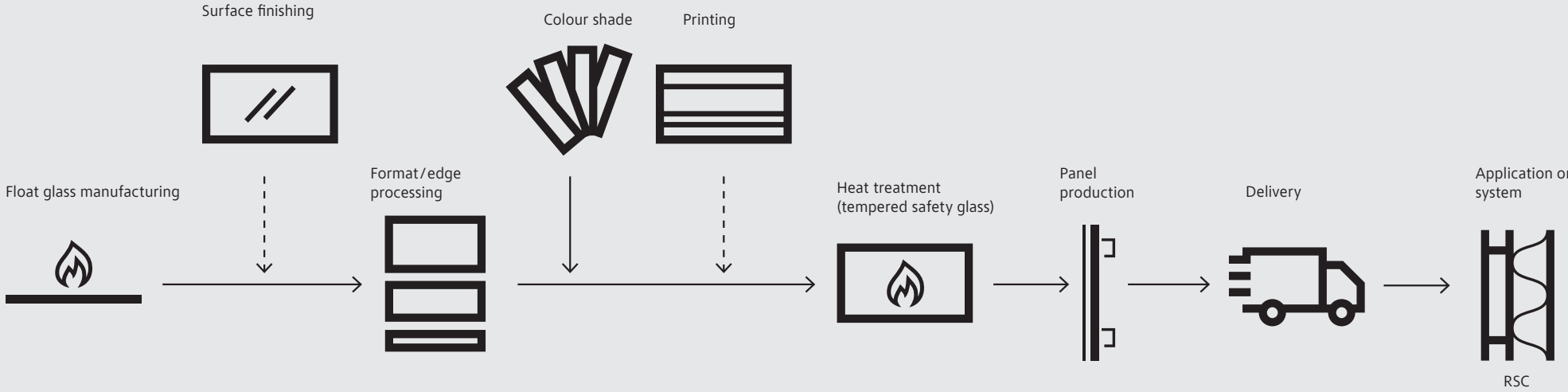
Building with conscience.

StoVentec Glass Manual

Legal notes:
It should be noted that the details, illustrations, general technical information, and drawings contained in this brochure are only general proposals and details which describe the functions. They are not dimensionally accurate. The applicator/customer is independently responsible for determining their suitability and completeness for the construction project in question. Neighbouring works are only described schematically. All specifications and information must be adjusted or agreed in the light of local conditions and do not constitute work, detail or installation plans. The technical specifications and product information included in the Technical Data Sheets and system descriptions/approvals must be observed.

Contents

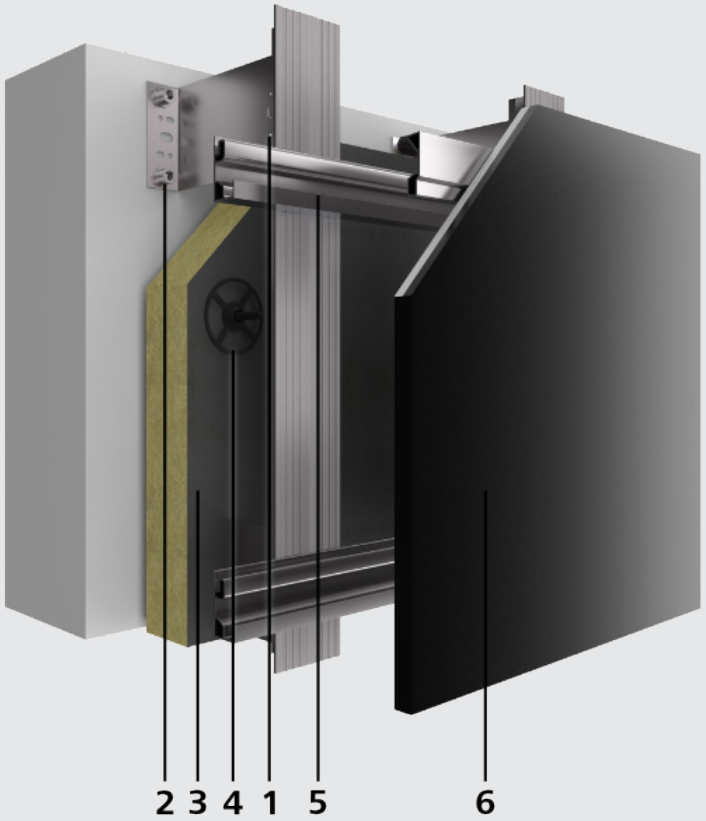
Manufacturing and application



The StoVentec Glass system

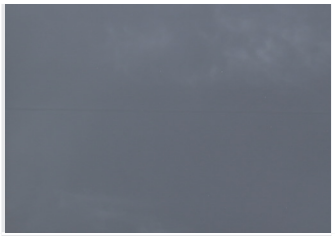
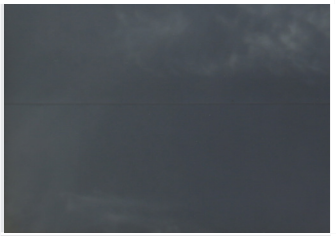
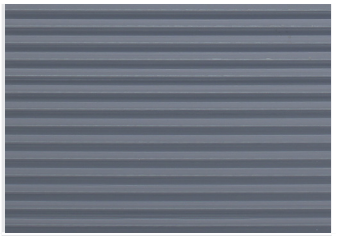
StoVentec Glass
Rainscreen cladding facade with accentuated joints and glass

System advantages:
- Exclusive glass panel system with non-visible fixing
- For constructing panel facades with accentuated joints
- High-quality glass surfaces (matt, gloss, mirrored)
- Individual formats possible
- Variety of colour shades and optional printing
- Low maintenance costs in terms of cleaning
- Fast installation possible in all weathers due to prefabrication at the factory and installation on agraffe profiles



1 — Sub-construction
2 — Wall bracket (anchored in a load-bearing substrate)
3 — Insulation (stone wool with nonwoven fabric backing)
4 — Fixing
5 — Glass panels

Range overview

	StoVentec Glass gloss	StoVentec Glass matt	StoVentec Glass blue-mirrored	StoVentec Glass amber-mirrored	StoVentec Glass structured
Detail view (viewing distance approx. 0.5 m)					
Surface/gloss level	Smooth/gloss	Slightly rough/matt	Smooth/blue-mirrored	Smooth/amber-mirrored	Structured/gloss (further textures on request)
Maximum formats	2500 x 2600 mm (6.5 m²) 1500 x 3750 mm (5.6 m²) 1250 x 4500 mm (5.6 m²) 3750 x 1500 mm (5.6 m²) Further formats on request				on request
Glass thickness	6 mm; 8 mm				6 mm; 8 mm (depending on the texture selected)
Float glass (greenish)	Available (ESG-H tempered safety glass EN 14179/alternatively, ESG tempered safety glass EN 12150)				on request (depending on the texture selected)
Low-iron glass	Available (ESG-H tempered safety glass EN 14179/alternatively, ESG tempered safety glass EN 12150)		–	–	on request (depending on the texture selected)
Colouring	RAL colour shades/further colour shades on request (vitreous enamel coating applied to the rear side)				
Printing	Screen printing/digital printing	on request (depending on the project and desired appearance)			

StoVentec Glass gloss

Surface / gloss level
Smooth / gloss

Edges
Finely ground and bevelled glass edge with a matt appearance

Glass type
Float glass available
(ESG-H tempered safety glass EN 14179 / alternatively, ESG tempered safety glass EN 12150)
Low-iron glass available
(ESG-H tempered safety glass EN 14179 / alternatively, ESG tempered safety glass EN 12150)

Colouring
RAL colour shades / further colour shades on request
(vitreous enamel coating applied to the rear side)

Printing
Screen printing / digital printing

Colour shades

Panel formats

Colour shade top left RAL 9005; top right RAL 6034; bottom left RAL 7040; bottom right RAL 9016

StoVentec Glass matt

Surface / gloss level
Slightly rough / matt

Edges
Finely ground and bevelled glass edge with a matt appearance

Glass type
Float glass available
(ESG-H tempered safety glass EN 14179 / alternatively, ESG tempered safety glass EN 12150)
Low-iron glass available
(ESG-H tempered safety glass EN 14179 / alternatively, ESG tempered safety glass EN 12150)

Colouring
RAL colour shades / further colour shades on request
(vitreous enamel coating applied to the rear side)

Printing
on request
(depending on the project and desired appearance)

Colour shades

Panel formats

Colour shade top left RAL 9005; top right RAL 6034; bottom left RAL 7040; bottom right RAL 9016

StoVentec Glass blue-mirrored

Surface / gloss level
Smooth / blue-mirrored

Edges
Finely ground and bevelled glass edge with a matt appearance

Glass type
Float glass available
(ESG-H tempered safety glass EN 14179 / alternatively, ESG tempered safety glass EN 12150)

Colouring
RAL colour shades / further colour shades on request (vitreous enamel coating applied to the rear side)

Printing
on request
(depending on the project and desired appearance)

Colour shade top left RAL 9005; top right RAL 6034; bottom left RAL 7040; bottom right RAL 9016

Colour shades

Panel formats

StoVentec Glass amber-mirrored

Surface / gloss level
Smooth / amber-mirrored

Edges
Finely ground and bevelled glass edge with a matt appearance

Glass type
Float glass available
(ESG-H tempered safety glass EN 14179 / alternatively, ESG tempered safety glass EN 12150)

Colouring
RAL colour shades / further colour shades on request (vitreous enamel coating applied to the rear side)

Printing
on request
(depending on the project and desired appearance)

Colour shade top left RAL 9005; top right RAL 6034; bottom left RAL 7040; bottom right RAL 9016

Colour shades

Panel formats

StoVentec Glass structured

Surface / gloss level
Structured / gloss
(further textures on request)

Edges
(depending on the texture selected)

Glass type
Float glass available
(ESG-H tempered safety glass EN 14179 / alternatively, ESG tempered safety glass EN 12150)
Low-iron glass on request (depending on the texture selected)

Colouring
RAL colour shades / further colour shades on request (vitreous enamel coating applied to the rear side)

Printing
on request
(depending on the project and desired appearance)

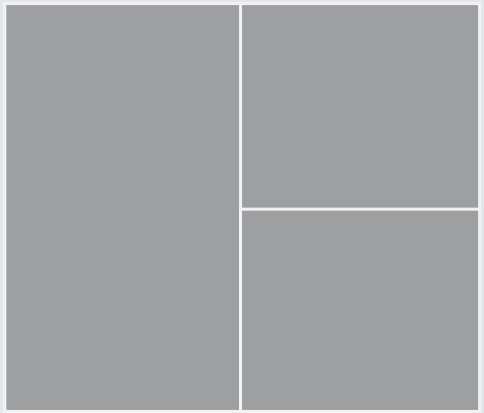
Colour shades

Panel formats

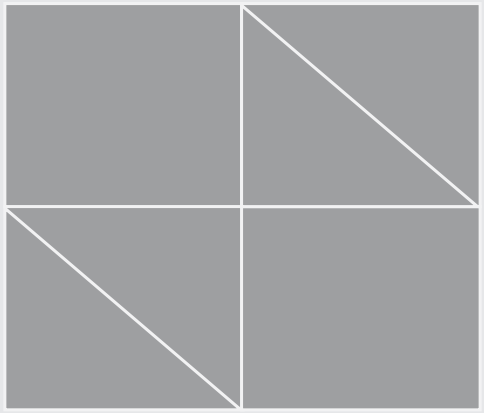
Colour shade top left RAL 9005; top right RAL 6034; bottom left RAL 7040; bottom right RAL 9016

Format overview

Minimum and maximum formats



Modular formats



Multi-pane panels

Special formats

Minimum and maximum formats

Maximum format (vertical)
1) 1250 x 4500 mm
2) 1500 x 3750 mm
3) 2500 x 2600 mm

Maximum format (horizontal)
4) 3750 x 1500 mm

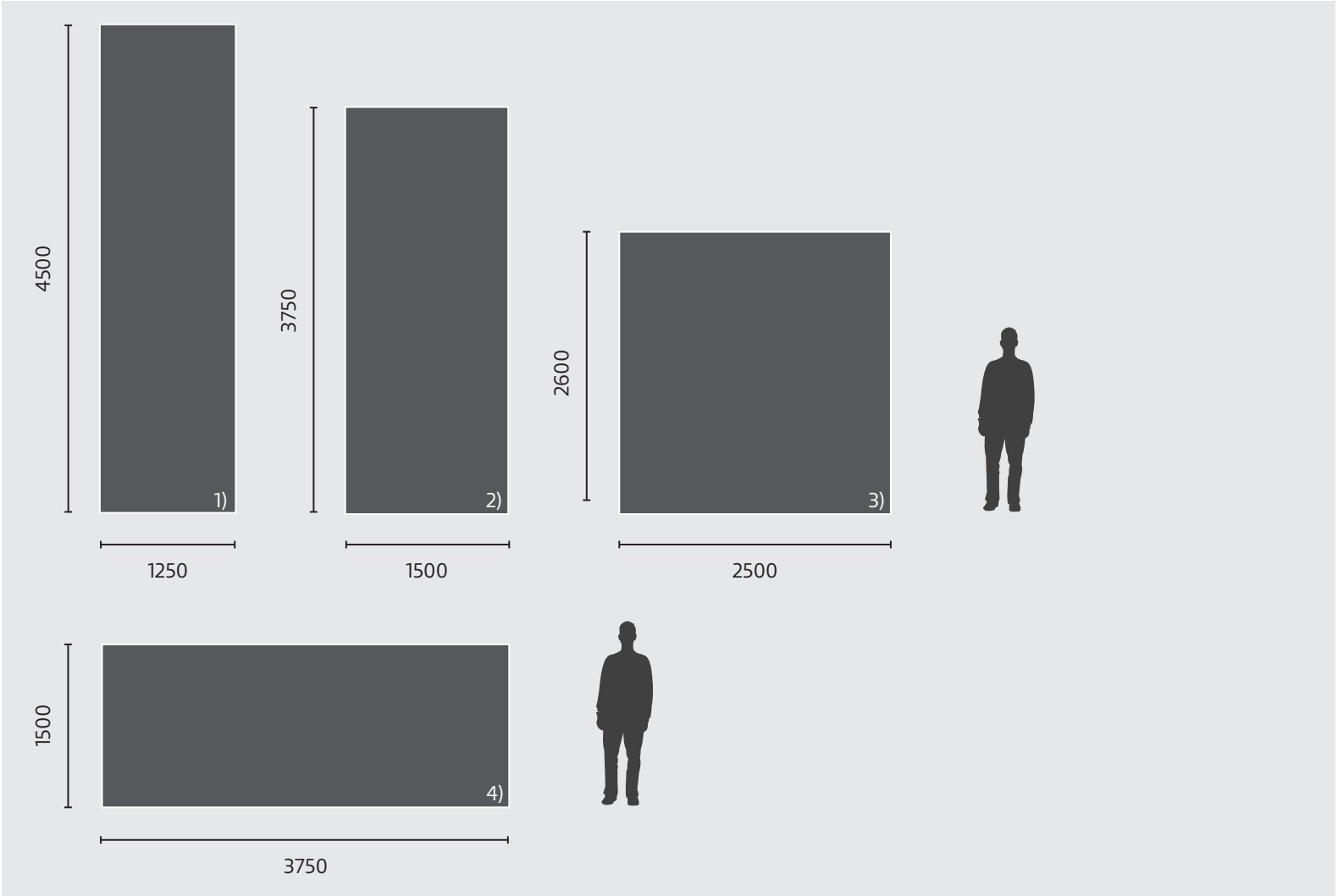
Minimum format (vertical / horizontal)
100 x 250 mm

Glass thickness
6 mm; 8 mm

Panel thickness (6 / 8 mm glass)
StoVentec Glass: 30 / 32 mm (– 2 / 0 mm)
StoVentec Glass A: 23 / 25 mm (±1 mm)

Panel weight (6 / 8 mm glass)
StoVentec Glass: ~ 30 / 35 kg / m²
StoVentec Glass A: ~ 27 / 32 kg / m²

Joint (distance from panel to panel)
5 – 12 mm



Example of modular formats

Multi-pane panels

Special formats

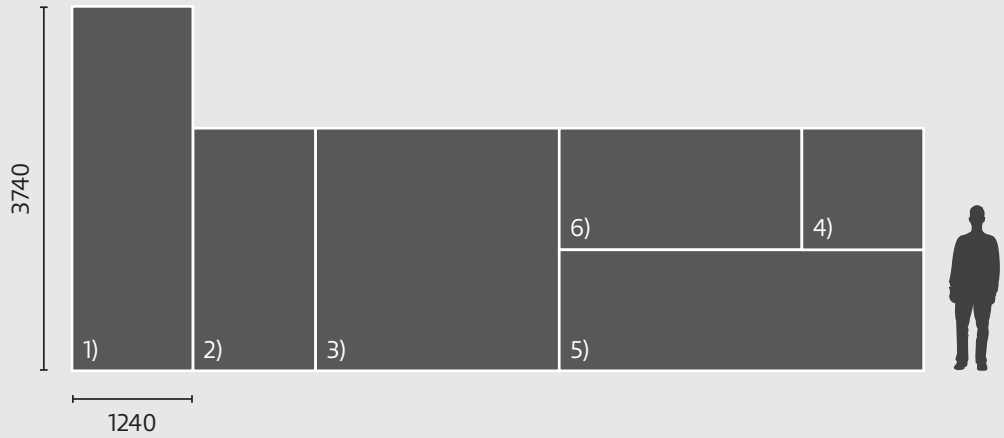
Modular formats

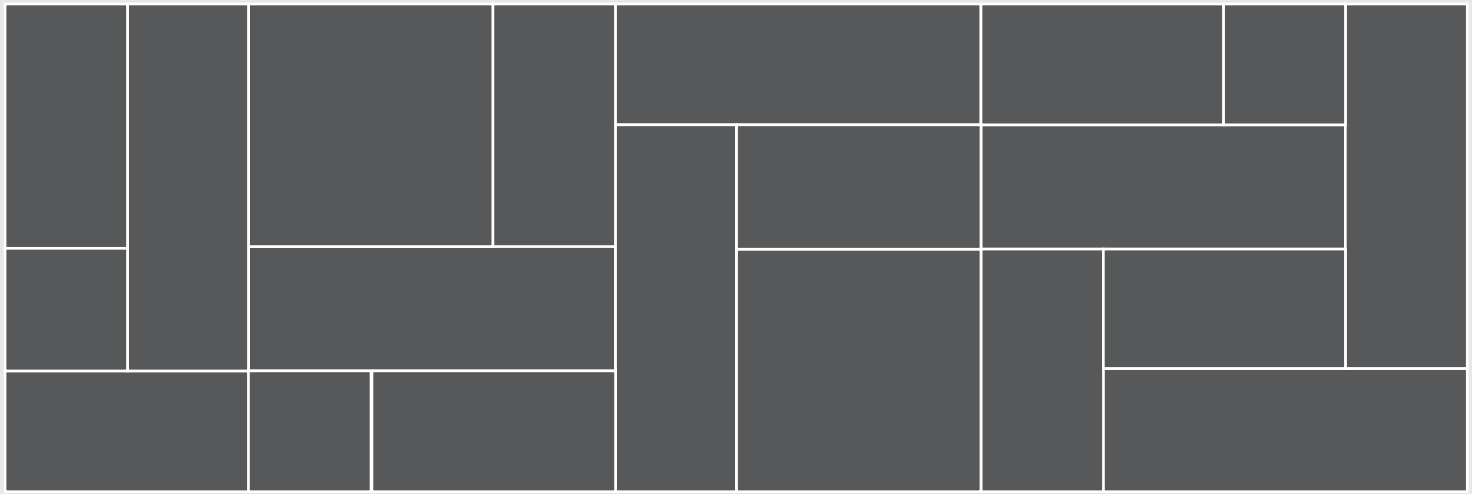
Formats can be freely defined within the framework of the maximum formats. Shown here in a 125 mm grid and with a 10 mm joint from panel to panel.

Vertical
1) 1240 x 3740 mm
2) 1240 x 2490 mm
3) 2490 x 2490 mm
4) 1240 x 1240 mm

Horizontal
5) 3740 x 1240 mm
6) 2490 x 1240 mm

Joint (distance from panel to panel)
10 mm





Application example

Maximum formats

Multi-pane panels

Special formats

Multi-pane panels

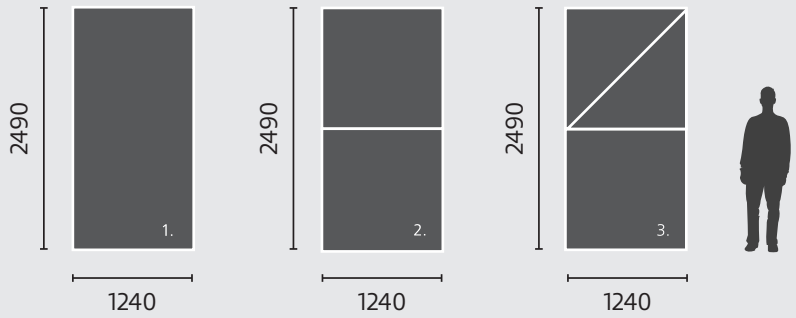
Various glass panes can be combined on one panel up to a maximum format of 2600 x 1250 mm (horizontal) or 1250 x 2600 mm (vertical).

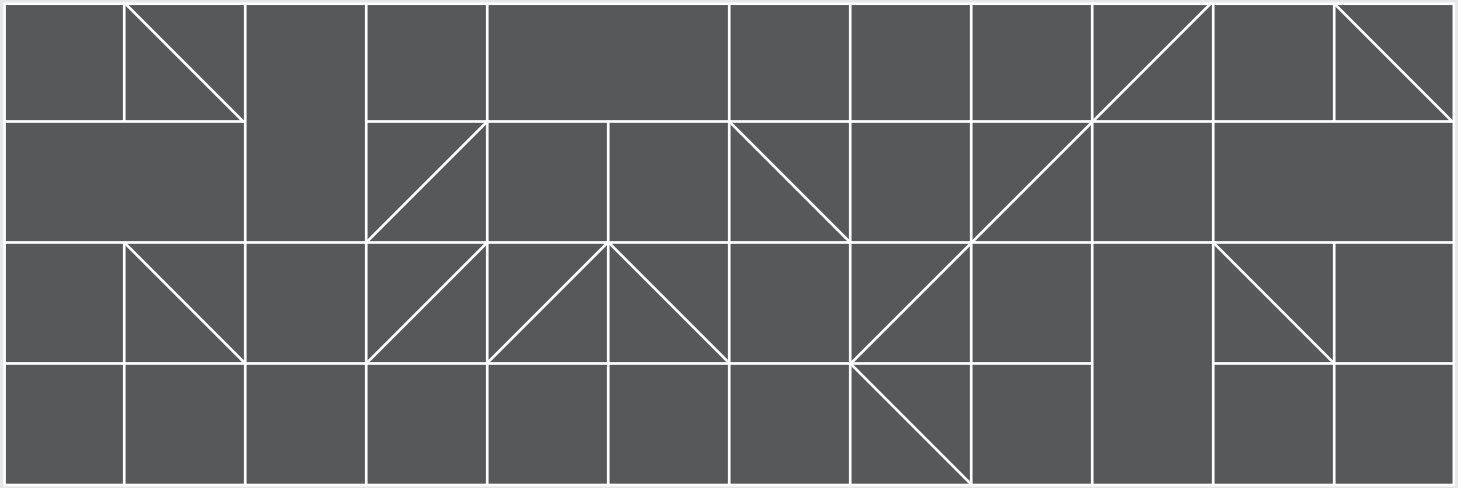
The joint between the applied glass panes is grouted at the factory (6 – 18 mm), colour shades on request.

1) Panel with one glass geometry
2) Panel with two smaller glass geometries
3) Panel with three smaller glass geometries

Glass thickness
6 mm; 8 mm

Joint (distance from panel to panel)
10 mm





Application example

Maximum formats

Example of modular formats

Special formats

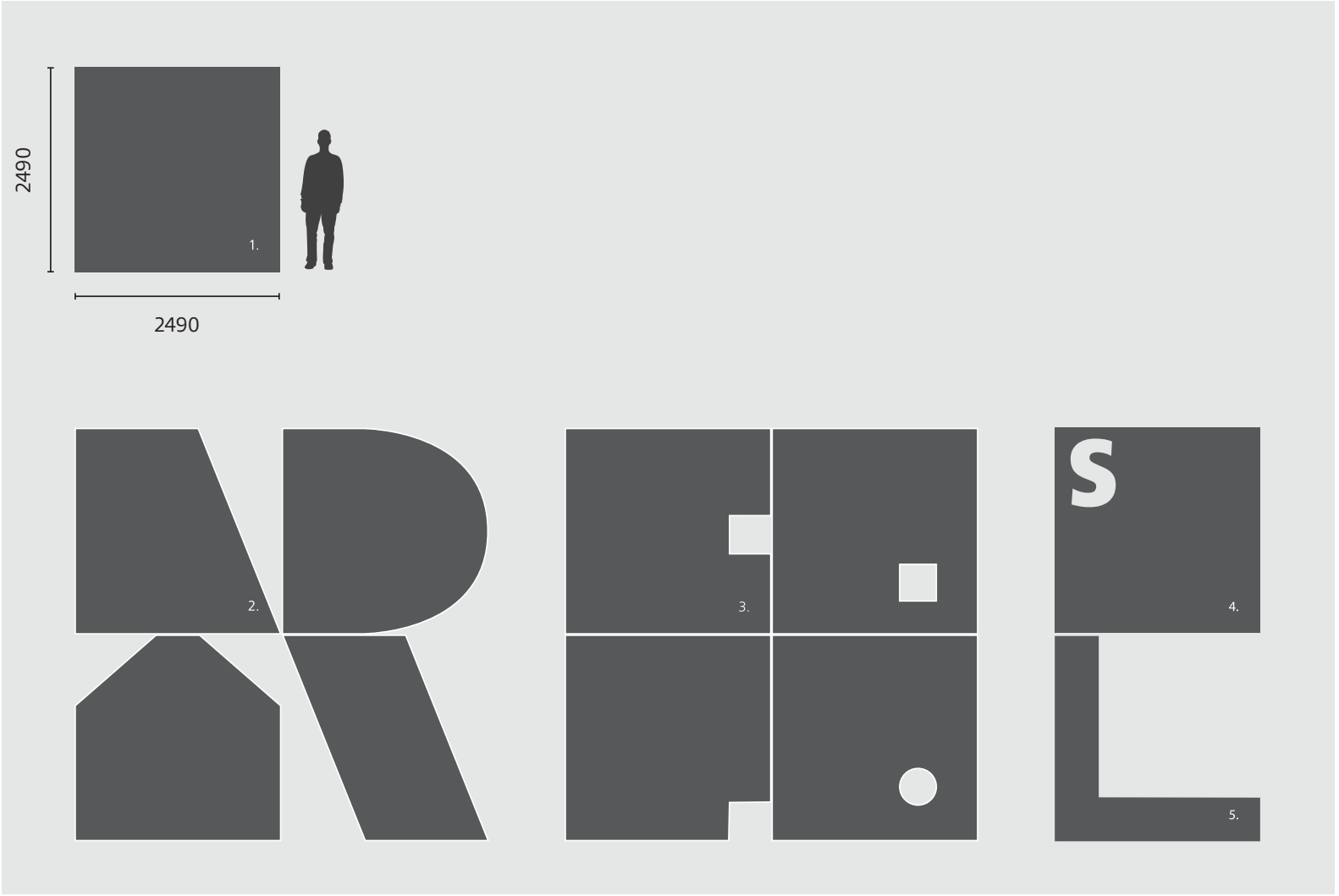
Special formats

Special formats can be used with model panes to integrate building elements such as windows, doors, protrusions, and building services or to implement targeted backlighting, for example.

Special formats must be requested on a project-specific basis; such requests will be checked by Sto.

1) Maximum format 2490 x 2490 mm
2) Example of 4 panels with one or more cut edges
3) Example of 4 panels with notches
4) Example of panel notch covered with glass (e.g. for backlighting)
5) Example of L shape

Glass thickness
6 mm; 8 mm



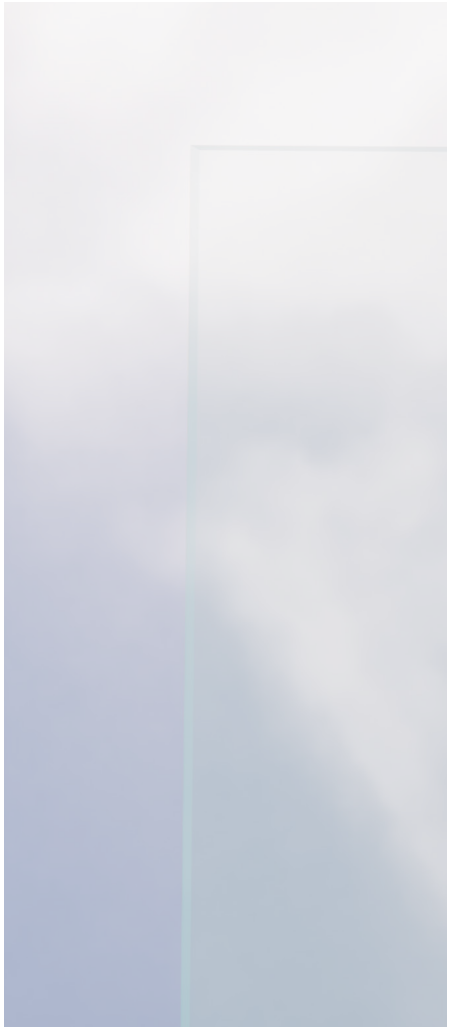
Application example

Maximum formats

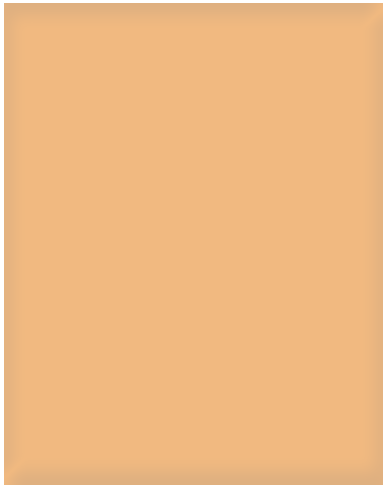
Example of modular formats

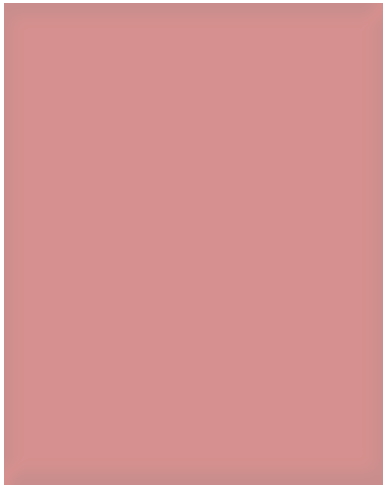
Multi-pane panels

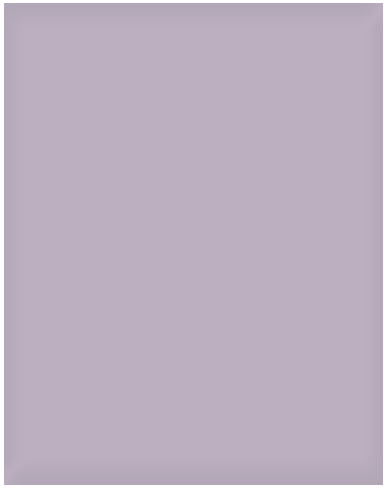
Colour shade overview

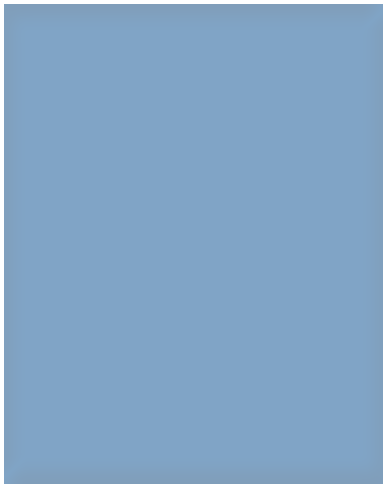

Float versus low-iron glass

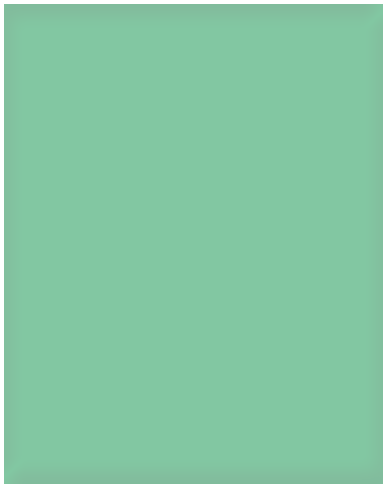
Shades of yellow

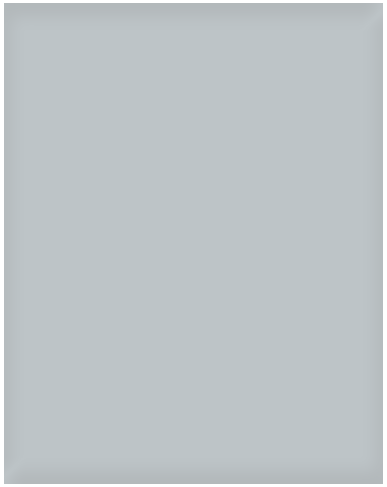

Shades of orange

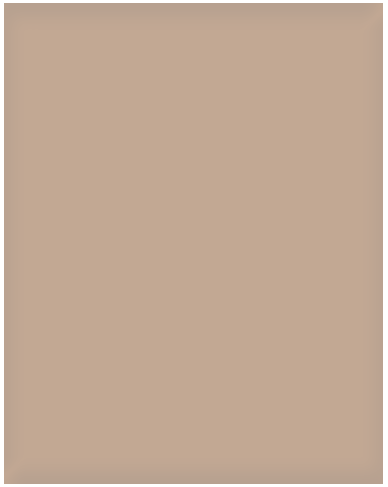

Shades of red


Shades of purple


Shades of blue


Shades of green


Shades of grey

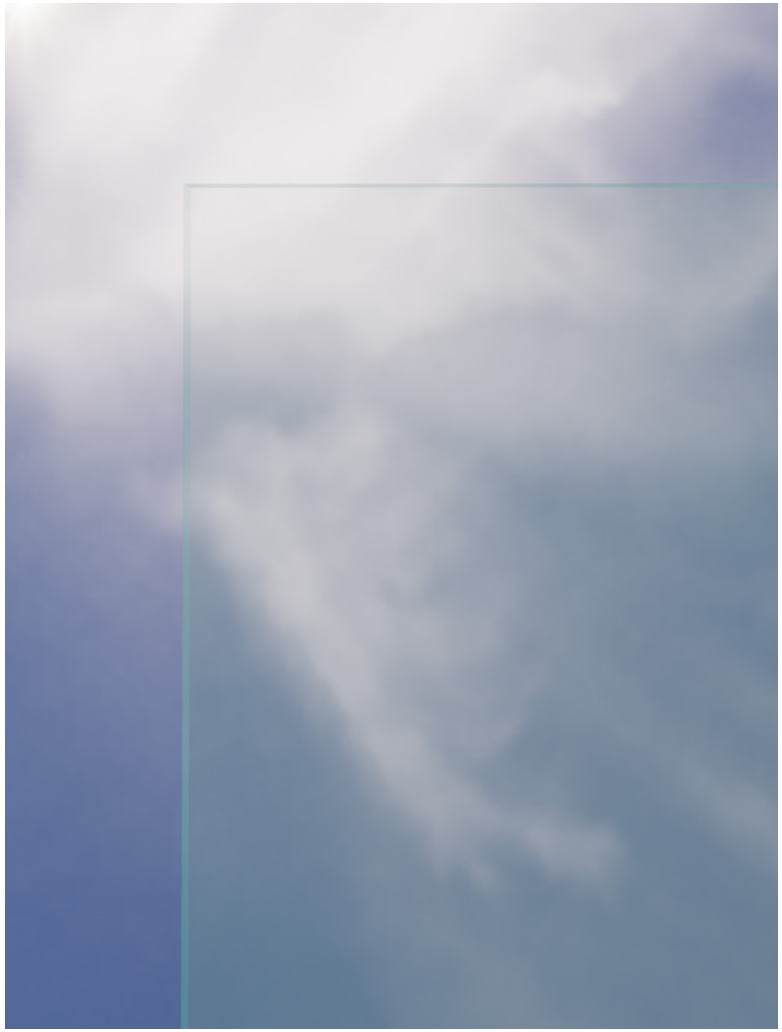

Shades of brown / white / black

Float versus low-iron glass

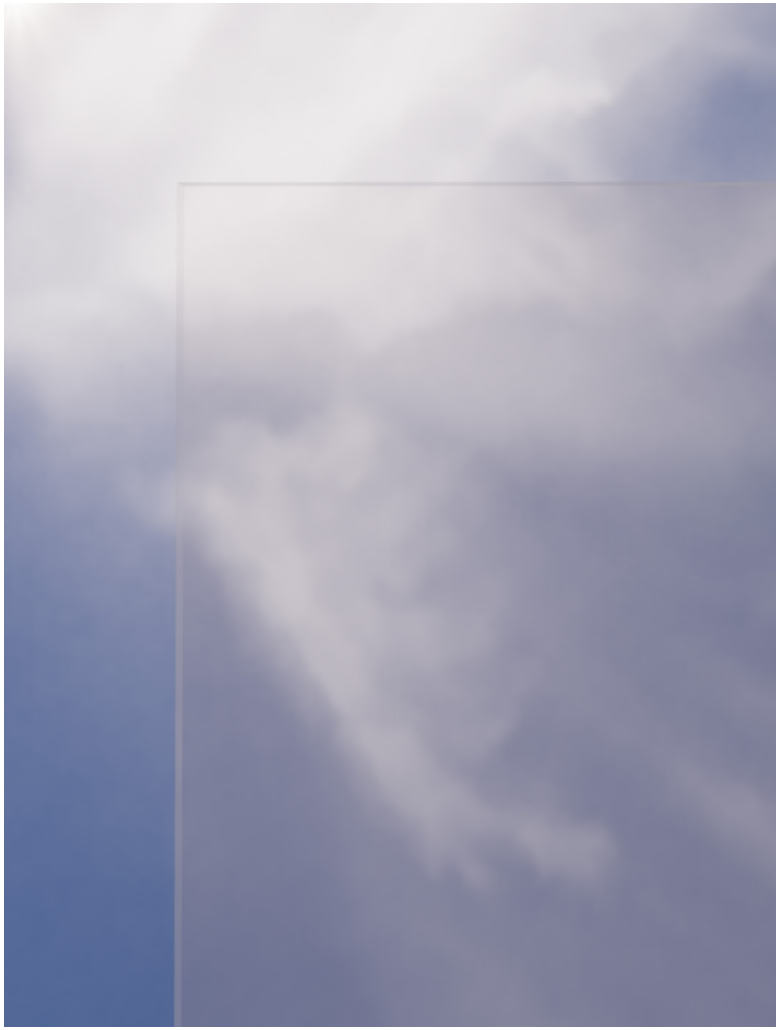
Float glass
The familiar float glass (standard glass) that is often installed in windows has a “greenish cast” along the edge of the glass.

Low-iron glass
Low-iron glass has a lower iron oxide content, which reduces the greenish cast in the glass.

Colouring
The final colour effect depends on the type of glass that is selected and the vitreous enamel coating that is baked into the rear side of the glass.
We recommend using low-iron glass if you require very vivid / light colour shades.



Float glass



Low-iron glass

Colour shades

Screen and digital printing

Indicative samples

Shades of yellow

Colouring
The final colour effect depends on the type of glass that is selected and the vitreous enamel coating that is baked into the rear side of the glass. All colour shades can be achieved with the different types of glass on offer.
The ceramic paints we use are incredibly durable, with high UV resistance and great hiding power.

We provide samples in DIN A4 format for you to approve the colour shade and the image.

Further colour shades on request.

Colour shades

Screen and digital printing

Indicative samples

Shades of orange / red

Colouring
The final colour effect depends on the type of glass that is selected and the vitreous enamel coating that is baked into the rear side of the glass. All colour shades can be achieved with the different types of glass on offer.
The ceramic paints we use are incredibly durable, with high UV resistance and great hiding power.

We provide samples in DIN A4 format for you to approve the colour shade and the image.

Further colour shades on request.

Colour shades
Screen and digital printing
Indicative samples

Shades of purple / blue

Colouring
The final colour effect depends on the type of glass that is selected and the vitreous enamel coating that is baked into the rear side of the glass. All colour shades can be achieved with the different types of glass on offer.
The ceramic paints we use are incredibly durable, with high UV resistance and great hiding power.

We provide samples in DIN A4 format for you to approve the colour shade and the image.

Further colour shades on request.

Colour shades
Screen and digital printing
Indicative samples

Shades of green

Colouring
The final colour effect depends on the type of glass that is selected and the vitreous enamel coating that is baked into the rear side of the glass. All colour shades can be achieved with the different types of glass on offer.
The ceramic paints we use are incredibly durable, with high UV resistance and great hiding power.

We provide samples in DIN A4 format for you to approve the colour shade and the image.

Further colour shades on request.

Colour shades

Screen and digital printing

Indicative samples

Shades of grey

Colouring
The final colour effect depends on the type of glass that is selected and the vitreous enamel coating that is baked into the rear side of the glass. All colour shades can be achieved with the different types of glass on offer.
The ceramic paints we use are incredibly durable, with high UV resistance and great hiding power.

We provide samples in DIN A4 format for you to approve the colour shade and the image.

Further colour shades on request.

Colour shades
Screen and digital printing
Indicative samples

Shades of brown / white / black

Colouring
The final colour effect depends on the type of glass that is selected and the vitreous enamel coating that is baked into the rear side of the glass. All colour shades can be achieved with the different types of glass on offer.
The ceramic paints we use are incredibly durable, with high UV resistance and great hiding power.

We provide samples in DIN A4 format for you to approve the colour shade and the image.

Further colour shades on request.

Colour shades
Screen and digital printing
Indicative samples

Screen and digital printing

StoVentec Glass panels with customised prints allow you to create facades that are truly unique.
From photorealistic images to graphics and lettering – almost nothing is impossible.
We transfer your design onto our StoVentec Glass panel or panels by means of screen printing, digital printing or a mixture of the two.

Ceramic paint is applied to the glass, then permanently "baked" into it during the tempering process. Whether your image is applied using screen printing, digital printing, or a combination of the two will depend on various factors and general conditions such as the colour shade, hiding power, number of panels, or the image itself. We would be delighted to work with you on creating the perfect solution for your project.

Colour shades

Indicative samples

Screen printing

Areas of application:
Screen printing is suitable for producing medium to large batches of repeating images. The paint is applied step by step for each colour shade – a rubber squeegee is used to apply the ceramic printing ink onto the glass through a fine mesh, before it is "baked in". When producing large batches with the same images, this method is preferable to digital printing, as the screen can be used cost-effectively.

Colour shades / colour spectrum:
Very wide colour spectrum of ceramic paints
Vibrant colour shades available
Colour shades with metallic effect available

Provision of data / file formats:
Vector formats (EPS, AI, PDF)

- Ideal for producing medium to large batches of the same images
- High hiding power
- High colour stability thanks to durable ceramic paints

Digital printing

Areas of application:
Digital printing is perfect for producing photo prints and graphics in small batches. The paint is applied in a similar way to with an ink-jet printer, so no screens or plates have to be prepared in advance of the printing process.
When producing single panes or small batches with different images, this method is preferable to screen printing.

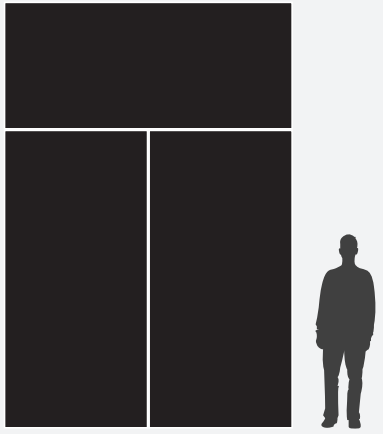
Colour shades / colour spectrum:
6 ceramic base colours
For mixing the required colour shade in accordance with RAL, NCS, Pantone, etc.
More limited colour spectrum compared to screen printing

Provision of data / file formats:
Vector formats (EPS, AI, PDF)
Pixel formats (PDF, PSD, TIFF, BMP, PNG, JPEG)
Recommended minimum resolution of 300 dpi

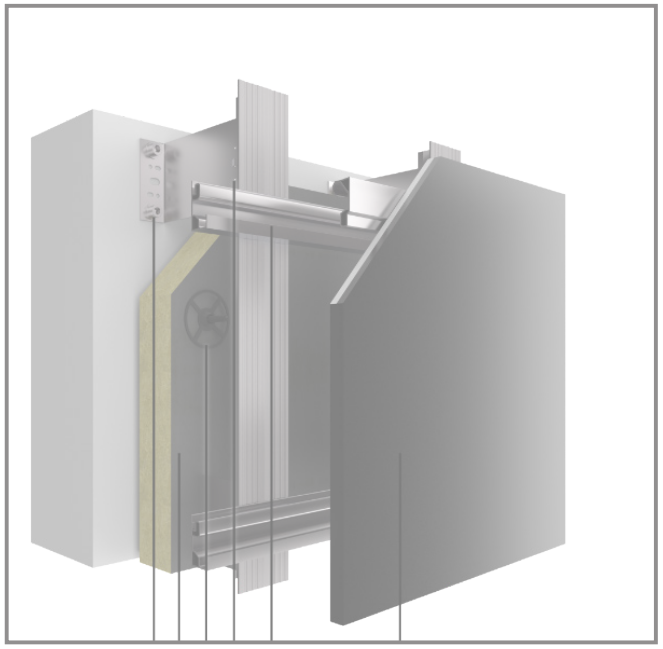
- Can be used to print either single panes or batches
- High-resolution photo quality prints
- Multiple colours in a single printing step
- Precise image transitions between panels
- High colour stability thanks to durable ceramic paints

Indicative samples

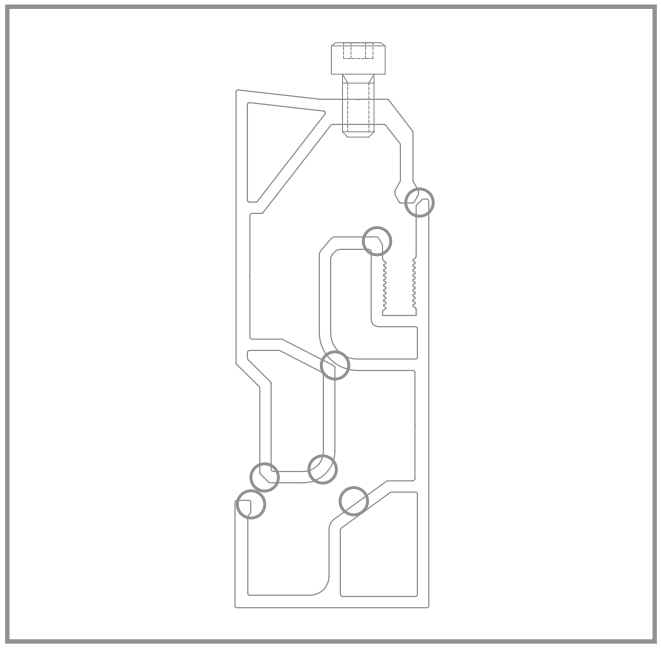
Since technical constraints can lead to deviations in colour shades or printing, it is essential to appraise the actual colour shade or print samples.
We provide samples in DIN A4 format for you to approve the colour shade and the image.
Once the colour shade and/or print quality has been selected, we recommend creating a mock-up.
This involves installing one or more panels in their actual size on site, where they can be viewed and evaluated in real environmental conditions.

Approval and indicative samples process		
1	Customer request (required glass/colour shade and/or image)	
2	Technical testing and preparation of a quote	
3	Production of DIN A4 samples	DIN A4 samples are used to select and approve the required colour shade and/or the print quality of images. This represents a cost-effective sample format, since a number of colour shade and image samples are usually needed to compare against each other and make an evaluation. 
4	Customer makes selection and approves colour shade based on DIN A4 samples	
5 (optional)	Production of mock-up panel samples in actual size	The effect and perception of glass, its colour shade, printing, and reflection will depend on environmental factors such as lighting conditions, viewing distances, and viewing angles. Creating a mock-up means the required design can be appraised in the actual environmental conditions that will prevail later as part of your construction project, so the customer's expectations and desires can be reconciled with what is technically feasible, before the mock-up is approved. The mock-up is designed and created according to the project in question and the complexity of the customer's glass panel requirements. Once approved, the mock-up serves as the agreed level of quality that must be complied with. 
6 (optional)	Appraisal and approval of mock-ups in actual environmental conditions on site	
7	Production of project-specific panels in accordance with approval	

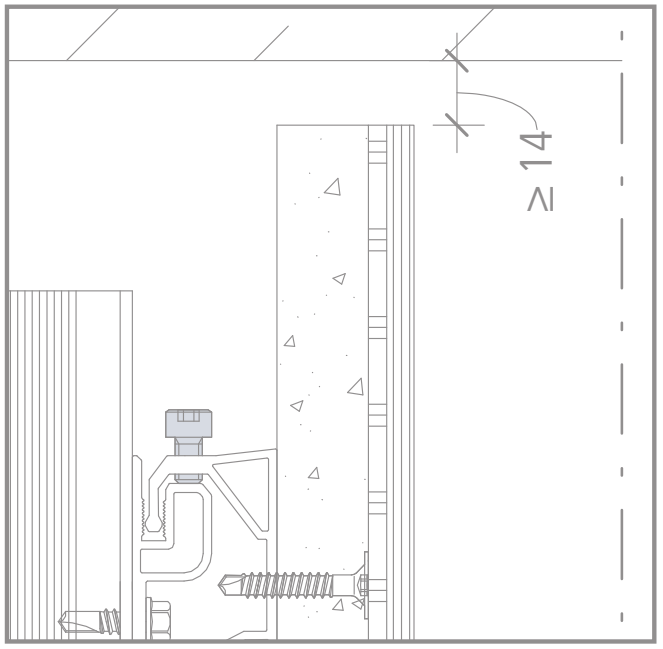
Fixing



System



Benefits of the agraffe system

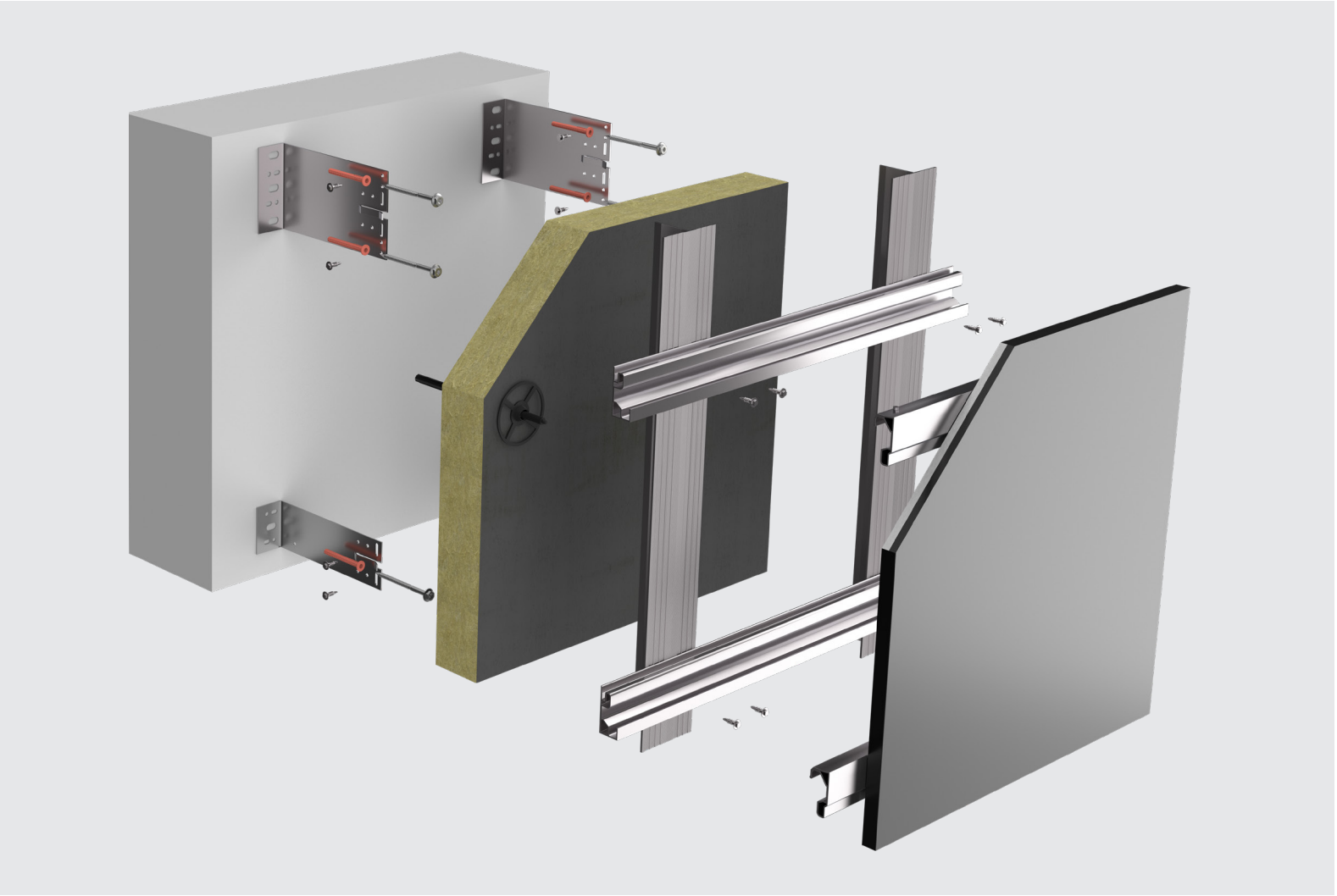


Installation and adjustment

sub-construction

Benefits at a glance:

- Complete facade system all from a single source – from the sub-construction right through to the cladding
- Sub-construction optimised for thermal bridges through specific material selection and combination
- Levelling of substrate unevenness thanks to the variable sub-construction
- Simple and quick installation thanks to intelligent product design
- Project-specific advice and solution development



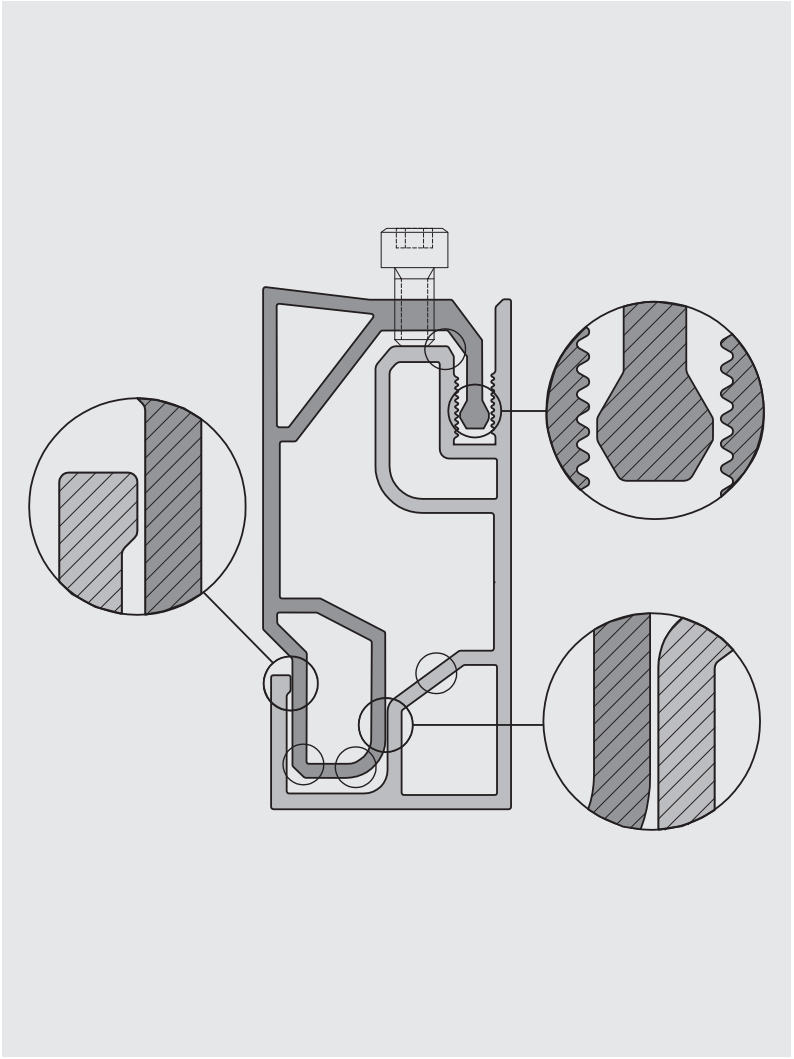
Installation and adjustment

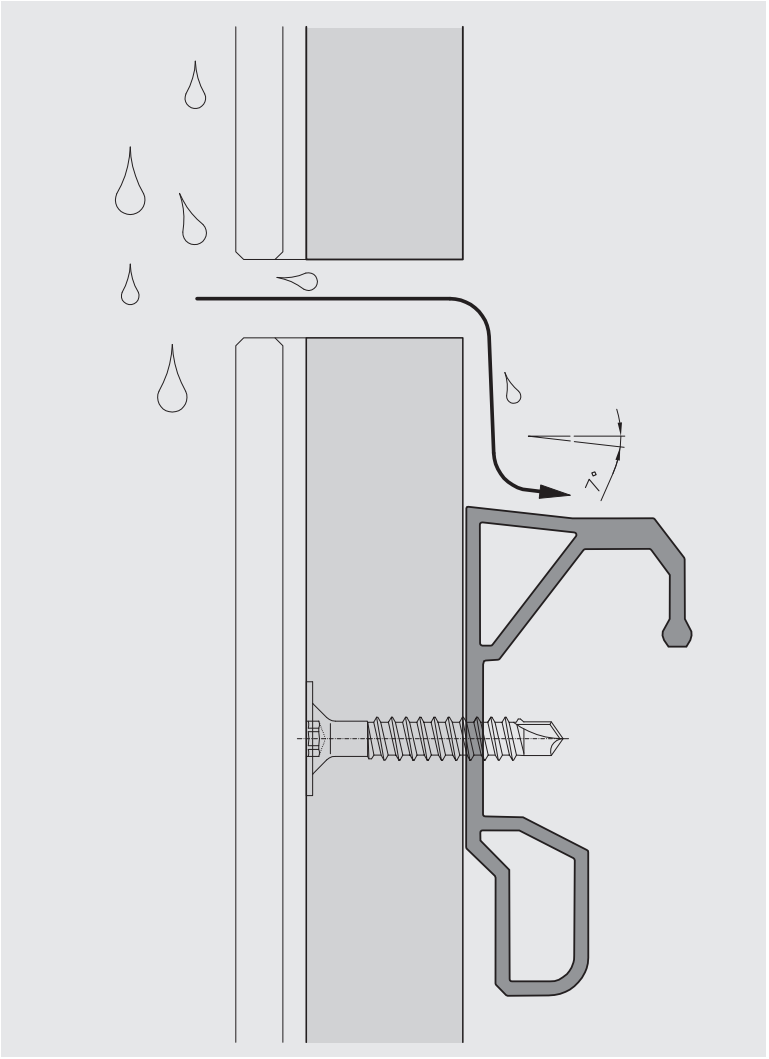
Benefits of the agraffe system

Benefits of the agraffe system

StoVentec Aluminium Agraffe Profile

- Clearly shaped contact points for the transmission of force between the board carrier profile and the agraffe profile with optimised installation tolerance
- Specific chamfers, curves, and bevels for almost straight-lined installation
- Precipitation and moisture are systematically conducted away from the rear side of the panel thanks to the sloped contour of the board carrier profile
- Simple and effortless installation process through optimised profile geometry
- High resistance to torsional stress
- Reliable adjustment due to the reinforcement of the material in the area of the adjustment screw





System

Installation and adjustment

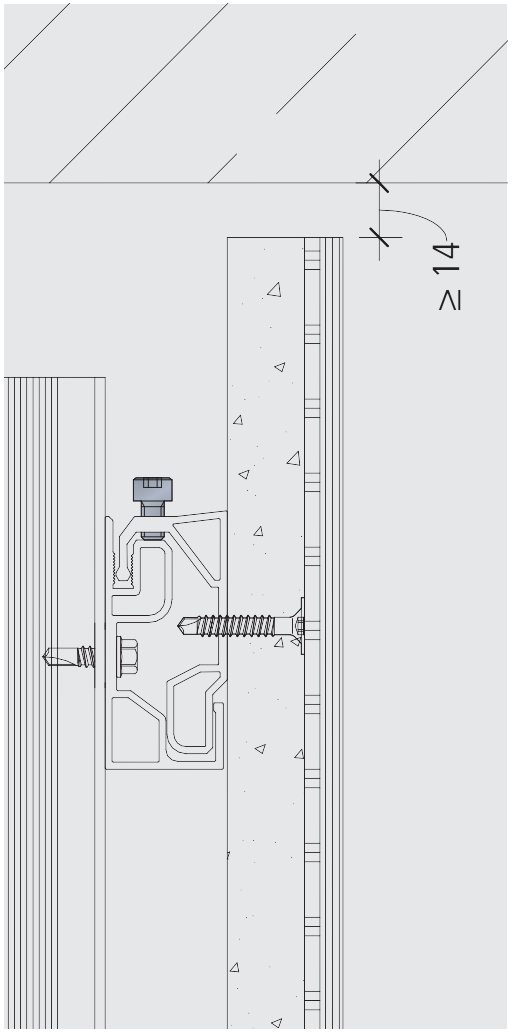
Installation and adjustment

The StoVentec Glass facade system is fixed to the facade invisibly via a patented agraffe system.

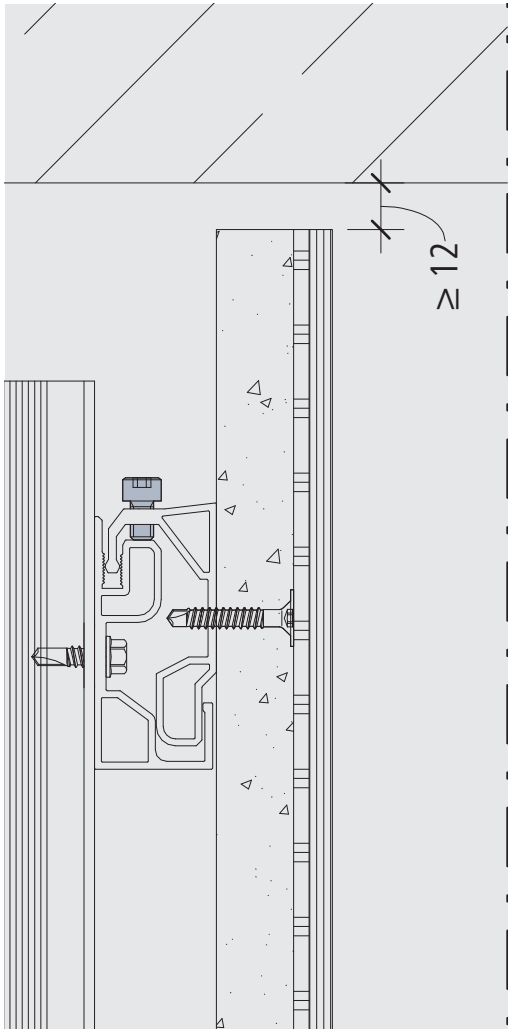
The panels are supplied with board carrier profiles attached to the rear side ex works. This means the panels are easy and quick to install once on the construction site by inserting them into the sub-construction that is already available on-site.

Two adjustment screws attached to the left and right of the top board carrier profile are used to align the panels vertically and create a uniform joint pattern.

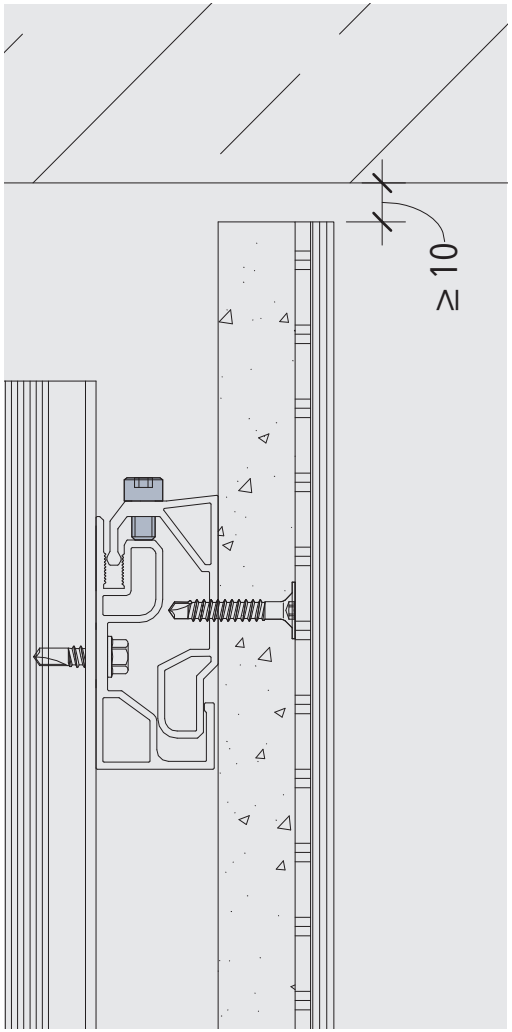
Please note
As the panels are installed from bottom to top, please note there must be a distance of 14 mm from any protruding building elements to allow the top panels to be inserted.



Adjustment screw screwed out



Adjustment screw in central position



Adjustment screw screwed in

System

Benefits of the agraffe system

Detail solutions overview

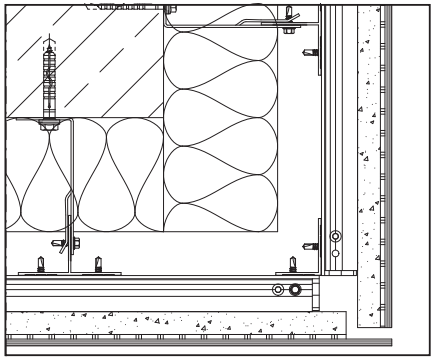
External and internal corners

Parapet and plinth connections

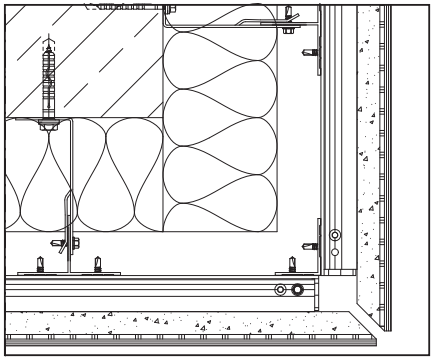
Building openings

Soffits

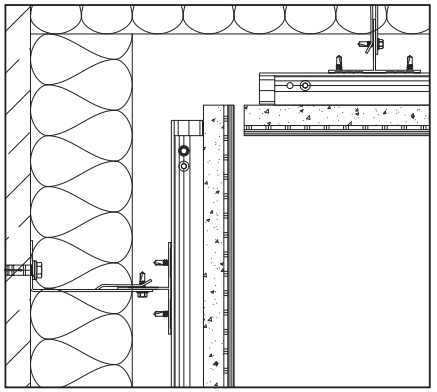
External and internal corners



Horizontal section – external corner with projection



Horizontal section – external corner mitred

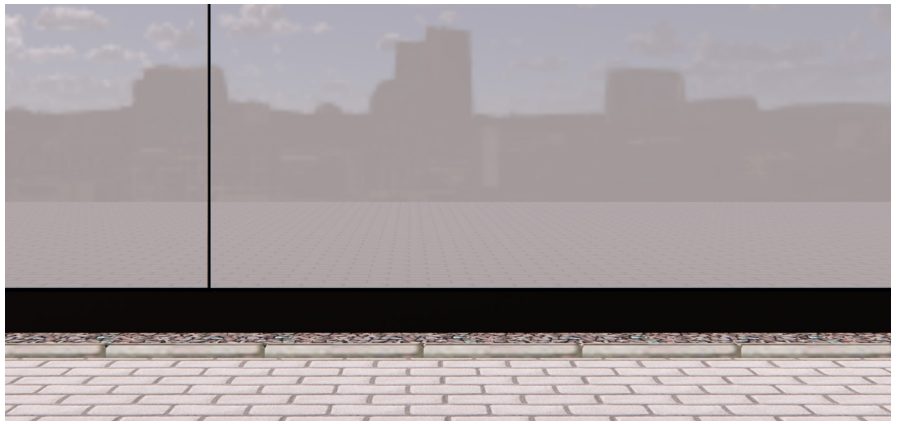


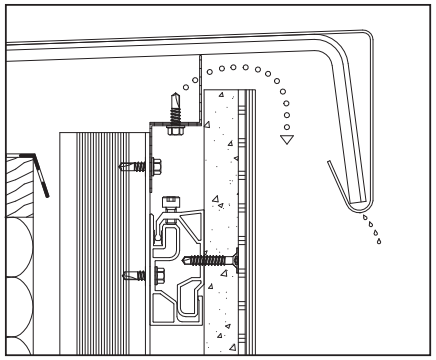
Horizontal section – internal corner with projection

Parapet / plinth

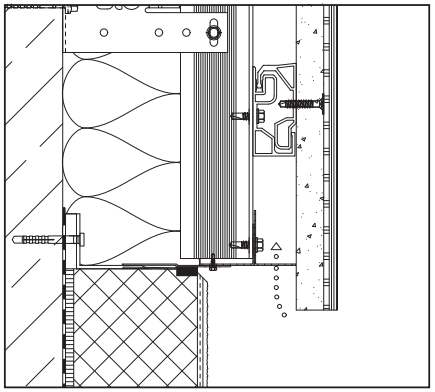
Windows

Parapet and plinth connections





Vertical section – parapet connection

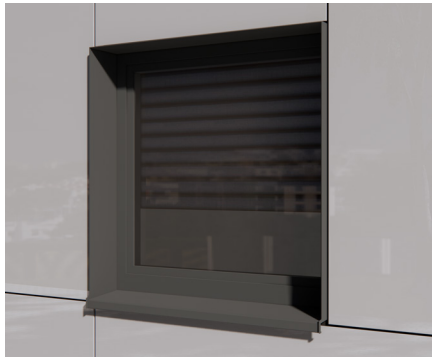


Vertical section – plinth connection

Corners

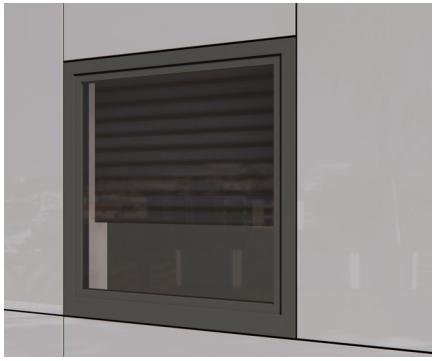
Windows

Building openings

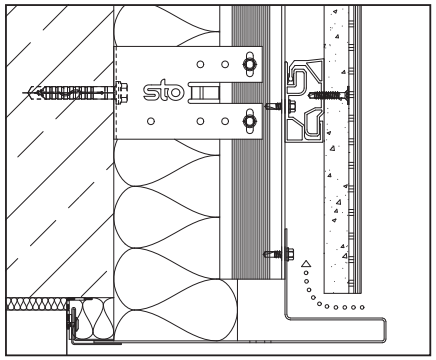


Version 1 protruding metal frame

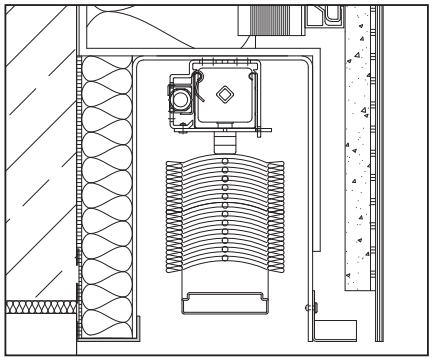
Version 2 Ventec Glass panel with lintel and solar protection



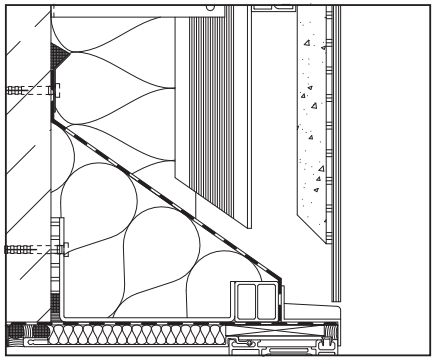
Version 2 flush with the facade



Vertical section



Vertical section (concealed L-profile)

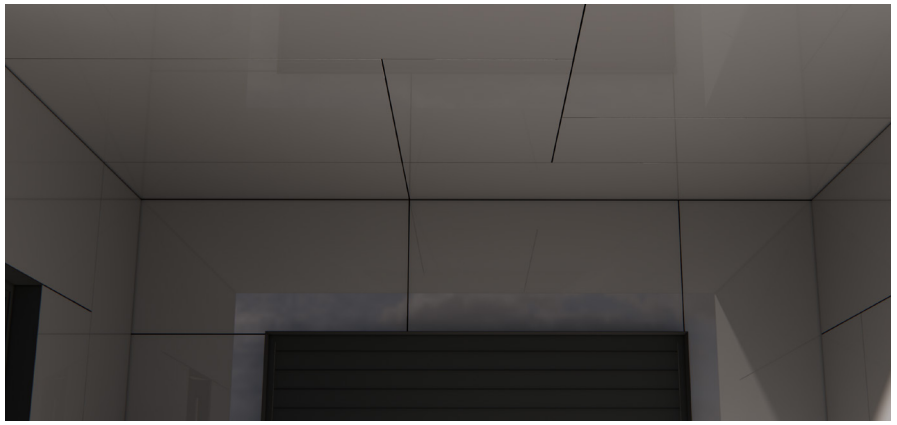


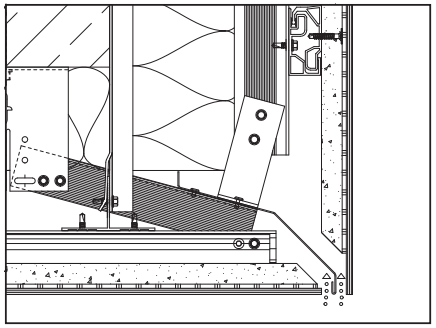
Vertical section

Corners

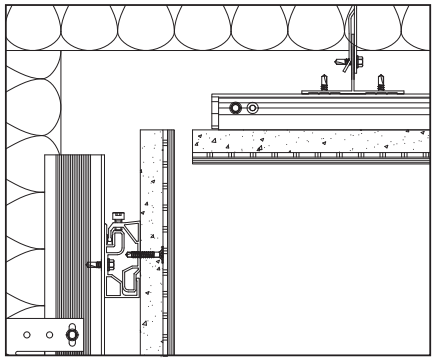
Parapet / plinth

Soffits





Vertical section – ceiling external corner with projection

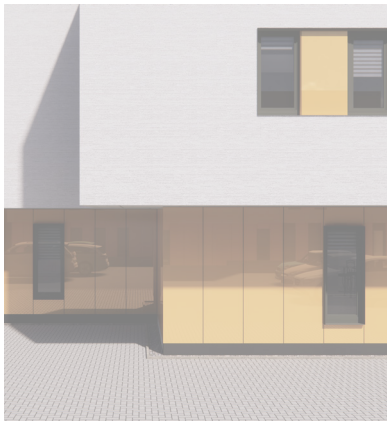


Vertical section – ceiling internal corner with projection

Parapet / plinth

Windows

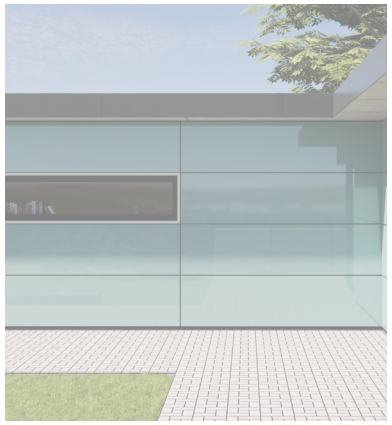
Application example overview



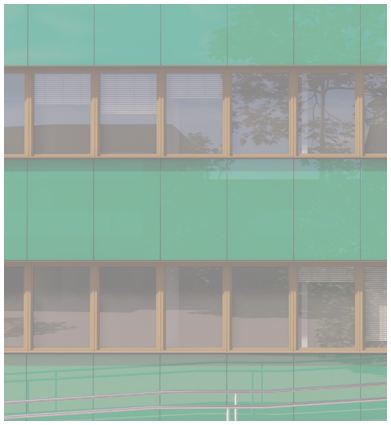
Application example 1

Application example 2

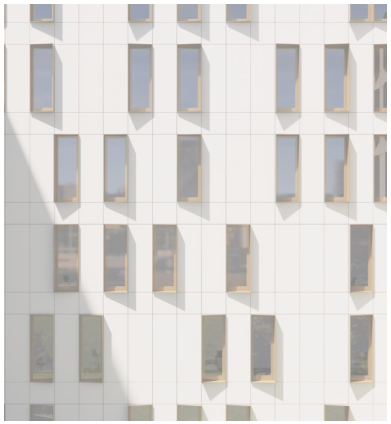
Application example 3



Application example 4



Application example 5



Application example 6

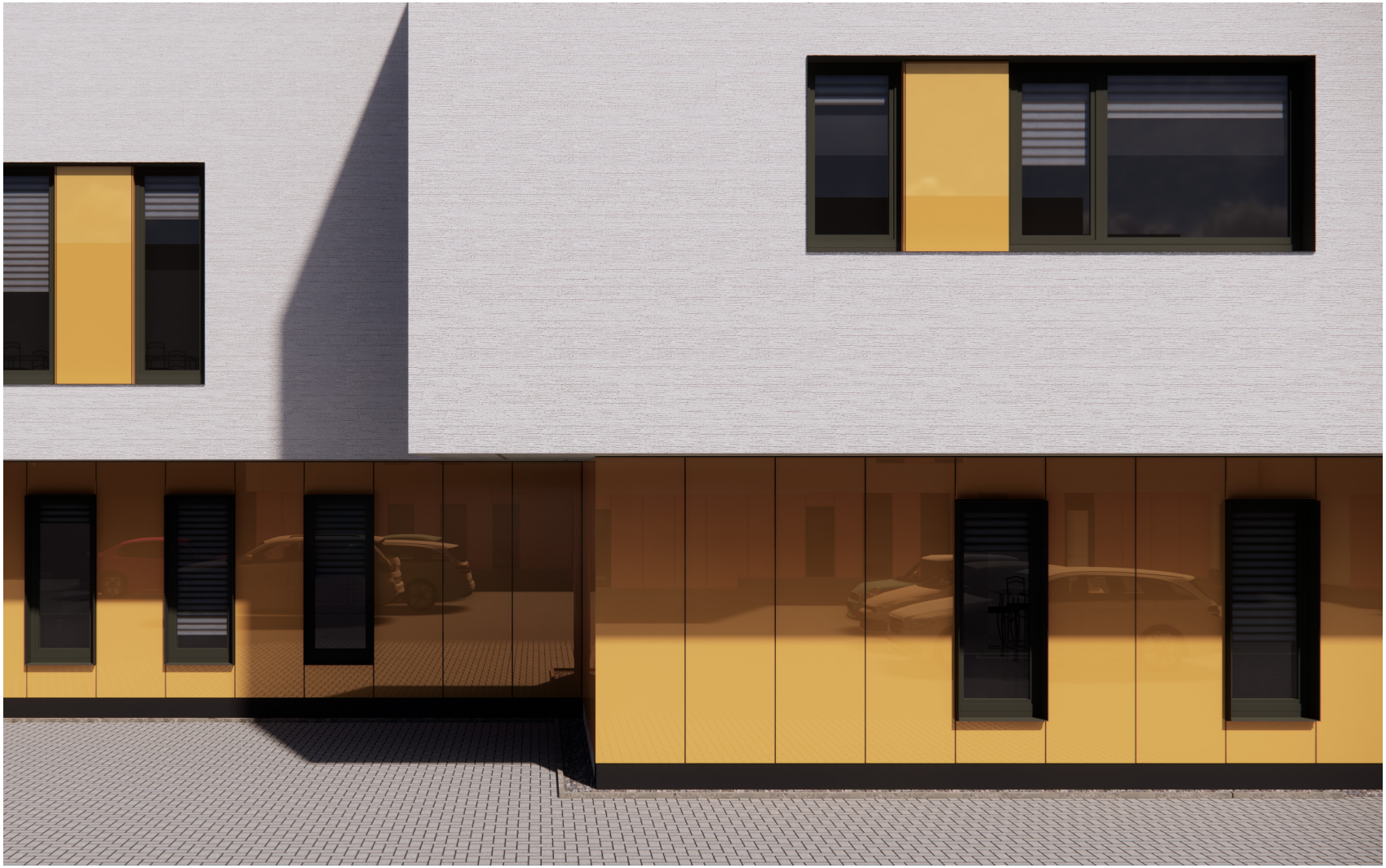
Application example 7

Mixed facade – vertical panels

Application
Business / residential construction

Glass type
StoVentec Glass gloss

Colour shade
RAL 1003



Mixed facade – patchwork of matt / gloss printed

Application
Multiple dwelling

Glass type
StoVentec Glass gloss
StoVentec Glass matt

Colour shade
Panel RAL 5009
Printed graphic RAL 9018

Glass facade – patchwork of matt / gloss

Application
Industrial construction

Glass type
StoVentec Glass matt
StoVentec Glass gloss

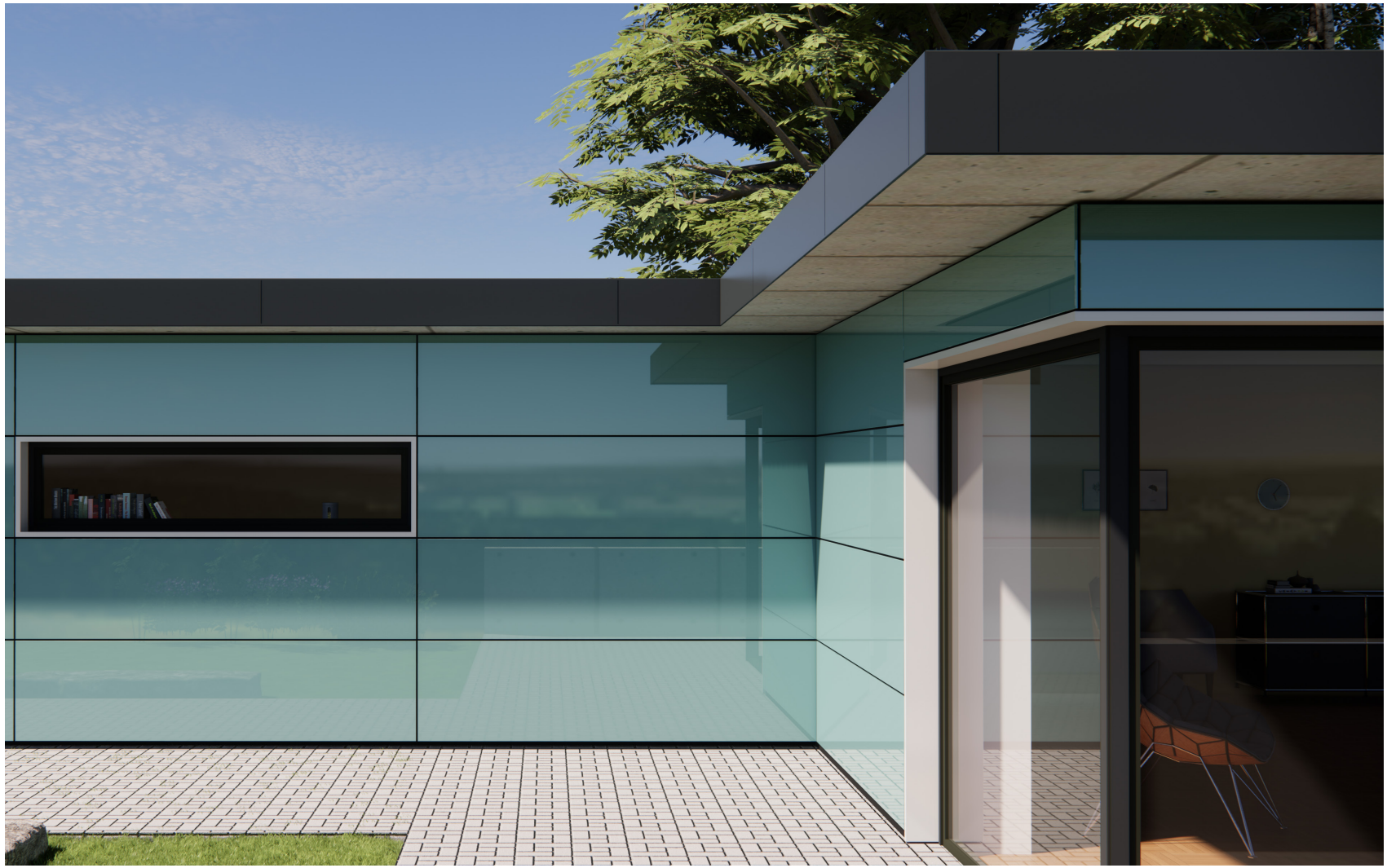
Colour shade
RAL 5010 (matt)
RAL 5012 (matt)
RAL 5017 (matt)
RAL 1003 (gloss)

Glass facade – horizontal panels

Application
Residential construction

Glass type
StoVentec Glass gloss

Colour shade
RAL 6034



Glass facade – horizontal strip windows

Application
Educational construction

Glass type
StoVentec Glass gloss

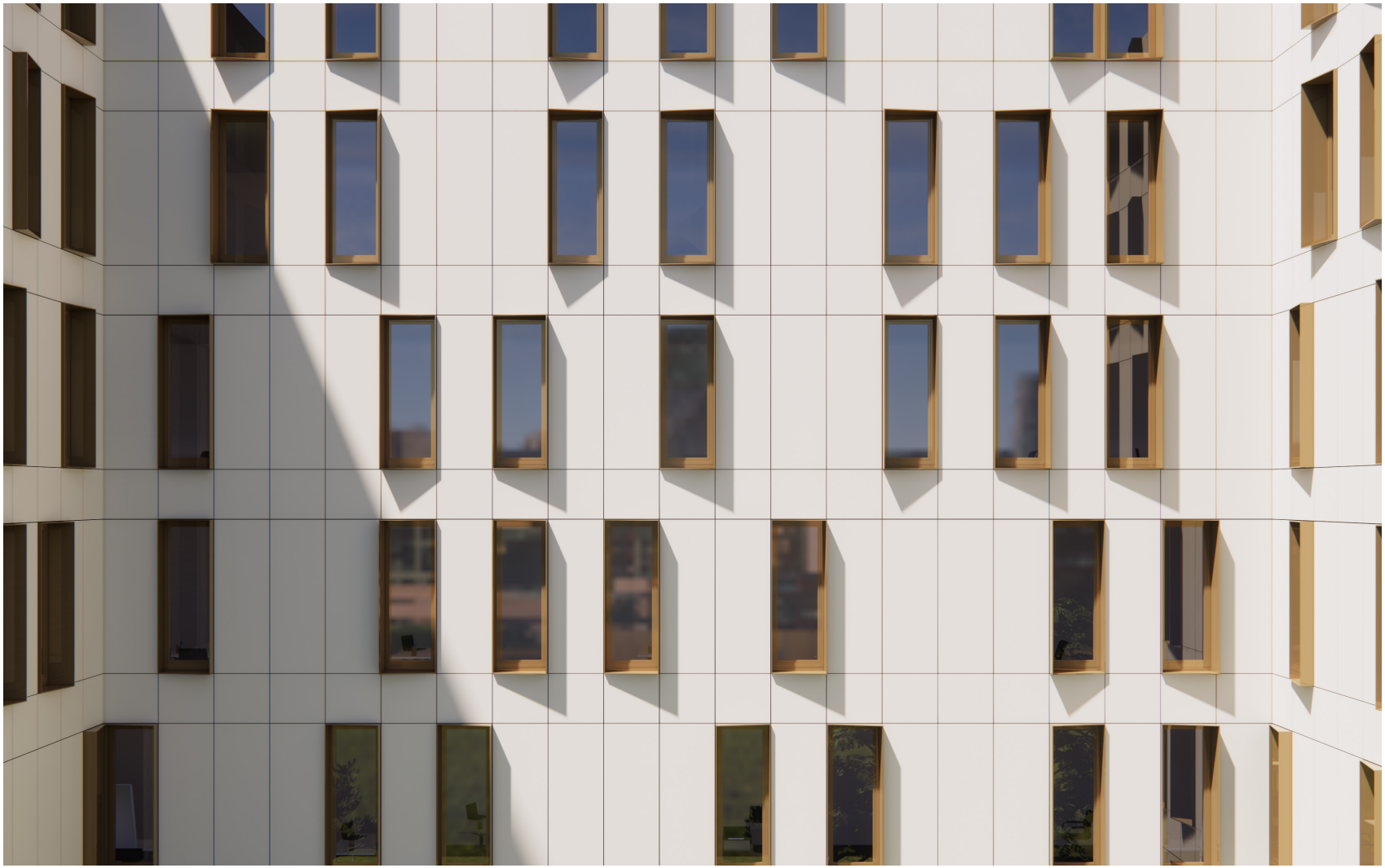
Colour shade
RAL 6024

Glass facade – perforated facade

Application
Office / administrative buildings

Glass type
StoVentec Glass matt

Colour shade
RAL 1013



Mixed facade – perforated facade

Application
Office / administrative buildings

Glass type
StoVentec Glass amber-mirrored

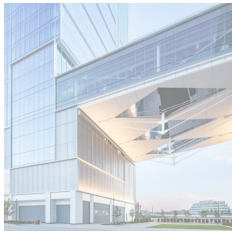
Colour shade
RAL 1013

Reference overview

Construction of a HQE building at La Persagotière Institute, Nantes, FR


Davenport House, Bumpass, US


EHPAD – social housing, Paris, FR



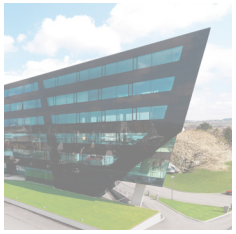

Gateway, Reston, US


Freyung hospital, Freyung, DE


Dwelling ZAC Seguin residential estate, Boulogne-Billancourt, FR


Poolhouse, AT


Leuna swimming pool, Leuna, DE




MP09 office building, Graz, AT

Construction of a HQE building at La Persagotière Institute
Nantes, FR

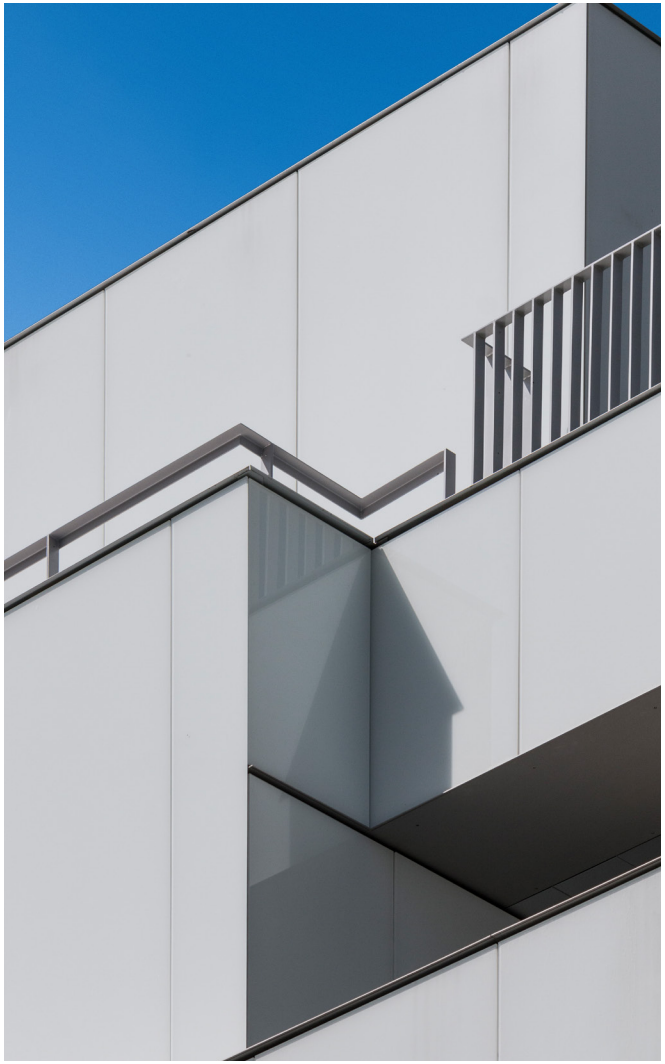
Building owner: La Persagotière Institute, Nantes, FR
Planning: forma6, Nantes, FR
Sto expertise: StoVentec Glass
Photo: Hadrien Brunner, Pornichet, Loire-Atlantique, FR

Davenport House
Bumpass, US

Planning: Jeff Davenport, US
Application: Pillar Construction, Inc., Alexandria, US
Sto expertise: StoVentec Glass

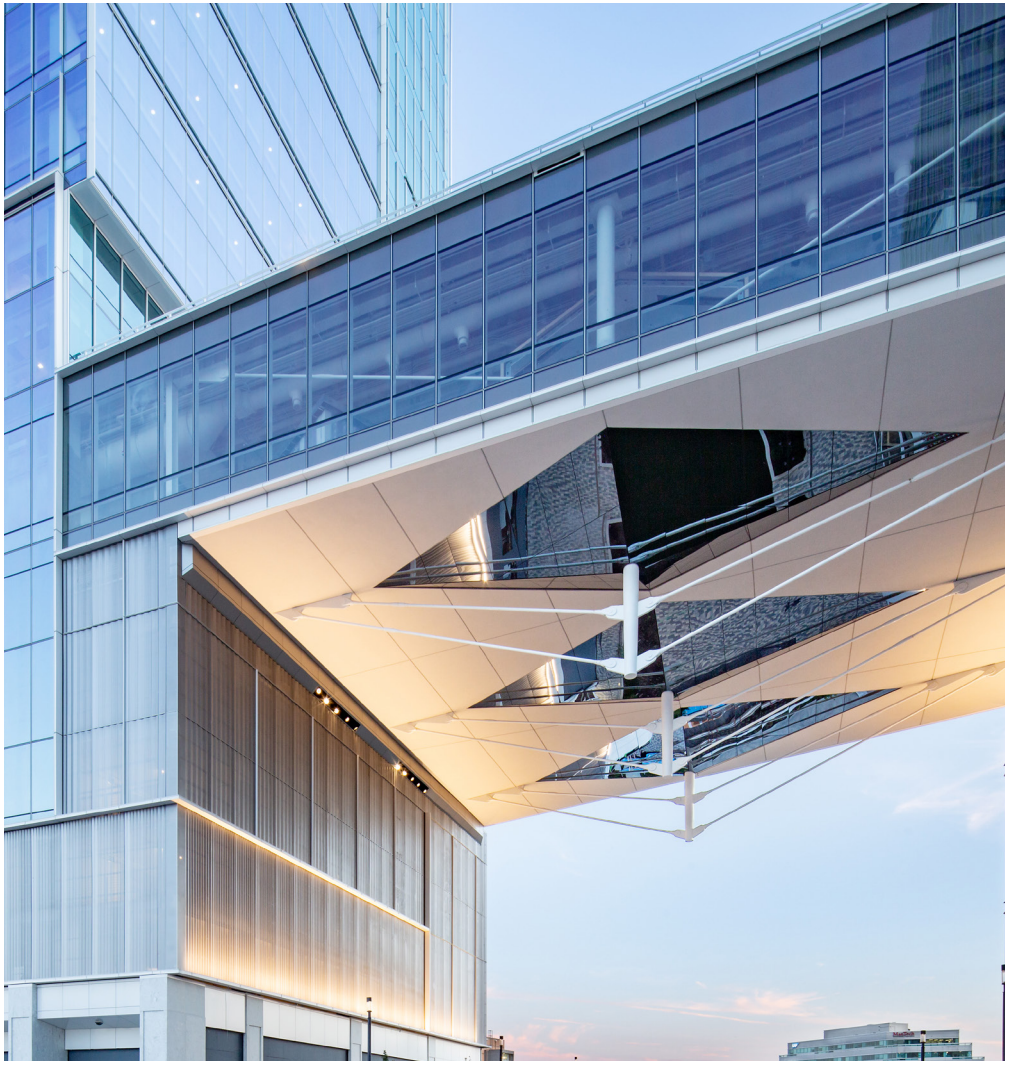
EHPAD – social housing
Paris, FR

Building owner: SEM PARISEINE, Paris, FR
Planning: Trévelo & Viger-Kohler, Paris, FR
Application: Castel Alu M. Muansa, Fleurance, FR
Sto expertise: StoVentec Glass
Photo: © Sebastien Planex



Gateway
Reston, US

Planning: Duda|Paine Architects, Durham, US
Application: Pillar Construction, Inc., Alexandria, US
Sto expertise: StoVentec Glass
Photo: Dan Cunningham, Arlington, US



Freyung hospital
Freyung, DE

Building owner: Kliniken am Goldenen Steig gGmbH, Freyung, DE
Planning: plan|4 architekten GmbH, Munich, DE
Application: SBS Metallbau GmbH, Fensterbach, DE
Sto expertise: StoVentec Glass
Photo: Boris Storz, Munich, DE

Poolhouse
AT

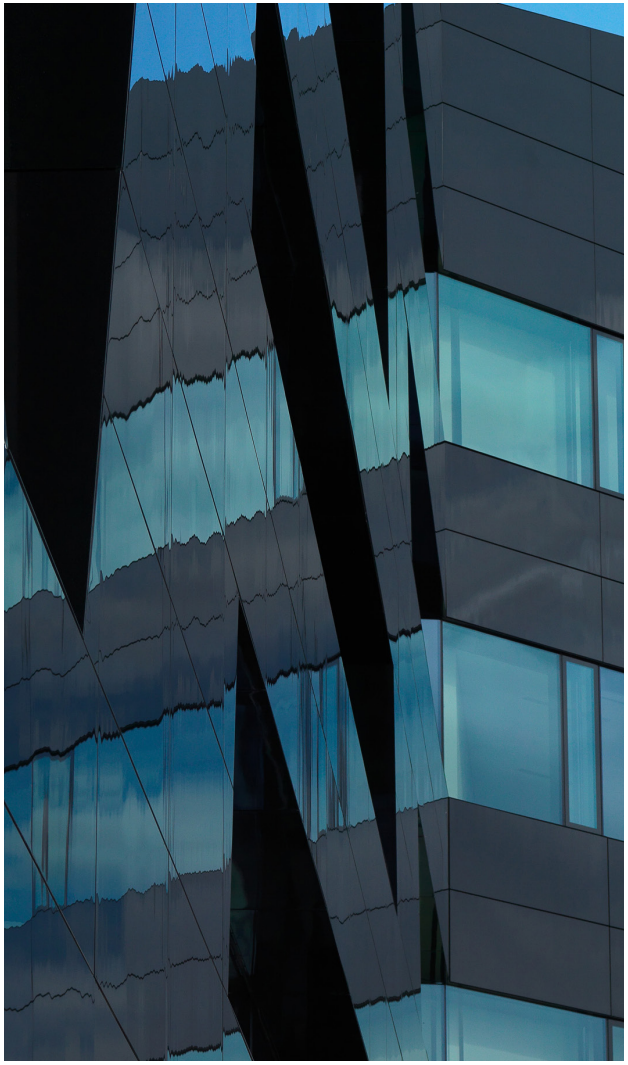
Planning: m.u.x.e.l. DI Reinhard Muxel, Vienna, AT
Application: Heidenbauer Aluminium GmbH, Bruck an der Mur, AT
Sto expertise: StoVentec Glass
Photo: Christian Schellander, Schiefling am See, AT

Leuna swimming pool
Leuna, DE

Building owner: City of Leuna, Leuna, DE
Planning: Planungsbüro PLINGEL GmbH, Leuna, DE
Application: Hüther & Kohlrausch GmbH, Leuna, DE; INTERiNG GmbH, Leuna, DE; Hoch- und Tiefbau Hohenmölsen GmbH, Hohenmölsen, DE; EDUMO, Merseburg, DE
Sto expertise: StoVentec Glass, StoTherm Mineral
Photo: Christian Günther, Leipzig, DE

MP09 office building
Graz, AT

Planning: GSarchitects ZTGmbH, Graz, AT
Sto expertise: StoVentec Glass
Photo: Gerald Liebminger, Graz, AT



Dwelling ZAC Seguin residential estate
Boulogne-Billancourt, FR

Building owner: Nexity, Paris, FR
Planning: Beckmann N'Thépé, Paris, FR
Application: GCEB, Saint-Germain-lès-Corbeil, FR
Sto expertise: StoTherm Classic®, StoVentec Glass, Stolit Milano®, StoSignature fine 10
Photo: Manuel Panaget, Le Mesnil-le-Roi, FR

Approvals and fire testing

To ensure your construction project will have a stable and durable aesthetic, all StoVentec systems are really put to the test. Many European countries not only have general technical requirements that must be met, but also prevailing national approval or testing regulations that must be adhered to if products are to be used in compliance with building legislation. On the right are tables of just some of the approval and test certificates held by the StoVentec Glass system.

National approvals / European evaluation

Country	Approval	Document number	Institute
DE	StoVentec Glass Paneele zur Verwendung bei hinterlüfteten Außenwand- oder Deckenbekleidungen (StoVentec Glass panels for use with ventilated external wall or ceiling cladding)	abZ Z-10.3-720	DiBt – Deutsches Institut für Bautechnik
FR	StoVentec Glass Système à fixations invisibles	Avis Technique 2.2/15-1710_V1	CSTB – Centre Scientifique et Technique du Bâtiment
UK	BBA Certificate 10/4792 Sto Rainscreen Cladding System – StoVentec Glass	BBA 10/4792	BBA – Approval Inspection Testing Certification
AT	StoVentec Glass – Paneele zur Anwendung bei hinterlüfteten Außenwand- und Deckenbekleidungen (StoVentec Glass panels for application on ventilated external wall and ceiling cladding)	BTZ-0024	OIB – Österreichisches Institut für Bautechnik
PL	Zestaw wyrobów do wykonywania wentylowanych okladzin ´scian zwenetrznych StoVentec Glass	ITB-KOT-202020/0838	Instytut Techniki Budowlanej
EU	European Technical Assessment – StoVentec Glass A	Acc. to EAD 090125-00-0404	ETA Danmark/Application issued

Fire testing

Country	Product/system	Test	Result	Institute/facility
EU	StoVentec Glass A	Fire classification acc. to EN 13501-1	A2-s1,d0	MFPA Leipzig GmbH
EU	StoVentec Glass	Fire classification acc. to EN 13501-1	B-s1,d0	MA 39 Vienna
FR	StoVentec Glass	Large-scale fire test – LEPIR II	Pass	EFECTIS, Maizières-lès-Metz
UK	StoVentec Glass	Large-scale fire test – acc. to BS 8414/BR 135	Pass	MFPA Leipzig GmbH
AT	StoVentec Glass	Large-scale fire test – acc. to ÖNORM B 3800-5	Pass	MA 39 Vienna
US	StoVentec Glass	Large-scale fire test – acc. to NFPA 285	Pass	intertek, Texas
CA	StoVentec Glass	Large-scale fire test – acc. to CAN/ULC S134	Pass	intertek, Texas

Other approvals/certificates

test reports

To ensure your construction project will have a stable and durable aesthetic, all StoVentec systems are really put to the test. Many European countries not only have general technical requirements that must be met, but also prevailing national approval or testing regulations that must be adhered to if products are to be used in compliance with building legislation. On the right is a table of just some of the approval and test certificates held by the comprehensively tested StoVentec Glass system.

Further test reports

Country	Product/system	Test	Result	Institute/facility
FR	StoVentec Glass	Earthquake resistance	Pass	CSTB – Centre Scientifique et Technique du Bâtiment
UK	StoVentec Glass	Explosion resistance test – acc. to ISO 16933:2007	Pass – 10 kg TNT/6 m distance Pass – 100 kg TNT/25 m distance Pass – 100 kg TNT/15 m distance	Crossley Consult Ltd.
UK	StoVentec Glass	Soft-Body/Hard-Body impact resistance – acc. to BS 6206/BS 12600/BS 8200	BS 6206 – Class A BS 12600 – Class 1 BS 8200 – Category B	VINCI Technology Centre UK Limited
UK	StoVentec Glass	Drop ball – Testing and classification of resistance against manual attack – acc. to BS EN 356:2000	EN 356 P4A (9000 mm drop height) passed	VINCI Technology Centre UK Limited
DE	StoVentec Glass	Acoustics – Sound insulation acc. to EN ISO 10140	18 dB optimization of Rw (sound insulation improvement)	ita Wiesbaden
UK	StoVentec Glass A	Explosion resistance test – acc. to CPN Test Standard Explosion Resistance of Curtain Walling	Internal Hazard Rating: B “No Hazard” External Hazard Rating: Y “Limited Hazard”	Crossley Consult Ltd.
UK	StoVentec Glass A	Soft-Body/Hard-Body impact resistance – acc. to BS 6206/BS 12600/BS 8200	BS 6206 – Class A BS 12600 – Class 1 BS 8200 – Category B	VINCI Technology Centre UK Limited

Other approvals/certificates

Notes

Glass thickness
Since glass panes become increasingly wavy the longer the desired edge length, we recommend and use the following glass thicknesses for our panels:

Edge lengths	≤ 2800 mm	– 6 mm glass
Edge lengths	≥ 2800 mm & < 3200 mm	– 8 mm glass recommended
Edge lengths	≥ 3200 mm	– 8 mm glass essential

We recommend sticking to one specific glass thickness for all panels within the same project. This is because the colour effect changes between different glass thicknesses, plus if there are different panel thicknesses at play, this will increase the amount of facade planning and installation work required.

ESG-H tempered safety glass versus ESG tempered safety glass
When tempered safety glass (ESG EN 12150) is used in a project, nickel sulphide inclusions can cause what are known as “spontaneous breakages” in the event of extreme temperature fluctuations or excessive heating from solar radiation. To stop this from happening, the tempered safety glass is subjected to a heat soak test (ESG-H EN 14179). In this test, the glass is stored at a temperature of approx. 300 °C for several hours. Any panes with inclusions will break, which means the remaining panes have a much lower risk of undergoing spontaneous breakage once installed in the project. We use ESG-H tempered safety glass as standard. However, we can also use normal ESG tempered safety glass at your request.

Float glass versus low-iron glass
Float glass (with a greenish cast) or low-iron glass should be selected according to which colour shade effect you want to achieve. The vitreous enamel applied to the rear side of low-iron glass appears clearer. Low-iron glass is preferable for light and vivid colour shades.

Panel joints
Joint widths of between 5 and 12 mm can be created. Differences of ±1 to 2 mm that arise during installation are more noticeable to the human eye on narrower joints than on wider ones. Recommended joint width = 10 mm.

Panel format
As StoVentec Glass is a facade with accentuated joints and especially because the interplay between formats and joints is a key design element of the product, it is essential to have precise site dimensions and to plan the panel and joint layout accurately. We would be delighted to help you with this to ensure there are no delays during your planning and implementation phase.

Indicative samples
The way that humans perceive colour shades and reflection is heavily dependent on lighting conditions (natural or artificial light), the time of day, and the viewing location, among other factors. To ensure we meet your expectations and desires as well as possible, while also bringing everything in on schedule and in budget, we appraise the indicative samples together before subsequently agreeing on a design – this is an important aspect of the planning and approval phase.

Notes

Fire protection
Safety in the event of a fire is extremely important in the field of construction and is regulated by national building legislation. Our StoVentec Glass products are classified according to EN 13501-1 as either A2-s1,d0 (non-combustible) or B-s1,d0 (limited combustibility). Additional major fire tests are further evidence of the system's high level of safety.

Sound insulation
Rising levels of noise pollution as a result of urbanisation are having a negative impact on human beings. With a tested sound insulation improvement measure of up to 18 dB, StoVentec Glass is able to make a considerable contribution to lowering noise pollution in the interior of buildings. Reducing the sound pressure level by 10 dB is perceived as lowering the volume in interiors by half.

Stability
The panels are certain to be very stable thanks to an intelligent panel design, the bonding technique used, and how tempered safety glass behaves in the event of a break. Successfully passed resistance tests to blast loads or seismic influences are evidence of this.

Installation
StoVentec Glass panels can be installed manually or with the help of machinery. Lifting equipment with glass suction cups may have to be used, depending on the panel formats selected and the prevailing conditions on the construction site.

Panel replacement
Thanks to the agraffe system, it is easy to replace individual panels and stop the others from moving with a splint.

Suomen Sto pääkonttori:

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Puh: 0201 104 728
asiakaspalvelu@sto.com
www.sto.fi