

# Building Systems Project Specification

**Project name:** DEMO SPECIFICATION

**System Description:** EPS bonded & mechanically fixed to mixed masonry with a thin-coat render finish

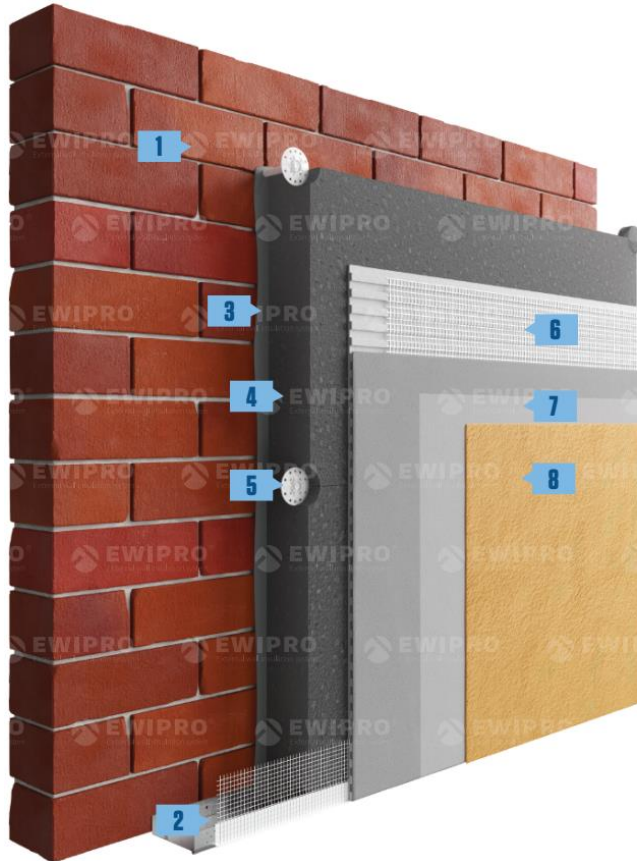
**System name:** M21\_NB\_BW\_EPS\_TC\_075 **Specification Type:** Standard

**Site Specific Information:** (INSERT HERE) **Finishes in scope:** EW1-075 1.5mm Silicone Render

## 100 SYSTEM BACKGROUND

The system comprises mechanically fixed white or grey expanded polystyrene (EPS) insulation with supplementary adhesive, reinforced basecoat and a silicone render finish.

### EPS Insulation System Brick/Block



- 1 Surface Preparation (Levelling Coat or Primer)
- 2 Starter Track & Clip-on Bead
- 3 Adhesive Coat
- 4 EPS Insulation
- 5 Mechanical Fixings
- 6 Reinforcement Layer (Basecoat & Mesh)
- 7 Render Primer (Optional)
- 8 Decorative Finish

They are suitable for use on the outside of external walls in new and existing domestic and non-domestic buildings.

The systems are for application to the outside of external walls of masonry, or dense or no-fines concrete construction, on new or existing domestic and non-domestic buildings (with or without existing render) up to 18 metres in height.

**Technical update (07.01.2019) – We require all Design & Build Contractors, Project Improvers, Architects and so forth to check with their 3<sup>rd</sup> Party Warranty Provider on the suitability of this specification to meet their insurance obligations. EWI Pro Insulation Systems Ltd. cannot be held accountable / responsible if this permission is not sought prior to the installation of this system, and an issue of product/system suitability arises in the commissioning of the system further down the line.**

**Technical update (31.01.2019) – Following a revision to the Fire Safety Regulations (Document B), we seek all Project Improvers to validate this project design with Local Building Control or with their Insurance Providers. The current Fire Safety Regulations are enforceable, particularly if the build is less than 1000mm (1 metre) from the boundary wall.**

System is comprised of the following components:

**Insulation Adhesive** – the EWI Pro Adhesive (210 or 220 product) is mechanically mixed and whilst in a putty compound added to the back of the EPS board either with a flat edge or notched trowel.

**Insulation boards** – comprising of either grey (graphite) EPS boards (1200mm by 600mm) cut to **90mm**

**Mechanical fixings** – polypropylene anchor sleeves with an 10mm centre pin or metal pin 8mm. Length to be used as specified for the 90mm EPS insulation only.

Please note: installers need to adhere to the fixing pattern specified in the installation guide and if in doubt need to get in touch with the technical department for additional clarification.

**Basecoat** – the EWI-220 EPS Basecoat or EWI-225 Premium Basecoat are universal and can be used for both operations. Basecoat thickness is approximately 4-6mm, applied in one application with a toothed trowel.

**Fibreglass Mesh** – 150g, 160g or 330g mesh sunk either as one layer into the adhesive OR the basecoat / mesh combination can be applied in two overlapping layers.

**Silicone Silicate Primer** – the 333 Silicone Silicate Primer is applied prior to the top-coat render. It may or may not be tinted depending on the shading of the final render.

**Silicone Render** – the EWI-075 Silicone Render is applied to a prepared surface, between 5°C and 25°C, avoiding direct sunlight or precipitation during the application process.

## BEADING

There is a standard range of aluminium or uPVC profiles that form part of the system and should be installed, as failure to do so may compromise the system and void our product warranty.

Essential beading summarised below:

- Starter/base profile – either aluminium with a clip-on bead or uPVC (2-piece);
- Connector profile and fixings to attach the starter/ base profile;
- Edge/ angled, corner and render stop profiles;
- Expansion joints where required.

Optional beading below:

- Drip-nose/ window head or apple beading;
- Window reveal bead;
- Verge trim or capping profiles.

## 110 REVIEWING SYSTEM DRAWINGS

You may submit your architectural drawings to our technical team for review to calculate your requirements. The following elements needs to be covered off in the submission for them to be take forward and reviewed:

- Details and proposals around the openings (windows, doors);
- Detail of the parapet, eaves and the plinth;

- Proposals to mitigate the effects of thermal bridging around windows, doors, concrete floors, flat roof or eaves;
- Detailing around the vents, utility boxes and flues.

#### 120 SURVEYING THE EXISTING WALLS/ SUBSTRATE

A pre-installation survey of the property must be carried out to determine suitability for installation and the need for any necessary repairs to the building structure before application of the systems. A specification is prepared for the building indicating:

- the position of profiles;
- detailing around windows, doors and at eaves;
- damp-proof course (dpc) level;
- exact position of expansion joints;
- where required, additional corner mesh and reinforcement;
- areas where flexible sealants must be used;
- any alterations to external plumbing;
- where required, the position of fire barriers.

Before installation takes place, the building designer must confirm where items such as rainwater goods, satellite dishes, clothes lines and hanging baskets will be placed. The fixing points for these items must be specifically designated and built into the systems as the insulation is installed.

The survey should include tests conducted on the walls of the building by the installer to determine to whether a render pull-off needs to take place. Surfaces should be sound, clean and free from loose material. The flatness of surfaces must be checked; this may be achieved using a straight edge spanning the storey height.

The results of the survey will confirm the system suitability to the installation.

#### 160 REMEDIAL WORK

Surfaces should be sound, clean and free from loose material. Any excessive irregularities, i.e. greater than 10 mm in one metre, must be made good prior to installation to ensure that the insulation boards are installed with a smooth, in-plane finished surface.

Where surfaces are covered with an existing render, it is essential that the bond between the background and the render is adequate. All loose areas should be hacked off and reinstated. You can use various EWI Pro Insulation filler products or the EWI-260 Levelling Wall Compound.

On existing buildings, purpose-made window sills must be fitted to extend beyond the finished face of the systems. New buildings should incorporate suitably deep sills.

In new buildings, internal wet work (e.g. screed or plastering) should be completed and allowed to dry prior to the application of the system.

All modifications, such as provision for cavity barriers and fire stopping and necessary repairs to the building structure, must be completed before installation commences.

#### 210 EXTERNAL WALL INSULATION SYSTEM

System designer:

EWI Pro Insulation Systems Ltd

Kingston Business Centre (Unit 1)  
Fullers Way South, Chessington  
Surrey, KT9 1DQ  
Tel: 0800 133 7072  
E: [info@ewipro.com](mailto:info@ewipro.com)  
Web: [www.ewipro.com](http://www.ewipro.com)

Structural scope of system – masonry either brick or various concrete blocks for both existing and new properties.

#### Pre-treatment of the substrate

If the substrate is dusty and covered with loose debris then suggest the following pre-treatment:

- clean down using either a brush or a jet wash;
- use the EWI-301 Substrate Primer (stabilising solution), and apply it either mechanically with a brush or by spraying it onto the wall. This will deep penetrate the substrate and provide a nice surface ready for the EWI Pro Insulation System.

Loose render or debris that is difficult to treat with cleaning and the primer solution above, should be hacked off carefully and the substrate made good for the next stage in the process. At this point, you can use the EWI-301 Substrate Primer to help with the bonding of the substrate.

For smooth surfaces use the 310 Water Based Primer to provide a nice and abrasive surface for better adhesion of the insulation boards to the walls.

Levelling mortar – this can be used as a filler for hacked off render or to apply as a 4mm to 5mm build-up prior to the system being installed on the wall. Note: this is not a necessary step in the installation process, but essential if the surface is uneven due to existing render either partially hacked-off or fully hacked-off or if dealing with an uneven construction type.

Please refer to the Pre-Survey and the remedial works list to carry out the necessary preparation before the external wall insulation is put up on the wall.

#### Adhesive for the EPS boards

The system specification states that the system uses supplementary adhesive on the back of the boards; however, this process is mandatory to ensure system performance with respect to the system fixing pattern and the wind load testing applied.

Application of the adhesive on the back of the boards can be done so in two different methods: one – adhesive is applied as a perimeter on the back of the boards with three dabs in the middle (should cover approximately 40% of the board); two – using a toothed / notched (10mm trowel), the adhesive is applied liberally to cover 100% of the board. The board is then firmly placed against the substrate.

Adhesive for EPS – use either EWI-210 EPS Adhesive or the EWI-220 Basecoat (Universal Adhesive).

#### Thermal transmittance

No requirement supplied for this project.

#### Insulation boards

- Composition: the EPS 70 grey (graphite)



- Thickness used: **TBCmm**
- Sizing: 1200mm x 600mm
- Density: 17 Kg/m<sup>3</sup>
- Minimum Compressive Strength: 70 KN/m<sup>2</sup>
- Reaction to fire: when properly installed, the product will not add significantly to any existing fire hazard. The product will be contained within the system, sandwiched between the adhesive layer and the basecoat/ render layer. Therefore, the product will not contribute to the development stages of a fire. The reaction to fire classification is B-s2, d0 in accordance with BS EN 13501-1: 2007.
- Method of fixing: mechanically fixed with anchors with supplementary adhesive.
- Number of mechanical fixings: **6** per m<sup>2</sup>
- Thermal conductivity: 0.032 Wm<sup>2</sup>/k EPS 70 boards

Boards should be handled and stored appropriately. They must not be exposed to direct sunlight for an extended period of time, and should be sun screened before the application of the basecoat layer. The boards need to be staggered as per the system drawings with additional attention to be paid around the openings and corners – minimum overlap at the vertical joints is 200mm. The boards also need to be interlocked on the corners.

#### Fire barriers

If installing the system above two storeys, then fire barriers need to be applied to the structure of each floor and/or unit partition. It is recommended that the applicator considers at least one stainless steel fixing per square metre and fire barriers in line with compartment walls and floors, as advised in BRE Report BR 135 : 2013.

Materials: Rockwool lamella mineral fibre slabs 1000mm x 200mm (non-combustible), 90mm.  
Method of application: use system adhesive (EWI-210 or EWI-220), and stainless-steel pins on mechanical anchors.

#### Mechanical fixings

- Polypropylene anchor sleeves with centre pins (10mm);

#### Reinforcement layer

- Low-impact areas – single mesh layer and EWI-220 EPS Basecoat / EWI-225 Premium Basecoat application.
- High-impact areas – double mesh layer and EWI-220 EPS Basecoat application / EWI-225 Premium Basecoat application.

Fixing method – single application of EWI-220 Basecoat / EWI-225 Premium Basecoat using a 10mm toothed/notched trowel building up to 6mm thickness. The mesh is sunk into the final third of the basecoat layer. A second thin layer of basecoat can be applied, if mesh is partially exposed to the surface, however the surface of the existing layer needs to be damp rather than dry-through to ensure appropriate adhesion.

#### System beading description and coding

- Aluminium starter/base profile {64405, 64407, 64409, 64410} – minimum 150mm above ground with 300mm centres;
- Clip on profile for aluminium starter profile {64650};
- uPVC starter tracks with clip-on beading (2-piece) {64207(III), 64210(I+II)};

- Edge/ angled and corner beading {65520, 65901};
- Render stop profiles {66417, 66411};
- Expansion joints where required {66327}.

To long-proof the system integrity we strongly recommend waterproof expanding foam tape (pre-compressed) for joints to under sills, soffits and other similar surfaces. A T-shape undersill bead can also be used to join the sills and under the soffit.

Optional beading below:

- Drip-nose/ window head bead for corners {66485};
- Window reveal beads {66458};
- Verge trim or capping profiles {66905, 66906, 66907, 66908, 66909, 66910, 66911};
- T-shape stop or undersill bead {66405}.

#### Render primer

The render primer, EWI-333 is applied to a dried-out surface once the basecoat layer has been installed, but before the decorative render is applied. The buckets should be tinted depending on the pigment of the final decorative finish.

#### Decorative render finish

The finishing coat includes the EWI-075 Silicone Render as a textured, grained finish, applied in varying thickness of grain. Available grain sizes: 1.5mm.

The render buckets can be tinted using specialist tinting machines using pre-determined mixes to achieve the colour of choice.

#### 300 SYSTEM DESIGN

The design specified here is for a standard EWI Pro Insulation system installation, but in reality, amendments will need to be made in order to meet specific installation requirements. If you have specific installation requirements that deviate from this specification, then please get in touch with our commercial team who will be able to help with necessary amendments.

If there are any significant variations to the make-up of the installation process, then we will need to be notified in advance before the works commence.

EWI Pro Insulation will not accept any liability or losses associated with any subsequent issues that arise in the performance of the EWI system if prior consultation hasn't arisen or the necessary amendments have not been approved.

#### 310 DESIGN DRAWINGS

The system design is supplied as per the drawings. A full set of system drawings is available on request, and they should be sufficient to meet the requirements of this specification.

#### 320 INTEGRITY

The installation needs to meet the following requirements:

- weathertight under all anticipated conditions;
- capable of resisting all dead loads and design live loads, including impact and wind loads, and accommodate all thermal movements without damage.

Note: please avoid application of the render on horizontal applications, i.e. at the parapet level, without appropriate capping.

### 330 IMPACT LOADING

As per the BBA certification, the system is designed to withstand some impact once it has been installed. Double mesh application allows the installation of the system to meet Category I, impact loading requirements (max 10J). Single mesh application should have an impact resistance of up to 3J.

### 350 WIND LOADING

Ref: BBA 18/5503 – when installed on suitable walls, the systems can adequately transfer to the wall the self-weight and negative (suction) and positive (pressure) wind loads normally experienced in the United Kingdom.

Positive wind load is transferred to the substrate wall directly via bearing and compression of the render and insulation. Negative wind load (suction) is resisted by the bond of insulation and render (resistance  $\geq 80 \text{ kN}\cdot\text{m}^{-2}$ ), and the system anchors.

### 351 ADDITIONAL LOADING

Assessment of structural performance for individual installations should be carried out by a suitably qualified and experienced individual to confirm that the substrate wall has adequate strength to resist the additional loads that may be applied as a result of installing the systems, ignoring any positive contribution that may occur from the systems.

### 360 SAMPLES

Product samples should be readily available on request. A contractor should have the EWI Pro Insulation textured sample readily on-site. The sample is packed in an EWI Pro Insulation approved box and demonstrates the system make-up and texture of the final finish.

Specific coloured samples are available on request. Sizing usually 1200mm by 600mm.

### 370 UNIFORMITY OF COLOUR AND TEXTURE

The renders are produced uniformly under factory conditions. Renders and paints can be tinted by suppliers, but they need to use the 5-digit approved coding system that EWI Pro Insulation supplies to its distributors. On-site please check all tinted render before use. Use a low speed paddle mixer to remix the render, if installing directly out of the bucket – this will ensure uniformity of colour.

To avoid discolouration of the render due to the installation process, the application should avoid breaks and be applied continuously one elevation or section at a time. Note: do not allow the render to set-off in the section of the property that is being installed, as trowel or other joining lines may well become visible once the scaffolding is taken down.

In certain instances, breaks are unavoidable, and where this applies, care should be taken so that they are made where services or architectural features help conceal the joints. For example: architectural features can occur around openings, reveals, downpipes, etc.

## INSTALLATION

### 410 APPROVED INSTALLERS

Application of the systems, within the context of this Certificate, must be carried out by approved installers recommended or recognised by EWI Pro Insulation Systems. Such an installer is a company



employing operatives who have been trained and approved by the EWI Pro Insulation to install the systems, which has undertaken to comply with the Certificate holder's application procedure.

#### 415A INSTALLATION APPLICATION

Note:

- Before installation takes place, the building designer must confirm where items such as rainwater goods, satellite dishes, clothes lines and hanging baskets will be placed. The fixing points for these items must be specifically designated and built into the systems as the insulation is installed.
- Adhesively bond the XPS Insulation across the DPC profile of the property using the EWI-226 Aquabase – Water Resistant Basecoat. Use the notch and trowel method to ensure the board is fully bonded with at least 5mm build up of the adhesive material.
- Use either the EWI-226 Aquabase if boards bridging other concrete; OR a water repellent membrane if digging the system underground.
- Reinforce the XPS with the basecoat and mesh ensuring a 3-4mm build-up sinking the mesh into this pass.
- Another pass of the EWI-226 Aquabase needs to be applied to the surface (2-3mm build-up) to water proof the substrate.
- Finish off with mosaic or nanotech Silicone (equivalent to EWI-075 Silicone Render or better).
- Use expanding tape on top of the XPS but below the starter rails for the EWI system.
- The base profile is secured to the external wall above the damp-proof course or at least 150mm above ground using mechanical fixings at a minimum of 300 mm centres with additional fixings at 50mm from each end. Use a plastic clip-on piece/ connector profile to secure the joints between the starter tracks. Packers or packing shims can be used where the starter profile is not fully inline.
- Fix the clip-on profile / bead to the base tracks by clipping it on. If the panels are uPVC, this process can wait until the boards are fully attached to the walls, as the male piece perfectly slots into the female piece and has the bead attached.
- Fix all trims or verges at 300mm centres, ensuring additional fixings at 50mm ends.
- Optional: fixing window reveal beading using the sticky end to the window and door reveals. Using the front sticky strip, peel off and fix on the protective filming and protection.
- Correct preparation of EPS adhesive is absolutely crucial. Use either of the Basecoats or adhesives. It should be mixed with clean water at a ratio of 4.8 – 6.3 litres / 25kg bag. The compound should be mixed using heavy-duty power plaster mixer or paddle mixer on a slow-rotating setting. Freshly mixed compound should be left for approximately 5-10 minutes and then re-mixed for a short period of time before use. Bucket life is approximately 2 hour (at 20°C), although this is dependent on whether conditions.
- We recommend applying the adhesive onto the EPS insulation boards using a modified 'Dot and Dab' method. The EPS adhesive needs to be applied to the perimeter of the EPS board and 3 large dabs applied in the centre of the board. With a trowel you need to apply adhesive evenly around the edges of polystyrene (30-40mm at least wide track) and inside that area, Dot and Dab adhesive spots (approximately 3 of them). In general, EPS adhesive should cover no less than 40% of the surface of 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 if the wall is perfectly inline and flat.
- It is important to ensure the EPS insulation boards are aligned properly when attached to the substrate. The boards need to be aligned correctly both horizontally and vertically and this is best achieved using a spirit level. Boards are interlocked or interleaved on the corners.

- 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 is safeguard against cracking. For best result and ease of installation we recommend use of mesh off-cuts (350mm x 250mm) as can be seen in the appendix section, fixing them to the EPS at 45degrees to the openings.
- Where the gaps between the EPS boards and these are larger than 2mm, these gaps need to be filled with polystyrene strips (derived from the EPS boards). At no point, should any adhesive me used to fill these gaps as this could lead to thermal bridging and reduce the performance of the system.
- Allow 1 – 3 days drying time before attempting to rasp the surface or for the installation of mechanical fixings.
- Graphite EPS may be rasped 1-2mm to help achieve a nice and level surface. White EPS should not be rasped.
- The boards are then mechanically fixed to the walls using a number of approved mechanical fixings. We recommend using 4 mechanical fixings in each of the corners of each EPS board as well as at least another 2 further mechanical fixings in the middle of the boards or at a rate of 5.5 fixings per m<sup>2</sup> – refer to the diagram in the appendix for more details. Install additional fixings around corners and openings at least 100mm from the edge.
- Holes are drilled in the EPS, to prepare for the installation of the mechanical fixings.
- In addition, for this project, the fixing heads need to be routed into the insulation board (using a 17mm plastic or metal rout) with additional EPS capping glued onto the surface to further mitigate thermal bridging, once the fixings are hammered into position.
- Remix the EWI-220 EPS Basecoat / EWI-225 Premium Basecoat. It should be mixed with clean water at a ratio of 4.8 – 6.3 litres / 25kg bag. The compound should be mixed using heavy-duty power plaster mixer or paddle mixer on a slow-rotating setting. Freshly mixed compound should be left for approximately 5-10 minutes and then re-mixed for a short period of time before use. Bucket life is approximately 2 hour (at 20°C), although this is dependent on whether conditions.
- Fix the necessary system beadings:
  - Stop beads attached at the end of the installation wall parallel to the adjacent property.
  - Corner/ angle beads attached at corners and openings.
  - Expansion joints are fitted as specified.
  - Install the corner drip bead on the window and door heads (optional).
- The basecoat is applied with a notched trowel to the top of the EPS insulation boards – this layer needs to be between 4mm – 6mm. The mesh is then placed on to the basecoat (top down) in vertical strips and embedded into the adhesive using the flat edge of the notched trowel. Each vertical strip of fibreglass mesh should overlap its neighbouring vertical strip by approximately 100mm. Ensure minimal basecoat adhesive is recycled from the walls. The majority of the adhesive on the walls needs to stay on the wall as the mesh is sunk into the final third (approximately).
- The applicator may use a spatula trowel to achieve a nice and smooth finish.
- If the mesh layer is not sunk into the basecoat, an additional 2mm levelling coat maybe applied whilst the existing substrate is still damp. Note: do not allow the basecoat to full dry out before attempting this step.
- Allow for the basecoat layer to fully dry out before attempting the next step in the process.
- The render primer is then applied onto the wall by painting it with a roller or mechanical brush.

- This primer needs to be left at least 12 hours (at 20°C) to dry prior to adding the final layer of render.
- Using a trowel apply a thin layer of the render to the primed surface – remembering to layer it according to the thickness of the grain. For example, 1.5mm grained render should be approximately 1.5mm thick. Once the render has been applied, smooth it out using the trowel taking out the excess off the wall. Then using the PVC float, work the render by moving it in circular movements (in one constant direction) – this will provide the texture finish of the render.
- Note: do not attempt to do ‘half a wall’ at a time you will notice scarring where the two sections of render meet. Natural breaks in render surfaces include corners and where render ends – use these if you need to stop in between applications.

#### 420 WEATHER CONDITIONS

Weather conditions should be monitored to ensure correct application and curing conditions. The systems should not be applied at temperatures below 5°C or above 25°C, if exposure to frost is likely or in damp/wet conditions. The render must be protected from rapid drying and should not be applied on elevations in direct sunlight or where the substrate is hot.

In turn the materials (boards, adhesives, renders and paints) must be stored in a safe and dry place, avoiding frosty overnight conditions or prolonged period of exposure to hot and humid conditions. Do not apply materials to a frosty surface or if the materials are frozen.

Additives or accelerators may be used to speed up the drying process on some of the products, but we strongly suggest you contact our commercial team for more information. Using accelerators may hamper the performance of the existing system.

#### 421 DRYING TIMES

Drying times must be adhered to all times. During cold spells (early Spring or late Autumn), the drying times may be pushed out to the right. Do not attempt to carry on the next step of the process without allowing the previous layer in the process to dry out.

#### 425 SCAFFOLDING

The scaffolding should be at a minimum 300mm away from the walls (for a typical 100mm insulation installation) to allow the contractor enough room to liberally use the necessary tools for the application process. Where appropriate the scaffolding should be wall tied for integrity of the structure whilst the project is live. When wall ties are removed from the walls, those holes need to be made good with the appropriate adhesive and render to match the profile of the finished system.

To meet the health & safety guidelines, the scaffolding should be erected by an independent, qualified and insured scaffolding contractor. The scaffolding should be inspected regularly and scaffolding tags should be present on-site and/ or registered for the project address. From time-to-time the scaffolding may be adjusted, but contractors should seek the advice and the assistance of the independent contractor and must not undertake any actions that would endanger themselves and others on the building site.

Please follow local highway guidelines for scaffolding erected on public footpaths. These may be subject to further authorisation and approval.

#### 430 CONDITION & PREPARATION OF SUBSTRATES

Ensure the surfaces are clean, dust free, clean from algae, with any local organic growth trimmed off and free from debris. You may use a low powered jet wash to clean the surface prior to a stabilising solution application.

You may apply substrate primers (stabilising solution) to surfaces free from debris, algae and organic growth. The primers are designed to bond any minor loose material on the substrate surface.

For an extremely smooth surface use the 310 Water Based Primer to provide a nice and abrasive surface for better adhesion of the insulation boards to the walls.

Levelling mortar – this can be used as a filler for hacked off render or to apply as a 4mm to 5mm build-up prior to the system being installed on the wall. Note: this is not a necessary step in the installation process, but essential if the surface is uneven due to existing render either partially hacked-off or fully hacked-off or if dealing with an uneven construction type.

Please refer to the Pre-Survey and the remedial works list to carry out the necessary preparation before the external wall insulation is put up on the wall.

#### 440 ON-SITE RENDER PULL-OFF TESTS

The objective is to make sure the substrate is structurally sound and determine whether the walls need any additional preparation before the boards are attached to the wall and mechanically fixed. A render pull off test is carried out on the site to test suitability of the system installation if existing render is present on the walls.

To test the substrate cut out 100mm by 100mm strips of EPS and with the EWI-210/EWI-220 adhesive attach them to various points on the existing substrate. Ensure an even spread of tester strips – particularly sticking near openings to test weak points of the existing render on the property. After 48 hours of the adhesive drying on the strips and the substrate, they should be pulled off the surface. Should any of the existing render fail by coming off the substrate as the render strips are pulled off, recommend full removal from that elevation.

#### 450 WORKING WITH A LEVEL AND CLEAN SUBSTRATE

Surfaces should be sound, clean and free from loose material. If there is surface dust, loose material, organic growth or efflorescence, it will need to be brushed off thoroughly before attempting to use any specialised cleaning products. Note: clean off any paint and external coatings not suitable for use with the adhesive for the insulation boards.

Surfaces can be cleaned with warm water pre-mixed with a common cleaning product (refer to instruction labels for suitability on external surfaces). The surfaces need to be dried out thoroughly before any works commence.

The flatness of surfaces and the level of the elevation must be checked; this may be achieved using a straight edge spanning the storey height. Note: the specification here is designed to treat small variations in the levelness of the surface and not major variations. The system installed on major variations of the surface can only follow the natural level and line of the building and the elevation being installed. Excessive variations (i.e. over 10mm) need to be treated prior to the commencement of the installation of the EWI Pro Insulation System.

External projections, for example, horizontal overhangs need to be removed prior to the commencement of the external wall insulation insulating process. The removal of ledges and overhangs allows for a levelled surface for the system to be installed.

For minor variations in the level of the surface, use EWI-260 Levelling Mortar to build up a thin layer of bedding surface prior to the commencement of the installation of the external wall insulation system. Do not apply more than 5mm of Levelling Mortar product on the surface.

#### 460 PREPARATION OF THE SERVICES

Disconnect any live or unused cables during the installation process. Live cables need to be attached carefully after the render has dried and been applied. Note: for any external cabling related to an MCS solar PV system, please advise the customer that cabling may need to be treated to void any long-term warranties.

Any untreated metal works like copper pipes should be protected against corrosion using an appropriate product.

Remove any aerials, satellite dishes, brackets, suspended flower pots, etc and replace upon the completion of the final works. Note: for security alarms, please advise the customer that alarms may need to be disabled by approved contractors of the system until the works are completed.

Waste disposal pipes, downpipes and rainwater pipes need to be redirected away from the wall temporarily to allow for the insulation installation process. Once the works have been completed the external pipework should be reattached to the walls with specific consideration for the thickness of the system installed. Refer to technical guides for downpipes and waste disposal pipework if readily available.

#### 470 WINDOW SILL PROJECTION

Window sills must project 40mm beyond the profile of the system installation if provided prior to the installation of the EWI Pro Insulation System.

Oversill capping can be installed with the EWI Pro Insulation System, but it must be sealed adequately and provided with a 40mm drip beyond the profile of the external wall insulation system. Consult the technical team if planning to install oversills to the existing window sills.

Oversill capping avoids some thermal bridging and is a more optimal solution from this perspective than undersill capping.

#### 480 SUPPORT FOR NON-LOAD BEARING AND LOAD BEARING FITTINGS

Ensure appropriate support for waste water, rainwater, alarms, CCTV cameras and other non-load bearing external fittings. We recommend the use of spiral fixings, which can be installed into the top of the render.

No load bearing should be transferred to the thin coat render system.

Any heavy weight items should be identified by the contractor and an allowance for a pattress or ground installed. The ground should be fixed using a minimum of 4 fixings to the substrate and its position marked. Timber pattresses should be no more than 200 x 200mm. Use countersink stainless steel and non-corrosive fixings.



#### 490 MOVEMENT/EXPANSION JOINTS

Follow the Architect/ Specifier design with respect to the installation of the movement joints. If you require help on the design with respect to location of the movement joints, then consult the technical department for additional clarification. Movement joint installation should be consistent with the requirements of the BBA certification for the system. Refer to the NHBC Guidelines for good practice methodology and additional reading.

#### 500 FLUES AND CHIMNEYS

Balanced or mechanical flues need to be extended out if not already done so. A non-combustible material, like the Rockwool Lamella strips or cut-out strips of the Rockwool DD slabs should be installed 100mm around the extended hot flue fixed with fire resistant fixings.

If the flue extension is not possible (i.e. an open flue), a recessed profile consisting of 300mm (for fanned flues) / 600mm (open flues) render only perimeter needs to be created with a sill to allow for the recess of water. For additional information please refer to the INCA Best Practice Guide (also endorsed by the European Association for External Thermal Insulation Composite Systems (EAE)).

Ensure that either of the methodologies are consistent with the boiler specification.

#### 505 AIR VENTILATION

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. Under the PAS2030 standards it is the responsibility of the surveyor and installer to identify and ventilation openings that require sleeving or safeguarding before the installation takes place.

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

For additional information refer to the following best practice guides:

- CIGA's Technician's Best Practice Guide to Flues, Chimneys, and Combustible Air Ventilators.
- NIA's Specification for the installation of External Wall Insulation Ensuring the Safety and Operation of Fuel Burning Appliances v1.0 31/03/2017

#### 510 FIRE BARRIERS

All design specification and associated fire barriers must follow the BRE guidance for designing and installing fire barriers, or document BRE Report 135. The fire barriers designed should also be consistent with the BBA Certification for this system.

#### 520 POWER CABLES

External power cables must not be covered off in any circumstances. Please refrain from using cover plates or trunking. Power cables must either be relocated or left open, visible and accessible.

#### 530 SEALANT JOINT

Where the EWI system meets the soffit, horizontal capping profile or an existing wall then consider the use of stop profiles or special stop profiles with flexible backing strips. Silicone sealant is also permitted, but should be used in conjunction with stop profiles and double sided tape where possible.

#### 540 STORAGE OF MATERIALS

Materials need to be kept in dry, damp-free and well ventilated storage facilities. Refrain from storing any render materials below 5°C or exposing them to frosty conditions. The bagged items including EWI-210, 220 and 225 needs to be stored off the ground to avoid moisture penetration.

#### 550 INSPECTION OF COMPLETED WORKS

Should you require external sign-off from the EWI Pro Insulation technical team then provide appropriate notice to schedule the visit. Works need to be inspected as soon as the works have been completed. Scaffolding needs to be present for inspections to be comprehensive and complete.

#### 560 SITE MANAGEMENT

Materials should be ordered in appropriate quantities to match the coverage areas of the project, avoid unnecessary delays due to re-deliveries and to allow for the efficient execution of the project.

The installation process should refrain a piecemeal approach to the execution of the project. Elevations should be completed in full with respect to boarding, mesh bedding and the rendering process.

Bagged, adhesive items should be mixed according to the factory instructions on the back of the bags. The quantity of water mixed to the adhesive could have minor variations depending on the contractors own professional approach and experience of the installation of the system. Clean, running water should be provided to the site at all times.

Scaffolding should be appropriately set-up (300mm from the existing wall) and subsequently enabled by an approved scaffolding contractor, consistent with current Health & Safety and Work at Height Regulations. Scaffolding should at no times be adapted by contractors on-site without proper certification, permissions, and access to system methodologies.

All temporary supports should be provided for drains, water pipes, gas pipes, electrical cables and so forth until permanent supports can be reinstated.

Ensure that drainage of running water is considered during the installation of works, until the project is completed and all drainage services have been reinstated.

#### 570 SITE CLEANLINESS

Protect all existing works, including insulation, windows, doors, external service boxes with appropriate sheeting, boarding, netting and covers.

#### 580 CONTROL OF POLLUTION

All debris and rubbish must be appropriately dispose and/or recycled if possible.

APPENDIX

Figure 1 – Additional Strengthening Around Openings

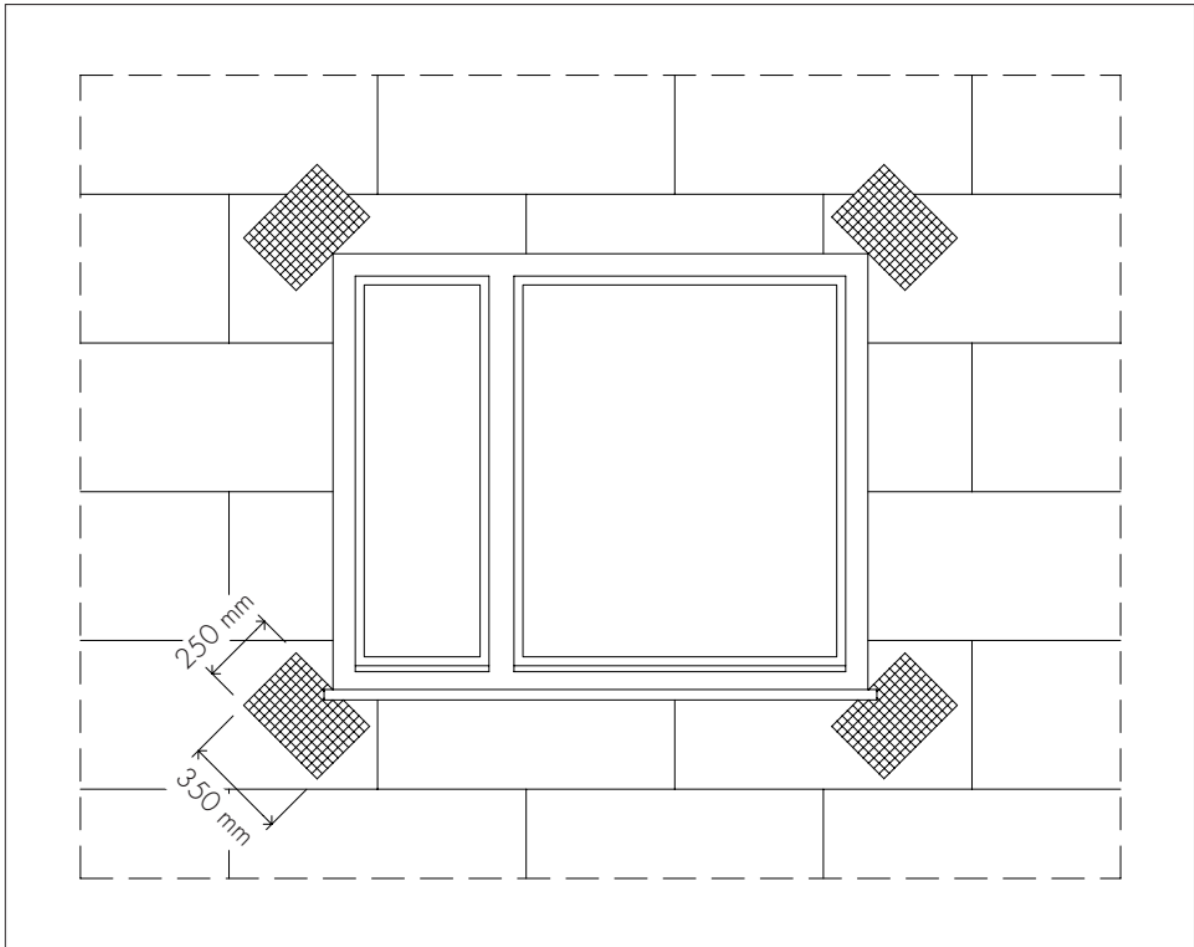


Figure 2a – Insulation Board Fixing Pattern 1

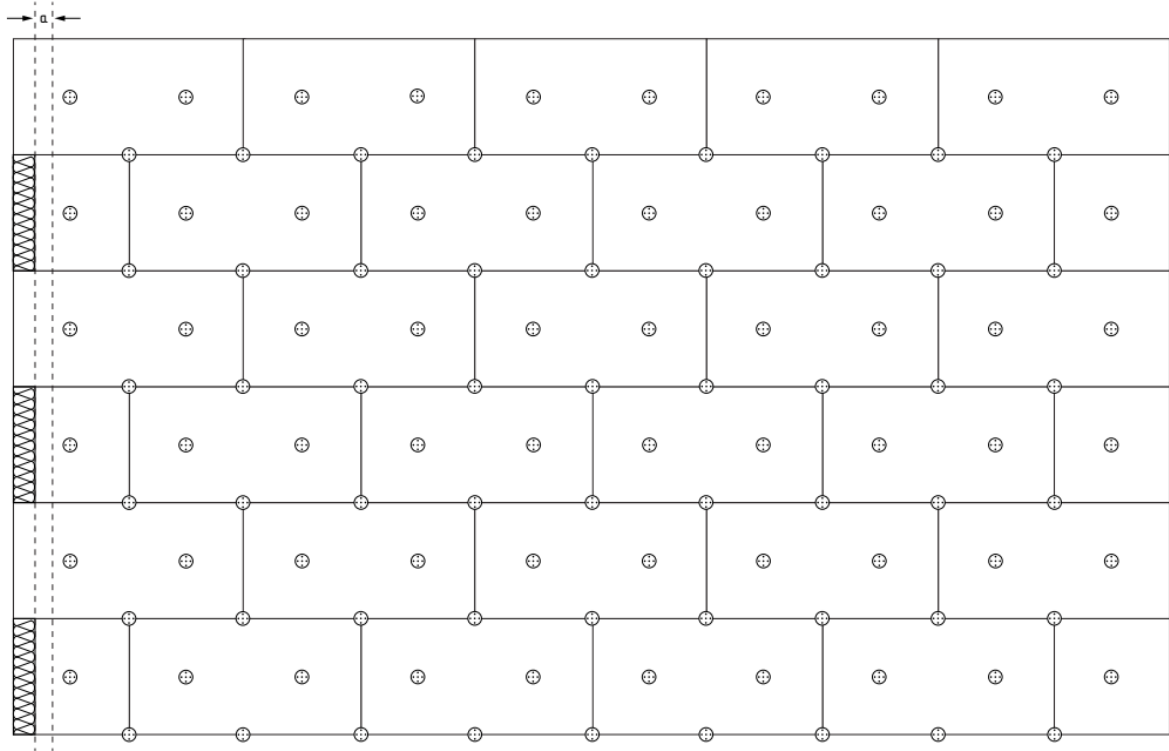


Figure 2b – Insulation Board Fixing Pattern 2

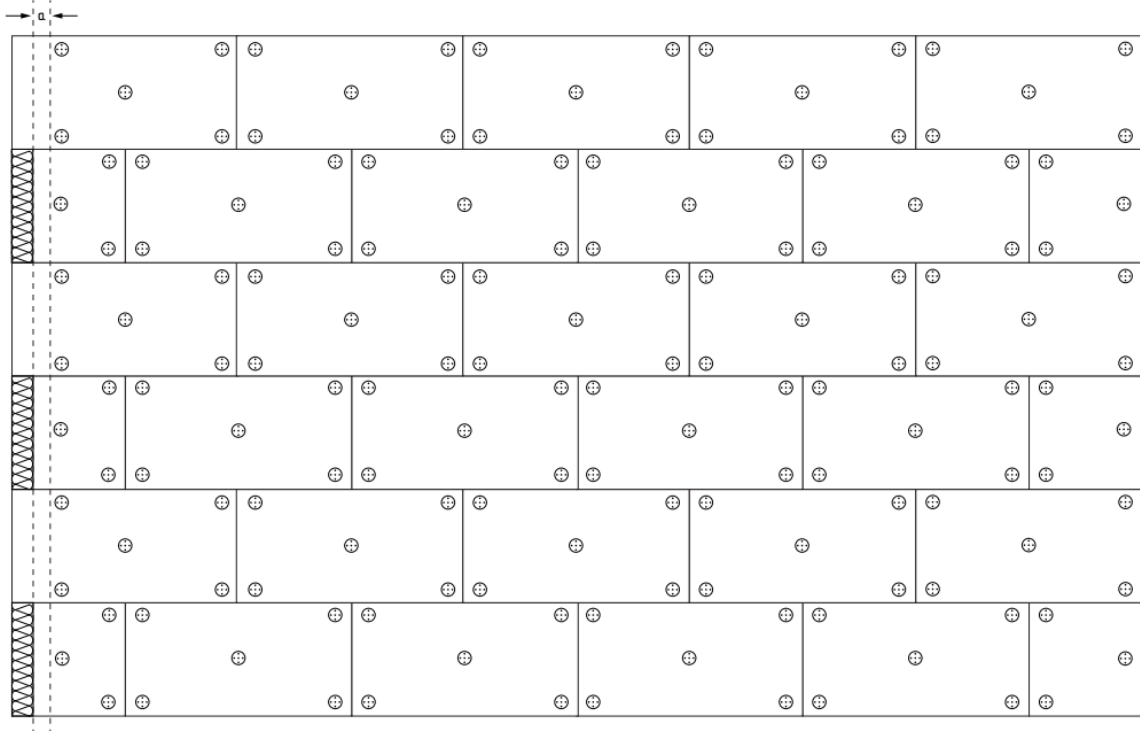


Figure 3 – Fire Barrier Details

