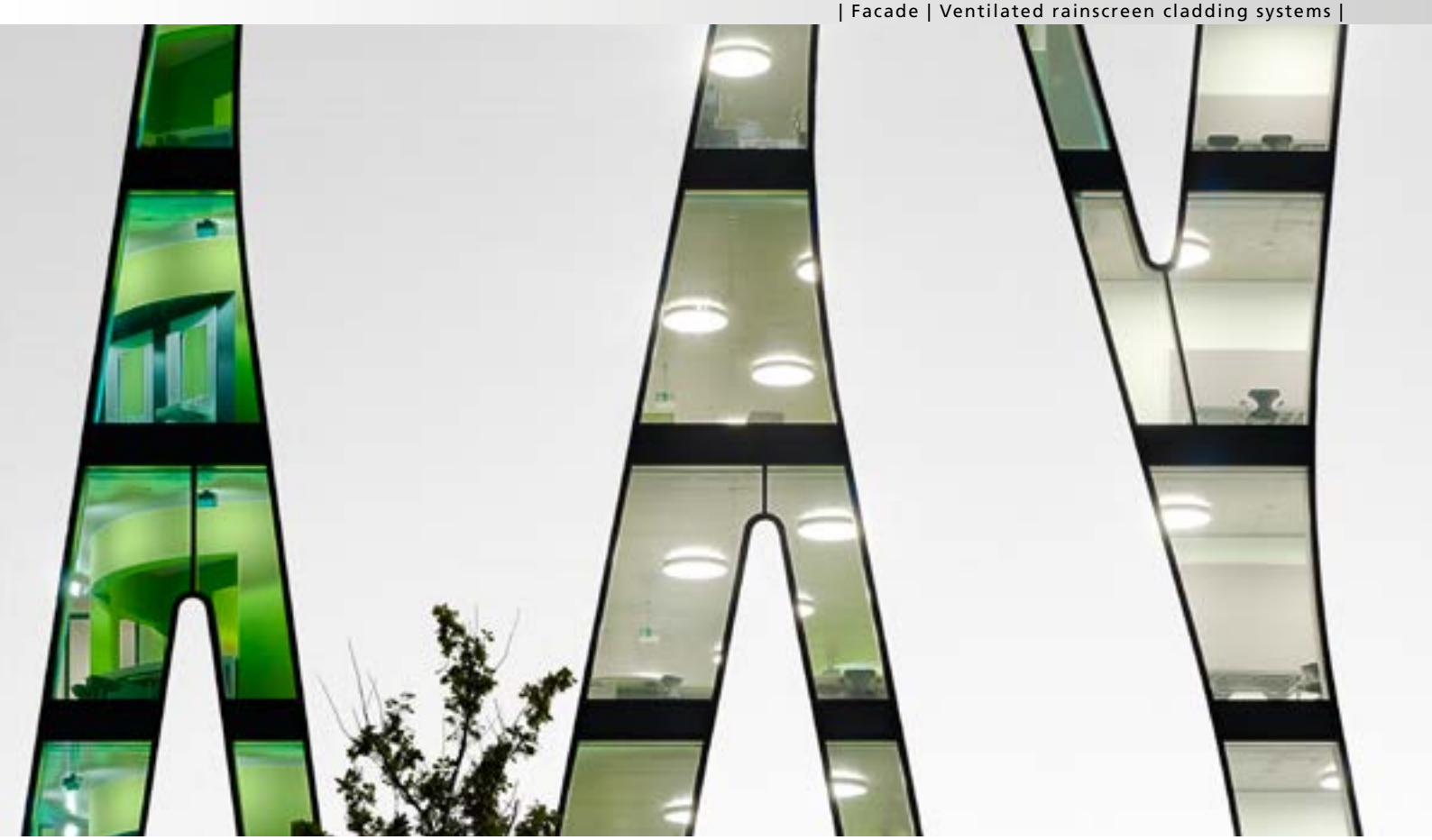


StoVentec Carrier-Board Facades

Thermal insulation with the wow factor

StoVentec sets new standards in facade design

A system worth a look

German Mining Museum Bochum
Bethem Crouwel GmbH, DE-Aachen,
StoVentec R with black render

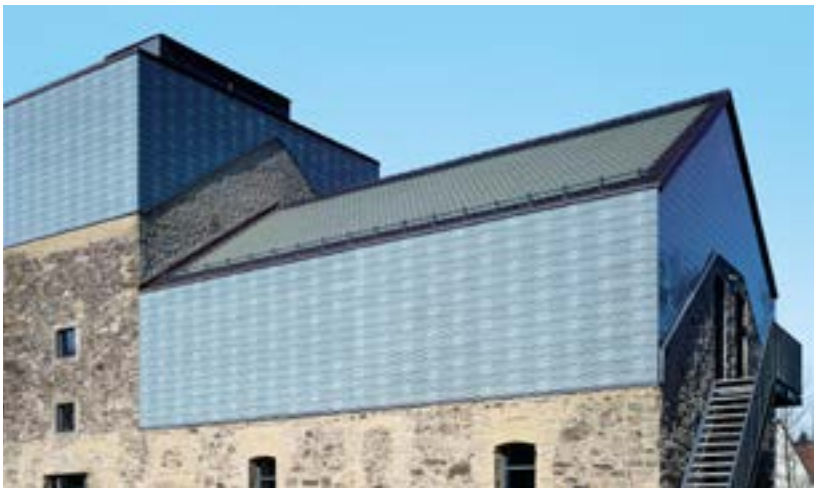
Energy resources are declining worldwide, and the costs of heating and cooling are rising, while the economic and ecological directives governing energy-efficient construction are becoming ever more stringent. In order to comply with those directives, construction with thermal insulation is a must nowdays. One particularly efficient version is the ventilated rainscreen StoVentec Carrier-Board Facade which can be designed in numerous different ways.

For refurbishments and new buildings

Due to their rear ventilation, StoVentec Carrier-Board Facades offer clear advantages regarding moisture regulation and creative freedom - and this is true for both new and existing buildings: from detached houses to company headquarters. This also applies to supposedly hopeless refurbishment situations because StoVentec's flexible sub-construction is also perfectly suited for very uneven or damaged substrates. Extreme unevenness can thus be easily levelled, unstable areas can be spanned.

Usable in all climate zones

More than 5 million m² of reference surface in all climate zones worldwide are proof enough: even extreme heat, cold or humidity cannot harm this system. By the way, this also holds true for bold colour shades as there are no limitations for StoVentec regarding the lightness value thanks to the properties of the carrier-board and the rear ventilation.



Hotel Lone, HR-Rovinj
Studio 3LHD, HR-Zagreb
StoVentec R with glossy smooth coating

left:
Cultural centre,
DE-Schönsee-Freyung
Architectural Office
Brückner & Brückner
Architekten,
DE-Tirschenreuth
StoVentec G with printed glass elements

right:
Residence Prokopova,
CZ-Prague
mimolimit s.r.o.,
CZ-Prague
StoVentec C with glossy ceramics mosaic

StoVentec Carrier-Board Facades offer:

- A wide range of colours and surfaces without lightness value limitations
- Flexibly shapeable surfaces
- A wide range of materials: from render to brick slips, from ceramics to glass mosaic
- The perfect solution for facades of existing buildings with unevenesses, humidity and a small load-bearing capacity
- Extreme durability and shock resistance

Sophisticated technology, unlimited scope of design

Everything you need for existing and new buildings

Optimal insulation properties and system security are basic requirements to allow a ventilated rainscreen facade system to insulate heat and to maintain the value of a building. At the same time, there is a growing demand among architects and investors for a unique design. StoVentec Carrier-Board Facades combine the perfect function with creative play.

Glass core: the carrier-board

The system's core is the carrier-board made of expanded glass granulate. The material made of recycled glass is the basis for its special properties:

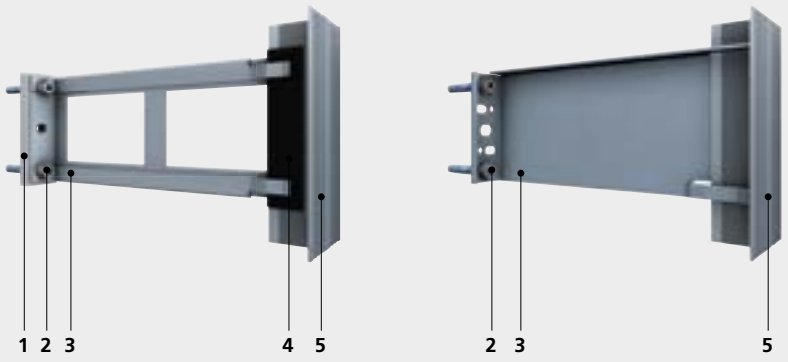
- Very small thermal and hygric expansion
- High elasticity (low modulus of elasticity)
- Resistance to weathering
- Low weight
- High level of resistance to mechanical stress

These properties allow for facades made of either glass mosaic (StoVentec M), natural stone panel tiles (StoVentec S), glass elements up to 1 m² (StoVentec G) or brick slips and ceramics (StoVentec C). Bold colour shades, curved surfaces... StoVentec R rendered facades offer scope for design.

Extremely flexible: the sub-construction

The very flexible stainless steel/ aluminium sub-construction allows for variable spacing between the bare wall and the facade surface. There are almost no fixation problems, even on moist, cracked walls or unstable old render. In combination with the shapeable carrier-board, extraordinary shapes can be realised. Upon request also according to the passive house standard since the Passive House Institute in Darmstadt certifies: the passive house sub-construction is free of thermal bridging!

Direct comparison between a passive house certified fixed point wall bracket that is free of thermal bridges and a stainless steel wall bracket (fixed point), also free of thermal bridges, each with a clipped-on T-profile.



1 Thermal separating element
2 Fixing
3 Fixed point wall bracket
4 Thermal separating element
5 T-profile

top:
Drienerbeek offiice building, NL-Enschede
Architect: I/AA Architecten & Ingenieures, NL-Enschede
Systems: StoVentec R (with render) und StoVentec S (with natural stone slab)

bottom:
Sparkasse Brixen, IT-Brixen
Architect: Ralf Dejaco, IT-Brixen
StoVentec R with facade profiles

top:
O.A.S.E. Education and Communication Center, DE-Düsseldorf
HPP Hentrich-Petschnigg & Partner GmbH + Co. KG, DE-Düsseldorf
StoVentec M with white glass mosaic

bottom:
Town house Zurlindestrasse, CH-Zurich
huggen_berger GmbH, CH-Zurich
StoVentec C with black ceramics

Independent shapes
The split carrier-boards including the sub-construction with flexible spacing between the bare wall and the facade surface even make facade shapes possible that have an organic appearance.

Individual surface design
Black render, anthracite-coloured brick slips, flame red ceramics...
Thanks to the carrier-board's low expansion coefficient and its high elasticity (low modulus of elasticity) as well as the rear ventilation, there are no limitations for StoVentec systems regarding the lightness value.

Better protection against weathering
The insulation provides for protection against the cold and saves heating costs during cold days. When the sun is shining, the facade surface heats up, especially when painted in bold colours. The heat is transported via the ventilation airspace and the insulation does not have to absorb the entire thermal load, which makes for a pleasant climate in the interior, also on hot days.

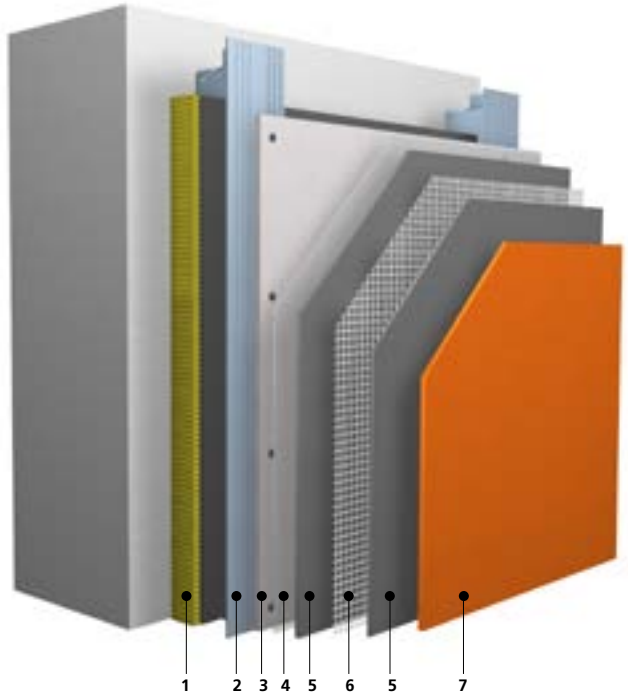
Improved sound protection
The ventilation airspace causes decoupling from the facade surface and the bare wall. The advantage: the sound attenuation improves by up to 10 dB (A), which is perceived as only half as loud.

Moisture regulation by air circulation
Ventilated facades have a decisive advantage in interiors that are extremely humid, such as e.g. indoor swimming pools: the permanent air circulation transports the humidity faster than other insulation systems.

Advantages that can be seen and felt

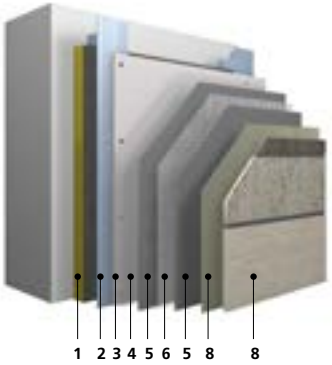
StoVentec satisfies on every surface

Numerous references and millions of installed square metres worldwide don't lie: StoVentec Carrier-Board Facades are tested and proven in practice! And since our systems are from one source and one contact person, all system components match perfectly. What belongs together, was brought together - and every user is assured that everything works and that the quality is right.

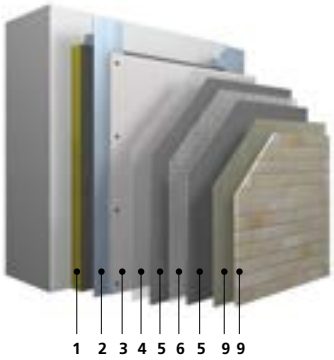


StoVentec R
Top coat: seamless rendered facades up to an edge length of max. 25 m in all 800 colour shades of the StoColor System, or for individually arranged facades in combination with facade profiles (StoDeco)

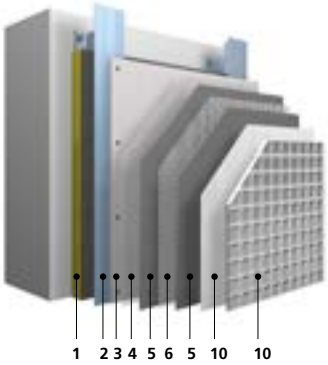
StoVentec S
Facade cladding:
Natural stone panel tiles



StoVentec C
Facade cladding:
Brick slips or ceramic tiles



StoVentec M
Facade cladding:
Glass mosaic in different colour shades and formats



The "Infanta Doña Elena" concert and congress hall, ES-Águilas
Estudio Barozzi Veiga, ES-Barcelona
StoVentec R with concave, seamless rendered surface

1 Insulation
Sto-Stone Wool Insulation Board or Sto-Glass Wool Board: RSC insulation boards made of mineral wool, Type WAB (exterior insulation of walls behind cladding), non-combustible. Thickness variable - depending on the thermal insulation requirements

2 Sub-construction
Sub-construction: made of timber or stainless steel/aluminium, for fixing the carrier-boards. Is anchored into the substrate with dowels approved by the construction supervision.

3 Carrier-board
StoVentec Carrier-board/StoVentec Carrier-board A: made of recycled glass (expanded glass granulate), mesh-reinforced on both sides, 12 mm thick, format 1.20 x 0.80 m and 1.20 x 2.40 m, low weight (approx. 6 kg/m²), frost-resistant, limited combustibility within the system, B1 acc. to DIN 4102 or non-combustible A2-s1, d0 acc. to DIN EN 13162, respectively

4 Prime coating
Sto-Primer: filled, organic priming paint coat. Adhesion-promoting, absorbency-regulating. When an organic base coat is used, the prime coating is not necessary.

5 Base coat
Sto-RFP: organic, ready-to-use adhesive and reinforcing compound. Highly flexible, crack-proof, highly resistant to mechanical stress.
Alternative: StoLevell Uni. For mineral coatings such as mineral render, glass mosaic, natural stone slabs, brick slips and ceramics

6 Reinforcing coat with glass fibre mesh
Sto-Glass Fibre Mesh
Alkali-resistant reinforcing mesh, non-shifting, with optimised force absorption.
Alternative: Sto-Shield and Reinforcing Mesh AES for protection against electro-smog. Protects against 99% of high-frequency electromagnetic radiation, dampens low-frequency fields.

7 StoVentec R top coat
Organic, silicone resin-bound and mineral finishing renders, finishing renders with the Lotus-Effect® technology, tintable acc. to StoColor System

8 StoVentec S cladding
Sto-Natural Stone Tiles: bonded with StoColl KM and pointed with StoColl FM-S (slurry-pointed joint) or StoColl FM-K (face brick joint)

9 StoVentec C cladding
StoSilt Cera brick slips: bonded with StoColl KM and pointed with StoColl FM-S (slurry-pointed joint) or StoColl FM-K (face brick joint)
The alternative: ceramics upon individual release

10 StoVentec M cladding
Sto-Glass Mosaic (glass mosaic tiles), bonded with StoColl KM and pointed with StoColl FM-S (slurry-pointed joint)

Overview
StoVentec Carrier-Board Facades
Ventilated rainscreen cladding systems

Use	• Existing and new buildings: installation limits according to national building regulations • Onto all solid, load-bearing anchorage substrates • Onto external walls in timber frame construction • Levels unevenness by means of a flexible sub-construction • No limitation of the insulant thickness
Properties	• Lowest thermal bridge coefficients due to the stainless steel/aluminium sub-construction • Passive house certified sub-construction free of thermal bridges possible • Highly effective thermal insulant • Resistant to microorganisms (algae and fungi) • Frost-resistant • High level of resistance to mechanical stress • Especially durable • Highly weather-resistant • Improvement of sound attenuation up to 10 dB (A) • Diffusion-open system structure through rear ventilation • Suitable for the refurbishment of moisture-soaked masonry • Realisable also overhead or a rounded facade, depending on the selected top coat or cladding, respectively • European fire protection classification acc. to EN 13501-1: B - s1, d0 or A2 - s1, d0, respectively
Appearance	StoVentec R (R=Render): • Tintable in accordance with the StoColor System StoVentec S (S=Stone): • Sto-Natural Stone Tiles StoVentec C (C=Ceramics): • StoSilt Glazed Brick Slips • Ceramic tiles/porcelain stoneware StoVentec M (M=Mosaic): • Sto-Glass Mosaic For all StoVentec versions, the following applies: • No limitation to the lightness value • All facade claddings in different formats and colour shades/ surface treatments available • Numerous design possibilities by combining top coats or claddings, respectively, or with other materials such as StoDeco architectural elements
Application	• Efficient installation through use of StoSilo technology and construction site logistics • Complete detail solutions • Fast installation

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