Facade
Programme overview

Contents

Effective insulation combined with bespoke surface options

Facade design continues to pose new challenges for construction professionals, from creating a high-quality architectural concept to complying with ecological and economical requirements such as energy saving and climate protection. Meticulous planning, professional installation and advice, and outstanding products are essential to ensure a high-quality, economical, and aesthetically appealing facade design. And these are of equal importance to building owners, planners, and applicators alike.

The use of paints, shapes, materials, and textures gives the facade its own distinctive character and appearance. Alongside aesthetic appeal, the quality of a facade is also largely dependent on its functionality and durability. Thermal insulation plays a key role in this regard. For economic and ecological reasons, external wall insulation systems (EWIS) and ventilated rainscreen cladding systems are increasingly used today.

As the market leader for facade insulation, we at Sto know what makes the perfect facade. Firstly, well-insulated and protected facades reduce operating costs by lowering the maintenance costs and the amount of heat energy required. This in turn serves to protect the environment. Secondly, each insulation system can be combined in a number of ways with a huge range of Sto materials, going far beyond just a colour choice.

Hamburg town villas, DE-Hamburg
Architect: BN Architekten, DE-Hamburg

Substrate preparation

The best foundation for quality

Residential and commercial building, DE-Heilbronn
Architect: Mathias Müller, DE-Heilbronn

No matter whether unevenness needs to be levelled, the absorption capacity is to be equalised or whether a primer is required for insulation: pretreating the substrate lays the foundation for a high-quality and durable surface! With its wide product range for substrate preparation, Sto provides the ideal solution for every application. Because it comes from Sto, you can expect to receive a low-emission, environmentally responsible solution.

Substrates are divided into various categories: porous and dense, synthetic and mineral, old and new. Each substrate has different requirements and properties which play a key role in the selection of the coating materials. Therefore, there are some rules to follow so that the coating can be perfectly applied and have its properties unfold. Only when the quality of the substrate is right can the subsequent coating provide the optimal effect and fulfil its function.

Sto primers – the basis for genuine workmanship

Not every surface must be primed, often simple cleaning suffices. If, however, the substrate presents properties which make it necessary to use a primer, this must only be applied to dry substrates which are free from grease, oil, dust, and damage. A substrate which is too absorbent is just as unsuitable as one with no absorbency whatsoever. StoPrim and StoPrep primers guarantee load-bearing substrates for ceilings and walls.

Overview of substrate preparation

Product	Product properties						Problem (solution)			
	Basis	Pigmented	Filled		Penetration capacity	Adhesion-promoting		Surface-con-solidating	Isolating	Surface-disinfecting
StoPrim Fungal	water-based				□					
StoSilco HC	emulsion			■■	■■		■■			
StoPrim Micro	emulsion			■■	■	□	■	■		
Stoplex W	water-based	□			□	□	■	■		
StoPrim Plex	water-based				□	□	■	■		
StoPrim Silikat	water-based					□	■	■		
Sto-Primer	water-based	■	■		□	■	■			
StoPrep QS	water-based	■	■		□	■	■		■	
StoPrep Contact	water-based	■	■			■	■			
StoPrep Miral	water-based	■	■		□	■	■			
StoPrim Activ	solvent-containing	■				■■	■	□	■	
StoPrim LP	solvent-containing	■				□	■		■	

Substrates

Product	Concrete	Lime paint/ lime render	Lime/ cement render	Calcium silicate masonry unit	Cellular concrete	Sandstone	Silicone resin emulsion paint/render	Silicate emulsion paint/render	Cement bonded wood particle	Fibre cement slab
StoPrim Fungal	■	■	■	■	■	■	■	■	■	■
StoSilco HC	■	□	■	□	□	□	□	□		
StoPrim Micro	□	■	■	■	■	□		□		
Stoplex W	■■	■■	■■	■■	■	□	■	■		□
StoPrim Plex	■	■	■	■	■	□	■	■		□
StoPrim Silikat	□	■	■	■	□	□		■■		
StoPrim Activ	■		□							■
StoPrim LP	■		□		■		□		■	□

■■ excellent
■ good
□ to a limited extent

Overview of external wall insulation systems

System	System properties				Project		
	Mechanical resistance	Resistance to cracking	Water vapour diffusion	Sound insulation	Multiple dwelling/	High-rise building	Fire protection class
StoTherm Classic®	■■	■■	■	■	■■		limited combustibility
StoTherm Classic® S1	■■	■■	■	■	■■	■■	non-combustible
StoTherm Vario[1)]	■	■	■	■	■■		limited combustibility
StoTherm Mineral[1)]	■	■	■■	■	■■	■■	non-combustible

■■ excellent
■ good
☐ to a limited extent

[1)] Stop & Go-Technology/QS and FT-Technology (use at low temperatures)

Overview of design options for external wall insulation systems

System	Surface type			
	Dark finishes[1)]	3D Facades	Rusticated facade	Three-dimensional facade elements
				
StoTherm Classic®	■■	■	■■	■
StoTherm Classic® S1	■■	■	■	■
StoTherm Vario		■	■■	■■
StoTherm Mineral		■	■■	■■

■■ excellent
■ good
☐ to a limited extent

[1)] render and paint light reflectance value < 20 %

		Problem			Design (architecture)	
Insulant thickness > 20 cm	Timber frame construction	Cracks (structural) in the substrate	Cracks (non-structural) in the substrate	Uneven substrate	Scope for design	Colour shade intensity
■■	■	□	■■	■	■■	■■
■		□	■■	■	■■	■■
■■	■	□	■	■	■■	■
■		□	■	■	■	■

Natural stone	Bricks	Glass mosaic	Prefabricated render elements	Resin brick slips
				
□	□	□	■■	■■
□	□	□	■■	■■
■■	■■	■■	■	■
■■	■■	■■	■	■

Overview of ventilated rainscreen cladding systems

	System	System properties				Project	
		Mechanical resistance	Resistance to cracking	Water vapour diffusion	Sound insulation	Multiple dwelling/ detached house	High-rise building
Carrier-board facade	**StoVentec R**	■■	■■	■■	■■	■■	■■
	StoVentec S	■■	■■	■■	■■	■■	■■
	StoVentec C	■■	■■	■■	■■	■■	■■
	StoVentec M	■■	■■	■■	■■	■■	■■
Panel facade	**StoVentec Glass**	■■	■■	■■	■■	■■	■[1)]
Photovoltaic panel facade	**StoVentec ARTline Invisible**	■■	■■	■■	■■	■■	■[1)]
	StoVentec ARTline Inlay	■■	■■	■■	■■	■■	■[1)]

■■ excellent
■ good

[1)] following approval from the competent authority

Overview of ventilated rainscreen cladding system designs

	System	Surface type			
		Prefabricated elements	Dark finish[2)]	3D facades	Seamless (render) surface
					
Carrier-board facade	**StoVentec R**		■■	■■	■■
	StoVentec S		■■	■	■■
	StoVentec C		■■	■■	■■
	StoVentec M		■■	■■	■■
Panel facade	**StoVentec Glass**	■■	■■		
Photovoltaic panel facade	**StoVentec ARTline Invisible**	■■	■■		
	StoVentec ARTline Inlay	■■	■■		

■■ excellent
■ good

[2)] render and paint light reflectance value < 20 %

			Problem				Design (architecture)	
Fire protection classes	Insulant thickness > 20 cm	Timber frame construction	Cracks (structural) in the substrate	Cracks (non-structural) in the substrate	Uneven substrate	Completely damp masonry	Scope for design	Colour shade intensity
limited combustibility/	■■	■■	■■	■■	■■	■■	■■	■■
limited combustibility/	■	■■	■■	■■	■■	■■	■■	■■
limited combustibility/	■	■■	■■	■■	■■	■■	■■	■■
limited combustibility/	■	■■	■■	■■	■■	■■	■■	■■
limited combustibility	■■	■■	■■	■■	■■	■■	■■	■■
limited combustibility	■■	■■	■■	■■	■■	■■	■■	■
limited combustibility	■■	■■	■■	■■	■■	■■	■	

Glass	Bricks	Natural stone	Glass mosaic	Prefabricated render elements	Three-dimensional facade elements
					
				■■	■■
		■■			■■
	■■				■
			■■		■■
■■					
■■					
■■					

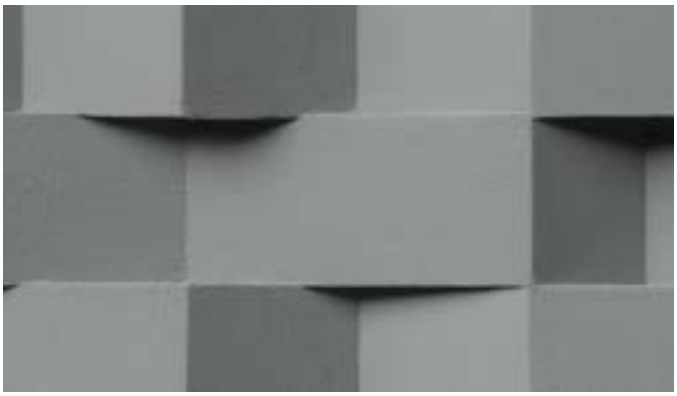
The right surface for every project

Design possibilities of Sto facade insulation systems

Renders
Colours, grain sizes, and render textures in numerous variations

Brick
The range includes 40 types of stone and 3 different formats. These can be laid in standard masonry bonds as well as in customised patterns.

Scratch renders
Mineral – weather-resistant, durable and easy to process



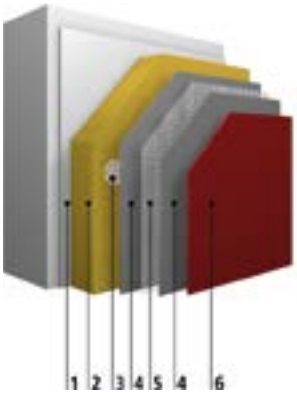
Three-dimensional facade elements
Custom, three-dimensional facade design to planner specifications.

Natural stone slabs
Limestone in modular formats for cost-effective execution of custom patterns.

Glass mosaic
The special highlight for the facade offers almost unlimited scope for design

StoTherm Classic® S1

Non-combustible external wall insulation system, cement-free and with the highest impact resistance



1 Bonding
2 Insulation
3 Fixing
4 Base coat
5 Reinforcing coat with glass fibre mesh
6 Finish

The "Blue Angel" is awarded to products that set themselves apart from the current market offer in terms of ecology. StoTherm Classic® S1 is certified with the eco-label RAL-UZ 140 (certified system components according to the certificates from RAL gGmbH).

Thanks to the use of stone wool insulation boards, cement-free renders, and basalt – a heat-resistant raw material – StoTherm Classic® S1 sets standards in facade protection. With this external wall insulation system, even dark colour shades can be incorporated into the facade design. At the same time, StoTherm Classic® S1 meets stringent fire protection requirements.

StoTherm Classic® S1 represents the further development of our classic product and meets the high fire protection requirements for non-combustible EWI systems in accordance with EN 13501 thanks to the use of high-quality organic system components in conjunction with basalt, an extremely durable and heat-resistant raw material. One of the applications of basalt is in space travel, where it is used to produce heat shields. Thanks to this innovative raw material technology, Sto is able to provide maximum application reliability and creative freedom for its non-combustible EWIS systems. Intense colours, right up to very dark facades, can be used successfully to meet individual wishes. StoTherm Classic® S1 sets standards in effectively protecting facades and maintaining their value on a sustained basis.

All benefits at a glance

- Non-combustible
- Highly resistant to mechanical stress
- Resistant to cracking thanks to an organic coating build-up
- Intense, dark colour shades possible
- Can be realised with the finishing renders Stolit®, StoSilco®, StoSilco® blue, and StoLotusan®
- Highly resistant to microorganisms (algae and fungi)
- Cement-free, ready-to-use system components
- Feasible without intermediate coat and paint coat
- fully-fledged, purely organic EWIS system which uses basalt, an exceptionally durable, non-combustible raw material
- Highly weather-resistant
- Permeable to water vapour and CO_2

StoTherm Classic® S1

Non-combustible external wall insulation system, cement-free and with the highest impact resistance

StoTherm Classic®: the most successful external wall insulation system from Sto. More than 100,000,000 m², five stars, one EWIS!

- Highest product quality
- Exceptional durability
- Proven reliability
- Fascinating range of design possibilities
- Trend-setting innovation

The edge in quality: StoTherm Classic® S1 was honoured with the Plus X Award® innovation prize as the best product of the year in 2013.

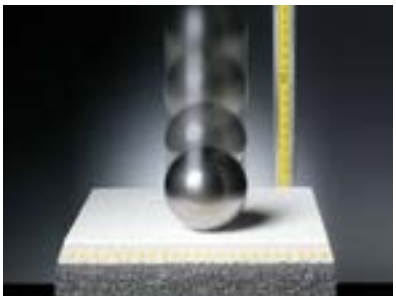
Overview of StoTherm Classic® S1	
Areas of application	• New and existing buildings • Especially suitable for high-rise, public and special-use buildings • Suitable for passivhaus standard
Substrate	• Masonry e.g. brick, calcium silicate masonry units, cellular concrete, fair-faced masonry, and masonry veneer • Concrete, concrete slab construction (three-layer concrete slabs)
Fixing	• Bonding • Bonding and fixing with anchors• Mechanical fixing with Sto-Rotofix plus
Thermal protection	• Insulation board made of mineral wool up to 300 mm
Reaction to fire	• Non-combustible, class A2-s1, d0, in accordance with EN 13501-1
Impact resistance	• Highly resistant to mechanical stress of up to 15 joules in a standard system build-up • With high-impact proof build-up, resistant to more than 60 joules • Ball-impact resistant in accordance with DIN 18032-3
Other properties	• Optional Lotus-Effect® Technology • Anti-electrosmog optional
Design options	• Organic and silicone resin renders as well as renders with Lotus-Effect® Technology in stippled plaster texture, rilled render texture, and free-style textured renders • Three-dimensional facade elements made of Verolith granulate
Colour range	• Tintable in accordance with the StoColor System • Light reflectance value < 15 % possible
Application	• Cement-free, ready-to-use system components throughout • No intermediate coat required • Special protection against algae and fungi with a double coat of paint • Machine application
Notes	• System components of the "Blue Angel" environmental seal are listed in the certificates.
Approvals/ standards	The relevant national approvals apply.

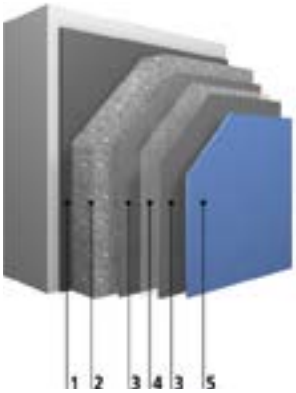
Asklepios Westklinikum Rissen, DE-Hamburg
Architect: APB. Architekten BDA, DE-Hamburg

StoTherm Classic®

Cement-free external wall insulation system, with maximum resistance to cracking and impact

The hard body impact test shows that StoTherm Classic® can withstand up to ten times as much impact as cement-based systems.





1 Bonding
2 Insulation
3 Base coat
4 Reinforcing coat with glass fibre mesh
5 Finish

For more than four decades, the star among the external wall insulation systems has been setting international standards. Among the many strengths of StoTherm Classic® are its proven durability, maximum impact resistance of over 60 joules, optimum insulation properties, and a virtually unlimited range of design possibilities. StoTherm Classic® meets the highest requirements in terms of system reliability, durability, and efficiency like no other system on the market. Almost 100 million square metres of reference surface prove its technical superiority.

Among the many strengths of StoTherm Classic® are its maximum shock and impact resistance – ten times higher than mineral systems – its optimum insulation properties, and a huge range of design possibilities.

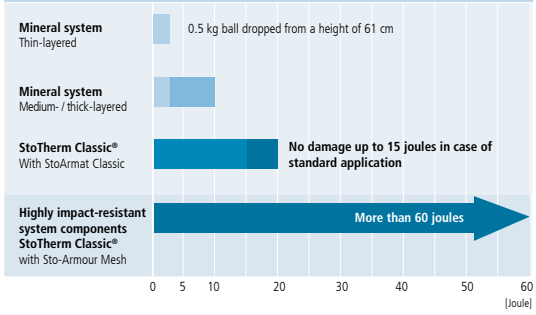
The complete StoThermClassic® system has a high mechanical load-bearing capacity. In addition to its high resistance to cracking, it is also particularly weather-resistant, thermally insulating, and permeable to CO_2 and water vapour. This makes StoTherm Classic® one of the safest and most durable external wall insulation systems ever.

All benefits at a glance

- Highly resistant to mechanical stress
- System reliability - more than 100 million m^2 in use worldwide
- Resistant to cracking thanks to an organic coating build-up
- Highly resistant to microorganisms (algae and fungi)
- Intense, dark colour shades possible
- Cement-free, ready-to-use system components
- Feasible without intermediate coat and paint coat
- Clean building site through the use of Sto-Turbofix - the adhesive based on PU foam
- Resistant to hail, storms, and hurricanes according to the FIBAG simultaneous test
- Highly weather-resistant
- Permeable to water vapour and CO_2

Mechanical resistance of external wall insulation systems

The hard body impact test demonstrates the level of energy in joules needed to cause surface damage



To summarise: reliable and durable – a global leader

StoTherm Classic®

Cement-free external wall insulation system, with maximum resistance to cracking and impact

StoTherm Classic®: the most successful external wall insulation system from Sto. More than 100,000,000 m², five stars, one EWIS!

- Highest product quality
- Exceptional durability
- Proven system security
- Fascinating range of design options
- Trend-setting innovation

Maximum reliability: StoTherm Classic® is the first, and to date, only system to have undergone the FIBAG simultaneous test. The test procedure involves simultaneous exposure to heavy rain, mass hail, and storms up to hurricane force.

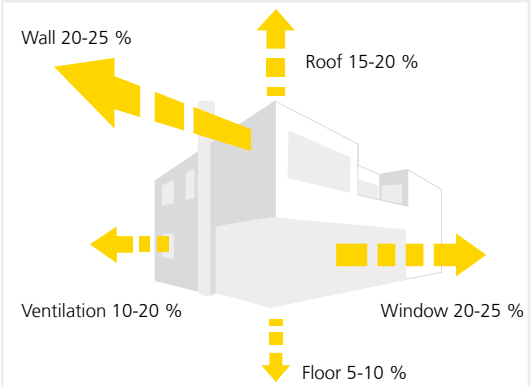
Overview of StoTherm Classic®	
Areas of application	• New and existing buildings up to high-rise levels (max. 22 m) • Suitable for passivhaus standard
Substrate	• Masonry, e.g. brick, calcium silicate masonry units, cellular concrete, fair-faced masonry, and masonry veneer • Concrete, concrete slab construction (three-layer concrete slabs) • Timber construction (solid, frame, and panel construction) • Steel construction (column and framing) • Existing external wall insulation systems (doubling-up)
Fixing	• Bonding • Bonding and fixing with anchors • Purely mechanical fixing
Thermal protection	• Insulation board made of EPS up to 400 mm
Impact resistance	• Highly resistant to mechanical stress of up to 15 joules in a standard system build-up • Highest mechanical resistance of up to 60 joules in a highly impact proof build-up • Highest hail impact resistance class 5 in the appropriate system build-up • Ball-impact resistant in accordance with DIN 18032-3 • Resistant to hail, storms, and hurricanes according to the FIBAG simultaneous test
Other properties	• Optional Lotus-Effect® Technology • Anti-electrosmog optional
Design options	• Organic and silicone resin renders as well as renders with Lotus-Effect® Technology in stippled plaster texture, rilled render texture, and free-style textured renders • Resin brick slips and 3D facade elements made of Verolith granulate • Natural stone tiles, brick slips, and ceramic tiles possible on agreement
Colour range	• Tintable in accordance with the StoColor System • Light reflectance value < 15 % possible
Application	• Cement-free, ready-to-use system components • No intermediate coat required • A double coat of paint offers special protection against algae and fungi • Suitable for application by machine • QuickSet technology makes it possible to carry out projects during the colder seasons
Approvals/ standards	The relevant national approvals apply.

University of Economics and Business, AT-Vienna
Architect: Crab Studio, GB-London

Primary school, DE-Fürth
Architect: Harlé Architekt, DE-Fürth

Facade insulation systems from the technology leader

Saving the environment, and energy



Ceiling insulation

Energy-efficient construction is an important issue in new building and refurbishment. To achieve maximum energy savings, the entire building envelope must be insulated. Ceiling insulation systems from Sto ensure a comfortable temperature of the flooring in the rooms above the cellar and achieve energy savings of up to 10 %. Insulating the topmost intermediate floor achieves yet another saving of up to 20 %. Sto offers optimum solutions here (see the Sto ceiling insulation brochure for further details).

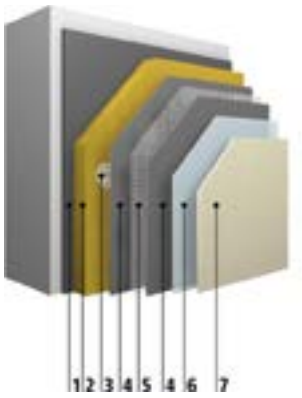
In times of dwindling resources, rising oil prices, and climatic changes due to higher CO_2 emissions, effective heat insulation and renovation systems are becoming increasingly important. Anyone who opts for insulation must act in a responsible and future-oriented way. Those who insist on maximum technical safety, achieve optimum results. The versatile insulation systems from Sto provide crucial advantages in terms of weather, heat, fire, and sound insulation. StoTherm Classic® has developed into a classic that has been used successfully for more than 40 years on almost 100 million square metres worldwide.

As a market leader with decades of experience in the area of facade insulation, Sto sets standards with a unique product range standing for maximum durability and technical reliability. It encompasses solutions to suit all climate zones, all substrates, and all needs. The building physical properties of the systems are impressive as are their simple assembly and flexible design options: from a crack-proof and shock-proof StoTherm Classic® to an eco-friendly system, through a StoTherm Mineral system to the ventilated rainscreen cladding StoVentec Facade.

The Sto "eco-systems"
Environmentally friendly products also require technical reliability. The eco-friendly StoTherm Wood, based on a soft wood fibre insulation board, offers reliable weatherproofing, good insulation properties, and a stable timber frame construction. These attributes earned it the nature-plus® environmental seal in 2007. The carrier board of the ventilated rainscreen cladding StoVentec Facade is made from recycled glass.

StoTherm Mineral

Non-combustible external wall insulation system, especially suitable for high-rise and public buildings



1 Bonding
2 Insulation
3 Fixing
4 Base coat
5 Reinforcing coat with glass fibre mesh
6 Intermediate coat
7 Finish

Eco-friendly thermal protection: The "Blue Angel for Climate Protection" focuses on energy-efficient products that are particularly energy-saving and long-lasting. As a complete system that has been awarded the "Blue Angel" (RAL-UZ 140 according to certificates from RAL gGmbH), StoTherm Mineral is the sustainable alternative when it comes to increased requirements for environmental protection.

StoTherm Mineral is the ideal solution for high-rise buildings, hospitals, etc. The system fulfils all building inspection requirements for fire protection and consists of purely mineral components, from the insulation to the finish. This reliable example of non-combustible systems is suitable for almost all substrates and offers a wide range of design possibilities. Alongside mineral finishing renders and facade paints boasting improved resistance against algae and fungi, facade cladding such as brick or natural stone slab is available for StoTherm Mineral.

Safety beyond high-rise level

This system is mineral through and through, from the adhesive to the insulation with mineral wool insulation boards or lamellas, right up to the finish. It meets the requirements for building material class A2 according to DIN 2102 and can be used up to a height of 100 m on both new and existing buildings.

Securely fixed – efficiently applied onto

StoTherm Mineral can be applied to almost any substrate. If the adhesive strength is not sufficient, fixing with anchors is essential in the edge area and overthe entire surface, as in the case of stone wool insulation boards. The excellent machine application properties of the adhesive and reinforcing compounds along with the facade renders contribute to quick and effortless application.

All benefits at a glance

- Non-combustible
- Natural stone tiles possible
- High resistance to microorganisms (algae and fungi), especially with an additional paint build-up (including prime coating)
- Entirely mineral coating build-up possible
- Highly weather-resistant
- Permeable to water vapour and CO_2

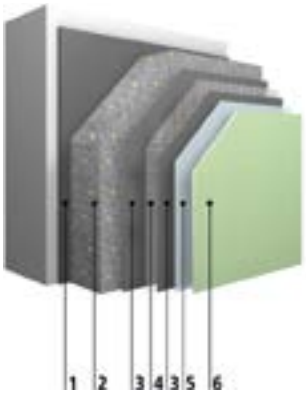
Overview of StoTherm Mineral

Areas of application	• New and existing buildings up to a height of 100 m • Especially suitable for high-rise, public and special buildings • Suitable for passivhaus standard
Substrate	• Masonry, e.g. brick, calcium silicate masonry units, cellular concrete, fair-faced masonry, and masonry veneer • Concrete, concrete slab construction (three-layer concrete slabs) • Timber construction (solid, frame, and panel construction) • Steel construction (column and framing) • Existing external wall insulation systems (doubling-up)
Fixing	• Bonding • Bonding and fixing with anchors • Purely mechanical fixing
Thermal protection	• Insulation board made of mineral wool up to 340 mm • In case of natural stone and ceramic cladding up to 200 mm
Reaction to fire	• Non-combustible, class A2-s1, d0, in accordance with EN 13501-1
Impact resistance	• Resistant to mechanical stress • Hail impact resistance class 3 in the appropriate system build-up
Other properties	• Optional Lotus-Effect® Technology • Anti-electrosmog optional
Design options	• Organic and silicone resin renders as well as render with the Lotus-Effect® as well as mineral and silicate renders in stippled, rilled or free-style • Three-dimensional facade elements made of Verolith granulate • Natural stone tiles, brick slips, and ceramic tiles and boards
Colour range	• Limited tintability in accordance with the StoColor System • Light reflectance value ≥ 20 %
Application	• Suitable for application by machine • Stop & Go technology • QuickSet and FastTrack technologies make it possible to carry out projects during the colder seasons • Double paint coat necessary depending on the render type and colour shade • No paint coat necessary for organic finishing renders • Special protection against algae and fungi with a double coat of paint
Notes	• System components of the "Blue Angel" environmental seal are listed in the certificates.
Approvals/ standards	The relevant European and/or national approvals apply.

Liebherr high-rise residential building, DE-Biberach

StoTherm Vario

External wall insulation system with a mineral base coat for a wide range of surfaces



1 Bonding
2 Insulation
3 Base coat
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5 Intermediate coat
6 Finish

The StoTherm Vario combination system is the ideal choice for those seeking to keep the benefits of a light organic insulant, but still preferring a mineral finishing render as a finish. The system also cuts an equally fine figure with silicate finishing renders. Alongside the facade renders and paints, design possibilities know almost no bounds thanks to further combination options, e.g. bricks, natural stone slabs, or three-dimensional facade elements.

The best combination for flexibility

With the aid of polystyrene (an organic insulant), a mineral reinforcement, and an organic, mineral, or silicate finishing render as a finish, StoTherm Vario has limited combustibility and meets the requirements for building material class B1 in accordance with DIN 4102. This means that it can also be used for new and existing buildings up to high-rise level (max. 22 m).

Fixing methods range from simple bonding to bonding and anchor fixing, right up to mechanical fixing with Sto-Rotofix plus in the case of problematic substrates.

Unlimited versatility – universal applicability

Applying StoTherm Vario is both easy and safe, and therefore extremely cost-effective. All system components have outstanding machine application properties, making StoTherm Vario the perfect combined system.

All benefits at a glance

- Free choice of finishing renders
- Decorative facade design with ceramics and natural stone
- High resistance to microorganisms (algae and fungi), especially with an additional paint build-up (including prime coating)
- Highly weather-resistant
- Permeable to CO_2 and water vapour

Overview of StoTherm Vario

Areas of application	• New and existing buildings up to high-rise levels (max. 22 m) • Suitable for passivhaus standard
Substrate	• Masonry, such as brick, calcium silicate masonry units, cellular concrete, fair-faced masonry, and masonry veneer • Concrete, concrete slab construction (three-layer concrete slabs) • Timber construction (solid, frame, and panel construction) • Steel construction (column and framing) • Existing external wall insulation systems (doubling-up)
Fixing	• Bonding • Bonding and fixing with anchors • Purely mechanical fixing
Thermal protection	• Insulation board made of EPS up to 400 mm • In case of natural stone and ceramic cladding up to 200 mm
Impact resistance	• Resistant to mechanical stress • Hail impact resistance class 3 in the appropriate system build-up
Other properties	• Optional Lotus-Effect® Technology • Anti-electrosmog optional
Design options	• Organic and silicone resin renders as well as render with the Lotus-Effect® Technology as well as mineral and silicate renders in stippled, rilled or free-style • Resin brick slips and three-dimensional facade elements made of Verolith granulate • Natural stone tiles, brick slips, and ceramic tiles and boards
Colour range	• Limited tintability in accordance with the StoColor System • Light reflectance value ≥ 20 %
Application	• Suitable for application by machine • Stop & Go technology • QuickSet and FastTrack technologies make it possible to carry out projects during the colder seasons • Double paint coat necessary depending on the render type and colour shade • No paint coat necessary for organic finishing renders • A double coat of paint offers special protection against algae and fungi
Approvals/ standards	The relevant national approvals apply.

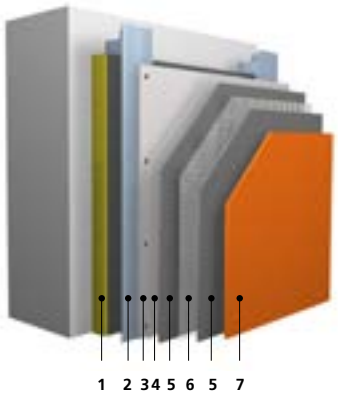
Student houses at University of Twente, NL-Enschede
Architect: Claus & Kaan Architekten BNA bv, NL-Amsterdam

Housing development at Dombiosol, DE-Hüfingen
Architect: Horst Hug, DE-Hüfingen

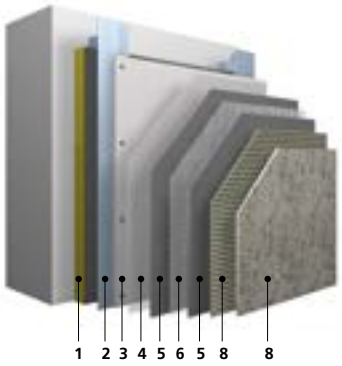
StoVentec seamless facades

Seamless – for unlimited colour and surface design options

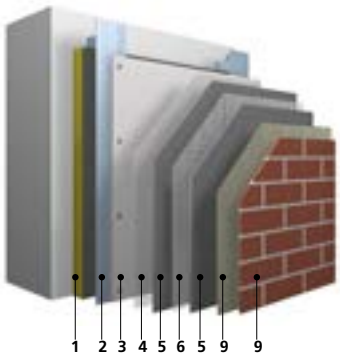
StoVentec R
(finish: render)



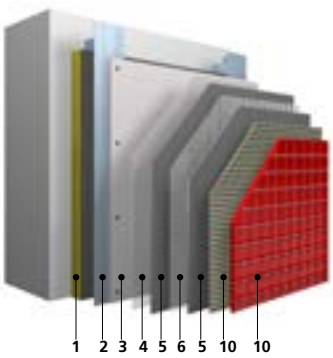
StoVentec S
(facade cladding:
natural stone tiles)



StoVentec C
(facade cladding:
brick slip, ceramics)



StoVentec M
(facade cladding: glass mosaic in different colour shades and formats)



1 **Insulation**
2 **Sub-construction**
3 **Render carrier board**
4 **Substrate coating**
5 **Base coat**
6 **Reinforcement**
7 **StoVentec R finish:**
Organic, silicone resin and mineral finishing renders, finishing renders with Lotus-Effect® Technology; tintability in accordance with the StoColor System
8 **StoVentec S cladding:**
Sto-Natural Stone Tiles, bonded with StoColl KM and pointed with StoColl FM-S (slurry-grouted joint) or StoColl FM-K (trowel-pointed joint)
9 **StoVentec C cladding:**
StoBrick bricks, bonded with StoColl KM and pointed with StoColl FM-S (slurry-grouted joint) or StoColl FM-K (trowel-pointed joint) The alternative: ceramics acc. to individual release
10 **StoVentec M cladding:**
Sto-Glass Mosaic (glass mosaic tiles), bonded with StoColl KM and pointed with StoColl FM-S (slurry-grouted joint)

The StoVentec Carrier Board Facade is used to equal success in new buildings and refurbishments and is particularly well-suited to damp or extreme substrates, providing a fast, high-quality solution with the benefit of a seamless surface. Thanks to the back ventilation of the system, the masonry and insulation remain permanently dry, protected, and functional. The multilayer structure also adds to improved sound insulation. The system offers unlimited possibilities in terms of colour and surface design.

The carrier board in the StoVentec R system forms an exceptional key for facade renders in numerous structures and grain sizes, and is so malleable that it can even clad curved surfaces flawlessly. The StoColor System provides a wide range of design options when it comes to colours. Even very dark facade surfaces pose no problem. Besides facade renders and three-dimensional facade elements, the StoVentec Carrier-Board Facade is also ideally suited to the application of ceramics (StoVentec C), glass (StoVentec G), glass mosaic (StoVentec M), and natural stone tiles (StoVentec S).

StoVentec Carrier-Board Facades overview

Ventilated rainscreen cladding systems

Areas of application	• New and existing buildings • Particularly suitable for fine surface textures • Suitable for passivhaus standard with a certified sub-construction • Thick system build-ups (e.g. > 60 cm) possible
Substrate	• Masonry, e.g. brick, calcium silicate masonry units, cellular concrete, fair-faced masonry and masonry veneer • Concrete, concrete slab construction (three-layer concrete slabs) • Timber frame construction • Lightweight construction
Fixing	• Easily adjustable sub-construction made of a combination of stainless steel and aluminium • In timber frame construction with timber supporting battens
Thermal protection	• Mineral wool with nonwoven fabric facing • Thick insulant layers possible • System can also be implemented without insulation
Reaction to fire	• Class B1 in accordance with DIN 4102-1, limited combustibility • Non-combustible with StoVentec Carrier Board A and mineral coating build-up (A2-s1, d0 in accordance with EN 13501-1)
Sound insulation	• Improvement of up to 10 dB (A) in the airborne sound insulation index
Design options	**StoVentec R (R = Render)** • Large selection of colour and textures • Organic and silicone resin renders as well as render with the Lotus-Effect® as well as mineral and silicate renders in stippled or rilled textures or as free-style textured render • Can be combined with three-dimensional facade elements made of Verolith granulate **StoVentec S (S = Stone)** • Natural stone tiles • surface polished, honed, sand-blasted, brushed, edges bevelled (also without bevel on request) **StoVentec C (C = Ceramics)** • Brick slips, ceramics **StoVentec M (M = Mosaic)** • Glass mosaic • Gloss surface with depth effec For all StoVentec versions, the following applies: • No limitation to the light reflectance value • Can be combined with three-dimensional facade elements made of Verolith granulate
Application	• Complete selection of detail solutions • Simple and fast installation due to light panel weight • Curves can be implemented • Suitable for application by machine
Approval	• The relevant national approvals apply.

Infanta Doña Elena auditorium and congress centre, ES-Águilas; Architects: Barozzi / Veiga, ES-Barcelona; Photo: Mariela Apollonio
System: StoVentec R (with render)

“Royal” residential and commercial building, DE-Frankfurt/Main
Architect: schneider + schumacher, DE-Frankfurt/Main; photos: Ben Knabe
System: StoVentec M (with glass mosaic)

Centrum Bavaria Bohemia cultural information centre, DE-Schönsee; Architects: Brückner & Brückner Architekten, DE-Tirschenreuth; Photos: Guido Erbring
System: StoVentec G (with glass)

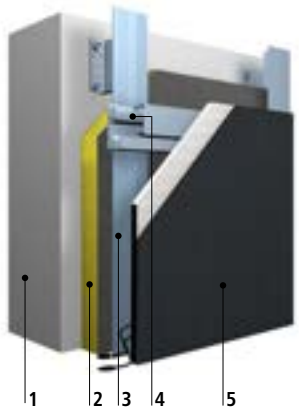
StoVentec Panel Facades

With accentuated joints for exclusive surfaces

StoVentec Glass

1 Anchorage substrate
2 Thermal insulation (with nonwoven fabric facing)
3 Sub-construction
4 Agraffe profiles
5 StoVentec Glass

StoVentec ARTline Invisible



1 Anchorage substrate
2 Thermal insulation (fleece-laminated)
3 Sub-construction
4 Agraffe profiles
5 StoVentec ARTline Invisible Panel

StoVentec ARTline Inlay

1 Anchorage substrate
2 Thermal insulation (with nonwoven fabric facing)
3 Sub-construction
4 Support rails
5 StoVentec ARTline Inlay Panel

The surface of the ventilated rainscreen cladding system with an exposed joint pattern can be produced using glass, mineral-filled acrylic glass (PMMA), or photovoltaic panels. This creates a huge range of possible applications for the system: the StoVentec Panel Facade can be used in new buildings and refurbishments, and is suitable for both indoor and outdoor use. The optimised stainless steel/aluminium sub-construction reduces thermal bridges to a minimum. The various surface appearances – mineral-filled acrylic glass, glass, and even photovoltaics – can be combined however you like.

In new buildings and refurbishments alike, the ventilated rainscreen cladding system can always be relied on to provide the desired thermal protection. Heating energy can be saved in the winter while the facade provides a comfortable ambient interior climate in the summer. Ventilation of the facade means that the amount of solar heat passing directly into the building is significantly reduced, rooms remain cooler for longer and comfort is guaranteed.

Energy generation on the facade

Using facade insulation can produce energy savings of up to 40 % in the building stock. In combination with StoVentec ARTline, an annual output of up to 90 kWh can be generated for every square metre of photovoltaic module. This means that, with a 50 m² StoVentec ARTline facade, the system can cover the average annual energy consumption of a four-person Central European family.

Cost-effectiveness and added value for the house

StoVentec Panel Facades provide economical refurbishment and reduced energy costs on the one hand, and maintained or even added value in the long term on the other. They are not just beautiful, they are beautifully dry too, because the ventilation layer improves the evaporation of moisture. Advantages for the building owners include enhanced prestige, a simpler leasing process, and increased returns. All of these factors make StoVentec Panel Facades a safe investment.

Overview of StoVentec Panel Facades

Areas of application	• New and existing buildings • Thick system build-ups (e.g. > 60 cm) possible • Exterior and interior
Substrate	• Masonry, e.g. brick, calcium silicate masonry units, cellular concrete, fair-faced masonry and masonry veneer • Concrete, concrete slab construction (three-layer concrete slabs) • Timber frame construction
Fixing	• By agraffe profiles, non-visible • Easily adjustable sub-construction made of a combination of stainless steel and aluminium • In timber frame construction with timber supporting battens
Thermal protection	• Mineral wool with nonwoven fabric facing • Thick insulant layers possible • System can also be implemented without insulation
Reaction to fire	StoVentec Glass/StoVentec ARTline Invisible and Inlay • Class B1 in accordance with DIN 4102-1, limited combustibility • Fire barriers required in accordance with national specifications, StoVentec SmartFlex • Limited combustibility • Class C-s1, d0, in accordance with EN 13501-1
Sound insulation	• Improvement of up to 10 dB (A) in the airborne sound insulation index
Design options	**StoVentec Glass** • Smooth, gloss surface with depth effect made of tempered safety glass • Panel facade with joints as design elements • Panel sizes up to 4.5 m possible **StoVentec ARTline Invisible** • High-quality appearance with finest pinstripes • Colour-permanent, active layer structure • Resistant, smooth surface • Panel facade with joints as design elements • Colour-matched module edge • Colour-matched, cut-to-size elements available as StoVentec Glass **StoVentec ARTline Inlay** • High-quality appearance with finest pinstripes • Colour-permanent, active layer structure • Colour-matched frame and mounting rail
Application	• Factory-produced panels installed in the sub-construction at the construction site • Fast installation possible in all weathers • Complete selection of detail solutions
Approvals	**StoVentec Glass** • The relevant national approvals apply. **StoVentec ArtLine Invisible and Inlay** • Special approval is required

Sogn og Fjordane Art Museum, NO-Førde
Architect: CF Møller AS, NO-Oslo

Multiple dwelling, DE-Bad Wildungen;
Architect: Gehring & Partner; DE-Bad Wildungen;
Photos: Dirk Robbers

St. Trinitatis provost church, DE-Leipzig
Architect: Schulz & Schulz Architekten GmbH, DE-Leipzig;
Photos: Christian Günther

More than just a facade
Individual appearance – universal protection

Today, intermediate coats, renders, paints, and facade claddings need to offer more than a perfect visual impression. Together, they preserve the substance of new and existing buildings and form a sustainable, protective cover which increases the value of the building and the quality of living.

Sto coating products work perfectly on virtually any substrate. This produces aesthetically appealing facades with impressive building physical properties, which can cope with any weather conditions or environmental factors. They guard against cracks and minimise algae and fungal attacks. And these are the best possible prerequisites for future-oriented construction and environmentally friendly, responsible use of our living space.

There are no limits to the scope of creative ideas. Rendered surfaces, bricks, natural stone slab, or three-dimensional facade elements can all be used on the facade. Even eccentric architectural plans can be executed flexibly and sustainably thanks to the large range of products and excellent application properties.

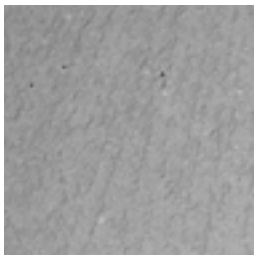
Reha Zentrum Bolzano, IT-Bolzano
Architect: Modus Architect, IT-Brixen

StoSignature
Rendered facades

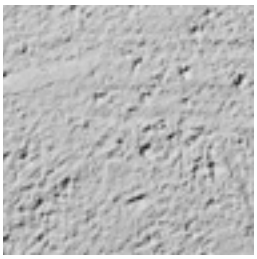
StoSignature provides a sophisticated system for rendered facades with a multitude of options for combining textures and effects.

Standard

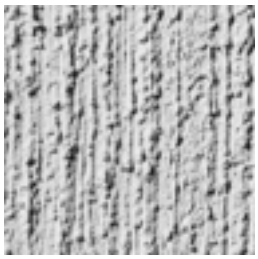
Fine



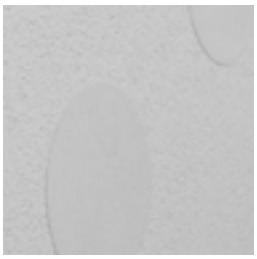
Rough



Linear

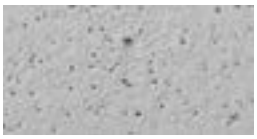


Graphic

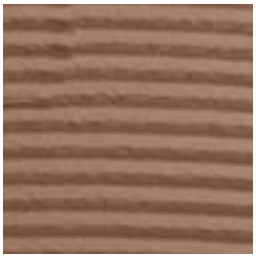


Textures

StoSignature allows you to customise facade surfaces with tried-and-tested yet somehow unique textures: from fine to rough, linear or graphic. Materials ranging from classic floated render through to free-style textured render in various grain sizes provide scope for new combinations and techniques.

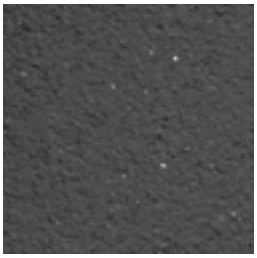


\+ Color



\+ Lasura

\+ Granulate



Textures + Effects

When it comes to colour design, there is a wide range of facade paints, lasures, and effect materials to choose from. Working in materials such as natural sand mixtures, transparent chips of glass, or silicon carbide add a certain something and make the facade a real eye-catcher.

Impressions

Tried-and-tested products provide the basis for rendered facades that have the appearance of other materials, such as natural stone, rust, or concrete.

Overview of finishing renders

Product	Product properties								Project	Design (surface)	
	Binding agent/ Technology	Water vapour perme-ability	CO_2 perme-ability	Water-repellent effect	Machine application properties	Resistance against algae and fungi	Ready-to-use1)	Version with early rainproofing properties (QS)	Substrate	Colour range	Texture/graining
iQ INTELLIGENT TECHNOLOGY											
StoLotusan® K/MP	Lotus--Effect® Technology	■■	■	■■	■	■■	■		organic, mineral		stippled render, free-style textured render
StoSilco® blue K/MP	silicone resin	■■	■	■■	■	■	■		organic, mineral		stippled render, free-style textured render
Best standard											
StoSilco® K/R/MP	silicone resin	■■	■	■■	■	■■	■	■	organic, mineral		stippled render, rilled render, free-style textured render
Stolit® K/R/MP	emulsion	■	□	■■	■	■■	■	■	organic, mineral		stippled render, rilled render, free-style textured render
Stolit® Effect	emulsion	■	□	■■	■	■■	■		organic, mineral		suitable for individual texturing
Stolit® Milano	emulsion	■	□	■■	□	■■	■		organic, mineral		ultra-fine render suitable for individual texturing
StoSil® K/R/MP	silicate	■■	■	■	■	■	■		mineral		stippled render, rilled render, free-style textured render
Basics											
StoSuperlit®	emulsion	■	□	■		□	■		organic, mineral		natural stone render
StoNivellit[2)]	emulsion	■	□	□		□	■		organic, mineral		fine textured render

■■ excellent
■ good
□ to a limited extent

tintable in accordance with the StoColor System
limited tintability in accordance with the StoColor System/colour

[1)] stir and dilute with water if necessary
[2)] to be overpainted

Stolit®, StoSilco® blue, StoSilco®, StoLotusan®

Versatile facade renders

Stolit® at a glance

- Reliable application and texture results
- Even better colour stability
- Extended colour choice without an additional paint coat (from a light reflectance value of 15)
- Available in all colour shades of the StoColor System
- Highly weather-resistant and water vapour permeable
- Highly water-repellent
- Non-combustible in accordance with EN 13501
- Prevents algæ and fungal attacks due to its encapsulated film protection
- Available in stippled render and rilled render textures, as well as fine-grained (Stolit® MP) and coarse-grained (Stolit Effect) free-style textured render

Stolit Effect with StoEffect Vetro:
In combination with the special effect aggregates made of glass, it creates a striking appearance and makes the facade sparkle.

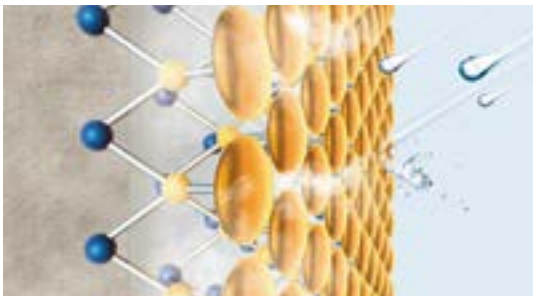
Their versatility and adaptability, together with their unique protective function, make renders the undisputed number one when it comes to facade design. When developing its renders, Sto makes a point of ensuring that the function and design are given equal attention. For this reason, is clear to Sto that its renders have properties of the highest quality.

Stolit® – proven all-rounder
For more than 50 years, this paste-form all-rounder has produced a convincing performance on both organic and mineral substrates. The broad palette of textures and colour shades is shown to best advantage by the high colour stability. In addition to its excellent water vapour permeability and mechanical stability, it also provides impressive protection against crack formation. On top of that, it boasts an exceptionally low water absorption level and perfect adhesion to substrates. Stolit®'s high elasticity means that it achieves top results when subjected to mechanical stress and straining tests.

StoSilco® blue
Based on natural principles – without biocide film protection
In addition to an attractive appearance, building owners are placing increasing importance on eco-friendly construction materials that do not pose a health risk. In the silicone resin finishing render StoSilco blue®, Sto has developed a sustainable solution to improve surface action in the areas of water management and reduced bioavailability. StoSilco® blue inhibits microorganisms from settling by means of natural operating principles, without compromising the impressive product and application properties of a genuine silicone resin render.
As a climate-neutral facade paint, StoSilco® blue is completely free of solvents, film protection agents, and mineral oils, and stands for an eco-friendly and sustainable way of construction.

All benefits at a glance

- Without biocide film protection
- Natural, long-lasting operating principle
- Non-combustible in accordance with EN 13501 (building material class A2)
- Free from solvents, plasticisers, and mineral oils (C10-C40)
- Highly water vapour permeable
- Low water permeability (W3 low in accordance with EN 1062-3)
- No additional paint coat required
- Maximum resistance to soiling
- Meets the very highest requirements for sustainable construction, e.g. in accordance with DGNB (German Sustainable Building Council) and LEED
- Climate-neutral facade paint



The silicone resin grid structure ensures durability and dry facades.

StoSilco® – the robust render with long-term protection

When used as a finish, StoSilco® offers the perfect long-term protection for new and existing buildings. This is because, unlike many other silicone resin renders, Sto's silicone resin render contains a significantly higher proportion of silicone resin emulsion. This means that StoSilco® is designed for durability and excellent weather resistance.

Thanks to the high silicone resin content and the cross-linked silicone resin lattice structure, StoSilco® boasts outstanding product properties. It is not only exceptionally water- and dirt-repellent; it is also highly permeable to water vapour and CO_2. This means that the facade remains dry and offers excellent protection against the growth of algae and fungi.

StoSilco® at a glance

- Simple and reliable application
- Even better colour stability
- Extended colour choice without an additional paint coat (from a light reflectance value of 15)
- Available in all colour shades of the StoColor System
- Continuous silicone resin structure makes for durability and very good weathering resistance
- High water vapour permeability, highly water-repellent
- Non-combustible in accordance with EN 13501
- Prevents algæ and fungal attacks due to its encapsulated film protection
- Available in stippled and rilled render texture and as fine-grained free-style textured render

StoLotusan® K/MP: The first render with Lotus-Effect® Technology

StoLotusan® provides building owners and architects with an all-round solution for facade protection and design, because Lotusan® surfaces stay clean and attractive longer than many other facade coatings. The crucial element is the Lotus-Effect® Technology, which ensures that dirt rolls off with the rain. After intense research and development work, Sto has succeeded in transferring the principle of the lotus effect to facade renders for the first time.

Thanks to their ideal properties, Lotusan® facade coatings are suitable for both refurbishments and new buildings. In combination with Sto's energy-efficient external wall insulation systems, they ensure that the insulated facade dries out quickly. The conditions which encourage the growth of microorganisms are eliminated as far as possible. Algae and fungal attacks can therefore be curbed naturally, even on highly insulated facades. A combination that pays off: energy saving plus long-term structural protection.

StoLotusan® render at a glance

- Ideal application properties
- Beautiful texture
- Outstanding CO_2 and water vapour permeability
- Strongly water-repellent
- High levels of protection, even for facades exposed to extreme weathering
- Loose dirt particles roll off with the rain
- Prevents algae and fungal attacks due to its encapsulated film protection
- Available in stippled and rilled render texture
- Additional coating with Lotusan® paints for system generation as an option
- Tintable in many colour shades of the StoColor System

Facade paints

For a colourful and healthy world

Facade paints play a special role in facade design: their presence makes architecture come alive. In addition to fulfilling the highest aesthetic requirements, Sto paints also stand for high quality and innovative techniques. The range of facade paints is both cost-effective and environmentally friendly.

StoColor System
The StoColor System comprises 800 colour shades. This makes it the ideal planning instrument for developing trend-setting and creative facade concepts.

AC – Architectural Colours
AC – Architectural Colours – complement the established StoColor System perfectly. The range comprises 300 selected colour shades for a timeless building colour scheme which is based on both architecture and materials.

Tested protection and quality
Paints from Sto not only provide the facade with reliable protection against moisture, dirt, and harmful substances; they also meet all the important building physical requirements on issues such as diffusion capacity and elasticity. In state-of-the-art laboratories at Sto, intensive work is carried out on the continuous improvement and quality assurance of high-quality paints. All raw materials are thoroughly physically and chemically tested prior to use. This diligence is reflected in the quality and environmental compatibility of each individual Sto product, from the raw material to the finished paint.

Overview of facade paints

Product	Technology	Classes in accordance with EN 1062-1			Filled	Film protection	Colour range
		Water vapour diffusion	Water vapour permeability	CO_2 permeability			
iQ INTELLIGENT TECHNOLOGY							
StoColor Dryonic®	Dryonic Technology	V2	W3	C1	–	free	
StoColor Dryonic® G	Dryonic Technology	V2	W3	C1	–	yes	
StoColor X-black	X-black Technology	V2	W3	C1	–	yes	
StoColor Lotusan®	Lotus-Effect® Technology	V1	W3	C0	–	free	
StoColor Lotusan® G	Lotus-Effect® Technology	V1	W3	C0	–	yes	
Best standard – Hard-wearing/reliable							
StoColor Silco	genuine silicone resin paint	V1	W3	C0	–	yes	
StoColor Silco QS	genuine silicone resin paint	V1	W3	C0	–	yes	
StoColor Silco G	genuine silicone resin paint	V1	W3	C0	–	enhanced	
StoColor Silco G QS	genuine silicone resin paint	V1	W3	C0	–	enhanced	
StoColor Top	pure acrylate	V3	W3	C1	–	yes	
Best standard – Brilliant/intense colour shades							
StoColor Maxicryl	pure acrylate	V2	W3	C0	–	yes	
StoColor Maxicryl QS	pure acrylate	V2	W3	C0	–	yes	
StoColor Metallic	pure acrylate	V2	W3	C0	–	free	

tintable in accordance with the StoColor System
limited tintability in accordance with the StoColor System

Classes in accordance with EN 1062-1

Water vapour diffusion		Water vapour permeability		CO_2 permeability	
V1	high	**W1**	high	**C0**	open
V2	medium	**W2**	medium	**C1**	inhibiting
V3	low	**W3**	low		

Intelligent technology finishes

Greater benefits through more functionality

Sto has set a milestone in the development of progressive facade coatings with its new iQ – Intelligent Technology generation of paints. The special formulation matrix can achieve functions which offer significant benefits to building owners, applicators, and architects. The most recent innovation goes by the name of StoColor Dryonic®: beautifully dry, come what may. Thanks to the new Dryonic Technology.

StoColor Dryonic®

Beautifully dry, come what may.
The new facade paint with Dryonic Technology for facades that dry quicker.

At a glance:
Very quick drying after rain and dew formation
- Biomimetic operating principle for dry facades against algae and fungal attack
- Without biocide film protection
- Extremely wide colour shade variety and high level of colour stability
- Minimal filler material breakdown, not easily scuffed
- Can be applied to virtually all conventional construction substrates
- Germany's first climate-neutral facade paint
- Slight silk gloss visible depending on angle

Classes in accordance with EN 1062-1:
- Water vapour diffusion: V2 (medium)
- Water permeability: W3 (low)
- CO_2 permeability: class C1 (inhibiting)

StoColor X-black

Strong paints for cool facades.
The facade paint with X-black Technology for especially intensely-coloured and cool facades.

At a glance:
- Reflects the near-infrared parts of solar radiation
- Wide colour shade variety and high level of colour stability
- Especially for dark colour shades
- Dark colour shades with low light reflectance value possible on EPS

Classes in accordance with DIN EN 1062-1:
- Water vapour diffusion: V2 (medium)
- Water permeability: W3 (low)

Lotusan®/Lotusan® G

Dirt runs off with the rain.
The tried-and-tested facade paint with Lotus-Effect® Technology for facades that stay clean for longer.

At a glance:
- Maximum resistance to soiling
- Natural protection against algae and fungal attack
- Without biocide film protection
- Lotusan® G is available with encapsulated film protection
- Moisture-regulating
- Structural weatherproofing not very important, therefore more design freedom

Classes in accordance with DIN EN 1062-1:
- Water vapour diffusion: V1 (high)
- Water permeability: W3 (low)

StoColor Dryonic
Beautifully dry, come what may
Microorganisms can settle when the facade is permanently wet, for example from rain, dew, or fog. StoColor Dryonic helps prevent these organisms from settling. Dryonic Technology – a combination of water-repellent surfaces and a special microtexture – ensures that dew or rain water drains off in record time so that the facade can dry as quickly as possible. And the facade remains naturally clean and attractive because algae and fungi cannot grow on dry substrates.
The new facade paint with Dryonic Technology for facades that dry quicker.

StoColor X-black
Strong paints for cool facades
Dark surfaces attract heat when exposed to direct solar radiation because they absorb the light and convert it into heat. Overheated facades, crack formation, or building element expansion are the potential consequences. It doesn't have to be this way. StoColor X-black removes virtually all thermal limits when it comes to the colour design of buildings. Thanks to its innovative NIR (near-infrared) black pigments, the StoColor X-black heat-reflective facade paint is able to keep temperature peaks caused by solar radiation below 70 °C.
The facade paint with X-black Technology for especially intensely-coloured and cool facades.

Lotusan®
Dirt runs off with the rain
Equipped with the unique Lotus-Effect® Technology, the Lotusan® paints protect facades from algae and fungi in a sustainable way. The micro-textured surface maintains an extremely small contact area for dirt and water. Thanks to the hydrophobic (water-repellent) composition of the surface, raindrops run off straight away and simply take the loosely attached dirt particles with them. The tried-and-tested facade paint with Lotus-Effect® Technology for facades that stay clean for longer.

Dark and intense colours are no longer a problem thanks to the new generation of paints with iQ – Intelligent Technology.

StoLotus-Effect® Technology – innovative facade protection modelled on nature. Dirt simply runs off with the rain.

Lumenart Pula commercial building, HR-Pula
Architect: Andrija Rusan, Desar GmbH, HR-Zagreb

Facade cladding
A wide range of possibilities

1 Bonding
2 Cladding
3 Pointing mortar

Timeless classic: StoBrick bricks
A wide range of different factors determine the surface and colour of bricks. The composition of the raw mixture, the surface treatment before the burning process, and potential aggregates. The result is also influenced in the burning process. This offers scope for a whole host of design possibilities to suit your individual building surface. Our clearly structured range of 40 stones gives an overview of the kind of diversity in the materials.

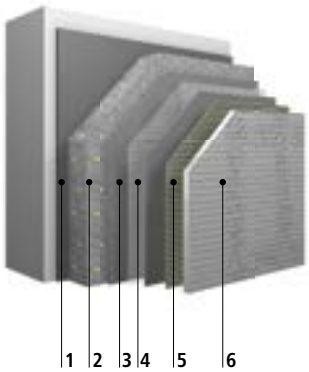
Bonded to EWIS, the 11 to 14 mm thick stones can be laid in more than just standard masonry bonds. Custom-developed patterns or the combination with other materials such as render are also possible. For over 20 years, we have been implementing brick slip facade projects successfully with our external wall insulation systems. Slim wall structures, a high degree of cost certainty, and relatively low planning requirements make this system variant a cost-effective solution for brick slip facades in refurbishments and new buildings.

1 Bonding
2 Cladding
3 Pointing mortar

Natural all-round:
Sto-Natural Stone Tiles

Our subsidiary VeroStone GmbH mines the historic Kirchheim shell limestone (Sto-Fossil SKL and SBL) and Jura limestone (Sto-Fossil Bavaria Yellow, Travertin, Greyblue, Creme, and Nut Brown) from its own quarries. The stone is then processed into 10 mm-thick natural stone slabs with different surfaces.

The stones are available in three different formats, which can be combined. These modular formats allow you to realise a huge range of facade designs on external wall insulation systems even in a short period of time and at reduced costs.



1 Bonding
2 Insulation
3 Base coat
4 Reinforcing coat with glass fibre mesh
5 Adhesives
6 StoDeco, with 3 coatings (mandatory)

Three-dimensional facade elements: StoDeco

The workpieces for the three-dimensional facade elements are available as standard in formats with lengths up to 240 cm, widths up to 120 cm, and thicknesses up to 10 cm. Other formats are also available on request. We then turn these workpieces into sculptural shapes, ledges, and panels in accordance with your precise specifications.

The finished workpieces are applied to external wall insulation systems in accordance with the planner's specifications, and then coated. Facades can therefore be textured or be accentuated by the isolated use of three-dimensional facade elements. If the elements are used extensively, entire facades can be covered by facets, reliefs, or engravings.

Facade cladding

A wide range of possibilities

1 Bonding
2 Cladding
3 Pointing mortar

Prefabricated render elements: Sto-Ecoshapes

Sto-Ecoshapes are made of over 90 % mineral components.

Thanks to digitization, the prefabricated render elements can be designed by the architect and still be produced serially. How it works? Using a modular system: Sto-Ecoshapes are produced according to the specifications of the planner in individual formats and format combinations using a grid of shapes. In a maximum format of 840 x 420 x 8 millimeters, polygons, ellipses and even amorphous shapes are possible. Sto-Ecoshapes can be applied to all load-bearing substrates. These include EWIS and RSC. Thanks to their elasticity, they can also be attached to unilaterally curved surfaces.

Renovation systems from Sto

The right solution every time

Residential building, DE-Schweinfurt
Architect: Architekturbüro Perleth, DE-Dittelbrunn

The selection of the EWIS refurbishment depends both on the requirements of the project and the extent of the damage. In many cases, the quick paint coat variant, renderwork refurbishment or the renovation system with render carrier board on the project can be the best choice. Each renovation option that Sto offers is distinguished by its individual and requirement-specific benefits. Thus, the optimum solution can be found for each project.

They are durable, low-maintenance, and economical. But even the most reliable external wall insulation systems (EWIS) need visual and functional renewal after decades of continuous weathering. Since 1965, around a billion square metres' worth of external wall insulation systems have been sold. This means that now and in the coming years, the subject of refurbishment will continue to gain in importance. More and more solutions will be needed for contemporary reworking of thermally insulated facades.

Why refurbishment – and if so, how?

There are many good reasons to refurbish an EWIS. Against the backdrop of steadily increasing energy costs, improved insulation effectiveness really does pay for itself. In addition, government programmes promote corresponding measures through attractive discounts. Those who opt for refurbishment will be spoilt for choice.

Costs – Benefits – Cost-effectiveness

Finding the right renovation approach for a facade depends on its particular defects and damage, as well as on the requirements placed on it. The cost also plays a key role.

It is true that the fixed costs for scaffolding, cleaning, and priming will be the same for all measures, but additional expenses can vary considerably. Consulting with experts before making a decision will save you cash as well as trouble.

Energy-efficient refurbishment – an effective measure

With the goal of sustainably lowering carbon dioxide emission, the legal regulations for energy-efficient building insulation of the German Energy Savings Ordinance (EnEV) have risen steadily. But it is not just the environment and the ambient interior climate that benefit from energy efficiency measures. Higher insulation effectiveness is also of great interest because of rising energy costs. In addition, government programmes promote corresponding measures through attractive discounts.

Many roads lead to the perfect result

There are many ways of making rather dated EWIS sightly and functional again: a simple coat of paint, render renewal, use of a renovation system with render carrier board (StoReno), replacement by a new system (EWIS and RSC) or doubling-up the thickness.

Renovation systems from Sto

The right solution every time

Landratsamt (District Office) Donaueschingen, DE-Donaueschingen
Architect: Frese-Tielsch architecture firm, DE-Donaueschingen

Three convincing arguments for doubling-up: repair of an existing EWIS while increasing the insulation performance at the same time and redesign of the building appearance.

Overview of renovation reasons and measures

		Measures				
Reason for renovation/ damage on old EWIS		**New system**	**Paintwork renovation**	**Renderwork crack refurbishment systems**	**StoReno**	**Doubled-up EWIS**
Energy efficiency measures		■■				■■
Soiling/ microorganisms			■■	■		
Render- and substrate-related cracks			■	■■	■■	■■
Spalling				■■	■■	
Defective connections				■[1)]	■	■■
Mechanical damage			■	■	■■	

■■ excellent ■ good ■ to a limited extent [1)] Additional correction of the connections

Note

It is worth noting that the high additional energy savings achieved through a new system or by doubling-up are not achieved in case of the other measures. Compared to other renovation systems, energy-efficient refurbishment pays off in many respects.

Two layers of insulation are better than one

Effective refurbishment through doubling-up

All benefits at a glance

- Significant energy savings with low additional costs
- Structural, visual, and energy-efficient renovation in one
- Resource preservation, as the existing insulation continues to be used
- Safety through national approvals
- Active climate protection by lowering CO_2 emissions

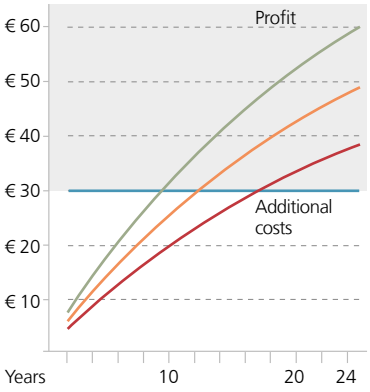
If the refurbishment of a thermally insulated facade is imminent, there are many arguments in favour of what is known as doubling-up: the additional application of a renovation system onto an already existing EWIS in need of refurbishment. This involves repairing the old insulation, thus bringing about a significant increase in the insulating effectiveness. Under certain circumstances even the insulation values of the passivhaus standard can be achieved. In the case of a new system installation, the old EWIS must be ripped off, leading to high labour and disposal costs.

Before doubling-up, the old EWIS is checked for stability and load-bearing capacity. Cracks, anchor pattern staining, or thermal bridges are automatically refurbished while doubling-up. A process that combines energy-efficiency measures with remedying damage – thus constituting a perfect solution, both ecologically and economically.

The insulating performance as well as the old investment of the somewhat dated EWIS continue to be used. The additional costs compared to render refurbishment are proportionally low, as the expense of scaffolding and new rendering would be incurred anyway. There are no costs for disposing of the old system and the day-to-day operating costs are significantly reduced.

Potential savings* through doubling up

Basis: old EWIS with 5 cm of insulation plus 15 cm of new EWIS. The additional investment costs per square metre have been calculated relative to an energy-neutral render renovation of the old EWIS.



- Additional investment, doubling-up compared to render renovation
- Savings in case of linear 0.70 EUR/l energy costs
- Savings in case of linear 0.90 EUR/l energy costs
- Savings in case of linear 1.10 EUR/l energy costs

* A composite discount rate of 4 % is taken into account.

Advice and service

Experience the added value

The Sto-Service Package at a glance

- Comprehensive advice from technical consultants and technical advisors
- Material consulting and delivery
- Colour schemes, colour charts, material samples
- Support ranging from standard detail solutions to customised detail solutions
- Building physical advice and calculations
- Project analyses

In a true partnership, there are always two winners. To Sto, the mission "Building with conscience." does not only mean excellent and proven products, but especially services that provide tangible benefits to the partners in trade. And this holds true for all phases of a construction project. The professional implementation of our customers' plans extends from the planning phase over the application phase up to the successful marketing of services. And everyone benefits from this approach.

Producing details

Producing details entails considerable work for many partners. Why not just leave all this to the specialists from Sto?

On request, they will be pleased to produce any individual CAD detail for building or planning scenarios in the facade area. Simply and quickly – as a PDF, DWG, or DXF file. The details are then sent by e-mail. It goes without saying that a detailed offer is provided beforehand. Certification by the passivhaus Institut Darmstadt Dr Feist with appurtenant isothermal analysis is available for sample connections in the area of passivhaus.

Technical consultants

Sto's technical consultants are able to draw on many years of experience in the planning and execution of building measures. Their expertise will benefit you both in the planning phase and in dealing with technical problems (e.g. detail connections) on site.

Technical advisors

Sto also offers on-site professional help on matters relating to installation and application. Sto provides support to ensure that Sto products are applied in the correct manner, avoiding any risk of damage. Our Technical Advisors are on hand to provide qualified technical assistance on matters relating to the application of all products and systems from Sto.

Isothermal analysis

With Sto, problems can be identified and avoided right from the planning phase. Sto designs and analyses building and planning scenarios in the area of EWIS and facades. These experts then forward a PDF file by e-mail as a swift and straightforward way of presenting the result. An individual offer is drawn up for each analysis.

Product samples

Product samples are often crucial in personal selling, as a means of guiding the customer in decisions on the right colours and forms. The Sto Samples Centre for Colour Shades provides both wet and dry samples for presentation purposes at a fee. All samples are available tinted in accordance with the StoColor System or the customer's individual wishes.

StoDesign colour design

Who can really claim to have a complete understanding of all the effects and interactions of colours and materials? Sto offers special colour design services which involve Sto colour designers analysing and developing individual colour and material concepts in collaboration with the customer for individual buildings, ensembles, or urban development scenarios.

At Sto, we place great emphasis on advice.

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