phase right through to the final result.



Right: Poolhaus, AT
Planning: architekt dipl.
ing. reinhard muxel, AT
Execution:
Heidenbauer Aluminium
GmbH, Bruck an der Mur,
AT
Sto expertise: StoVentec
Glass, reflective glass
Photo: Sto Ges.m.b.H./Christian
Schellander





Construction d'un bâtiment HQE à l'institut la Persagotière, Nantes, FR

Building owner: Institut La Persagotière,
Nantes, FR

Planning: Forma 6, Nantes, FR

Execution: Engie Axima (formerly Cofely Axima)

Nicolas Terrien, conducteur de Tx, FR

Sto expertise: StoVentec Glass

Photo: Photographe à La Baule / Nantes-Hadrien Brunner,
Loire-Atlantique, FR





**Sogn og Fjordane Museum of Fine Art,
Forde, NO**

Design: C.F. Møller AS, Oslo, NO

Execution: Asen & Ovrelid AS, Forde, NO

Sto expertise: StoVentec Glass

Photo: Jiri Havran, NO

Headquarters

Sto Ltd

Unit 700, Catesby Park
Kings Norton
Birmingham
B38 8SE

Phone +44 (0)330 024 2666
info.uk@sto.com
www.sto.co.uk

Sto Ltd

E7 Riverview Business Park
Nangor Road
Clondalkin
Dublin 22
D12 AD93

Phone +353 (0)1460 2305
info.ie@sto.com
www.sto.ie