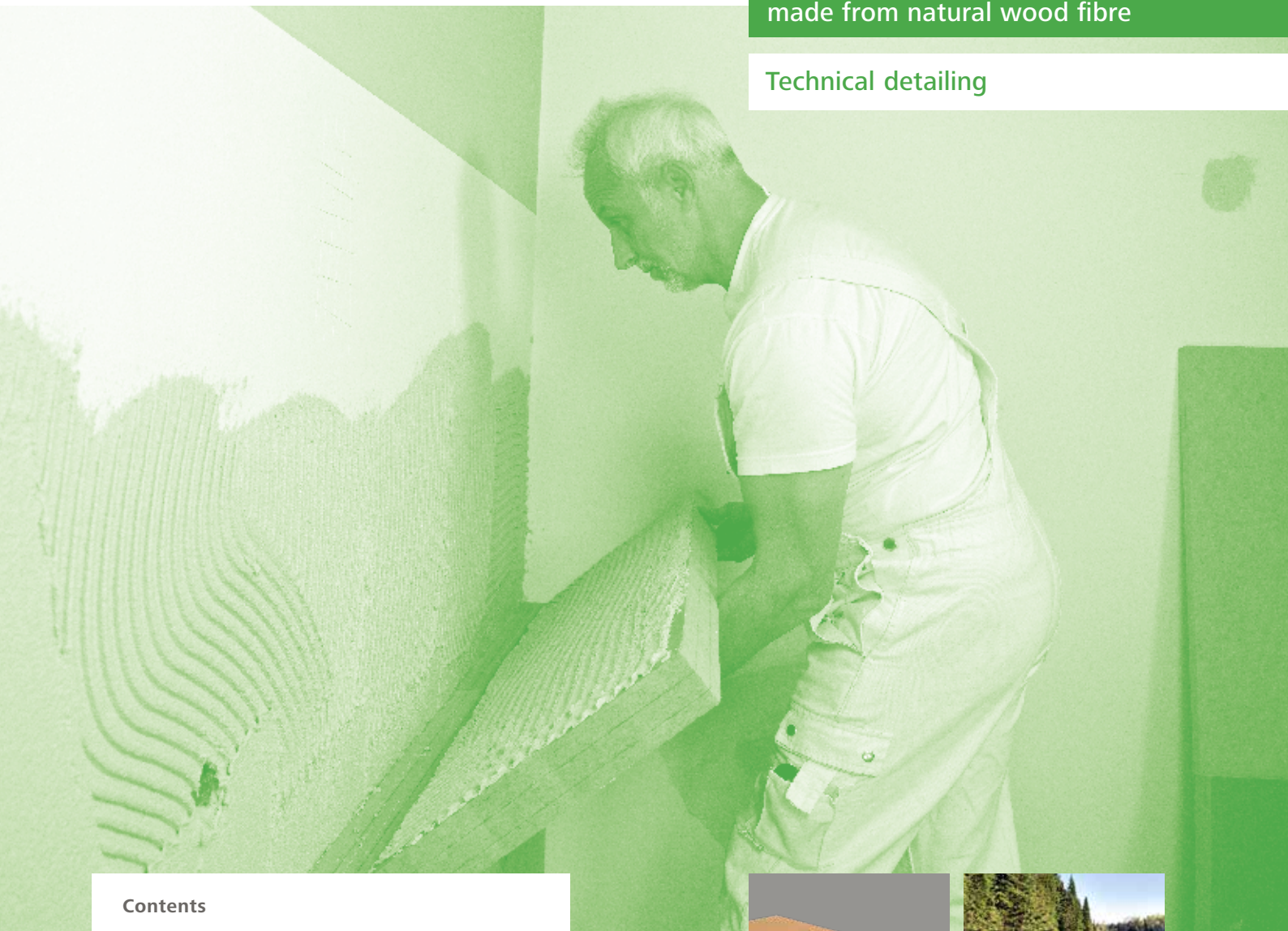


Installation instructions - IWI systems

Internal insulation with STEICO*internal* / STEICO*therm*

Environmentally friendly insulation
made from natural wood fibre

Technical detailing



Contents

Components	3
Installation process.....	6
Plaster coat	9
Connections.....	10
Applying loads	11
Details	12




STEICO
engineered by nature



IWI Systems

The Wood fibre system for diffusion open internal insulation

Areas of application

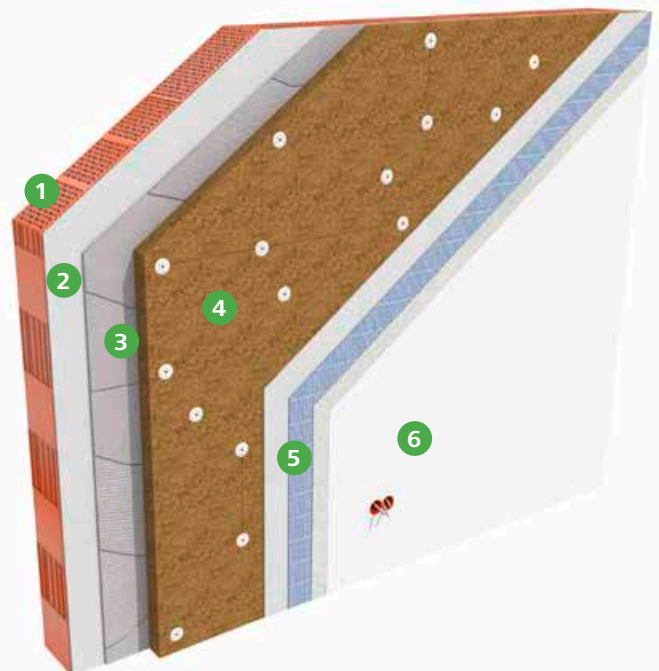
- Thermal upgrades for existing external walls
- Internal insulation on new mineral construction systems



The System

In order to ensure the efficacy of this diffusion open and capillary active system the following build-up of materials is recommended.

- 1 External wall with render (existing)
- 2 Internal plaster
- 3 Bonding coat
- 4 STEICO*internal* / STEICO*therm*
- 5 Base coat with reinforcement mesh
- 6 Finishing coat















Components

Components

Plaster systems

3 Bonding coat **5 Base coat**

The following systems are recommended for the levelling coat and the base coat:

Plaster type	Manufacturer	More info:
Lime plaster	 Eine Marke von slevert	https://www.akurit.de
	 WOHL FÜHL WERK STOFF	https://www.knauf.de/
	 KALK & PUTZ	https://www.hessler-kalkwerk.de
	 BAUSTOFFWERK	https://www.rygol-sakret.de/
		https://www.keim.com/en-gb/
		https://baumit.co.uk/
		https://www.lime-green.co.uk/
	 thermal universal smooth	https://adaptavate.com/
Clay plaster	 Baustoffe aus Lehm.	https://www.claytec.de/en
	 Vielfalt aus Lehm	https://www.conluto.de
	 WANDHEIZUNG	https://wall-heating.com/
	 ...natürlich Lehm	http://www.tierrafino.com/

Finish coat **6**

Generally the finish coat should be from the same manufacturer as the base coat. More information can be obtained from the relevant manufacturers website.

Insulation boards

STEICO*internal*/ STEICO*therm* 4

Both insulation boards are available as Square edge, STEICO*internal* (40 mm and 60 mm) is also available as Tongue and Groove. We recommend using square edge as this eases the installation process and minimises the risk of plaster trapped between the board edge profiling.

STEICO*internal* is fully reversible. When installing STEICO*therm* we recommend the dark hard surface on one face of the board is oriented towards the mineral surface.

STEICO*internal*

Thickness [mm]	Length [mm]	Width [mm]	Edge
40	1200	380	T+G
40	1200	380	square
60	1200	380	T+G
60	1200	380	square
80	1200	380	square
100	1200	380	square

STEICO*therm*

Thickness [mm]	Length [mm]	Width [mm]	Edge
40	1350	600	SE
60	1350	600	SE
80	1350	600	SE
100	1350	600	SE



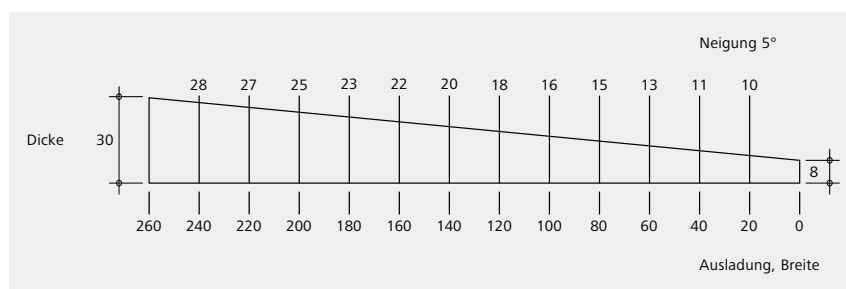
STEICO*tri*

Optional for returns on connections such as intermediate concrete floors or incoming partition walls.

Thickness [mm]	Length [mm]	Width [mm]
25 (8)	1350	200
30 (8)	1350	260



Profile



- Dark, un-sanded face not suitable for internal finish plasters



- Soft sanded side should face the inside of the building

IMPORTANT - If installing STEICO*therm* please ensure that the dark hard surface on one face of the board is oriented towards the mineral surface.

Components

STEICOtherm SD

Optional for window and door reveals.

Thickness [mm]	Length [mm]	Width [mm]	Edge
20	1350	600	square
30	1350	600	square



Fixings

additional mechanical fixing of the insulation boards

Existing wall material	Fixing			Driver
	Insulation thickness STEICOinternal/STEICOtherm [mm]			
	40	60	80	
Brickwork	S1 short 100	S1 120	S1 140	IPR 30 ^{b)}
Sandstone				
Perforated concrete block, natural stone				
Lightweight concrete block	S1 short 100	S1 140	S1 140	
Timber stud	HFS 100	HFS 120	HFS 140	Torx T40

b) IPR requires special 5-star fixing bit and should be ordered separately



Fixing S1



Fixing HFS

Installation process

We recommend the following steps for the installation of the system.

Step 1:

Checking and preparing the substrate

- Existing finishes which are diffusion closed or that hinder capillary movement, such as wallpapers, paint, gypsum plasters etc., should be removed.
- Check the existing wall for load-bearing capacity (cross cut with a retractable/utility knife) and flatness (eg. with a long aluminium straight edge).
- The surface of the external wall should be firm, dry and free of grease and dust on the inside. If priming is required then materials that are diffusion open or capillary active should be used.



Step 2:

Levelling the substrate

- If the substrate is bumpy it should be levelled out. We recommend the lime and clay plasters shown in the section 'Components'. Products with a high gypsum content should be avoided.
- Where there are exposed timbers without existing plaster, a new layer of plaster utilising the lime or clay plasters from the 'Components' section should be used.

In these circumstances suitable base layers such as reed mats should be mounted on the exposed timbers.

- Newly applied plaster layers should be allowed to dry completely. (drying time: approx. 1 day per mm of plaster thickness) for more detailed information please follow the guidance from the respective plaster manufacturer.

Step 3:

Board processing

- For length and width cutting we recommend circular saws with a coarse tooth blade. Detailed work can be carried out with a jigsaw (eg. Bosch T1013 AWP or T 313 AW).
- Please ensure sufficient extraction is used for all cutting processes.
- Further information is contained in the brochure "Cutting options for STEICO insulating materials" available in the download area at <https://www.steico.com/en/>

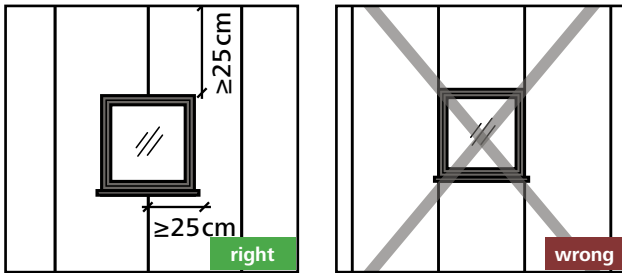


Installation process

Step 4: Bonding the board

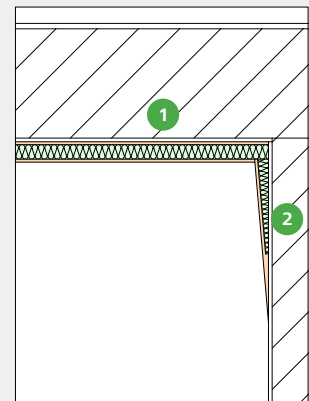
The contact area between the masonry and the STEICO*internal*/STEICO*therm* must be at least 80%. This is easy to achieve if the notched trowel coverage is aligned on the wall and on the back of the board in the same way. (parallel floating method).

- Application of the base coat **3** [Components see P. 3] with a 10mm toothed trowel...
 1. ...first on the existing wall, then....
 2. ...on the dark, hard surface of the STEICO*therm* or on either side of the STEICO*internal*.
- Position the insulation board and gently manoeuvre into its final position. The correct vertical joint offset detailed in Step 5 should be observed. Also allow for appropriate spacing in the reveal area (see illustration below)
- Allow to dry for approx 24 hours in a normal indoor climate



Notes on STEICO*tri*

At adjoining (internal walls) **1** the wide side of the insulating wedge is butted against the insulated surface of the external wall **2** The internal wall can then be levelled out with the finishing coats **6** [Components see P. 3]. Plaster residues between the STEICO*internal*/STEICO*therm* and the insulation wedge should be removed.



Step 5: Mechanical fasteners

- When pre-drilling the wood fibre board insulation and the existing masonry at the same time we recommend the following drill bits with a diameter of 8 mm:
 - ALPEN HM Universal drill-bit Profi Multicut
 - Bosch CYL MultiConstruction
 - Hilti TE CX 4
- Position the insulation fasteners (Components see P. 5) as shown in the diagram to the right. The top edge of the fastener should be flush with the surface of the insulation board.
- Where existing timber framework is present the HFS fastener can be used for anchoring into the timber construction.

TIP: When screwing in the fasteners the EJOT S1 Tool is recommended, as it ensures an easy method for achieving a flush finish.

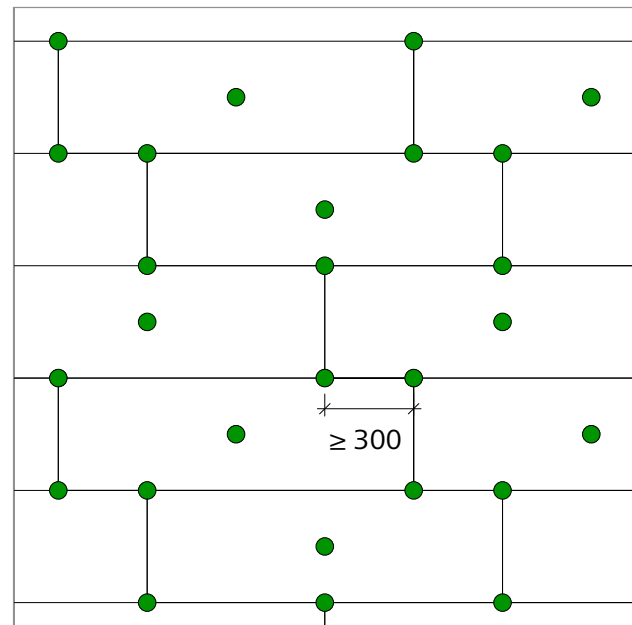


* available in the STEICO product range

Feel free to watch the corresponding installation video under the keyword 'interior insulation':

<https://www.steico.com/de/downloads/videos/>

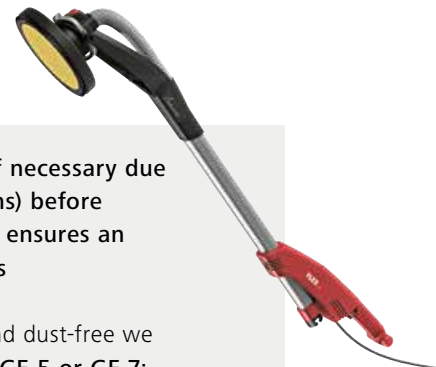
If additional layers such as wall heating systems are required, the guidelines of the relevant manufacturer must be observed.



Fixing pattern: 6,5 pcs/m² for example. 3 per board

TIP: Sand the top surface (if necessary due to uneven board connections) before installing the fasteners as it ensures an unhindered working process

In order to work efficiently and dust-free we recommend the **Flex-Giraffe GE 5 or GE 7**:
www.flex-tools.com/de-de/produkte/l/giraffe-wand-und-deckenschleifer-0
 Velcro sandpaper with a P40 grit (www.flex-tools.com/de-de/produkte/l/sicherheitssauger-0) achieve an excellent result.



Plaster coat

Plaster coat

Base coat

The application thicknesses should be in line with the recommendations of the respective plaster manufacturer. It is recommended to work within these guidelines in order to achieve a high quality finished surface. The specified maximum application thickness should not be exceeded so that the finished surface is free of any shrinkage cracks.

Note on STEICOtri

At the transition to the uninsulated surface of the internal wall we recommend the use of a reinforcing mesh. This avoids the potential for hairline cracks forming on the skin of the STEICOtri.

Application in two stages

In order to guarantee the minimum specified thickness and the correct placement of the reinforcement mesh we recommend application using a notched trowel. The base coat should be worked / pressed into the surface of the wood fibre board. A secondary layer is then applied 'wet on wet', levelled off and combed with a notched trowel. Additional reinforcements (eg reinforcement arrows) as well as any special connection profiles are inserted in this layer. The plaster manufacturers recommendations on setting time should be followed.

After the notched trowel layer has dried the second layer of the base coat is applied to the required thickness (filling the 'valleys'). The reinforcement mesh should be embedded, wrinkle free and with a 10mm overlap into the damp plaster

surface of the second layer. The overlaps should not be in the corner areas of windows or other wall openings.

The reinforcement mesh should run tight into the corners of connecting walls and should be fully embedded in the plaster coat. The structure of the fabric should be covered but still recognisable/visible. Finally, if necessary, the fabric is smoothed over 'wet on wet' with a suitable finishing trowel. Any edges can be smoothed off after drying. The thickness of the plaster should be in line with the respective manufacturers recommendations. The base coat should be finished with a bevelled edge to any connecting or penetrating components, or with an appropriate plaster bead. A rigid connection is not supported.

Top coat

When applying the top coat the relevant plaster manufacturers guidance should be followed. The drying times of the plaster layers should be observed but the general rule of '1 day per mm of plaster thickness' generally applies.

This and any other important additional information can be found in the installation instructions of the respective manufacturer.

Connections

Connecting timber joists

Where existing timber joists connect to the wall, the bearing of the joist will cool down due to the interior insulation. Therefore, the following points should be considered in order to ensure a robust connection:

- Check the condition of the joist ends at the bearing, particularly in areas of high risk such as where there are downpipes externally as well as on building corners on exposed elevations.

The following steps are recommended – ideally, the joist bearings are exposed:

- 1 Any existing air gaps around the bearing should be filled flush with the front edge with flexible insulation material such as flax or hemp.
- 2 Defects or large cracks in the joists should be filled eg. with saw dust chippings or timber packers.
- 3 Levelling coats or existing plaster coats should be taken up to the joist ends and finished with a bevelled edge.
- 4 After the plaster has dried the connection area between

- In the event of damage, the following should be carried out:

Appraisal and repair by a specialist woodworking company

If necessary, combat the cause of external moisture sources eg. laying a barrier under the joist bearing location

the plaster and joist should be primed with STEICO*multi primer* and once dried, air-tight sealed with STEICO*multi tape* black.

- 5 Ideally the space between the joists should be exposed and insulated as close as possible to all sides with STEICO*internal/STEICOtherm*, in line with the installation processes detailed in steps 4 & 5 (Chapter: Installation)
- 6 Any gaps up to 10mm wide should be filled with flexible material (see 1).
- 7 Plaster coat applied as per standard application processes.

Cable routing

If possible, electrical cables should be run in adjacent components such as internal walls; alternatively, laid in advance

in the existing wall, or flush with the surface of the interior bonding layer (See Chapter: Installation process).

Water or heating pipes

Interior insulation reduces the temperature of the existing wall, which was previously warmed by the room air, and hence leads to increased risks of freezing in these areas.

It is therefore particularly important that water pipes are run in adjacent interior walls or within dedicated skirting boards.

Sockets

Due to the penetration of the interior insulation layer (airtightness) or reduction of the insulation thickness, special interior insulation boxes are required such as the product of the same name by KAISER GmbH & Co. KG.

This ensures that a thermal bridge free solution is provided when penetrating the insulation layer. Detailed information, certificates and installation detailing is provided on the relevant manufacturers product pages.

Applying loads

Applying loads

The following fastening systems can be used in STEICO*internal*/STEICO*therm* within a thickness ≥ 60 mm. The technical information and installation instructions of the respective manufacturer must be observed.

Light loads

The following insulation fixings can be used to fasten light loads such as pictures, lights etc. in the final insulation system:

Description	Load capacity [kg]	Drive	for screws with diameter [mm]		Picture
			Length	Ø	
STEICO-fixing spiral*	≤ 5	Torx T40	≤ 35 mm	≤ 5	
Insulation plug CELO IPSD-H 55	$\leq 10^{**}$	Torx T25	≤ 25 mm	$\leq 3,5$	
Insulation screw CELO IPS-H 55	$\leq 10^{**}$	Torx T25			

* Available in STEICO product range
**plastered up to 12 kg

Medium weight and heavy loads

For medium and heavy loads, with insulation thicknesses from 60 mm, a 'stand off' installation system can be used for anchoring into the masonry substrate using fixings such as the „TherMax“ from Fischer or the „AMO“-System from Würth. These allow the fixing of heavy loads such as

radiators or wall mounted cupboards, which ensure thermal separation without the use of pressure pads. Dosteba offers an alternative with the UMP-ALU-TZ system (pressure pad for load distribution) made of hard PU foam.

General information on STEICO*internal*/STEICO*therm*

Safety

- When cutting and installing the wood fibre insulation board STEICO*internal*/STEICO*therm* dust is produced.
- Dust extraction guidance in line with local guidance should always be followed.
- Furthermore, the provisions of the Technical Rules for Hazardous substances (TRGS 553) must be observed.

Maximum temperature load

- Built in elements that generate a temperature ≥ 100 °C, should not come into contact with STEICO*internal*/STEICO*therm*, if necessary these elements should be isolated.

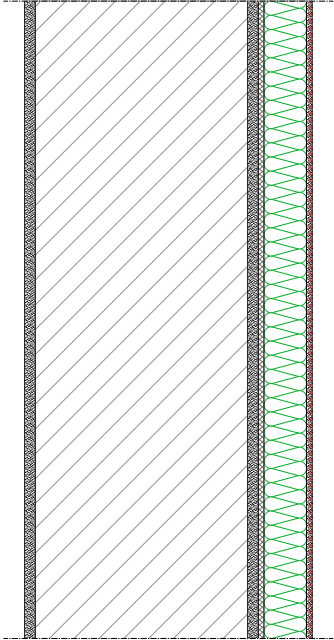
Storage

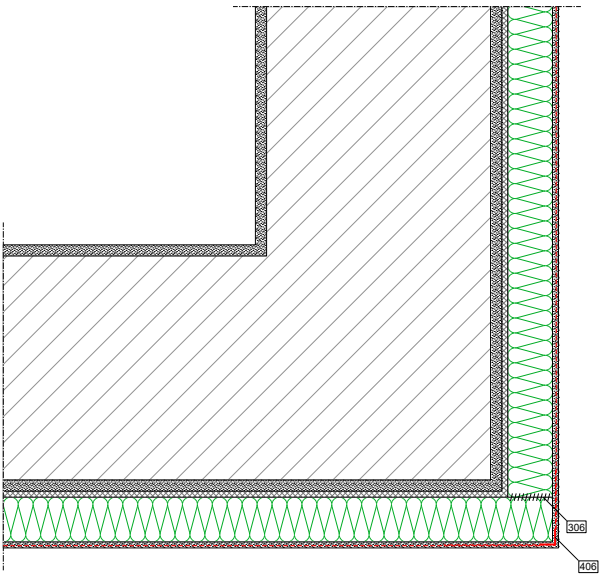
- Store flat and dry, protect edges from damage.
- Do not remove the foil packaging until the pallet is on stable, level and dry ground.
- A maximum of two pallets of STEICO*internal*/STEICO*therm* wood fibre insulation boards can be stacked on top of each other.

Disposal

- Waste codes (AVV) 030105 and 170201 – Disposal as wood and wood based products.

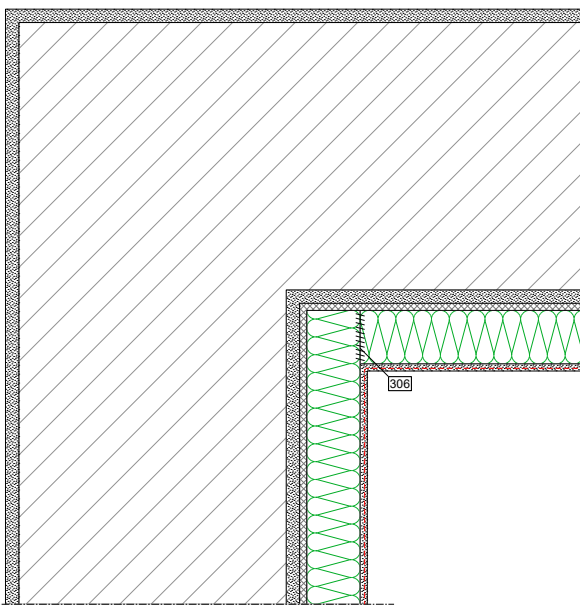
Details

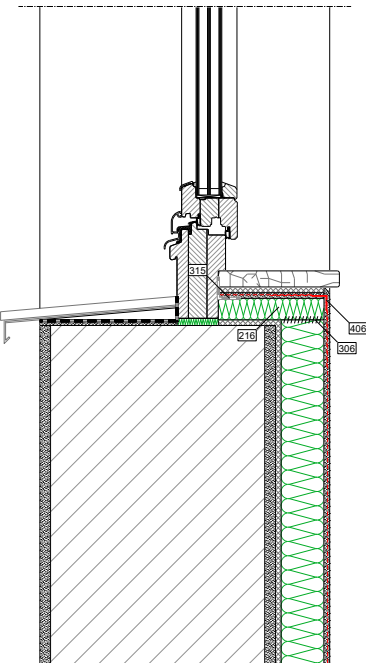
System build-up with bonding, Vertical section	Outside / Top	Construction	Inside / Bottom
	Wall Build-up	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i>/STEICO<i>therm</i> • Plaster system
	Legend		

External corner	Outside / Top	Construction	Inside / Bottom
	Wall Build-up	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i>/STEICO<i>therm</i> • Plaster system
	Legend		<ul style="list-style-type: none"> • 306 STEICO<i>multi fill</i> • 406 STEICO<i>secure</i> reinforcement mesh angle

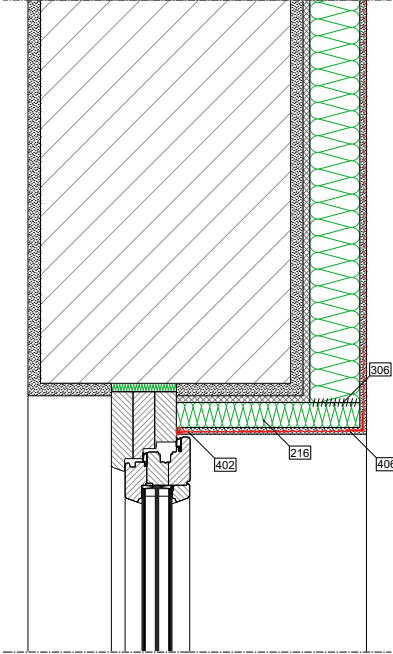
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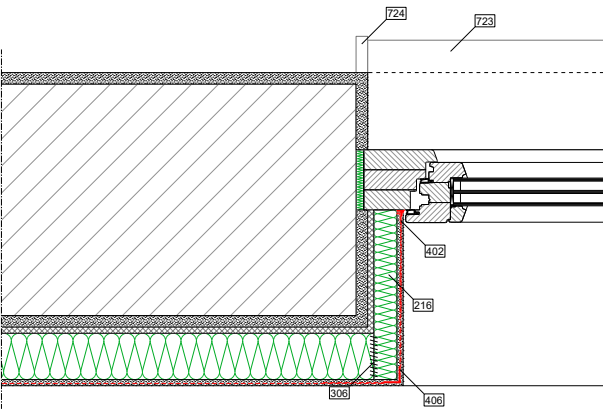
Details

Internal corner	Outside / Top	Construction	Inside / Bottom
	<p>Wall Build-up</p>	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal/STEICOtherm</i> • Plaster system
<p>Legend</p>			<ul style="list-style-type: none"> • 306 STEICO<i>multi fill</i>

Window sill	Outside / Top	Construction	Inside / Bottom
	<p>Wall Build-up</p>	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal/STEICOtherm</i> • Plaster system
<p>Legend</p>			<ul style="list-style-type: none"> • 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<i>secure</i> reinforcement mesh angle

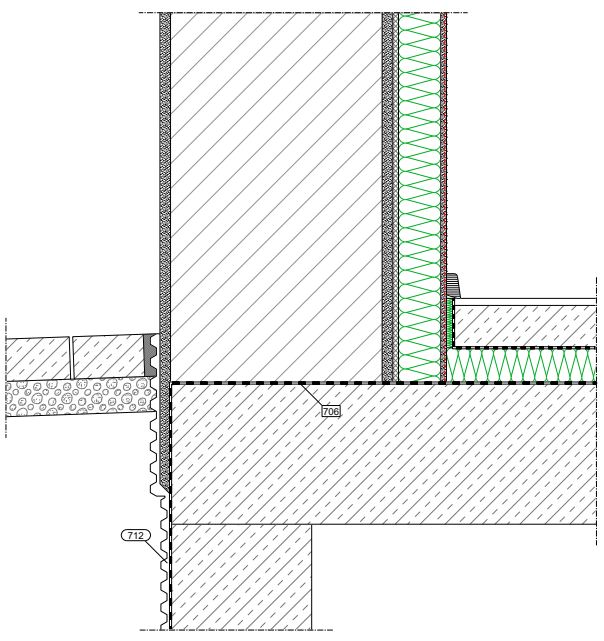
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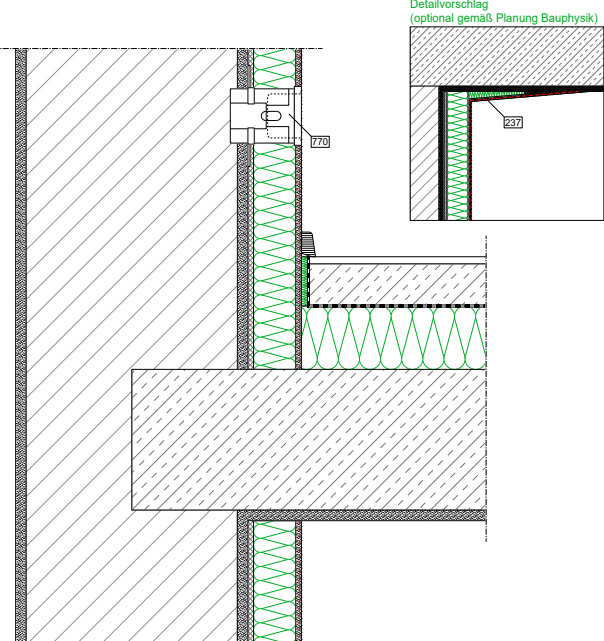
Window head	Outside / Top	Construction	Inside / Bottom
	<p>Wall Build-up</p>	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i> / STEICO<i>therm</i> • Plaster system
<p>Legend</p>			<ul style="list-style-type: none"> • 216 STEICO<i>therm SD</i> • 306 STEICO<i>multi fill</i> • 402 STEICO<i>secure</i> plaster stop bead 55 • 406 STEICO<i>secure</i> reinforcement mesh angle

Window – horizontal section at reveal	Outside / Top	Construction	Inside / Bottom
	<p>Wall Build-up</p>	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i> / STEICO<i>therm</i> • Plaster system
<p>Legend</p>		<ul style="list-style-type: none"> • 723 Window sill • 724 End profile 	<ul style="list-style-type: none"> • 216 STEICO<i>therm SD</i> • 306 STEICO<i>multi fill</i> • 402 STEICO<i>secure</i> Plaster stop bead 55 • 406 STEICO<i>secure</i> reinforcement mesh angle

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Details

Base	Outside / Top	Construction	Inside / Bottom
	<p>Wall Build-up</p>	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i>/STEICO<i>therm</i> • Plaster system
	<p>Legend</p>	<ul style="list-style-type: none"> • 706 DPC • 712 Drainage membrane 	

Floor connection – concrete	Outside / Top	Construction	Inside / Bottom
 <p style="font-size: small; color: green;">Detailvorschlag (optional gemäß Planung Bauphysik)</p>	<p>Wall Build-up</p>	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i>/STEICO<i>therm</i> • Plaster system
	<p>Floor build-up</p>	<ul style="list-style-type: none"> • Floor covering • Wet screed • Membrane • STEICO<i>therm</i> 	<ul style="list-style-type: none"> • Concrete floor • Plaster layer
	<p>Legend</p>		<ul style="list-style-type: none"> • 237 STEICO<i>tri</i> wood fibre wedge • 770 Internal socket

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Floor connection – timber		Outside / Top	Construction	Inside / Bottom
	Wall Build-up		<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i>/STEICO<i>therm</i> • Plaster system
	Floor Build-up	<ul style="list-style-type: none"> • Floor covering • STEICO<i>therm</i> 	<ul style="list-style-type: none"> • Space between existing joists 	<ul style="list-style-type: none"> • timber cladding / plasterboard
	Legend		<ul style="list-style-type: none"> • 760 Still air • 619 flexible infill 	<ul style="list-style-type: none"> • 315 STEICO<i>multi</i> tape black + STEICO<i>multi</i> primer

Connection to internal wall – horizontal section		Outside / Top	Construction	Inside / Bottom
	Wall Build-up external		<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • external plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i>/STEICO<i>therm</i> • Plaster system
	Wall Build-up internal		<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	
	Legend			<ul style="list-style-type: none"> • 237 STEICO<i>tri</i> wood fibre wedge • 514 ejo<i>therm</i> S1 fixing

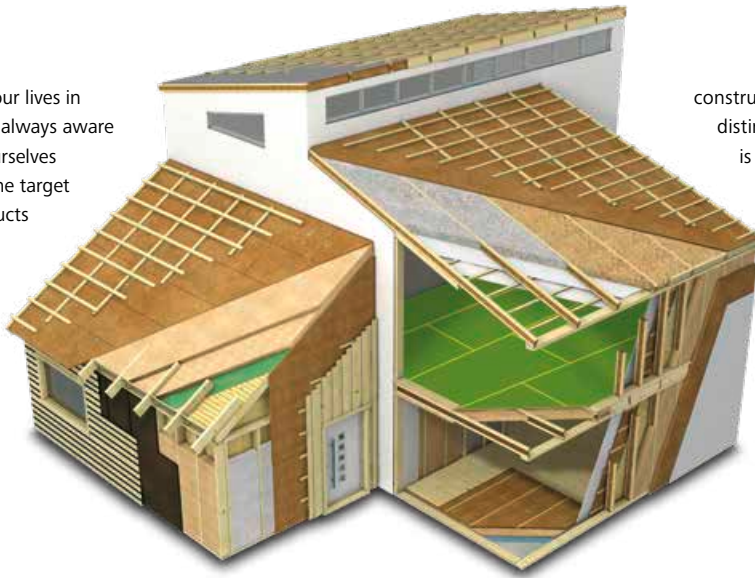
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Details

Roof – Gable end renovation			
	Outside / Top	Construction	Inside / Bottom
	Wall Build-up	<ul style="list-style-type: none"> • Render (Existing) • Brickwork (Existing) • internal plaster (Existing) 	<ul style="list-style-type: none"> • Bonding Coat • STEICO<i>internal</i> / STEICO<i>therm</i> • Plaster system
	Roof Build-up Counter batten Tile batten	<ul style="list-style-type: none"> • STEICO<i>universal</i> • STEICO<i>joist</i> + STEICO<i>flex</i> • VCL • Batten + STEICO<i>flex</i> 	<ul style="list-style-type: none"> • Plasterboard Type A
	Legend	<ul style="list-style-type: none"> • 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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We spend approx. 80% of our lives in enclosed rooms. But are we always aware what we are surrounding ourselves with? STEICO has set itself the target of developing building products which consider the needs of both man and nature. Our products are therefore produced using sustainable natural materials. They help reduce energy use and add considerably to a natural healthy internal climate. STEICO insulation and



construction materials, carry a number of distinguished 'seals of approval' which is a sign of high quality, healthy and functional building products. The raw materials used in STEICO products are certified by PEFC (Programme for the Endorsement of Forest Certification), ensuring a traceable and fully sustainable usage of the raw materials. STEICO, the number 1 choice for your sustainable building solutions.

Natural insulation and construction systems for new builds and renovations – roof, ceiling, wall and floor



Renewable raw materials without harmful additives



Excellent cold protection in winter



Excellent summer heat protection



Energy saving and increased property worth



Weather tight and breathable



Excellent fire protection



Excellent sound protection



Environmentally friendly and recyclable



Light and easy to handle



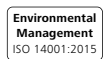
Insulation for healthy living



Strong quality control



Compatible insulation and structural building systems



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