



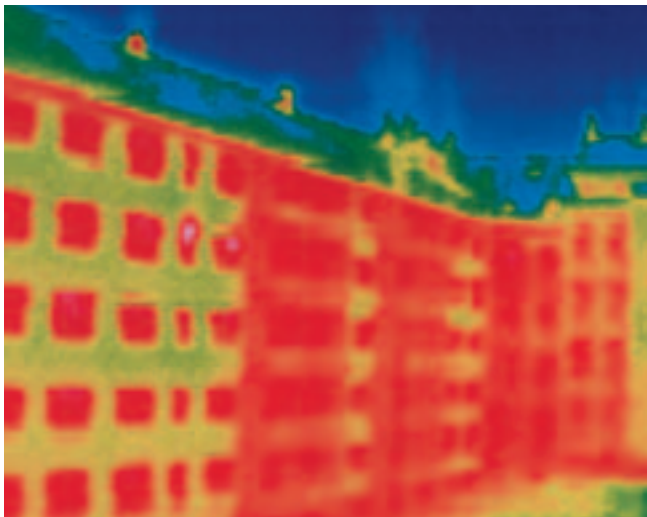
Sto AG | **Facade**

## Facade insulation system StoTherm Classic

## Facade insulation: One system – a host of advantages.



Facade insulation prevents heat from escaping from inside buildings. Or protects buildings from heat caused by solar gain. The StoTherm Classic system was launched over 30 years ago. Over 50 million square metres have since been successfully installed. StoTherm Classic is acknowledged to be the most successful facade insulation system world-wide. With a complaints quota verging on zero.



Thermographic image of a house without facade insulation: The red shows that the heat penetrates through to the outside wall and is lost.



Facade insulation provides optimum weatherproofing – ensuring that facades remain in good condition for a longer period.

### Protecting building substances

The StoTherm Classic facade insulation system reduces heat loss. Or protects buildings from heat. Depending on the climatic zone. It avoids thermal bridging in areas such as radiator niches, lintels, ring beams, ceiling junctions, etc. StoTherm Classic protects building structures by maintaining a constant temperature in the masonry. The reduced instance of thermal stress prevents temperature-induced cracks in the building envelope.

### Withstanding all weathers

The StoTherm Classic facade insulation system guarantees weatherproofing which keeps out driving rain while remaining permeable to water vapour. This results in a substantially longer service life for the facade.



StoTherm Classic stands the test in all the world's climatic zones.



Facade insulation lowers heating costs and reduces pollutant emissions.

### **Saving energy**

StoTherm Classic reduces heating or cooling costs. Following professional installation, the facade insulation system achieves energy savings of up to 60 %. Pollutant emissions are also reduced. Insulating facades is a manifestation of ecological awareness



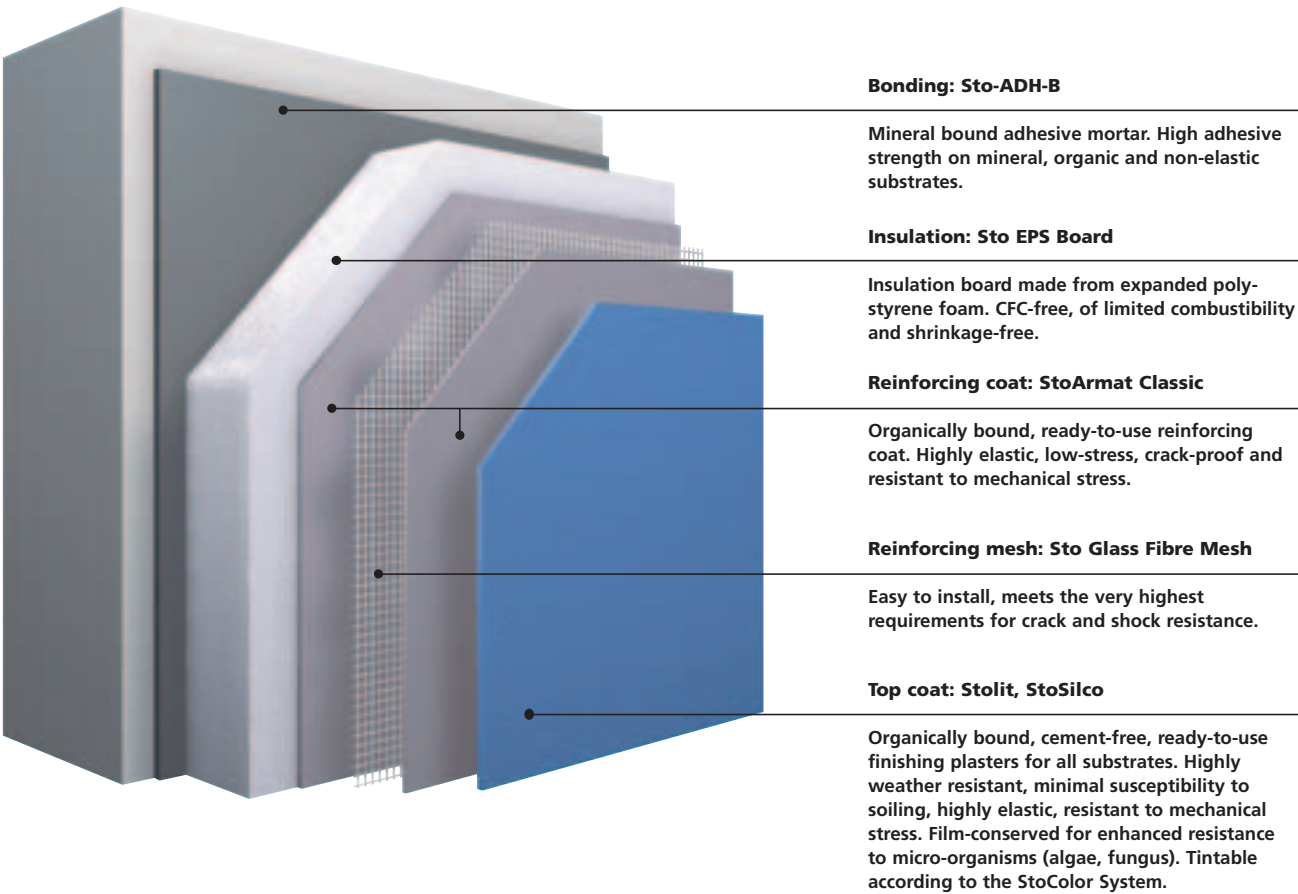
StoTherm Classic's talents are also boundless when it comes to design.

### **Boundless design scope**

StoTherm Classic opens up the full scope of potential for facade design. And provides the basis for seamless, attractive facades on old and new buildings. Sto's competence in the field of facades is rounded off by the range of Sto plasters and paints, the system of StoDeco Profiles and the StoColor System.

## The StoTherm Classic facade insulation system: Economical and safe.

StoTherm Classic’s shock-proof and impact resistance is ten times higher than that of mineral systems. It offers the utmost in crack prevention and consists of absolutely cement-free, perfectly coordinated system components. StoTherm Classic’s fast and simple installation also makes it an economical and safe option.









## StoTherm Classic: The advantages at a glance.

	Organic facade insulation system with polystyrene insulation
<b>Scope of application</b>	<ul style="list-style-type: none"> <li>• Old and new buildings</li> <li>• Wall structures: Blockwork (concrete, sand-lime block, brick, porous concrete)</li> <li>• Fair-faced masonry and slab construction (three-layered panels)</li> <li>• Uneven areas of up to <math>\pm 1 \text{ cm} \pm 3 \text{ cm}</math> in case of mechanical fixing)</li> </ul>
<b>Functional</b>	<ul style="list-style-type: none"> <li>• Very high crack resistance (four times higher than that of conventional systems)</li> <li>• Highly resistant to mechanical stress</li> <li>• Highly effective thermal insulant</li> <li>• Highly weather resistant</li> <li>• Permeable to CO<sub>2</sub> and water vapour</li> <li>• Of limited combustibility</li> <li>• Resistant to micro-organisms (algae and fungus) after applying a top coat of Stolit or StoSilco</li> </ul>
<b>Appearance</b>	<ul style="list-style-type: none"> <li>• Organically and silicone resin-bound plasters</li> <li>• Tintable according to the StoColor System</li> <li>• Lightness value of &lt; 20 % possible (on request)</li> <li>• StoDeco Profiles</li> <li>• StoDeco Rustications, Sto Rustication Boards</li> <li>• Sto Brick Slips</li> </ul>
<b>Installation</b>	<ul style="list-style-type: none"> <li>• Cement-free, ready-to-use system components</li> <li>• StoSilo Comb technology and construction site logistics for efficient installation</li> <li>• Comprehensive solutions for points of detail</li> <li>• No need for diagonal reinforcement, priming coats or equalisation coats</li> <li>• QS-technology</li> </ul>

	Mechanical resistance
<b>StoTherm Classic</b>	 <b>5,0 – 8,0 Joule</b>
<b>Mineral system</b>	 <b>0,5 – 1,0 Joule</b>

## StoTherm Classic: Added value from an integrated system.

Sto has always pursued a systematic approach as a matter of principle. StoTherm Classic is thus the result of a meticulous coordination process which has been in progress for over 30 years. The ongoing development of every individual component is always geared to optimum coordination of the system as a whole. This guarantees both a reliable basis and the necessary freedom for planning and design purposes.

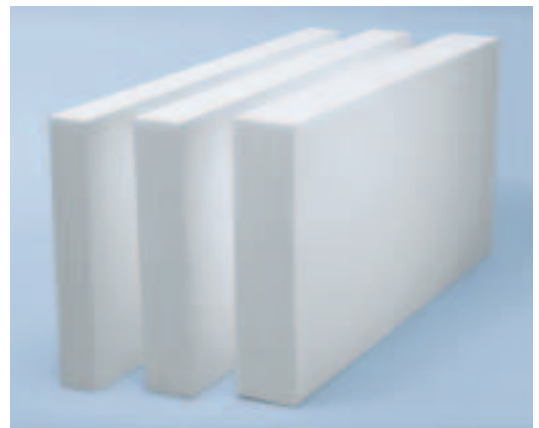


### **Bonding: Sto-ADH-B**

Mineral bound adhesive mortar which possesses high adhesive strength. Suitable for static, even and uneven, mineral and organic substrates. Ideal for both manual and machine application.

### **Insulation: Sto EPS Board**

Insulation board consisting of expanded polystyrene foam. Lightweight, CFC-free, of limited combustibility and shrinkage-free. The Sto EPS Board belongs to thermal conductivity groups 035 / 040.



### **Reinforcing mesh: Sto Glass Fibre Mesh**

Alkali-resistant reinforcing mesh which absorbs forces absolutely uniformly. It meets the very highest requirements for crack and shock resistance. Simple and convenient to apply.

**Reinforcing coat: StoArmat Classic**

Cement-free, organically bound, ready-to-use reinforcing coat. Highly elastic, low-stress, crack-proof. Highly resistant to mechanical stress.

StoArmat Classic differs distinctly from mineral bound reinforcing compounds: StoArmat Classic offers excellent application properties. Spreading the compound is a simple and straightforward process. StoArmat Classic's stability is unparalleled in the field of paste products. The special calibration grain guarantees a minimum layer thickness – and subsequently enhanced reliability: The reinforcing mesh is always provided with an adequate coating, mesh joints are always fully covered.

StoArmat Classic is available with the exclusive QuickSet-technology (QS) from Sto. The reinforcing coat sets considerably more quickly in a temperature range from +1 to +10 °C and at a humidity of up to 95 %. The QS-technology thus entails substantial advantages in terms of time and costs. It guarantees that deadlines can be met even when adverse weather conditions apply at the beginning and end of the winter.



	Crack resistance	
StoTherm Classic	<div><div></div></div>	2,5 – 3,5 %
Mineral system	<div><div></div></div>	0,25 – 0,5 %

The bending test confirms StoTherm Classic's high elasticity and crack resistance.



The pendulum test demonstrates StoTherm Classic's superior resistance to mechanical stress in comparison to mineral systems.

## StoTherm Classic finishes: Versatile and reliable.

The StoTherm Classic facade insulation system is essentially neutral in character and adapts to the architectural style concerned. Different textures and grain sizes open up boundless design scope. Sto plasters are available as stippled, rilled and free-style structured variants. Each in up to five different grain sizes.



### Stolit

The organically bound, cement-free finishing plaster Stolit was launched onto the market over 45 years ago, establishing Sto's competence in the field of facade finishes. It has since undergone continual improvement to become an integral part of building site operations today. Properties: Water vapour-permeable, highly elastic, resistant to mechanical stress, highly weatherresistant, colour-fast.

### StoSilco

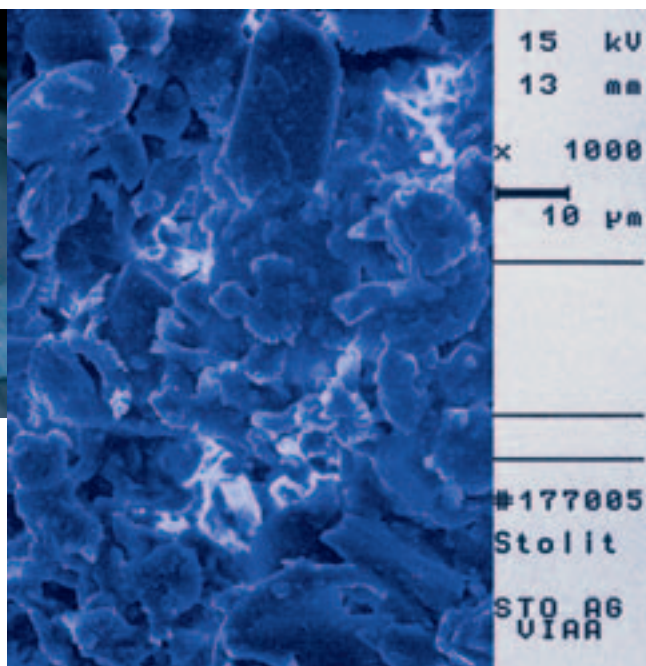
The silicone resin-bound, cement-free finishing plaster StoSilco is an absolute all-rounder. Its qualities: Outstandingly water vapour and carbon dioxide permeability, extremely weather resistant, highly elastic and resistant to mechanical stress. It affords buildings optimum protection against fouling by micro-organisms. StoSilco offers excellent machine application properties.



The electron microscope shows Stolit's microporous, water vapour-permeable structure.



Stolit's natural constituents: Water/binder, lime/marble, potassium silicate.

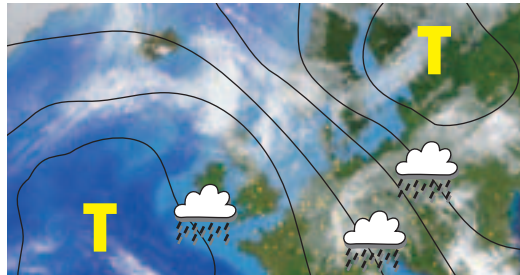




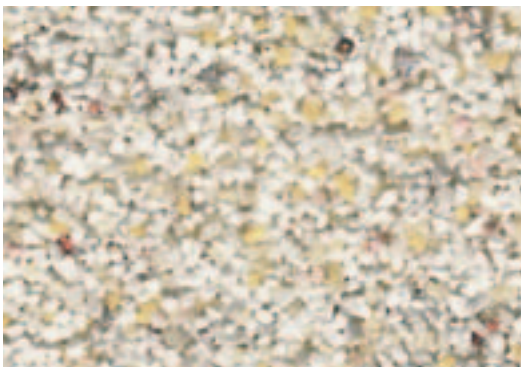


### QS-technology

Stolit and StoSilco are available in the unique QS-technology from Sto – an invention which extends the building season. This innovation ensures that Stolit and StoSilco set quickly and reliably, even in the temperature range from +1 to +10 °C and at a relative humidity of up to 95 %. This saves time and costs, above all at the beginning and end of the winter.



The QS-technology from Sto ensures that deadlines are met even when adverse weather conditions prevail.



### StoSuperlit

Organically bound, ready-to-use natural stone plaster. Outstanding resistance to weathering and mechanical stress. Extremely elastic and water vapour-permeable. Ideal for areas subject to high levels of stress, e.g. in the plinth area. StoSuperlit also offers great variety with a range of 37 different colours.

**Brick appearance with Sto Brick Slips.**

### Sto Brick Slips

Sto Brick Slips provide an organically bound alternative for facade insulation systems. Their brick appearance creates an impression of fair-faced masonry. Available in a choice of six attractive natural colours and bespoke sizes. In addition to the brick slips and corner facing bricks, the system also includes Sto Adhesive and Joint Mortar.

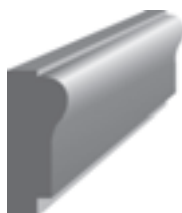


## Design scope with StoTherm Classic: From classic to contemporary style.

Private and public-sector building owners and conservationists share a common desire to protect, maintain and restore the beauty and unique features of historic buildings. To combine classic with contemporary architecture. And to invest new buildings with an architectural style of their own.

### StoDeco Profiles

The comprehensive systems of StoDeco Profiles lend buildings their own distinctive appearance. The design elements are based on a granular mineral material made from hollow silicate microspheres. They are suitable for new buildings and for old buildings requiring renovation and reconstruction. They are readily workable and extremely stable. In addition to the standard profiles, the system also includes cornices, window sills, sill supports and elements for circular, gothic or elliptical arches.



StoDeco Rustications add a structural feature to the facade.



Facade design with StoDeco Profiles.



### StoDeco Rustications

StoDeco Rustications made of the granular Verofill add a touch of variety to modern facades. Horizontal and vertical structures counter the monotonous appearance which is characteristic of large surfaces on buildings. The StoDeco Rustications are extremely robust, making them suitable for applications in the plinth area, too.



## A systematic approach to colour design: The StoColor System.

The well-aimed use of colour in a manner which complements the architecture is subject to specific laws. The StoColor System provides a clear framework and a systematic approach to colour design based on subtly nuanced colour concepts of high aesthetic appeal.

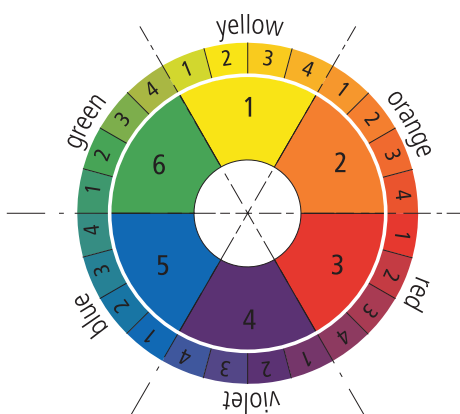
A total of 800 different colours establish a sound foundation for creative and pioneering colour concepts on the StoTherm Classic facade insulation system.

The basis for the StoColor System is provided by the colour wheel. The StoColor System eschews stringent colorimetric logic in favour of human perception of colour. It is based primarily on the colours yellow, orange, red, violet, blue and green. These six sections are then mixed to form the 24 basic tones which correspond to the 24-part colour wheel.

Each basic tone is assigned five colour rows which embody the principle of the same-colour triangle. This guarantees the StoColor System's high degree of functionality – designed in line with the aesthetic colour requirements in construction.



The elements of the StoColor System: colour fan, colour sample box and colour file.



The 24-part colour wheel.





## Working with StoTherm Classic: a true pleasure for true professionals.

The success of StoTherm Classic is attributable not least of all to its simple, problem-free application and installation. A few brief instructions should be noted in order to ensure optimum results from the outset. The various steps involved in working with StoTherm Classic are outlined in the table below and on the following pages.

Sto's services for its customers also include a range of tools which have been designed especially for use with Sto products. The Inocut cutting device enables the insulating boards to be cut precisely to size, for example. This tool substantially reduces

the required working time and the resultant amount of waste. Inoplan and Inoclean combine level rasping and cleaning of the insulating boards in a single operation.

### I Substrate treatment prior to fixing the insulating board with Sto-ADH-B:

Substrate	Treatment	Substrate coating
<b>Damp</b>	Eliminate cause, wait for substrate to dry	
<b>Dusty, dirty</b>	Sweep, brush, steam-jet	
<b>Efflorescence</b>	Sweep, brush	
<b>Moss, algae</b>	Clean, without subsequent washing	<b>StoPrim Fungal</b>
<b>Mortar burrs</b>	Knock off	
<b>Sinter skin</b>	Remove by mechanical means	
<b>Formwork oil</b>	Remove oil residues, steam-jet using cleaning agents, then wash with water	
<b>Smooth</b>	Roughen	
<b>Friable, inadequate loadbearing capacity</b>	Remove by mechanical means	
<b>Plaster, with spalling</b>	Knock off cavities and fill gaps with lime-cement mortar	
<b>Plaster, chalking</b>	Clean and prime	<b>StoPlex W</b>
<b>Plaster, organically bound</b>	Clean	
<b>Coating, chalking</b>	Brush off, clean, prime	<b>StoPlex W</b>
<b>Coating, flaky</b>	Remove with Sto-Coatings Stripper and steam-jet	
<b>Absorbent</b>	Clean and prime	<b>StoPlex W</b>
<b>Sanding surface</b>	Clean and prime	<b>StoPlex W</b>



## II Preparation



**Starter track:** The installation procedure for StoTherm Classic is always begun by fixing the starter tracks with dowels.



**Cutting to size:** The Inocut cutting device enables the insulating boards to be cut precisely to size. This reduces cutting waste and the required working time.

## III Fixing – a: Bonding



**Full-surface bonding (on smooth substrates):** Apply Sto-ADH-B to the insulating boards with the flat side of the Sto Toothed Trowel, covering the entire surfaces, then trowel off with the toothed side.

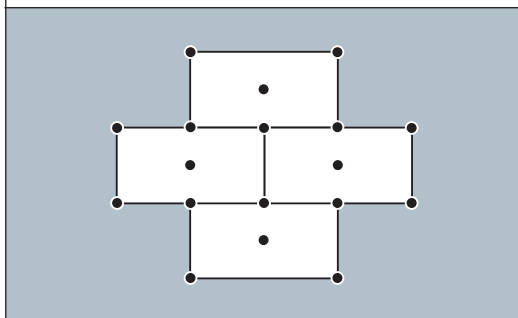


**Spot/edge bonding (on substrates with an unevenness of up to max.  $\pm 1$  cm):** Apply Sto-ADH-B along the edges of the boarding and in dabs. The greater the unevenness, the more adhesive compound will be required.

## III Fixing – b: Dowelling

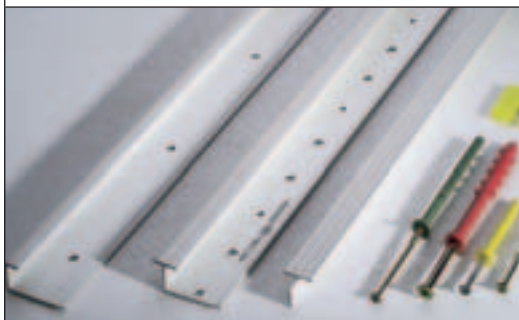


Sto-Thermo-Roundels EPS, Sto-Expanding Dowel, Sto-Thermo-Countersink Drill.



**Dowel layout:** Arrange the dowels so that a dowel is fitted at all the corners and centres of the boards.

### III Fixing – c: Track attachment



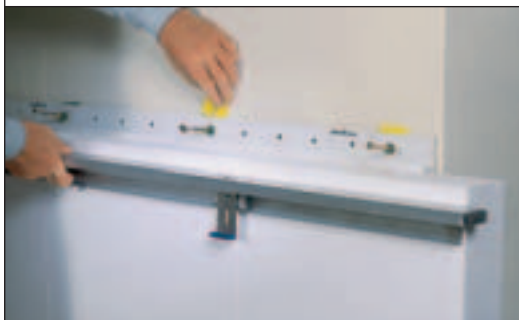
The M system: Track attachment, comprising starter tracks, PVC starter tracks, PVC intermediate tracks and T-splines. Max. dowel spacing 30 cm. (Levelling of unevenness up to max.  $\pm 3$  cm).



Additionally fix insulating board with a little Sto-ADH-B (approx. 10 % of board surface).



**Sto T-Spline:** The insulating boards feature a groove into which the cross-tracks are pressed. The cross-tracks do not require any further fixing.



**Dowelling:** To complete a row of boards, press the intermediate track into the upper groove of the insulating boards and fix to the wall with dowels.

### IV Intermediate steps



**Closing joints:** Close open joints with filling foam or appropriate strips of insulating material.



**Rasping level:** It is imperative to rasp level any juts between the insulating boards. Inoclean combines rasping and cleaning in a single operation.

**V Reinforcement**

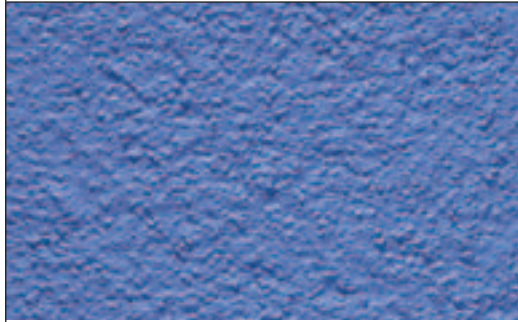
Apply StoArmat Classic over the entire surfaces of the level rasped boards. Press the Sto Glass Fibre Mesh into the wet reinforcing coat and smooth the compound which oozes out immediately.



The reinforcing mesh should overlap by 10 cm. Join corners using a strip of mesh.



Sto Glass Fibre Mesh which protrudes at the edges should be cut flush with the edges.

**VI Top coat**

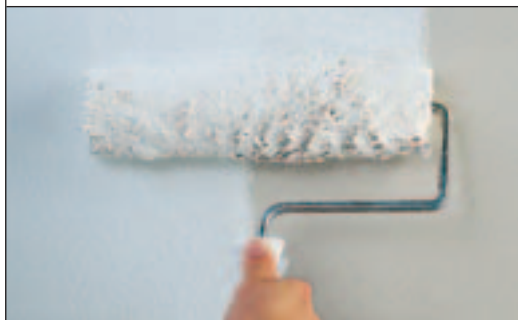
Stippled plaster, in various grain sizes.



Rilled plaster, in various grain sizes.



Free-style structured plaster.



A coating of StoSilco Color results in enhanced protection for facades (recommendable in damp and heavily polluted regions).

**Head office**  
**Sto AG**  
 Ehrenbachstrasse 1  
 D-79780 Stühlingen  
 Phone +49 7744 57-0  
 Fax +49 7744 57-2178  
 info@sto.eu  
 www.sto.com



Quality management system  
 Sto AG, DIN EN ISO 9001, reg.-no. 3651  
 Environmental management system  
 Sto AG, DIN EN ISO 14001, reg.-no. 3651  
 Plants in Stühlingen, Donaueschingen,  
 Tollwitz

### Subsidiaries abroad

Austria  
**Sto Ges.m.b.H.**  
 Richtstrasse 47  
 A-9500 Villach  
 Phone +43 4242 33133  
 Fax +43 4242 34347  
 info@sto.at  
 www.sto.at

Belgium  
**Sto nv/sa**  
 Industriezone Mollem 5 (92.2)  
 Assesteenweg 34  
 B-1730 Asse  
 Phone +32 2 4530110  
 Fax +32 2 4530301  
 info.be@sto.eu.com  
 www.sto.be

China  
**Shanghai Sto Ltd.**  
 6 Qingda Road  
 Pudong  
 201201 Shanghai  
 P.R. China  
 Phone +86 2158 973701  
 Fax +86 2158 972769  
 www.sto.com.cn

Czech Republic  
**Sto s.r.o.**  
 Radlická 69  
 CZ-150 00 Praha 5  
 Phone +420 251 555 189/190  
 Fax +420 251 550 335  
 info.cz@sto.eu.com  
 www.sto.eu.cz

Finland  
**Sto Finexter Oy**  
 Valimotie 4  
 FI-00380 Helsinki  
 Phone +358 20 7659191  
 Fax +358 20 7659192  
 asiakaspalvelu@sto.eu.com  
 www.stofi.fi

France  
**Sto S.A.S.**  
 224, Rue Michel Carré  
 F-95870 Bezons  
 Phone +33 1 34345700  
 Fax +33 1 34345600  
 sto.fr@sto.eu.com  
 www.sto.fr

Hungary  
**Sto Építőanyag Kft.**  
 Jedlik Anyos u. 17  
 HU-2330 Dunharaszti  
 Phone +36 24 510210  
 Fax +36 24 490770  
 info.hu@sto.eu.com  
 www.sto.hu

Italy  
**Sto Italia Srl**  
 Via G. di Vittorio, 1/3  
 Zona Ind. le Terrafino  
 I-50053 Empoli (FI)  
 Phone +39 0571 94701  
 Fax +39 0571 946718  
 www.stoitalia.it

Malaysia  
**Sto SEA Sdn Bhd.**  
 21 Jalan Rajawali 2  
 Bandar Puchong Jaya  
 MY-471090 Selangor  
 Phone +60 3 80708133  
 Fax +60 3 80709133  
 www.sto-sea.com

Netherlands  
**Sto Isoned bv**  
 Postbus 6400  
 NL-4000 HK Tiel  
 Phone +31 344 620666  
 Fax +31 344 615487  
 info.nl@sto.eu.com  
 www.sto.nl

Norway  
**Sto Norge AS**  
 Caspar Storms Vei 12  
 NO-0664 Oslo  
 Phone +47 2207 2900  
 Fax +47 2207 2901  
 info.no@sto.eu.com  
 www.stonorge.no

Poland  
**Sto - ispo Sp. z o.o.**  
 ul. Zabraniecka 15  
 PL-03-872 Warszawa  
 Phone +48 22 5116-102  
 Fax +48 22 5116-101  
 info.pl@sto.eu.com  
 www.sto.pl

Singapore  
**Sto SEA Pte Ltd**  
 159 Sing Ming Road  
 #03-08 Amtech Building  
 SG-Singapore 575625  
 Phone +65 64 533080  
 Fax +65 64 533543  
 www.sto-sea.com

Spain  
**Sto Ibérica S.L.**  
 World Trade Center  
 Muelle de Barcelona -  
 Edificio Sur, 2ª Planta  
 E-08039 Barcelona  
 Phone +34 93 3443270  
 Fax +34 93 3443299  
 info.es@sto.eu.com

Sweden  
**Sto Scandinavia AB**  
 Gesällgatan 6  
 S-582 77 Linköping  
 Phone +46 13 377100  
 Fax +46 13 377137  
 kundkontakt@sto.eu.com  
 www.sto.se

Switzerland  
**Sto AG**  
 Südstrasse 14  
 CH-8172 Niederglatt/ZH  
 Phone +41 1 8515-353  
 Fax +41 1 8515-300  
 sto.ch.marketing@sto.eu.com  
 www.stoag.ch

U.K. and Ireland  
**Sto Ltd.**  
 Unit 3, Lyon Road  
 Linwood Industrial Estate  
 GB-Paisley PA3 3BQ  
 Phone +44 1505 324262  
 Fax +44 1505 323618  
 info.uk@sto.eu.com  
 www.sto.co.uk

USA  
**Sto Corp.**  
 6175 River Side Drive S.W.  
 USA-Atlanta,  
 Georgia 30336-5609  
 Phone +1 404 3463666  
 Fax +1 404 3463119  
 stosales@stocorp.com  
 www.stocorp.com

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 by calling us on: Phone +49 7744 57-1131