

# **CALSITHERM<sup>®</sup>** **CLIMATE BOARD**

The perfect internal insulation solution



**ecological**  
BUILDING SYSTEMS





## The need for sympathetic renovation of masonry walls

The area of internal insulation on existing single skin masonry walls presents significant challenges and is a subject of much debate and concern. We need to thermally upgrade our existing housing stock but first we need to better understand the long term implications of doing so, not only for the durability of the building but the health of the occupants.

Single leaf masonry walls were built to constantly deal with our Irish and UK climate, they were designed in such a way to absorb moisture and dry at a later stage. Existing un-insulated walls, particularly those that are south facing can dry to the inside when they are exposed to radiant heat by the sun externally, resulting in heat transfer. Drying to the outside also occurs as the walls are exposed to radiant heat from the outside and heat transfer from the inside to the outside. We have to be aware of the implications if we alter this cycle by the addition of insulation.



Acanthus Holden Architects



bere:architects



Urban Architecture

Many modern thermal insulation systems were initially designed for use in cavity walls where materials are generally designed to repel water as opposed to a cyclical absorption and desorption process. The key consideration is to use insulation that is sympathetic to the existing structure, long lasting and fit for purpose, not just from a thermal perspective, but also from an overall hygrothermal performance perspective. Refurbishment is not a cheap process and consequently we need to adopt robust long term solutions to avoid damage to the building in the long term. **Do it once, do it right!**

It is widely accepted that external insulation provides optimal thermal performance in terms of limiting thermal bridging and reducing interstitial condensation issues. However, on many buildings external insulation is not possible for planning, space, or aesthetic reasons and so internal wall insulation is the only option. There is little point in achieving exceptionally low U values and increasing the risk of condensation. This is not sustainable either for the homeowner or the building nor is it cost effective in terms of the remedial work which may be required to remedy damage created by mould growth and condensation.

While many natural and manmade insulations may be diffusion open and to some extent capillary active, 'highly' capillary active insulation provides exponentially more moisture liquid transport compared to the diffusion process. Therefore, a capillary active insulation like CALSITHERM CLIMATE BOARD can offer a high level of security to a building, as its high capillarity offsets excessive fluxes and accumulation of moisture levels within the construction.

We hope our brochure will provide you with all the information on CALSITHERM CLIMATE BOARD from specification to installation, but our team at Ecological Building Systems are always available to answer your queries.

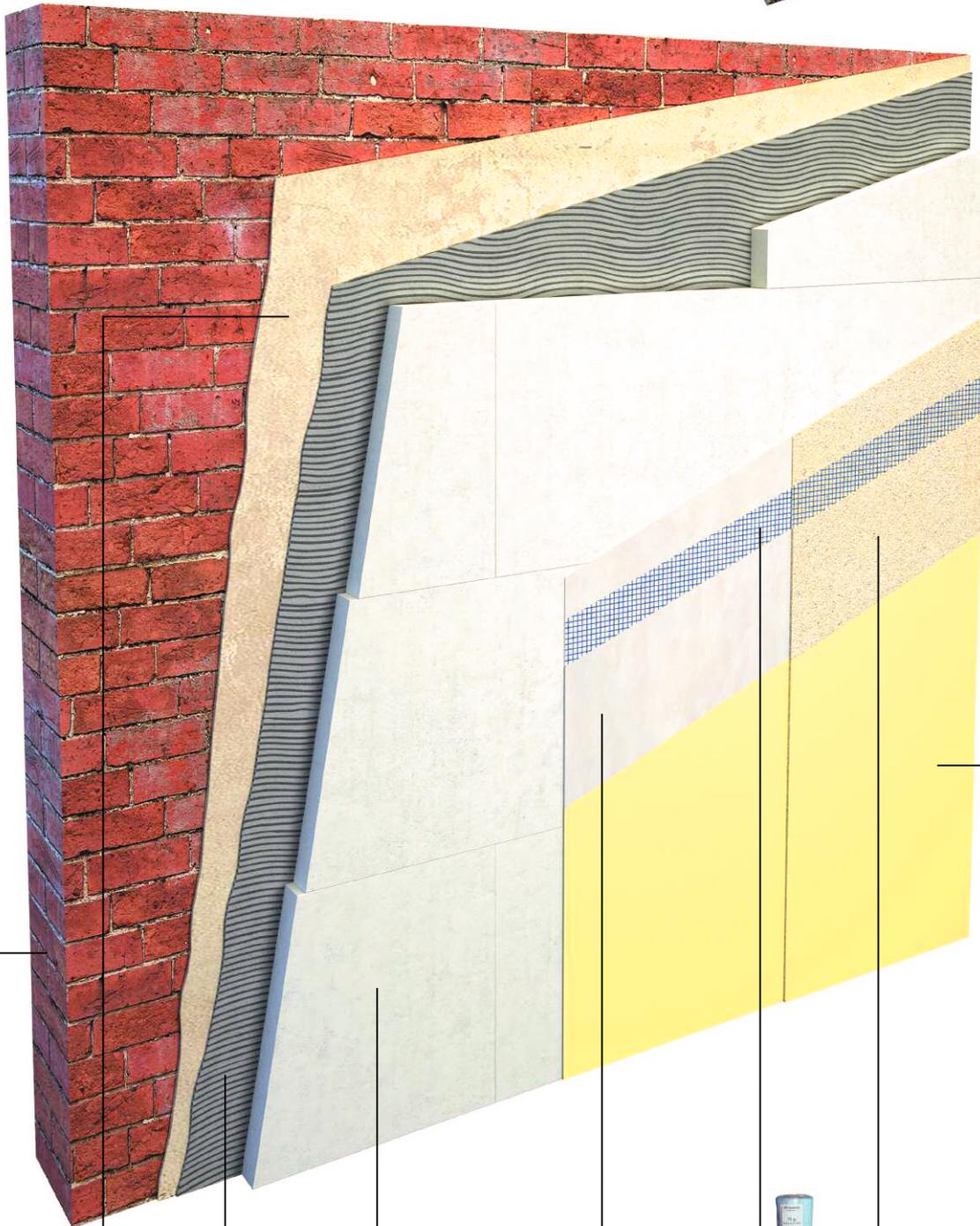


Ecological Building Systems has been at the forefront of supplying natural insulations and diffusion open, airtight systems for over a decade in Ireland and latterly the UK. Our primary focus is to provide a range of materials that focus on the 'Fabric First' allowing diffusion open (breathable) and healthy buildings, significantly reducing carbon emissions and improving energy savings.



# CALSITHERM® CLIMATE BOARD

Application to brick and stone walls



Existing  
brick wall

Existing  
Base  
plaster



Adhesive  
mortar



CALSITHERM  
CLIMATE BOARD



Smooth  
Finish  
plaster



Mesh



Rough  
Finish  
plaster



Diffusion  
open natural  
paint

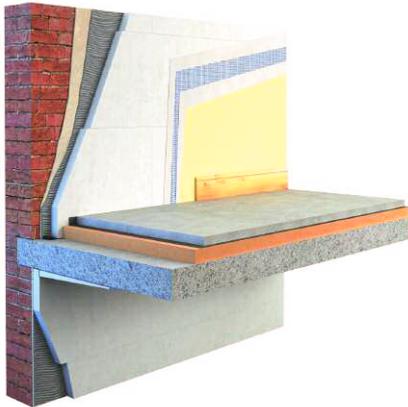
## Additional CALSITHERM CLIMATE BOARD details



CALSITHERM CLIMATE tapered board to reduce thermal bridging at junctions between solid internal walls and external walls



Insulated ceiling joist  
(wall continuously insulated)



Newly installed floor screed to insulated concrete separating floor and tapered CALSITHERM CLIMATE BOARD at ceiling level to reduce thermal bridge



Un-insulated ceiling joist



Insulating with CALSITHERM window soffit climate boards

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## Product

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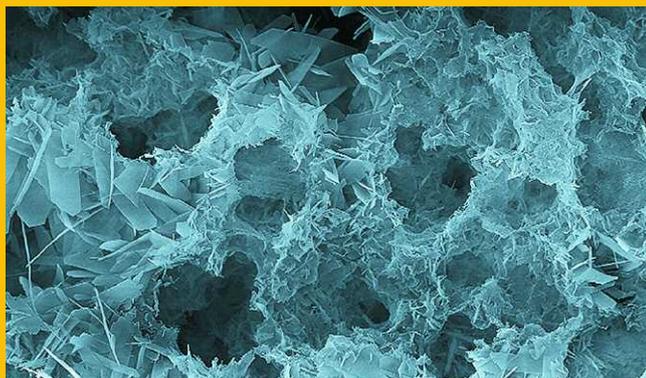
## What is CALSITHERM CLIMATE BOARD?

CALSITHERM CLIMATE BOARD is made from calcium silicate, a micro porous mineral building material with effective insulating properties which is highly diffusion open; the nature of the material and properties of the board ensure a comfortable living environment through its ability to regulate humidity. The high PH and molecular structure of the material means that mould growth is inhibited.

## How is it made?

The natural raw material in the board is sand and lime (silicon dioxide and calcium oxide), and when they are mixed with water, they react to form a preliminary stage of calcium silicate.

After being formed into large panels, the tiny calcium silicate crystals grow in an autoclave process while subjected to heated steam and high pressure to produce an open structure with fine pores.



CALSITHERM CLIMATE BOARD under an electron microscope

## Where is it used?

CALSITHERM CLIMATE BOARD is used to insulate the internal surface of existing external masonry walls and window reveals. Insulating internally ensures that the existing external façade remains intact: this may be particularly relevant in brick, stone, Listed and Heritage buildings.

## Can CALSITHERM CLIMATE BOARD be used in any building?

It is designed for use mainly on single leaf masonry walls, for example brick or stone. It is an ideal solution to thermally upgrading and restoring buildings.

CALSITHERM CLIMATE BOARD is highly capillary active, which means that it can absorb condensed water rapidly at the interface between the wall and the board, it stores it within its structure and then allows it to harmlessly disperse into the living space at a later stage helping maintain a constant relative humidity and ambient indoor climate. CALSITHERM CLIMATE BOARD is therefore particularly relevant for public buildings that might be subject to an increase in population over a short period of time such as museums, churches and schools.

## What improvement in thermal performance should I expect with CALSITHERM CLIMATE BOARD?

The following table highlights the improvements in U value when applying CALSITHERM CLIMATE BOARD on a 600mm solid stone which has a thermal conductivity of 2.3W/mK.

	U Value
Existing un-insulated 600mm solid stone wall	2.26 W/(m <sup>2</sup> K)
Adding 30mm CALSITHERM CLIMATE BOARD including levelling coat adhesive mortar and finishing plaster	1.06 W/(m <sup>2</sup> K)
Adding 50mm CALSITHERM CLIMATE BOARD including levelling coat, adhesive mortar and finishing plaster	0.80 W/(m <sup>2</sup> K)

## How does CALSITHERM CLIMATE BOARD regulate humidity?

Due to the difference in temperature between the inside and outside of a wall, water vapour diffuses into the building construction. Because the capillary forces are directed inward and due to their ability to draw water into

**CALSITHERM<sup>®</sup>**  
CLIMATE BOARD

their pores, CALSITHERM CLIMATE BOARD transports the condensed water back to the surface. There the water can evaporate back into the air in the room.

The diffusion-open, capillary active calcium silicate interior insulation compensates for humidity peaks in the room air and helps regulate the climate in the room. The capillary activity ensures the moisture in the insulation is drawn away and quickly distributed into the room over a large area.

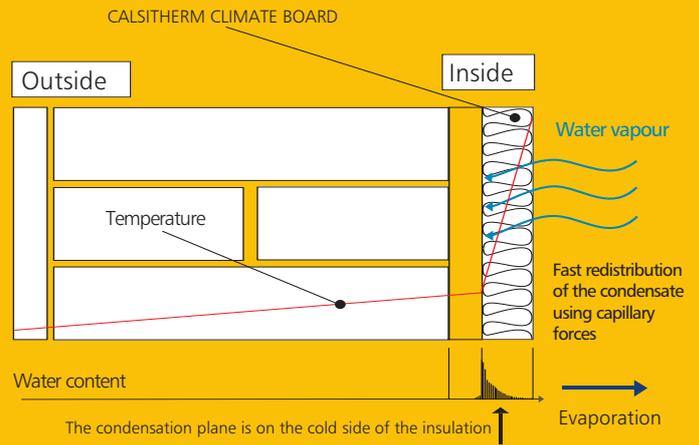
## How does CALSITHERM CLIMATE BOARD inhibit mould growth in buildings?

Mould can form on existing masonry walls for a number of reasons; most commonly condensation due to high humidity and insufficient ventilation; thin walls with insufficient insulation and thermal bridging, for instance, in areas where solid internal walls meet external walls and at ceiling junctions.

In order to grow, mould needs an ideal temperature of around 20°-24°C, a pH-Value <6, oxygen, a nutrient (Wall paper glue, dust), and high levels of relative humidity due to low temperatures near the surface. Extensive tests confirm that as CALSITHERM CLIMATE BOARD is alkaline and has a PH value of >10, mould can hardly form on its surface, making it one of the most robust insulation solutions on vulnerable walls; for instance in a basement.



This mould formed behind a wardrobe on an existing wall.



Principle of operation of the capillary active calcium silicate interior insulation (Institute of Building Climatology of the TU Dresden)

## Can CALSITHERM CLIMATE BOARD be adhered to any surface?

We recommend that the existing wall has a levelling coat (preferably lime plaster) before applying the adhesive mortar and CALSITHERM CLIMATE BOARD. Gypsum plaster is not suitable as a levelling coat. If the existing wall is already plastered with Gypsum it is considered best practice to remove the Gypsum and re-plaster with a lime or cement based plaster prior to applying internal wall insulation systems. Gypsum plaster is not compatible with the Calsitherm system, as Gypsum plaster has a PH of around 4-5 making it much more conducive to mould growth.

If the existing wall is lime plastered and finished with an acrylic paint rather than a 'diffusion open' natural paint, the acrylic paint and any wallpaper must be removed prior to applying the insulation.

The wall to be insulated must be level to enable the boards to be fully bonded to the surface. Air pockets between the board and the wall must be avoided for the board to perform to its optimum.

## Calsitherm – The Company

Founded in 1977 Calsitherm is a leading manufacturer of 'Climate Board' a thermal internal wall insulation made from calcium silicate. Based in Paderborn in Germany, Climate Board has been installed in numerous refurbishment projects throughout Germany and Europe from buildings as diverse as the Rijksmuseum in Amsterdam to schools, flats and single dwellings for almost 20 years.

CALSITHERM CLIMATE BOARD is manufactured according to the highest quality and environmental standards in Europe and is now solely distributed in Ireland and the UK by Ecological Building Systems.

## What type of paint can I apply on the finished CALSITHERM CLIMATE BOARD?

Because the whole system is 'diffusion open' we would always recommend the use of a natural 'diffusion open' paint, there are many brands on the market currently. Diffusion open wall paper may be applied but it is preferable to have a paint finish directly to the finish plaster to ensure effective moisture transport within the system.

## Can I tile CALSITHERM CLIMATE BOARD?

Yes, within the following parameters the board can be tiled. Once the whole system is on the wall, i.e., adhesive mortar and pre-primed CALSITHERM CLIMATE BOARD, the board should be roughened in the area to be tiled (i.e. with a wire brush), to provide a reliable substrate. An additional layer of a suitable primer should then be applied prior to applying a flexible tile adhesive. A tile supplier should be consulted for further guidance in relation to a suitable primer compatible to the tile adhesive.

Following this a flexible tile adhesive can be used to bond the tiles to the board using the buttering /floating method. Always follow the guidelines and recommendations of the tile adhesive supplier. It is advisable to test a small portion of the wall prior to tiling.

It is recommended that **one third of the upper portion of the wall** is left un-tiled to enable CALSITHERM CLIMATE BOARD to work to its optimum performance of absorption and desorption.

## How do I hang pictures and shelving, etc?

It is possible to mount paintings etc., up to 5kg to CALSITHERM CLIMATE BOARD, however we recommend drilling a hole (8mm) into the CALSITHERM CLIMATE

BOARD first and then to insert an anchor fixing such as FISCHER Plasterboard Fixing GK.

Items weighing more should be fixed through the CALSITHERM CLIMATE BOARD into the existing structure.

## How do you fit electrical cables?

CALSITHERM CLIMATE BOARDS may be routed to facilitate electrical cables, service boxes and switches. To reduce the impact of thermal bridging, electrical cables may be routed into the original wall prior to applying the board. To further reduce thermal bridging, electrical sockets and switches may be surface mounted on top of the board with a mechanical plasterboard fixing (i.e. with Fischer GK Fixings).

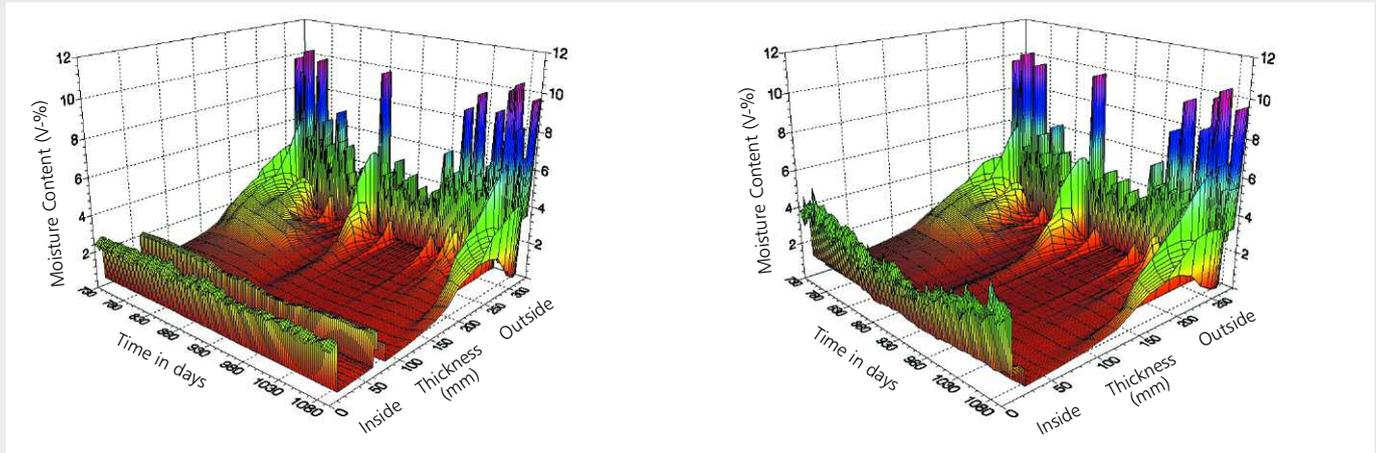
## Is Calsitherm easy to install, what trades would I require?

Once the existing wall is level and smooth, applying the CALSITHERM CLIMATE BOARDS takes a relatively short time. The primary trade is wet plastering, preferably someone with experience in working with lime based products. Applying the board in many ways is akin to tiling. With adequate planning and forethought it is quick and efficient to install.



# Specification Guidelines

Flow of moisture and temperature through a masonry wall simulated with Delphin 2D



Wall with 50mm CALSITHERM CLIMATE BOARD installed on the inside.  
 Note that the moisture content of the wall on the inner surface is very low and warm.  
 (Orange/Red is warm, Green/Blue is cold)

Wall with no CALSITHERM CLIMATE BOARD installed on the inside.  
 Note that the moisture content of the wall on the inside is much higher and the surface temperature much lower.

## Existing External Wall

A major point to consider with internal wall insulation on single leaf masonry walls, particularly if the wall is not plastered externally, is the impact of driving rain. This must be designed into the system and accounted for at the design stage. Considering the British and Irish climates are particularly exposed environments, this is an essential component in any internal wall hygrothermal assessment. Impregnating the outside of the brick or stone with a suitable diffusion open, deep penetrating impregnating cream may be required.

There have also been major advances in the field of on-site monitoring and hygrothermal analysis using numerical modelling programmes such as WUFI or DELPHIN. It is essential that material suppliers provide technical guidance for such constructions using these programmes to EN 15026 as opposed to the Glaser method which is to EN 13788. If U values and heat movement in masonry

walls are considered in isolation without consideration to moisture management this may lead to long term degradation of building components and can impact on indoor air quality. **Please discuss this further with the Ecological Building Systems Technical team before specification.**

While a designed ventilation strategy is essential in any building, a thermal insulation with capillary active or hygroscopic properties like CALSITHERM CLIMATE BOARD can reduce the requirement to increase ventilation to excessive levels which leads to increased heat loss.

## Custom Design Products

Calsitherm can be custom made with precision according to clients' wishes, please contact Ecological Building Systems for further information.



Stucco element



Half-circular profile

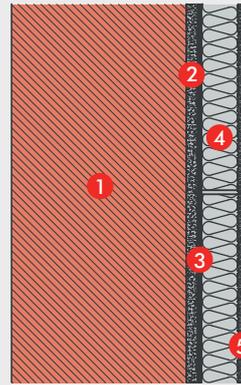


Tapered wall-ceiling joint board

# Specification Drawings

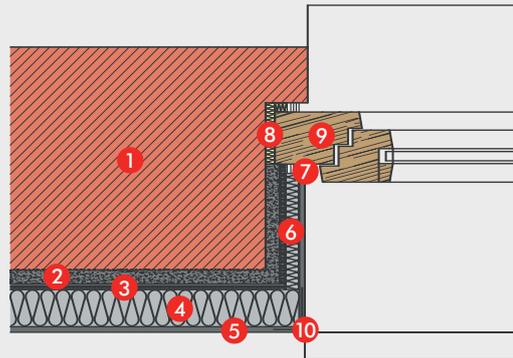
## Standard Wall Application

- 1 - Existing wall
- 2 - Levelling plaster
- 3 - Adhesive Mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between).



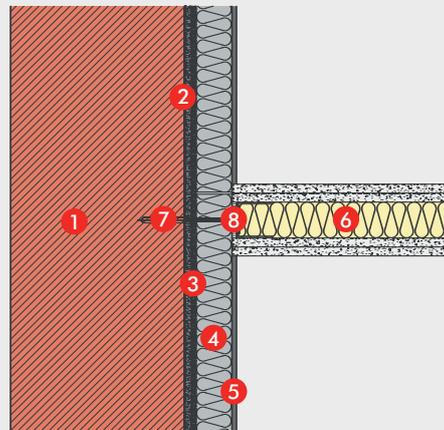
## Window Detail

- 1 - Existing wall
- 2 - Levelling plaster
- 3 - Adhesive Mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between)
- 6 - Window Calsitherm Climate soffit board (15mm)
- 7 - Movement joint strip – 3-7mm
- 8 - Insulation strip
- 9 - Window frame
- 10 - Corner mesh bead



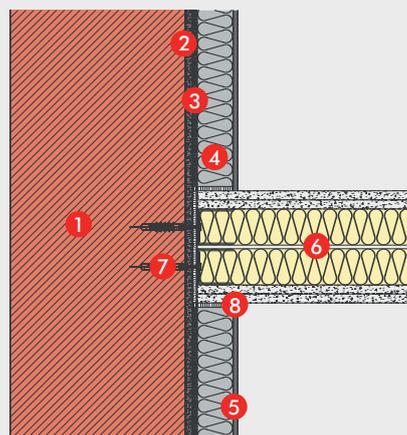
## Internal Stud Connecting to External Wall

- 1 - Existing wall
- 2 - Levelling plaster
- 3 - Adhesive mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between)
- 6 - Internal stud partition
- 7 - Mechanical fixings (thermally broken)
- 8 - Acoustic insulation strip



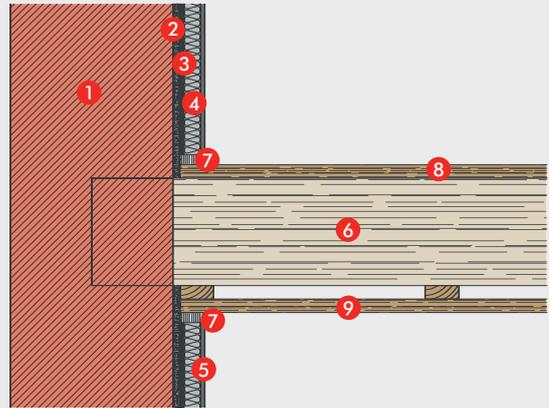
## Double Internal Stud Connecting to External Wall

- 1 - Existing wall
- 2 - Lime plaster
- 3 - Adhesive mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between)
- 6 - Double internal stud partition
- 7 - Mechanical fixings (thermally broken)
- 8 - Acoustic strip



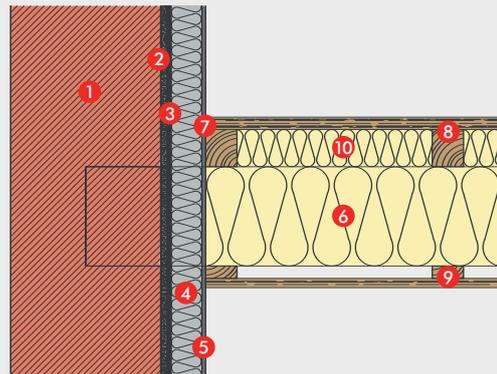
### Existing Floor Joist (un-insulated)

- 1 - Existing wall
- 2 - Levelling plaster
- 3 - Adhesive mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between)
- 6 - Existing floor joist
- 7 - Movement joint strip – 3-7mm
- 8 - Existing floor
- 9 - Suspended ceiling



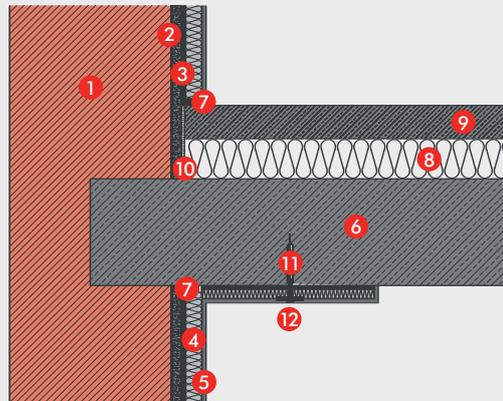
### Insulated Ceiling Joist (wall continuously insulated)

- 1 - Existing wall
- 2 - Levelling plaster
- 3 - Adhesive mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between)
- 6 - Insulation between joists
- 7 - Movement joint strip – 3-7mm
- 8 - Wooden floor
- 9 - Suspended ceiling
- 10 - Insulation



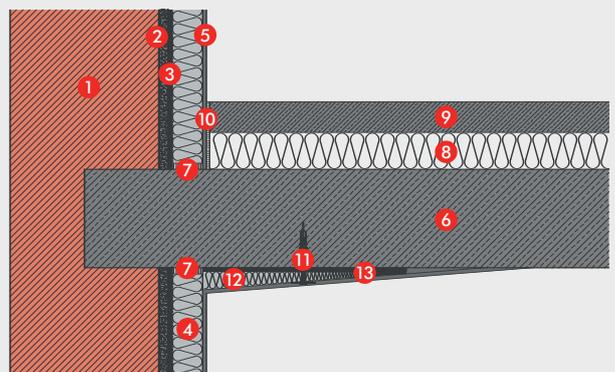
### Existing Floor Screed

- 1 - Existing wall
- 2 - Levelling plaster
- 3 - Adhesive mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between)
- 6 - Concrete slab ceiling
- 7 - Movement joint strip – 3-7mm
- 8 - Compression resistant insulation – i.e., GUTEX Thermofloor
- 9 - Screed
- 10 - DPM
- 11 - Mechanical fixings
- 12 - CALSITHERM CLIMATE BOARD



### Newly Installed Floor Screed

- 1 - Existing wall
- 2 - Levelling plaster
- 3 - Adhesive mortar (KP-Kleber) – approx 5mm
- 4 - CALSITHERM CLIMATE BOARD
- 5 - Finish Plaster – Smooth (KP-Kalkglätte – 2 layers of 2mms with reinforcement mesh between) or Rough (KP-Innenputz – 2 layers up to 10mm with reinforcement mesh between)
- 6 - Concrete slab ceiling
- 7 - Movement joint strip – 3-7mm
- 8 - Compression resistant insulation – i.e., GUTEX Thermofloor
- 9 - Screed
- 10 - DPM
- 11 - Mechanical fixings
- 12 - Tapered CALSITHERM CLIMATE BOARD
- 13 - Levelling out plaster

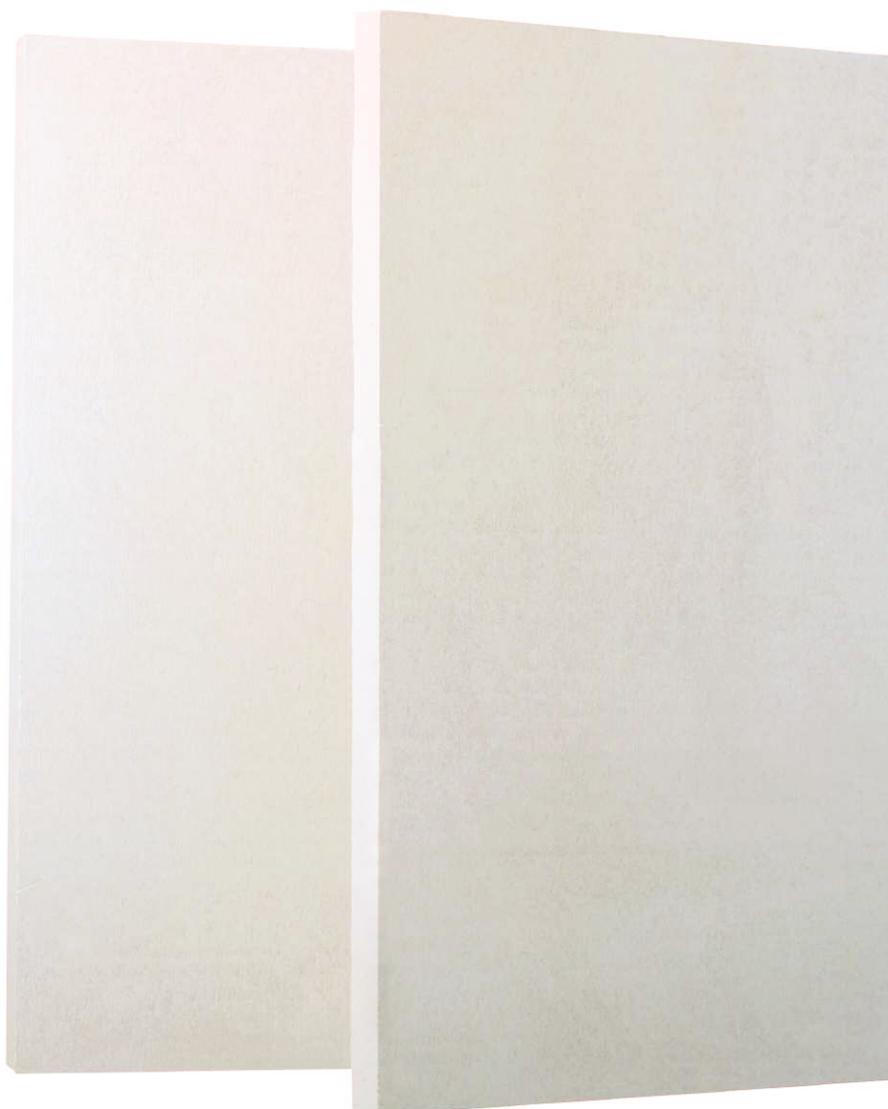


**CALSITHERM CLIMATE BOARD** is made from calcium silicate, a micro-porous mineral building material with effective insulating properties which is highly capillary open. The nature of the material and properties of the board ensures a comfortable living environment through its ability to regulate humidity. The high PH and molecular structure of the material means that mould growth is inhibited.

**CALSITHERM CLIMATE BOARD** offers solutions to thermal bridging and provides unsurpassed protection against the risks of interstitial condensation, mould, and structural degradation. **CALSITHERM CLIMATE BOARD** is non-flammable with a fire class rating of A1.

## Features

- Reliable thermal insulation for existing masonry walls.
- Made from traditional building materials - sand and lime (calcium silicate).
- Enhances comfort and creates a healthy living climate.
- Highly capillary active insulation optimizing moisture transfer.
- Extreme resistance to mould.
- Innovative solutions for thermal bridging.
- 30mm of climate board can reduce heat transfer by 50%.
- Ideal insulation solution for old and historic buildings.
- High compression resistance.



# CALSITHERM CLIMATE BOARD

## The Ideal Thermal Solution for Restoration

### Technical Details

Materials:	Calcium Silicate (sand and lime)
Thermal Conductivity:	0.059W/mk
Density:	180-187kg/m <sup>3</sup>
Compressive Strength:	>1 MPa
Water vapour transmission rate:	$\mu$ 3
Porosity:	90%
Fire Rating (DIN 4102):	A1 non-combustible
3rd Party Accreditation:	ETA-15/0340
Environmental Product Declaration:	EPD-CSP-2013111-IAC2-EN (Institut Bauen und Umwelt e.V)
Colour:	White Boards are pre-primed.
Board Width:	500mm
Board Length:	1250mm
M <sup>2</sup> per board:	0.625
Board Thickness:	30mm, 50mm
Weight per board:	30mm – approx 5.0kgs 50mm – approx 8.5kgs
Boards per pallet:	30mm – 136 boards (85m <sup>2</sup> and 675kgs)  50mm – 80 boards (50m <sup>2</sup> and 663kgs)

For ease of application **CALSITHERM CLIMATE BOARD** is available as a window soffit board.

## Technical Details

<b>Materials:</b>	Calcium Silicate (sand and lime)	<b>Colour:</b>	White Boards are pre-primed
<b>Thermal Conductivity:</b>	0.059W/mk	<b>Board Width:</b>	250mm
<b>Density:</b>	180-187kg/m <sup>3</sup>	<b>Board Length:</b>	500mm
<b>Compressive Strength:</b>	>1 MPa	<b>M<sup>2</sup> per board:</b>	0.125
<b>Water vapour transmission rate:</b>	$\mu$ 3	<b>Board Thickness:</b>	15mm
<b>Porosity:</b>	90%	<b>Weight per board:</b>	0.5kgs
<b>Fire Rating (DIN 4102) :</b>	A1 non-combustible	<b>Boards per box:</b>	20 boards (2.5m <sup>2</sup> - 10kgs)
<b>3rd Party Accreditation:</b>	ETA-15/0340		
<b>Environmental Product Declaration:</b>	EPD-CSP-2013111-IACN-EN (Institut Bauen und Umwelt e.V)		

# Calsitherm Window Soffit Climate Board



A tapered board is available which starts at a thickness of 30mm and reduces to 8mm. This board is used in areas where thermal bridging may occur, for instance in areas where solid internal walls meet external walls, or at ceiling junctions. The tapered design of the board ensures a seamless finish at the wall to ceiling junction once the finish coat is applied, concealing the detail.

## Technical Details

<b>Materials:</b>	Calcium Silicate (sand and lime)	<b>Colour:</b>	White Boards are pre-primed
<b>Thermal Conductivity:</b>	0.059W/mk	<b>Board Width:</b>	500mm
<b>Density:</b>	180-187kg/m <sup>3</sup>	<b>Board Length:</b>	1250mm
<b>Compressive Strength:</b>	>1 MPa	<b>M<sup>2</sup> per board:</b>	0.625
<b>Water vapour transmission rate:</b>	$\mu$ 3	<b>Board Thickness:</b>	30/8mm
<b>Porosity:</b>	90%		
<b>Fire Rating (DIN 4102) :</b>	A1 non-combustible		
<b>3rd Party Accreditation:</b>	ET-15/0340		
<b>Environmental Product Declaration:</b>	EPD-CSP-2013111-IAC2-EN (Institut Bauen und Umwelt e.V)		

# Calsitherm Wall to Ceiling Joint Tapered Climate Board



The Calsitherm adhesive mortar is a high quality, diffusion-open, capillary active, hydraulically binding adhesive mortar for adhering the CALSITHERM CLIMATE BOARD to the existing levelled surface.

It is an essential part of the CALSITHERM CLIMATE BOARD System and must be used as the adhesive mortar layer for fixing the boards.

## Features

- The KP Kleber adhesive is supplied in a 25kg bag and is mixed on site. See page 14 for mixing and installation instructions.

## Technical Details

Materials:	Specialist capillary active adhesive
Colour:	White
Bag Size:	25kgs (covers approximately 6m <sup>2</sup> )

▶ **TIP** Use a notched trowel >10mm to apply. Only apply as much adhesive as necessary to mount one board.

The Calsitherm Smooth Finish plaster is a smooth finishing coat applied to the surface of CALSITHERM CLIMATE BOARD.

## Features

- Diffusion-open and capillary active.
- Applied in 2 layers of 2mm with mesh between (see Installation details page 14 for further information).
- Ready to use and easy to apply.
- For interior walls, ceilings, and connections.

## Technical Details

Materials:	Fine lime based plaster
Colour:	White
Bag Size:	30kgs (covers approximately 6m <sup>2</sup> @ 4mm thickness)

▶ **TIP** Don't overwork the plaster or try to smooth it once it has begun to dry. It is easier to sand off any unevenness afterwards.

# Calsitherm Adhesive Mortar (KP-Kleber)



# Calsitherm Smooth Finish Plaster (KP-Kalkglätte)



As well as a smooth plaster, a rough grained plaster is also available as a finishing coat applied to the surface of the CALSITHERM CLIMATE BOARD.

## Features

- Diffusion-open and capillary active.
- Applied in 2 layers up to 10mm with mesh between (see Installation details page 14 for further information)
- Ready to use and easy to apply.
- For interior walls, ceilings, and connections.
- Good for evening out rough areas.
- Produces a rough and structured surface.

## Technical Details

Materials:	Rough lime based plaster (1.2mm grain)
Colour:	White
Bag Size:	30kgs (covers approximately 5m <sup>2</sup> @ 4-5mm thickness)

▶ **TIP** The temperature while applying and drying the plasters must be above +5°C.

We advise using a Reinforcing Mesh embedded within the first 2mm coat of the finish plaster (see Installation details page 14 for further information).

## Technical Details

Calsitherm Reinforcing Mesh for use with Calsitherm **Smooth** Finish Plaster

Mesh dimensions:	4.4mm x 4.2mm
Mesh Weight:	70g per m <sup>2</sup>
Roll Size:	1 x 50m – 50m <sup>2</sup>
Colour:	Blue

**OR**

Calsitherm Reinforcing Mesh for use with Calsitherm **Rough** Finish Plaster

Mesh dimensions:	4.4mm x 4.9mm
Mesh Weight:	90g per m <sup>2</sup>
Roll Size:	1 x 50m – 50m <sup>2</sup>
Colour:	White

▶ **TIP** Using a mesh between the two coat finish plaster helps prevent cracking.

# Calsitherm Rough Lime Plaster (KP-Innenputz)



# Calsitherm Reinforcing Mesh



## Calsitherm KP Primer

The CALSITHERM CLIMATE BOARDS are already pre-primed in the factory to ensure a uniform coverage to the boards. However, should additional primer be required this may be bought separately as a surface preparation with smooth or rough plaster, coats of paint or tiles.

### Features

- Aqueous dispersion for treatment of the CALSITHERM CLIMATE BOARD after installation.
- Alkali-proof.
- Hardens the surface.
- Reduces the capillary action close to the surface.

### Technical Details

Tin Size: 5 litres

## Calsitherm Movement Joint Strip

Calsitherm supply a 3-7mm compressive movement joint strip for special joints – see specification details for further information.

### Technical Details

Roll Length: 8 metres

Roll Width: 3-7mm

▶ **TIP** See specification drawings on pages 6-7 for application areas.

## Additional specialist Calsitherm formats

Calsitherm can supply specific formats of their boards due to their high specification machinery. Should corning profiles, stucco elements and custom made forms be required please contact Ecological Building Systems for further information and pricing.



▶ **TIP** Lime based paints are particularly compatible with the CALSITHERM lime based plasters.

## Accessories



# Estimate Sheet – CALSITHERM CLIMATE BOARD

Project: \_\_\_\_\_

Wall area excluding windows: \_\_\_\_\_ Window Soffit area: \_\_\_\_\_

Material	Thickness (mm)	Recommended Price m <sup>2</sup>	Quantity (m <sup>2</sup> )	Total No. of Boards	Total £
CALSITHERM CLIMATE BOARD Board Dimensions 1250 x 500 (0.625m <sup>2</sup> )	30mm				
	50mm				
CALSITHERM Window Soffit Climate Boards 500 x 250 (0.125m <sup>2</sup> )	15mm				
CALSITHERM Wall to Ceiling Joint Tapered Climate Board 1250 x 500 (0.625m <sup>2</sup> ) *For thermal bridge areas	30mm tapering to 8mm				

	Quantity/m <sup>2</sup>	Recommended Price m <sup>2</sup>	Quantity (m <sup>2</sup> )	Total No. of bags	Total £
Adhesive Mortar (KP-Kleber) 4kgs per m <sup>2</sup>					

Render System					
Smooth Plaster (KP-Kalkglatte) 5kgs per m <sup>2</sup> (2 layers of 2mm each)					
Rough Plaster (KP-Innenputz) 5/6kgs per m <sup>2</sup> (2 layers of 2mm each) *Can be applied up to 10mm					
Reinforcing Mesh for Smooth Plaster 1 x 50m – 50m <sup>2</sup>					
Reinforcing Mesh for Rough Plaster 1 x 50m – 50m <sup>2</sup>					

Accessories	Linear Metres	Recommended Price	Quantity	Total
Movement Joint Strip 3-7mm (8 linear metres) *See specification detail for areas of application				
Additional Undercoat 5 Litre Tin				

	Total
<b>Project Total Sum for products:</b>	
<b>Cost m<sup>2</sup></b>	

Quantities are for guidelines only based on practical experience and the current state of knowledge. Advice and recommendations are given in good faith as a general guide.

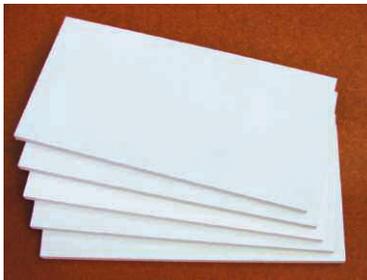
## 1 SURFACE

Before installing CALSITHERM CLIMATE BOARD it is recommended that any existing wallpaper, paint (particularly if it is latex or acrylic) or existing gypsum plaster should be removed. The existing plaster must be in a stable condition to ensure the board attains a reliable bond to the wall. Any existing mould must be removed. Lime or lime cement plaster should form the base for the application of the climate board. As the climate board is in full adhesive contact with the wall, the existing surface must be very even and level.

The penetration of driving rain to the external wall should be minimized through adequate measures (see specification section). Where rising damp and/or moisture penetrates the wall from the outside, this must be addressed and prevented by adequate means prior to the application of the board.

## 2 TOOLS FOR THE JOB

- drill with mixer bit
- sawing tools such as a hand saw
- cutting knife and ruler
- notched trowel (>=10mm for the adhesive mortar), putty knife
- sanding board



## 3 APPLICATION

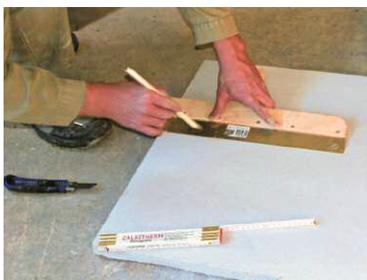
The dimensions of CALSITHERM CLIMATE BOARD are 1250 x 500mm. The Boards are lightweight and easy to install but should be handled with care on site.

The boards are pre-primed in the factory to ensure a thorough and even distribution on the board. There should be no further need for additional primer.

As part of the range Window soffit boards are available for ease of application at a thickness of 15mm. These boards are 500 x 250mm.

To reduce thermal bridging at specific details, Calsitherm manufacture a tapered board which is 30mm thick reducing to 8mm. This ensures a seamless connection between the ceiling and the wall. The board size is 1250 x 500mm (see specification section).

The boards can be cut using a circular saw connected with a vacuum. Boards up to a thickness of 30 mm can also be cut using a sharp blade by scoring the



board several times. While the boards present no health risks, conventional precautions should be taken concerning dust and a mask should always be worn when cutting the boards.

One bag of adhesive mortar (Calsitherm KP-Kleber) is mixed with approximately 7.5 litres of fresh water for a minimum of 3 minutes. You will require approximately 4kgs of adhesive mortar per m<sup>2</sup>.



The adhesive is applied with a notched trowel (>=10mm). Only apply as much adhesive as necessary to mount one board.

The freshly mixed adhesive is applied to the wall and combed through horizontally.

The CALSITHERM CLIMATE BOARD should be glued fully to the wall.

The joints between boards should be butted together without adhesive and no gap left between the panels.



Where the joint is not filled with adhesive the board should be butted to the adjacent board (or any junctions to the internal wall where the first board abuts the adjoining wall).

When butting boards together with no joints, to ensure an adequate bond is attained between the board and the wall, the board must be moved slightly back and forth into position to attain sufficient adhesion.



If the CALSITHERM CLIMATE BOARD is fixed to ceilings it should be fully bonded and mechanically secured. Two screws per board should be applied. Stainless steel screws should be used (see specification details page 7).



## 4 FINISHING PLASTER

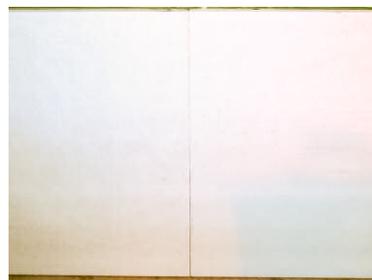
As a general rule, the applied boards should be left for at least a day before

starting to apply the finishing plaster. This ensures that the boards are fully bonded to the wall ensuring the adhesive mortar has time to dry.



There are two types of Calsitherm Finishing Plaster available: a smooth (Calsitherm KP-Kalkglätte) and a rough plaster (Calsitherm KP-Innenputz).

The temperature while applying the climate board as well as the temperature while drying must be above +5°C. This applies for the adhesive mortar as well as the plaster.



## 5 SMOOTH FINISHING PLASTER (KP-KALKGLÄTTE)

One bag of smooth plaster (Calsitherm KP-Kalkglätte) is mixed with 12 litres of fresh water. The mixing time should be at least 3 minutes. Approximately 5kgs of smooth plaster will cover 1m<sup>2</sup> based on a total thickness of 4mm.

Afterwards the plaster is applied in 2 layers of approximately 1-2 mm thickness each.

After applying the first layer a reinforcement mesh should be applied, the mesh size should be 4.2 x 4.2mm for smooth plaster (KP-Kalkglätte) or 4.4 x 4.9mm for rough plaster (KP-Innenputz).

Once the wet plaster begins to dry and loses its shiny appearance the second layer can be applied. The plaster dries quickly. Therefore it is necessary to leave the plaster after a while. Do not try to smooth it more once it has began to dry. Any unevenness can be sanded off afterwards. The smooth plaster results in a smooth surface.

The paint applied should be diffusion open; i.e., natural silicate paints, such as lime or clay.

The temperature while applying and drying of the plaster must be above +5°C.



## 6 ROUGH FINISHING PLASTER (CALSIATHERM KP-INNENPUTZ)

The rough finishing plaster has a coarse grain.

One bag of rough lime plaster is mixed with approximately 7 litres of fresh water. 5/6kgs of rough plaster will cover approximately 1m<sup>2</sup> based on a thickness of 4-5mm. The mixing time should be at least 3 minutes.

The rough lime plaster may be applied in an overall layer of up to approximately 10 mm. The plaster has a grain of up to 1.2 mm thickness. It can be applied in one or two layers.

It is also advisable to apply a reinforcement mesh, the mesh size should be 4.4mm x 4.9mm.

The temperature while applying and drying of the plaster must be above +5°C.



## 7 JUNCTIONS TO ADJOINING STRUCTURAL ELEMENTS

Where the climate board is butted against wooden floors, windows or any areas which may be exposed to structural movement, a flexible movement joint strip should be installed in the junction, prior to applying the board. For such details Ecological Building Systems supply a flexible sealing joint strip.

# Installing CALSIATHERM CLIMATE BOARD

## Application Guide

### APPLICATION

Once the existing wall is level and smooth, applying the Calsitherm Climate Boards takes a relatively short time. The primary trade is wet plastering, preferably someone with experience in working with lime based products. Applying the board in many ways is akin to tiling. With adequate planning and forethought it is quick and efficient to install.

### ADVANTAGES

- ✓ Reliable thermal insulation for existing masonry walls.
- ✓ Made from traditional building materials - sand and lime (calcium silicate).
- ✓ Enhances comfort and creates a healthy living climate.
- ✓ Highly capillary active insulation optimizing moisture transfer.
- ✓ Extreme resistance to mould.
- ✓ Innovative solutions for thermal bridging.
- ✓ 30mm of climate board can reduce heat transfer by 50%.
- ✓ Ideal insulation solution for old and historic buildings.
- ✓ High compression resistance.

### TERMS AND CONDITIONS

The information provided here is based on practical experience and the current state of knowledge. We reserve the right to make changes to the recommendations given or to make alterations due to technical improvements in the quality of our products. We would be happy to inform you of the current state of the art at the time you use our products.

## Technical Data of CALSITHERM CLIMATE BOARD

Approval	ETA-15/0340
Dry bulk density	180-187kg/m <sup>3</sup>
Thermal conductivity	0.059W/(m.k.)
Water vapour transmission rate	$\mu = 3$
Porosity	90%
Building material class (DIN4102)	A1 non-combustible
Environmental product declaration (EPD)	EPD-CSP-2013111-IAC2-EN (Institut Bauen und Umwelt e.V)
Compressive Resistance	> 1.0 N/mm <sup>2</sup>

### Calsitherm at a glance

#### **CALSITHERM CLIMATE BOARD**

Length	1250mm (tolerance of 5mm)
Width	500mm (tolerance of 3mm)
Thickness	30mm and 50mm (tolerance of 1mm) (other thicknesses available on request)

#### **Window Soffit Panel**

Length	500mm (tolerance of 3mm)
Width	250mm (tolerance of 1mm)
Thickness	15mm (tolerance of 1mm)

#### **Wall to ceiling joint tapered panel**

Length	1250mm (tolerance of 5mm)
Width	500mm (tolerance of 3mm)
Thickness	30mm tapering to 8mm (tolerance of 1mm)

#### **Adhesive Mortar (KP-Kleber)**

25kg bag – approx 4kgs per m<sup>2</sup>

#### **Smooth Plaster (KP Kalkglätte)**

30kg bag – approx 5kgs per m<sup>2</sup> @ 4mm thickness  
(2 layers of 2mm)

#### **Rough Plaster (KP Innenputz)**

30kg bag – approx 5/6kgs per m<sup>2</sup> @ 4-5mm thickness  
(2 layers up to 10mm)

#### **Reinforcing Mesh**

4.4mm x 4.2mm mesh for smooth plaster 1m x 50m (70g per m<sup>2</sup>)  
4.4mm x 4.9mm mesh for rough plaster 1m x 50m (90g per m<sup>2</sup>)



Ecological Building Systems has been at the forefront of environmental and sustainable building product solutions for over a decade.

As well as gaining the sole agency in Ireland and the UK for Calsitherm Climate Board, we are also sole agents for pro clima, the eminent and well established German brand of Intelligent Airtight and Windtight building solutions; GUTEX wood fibreboards; and Thermo-Hemp Insulation.

Our dedicated technical team at Ecological Building Systems are always on hand to offer advice and product solutions for insulation, airtightness, windtightness and moisture management in buildings.

You can also find full information on our website [www.ecologicalbuildingsystems.com](http://www.ecologicalbuildingsystems.com)



## Technical Sales Service and Back Up

Ecological Building Systems is pleased to provide technical advice on how to incorporate Calsitherm products into different forms of constructions and refurbishment projects.

- We offer a technical sales help-line
- CPDs
- Hygro-thermal modelling using WUFI
- U Value Calculations and Dew Point Assessments
- Copies of more in-depth relevant reports and samples
- Help and advice on meeting the requirements of Building Regulations
- Bespoke 'Centre of Knowledge' showroom and training facility at our Irish office

Products in this catalogue have been independently certified and have European Technical Approval (ETA-O8/0126).



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