

## Installation Guide: Internal Wall Insulation (IWI)

### Introduction

Once in place, the plaster system ensures that walls are still able to 'breathe', which means stone, brick and woodwork isn't damaged because no moisture remains trapped inside.

The system can be fitted to timber frame constructions or retro-fitted to masonry.

The insulating supporting board is [Steico Therm](#) which is fixed in place then covered with a base coat of [Breathaplasta Universal](#) wall plaster at 4mm thickness incorporating a [reinforcing mesh](#) to give structural integrity to the wall surface. A top coat of [Breathaplasta Universal](#) wall plaster at 4mm thickness is then applied to complete the plastering. We recommend you use natural paints to give the colour you want. Click this link to view the information sheets on our [complete range of natural paints & finishes](#).

To make sure you get the most from your internal wall insulation system, we offer an in-depth technical support service that covers all aspects of your build, from pre-planning right through to completion.

Most heat in old houses is lost through the walls, but successfully upgrading them with internal insulation is a challenge. Historic buildings were not designed or built to accept the retrofitting of plastic membranes, insulation or paints, and all too frequently the end result is trapped moisture in the walls which can eventually lead to rot, mould and expensive remedial work.

Ecomerchant have worked with Adaptavate and Steico to create a wood fibre based Internal Wall Insulation System, which is designed to allow solid walls to stay dry, while offering modern levels of insulation and ease of application. In addition, the system is safe and environmentally sustainable, using natural ingredients that will maintain a healthy internal climate.

### Suitability

Ecomerchant Internal Wall Insulation System is suitable for solid-wall masonry buildings and some timber frames; however, the following checks must be undertaken before starting:

- *External coatings and finishes* – must be vapour-open. Synthetic masonry paint or waterproof cement render are not suitable for this system.
- *Pointing mortar* – existing solid masonry pointing should be a breathable lime mortar and in good condition.
- *Damp walls* - the system is not generally used beneath ground level, below DPC or on walls which are permanently damp – please ask for written guidance before ordering.
- *High Humidity* – in rooms with frequent high humidity (e.g. wet rooms, bathrooms and similar) a different specification is used. Please ask for written guidance before ordering.

If applied over a stud, there must be no cavities or air gaps behind the wood fibre insulation board. We recommend the use of [Steico Protect Dry](#) board.

#### **Precautions**

- Insulation board should only be fitted to damp free, dry walls.
- Insulate only above DPC level *and* above ground level.
- Services must be run behind the insulation boards.
- Do not cover with vapour-closed paints or wall coverings.

#### **About wood fibre board**

Wood fibre board is a rigid natural insulation material with either a tongue-and-groove or square edge profile, manufactured in accordance with EN13171. Wood fibre not only has good thermal conductivity properties in the range of 0.038 to 0.046 W/mK, but also its breathability helps regulate the internal climate of a building.

- Excellent insulation properties, prevents thermal bridging
- High heat protection during summer months
- Water vapour open construction for healthy room environment
- Fire class rating E (EN13501-1)
- Easily cut and handled using traditional woodworking tools
- CE marked and manufactured in accordance with ISO9001:2000
- Non allergenic and durable
- Environmentally sustainable – FSC certified
- Fully recyclable
- Helps fix CO<sub>2</sub> - carbon is stored in the finished product

#### **About [Breathaplasta Universal](#) 'lime plaster, made easy'**

Breathaplasta Universal lime plaster is specially designed for breathable insulation boards such as wood fibre. When used together they produce a system with optimum levels of breathability. As houses become more airtight, avoidance of synthetic foams and resins becomes more important for a healthy indoor climate.

- Quick and easy application – including same day finishing.
- Simple two-coat system – base coat and finishing coat.
- High vapour exchange maintains a healthy internal climate and a dry wall.
- Free of gypsum, cement and solvents, for safe and simple disposal.
- Blended lime plaster, for durability, breathability and compatibility with historic buildings.
- Natural binder
- CE Marked

		Product	Thickness / Dimensions	Typical Requirements for 1 m <sup>2</sup> installed *
Plaster for levelling walls underneath boards (optional)		<a href="#">Adaptavate</a> <a href="#">Breathaplasta Universal</a>	Typically, 12mm (May vary from 0 to 25mm+)	12kg @ 12mm thickness
Insulation board	Masonry	<a href="#">Steico Therm</a>	40-80mm	1.23
	Timber	<a href="#">Steico Protect Dry</a>	40-80mm	1.34
Fixings	Masonry	<a href="#">Ejot H1 Eco or Ejot STR-U</a>	Insulated hammer-in or Screw set fixing	6.5
	Timber	<a href="#">Ejotherm STR-H</a>	Insulating washer & screw	8
Reinforcement		<a href="#">Adaptavate glass fibre reinforcing mesh</a>	Standard	1.10 m <sup>2</sup>
Plaster on boards		<a href="#">Adaptavate</a> <a href="#">Breathaplasta Universal</a>	Typically, 8mm	8kg @ 8mm thickness

### Wall Preparation

- Externally check the pointing, paint or render is in fair condition. If not repair with suitable breathable materials (e.g. Natural Hydraulic Lime render, lime putty, etc. Please ask us for advice specific to your application). Remove any masonry paints or materials which are sealing the wall or acting as a vapour barrier.
- Internally, remove vinyl wall finishes and sealed plasters (e.g. gypsum)
- Masonry must be flat, level and porous. Old lime plasters can be ripped open with a scouring float. Bare brick or stone must be plastered with [Breathaplasta Universal](#) to flatten the wall. For more information on using this product please consult the relevant data sheet.
- Cables etc should be chased and run in the masonry or plaster before fitting the boards.

### Installation

Preparation and correct fixing of the board and profiles is vital. Time spent getting this right will help avoid problems later. The plaster should not be considered as a way to hide errors or defects in the application of the boards.

#### a) Fixing the boards

- Only fix dry boards.

- Cut the boards by hand or with a circular saw.
- The first board is placed at the base of the wall and fastened in the centre with the appropriate fixing for the background.
- The number of fixings is dependent on the type of background. Typically 5 fixings per board are required on masonry, or 2 per stud on timber.
- The boards are fixed horizontally in a running brick bond pattern and are pushed tightly together. **Vertical joints must be staggered.**
- Cut pieces must be at least 200 mm wide.
- Services must be run behind the insulation boards.
- Boards must be cut to surround windows to maintain the running brick bond installation pattern. Align board edges to windows as shown in the diagrams below.
- Always insulate reveals.
- Make sure the boards have an airtight fit around windows and doors – use [Ecomerchant Xpanda](#) between two solid surfaces or [Contega Solido airtightness window and door sealing tape](#), if necessary.

#### Fixing types

The special fixings keep the wall warm and prevent thermal bridges. Various types are available for different backgrounds; please see the product data sheets or call for more information.

Insulated fixings to fix boards to masonry



Screw and washer fixings to fix to timber



Thermax heavy duty insulated fixing.





## Levelling Coat

(if required)

Consolidate wall and 'dub out' as necessary.

Level wall with plaster.

Ensure no air gaps.



20kg bags

Coverage:  
5m<sup>2</sup> at 4mm  
thickness



## Half Round Notched Trowel

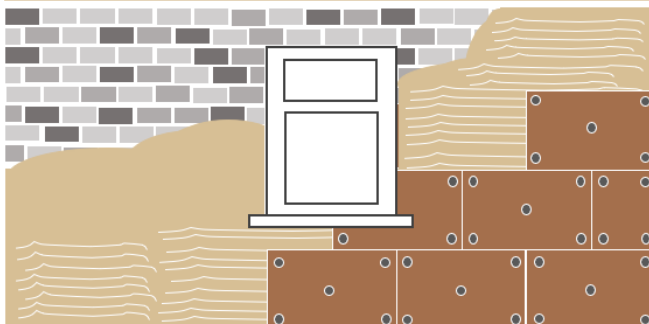
Scratch the plaster to key and for an even thickness.

Or apply plaster directly to back of boards



## Fit first board at base of wall

Fasten in the centre with one fixing

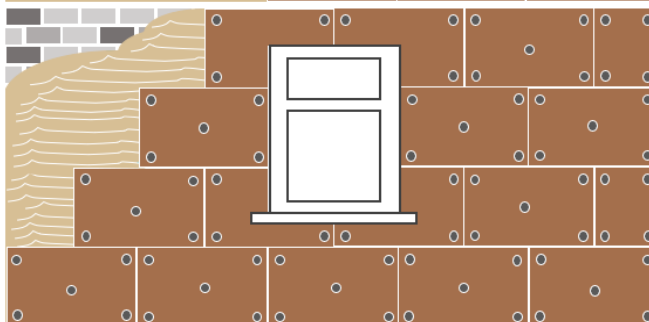


## Fit boards horizontally

Vertical joints **MUST** be staggered.

Interlock tongue and groove system.

Butt boards as tightly as possible.



## Correct number of fixings

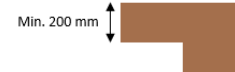
Use 5 fixings per board on masonry

Use 2 fixings per stud on timber

## Cutting boards

Cut boards by hand or with a circular saw

Always cut out small pieces from a whole board  
Cut pieces must be at least 200 mm wide



## Plastering

Before plastering, inspect the boards. Check they have been fixed according to the installation instructions above. Ensure the boards are level and that there are no gaps between boards. Where installation is generally of a high standard, but occasional gaps between boards exist, these gaps should be dubbed out with [Breathaplasta Universal](#) lime plaster to level the surface. Gaps greater than 10mm between the board connections must be foam-filled or packed out. Only continue with plastering if the board installation is generally of a high standard of competency and workmanship. Consult product datasheets for the plaster before starting. See below.

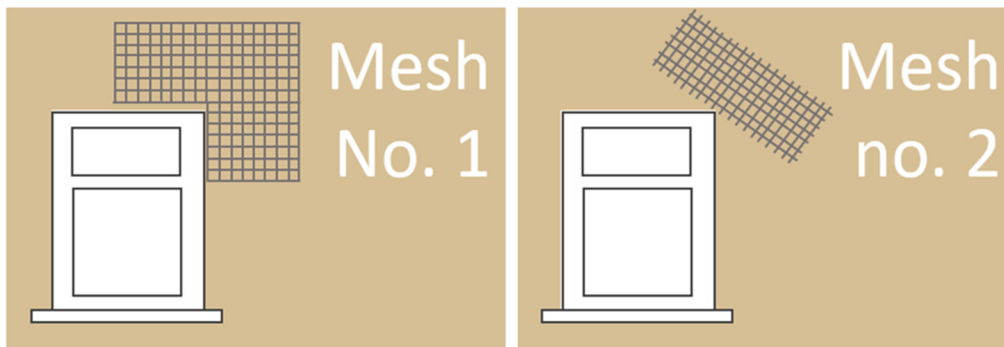
### a) Beads

- On older buildings corners may be formed traditionally with wooden rails.
- Alternatively fix PVC beads to the board before starting.

### b) Plaster finish on boards

Apply [Breathaplasta Universal](#) lime plaster in 2 passes to a combined thickness of 8mm.

- The first pass is applied approx. 4mm thick – the [Adaptavate glass fibre reinforcing mesh](#) is pushed into the plaster immediately while it is still tacky. Overlap joins in the mesh by 100mm.
- Adaptavate glass fibre reinforcing mesh is doubled up around windows and doors, with a diagonal strip applied in addition to the first layer of mesh. The diagonal piece should be at least 200mm x 400mm. An illustration of this is provided below.



- The second pass is applied over the top usually within 1.5 hours to give a thickness of approximately 8 mm in total.
- Level plaster with a straight edge.
- Allow at least 2 weeks drying time, during which time the plaster should be protected from rapid or forced drying. Do not use heaters or fans to force dry.
- Do not over-work the surface as this may lead to “fire cracking”.
- Apply in temperatures above 5°C and below 25°C.





Below is a step-by-step summary for plastering with [Breathaplasta Universal](#). Full guidance can be found by following this link to the [installation guide for wood fibre board](#).



Add 1 x 20kg bag of dry Breathaplasta mix to approximately 10-11 litres of clean water.



Mix the plaster with a paddle mixer for at least 60 seconds on a medium-slow speed.



Mist the surface of the wood fibre boards with clean water to help control suction.

Apply  
Base coat



Apply base coat at approx.  
4mm thickness



Apply Adaptavate fibreglass reinforcing mesh. Flatten into base coat immediately while it is still tacky.

Set  
Setting  
time



Setting time per coat of Breathaplasta is approximately 45-60 mins.

Apply  
Top coat



Apply top coat at approx.  
4mm thickness

Set  
Setting  
time



Setting time per coat of Breathaplasta is approximately 45-60 mins.





## Finish

Use clean trowel



Run a clean trowel over the surface of the plaster for a smooth finish.  
Use a sponge for more textured finishes.

The system is vapour-open and functions by allowing moisture to pass freely. It is therefore important that only vapour-permeable paints are used for decoration.

We recommend [Baumit breathable paints](#).

## Applications

	Ecomerchant IWI System	Stud Wall	Insulated plasterboard system
Breathable walls?	✓	X/✓	X
Natural vapour control?	✓	X/✓	X
Low condensation risk?	✓	X	X
Free of VOC's?	✓	X/✓	X
Simple, safe disposal?	✓	X	X
Single trade application?	✓	X	✓
Ease of application?	✓	X	✓