

# EPS EWI Install Guide

## STEP 1

# Surface Preparation

As with every other job, preparation is extremely important. Before applying any insulation to the substrate, it needs to be examined and checked.

The substrate must be clean, dry and dust-free. If applicable, it also needs to be cleaned of paint and other substances which may affect the way the EPS Adhesive will perform.

One of the best ways to achieve a clean and ready surface is to use a high-pressure water-jet or prepare the wall manually using a wire brush.

If the EPS insulation is being installed over existing render or pebbledash, please check that this is structurally sound before starting the install process. If the existing render or pebbledash is weak and comes away from the wall with minimal force, then we strongly recommend removing this prior to install.

## STEP 2

# Surface Priming

Once the substrate has been prepared, it then needs to be primed before any EPS/adhesive can be applied.

We recommend priming the substrate with EWI-301, which is a deep-penetrating water-based primer. It works in a similar manner to PVA primer, by helping to seal porous surfaces prior to carrying out any works.

If the substrate requires increased adhesion (for example on very smooth or painted surfaces) then we recommend using the EWI-310 Universal Primer. This contains silicate, which provides a mechanical key to aid adhesion of the insulation boards.

The amount of priming (and therefore volume of primer required) will depend upon how absorptive the underlying substrate is. Typically, this can be anywhere from 50-300ml per m<sup>2</sup>.

Both EWI-301 and EWI-310 can be applied by brush or roller.

The primers will take approximately 4 hours to dry. However, additional coats may be required depending upon the absorptivity of the substrate. 24 hours should be left between primer coats.

### MATERIALS REQUIRED

EWI-301 Water Based Substrate Primer (5 litres)  
EWI-310 - Universal Primer (20 litres)

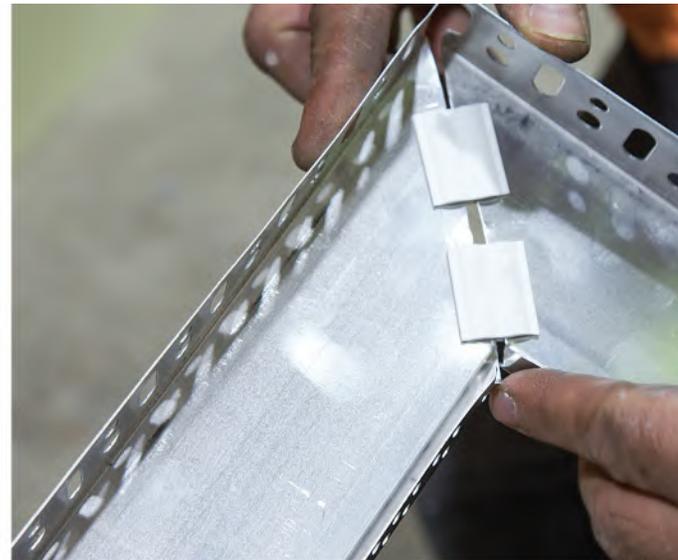


## STEP 3 Starter Track Installation

Once the walls are primed, starter track needs to be installed. The starter track is attached to the substrate above the DPC. This not only provides a level surface for easy installation of the insulation, but it also protects the base of the insulation against weather, damp and other damage.

We offer either a uPVC starter track or an aluminium starter track. The uPVC starter track is our premium product and helps minimise thermal bridging. Aluminium starter requires a clip-on profile, which provides a layer of mesh that helps to tie the starter track together with the insulation when the reinforcement layer is added.

Both types of starter track are fixed to the substrate using rawl plugs, fixed at 300mm centres to ensure the starter track is held securely in place.



## STEP 4

# Applying Adhesive to EPS Insulation Boards (ready to apply to substrate)

Once the starter track is in place, you will need to start fixing the graphite EPS boards to the substrate.

The graphite EPS insulation boards are attached to the substrate with one of our adhesives. We normally recommend using EWI-220 EPS Basecoat as the adhesive for attaching the EPS to the substrate because it means that only one type of adhesive is required on-site (EWI-220 is the adhesive also used in the reinforcement layer). EWI-210 can be used if this is preferable.

Both adhesives come as a dry mix in 25kg bags and should be combined with clean water at a ratio of 6 litres per bag. To do this, use a heavy-duty power plaster mixer on a slow rotating setting. Freshly mixed adhesive should be left for approximately 5-10 minutes and then re-mixed for a short period of time before use. Bucket life is approximately 1 hour, although this is dependent upon the weather conditions.

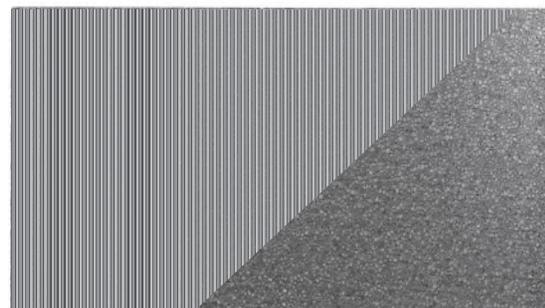
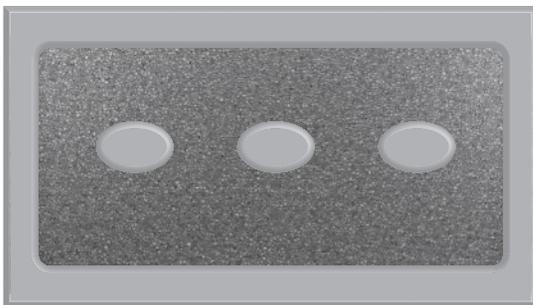
We recommend applying the adhesive onto the EPS insulation boards using a 'dot and dab' method. Using a trowel, apply the adhesive evenly around the edges of the polystyrene (3-4cm wide track), then dot and dab adhesive spots inside of this perimeter (approximately 3 of them). In general, the EPS adhesive should cover no less than 40% of the surface of the insulation sheet.

It is also perfectly acceptable to use a notched trowel to apply a layer of the adhesive to the entirety of the EPS board. This method is better suited to completely flat walls.

The amount of adhesive used by either of these methods should be approximately the same. Each 25kg bag should be able to mount approximately 5m<sup>2</sup> of boards to the substrate, although this does vary depending upon the quality of the surface on which the boards are being mounted (a flat wall will require less adhesive).

### MATERIALS REQUIRED

- EWI-210 EPS Adhesive
- EWI-220 EPS Basecoat
- EWI-410 Graphite EPS boards (1200x600mm)



## STEP 5 Applying the EPS to the Substrate

The insulation boards should be attached to the wall in a staggered formation. At the corners, it is important to interlink the insulation from the two sides.

When installing EPS insulation around window and door openings, it is important that the joints between boards are not in line with these openings. This will prevent cracks appearing in the future. For best results and ease of installation, we recommend the use of Lintel Mesh Corner, which helps strengthen this area.



## STEP 6 Level Control and Filling Gaps Between EPS Insulation Boards

It is important to ensure that the EPS insulation boards are aligned correctly both horizontally and vertically. This is best achieved using a spirit level.

Gaps between the boards that are wider than 2mm should be filled with strips of EPS (offcuts from the insulation boards). A common mistake is to use the EPS Adhesive for filling these gaps, but this can lead to a formation of cold-bridges and cracks around the joints between the boards.



## STEP 7 Mechanical Fixings

All our insulation systems require the use of mechanical fixings as an additional method of tying the EPS to the substrate. The mechanical fixings help to ensure a completely secure system. Drilling the holes for fixings should take place at least 1-2 days after the EPS boards have been attached to the substrate using the adhesive.

We recommend installing 1 mechanical fixing in every corner of each EPS board, as well as another 1-2 fixings in the middle of the boards. Depending upon the fixing that is used, they can either be hammered into place or, in the case of the EcoDrive fixings, they can be driven straight into the insulation using a power tool.

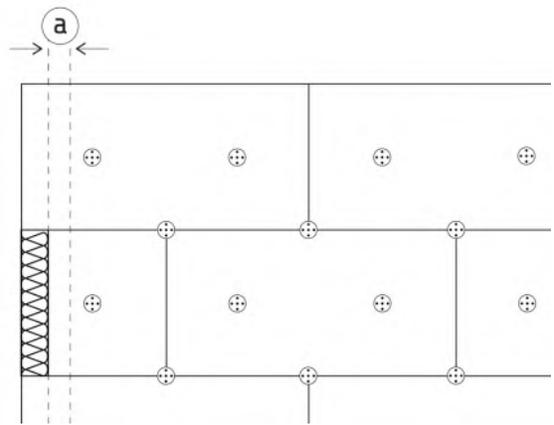
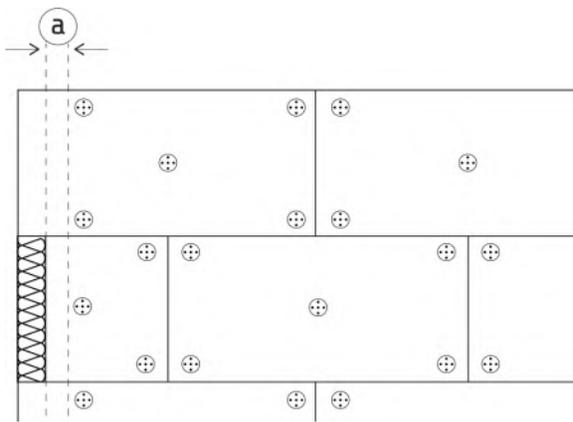


The mechanical fixings used can be seen in the photo below. When using 90mm-100mm thick EPS, the fixings required are 140-170mm long.

If using metal pin mechanical fixings, we recommend including EPS dowel caps to minimise thermal bridging. These are held in place using the EWI-220 and the result is that once the system is dry, you will not be able to see any hint of the mechanical fixings coming through.

Note: if you use the EcoDrive fixings this will not be necessary as they come with a dowel cap already. Likewise, the plastic pin fixings don't require EPS dowels as very little thermal bridging occurs through the plastic core.

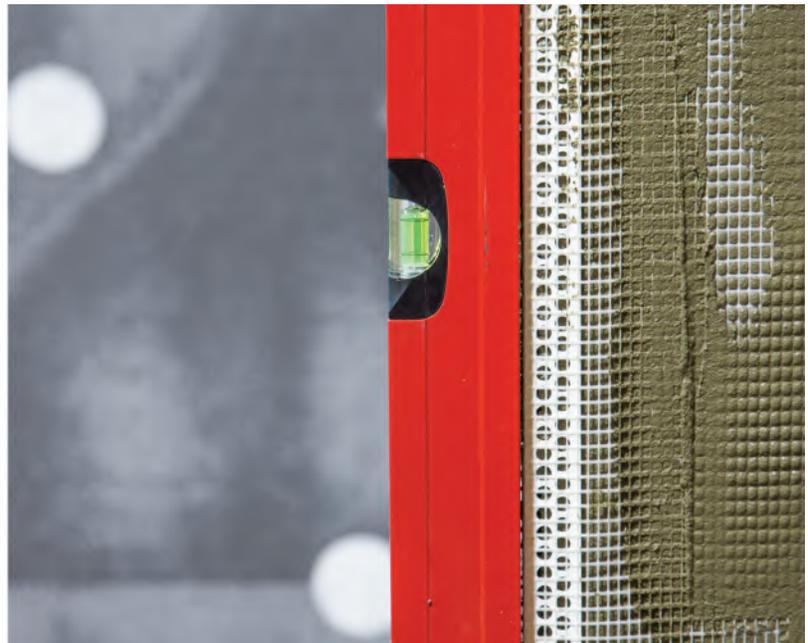
If applying the insulation system to a rendered wall, we recommend adding an extra 30mm to the length of the fixing to allow it to travel through the insulation and the existing render to firmly hold onto the main substrate of the building.



## STEP 8

## Smoothing and Levelling the Facade

The surface of the EPS insulation boards must be flat and level throughout the façade. All uneven areas should be made good using a polystyrene rasp. This will level the façade and create a smooth surface ready for the application of the basecoat reinforcement layer.



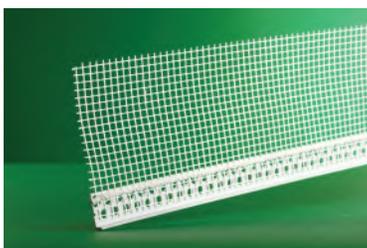
## STEP 9 Applying the Beading

Beading is used in the EWI Pro thin coat render systems to reinforce areas that are likely to experience impact (e.g. external corners) and to try to direct water away from the surface of the render by providing a drip. All of our beading is uPVC and therefore will not rust. Cut beads to the required length and embed them into the basecoat layer.



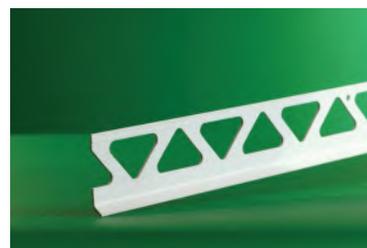
### CORNER BEADS

Corner Bead should be used on every external corner to help reinforce this area. The corner bead also helps achieve a consistent 90 degree angle at the corner.



### STOP BEADS

Stop Bead is used to achieve a defined termination point where the render comes to an end, for example between mid-terrace properties.



### BELLCAST BEADS

Bellcast Beads are used to provide a drip at either the bottom of the render system or above openings to help mechanically drive water away from the surface of the render system.



### FLEXIBLE UPVC ARCH BEAD

Flexible uPVC Arch Bead is used to form perfect arches by matching the contours of the arch. The bead sits within the basecoat layer and provides sharp clean edges as well supporting the angles against accidental impacts.



### MOVEMENT BEADS

Movement Beads are installed within the basecoat directly above expansion joints within the masonry to achieve a neat and consistent enclosing detail. They can also be used where there is a particularly long run of render to try and help reduce the risk of cracking (typically every 7 linear metres of render a movement bead should be installed).

## STEP 10 Preparing the Basecoat Layer

Once the beading is in position, the basecoat reinforcement layer is installed (remember the beads are completely embedded within the basecoat so are not visible).

For this stage you need to use either the EWI-220 EPS Basecoat or the EWI-225 Premium Basecoat. Whichever of these basecoats you

choose, the product is trowelled onto the substrate before strips of Fibreglass Mesh are embedded within it. Our Fibreglass Mesh is available in 50m<sup>2</sup> rolls in either 165g/m<sup>2</sup> (EWI-66645) or 150g/m<sup>2</sup> (EWI-66640).

Correct preparation of the EWI-225 Premium Basecoat is very important. EWI-225 Premium Basecoat should be mixed with clean, potable water at a ratio of 6.5 litres per 25kg bag. The Premium Basecoat should be mixed using a heavy-duty power plaster mixer on a slow rotating setting. As mentioned previously EWI-220 EPS Basecoat is prepared in the same way, but only requires 5.8 litres of water per 25kg bag.

Freshly mixed compound should be left for approximately 5 minutes and then re-mixed for a short period of time before use. Bucket life is approximately 1 hour, although this is dependent upon the weather conditions.

## STEP 11 Applying the Basecoat Layer

The basecoat can be applied as either a one pass or two pass application with Fibreglass Mesh embedded within it.

### One Pass Application

The one pass system should be applied with a notched trowel to the substrate at a thickness of 6-8mm. The mesh is then embedded within the basecoat in vertical strips using the flat edge of a notched trowel. Each strip of Fibreglass Mesh should overlap its neighbouring strip by approximately 10-15cm. The EWI-225 Premium Basecoat can be ruled off with a speed skim or sponge floated for a completely flat finish.

### Two Pass Application

The two-pass system should be applied with a notched trowel to the substrate - this layer needs to be between 3-4mm. The mesh is then placed onto the basecoat in vertical strips and embedded using the flat edge of a notched trowel. Another coat of basecoat should be applied onto the mesh at a thickness of 3-4mm before the first coat has gone off. The EWI-225 Premium Basecoat can be ruled off with a speed skim or sponge floated for a completely flat finish.



## STEP 12 Priming Before Rendering

Once the basecoat reinforcement layer has dried for a period of 24-48 hours (depending upon the weather conditions), it needs to be primed prior to applying the render. The Topcoat Primer (EWI-333) is simply painted on top of the basecoat reinforcement layer using either a paintbrush or a roller.

It will need to be left to dry for 12-24 hours prior to rendering. The primer is also through-coloured with the same tint as the topcoat. This is to avoid staining on the topcoat and to ensure the final colour fully comes through on the rendering finish.

### MATERIALS REQUIRED

EWI-333- Top Coat Primer



## STEP 13 Rendering the Walls

We recommend using one of our silicone renders. We offer four types of silicone render – please speak to your supplier for more details about the differences.



EWI-040 Silicone Silicate Render



EWI-075 Silicone Render



EWI-076 Premium Bio Silicone Render



EWI-077 Nano Drex Silicone Render

Each of these renders comes in different grain sizes – 1mm, 1.5mm, 2mm and 3mm.

Using a trowel, apply a thin layer of the render to primed surface. With granulated thin coat renders, remember to match the thickness of the render application to the grain size - so with a grain size of 1mm the render will need to be applied at a 1mm thickness.

Once the render has been applied, smooth it out using a trowel, removing any excess off the wall to ensure an extremely thin layer (one grain thick). Using a PVC float, work the render in circular movements - this will provide a textured finish. Remember to have enough tradesmen on-site to ensure that whole sections of the walls can be done at the same time. If you attempt to do 'half a wall' at a time, you will notice scarring where the two render sections meet.

If the render is tinted, then please check the bucket to ensure that it is the colour you are expecting (ideally compare this back to a sample pot). It is also recommended to mix 3 buckets of render into one large bucket at a time, topping up and re-mixing regularly. This will ensure consistency in colour and any minor discrepancies will be blended out across the façade.

**Note: please do not water down the render.**



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