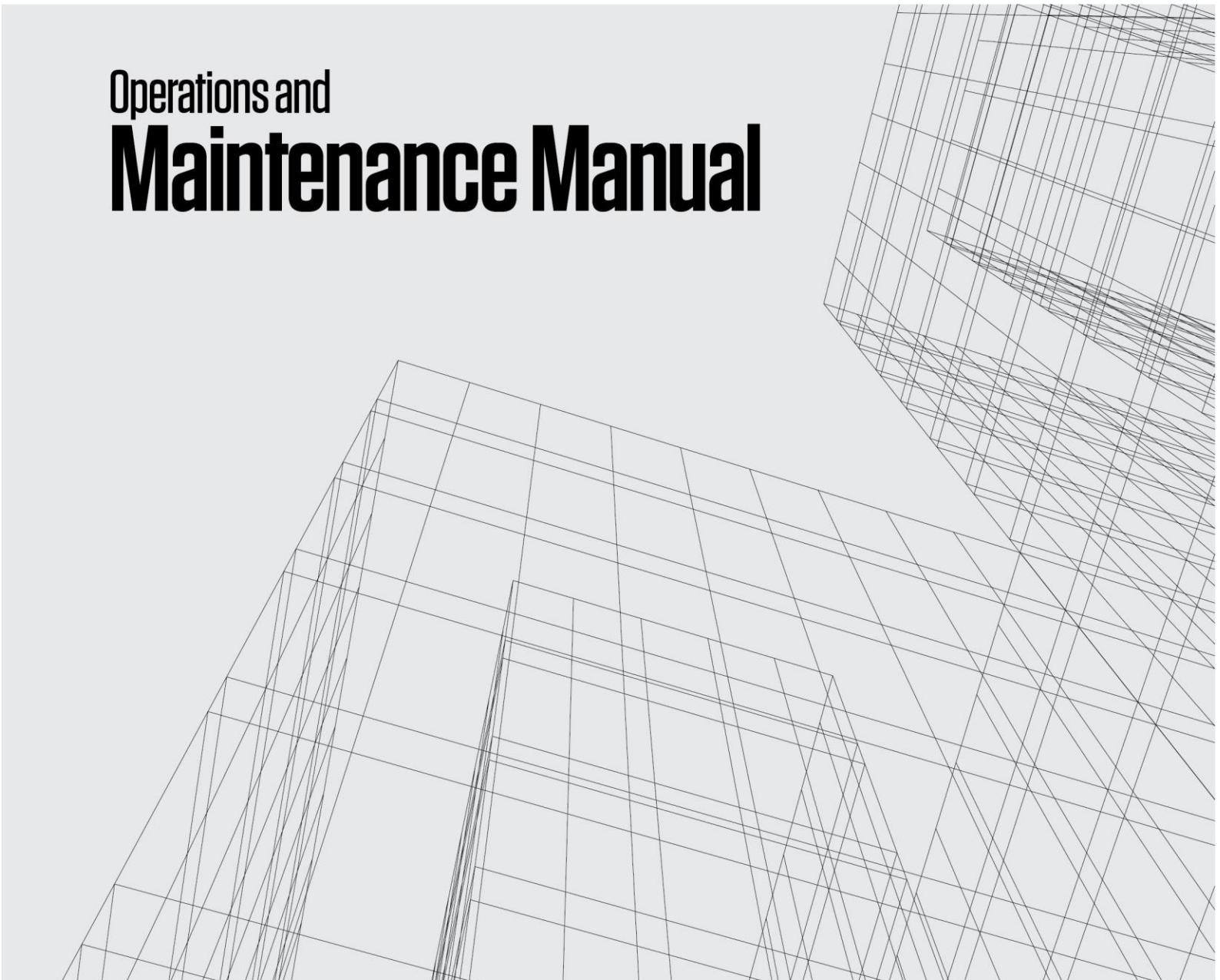


Operations and **Maintenance Manual**



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SECTION 1 – SYSTEM SCOPE

This Operations and Maintenance Manual is applicable for the following EWI Pro Insulation Systems:

Mixed Masonry Insulation Systems

- EPS
- Mineral Wool
- Wood fibre

Non-Standard External Insulation Systems

- EWI EPS onto non-vented façade
- EWI Mineral Wool onto non-vented façade
- EWI onto timber or SIPS structures (wood fibre only)

Render Only Systems

- Render only onto masonry
- Render only onto lightweight masonry structures
- Render only onto render carrier board
- ICF render only

SECTION 2 – SYSTEM AND INSTALLATION ASSUMPTIONS

Material Ordering

Materials are sourced and ordered either directly from EWI Pro Insulation Systems or an approved third-party distribution house.

We are not responsible for any materials that appear and are subsequently sold via unsolicited routes to market.

The installer ordering the materials has appropriate system training and knowledge of the products, in order to carry out a competent installation.

The materials have been transported to the site in the appropriate way, either via manufacturer's direct transportation, third-party couriers or under stable conditions using appropriate vehicles from the relevant fitter.

Material handling on-site

- The materials must be stored in a dry place, free from direct sunlight or large variations in external atmospheric conditions.
- The bagged items, e.g. EWI-210, EWI-220, EWI-225 etc. must be kept free from moisture and not allowed to freeze during storage on-site.
- The recommended temperature range on site is anywhere between 5°C and 25°C
- Please follow the instructions on the back of the packaging and refer to the relevant installation guides for more information on the appropriate product handling.

Material Installation

- Installers have the appropriate tools to use when installing the system – they are free from debris and / or regularly checked and calibrated if required (e.g. electrical equipment)
- Materials are not installed when the site is exposed to direct rainfall (the working area must be protected).
- The renders are not applied in direct sunlight.
- Adhere to the correct drying times for the different layers of the system.
- Appropriate beading is used, and relevant sealants are applied to prevent ingress of moisture and uphold the system's integrity.
- Apply appropriate movement and expansion joints as per the NHBC guidelines.
- Temperature range for the installation procedure is 5°C to 25°C.

Health and Safety

Refer to the appropriate Health and Safety Guidelines for working on-site and ensure appropriate copies of Working at Height best practice is easily available to the installers on site.

For product safety handling, please refer to the packaging on the buckets or the bags.

SECTION 3 – INSPECTION OF THE SYSTEM

Maintenance requirements

Regular checks should be made on the installed systems, including:

- an initial inspection after 12 months and subsequently every five years (from the applicator);
- visual inspection of the render for signs of damage. Cracks in the render exceeding 0.2 mm must be repaired;
- render should be cleaned with running water at least once every 12 months (but local conditions may require regular washing);
- examination of the sealant around openings and service entry points;
- visual inspection of architectural details designed to shed water to confirm that they are performing properly;
- visual inspection to ensure that water is not leaking from external downpipes or gutters; such leakage could penetrate the render;
- necessary repairs effected immediately and the sealant joints at window and door frames replaced at regular intervals.

We recommend painting the external walls with an approved silicone-based paint every 8 to 10 years. We manufacturer a range of external paints designed for this purpose.

Staining in conjunction with other works

Staining of the render is not a recognised failure of the system or the render topcoat. However, in situations where heavy groundworks take place, staining and soiling may occur on the low-lying areas of the render finish. This may be more prevalent during the first 30 days of the render curation.

Provisions should be made to adequately protect the property from groundworks, OR the property render should be applied after all groundworks have been completed.

Installation process to avoid faulty installation

The risk of render delamination or cracking will be mitigated if the installer takes the following points into consideration:

- the fitter adheres to the application process, drying times and appropriate storage for materials during the installation process (see Section 2 for additional details),
- The render / EWI systems are applied to structurally stable substrates.
- The materials are applied to the correct thickness as defined by the installation guide,
- The basecoat layer always requires an embedded fibreglass mesh layer and further reinforcement ‘stress patches’ are required around windows and doors.
- Sills and flashings should be installed so that they provide sufficient overhang to shed water away from the face of the finished system. Best practice is to allow for a

minimum of 40mm overhang to the throat or drip. For more information, please refer to 'BS13914:1:2005'3.

Additional information on material handling, storage and installation is found on the back of the packaging. Should the installer have any questions around the installation procedure, they will need to get in touch with the EWI Pro Insulation technical team on 0800 133 7072.

Where we have provided warranties on installations, EWI Pro Insulation systems would visit the site and carry out core testing if cracks were to appear. The samples would go back to the laboratory and if a faulty product had been found, we would then be obliged to service this as part of the warranty.

In our experience the risk of cracking is low provided our systems have been installed correctly. The reason for this is that our systems are much more flexible than traditional sand/cement or thick coat renders.

Inspecting Final Finishes

According to the INCA Best Practice Guide, when inspecting finished systems, there are tools available to every client, installer or system designer that can be used to determine if the finished system is to an acceptable standard.

It should be remembered that EWI systems and the renders and finishes are hand applied products that will have an element of tolerance.

When inspecting a finished externally rendered surface, it should be viewed in daylight, standing at ground level, from a generally accessible viewing position. Where possible it should be viewed at a distance of 10m with the sunlight, if any, not falling onto the surface in a glancing condition.

SECTION 4 – EWI PRO AFTERCARE AND MAINTENANCE GUIDE

Basic Maintenance

Fixings and aesthetic additions

Careful consideration must be made when installing fixings or aesthetic additions to the system as if installed improperly, thermal bridging may occur. We recommend using Swifix fixings to help limit the stress on the EWI system and limit thermal bridging occurring. Common items that are fixed to our systems include satellite dishes, washing lines, external lights and alarm boxes. Swifix have a range of different fixings for each purpose.

Painting

Over time, you may find that the render requires a coat of paint in order to refresh the facade. Silicone Paint should be used to achieve this, as it is highly vapour permeable and waterproof. EWI Pro Silicone Paint can be tinted to match the existing render.

The area to be painted will need to be cleaned - this may mean using a gentle power wash. Any particularly affected areas can be cleaned using warm water and a sponge. Take care to use a low-pressure jet wash to avoid cracking and damage to the render surface.

Ensure that the substrate is left to dry thoroughly before applying the Silicone Paint. Typically, only 1-2 coats of paint should be required.

Window/door replacement

Ideally, windows and doors should be replaced before the installation of a new render or EWI system, however we appreciate this is not always possible and so care must be taken not to damage the system around the reveals when removing and installing new windows and doors. Once the new windows and doors are in, the existing render should be made good with basecoat / mesh & render as necessary and then the system should then be thoroughly sealed with a silicone sealant.

Removing small stains/general cleaning

For cleaning surface stains, a sponge/brush with warm water and a mild detergent should be used. If biological contamination occurs, we recommend using the EWI-360 Fungicidal Wash. Simply apply the wash to the affected area or to the entire facade and leave for 24 hours. Ensure that the Fungicidal Wash is washed away with water after use.

Garden plants

Plant life and high soil levels against a render can cause staining and excessive biological contamination, especially on lightly coloured finishes. For maintaining longevity and a clean render finish, we recommend avoiding climbing plants, overhanging trees, and low-lying

shrubs that are situated close to the render. Soil levels should also be kept well below the system, as splashing can cause discolouration.

Satellite dishes

The satellite dish must be supported by one of two methods – the Swifix satellite fixing or by attaching a square of timber which will act as a bracket against the wall, protecting the insulation against any movements from the satellite dish. The timber bracket is secured into the insulation and back into the original wall, and the satellite dish should then be drilled directly through the timber bracket and again back through the original external wall. In order to prevent thermal bridging, silicone sealant should be used to seal the bracket and the points of entry into the wall.

Guttering and pipes

A close eye must be kept on your guttering and pipes. Continuous leaking from rain gutters will cause damage and staining to your render finish. If you notice any damage, leaking or staining then this must be fixed immediately.

Silicone sealant

Silicone sealant is often used as a means of sealing weaker areas of the system against thermal bridging. Unfortunately, Silicone sealant tends to have a much shorter lifespan than the rest of the system, so we recommend using a high-quality sealant (e.g. CT1) and ensure that it is replaced when necessary.

Ladders

Ladders can cause damage when leaned against the insulation; this is because pressure at the sharp edges of the ladder can puncture the system and cause thermal bridging. We recommend using a free-standing ladder, or if a leaning ladder is absolutely necessary, use a spreading board to distribute the weight of the ladder against the wall evenly.

SECTION 5: Patch Repair Guide: Thin Coat Render and EWI

Unfortunately, accidents happen. This guide will explain the procedure required for repairing cracked and damaged render.

We cover 2 types of repair:

- Minor dings and dents,
- Situations where the insulation board compresses and must be replaced.

Damaged and cracked render not only ruins the appearance of the building in question, but it can also lead to water ingress. This can cause rapid degradation of the render system because the water can freeze and expand, blowing the surface render away from the wall.

Repairing Minor dings and dents

This type of damage might only look cosmetic, however as soon as there is a crack in the render then water ingress can occur. Unfortunately, hairline cracks are particularly detrimental in terms of water ingress due to the narrow space encouraging capillary action; water is therefore actively sucked through the crack.

Typically, when this type of damage occurs the insulation board (if present) will still be intact. If this is the case, removing the board is unnecessary.

STEP 1 - Isolate the crack

Try to remove an area of render around the crack by using an angle grinder – you can square this off using a sharp chisel, to produce almost a render-free frame around the crack. There should be a minimum distance of 150mm from any point on the crack to where the render has been grinded back to.

STEP 2 – Protect the area

Apply protective tape to the existing render where it meets the render-free patch.

STEP 3 - Angle Grind away the basecoat layer

The next step is to remove the cement-based basecoat layer using an angle grinder. Do not remove the basecoat right up to the render-free frame, instead just ensure the basecoat has been removed to the point the crack has now disappeared. We suggest trying to ‘polish’ away the basecoat rather than cut it. This is because ideally, around the crack area you will uncover some mesh from the existing system (i.e you will have not gone deep enough to cut through all the mesh). This will help patch bind to the existing system.

STEP 4 – Mix up basecoat

The next stage involves beginning the repair. Ensure that you use the same basecoat that was used in the original render system (either EWI-220 EPS Basecoat or EWI-225 Premium Adhesive). You can do this by looking at the colour of the existing basecoat – the Premium Adhesive is white in colour, while the EWI-220 EPS Basecoat is grey. Follow the instructions on the bag to prepare the adhesive ready for use.

STEP 5 – Apply the Basecoat reinforcement layer

With the basecoat now prepared, using a trowel apply it to the area you are trying to repair. We recommend using a 10mm notched trowel, so you can ensure that you are applying the correct volume of adhesive. Once the adhesive is in place, cut a patch of the fibreglass mesh that will cover the whole of the affected area, and embed this into the wet adhesive by dragging the trowel in an upwards direction over the adhesive. As mentioned in step 2, ideally some mesh from the existing system will still be visible, Once the reinforced basecoat layer has been applied to the previously damaged area, no mesh should now be visible. The patch and any existing mesh should be completely embedded within the adhesive that has just been applied.

Likewise, the adhesive should be completely smooth as if ready for render application. Allow the basecoat to completely go off before moving on to step 5.

STEP 6 – Priming the Basecoat prior to applying the render topcoat

Before you can apply the render topcoat, the basecoat needs to be primed using the relevant primer (which is dictated by the type of render used e.g. mineral, acrylic, silicone etc). Again – let the primer go off before attempting the next stage.

STEP 7 – Applying the Render

The only visible sign of the repair area should now be a frame of ‘render-less’ basecoat where the crack used to be. Next, apply the render in the standard way, until it is flush with the existing render (hidden by the tape).

Remove the tape prior to the render going off.

Fixing cracked render and compromised insulation

If the damage is more significant than a simple ding, then there are a few more steps involved.

STEP 1 - Isolate the crack

Try to remove an area of render around the crack by using an angle grinder – you can square this off using a sharp chisel, to produce almost a render-free frame around the crack. There should be a minimum distance of 150mm from any point on the crack to where the render has been grinded back to.

STEP 2 – Protect the area

Apply protective tape to the existing render where it meets the render-free patch.

STEP 3 - Angle Grind away the basecoat layer

The next step is to remove the cement-based basecoat layer using an angle grinder. Do not remove the basecoat right up to the render-free frame, instead just ensure the basecoat has been removed to the point the damaged area has now been removed.

When the insulation is damaged, the basecoat you remove should also be squared up to match the render-free frame, although it should be smaller. Similar to repairing a small ding, if you can uncover a small amount of existing mesh by ‘polishing’ away the basecoat, then this helps bind the repaired section to the existing render.

Step 4 – Cut out the compromised insulation material

Fortunately, removing the damaged insulation material is relatively simple once the damaged basecoat is out the way. Using a knife or an oscillating multi-tool, simply cut out the damaged insulation board – we suggest trying to remove a rectangle of insulation since you can then easily cut the replacement of insulation to fit. If there happens to be mechanical fixings in the damaged area these will need to be angle grinded out – leaving a clear space for the new replacement insulation to slide in.

Step 5 – Cut and insert the replacement insulation

Ensure you are replacing like for like insulation – e.g. EPS with EPS or Rockwool with Rockwool. The insulation should be stuck in place using the corresponding bedding adhesive to ensure it is held firmly in place. Likewise, a minimum of 1 mechanical fixing should be inserted through the replacement insulation. We always recommend using a mechanical fixing at least 40mm longer than the thickness of the insulation to ensure it drives firmly into the underlying substrate. The number of mechanical fixings depends upon the size of the replacement EPS – as a guide our install instructions recommend 7 fixings per square metre of insulation, therefore calculate the area of the replacement EPS to ensure you use the correct number of fixings.

STEP 6 – Mix up basecoat

The next stage involves beginning the repair. Ensure that you use the same basecoat that was used in the original render system (either EWI-220 EPS Basecoat or EWI-225 Premium Adhesive). You can do this by looking at the colour of the existing basecoat – the Premium Adhesive is white in colour, while the EWI-220 EPS basecoat is grey. Follow the instructions on the bag to prepare the adhesive ready for use.

STEP 7 – Apply the Basecoat reinforcement layer

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With the basecoat now prepared, using a trowel apply it to the area you are trying to repair. We recommend using a 10mm notched trowel, so that you can ensure you are applying the correct volume of adhesive. Once the adhesive is in place, cut a patch of the fibreglass mesh that will cover the whole of the affected area, and embed this into the wet adhesive by dragging the trowel in an upwards direction over the adhesive.

As mentioned in step 2, ideally some mesh from the existing system will still be visible. Once the reinforced basecoat layer has been applied to the previously damaged area, no mesh should now be visible. The patch, and any existing mesh, should be completely embedded within the adhesive that has just been applied.

Likewise, the adhesive should be completely smooth as if ready for render application. Allow the render to completely go off before moving on to step 5.

STEP 8 – Priming the Basecoat prior to applying the render topcoat

Before you can apply the render topcoat, the basecoat needs to be primed using the relevant primer (which is dictated by the type of render used e.g. mineral, acrylic, silicone etc). Again – let the primer go off before attempting the next stage.

STEP 9 – Applying the Render

The only visible sign of the repair area should now be a frame of ‘render-less’ basecoat where the crack used to be. Apply the render in the standard way, until it is flush with the existing render (hidden by the tape).

Remove the protective rendering tape prior to the render going off, and using a fine brush “stipple” the edges of the render to blend in the finish.

***Please note:** both of these methods will patch the existing damage. However, due to the nature of the render (namely because it is exceptionally thin), it is very difficult to blend old existing render with new render; therefore, with this method of repair it is probable that you will still be able to see the outline of the patch.

If this is unacceptable, you can apply a new layer of basecoat to the whole elevation, with mesh and beadings as necessary. This can then be rendered as normal, completely covering the patch; thus, if the the damage is extensive or the elevation is particularly visible this may be a preferable method of repair.

SECTION 6 – VENTILATION

Ventilation of the dwelling is assessed and if necessary, upgraded in accordance with the retrofit design and with the requirements of the installation standard that the applicator is working towards.

If any combustion air ventilators are present in the property, then the air supply must be isolated, and an air ventilator continuously sleeved throughout the profile of the wall.

Ventilation of the building is no worse following the improvement of the thermal properties of the building elevation/s.

For the occupier

Windows – trickle vents must remain open to allow for air circulation in habitable rooms.

Kitchens / Bathrooms – the mechanical extract fans should be used continuously until the rooms are sufficiently free from any moisture or vapour.

Rooms with fires – ventilation should be open and uninhibited.

SECTION 7 – COMBUSTION

Heating should be used in the colder months to allow the rooms to reach target room temperature, which on average is set between 18 and 22 degrees Celsius.

The property should have thermostatic valves and room thermostats installed throughout to allow the occupier to set and monitor the temperature. Well working thermostats should allow for automatic regulation of room temperature.

SECTION 8 – CONTACT FOR FURTHER INFORMATION

For additional information on material installation, material handling and post-completion maintenance then please contact our team below who will be able to help.

Email: info@ewipro.com

Tel: 0800 133 7072