

Handling instructions

STEICO*internal*



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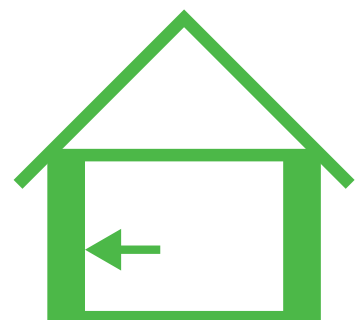


Interior insulation with STEICO*internal* wood fibre insulation boards and the STEICO*interior* coating system

STEICO wood fibre insulation boards and the STEICO*interior* coating system on a lime basis are perfectly matched in terms of building physics.

Advantages

- Multifunctional plaster (adhesive layer, reinforcement layer, top layer) and paint as coordinated components in the system for interior coating: slim, powerful, economical
- Sorptive: Can absorb, temporarily store and release
- Mould-resistant thanks to the alkaline effect of lime
- Vapour-permeable
- Easy to process thanks to optimised application behaviour



Area of application

Thermal modernisation of masonry walls in existing buildings

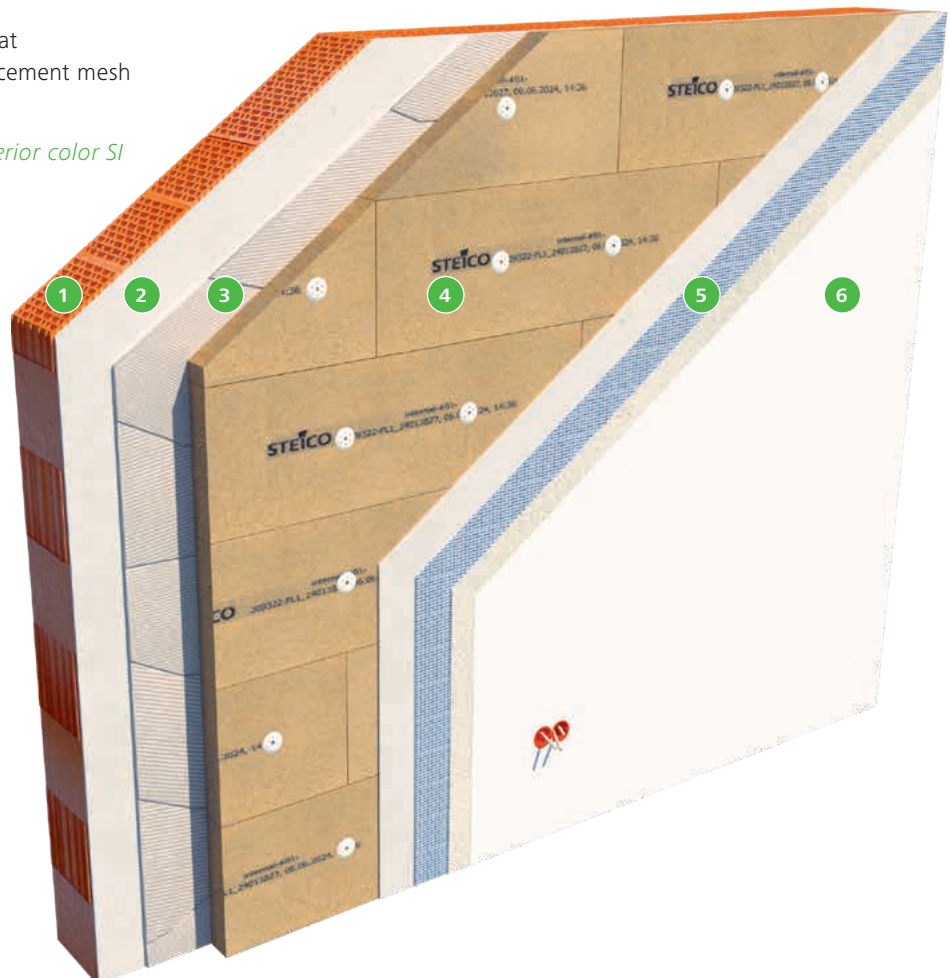
Internal insulation on full-surface mineral substrate

Build-up of the system

For STEICO interior insulation in combination with STEICO*internal* and STEICO*interior*, the following build-up is recommended in order to ensure vapor permeable and capillary-active technical functionality in accordance with the necessary planning.

Unless other manufacturers are specified, the system components are available in the STEICO product range.

- 1 Masonry with exterior plaster (existing)
- 2 Mineral interior plaster and/or optional levelling layer with STEICO*interior render L*
- 3 Adhesive layer STEICO*interior render L*
- 4 STEICO*internal*
- 5 Reinforcement layer and top coat
STEICO*interior render L* Reinforcement mesh
STEICO Mesh F
- 6 Silicate interior paint STEICO*interior color SI*



Components

layer of the interior insulation system	components
base coat / levelling layer	mineral interior plaster / STEICO <i>interior render L</i>
adhesive layer	STEICO <i>interior render L</i>
insulation layer	STEICO <i>internal</i>
fastening	Ejotherm S1 screw anchor
reinforcement layer	STEICO <i>interior render L</i> STEICO <i>mesh F</i> STEICO <i>secure</i> reinforcement mesh angle
top layer	STEICO <i>interior render L</i>
coating / Finish	STEICO <i>interior color SI</i> white/tinted

Insulation boards

4 **STEICO***internal*



The insulation board is available in thicknesses of 40, 60, 80 and 100 mm. All variants are 1.20 m long and 38 cm wide and are available with blunt edges. Individual variants are also available with tongue and groove profiling. We recommend using boards with blunt edges. This makes processing easier and prevents the adhesive layer **STEICO***interior render L* from being pushed into the board joint.

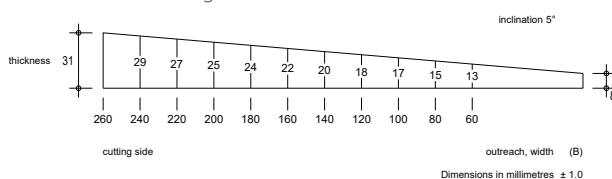
STEICO*tri*



Optional for flank insulation in connection situations (e.g. on reinforced concrete ceilings), if required

thickness [mm]	length [mm]	width [mm]
25 (8)	1.350	200
30 (8)	1.350	260

Cross section at height



STEICO*base*



Optional for window and door reveals

thickness [mm]	length [mm]	width [mm]	edge
20	1.350	600	blunt

Fastening

Additional mechanical fastening of the insulation boards

building material of the existing wall	screw anchors and fasteners ^{a)}				bit
	insulation thickness STEICO ^{internal} [mm]				
	40	60	80	100	
solid brick / vertical perforated brick	S1 short 100	S1 120	S1 140	S1 160	IPR 30 ^{b)}
calcium silicate brick / calcium silicate hollow brick					
concrete hollow block, natural stones					
aerated concrete	S1 short 100	S1 140	S1 160	S1 180	
half-timbered beam	HFS 80	HFS 100	HFS 120	HFS 140	Torx T40

a) Available in the **STEICO** product range

b) Special bit (5-star); available in the **STEICO** product range, but must be ordered separately



screw dowel

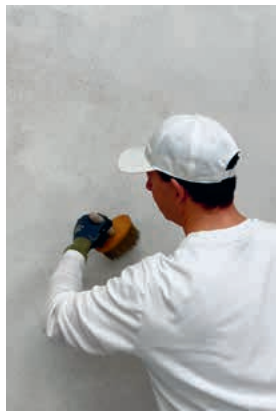


screw fastener

Processing procedure

We recommend the following procedure for fastening the insulation boards to the wall.

Step 1: Inspection and preparation of the substrate



- Remove any cladding and gypsum-based substrates if necessary or apply an intermediate coat of deep primer/mineral primer
- Before starting installation, check the existing wall for load-bearing capacity (grid cut with a craft knife) and flatness (e.g. with a long aluminium bar with straight edges)
- The surface of the exterior wall should be solid, dry, grease-free and dust-free on the inside. If priming is necessary, use diffusion-open or capillary-active products

Step 2: Leveling the substrate

- If the substrate is uneven, it should be levelled. The system component STEICO^{interior render L} can be used for this purpose.
- For exposed timber framing without existing interior plaster, a new, levelling layer of plaster must be applied as a substrate using STEICO^{interior render L}. Suitable plaster bases, such as reed mats, must be mounted on the framing beams.
- Newly applied levelling layers must dry completely before installing the panels (drying time: 1 day per mm of layer thickness).

Step 3: Processing of the insulation boards



- For cutting to length and width, circular saw blades with coarse teeth are recommended. Detailed work can be carried out comfortably with a jigsaw (e.g. Bosch T1013 AWP or T 313 AW)
- Sufficient extraction must be ensured for all machining operations
- All applicable safety regulations must be observed

Note: Stamp side = spatula side

Step 4: Gluing the boards

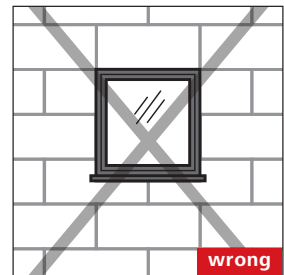
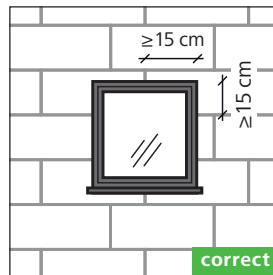


The bonding between the masonry and STEICO*internal* is done over the entire surface. This is particularly easy to achieve if the notched trowel application on the wall and on the back of the panel is aligned in the same direction ('parallel floating-buttering method').

- Applying the adhesive layer STEICO*interior render L* ③ with a 10 mm notched trowel...
 - ...first onto the masonry or levelling layer, then
 - ...on the unstamped back of the insulation board

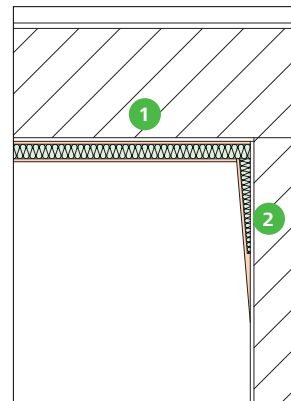


- Position the insulation board and put it into its final position. Ensure that the joints are correctly offset in accordance with the fixing diagram in step 5. Also ensure that the appropriate distances are maintained in the reveal area (see following illustrations).
- Allow to dry for approx. 24 hours in normal indoor conditions.



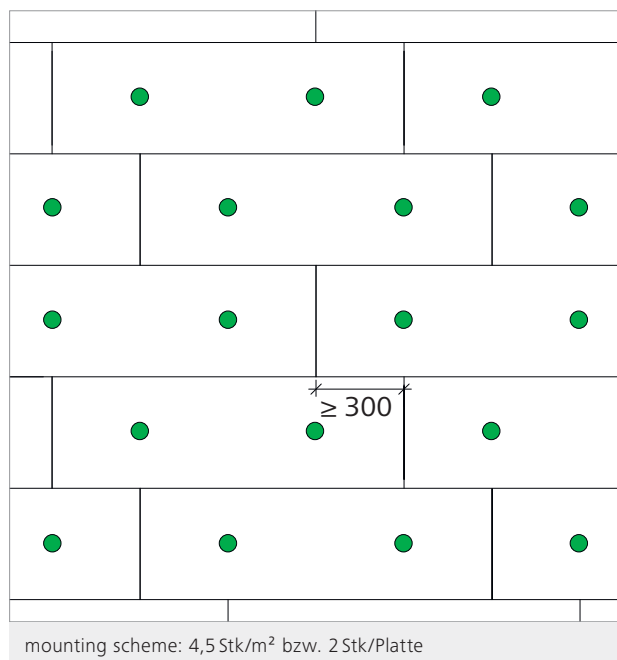
Note on the product STEICOtri:

On the adjacent (interior) wall / ceiling ②, the wide side of the insulation wedge is butted up against the insulation surface of exterior wall ①. The tapered side can be levelled against the adjacent wall / ceiling using the trowel ⑤ (see page 5 for components). Mortar residues between the STEICO*internal* interior insulation and the insulation wedge must be removed.



Step 5: Mechanical fastening

- Drill through the wood fibre insulation board into the solid substrate. The following drill bits with a diameter of 8 mm are suitable for this purpose:
 - ALPEN HM universal drill Profi Multicut
 - Bosch CYL MultiConstruction
 - Hilti TE CX 4
- Insert the screw dowels (see page 5 for components) according to the fastening diagram in the adjacent illustration; the head of the dowel should be flush with the surface of the insulation board.
- In the case of existing timber framing, the HFS screw fastener can be used for anchoring in the timber construction.



TIP: When setting, we recommend using the EJOT S1 Tool a), as this allows for very efficient flush-to-surface screwing.



If additional layers such as wall heating systems are applied, the system manufacturer's guidelines must be observed.

Checking the substrate before applying the interior coating system:

Wood fibre insulation boards are delivered and installed dry. Wood fibre insulation boards are a hygroscopic building material and adapt to the ambient humidity on the construction site.

If the ambient conditions remain damp during or after the installation of the wood fibre insulation boards, the material moisture content of the wood fibre insulation boards that have not yet been coated will increase significantly. Before coating with STEICO *interior render L* multifunctional plaster, dry environmental conditions must be created. Sources of moisture, such as wet screed or other moisture peaks, must be dried or ventilated beforehand. If necessary, technical drying equipment should be used.

If you want to determine the material moisture of the wood fibre insulation board before coating with STEICO *interior render L* multifunctional plaster, this can be checked using the Gann Hydromette BL H42 wood moisture meter, for example.



Before plastering, ensure that the plaster board has a moisture content of $\leq 13\%$ by weight.

This corresponds to a permanent building situation of $\leq 65\%$ humidity over a period of 3 weeks.

During the drying phase of the STEICO interior Render L multifunctional plaster, ensure that the relative humidity does not exceed 70% over a period of ≥ 3 weeks and, if necessary, ensure this technically..

TIP: If necessary, sand any unevenness in the panel surface before fastening (sanding board, grain size K16). Advantage: Unhindered working with the sanding tools on the surface. Any grinding dust must be completely removed from the surface of the panel.



To work efficiently and dust-free, we recommend using the **Flex-Giraffe GE 5 or GE 7**: www.flex-tools.com giraffe-wall-and-ceiling-sander-0 Velcro sandpaper with a grain size of P 40 in combination with a safety vacuum cleaner (www.flex-tools.com/en-gb/products//safety-vacuum-cleaner-0) achieve very good results.

Filling and paint coating

Reinforcement layer

A layer thickness of 4-6 mm is recommended for reinforcement. When applied evenly, this ensures the stability of the surface and also provides a visually flawless finish, even under grazing light conditions. The maximum layer thickness should not be exceeded in order to avoid promoting shrinkage cracks.

Note on STEICO^{tri}: When transitioning to the uninsulated surface of the interior wall, we recommend using reinforcement mesh. This will prevent cracks on the narrow side of the STEICO^{tri}.

Coating in two stages

In order to ensure the specified minimum layer thickness and the correct position of the reinforcement mesh, it is advisable to apply a toothed levelling compound beforehand. The applied layer is first worked into the surface of the wood fibre insulation board as a pressed plaster. Then, plaster is applied again wet on wet, levelled off and combed with a notched trowel. Additional reinforcements (reinforcement arrows, etc.) and special connection profiles are now inserted into this layer.

After drying, apply the second layer of plaster to fill the teeth. Embed the STEICO Smesh F reinforcement mesh in the damp plaster layer of the second application, ensuring it is wrinkle-free and with a 10 cm overlap. The overlaps should not be in the corner areas of windows or other wall openings.

In room corners, the reinforcement mesh must be extended to the recessed corner. The reinforcement mesh must be completely surrounded by STEICO^{interior render L}. The mesh structure must be covered but still visible. Finally, the mesh is filled wet-on-wet if necessary and smoothed with a suitable smoothing trowel ('surface trowel'). Any filling burrs must be removed after drying. The reinforced filling layer must be integrated or penetrating components with a separation in the form of a trowel cut or with suitable plaster profiles (e.g. STEICO plaster finishing profile) – a rigid connection is not functional.

Top layer

The drying time between the reinforcement layer and the top layer is approx. 1-2 days, depending on the prevailing room climate. STEICO^{interior render L} is then reapplied to the solidified layer as a textured plaster.

The top layer, approx. 2-3 mm depending on the desired surface, can be applied and textured using standard tools. It can be felted, brushed or simply smoothed. Other free surface textures are also possible for creative design.

Coat of paint

Once the plaster has completely dried, approx. 7 days at +20 °C, the surface can be painted with STEICO^{interior color SI}. For even application, we recommend using short-pile rollers. The connected surface must be worked wet-on-wet to avoid brush marks. The silicate paint is available in white or colours from the STEICO colour chart. It gives the surface structure additional protection and ensures uniform surfaces.

Depending on the colour selection and the type/structure of the top coat, further coats may be necessary.

Connections / Design

Connection to wooden beams

In existing timber beam ceilings, the timber beam ends resting on the masonry cool down slightly due to the internal insulation measures. Therefore, the following aspects must be taken into account with regard to these penetration points for permanent connections:

- Inspect the beam supports (at least on a random basis) – especially in vulnerable areas such as near water pipes or downpipes and at the corners of buildings on the weather side.

In the event of damage, the following steps must be taken:

- Assessment and appropriate repair by specialist woodworking companies
- If necessary, eliminate the cause of external moisture sources, e.g. by installing barrier layers under the beam head.

The following steps are recommended – ideally the supports should be exposed:

- If necessary, fill any air gaps around the beam head in the first few centimetres up to the front edge of the masonry with stuffing wool, e.g. flax or hemp.
- Any gaps or large cracks in the wooden beams must be filled, e.g. by filling or using wooden dowels.
- Pull STEICO^{interior render L} up to the beams and finish with a trowel cut.
- Once the plaster layer has dried, prime the transitions between the plaster and beams with STEICO^{multi primer} and, once this has dried, seal them airtight with STEICO^{multi tape black}.
- With STEICO^{internal}, insulate as far as possible and on all sides to the beam ends in accordance with steps 4) and 5) (chapter Processing)
- Fill any gaps up to 10mm between STEICO^{internal} and the beam head with stuffing wool (see 1).
- Application of STEICO^{interior render L} in accordance with the chapter of the same name.

Water pipes or heating pipes

Since internal insulation reduces the surface temperature of the existing wall, which was previously heated by the room air, there is an increased risk of frost. Therefore, particularly in the case of water-carrying pipes, care must be taken to ensure that these are routed in adjacent components such as internal walls or skirting boards.

Cable routing

Where possible, electrical cables should be laid in adjacent components such as interior walls; otherwise, they should be laid in advance in the existing wall or, if necessary, flush with the surface within the interior plaster layer (see step 2 under “Application procedure”).

Sockets

Due to the penetration of the interior insulation (airtightness) or reduction in insulation thickness, special interior insulation boxes are required, such as the product from KAISER GmbH & Co. KG. Detailed information, certificates and processing instructions can be found on the manufacturer's product page



Fastening of loads

Medium and heavy loads

For medium and heavy loads, with insulation thicknesses of 60 mm or more, a spacer mounting system can be used for anchoring in load-bearing masonry, such as 'TherMax' from fischer or the 'AMO' systems from These also allow the installation of larger loads such as radiators or wall cabinets without pressure pads while providing thermal separation.

With its UMP-ALU-TZ system, Dosteba offers an alternative bracket system (= pressure pad for load distribution) made of rigid PU foam.

Light loads

The following insulation dowels and screws can be used to attach e.g. pictures, lights or similar items in the finished system: The fastening systems listed below can be used in STEICO^{internal} with ≥ 60 mm. The technical information and processing instructions of the respective fastener manufacturer must be observed.

Bezeichnung	Tragfähigkeit [kg]	Antrieb	für Schrauben mit Abmessungen [mm]		Bild
			length	Ø	
Mounting coil	≤ 5	Torx T40	≤ 35 mm	≤ 5	
Insulation dowel CELO IPSD-H 55	$\leq 10^*$	Torx T25	≤ 25 mm	$\leq 3,5$	
Insulation screw CELO IPS-H 55	$\leq 10^*$	Torx T25			

* Can carry up to 12kg when plastered

General information about STEICO*internal*

Safety

- Cutting and processing the STEICO*internal* wood fibre insulation board generates dust.
- For dust removal, the usual dust extraction systems in accordance with applicable regulations must be used.
- Ferner sind die Bestimmungen der Technischen Regeln für Gefahrstoffe (TRGS 553) zu beachten.

Maximum temperature load

- Technical equipment that generate temperatures of $\geq 100^{\circ}\text{C}$ must not come into direct contact with STEICO*internal*. If necessary, these elements must be encapsulated.

Storage

- Store flat, dry and in a horizontal position; protect edges from damage.
- Only remove the packaging once the pallet is standing on a firm, level and dry surface.
- Up to two unopened pallets of STEICO*internal* wood fibre insulation boards can be stacked on top of each other.

Disposal

Waste cuttings:

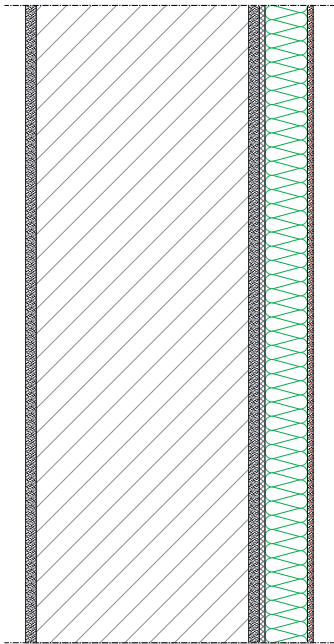
- Waste code according to 2014/955/EU: 03 01 05
Dismantling:
- Waste code according to 2014/955/EU: 17 02 01

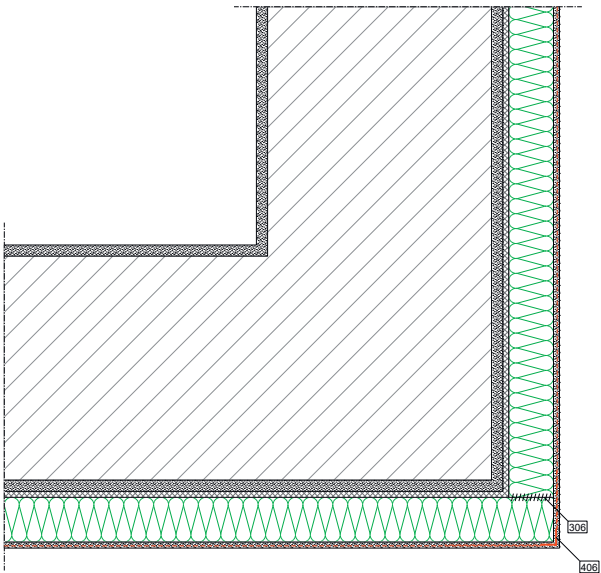
Alternative coating manufacturers



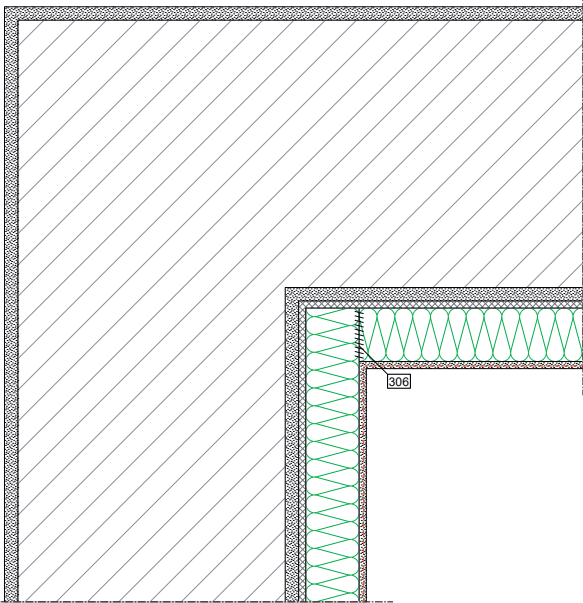
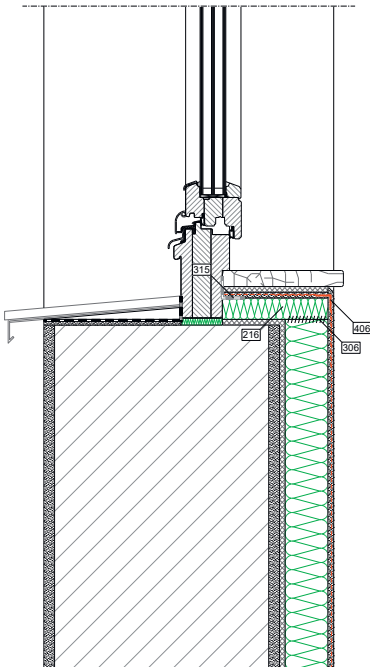
When using an alternative coating system, please observe the manufacturer's handling instructions.

Details

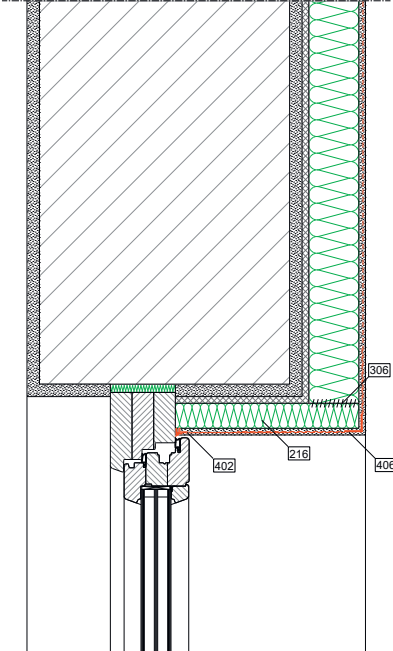
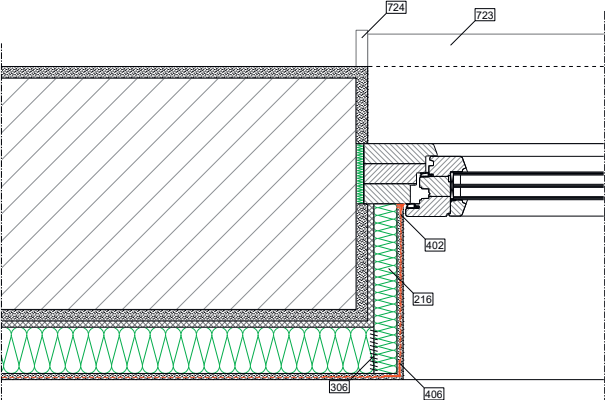
System build-up with bonding, Vertical section		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork (Existing) • internal plaster	• STEICO^{interior render L} • STEICO^{internal} • STEICO^{interior render L} (reinforced) • STEICO^{interior color SI}
	Legend		

External corner		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO^{internal} • STEICO^{interior render L} (reinforced) • STEICO^{interior color SI}
	Legend		• 306 STEICO^{multi fill} • 406 STEICO reinforcement mesh angle

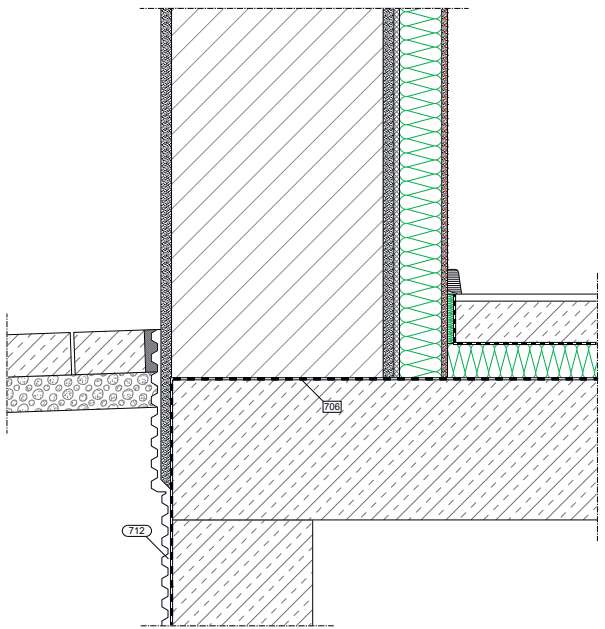
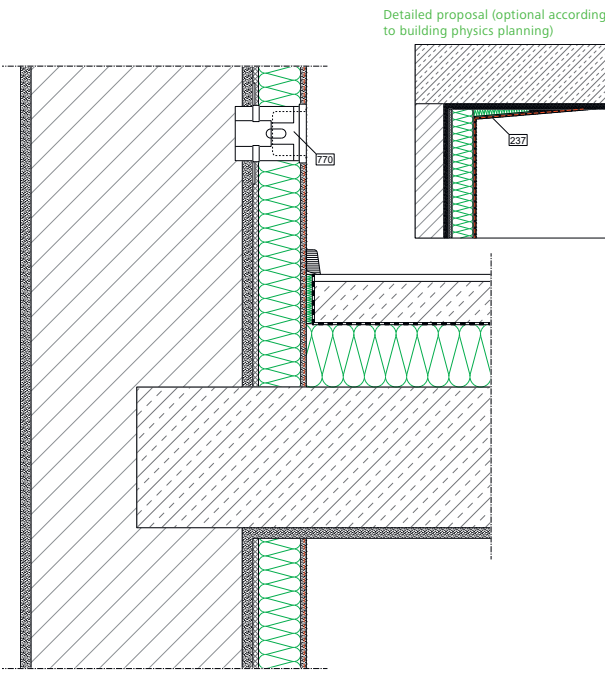
Important note: The preceding details should only be used for planning purposes. Their accuracy, completeness and suitability should be checked by the installer / designer independently to ensure compliance with the relevant regulatory requirements. They should not be used to replace individual project detailing but to assist the project designer with the detailing process.

Internal corner		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO<i>internal</i> • STEICO<i>interior render L</i> (reinforced) • STEICO<i>interior color SII</i>
	Legend		• 306 STEICO<i>multi fill</i>
Window sill		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO<i>internal</i> • STEICO<i>interior render L</i> (reinforced) • STEICO<i>interior color SI</i>
	Legend		• 216 STEICO<i>therm SD</i> • 306 STEICO<i>multi fill</i> • 315 STEICO<i>multi tape black</i> + STEICO<i>multi primer</i> • 406 STEICO reinforcement mesh angle

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Window head		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO^{internal} • STEICO^{interior render L} (reinforced) • STEICO^{interior color SI}
	Legend		• 216 STEICO^{therm SD} • 306 STEICO^{multi fill} • 402 STEICO^{secure} plaster stop bead 55 • 406 STEICO reinforcement mesh angle
Window – horizontal section at reveal		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO^{internal} • STEICO^{interior render L} (reinforced) • STEICO^{interior color SI}
	Legend	• 723 Window sill • 724 End profile	• 216 STEICO^{therm SD} • 306 STEICO^{multi fill} • 402 STEICO^{secure} Plaster stop bead 55 • 406 STEICO reinforcement mesh angle

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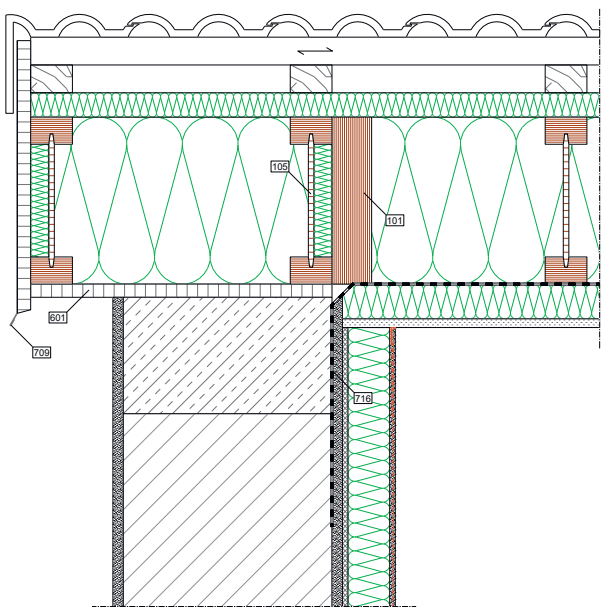
Base		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO<i>internal</i> • STEICO<i>interior render L</i> (reinforced) • STEICO<i>interior color SI</i>
	Legend	• 706 DPC • 712 Drainage membrane	
Floor connection – concrete		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO<i>internal</i> • STEICO<i>interior render L</i> (reinforced) • STEICO<i>interior color SI</i>
	Floor build-up	• Concrete floor • Plaster layer	
	Legend		• 237 STEICO<i>tri</i> wood fibre wedge • 770 Internal socket

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Floor connection – timber		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO^{internal} • STEICO^{interior} render L (reinforced) • STEICO^{interior} color SI
	Floor Build-up	• Space between existing joists	• timber cladding / plasterboard
	Legend	• 760 Still air • 619 flexible infill	• 315 STEICO^{multi} tape black + STEICO^{multi} primer

Connection to internal wall – horizontal section		Existing layers	Inside / Bottom
	Wall Build-up external	• Render • Brickwork • external plaster	• Bonding Coat • STEICO^{internal} • STEICO^{interior} render L (reinforced) • STEICO^{interior} color SI
	Wall Build-up internal	• Render • Brickwork • internal plaster	
	Legend		• 237 STEICO^{tri} wood fibre wedge • 514 ejotherrm S1 fixing

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Roof – Gable end renovation		Existing layers	Inside / Bottom
	Wall Build-up	• Render • Brickwork • internal plaster	• Bonding Coat • STEICO<i>internal</i> • STEICO<i>interior render L</i> (reinforced) • STEICO<i>interior color SI</i>
	Roof Build-up	• STEICO<i>universal</i> • STEICO<i>joist</i> + STEICO<i>flex</i> • VCL • Batten + STEICO<i>flex</i>	• Plasterboard Type A
	Legend	• 101 STEICO<i>LVL R</i> • 105 STEICO<i>joist</i> pre-insulated • 601 Timber based board + suitable covering • 709 Drip bead • 716 Airtight connection	

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Notes

Notes

Notes

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The contents of this document have been prepared in consideration of European product standards and provide a general overview of component structures, construction methods, and installation. National applicable regulations have not been considered. Before using our products, please verify that the applicable national regulations for the specific area of use are followed.

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The currently valid version can be found at:
steico.com/hi_internal_eur_en

