wetherby
creating a greener future

Specification

# Newton Heath High Rise Blocks, Manchester

Technical Helpline: 0800 1073299 01942 717100 wbs-ltd.co.uk

Wetherby Building Systems Ltd: 1 kid glove rd | golborne enterprise park | greater manchester | wa3 3gs

**18/0229**
**ETA APPROVED**
**WBS STONE WOOL SILICONE SYSTEM**

# Project Specification – PAS 2030:2019

| | |
|---|---|
| Project Name: | Newton Heath High Rise Blocks, Manchester |
| System: | Wetherby Stone Wool Silicone External Wall Insulation System |
| Substrate: | Concrete |
| Project Height: | 15 Storeys |
| Insulation to Fluted Areas: | 150mm Stone Wool Insulation |
| Insulation to Non-Fluted Areas: | 200mm Stone Wool Insulation |
| Insulation to Balcony Returns: | 30mm Stone Wool Insulation |
| System Finish: | WBS HECK Silicone 'K' 1.5mm Textured Finish |

**Technical Sales Manager:** Pat Stanley
Tel: 07703 974663
E-mail: pat.stanley@wbs-ltd.co.uk

**Technical Support Manager:** Matt Cawley
Tel: 07568 129677
E-mail: matt.cawley@wbs-ltd.co.uk

## WETHERBY BUILDING SYSTEMS

Wetherby Buildings Systems are the UK's market leading EWI system supplier, providing quality products and systems and unrivalled technical and on-site project support. We aim to provide environmentally responsible and sustainable building products of the highest quality, continually improving on our quality and system accreditations to ensure that optimum standards are met.

## WETHERBY PREMIUM CERTIFIED PRODUCTS

Wetherby Buildings Systems products and EWI systems are tested to the highest level with an unrivalled range of BBA, BDA and ETA certificates available for use on projects in the UK. All testing achieves the highest European standards, ensuring long term durability, strength and premium performance. BBA/BDA approved systems provide a minimum life expectancy of 30 years. BRE Fire Certification has also been achieved for a large number of systems, with certain certification extending to 60-year life expectancy.

## UK MANUFACTURING

Here at Wetherby, we take our responsibility to 'Buy British' extremely seriously. All of our current and potential suppliers undergo a rigorous annual assessment. Each supplier is reviewed over a number of areas including responsible procurement, product suitability, commitment to sustainability, quality etc. Only when we are completely satisfied are they included on our Supply Chain Database.

## ISO 9001, ISO 14001, & ISO 45001

Wetherby Building Systems have a strong pro-active approach to internal Quality Systems, Environmental Management Systems and Health and Safety.
Our ISO Integrated System is regularly audited internally by qualified auditors and annually by independent external auditors, Alcumus ISOQAR. This ensures consistency in the supply and quality of our materials and services, and our environmental responsibilities and targets which we take very seriously. This includes our ongoing commitment to recycle, re-use, reduce GHG's and improve products and systems alongside our partners and suppliers. The main aim is to maximise sustainability for all products and systems across our extensive range. We have a strong pro-active approach to Health and Safety. We manage all risks associated with our activities by regularly monitoring our premises, revising Risk assessments, Safe Systems of work, and Method Statements when required. We strive to provide the best training, support, and management on all our projects providing knowledge and experience throughout the task being undertaken.

Certificate Number 16512
ISO 9001
ISO 14001
ISO 45001

## TECHNICAL SERVICES

Wetherby offer a wide range of technical services to support project design and system installation. In depth NBS Specifications, project specific CAD drawings, photographic overlays, U-values and condensation / humidity risk analysis documents are all readily available via our Technical Support Team. For **Technical Enquires** please contact on **0800 1073299** or technical@wbs-ltd.co.uk

## TRAINING SERVICES AND TRAINED APPLICATORS

We provide a variety of in-depth training courses, covering all systems, to ensure that installations are completed to the highest possible standards.
For training enquires please contact: 01942 529336.
For information on our Trained Applicators please contact your Area Sales Manager as per details on page 2 of this specification.

## SITE SUPPORT, PULL OUT TESTS AND INSPECTIONS

Wetherby Building Systems offer unrivalled site support for EWI projects with 8 Site Supervisors strategically positioned across the UK. Pull out testing, product information, detailing advice and application assistance are all available from our experienced team.

## SAMPLE SERVICE

We provide a FREE sample service for all of our products and systems.
To access this service, contact our sample department on 0800 1073288 or alternatively e-mail Angela Naylor who will be more than happy to assist you with your enquiry: angela.naylor@wbs-ltd.co.uk

## GUARANTEES

Wetherby can provide a guarantee covering defects in materials on Wetherby BBA / BDA / ETA approved EWI systems installed by Wetherby recognised contractors, for the first 10 years of the system lifespan*. Extended guarantees are available for government backed schemes provided by carefully selected third party insurance partners such as SWIGA and GDGC*. Please contact Wetherby for further information.
(*conditions apply)

## CDM REGULATIONS 2015

Wetherby Building Systems provide technical support as a supplier of façade systems and we hold the position of 'designers' according to the CDM Regulations 2015. Wetherby have a number of legal responsibilities in this role when preparing or modifying designs, to eliminate, reduce or control foreseeable risks that may arise during construction, maintenance and use of a building once built. We are also obligated to provide timely information to other members of the project team to help them fulfil their duties.
Further information is contained in our CDM document (WF224) which is applicable to all designs and is available on our web site (www.wbs-ltd.co.uk/xpagex) or on request

## PAS2035:2019

The PAS2035 design process must be followed as per the PAS document "PAS 2035:2019 Retrofitting dwellings for improved energy efficiency – Specification and guidance".

It is essential the correct surveys are completed, risk assessments are carried out and the roles and responsibilities are agreed, including a Retrofit Coordinator, taking responsibility for the specific property design.

This specification must be agreed and signed off by the project specific Retrofit Coordinator, as the PAS2035 provides a whole-house approach.

## PAS 2030:2019 REQUIREMENTS

### PAS 2030:2019 PRE-INSTALLATION BUILDING INSPECTION REQUIREMENTS

- Pre-installation Building Inspection Requirements

1. To meet the requirements specified in PAS 2030:2019, the designated competent person assigned by the installer shall confirm that:

a) A full and detailed pre-design building survey has been undertaken by a competent person (see B4-I3 of the PAS), prior to the retrofit design being undertaken; and

b) The retrofit design relevant to the installation under inspection has been produced in accordance with PAS 2030:2019, taking full account of the findings and recommendations of the pre-design building assessment, including:

- thermal performance calculations
- condensation risk analysis
- ventilation requirements and standard / bespoke drawing details
- the main components of the system including the fixing type / method, the insulation type and thickness, the joint details and specifications, the reinforcing coat and type of reinforcement and the finish;
- the proposed details for the main interfaces; (thermal bridging, meter boxes, reveals, roofline joists, party walls, base detail with particular reference to below dpc, base/floor details, seals at windows/doors, seals to penetrations, light fittings, sockets, fixing and sealing of surface mounted structures, interfaces with ceilings, interfaces with roof, junctions between the system and other finishes and/or other EEM) clearly demonstrate how the installation will avoid condensation risk particularly at moisture sensitive locations such as timber joist ends and within the wall structure (interstitial/surface condensation); and
- the installation to the retrofit design is practical and achievable given the particular EWI system chosen for the project and the specific dwelling construction, site conditions and other EEMs planned for the property. (See also the Measures Interaction matrix Figure A.1).

2. As a minimum the pre-installation building inspection shall investigate and assess if the EWI installation work will:

- result in non-compliance with the Building Regulations, e.g. in relation to workmanship, materials, structural stability, fire safety;
- provide resistance to moisture. Where possible, any areas of non-compliance shall be rectified by selection of another solution/ detail, which shall be documented in the pre-installation building inspection and all contract documentation amended accordingly i.e. specification, drawings, method statement;
- result in avoidable thermal bridging; where thermal bridging is avoidable by adaptation of the detail, such measures shall be taken and the contract documents amended to suit. Design details shall be such that they incorporate additional capacity, that for example, will provide water management within the system should surface or interstitial condensation occur;

- result in unsafe operation of combustion appliances; unless an alternative safe detail can be found, EWI works shall not progress in the area causing the unsafe operation;
- compromise the functionality of existing ventilation ducts/systems; unless an alternative safe detail can be found, EWI works shall not progress in the area causing the unsafe operation;
- compromise the functionality and/or safety of existing services (gas, electric, water, telephone, etc.); unless an alternative safe detail can be found, EWI works shall not progress in the area causing the unsafe operation; and
- result in the proposed installation being non-compliant with any requirements of the EEM supplier or of the retrofit design.

3. The pre-installation building inspection shall include confirmation that the condition of the substrate is suitable for the works to commence and where all or any of the substrate does not fulfil the requirements for installation, preparation of proposals for adaptations to be made or additional preparation undertaken that will be necessary in order that works can commence.
4. All instances of potential non-compliance identified in the pre-installation building inspection shall be documented and referred to the Retrofit Coordinator for resolution. Any design adjustments, special adaptations and/or additional preparation requirements shall be confirmed as acceptable in writing, by the system supplier and/or the Retrofit Coordinator.
5. The retrofit design documentation shall be amended to include any specified changes to the installation, the installation method statement modified accordingly and the pre-installation building inspection records updated to provide documentary evidence that the intended modified installation will address all the issues identified in the pre-installation building inspection and meets the requirements of all parties.

**NOTE:** In undertaking pre-installation building inspections it is recommended that Installers consider using an industry recommended checklist e.g. the External Wall Insulation pre-installation building inspection checklist [N7] (see 10.7.1).

## PAS 2030:2019 ADDITIONAL INSTALLATION REQUIREMENTS

The Installer shall ensure that the methods used for the installation of external wall insulation (EWI) products or systems are as recommended by the system supplier and in accordance with the relevant retrofit design and incorporated in the installation method statement.

In undertaking the installation, the installers responsibilities shall include:

a) Before installation starts, confirming that the retrofit design has made provision for ensuring that:
- the EWI system provided for installation is that recommended by the pre-design building survey and specified by the retrofit design;
- wind loads have been calculated and taken into account in the fixing requirements;
- all essential ventilation openings that require sleeving or safeguarding before installation are located and identified;
- the position of all flues whether or not they are in service is determined and the measures that shall be taken to safeguard their proper functioning is determined;
- any existing cables, pipework, ducting etc. that require it are removed or repositioned as/where necessary to accommodate the planned EWI system, with authorization from the relevant responsible body (where required) and undertaken by a person competent to undertake such work;
- the existing ground levels, paths or decking adjacent to the dwelling are 150 mm below the level of the damp proof course; and
- other areas of the dwelling and surrounding area that could be at risk during installation are adequately protected to ensure they are not damaged.

In the event that any of these aspects is not adequately covered, liaising with the Retrofit Designer to provide for their undertaking.

b) During installation, ensuring that:
- all work is carried out in accordance with the site-specific retrofit design, drawings and method statement and that work is not permitted to progress unless copies of the site-specific specification documentation are accessible at location and all operatives are aware of the content and requirements relevant to their designated activities;
- the system and all detailed interfaces with other parts of the dwelling or other planned EEMs to be undertaken in a manner and sequenced such, that all measures are fully effective, with optimized performance and junctions that are safe, durable and fully weatherproof for all expected exposure conditions. e.g. interface between EWI system and planned replacement windows; and
- whether or not specifically required by the retrofit design, the items listed in **i** to **viii** below are given particular attention with regard to the efficacy and durability of the detail especially concerning the management and exclusion of moisture and/or the risk of surface/interstitial condensation or rising damp. Mastic sealants shall always be supported by a primary seal below, and all details shall be fully weatherproof:

i. system base detail (including below dpc);
ii. interfaces with roofs at eaves and verges (where metal or plastic cappings and trims shall not be used);
iii. window/door reveals/heads;
iv. system/cill interfaces (incl. overhang requirements/weepholes/thermal movement);
v. surface fixtures (structurally sound);
vi. penetrations through the system;
vii. interfaces with roof soffits, flat roofs, conservatory roofs etc.; and
viii. detailing and sealing around vents/flues, meters and other heating related structures/pipework.

PLEASE REFER TO WETHERBY PAS2030:2019 DETAIL DRAWINGS FOR GUIDANCE

- all weather seals at the interface between EWI systems and other structures/finishes are installed with particular attention given to the soundness/cleanliness of contact surfaces, continuity and effectiveness around corners, bond to surfaces and the durability of the water seal;
- all details are installed to minimize the risks of thermal bridging, removing/relocating/extending to allow continuity of insulation in all cases e.g. rooflines, meter boxes, pipework, flues, ducts;
- photographic evidence of key stages of the installation is prepared and retained for the period of the guarantee, including close up photographs of representative examples of all moisture and thermally sensitive details;
- installations are undertaken in accordance with the specification for the installation of external wall insulation ensuring the safety and operation of fuel burning appliances, taking account of the recommendations provided in the document External wall External Wall Insulation Specification for Weathering and Thermal Bridge Control [N1] (see 10.7.1);
- ventilation of the dwelling is assessed and if necessary upgraded in accordance with the retrofit design and with the requirements of PAS 2035; and
- upon completion of the installation or at the end of each working day, if the installation takes longer than one day, the operatives investigate and confirm the proper functioning of all ventilation openings and flues.

**NOTE 1** The relevant installation methods will have been included under current certification issued by a product certification body, with respect to the product/system to be installed, against UK requirements and regulation and the installer should be aware that training from the supplier or training acceptable to the supplier is necessary before an application for assessment/certification is made to a certification body.

**NOTE 2** Attention is drawn to the need, where relevant, for all external wall insulation installation work to comply with the current Building Regulations that apply in the UK country in which the installation is being carried out. In particular, the need for compliance in relation to the following aspects is highlighted: fire safety; resistance to moisture; ventilation; and conservation of fuel and power. Further guidance on the requirements of the Building Regulations in England is provided in Approved Documents A-P [N2] and Regulation 7: Workmanship and Materials [N3]. Further guidance on the requirements of the Building Regulations in Wales is provided in Approved Documents A-R [N4] and guidance on Regulation 7: Workmanship and Materials [N3]. Further guidance on the requirements of the Building Regulations in Scotland is provided in the Domestic Technical Handbook [N5] and Non-Domestic Technical Handbook [N6].

## PAS 2030:2019 INSTALLER COMPETENCE RATIO

For each installation task to be undertaken, the installer shall employ or subcontract at the particular location, at least one vocationally competent operative. For each installation, the vocational competence ratio (see 3.28) shall be determined by the installer in relation to the:

a) range, scale, geographical spread and complexity of the work being undertaken; and
b) supervision and experience of the individual that meets the vocational competence requirements for the relevant tasks and the relative experience of the operatives being supervised;

but shall not be less than one carded operative per team of 4 (1 to 3), at the specified installation location at any time.

**NOTE 1** Where a vocationally competent operative is newly qualified, it may be appropriate for a lower competency ratio to be applied.

For each installation task to be undertaken at a particular location, supervision, inspection and confirmation of compliance of all work undertaken in respect of that task at that location shall be undertaken by a vocationally competent operative appointed by the installer to do so.

**NOTE 2** It is recommended that vocationally competent operatives carry a document supporting the nature, currency and source of that competency, for production upon request.

# WETHERBY STONE WOOL SILICONE SPECIFICATION

## M21
## Insulation with rendered finish

To be read with Preliminaries/General Conditions.

This specification is valid for 6 months from issue date, due to the changing industry regulations and requirements.
For an updated version of the specification please contact the relevant technical sales manager.

This specification is specifically for the named project and is not transferable to other projects, projects require specific custom specifications, please contact Wetherby Technical departments for further information.

### GENERAL / SYSTEM REQUIREMENTS

**100 REMOVAL OF EXISTING SYSTEM**

- The existing system is to be fully removed before installation of the new system.
- A survey must be carried out following removal to assess the structural stability of the blocks, identifying areas requiring repair before the new Wetherby EWI system is installed.
- All repairs must be completed prior to the insulated render system being installed and signed off by a Wetherby Site Supervisor.
- Project specific detailing will be required on removal of the system.

**120 SURVEY OF EXISTING WALLS**

- Timing: Before starting work covered in this section.
- Objective: To confirm suitability for application of external wall insulation system.
- Survey report: Submit, covering all relevant matters listed below:
  - The form and condition of the structural substrate.
  - A schedule of repairs and / or additional works necessary to render the substrate suitable to receive the system.
  - A schedule of services, fixtures and fittings requiring removal to facilitate installation of the system.
  - Proposals for treatment of potential cold bridges e.g. reveals, concrete floor edges.
  - Remove existing rainwater pipes and re-direct away from work surface whilst work proceeds. Ensure all rainwater from the roof area is carried away from the work area by means of temporary fixed rainwater goods.
  - Remove, extend beyond the surface of the proposed system and securely re-fix, to the satisfaction of the supervising officer, soil stacks, waste water pipes, overflows, vent pipes etc.
  - Any other information considered relevant.

**150 WIND LOADING**

- When installed on suitable walls, the system can adequately transfer to the wall the self-weight and negative (suction) and positive (pressure) wind loads normally experienced in the United Kingdom.
- Wetherby or the fixing manufacturer will undertake fixing pull out tests on site to verify the adequacy of the fixings.
- Wetherby will provide information on the system dead load weights on request to allow an independent check to be made of the substrates adequate strength and suitability.
- On projects where higher wind load coefficients are expected, wind load calculations are required in order to establish the minimum number of fixings required per m² to resist the maximum wind loads acting on the building. In order to do this, wind loads must be calculated by a suitably qualified and experienced structural engineer in accordance with BS EN 1991-1-4:2005 and provided to Wetherby. Wetherby will then confirm an adequate fixing pattern for the project.

**160 REMEDIAL WORK**

- Remedial work shown to be necessary by survey: Employer's responsibility.

**180 STRUCTURAL SUBSTRATE**

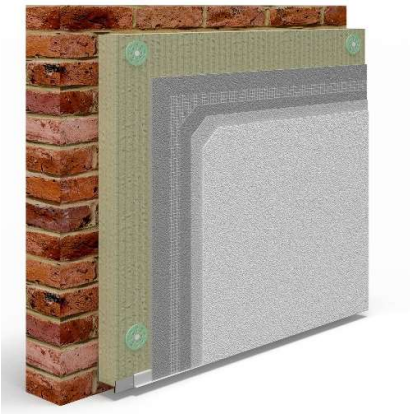
- Description: Concrete.

- Preparation:
  - Treatment to Existing Sound Surfaces
    Remove any existing loose material and where required dub out the surface level, ready to receive the EWI system. The existing walls are to be cleaned with a wire brush or pressure jet wash, to the satisfaction of the Contract Administrator, to remove any friable material, algae or lichen, and to provide a good key for Wetherby products. Treat areas of moss, algae and mould growth with WBS Biocidal Wash. Dense smooth surfaces may require treating with WBS Stabilising Solution / Bonding Agent to ensure adequate adhesion on wet fix or render only applications.
  - If the walls include existing render or the substrate isn't line and level and requires dubbing out, the fixing lengths stated within this specification may need to change. This will need to be confirmed on site prior to the installation of the Wetherby system. Sizing of flashings, trims and beads may also require alterations.
  - Dubbing Out
    Where necessary dub out, using Wetherby Adhesive, any hollow / defective areas to leave a suitable surface for the application of the insulation boards. Maximum dubbing coat thickness: 16mm.
  - Biocidal Wash
    Where required, apply one coat of Wetherby Biocidal Wash to the entire surface by roller or knapsack spray and allow to dry. Brush the surface to remove all signs of growth before rendering commences.
  - Stabilising Solution
    Where required, apply one coat of Wetherby Stabilising Solution to the entire surface by roller, ensuring uniform coverage and allow to dry.

**210A EXTERNAL WALL INSULATION SYSTEM**

- **Manufacturer**:
  **Wetherby Building Systems Ltd.**
  1 Kid Glove Road
  Golborne Enterprise Park
  Golborne
  Greater Manchester
  WA3 3GS
  Tel: 01942 717100
  Fax: 01942 717101
  Email: info@wbs-ltd.co.uk
  Web: www.wbs-ltd.co.uk

- System Reference: **Wetherby Stone Wool Silicone External Wall Insulation System**.



- Insulation: WBS Stone Wool Insulation Boards.
  - Thickness to Fluted Areas: 150mm.
  - Thickness to Non-Fluted Areas: 200mm.
  - Thickness to Balcony Returns: 30mm.
  - Board Size: 1200 x 600mm.
  - Minimum Compressive Strength: 10 kPa.
  - Thermal Conductivity: 0.036 $Wm^2/K$.
  - Performance in Relation to Fire:
    - Class A1 (BS EN 13501-1:2002).
    - Non-combustible.
  - Environmental:
    - CFC / HCFC Free.
    - Zero ODP.
    - GWP Less Than 5.

- Fixing: Mechanical and Adhesive.
  - Insulation Adhesive: WBS Insulation Bedding Adhesive.
  - Initial Fixing Type for 150mm Insulation to Fluted Areas: 4 fixings per insulation board TFIX-8S x 215mm (subject to pull out tests).
  - Initial Fixing Type for 200mm Insulation to Non-Fluted Areas: 4 fixings per insulation board TFIX-8S x 255mm (subject to pull out tests).
  - Initial Fixing Type for 30mm Insulation to Balcony Returns: 4 fixings per insulation board TFIX-8M x 95mm (subject to pull out tests).
  - Fixings must achieve a minimum pull out of 1.0kN.

- Insulation to Reveals: TBC.
  - Thickness: TBC.
  - Fixing: TBC.

- Protective Scrim Adhesive Coat (If Required).
  - Reinforcement Adhesive: WBS Heck K+A Scrim Adhesive.
  - All board edgers must be protected to prevent water ingress into the Stone Wool insulation.
  - Where boards are to be left exposed, 1-2mm tight coat to be applied over all Stone Wool Insulation on the day of the board being fixed, ensuring all Stone Wool Insulation is coated and protected from moisture.
  - Stone Wool insulation must be fully dry before basecoat is applied.

- Movement Joints: As Per Drawings.
  - Vertical Movement Joint Ref: WBS 80/80SS 10mm Stainless Steel Movement Joint.
  - Horizontal Movement Joint Ref: WBS RCJT & RCJB Horizontal Compression Joint.
  - Movement joints must be used to replicate any structural movement in the existing substrate to be adequately designed for the building's movement as per site survey / Structural Engineers report.
  - All beads must be fully meshed in.

- First Reinforcement: WBS Alkali Resistant Scrim Cloth incorporated into top third of the WBS Heck K+A Scrim Adhesive.
  - Reinforcement Adhesive: WBS Heck K+A Scrim Adhesive.

  - Main Fixing through mesh: As per fixing pattern at the back of this specification.
  - Main Fixing for 150mm Insulation to Fluted Areas: TFIX-8S x 215mm (subject to pull out test).
  - Main Fixing for 200mm Insulation to Non-Fluted Areas: TFIX-8S x 255mm (subject to pull out test).
  - Main Fixing for 30mm Insulation to Balcony Returns: TFIX-8M x 95mm (subject to pull out test).

  - Stainless Steel Secondary Fixing: Required at a rate of 1 per $m^2$.
  - Stainless Steel Fixing Type for 150mm Insulation to Fluted Areas: TID-MR 8/35 x 200mm (subject to pull out test).
  - Stainless Steel Fixing Type for 200mm Insulation to Non-Fluted Areas: TID-MR 8/35 x 250mm (subject to pull out test).
  - Stainless Steel Fixing Type for 30mm Insulation to Balcony Returns: TID-MR 8/35 x 80mm (subject to pull out test).
  - Secondary mechanical fixings are required on all projects 2 storeys and above as per BRE Report BR135:2013.
  - NHBC require in all cases that a minimum of one non-combustible fixing is installed through the reinforcement mesh per insulation board, in addition to other fixings.

- Second Reinforcement: 100mm x 100mm Fixing Mesh Patch incorporated into top third of the WBS Scrim Adhesive.
  - Reinforcement Adhesive: WBS Heck K+A Scrim Adhesive.

- Decorative Finish.
  - Wetherby Primer: Solvent free pigmented bonding primer in a colour to match the finish coat.
  - Wetherby Finish Coat: HECK Silicone 'K' 1.5mm Textured Finish.
  - Colour: TBC.

- Beads / Trims / Accessories.
  - Full System Beads / Trims:
  - Wetherby Starter Track Ref: WBS 9214RB (90815) 150mm Aluminium Base Rail with WBS 9121 10mm Profile Clip.
  - Wetherby Starter Track Ref: WBS 9218 (90820) 200mm Aluminium Base Rail with WBS 9121 10mm Profile Clip.
  - Wetherby Starter Track Ref: WBS 9143 (90603) 30mm Aluminium Base Rail with WBS 9121 10mm Profile Clip.

  - Wetherby Full Depth Stop Bead Ref: WBS 9255 (93315) 150mm Aluminium Full System Stop Profile.
  - Wetherby Full Depth Stop Bead Ref: WBS 9260 (93320) 200mm Aluminium Full System Stop Profile.
  - Wetherby Full Depth Stop Bead Ref: WBS 9243 (93303) 30mm Aluminium Full System Stop Profile.
  - Mechanical Fixing: WBS HIT 6/5 Hammerscrew Bead Fixing.

  - Wetherby Roof Detail: TBC.
  - Specialist flashing or WBS 781 type trim to be used subject to roof design, ensuring a minimum 40mm overhang and a long-lasting watertight detail (approval required from Wetherby).
  - The top of the system must be protected at all times during installation, using temporary capping protection where required.

  - Wetherby Cills: Type TBC.
  - Specialist Cills to be designed and installed to provide a minimum 40mm overhang.
  - Cill manufacturer to design and advise on Cill type, end caps and fixing.

  - Surface Render System Beads:
    - Wetherby Corner Bead Ref: WBS 9075 Aluminium Corner Bead with Mesh.
    - Wetherby Render Bellcast Bead Ref: WBS 413SS 13mm Stainless Steel Bellcast Bead.
    - Wetherby Render Stop Bead Ref: WBS 80SS 10mm Stainless Steel Stop Bead.
    - Wetherby Movement Joint Ref: WBS 80/80SS 10mm Stainless Steel Movement Joint
    - Wetherby APU Frame Seal Ref: WBS APU 37909 PVC Frame Seal.

- Accessories:
  - WBS Sealing Tape: Pre-compressed, expanding waterproof sealing tape.
  - WBS Firtree Fixings.
  - WBS Approved Fire Rated Silicone Sealant.
  - WBS 100mm x 100mm Fixing Mesh Patches.

**N.B. Beads / trims may need to be altered depending on site inspections and job specific detailing / application.**

**310 DESIGN**

- Complete the detailed design of system and associated features shown on drawings:
  Complete to meet requirements of this specification. Refer to Wetherby detail drawings.
- Please note all compliance needed to meet Building and Fire Regulations is the responsibility of the principal designer/ main contractor.
- Detailing of system junctions & ancillary items are to be agreed by all parties.

**320 INTEGRITY**

- Installation Requirements:
  - Weathertight under all anticipated conditions.
  - Capable of resisting all dead loads and design live loads, including impact and wind loads, and accommodating all thermal movements without damage.

**330 IMPACT LOADING**

- Impact Resistance of Finished Walls: Resistance to hard body impacts (3 joules to 10 joules) and to perforation.

**340 WIND LOADING**

- Design Wind Loads: The system shall be designed to withstand all design wind loads.

**360 SAMPLES**

- Procedure: Submit samples / examples of designated items for approval. Keep approved samples on site for the duration of the contract for inspection / comparison purposes.
- Designated items: Textured sample of Wetherby Silicone Finish.

**370 UNIFORMITY OF COLOUR AND TEXTURE**

- Type / proportion of constituent materials: Unchanged once samples of coatings have been approved.
- Supplies of materials: Sufficient to give consistent and uniform colour and texture.
- All materials shall be manufactured and supplied in accordance with BS EN ISO 9001: 2008.
- WBS renders and mortars are pre-blended during the manufacturing process by the supplier, although care should be taken to ensure colour uniformity between individual batches of material.

**380 LIGHTNESS**

- It is advised that Silicone Textured Render Systems for application over insulated render backgrounds shall be selected in colour(s) with a lightness factor of >20. Should the lightness factor of the selected colour(s) be <20, please contact the Wetherby Technical Support Team for further information.

**390 AVOIDANCE OF COLOUR SHADING**

- To minimise the risk of variations in colour shade and to avoid dry line jointing, decorative finishes should be applied continuously without a break.
- Where breaks are unavoidable, they should be made where services or architectural features such as the lines of doors, windows, reveals or drainpipes help to conceal the position of the joint. Surface render beads can be used to provide a clean break in the render.
- Material sharing the same batch number should be used to complete an entire elevation where possible.
- Material with different batch numbers should be checked for colour consistency.

**410A INSTALLATION**

- Installer: The system shall be installed by a specialist contractor approved for the project by Wetherby Building Systems.

**415A WBS STONE WOOL SILICONE SYSTEM APPLICATION**

**Base Bead**

Securely fix Wetherby starter track with profile clip above DPC level at base of the system. Mechanically fix starter track at max. 300mm centres, 50mm from each end. WBS 3756 base rail connectors should be used to join the tracks, packing shims may be required to ensure the starter track is true to line and level. Any gaps behind the basetrack allowing free air movement behind the insulation should be sealed appropriately.

**Full System Stop Bead**

Securely fix Wetherby full system stop beads on WBS Sealing Tape to the extent of the system and its abutment to untreated areas i.e. meter boxes, rising service supplies or any other untreated abutment. Stop beads are to be fixed at max. 300mm centres, 50mm from each end. A continuous bead of WBS Approved Fire Rated Silicone Sealant must be applied to seal the stop bead to the substrate.

**Roof Detail**

Where the existing roof does not provide an adequate overhang to the EWI system (minimum 40mm), a specialist roofing profile must be sought to provide adequate protection. Alternatively, the roof must be extended as necessary to provide overhang to the EWI system.

To reduce cold bridging, the existing soffit board may need to be removed and the system taken up the entire wall to ensure continuity with loft insulation. It is critical that any ventilation is maintained. Please see Wetherby PAS 2030:2019 detail drawings for further information.

**Cills**

Securely fix cills, ensuring they are secure and provide a water tight detail to protect the EWI system. Apply WBS sealing tape and WBS Approved Silicone Sealant as per Wetherby PAS2030:2019 detail drawings.

**WBS Insulation Bedding Adhesive**

Trowel apply WBS Insulation Bedding Adhesive to the entire face of the insulation boards. The bedding adhesive shall be of sufficient thickness in which to bed and level the insulation boards. The adhesive must be applied immediately before the insulation boards are offered to the wall to ensure a good bond, a minimum 10mm notched trowel must be used to ensure an adequate thickness of adhesive. Insulation boards must be fully bedded into the adhesive and laid as true to line as possible. A fixing should be installed through the centre of each board to hold in place whilst the adhesive dries

**Application of Stone Wool Insulation Boards**

Position and securely fix the Stone Wool insulation boards to the substrate. The boards should be tightly butt jointed, laid with staggered joints and overlapped at building corners. Board joints should not occur within 200mm of the corners of openings. Board pieces narrower than 200mm shall not be used. Where the insulation butts up against dissimilar materials, supply and install WBS Sealing Tape and ensure the boards are fitted tight against the seal, ensuring full compression of the tape.

**Initial Fixings of Insulation Boards**
Fix boards mechanically to the substrate using approved WBS fixings at a rate of 4 per insulation board.
Fixings shall be installed so that the fixing head embeds 1-2mm in to the face of the insulation board surface.

**Protective Scrim Adhesive Coat (If Required)**
Apply a protective scrim coat at 1-2mm where required to prevent water ingress into the Stone Wool insulation. The board edges must be protected to ensure no water ingress into the Stone Wool insulation. Where boards are to be left exposed, a 1-2mm tight coat is to be applied over the face of the Stone Wool Insulation. The insulation must be fully dry before basecoat is applied.

**Movement Bead / Slip Joints**
Fix movement beads / slip joints at agreed locations using WBS approved fixings. Structural movement joints must be mirrored through the EWI system.

**Surface Mounted Render Beads**
Fix surface mounted render beads directly to the insulation board at required locations using WBS Firtree Fixings. A continuous bead of WBS Approved Fire Rated Silicone Sealant must be applied to seal the surface mounted render stop beads.

**Existing Air Vents, Grilles etc.**
Identify live or used air vents, grilles etc. and extend through the insulation system as work progresses.

**APU Beads**
Install APU beads around openings where required in accordance with Wetherby PAS 2030:2019 detail drawings. Beads must be applied to a clean surface to ensure optimum adhesion.

**Angle Bead**
Fix by bedding into first pass of scrim adhesive, angle beads with glassfibre mesh reference WBS 9075 to all external building corners, window / door jambs and heads.

**Alkali Resistant Glassfibre Scrim Coat**
Trowel or machine apply a 4-6mm thick coat of scrim adhesive to the entire surface of the insulation boards. Lightly run a notched trowel through the scrim adhesive at a 45 degree angle to ensure the correct thickness of adhesive is applied. Bed WBS Alkali Resistant Scrim Cloth into top third of the wet adhesive, overlapping joints by 75mm minimum (ensuring mesh cloth isn't over embedded). The scrim cloth must be overlapped around all building corners, stop beads, movement beads and returned into all reveals and heads. All beads must be fully scrimmed in. Install additional 250mm x 300mm minimum pieces of scrim cloth diagonally across corners of all wall window and door openings including for any utility box areas.

**Insulation Fixings through Mesh**
Fix boards mechanically to the substrate using approved WBS fixings as per the WBS fixing pattern (fixing pattern located at the back of this document). Fixings shall be installed through the wet WBS scrim adhesive and WBS alkali resistant mesh, fixings must be pulled into the adhesive approx. 1-2mm from the insulation face. Additional fixings should be installed to ensure a maximum of 300mm centres at either side of building corners and around all openings. Install stainless steel secondary fixings through the scrim adhesive and alkali resistant scrim cloth whilst wet. Install 100mm x 100mm Fixing Mesh Patches over all fixing heads into top third of the wet adhesive (ensuring mesh cloth isn't over embedded). Finally smooth out scrim adhesive using a spatula. Allow sufficient drying time before applying second layer of scrim adhesive.

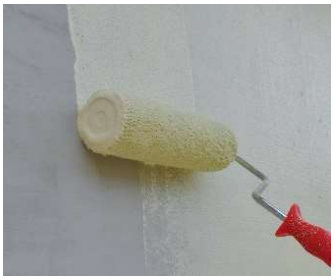
**Scrim Adhesive Coat (Second Application)**
Trowel or machine apply a further 2-3mm thick coat of scrim adhesive to the entire surface of the first pass of basecoat and mesh cloth (once dry). Level the scrim adhesive using a spatula / speed skim. As the basecoat tightens remove any lines / ridges using a purpose made sponge float to achieve a uniform flat and even surface ready to receive the WBS final finish. Ensure all fixings and mesh are fully covered and are not visible.

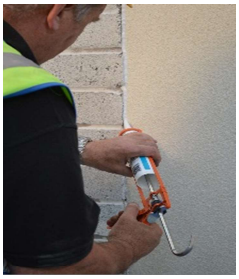
Allow sufficient drying time before applying the Primer. Cold conditions and high humidity will result in the basecoat taking longer to dry / cure. The basecoat must be fully hardened with no signs of moisture visible. Moisture trapped in the basecoat can potentially damage the curing of the Primer / Render causing failure after completion of the system.

**Silicone Primer**
Apply Wetherby Primer with a brush or lamb's wool roller as per manufacturer's printed instructions. Allow Primer to fully dry, minimum 12 hours.

**Silicone Render Finish**
Mix and apply Wetherby Silicone Textured Finish strictly in accordance with the manufacturer's printed instructions. The top coat should be applied with a stainless steel trowel to the thickness of the grain and finished with a plastic float. Apply in a continuous application always working to a wet edge and in the same direction to ensure consistency of finish. Wherever possible, entire elevations should be completed in a single operation to avoid joint marks in the finish. This can often be achieved by working to natural breaks in the building or working to breaks in colour or texture.

Do not apply Wetherby Silicone Textured Finish with differing batch numbers on the same elevation. Care should be taken to avoid texture changes at different levels. Prior to setting, polish render with plastic float to give an even texture and remove all trowel marks.





**Silicone Sealant**
Gun apply a continuous bead of WBS Approved Fire Rated Silicone Sealant at points where the renders will butt up against other materials, e.g. window frames, door frames, eaves, fascia's, projecting wall vents, gas and electric meter boxes etc. ensuring water tightness. Surfaces must be clean and suitable for the application of the Silicone Sealant which must be installed as per manufacturers guidance.

**Cleaning**
Wipe clean all exposed nosing, cills etc., at each work stage whilst render is still wet.

**Application Videos**
Wetherby have detailed application videos available online, please see http://www.wbs-ltd.co.uk/videos/.

## 420 ADVERSE WEATHER

- Materials / Surfaces: Do not use frozen materials and do not apply materials to frost bound substrates.
- Adhesives / Mortars / Renders: Do not apply when air temperature is at or below 5°C. Render products may be applied where temperatures are above 3°C on a rising thermometer and are forecast to stay above 5°C for an extended period on the same day.
- Adhesives / Mortars / Renders: Do not apply when relative humidity is equal to or greater than 90%.
- Do not apply materials when the air temperature or wall surface is in excess of 30°C without protection of the surface.
- Temperature of the work: Maintained above minimum level recommended by manufacturer until adhesive / mortar / render has fully hardened.
- Drying Times: Drying times of decorative finishes, particularly pre-mixed water based materials, may be greatly extended during periods of low temperature and / or high relative humidity 90% and above.
- Newly rendered surfaces: Protect newly rendered surfaces against rain, snow or other precipitation. Ensure that material is protected from frost, wash-offs etc.
- Application of renders, mortars or decorative finishes shall not be carried out on elevations where summer strength sunlight is hitting the area square on for prolonged periods without affording protection.
- Coatings damaged by rain or frost: Remove and replace.

## 440 ON SITE PULL OUT TESTS ON FIXING PINS

- Objective: To prove suitability of structural substrate and determine size and number of fixings required.

## 490 CONSTRUCTION / MOVEMENT JOINTS / SLIP JOINTS

- Location: As shown on drawings.
- Formation: Accurately to detail.
- Modifications to joint locations / design: Agree revisions before proceeding.
- All structural movement joints must be mirrored through the EWI system.

**500 FLUES, CHIMNEYS AND COMBUSTION AIR VENTILATORS**

Reference to be made to CIGA's Technician's Best Practice Guide to Flues, Chimneys and Combustion Air Ventilators, or to the Specification of External Wall Insulation ensuring the Safety and Operation of Fuel Burning Appliances, so that the performance and safety of fuel burning appliances is not compromised by the installation of the EWI measure.

- The combustion air supply must be isolated and air ventilator continuously sleeved through the wall.
- Flueless gas fires require a ventilator that provides a free air area of 10,000 mm². Under PAS 2030, both surveyor and installer have strict responsibilities placed upon them when it comes to the identification and safeguarding of essential ventilation requirements. Failure to comply will result in PAS 2030 being revoked. Please refer to Wetherby document **WBS-VENTINFO-01**.

With regards to gas flues there are two methods of installation, either a clear gap is left around the flue (300mm for fanned draught flues / 600mm for natural draught flues) or a 200mm non-combustible insulation slab installed around an extended flue. While WBS includes both alternatives in their detail drawings, main contractors and installers must ensure the chosen method is approved in conjunction with the boiler manufacturer's specification.

**515 LIGHTNING CONDUCTOR**

- Should be relocated to the surface of the system or fix Stone Wool insulation strip around the lightning conductor. Alternatively notch the back of the insulation board to allow for movement of lightning conductor leaving a 10mm gap as per Wetherby detail drawing.

**520 SUPPORTS FOR SERVICES / FITTINGS**

- Supports for soil and rainwater pipes, signs, CCTV cameras etc. Provide in locations shown on the drawings.
- Sleeved fixings shall be installed into the load-bearing background after completion of the render works in accordance with Wetherby recommendations.
- No load is to be transferred to the insulated render system.

**528 EXTERNAL POWER CABLES**

- External power cables must not be covered over by the EWI system or cover plates in any circumstances. Power cables must be relocated, left open and visible or suitably & safely enclosed with guidance from the power distribution authority.

**530 SEALANT JOINTS**

- Sealant: WBS Approved Silicone Sealant.
- Joints: Formed in accordance with section Z22 and system manufacturer's recommendations using any necessary joint fillers, backing strips etc.
- Sealant should be regularly checked and replaced as required. Sealant is not covered as part of the Wetherby system warranty.

**540 STORAGE OF MATERIALS**

- Adequate dry weatherproof and ventilated storage shall be provided for materials.
- All materials shall be protected against frost.
- Insulation boards must be kept dry at all times.
- Cementitious products shall be stored off the floor.
- Renders to be stored in temperatures of at least 5°C.
- Materials should be protected from prolonged exposure to sunlight.

**550 INSPECTION OF COMPLETED INSTALLATION**

- Timing: As soon as possible after completion of the work and before removing scaffolding.
- Notice for inspection (minimum): 7 working days.
- Defects: Report immediately.
- Onsite inspections for high rise projects are imperative. Each installation stage must be checked, signed off and documented or the Wetherby warranty will be void.

**570 MATERIALS AND SITE CONDITIONS**

- All materials shall be provided for the proper and efficient execution and completion of the works.
- Materials shall be mixed, applied and fixed in accordance with the relevant clauses of the specification and the manufacturer's instructions.
- A clean, fresh supply of water shall be provided for the works, via the management contractor.
- Suitable scaffolding that has a minimum gap of 300mm (all scaffold items) from the elevation surface in order to facilitate application requirements, shall be provided, erected, maintained and later removed for the proper and efficient execution and completion of the works.
- All necessary temporary supports for drains, water pipes, gas pipes, electrical cables and telephone cables shall be provided and maintained until the permanent supports are reinstated.
- Temporary flexible tubing shall be provided for the efficient discharge of rainwater from the buildings to protect the system during the progress of the works.

**580 CLEANLINESS OF WORKS**

- Protect all existing works, approaches and adjacent surfaces including windows and doors etc. using suitable sheeting, boards, covers etc.
- Remove all splashes, droppings etc. from completed works immediately and before drying takes place.

**590 CONTROL OF POLLUTION**

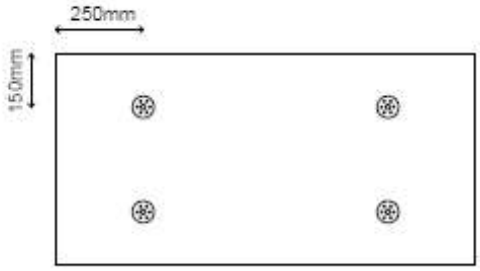
- All debris and rubbish arising from the works shall be removed off site from time to time to keep the site and works clean and tidy. All measures shall be taken to control the noise levels produced by the operatives on site to comply with the Control of Pollution Act. Precautions should be taken to prevent pollution of any river watercourse, reservoir, drainage or the like by the operatives on site.

## 600 MAINTENANCE

- An initial inspection should be made within 12 months and regularly thereafter to include:
  - visual inspection of the render for signs of damage. Cracks in the render exceeding 0.2 mm must be repaired. Impact damage must be repaired to prevent moisture ingress into the system.
  - 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, as such leakage could stain or penetrate the rendering.
  - Sealant joints at window and door frames, etc which must be replaced as required. Sealant is not covered as part of the Wetherby warranty.
- Maintenance schedules must be created and maintained for the building, which should include any repairs undertaken and the replacement and resealing of joints (for example, between the insulation system and window and door frame). **Please see Wetherby High Rise Maintenance Information**.
- The render may become discoloured with time, the rate depending on the initial colour, the degree of exposure and atmospheric pollution, as well as the design and detailing of the wall. In common with traditional renders, discoloration by algae and lichens may occur in wet areas and can be removed simply with a biocidal wash.
- Damaged areas must be repaired using the appropriate components and procedures detailed in the Certificate holder's installation instructions and in accordance with BS EN 13914-1: 2005. Please see **Wetherby High Rise O&M Manual** for further details.
- Regular maintenance/ repairs where required must be carried out to ensure the system warranty is not indicated.

## Wetherby EWI Fixing Pattern (Subject to Pull Out Tests & Wind Load Calculations)

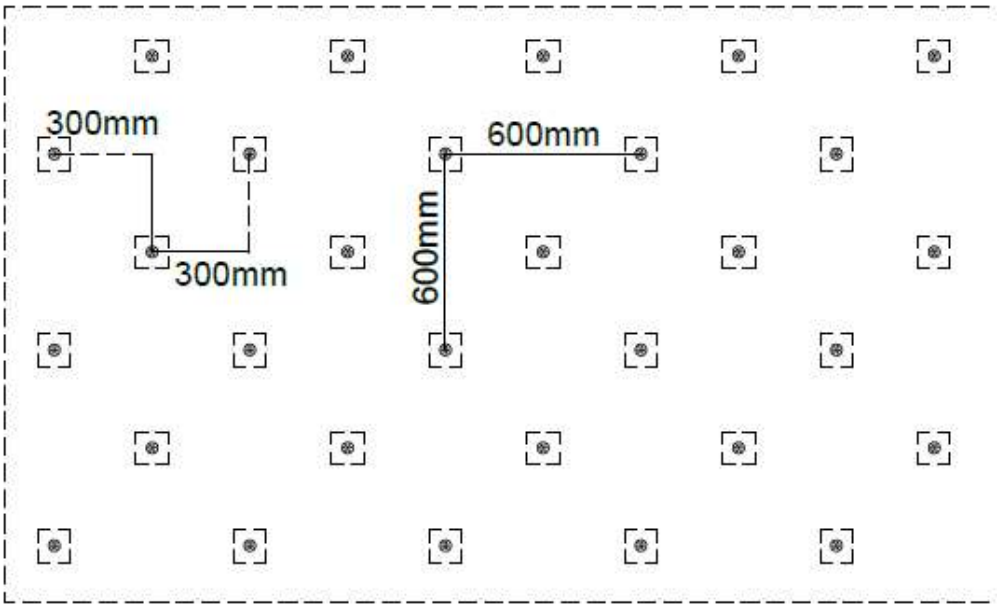
### Initial Fixing Pattern (Through Insulation Board)




⊗ 4 fixings required through each insulation board, fixings to be located 150 mm from horizontal edges, 250 mm from vertical edges.

All insulation boards to be both adhesively and mechanically fixed to existing substrate.

### Main Fixing Pattern (Through Reinforcing Mesh)




Mechanical fixings installed through reinforcing mesh and scrim adhesive at a rate of 5.5 per m2

**BBA APPROVED – 14/5137 – PS2**
**WBS EPSIBRICK MW SYSTEM**

# Project Specification – PAS 2030:2019 - Ground Floor Areas

| | |
|---|---|
| Project Name: | Newton Heath High Rise Blocks, Manchester – Ground Floor |
| System: | Wetherby Epsibrick External Wall Insulation System |
| Substrate: | Concrete |
| Project Height: | 15 Storeys |
| Insulation to Fluted Areas: | 150mm Stone Wool Insulation |
| Insulation to Non-Fluted Areas: | 200mm Stone Wool Insulation |
| Insulation to Balcony Returns: | 30mm Stone Wool Insulation |
| System Finish: | WBS 14mm Brick Slip Finish |
| **Technical Sales Manager:** | Pat Stanley |
| Tel: | 07703 974663 |
| E-mail: | pat.stanley@wbs-ltd.co.uk |
| **Technical Support Manager:** | Matt Cawley |
| Tel: | 07568 129677 |
| E-mail: | matt.cawley@wbs-ltd.co.uk |

## WETHERBY BUILDING SYSTEMS

Wetherby Buildings Systems are the UK's market leading EWI system supplier, providing quality products and systems and unrivalled technical and on-site project support. We aim to provide environmentally responsible and sustainable building products of the highest quality, continually improving on our quality and system accreditations to ensure that optimum standards are met.

## WETHERBY PREMIUM CERTIFIED PRODUCTS

Wetherby Buildings Systems products and EWI systems are tested to the highest level with an unrivalled range of BBA, BDA and ETA certificates available for use on projects in the UK. All testing achieves the highest European standards, ensuring long term durability, strength and premium performance. BBA/BDA approved systems provide a minimum life expectancy of 30 years. BRE Fire Certification has also been achieved for a large number of systems, with certain certification extending to 60-year life expectancy.

## UK MANUFACTURING

Here at Wetherby, we take our responsibility to 'Buy British' extremely seriously. All of our current and potential suppliers undergo a rigorous annual assessment. Each supplier is reviewed over a number of areas including responsible procurement, product suitability, commitment to sustainability, quality etc. Only when we are completely satisfied are they included on our Supply Chain Database.

## ISO 9001, ISO 14001, & ISO 45001

Wetherby Building Systems have a strong pro-active approach to internal Quality Systems, Environmental Management Systems and Health and Safety.
Our ISO Integrated System is regularly audited internally by qualified auditors and annually by independent external auditors, Alcumus ISOQAR. This ensures consistency in the supply and quality of our materials and services, and our environmental responsibilities and targets which we take very seriously. This includes our ongoing commitment to recycle, re-use, reduce GHG's and improve products and systems alongside our partners and suppliers. The main aim is to maximise sustainability for all products and systems across our extensive range. We have a strong pro-active approach to Health and Safety. We manage all risks associated with our activities by regularly monitoring our premises, revising Risk assessments, Safe Systems of work, and Method Statements when required. We strive to provide the best training, support, and management on all our projects providing knowledge and experience throughout the task being undertaken.

Certificate Number 16512
ISO 9001
ISO 14001
ISO 45001

## TECHNICAL SERVICES

Wetherby offer a wide range of technical services to support project design and system installation. In depth NBS Specifications, project specific CAD drawings, photographic overlays, U-values and condensation / humidity risk analysis documents are all readily available via our Technical Support Team. For **Technical Enquires** please contact on **0800 1073299** or technical@wbs-ltd.co.uk

## TRAINING SERVICES AND TRAINED APPLICATORS

We provide a variety of in-depth training courses, covering all systems, to ensure that installations are completed to the highest possible standards.
For training enquires please contact: 01942 529336.
For information on our Trained Applicators please contact your Area Sales Manager as per details on page 2 of this specification.

## SITE SUPPORT, PULL OUT TESTS AND INSPECTIONS

Wetherby Building Systems offer unrivalled site support for EWI projects with 8 Site Supervisors strategically positioned across the UK. Pull out testing, product information, detailing advice and application assistance are all available from our experienced team.

## SAMPLE SERVICE

We provide a FREE sample service for all of our products and systems.
To access this service, contact our sample department on 0800 1073288 or alternatively e-mail Angela Naylor who will be more than happy to assist you with your enquiry: angela.naylor@wbs-ltd.co.uk

## GUARANTEES

Wetherby can provide a guarantee covering defects in materials on Wetherby BBA / BDA / ETA approved EWI systems installed by Wetherby recognised contractors, for the first 10 years of the system lifespan*. Extended guarantees are available for government backed schemes provided by carefully selected third party insurance partners such as SWIGA and GDGC*. Please contact Wetherby for further information.
(*conditions apply)

## CDM REGULATIONS 2015

Wetherby Building Systems provide technical support as a supplier of façade systems and we hold the position of 'designers' according to the CDM Regulations 2015. Wetherby have a number of legal responsibilities in this role when preparing or modifying designs, to eliminate, reduce or control foreseeable risks that may arise during construction, maintenance and use of a building once built. We are also obligated to provide timely information to other members of the project team to help them fulfil their duties.
Further information is contained in our CDM document (WF224) which is applicable to all designs and is available on our web site (www.wbs-ltd.co.uk/xpagex) or on request

## PAS2035:2019

The PAS2035 design process must be followed as per the PAS document "PAS 2035:2019 Retrofitting dwellings for improved energy efficiency – Specification and guidance".

It is essential the correct surveys are completed, risk assessments are carried out and the roles and responsibilities are agreed, including a Retrofit Coordinator, taking responsibility for the specific property design.

This specification must be agreed and signed off by the project specific Retrofit Coordinator, as the PAS2035 provides a whole-house approach.

## PAS 2030:2019 REQUIREMENTS

### PAS 2030:2019 PRE-INSTALLATION BUILDING INSPECTION REQUIREMENTS

- Pre-installation Building Inspection Requirements

2. To meet the requirements specified in PAS 2030:2019, the designated competent person assigned by the installer shall confirm that:

c) A full and detailed pre-design building survey has been undertaken by a competent person (see B4-I3 of the PAS), prior to the retrofit design being undertaken; and

d) The retrofit design relevant to the installation under inspection has been produced in accordance with PAS 2030:2019, taking full account of the findings and recommendations of the pre-design building assessment, including:

- thermal performance calculations
- condensation risk analysis
- ventilation requirements and standard / bespoke drawing details
- the main components of the system including the fixing type / method, the insulation type and thickness, the joint details and specifications, the reinforcing coat and type of reinforcement and the finish;
- the proposed details for the main interfaces; (thermal bridging, meter boxes, reveals, roofline joists, party walls, base detail with particular reference to below dpc, base/floor details, seals at windows/doors, seals to penetrations, light fittings, sockets, fixing and sealing of surface mounted structures, interfaces with ceilings, interfaces with roof, junctions between the system and other finishes and/or other EEM) clearly demonstrate how the installation will avoid condensation risk particularly at moisture sensitive locations such as timber joist ends and within the wall structure (interstitial/surface condensation); and
- the installation to the retrofit design is practical and achievable given the particular EWI system chosen for the project and the specific dwelling construction, site conditions and other EEMs planned for the property. (See also the Measures Interaction matrix Figure A.1).

2. As a minimum the pre-installation building inspection shall investigate and assess if the EWI installation work will:

- result in non-compliance with the Building Regulations, e.g. in relation to workmanship, materials, structural stability, fire safety;
- provide resistance to moisture. Where possible, any areas of non-compliance shall be rectified by selection of another solution/ detail, which shall be documented in the pre-installation building inspection and all contract documentation amended accordingly i.e. specification, drawings, method statement;
- result in avoidable thermal bridging; where thermal bridging is avoidable by adaptation of the detail, such measures shall be taken and the contract documents amended to suit. Design details shall be such that they incorporate additional capacity, that for example, will provide water management within the system should surface or interstitial condensation occur;

- result in unsafe operation of combustion appliances; unless an alternative safe detail can be found, EWI works shall not progress in the area causing the unsafe operation;
- compromise the functionality of existing ventilation ducts/systems; unless an alternative safe detail can be found, EWI works shall not progress in the area causing the unsafe operation;
- compromise the functionality and/or safety of existing services (gas, electric, water, telephone, etc.); unless an alternative safe detail can be found, EWI works shall not progress in the area causing the unsafe operation; and
- result in the proposed installation being non-compliant with any requirements of the EEM supplier or of the retrofit design.

3. The pre-installation building inspection shall include confirmation that the condition of the substrate is suitable for the works to commence and where all or any of the substrate does not fulfil the requirements for installation, preparation of proposals for adaptations to be made or additional preparation undertaken that will be necessary in order that works can commence.
4. All instances of potential non-compliance identified in the pre-installation building inspection shall be documented and referred to the Retrofit Coordinator for resolution. Any design adjustments, special adaptations and/or additional preparation requirements shall be confirmed as acceptable in writing, by the system supplier and/or the Retrofit Coordinator.
5. The retrofit design documentation shall be amended to include any specified changes to the installation, the installation method statement modified accordingly and the pre-installation building inspection records updated to provide documentary evidence that the intended modified installation will address all the issues identified in the pre-installation building inspection and meets the requirements of all parties.

**NOTE:** In undertaking pre-installation building inspections it is recommended that Installers consider using an industry recommended checklist e.g. the External Wall Insulation pre-installation building inspection checklist [N7] (see 10.7.1).

## PAS 2030:2019 ADDITIONAL INSTALLATION REQUIREMENTS

The Installer shall ensure that the methods used for the installation of external wall insulation (EWI) products or systems are as recommended by the system supplier and in accordance with the relevant retrofit design and incorporated in the installation method statement.

In undertaking the installation, the installers responsibilities shall include:

c) Before installation starts, confirming that the retrofit design has made provision for ensuring that:
- the EWI system provided for installation is that recommended by the pre-design building survey and specified by the retrofit design;
- wind loads have been calculated and taken into account in the fixing requirements;
- all essential ventilation openings that require sleeving or safeguarding before installation are located and identified;
- the position of all flues whether or not they are in service is determined and the measures that shall be taken to safeguard their proper functioning is determined;
- any existing cables, pipework, ducting etc. that require it are removed or repositioned as/where necessary to accommodate the planned EWI system, with authorization from the relevant responsible body (where required) and undertaken by a person competent to undertake such work;
- the existing ground levels, paths or decking adjacent to the dwelling are 150 mm below the level of the damp proof course; and
- other areas of the dwelling and surrounding area that could be at risk during installation are adequately protected to ensure they are not damaged.

In the event that any of these aspects is not adequately covered, liaising with the Retrofit Designer to provide for their undertaking.

d) During installation, ensuring that:
- all work is carried out in accordance with the site-specific retrofit design, drawings and method statement and that work is not permitted to progress unless copies of the site-specific specification documentation are accessible at location and all operatives are aware of the content and requirements relevant to their designated activities;
- the system and all detailed interfaces with other parts of the dwelling or other planned EEMs to be undertaken in a manner and sequenced such, that all measures are fully effective, with optimized performance and junctions that are safe, durable and fully weatherproof for all expected exposure conditions. e.g. interface between EWI system and planned replacement windows; and
- whether or not specifically required by the retrofit design, the items listed in **i** to **viii** below are given particular attention with regard to the efficacy and durability of the detail especially concerning the management and exclusion of moisture and/or the risk of surface/interstitial condensation or rising damp. Mastic sealants shall always be supported by a primary seal below, and all details shall be fully weatherproof:

i. system base detail (including below dpc);
ii. interfaces with roofs at eaves and verges (where metal or plastic cappings and trims shall not be used);
iii. window/door reveals/heads;
iv. system/cill interfaces (incl. overhang requirements/weepholes/thermal movement);
v. surface fixtures (structurally sound);
vi. penetrations through the system;
vii. interfaces with roof soffits, flat roofs, conservatory roofs etc.; and
viii. detailing and sealing around vents/flues, meters and other heating related structures/pipework.

PLEASE REFER TO WETHERBY PAS2030:2019 DETAIL DRAWINGS FOR GUIDANCE

- all weather seals at the interface between EWI systems and other structures/finishes are installed with particular attention given to the soundness/cleanliness of contact surfaces, continuity and effectiveness around corners, bond to surfaces and the durability of the water seal;
- all details are installed to minimize the risks of thermal bridging, removing/relocating/extending to allow continuity of insulation in all cases e.g. rooflines, meter boxes, pipework, flues, ducts;
- photographic evidence of key stages of the installation is prepared and retained for the period of the guarantee, including close up photographs of representative examples of all moisture and thermally sensitive details;
- installations are undertaken in accordance with the specification for the installation of external wall insulation ensuring the safety and operation of fuel burning appliances, taking account of the recommendations provided in the document External wall External Wall Insulation Specification for Weathering and Thermal Bridge Control [N1] (see 10.7.1);
- ventilation of the dwelling is assessed and if necessary upgraded in accordance with the retrofit design and with the requirements of PAS 2035; and
- upon completion of the installation or at the end of each working day, if the installation takes longer than one day, the operatives investigate and confirm the proper functioning of all ventilation openings and flues.

**NOTE 1** The relevant installation methods will have been included under current certification issued by a product certification body, with respect to the product/system to be installed, against UK requirements and regulation and the installer should be aware that training from the supplier or training acceptable to the supplier is necessary before an application for assessment/certification is made to a certification body.

**NOTE 2** Attention is drawn to the need, where relevant, for all external wall insulation installation work to comply with the current Building Regulations that apply in the UK country in which the installation is being carried out. In particular, the need for compliance in relation to the following aspects is highlighted: fire safety; resistance to moisture; ventilation; and conservation of fuel and power. Further guidance on the requirements of the Building Regulations in England is provided in Approved Documents A-P [N2] and Regulation 7: Workmanship and Materials [N3]. Further guidance on the requirements of the Building Regulations in Wales is provided in Approved Documents A-R [N4] and guidance on Regulation 7: Workmanship and Materials [N3]. Further guidance on the requirements of the Building Regulations in Scotland is provided in the Domestic Technical Handbook [N5] and Non-Domestic Technical Handbook [N6].

## PAS 2030:2019 INSTALLER COMPETENCE RATIO

For each installation task to be undertaken, the installer shall employ or subcontract at the particular location, at least one vocationally competent operative. For each installation, the vocational competence ratio (see 3.28) shall be determined by the installer in relation to the:

a) range, scale, geographical spread and complexity of the work being undertaken; and
b) supervision and experience of the individual that meets the vocational competence requirements for the relevant tasks and the relative experience of the operatives being supervised;

but shall not be less than one carded operative per team of 4 (1 to 3), at the specified installation location at any time.

**NOTE 1** Where a vocationally competent operative is newly qualified, it may be appropriate for a lower competency ratio to be applied.

For each installation task to be undertaken at a particular location, supervision, inspection and confirmation of compliance of all work undertaken in respect of that task at that location shall be undertaken by a vocationally competent operative appointed by the installer to do so.

**NOTE 2** It is recommended that vocationally competent operatives carry a document supporting the nature, currency and source of that competency, for production upon request.

# WETHERBY EPSIBRICK SPECIFICATION

## M21
## Insulation with brick slip finish

To be read with Preliminaries/General Conditions.

This specification is valid for 6 months from issue date, due to the changing industry regulations and requirements.
For an updated version of the specification please contact the relevant technical sales manager.

This specification is specifically for the named project and is not transferable to other projects, projects require specific custom specifications, please contact Wetherby Technical departments for further information.

### GENERAL / SYSTEM REQUIREMENTS

**101 REMOVAL OF EXISTING SYSTEM**

- The existing system is to be fully removed before installation of the new system.
- A survey must be carried out following removal to assess the structural stability of the blocks, identifying areas requiring repair before the new Wetherby EWI system is installed.
- All repairs must be completed prior to the insulated render system being installed and signed off by a Wetherby Site Supervisor.
- Project specific detailing will be required on removal of the system.

**120 SURVEY OF EXISTING WALLS**

- Timing: Before starting work covered in this section.
- Objective: To confirm suitability for application of external wall insulation system.
- Survey report: Submit, covering all relevant matters listed below:
  - The form and condition of the structural substrate.
  - A schedule of repairs and / or additional works necessary to render the substrate suitable to receive the system.
  - A schedule of services, fixtures and fittings requiring removal to facilitate installation of the system.
  - Proposals for treatment of potential cold bridges e.g. reveals, concrete floor edges.
  - Remove existing rainwater pipes and re-direct away from work surface whilst work proceeds. Ensure all rainwater from the roof area is carried away from the work area by means of temporary fixed rainwater goods.
  - Remove, extend beyond the surface of the proposed system and securely re-fix, to the satisfaction of the supervising officer, soil stacks, waste water pipes, overflows, vent pipes etc.
  - Any other information considered relevant.

**151 WIND LOADING**

- When installed on suitable walls, the system can adequately transfer to the wall the self-weight and negative (suction) and positive (pressure) wind loads normally experienced in the United Kingdom.
- Wetherby or the fixing manufacturer will undertake fixing pull out tests on site to verify the adequacy of the fixings.
- Wetherby will provide information on the system dead load weights on request to allow an independent check to be made of the substrates adequate strength and suitability.
- On projects where higher wind load coefficients are expected, wind load calculations are required in order to establish the minimum number of fixings required per m² to resist the maximum wind loads acting on the building. In order to do this, wind loads must be calculated by a suitably qualified and experienced structural engineer in accordance with BS EN 1991-1-4:2005 and provided to Wetherby. Wetherby will then confirm an adequate fixing pattern for the project.

**160 REMEDIAL WORK**

- Remedial work shown to be necessary by survey: Employer's responsibility.

**180 STRUCTURAL SUBSTRATE**

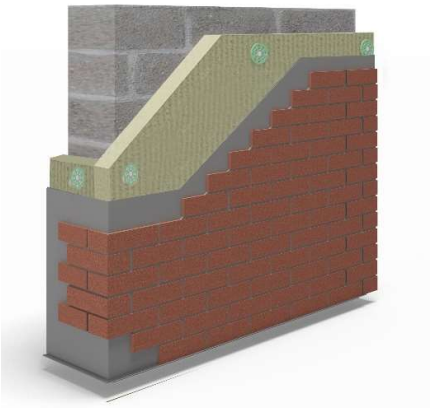
- Description: Concrete.

- Preparation:
  - Treatment to Existing Sound Surfaces
    Remove any existing loose material and where required dub out the surface level, ready to receive the EWI system. The existing walls are to be cleaned with a wire brush or pressure jet wash, to the satisfaction of the Contract Administrator, to remove any friable material, algae or lichen, and to provide a good key for Wetherby products. Treat areas of moss, algae and mould growth with WBS Biocidal Wash. Dense smooth surfaces may require treating with WBS Stabilising Solution / Bonding Agent to ensure adequate adhesion on wet fix or render only applications.
  - If the walls include existing render or the substrate isn't line and level and requires dubbing out, the fixing lengths stated within this specification may need to change. This will need to be confirmed on site prior to the installation of the Wetherby system. Sizing of flashings, trims and beads may also require alterations.
  - Dubbing Out
    Where necessary dub out, using Wetherby Adhesive, any hollow / defective areas to leave a suitable surface for the application of the insulation boards. Maximum dubbing coat thickness: 16mm.
  - Biocidal Wash
    Where required, apply one coat of Wetherby Biocidal Wash to the entire surface by roller or knapsack spray and allow to dry. Brush the surface to remove all signs of growth before rendering commences.
  - Stabilising Solution
    Where required, apply one coat of Wetherby Stabilising Solution to the entire surface by roller, ensuring uniform coverage and allow to dry.

**210C EXTERNAL WALL INSULATION SYSTEM**

- **Manufacturer**:
  **Wetherby Building Systems Ltd.**
  1 Kid Glove Road
  Golborne Enterprise Park
  Golborne
  Greater Manchester
  WA3 3GS
  Tel: 01942 717100
  Fax: 01942 717101
  Email: info@wbs-ltd.co.uk
  Web: www.wbs-ltd.co.uk

- System Reference: **Wetherby Epsibrick External Wall Insulation System**.



- Insulation: WBS Stone Wool Insulation Boards.
  - Thickness to Fluted Areas: 150mm.
  - Thickness to Non-Fluted Areas: 200mm.
  - Thickness to Balcony Returns: 30mm.
  - Board Size: 1200 x 600mm.
  - Minimum Compressive Strength: 10 kPa.
  - Thermal Conductivity: 0.036 $Wm^2/K$.
  - Performance in Relation to Fire:
    - Class A1 (BS EN 13501-1:2002).
    - Non-combustible.
  - Environmental:
    - CFC / HCFC Free.
    - Zero ODP.
    - GWP Less Than 5.

- Fixing: Mechanical and Adhesive.
  - Insulation Adhesive: WBS Insulation Bedding Adhesive.
  - Initial Fixing Type to 150mm Insulation to Fluted Areas: 4 fixings per insulation board TFIX-8S x 215mm (subject to pull out tests).
  - Initial Fixing Type to 200mm Insulation to Non-Fluted Areas: 4 fixings per insulation board TFIX-8S x 255mm (subject to pull out tests).
  - Initial Fixing Type to 30mm Insulation to Balcony Areas: 4 fixings per insulation board TFIX-8M x 95mm (subject to pull out tests).
  - Fixings must achieve a minimum pull out of 1.0kN.

- Protective Scrim Adhesive Coat (If Required).
  - Reinforcement Adhesive: WBS Scrim Adhesive.
  - All board edgers must be protected to prevent water ingress into the Stone Wool insulation.
  - Where boards are to be left exposed, 1-2mm tight coat to be applied over all Stone Wool Insulation on the day of the board being fixed, ensuring all Stone Wool Insulation is coated and protected from moisture.
  - Stone Wool insulation must be fully dry before basecoat is applied.

- Movement Joints: As Per Drawings.
  - Vertical Movement Joint Ref: WBS 81/81SS 13mm Stainless Steel Movement Joint.
  - Horizontal Movement Joint Ref: BCJT & BCJB Horizontal Compression Joint
  - Movement joints must be used to replicate any structural movement joints in the existing substrate as per site survey / Structural Engineers report.
  - All beads must be fully meshed in.

- First Reinforcement: WBS Alkali Resistant Scrim Cloth incorporated into top third of the WBS Scrim Adhesive.
  - Reinforcement Adhesive: WBS Scrim Adhesive.

  - Main Fixing through mesh: As per fixing pattern at the back of this specification.
  - Main Fixing to 150mm Insulation to Fluted Areas: TFIX-8S x 215mm (subject to pull out test).
  - Main Fixing to 200mm Insulation to Non-Fluted Areas: TFIX-8S x 255mm (subject to pull out test).
  - Main Fixing to 30mm Insulation to Balcony Returns: TFIX-8M x 95mm (subject to pull out test).

  - Stainless Steel Secondary Fixing: Required at a rate of 1 per $m^2$.
  - Stainless Steel Fixing Type to 150mm Insulation to Fluted Areas: TID-MR 8/35 x 200mm (subject to pull out test).
  - Stainless Steel Fixing Type to 200mm Insulation to Non-Fluted Areas: TID-MR 8/35 x 250mm (subject to pull out test).
  - Stainless Steel Fixing Type to 30mm Insulation to Balcony Returns: TID-MR 8/35 x 80mm (subject to pull out test).
  - Secondary mechanical fixings are required on all projects 2 storeys and above as per BRE Report BR135:2013.
  - NHBC require in all cases that a minimum of one non-combustible fixing is installed through the reinforcement mesh per insulation board, in addition to other fixings.

- Second Reinforcement: 100mm x 100mm Fixing Mesh Patch incorporated into top third of the WBS Scrim Adhesive.
  - Reinforcement Adhesive: WBS Scrim Adhesive.

- Decorative Finish.
  - Wetherby Finish: WBS 14mm Brick Slips and Pistols.
  - Colour: TBC.
  - Adhesive: WBS Brick Slip Adhesive

  - Pointing Mortar: WBS Pointing Mortar.
  - Colour: TBC.

- Beads / Trims / Accessories.
  - Full System Beads / Trims:
  - Wetherby Starter Track Ref: WBS BSR150 150mm Aluminium Brick Slip Base Rail.
  - Wetherby Starter Track Ref: WBS BSR200 200mm Aluminium Brick Slip Base Rail.
  - Wetherby Starter Track Ref: WBS BSR30 30mm Aluminium Brick Slip Base Rail.
  - Wetherby Full Depth Stop Bead Ref: WBS 817 170mm Galv. Stop Profile.
  - Wetherby Full Depth Stop Bead Ref: WBS 220mm Galv. Stop Profile.
  - Wetherby Full Depth Stop Bead Ref: WBS 85 50mm Galv. Stop Profile.
  - Mechanical Fixing: WBS HIT 6/5 Hammerscrew Bead Fixing.

  - Wetherby Roof Detail: TBC.
  - Specialist flashing or WBS 781 type trim to be used subject to roof design, ensuring a minimum 40mm overhang and a long-lasting watertight detail (approval required from Wetherby).
  - The top of the system must be protected at all times during installation, using temporary capping protection where required.

  - Wetherby Cills: Type TBC.
  - Specialist cills to be designed and installed to provide a minimum 40mm overhang.
  - Cill manufacturer to design and advise on cill type and fixing.

  - Surface Brick Slip System Beads:
    - Wetherby Corner Bead Ref: WBS 9075 Aluminium Corner Bead.
    - Wetherby Render Stop Bead Ref: WBS 81SS 13mm Stainless Steel Stop Bead.
    - Wetherby Vertical Movement Joint Ref: WBS 81/81SS 13mm Stainless Steel Movement Joint.
    - Wetherby Horizontal Movement Joint Ref: BCJT & BCJB Horizontal Compression Joint.

- Accessories:
  - Spacers Ref: WBS PK Spacers.
  - WBS Sealing Tape: Pre-compressed, expanding waterproof sealing tape.
  - WBS Firtree Fixings.
  - WBS Approved Fire Rated Silicone Sealant.
  - WBS 100mm x 100mm Fixing Mesh Patches.

**N.B. Detailing and beads / trims to be used maybe altered following site inspections and job specific detailing.**

**310 DESIGN**

- Complete the detailed design of system and associated features shown on drawings:
  Complete to meet requirements of this specification. Refer to Wetherby detail drawings.
- Please note all compliance needed to meet Building and Fire Regulations is the responsibility of the principle designer/ main contractor.
- Detailing of system junctions & ancillary items are to be agreed by all parties.

**320 INTEGRITY**

- Installation Requirements:
  - Weathertight under all anticipated conditions.
  - Capable of resisting all dead loads and design live loads, including impact and wind loads, and accommodating all thermal movements without damage.

**330 IMPACT LOADING**

- Impact Resistance of Finished Walls: Resistance to hard body impacts (3 joules to 10 joules) and to perforation.

**340 WIND LOADING**

- Design Wind Loads: The system shall be designed to withstand all design wind loads.

**360 SAMPLES**

- Procedure: Submit samples / examples of designated items for approval. Keep approved samples on site for the duration of the contract for inspection / comparison purposes.
- Designated items: Sample of Wetherby Brick Slips.

**370 UNIFORMITY OF COLOUR AND TEXTURE**

- Type / proportion of constituent materials: Unchanged once brick slips have been approved.
- Supplies of materials: Sufficient to give consistent and uniform colour and texture.
- All materials shall be manufactured and supplied in accordance with BS EN ISO 9001: 2008.
- WBS renders and mortars are pre-blended during the manufacturing process by the supplier, although care should be taken to ensure colour uniformity between individual batches of material.

**390 AVOIDANCE OF COLOUR SHADING**

- To minimise the risk of variations in colour shade and to avoid dry line jointing, decorative finishes should be applied continuously without a break.
- Where breaks are unavoidable, they should be made where services or architectural features such as the lines of doors, windows, reveals or drainpipes help to conceal the position of the joint. Surface render beads can be used to provide a clean break in the render.
- Material sharing the same batch number should be used to complete an entire elevation where possible.
- Material with different batch numbers should be checked for colour consistency.

**410C INSTALLATION**

- Installer: The system shall be installed by a specialist contractor approved for the project by Wetherby Building Systems.

**415C WETHERBY EPSIBRICK SYSTEM APPLICATION**

**Base Bead**

Securely fix Wetherby BSR starter track above DPC level at base of the system. Mechanically fix starter track at max. 300mm centres, 50mm from each end. WBS 3756 base rail connectors should be used to join the tracks, packing shims may be required to ensure the starter track is true to line and level. Any gaps behind the basetrack allowing free air movement behind the insulation should be sealed appropriately.

**Stop Bead**

Securely fix Wetherby full system stop beads on WBS Sealing Tape to the extent of the system and its abutment to untreated areas i.e. meter boxes, rising service supplies or any other untreated abutment. Stop beads are to be fixed at max. 300mm centres, 50mm from each end. A continuous bead of WBS Approved Fire Rated Silicone Sealant must be applied to seal the stop bead to the substrate.

**Roof Detail**

Where the existing roof does not provide an adequate overhang to the EWI system (minimum 40mm), a specialist roofing profile must be sought to provide adequate protection. Alternatively, the roof must be extended as necessary to provide overhang to the EWI system.

To reduce cold bridging, the existing soffit board may need to be removed and the system taken up the entire wall to ensure continuity with loft insulation. It is critical that any ventilation is maintained. Please see Wetherby PAS 2030:2019 detail drawings for further information.

**Cills**

Securely fix cills, ensuring they are secure and provide a water tight detail to protect the EWI system. Apply WBS sealing tape and WBS Approved Silicone Sealant as per Wetherby PAS2030:2019 detail drawings.

**WBS Insulation Bedding Adhesive**

Trowel apply WBS Insulation Bedding Adhesive to the entire face of the insulation boards. The bedding adhesive shall be of sufficient thickness in which to bed and level the insulation boards. The adhesive must be applied immediately before the insulation boards are offered to the wall to ensure a good bond, a minimum 10mm notched trowel must be used to ensure an adequate thickness of adhesive. Insulation boards must be fully bedded into the adhesive and laid as true to line as possible. A fixing should be installed through the centre of each board to hold in place whilst the adhesive dries.

**Application of Stone Wool Insulation Boards**

Position and securely fix the Stone Wool insulation boards to the substrate. The boards should be tightly butt jointed, laid with staggered joints and overlapped at building corners. Board joints should not occur within 200mm of the corners of openings. Board pieces narrower than 200mm shall not be used. Where the insulation butts up against dissimilar materials, supply and install WBS Sealing Tape and ensure the boards are fitted tight against the seal, ensuring full compression of the tape.

**Initial Fixings of Insulation Boards**
Fix boards mechanically to the substrate using approved WBS fixings at a rate of 4 per insulation board.
Fixings shall be installed so that the fixing head embeds 1-2mm in to the face of the insulation board surface.

**Protective Scrim Adhesive Coat (If Required)**
Apply a protective scrim coat at 1-2mm where required to prevent water ingress into the Stone Wool insulation. The board edges must be protected to ensure no water ingress into the Stone Wool insulation. Where boards are to be left exposed, a 1-2mm tight coat is to be applied over the face of the Stone Wool Insulation. The insulation must be fully dry before basecoat is applied.

**Movement Bead / Slip Joints**
Fix movement beads / slip joints at agreed locations using WBS approved fixings. Structural movement joints must be mirrored through the EWI system.

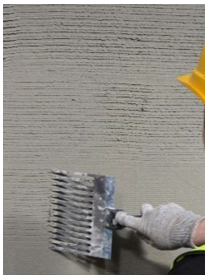
**Surface Mounted Render Beads**
Fix surface mounted render beads directly to the insulation board at required locations using WBS Firtree Fixings. A continuous bead of WBS Approved Fire Rated Silicone Sealant must be applied to seal the surface mounted render stop beads.

**Existing Air Vents, Grilles etc.**
Identify live or used air vents, grilles etc. and extend through the insulation system as work progresses.

**Angle Bead**
Fix by bedding into first pass of scrim adhesive, angle beads with glassfibre mesh reference WBS 9075 to all external building corners, window / door jambs and heads.

**Alkali Resistant Glassfibre Scrim Coat**
Trowel or machine apply a 4-6mm thick coat of scrim adhesive to the entire surface of the insulation boards. Lightly run a notched trowel through the scrim adhesive at a 45 degree angle to ensure the correct thickness of adhesive is applied. Bed WBS Alkali Resistant Scrim Cloth into top third of the wet adhesive, overlapping joints by 75mm minimum (ensuring mesh cloth isn't over embedded). The scrim cloth must be overlapped around all building corners, stop beads, movement beads and returned into all reveals and heads. All beads must be fully scrimmed in. Install additional 250mm x 300mm minimum pieces of scrim cloth diagonally across corners of all wall window and door openings including for any utility box areas.

**Insulation Fixings through Mesh**
Fix boards mechanically to the substrate using approved WBS fixings as per the WBS fixing pattern (fixing pattern located at the back of this document subject to wind load calculations). Fixings shall be installed through the wet WBS scrim adhesive and WBS alkali resistant mesh. Additional fixings should be installed to ensure a maximum of 300mm centres at either side of building corners and around all openings. Install stainless steel secondary fixing through the scrim adhesive and alkali resistant scrim cloth whilst wet. Install 100 x 100mm Scrim Patches over all fixing heads into top third of the wet adhesive (ensuring mesh cloth isn't over embedded). Finally smooth out scrim adhesive using a spatula. Allow sufficient drying time before applying second layer of scrim adhesive.



**Scrim Adhesive Coat (Second Application)**
Trowel or machine apply a further 2-3mm thick coat of scrim adhesive to the entire surface of the first pass of basecoat and mesh cloth (once dry). Level the scrim adhesive using a spatula / speed skim. Finally scratch scrim adhesive horizontally in preparation for the WBS Brick Slips. Ensure all fixings and mesh are fully covered and are not visible.

Allow sufficient drying time before applying the Brick Slip Adhesive. Cold conditions and high humidity will result in the basecoat taking longer to dry / cure. The basecoat must be fully hardened with no signs of moisture visible. Moisture trapped in the basecoat can potentially damage the curing of the Brick Slip Adhesive causing failure after completion of the system.

**Brick Slip Adhesive**
Trowel apply full spread of Brick Slip Adhesive to the scrim adhesive. Use a 10mm notched trowel to ensure minimum 5mm thickness is achieved.

**WBS 14mm Brick Slips**
WBS Brick Slips should be cleaned before application ensuring all slips are free of residue. Whilst the brick slip adhesive is wet the brick slips can be firmly pushed into the adhesive. Brick slips should be installed line and level and staggered leaving a consistent joint.

NB. Brick Slips are manufactured using raw natural ceramics and will inevitably vary in nature. Natural variations in colour, texture and dimensions may be present. It is advisable to mix slips from at least 5 boxes to minimise grouping of colours. Any product deemed faulty or out of tolerance should not be applied and should be reported to Wetherby immediately.

**WBS Pointing Mortar**
Once brick slips have set, point up with WBS Pointing Mortar using a pointing gun. Shape mortar to desired joint type using a pointing trowel. Care should be taken not to apply WBS Pointing Mortar onto the brick slip face or pistols as this can be very difficult to remove. Once pointing mortar is dry, brush down the wall to remove all loose mortar etc.

**Silicone Sealant**
Gun apply a continuous bead of WBS Approved Fire Rated Silicone Sealant at points where the brick slips butt up against other materials ensuring water tightness., e.g. window frames, door frames, eaves, fascia's, projecting wall vents, gas and electric meter boxes etc. Surfaces must be clean and suitable for the application of the Silicone Sealant which must be installed as per manufacturers guidance.

**Cleaning**
Wipe clean all exposed nosing, cills etc., at each work stage whilst adhesive is still wet.

**Application Videos**
Wetherby have detailed application videos available online, please see http://www.wbs-ltd.co.uk/videos/.

## 420 ADVERSE WEATHER

- Materials / Surfaces: Do not use frozen materials and do not apply materials to frost bound substrates.
- Adhesives / Mortars / Renders: Do not apply when air temperature is at or below 5°C. Render products may be applied where temperatures are above 3°C on a rising thermometer and are forecast to stay above 5°C for an extended period on the same day.
- Adhesives / Mortars / Renders: Do not apply when relative humidity is equal to or greater than 90%.
- Do not apply materials when the air temperature or wall surface is in excess of 30°C without protection of the surface.
- Temperature of the work: Maintained above minimum level recommended by manufacturer until adhesive / mortar / render has fully hardened.
- Drying Times: Drying times of decorative finishes, particularly pre-mixed water based materials, may be greatly extended during periods of low temperature and / or high relative humidity 90% and above.
- Newly rendered surfaces: Protect newly rendered surfaces against rain, snow or other precipitation. Ensure that material is protected from frost, wash-offs etc.
- Application of renders, mortars or decorative finishes shall not be carried out on elevations where summer strength sunlight is hitting the area square on for prolonged periods without affording protection.
- Coatings damaged by rain or frost: Remove and replace.

## 440 ON SITE PULL OUT TESTS ON FIXING PINS

- Objective: To prove suitability of structural substrate and determine size and number of fixings required.

## 490 CONSTRUCTION / MOVEMENT JOINTS / SLIP JOINTS

- Location: As shown on drawings.
- Formation: Accurately to detail.
- Modifications to joint locations / design: Agree revisions before proceeding.
- All structural movement joints must be mirrored through the EWI system.

**500 FLUES, CHIMNEYS AND COMBUSTION AIR VENTILATORS**

Reference to be made to CIGA's Technician's Best Practice Guide to Flues, Chimneys and Combustion Air Ventilators, or to the Specification of External Wall Insulation ensuring the Safety and Operation of Fuel Burning Appliances, so that the performance and safety of fuel burning appliances is not compromised by the installation of the EWI measure.

- The combustion air supply must be isolated and air ventilator continuously sleeved through the wall.
- Flueless gas fires require a ventilator that provides a free air area of 10,000 mm². Under PAS 2030, both surveyor and installer have strict responsibilities placed upon them when it comes to the identification and safeguarding of essential ventilation requirements. Failure to comply will result in PAS 2030 being revoked. Please refer to Wetherby document **WBS-VENTINFO-01**.

With regards to gas flues there are two methods of installation, either a clear gap is left around the flue (300mm for fanned draught flues / 600mm for natural draught flues) or a 200mm non-combustible insulation slab installed around an extended flue. While WBS includes both alternatives in their detail drawings, main contractors and installers must ensure the chosen method is approved in conjunction with the boiler manufacturer's specification.

**515 LIGHTNING CONDUCTOR**

- Should be relocated to the surface of the system or fix Stone Wool insulation strip around the lightning conductor. Alternative notch the back of the insulation board to allow for movement of lightning conductor leaving a 10mm gap as per Wetherby detail drawing.

**520 SUPPORTS FOR SERVICES / FITTINGS**

- Supports for soil and rainwater pipes, signs, CCTV cameras etc: Provide in locations shown on the drawings.
- No load is to be transferred to the insulated render system.
- Sleeved fixings shall be installed into the load-bearing background after completion of the render works in accordance with Wetherby recommendations.

**528 EXTERNAL POWER CABLES**

- External power cables must not be covered over by the EWI system or cover plates in any circumstances. Power cables must be relocated, left open and visible or suitably & safely enclosed with guidance from the power distribution authority.

**530 SEALANT JOINTS**

- Sealant: WBS Approved Silicone Sealant.
- Joints: Formed in accordance with section Z22 and system manufacturer's recommendations using any necessary joint fillers, backing strips etc.
- Sealant should be regularly checked and replaced as required. Sealant is not covered as part of the Wetherby system warranty.

**540 STORAGE OF MATERIALS**

- Adequate dry weatherproof and ventilated storage shall be provided for materials.
- All materials shall be protected against frost.
- Insulation boards must be kept dry at all times.
- Cementitious products shall be stored off the floor.
- Renders to be stored in temperatures of at least 5°C.
- Materials should be protected from prolonged exposure to sunlight.

**550 INSPECTION OF COMPLETED INSTALLATION**

- Timing: As soon as possible after completion of the work and before removing scaffolding.
- Notice for inspection (minimum): 7 working days.
- Defects: Report immediately.
- Onsite inspections for high rise projects are imperative. Each installation stage must be checked, signed off and documented or the Wetherby warranty will be void.

**570 MATERIALS AND SITE CONDITIONS**

- All materials shall be provided for the proper and efficient execution and completion of the works.
- Materials shall be mixed, applied and fixed in accordance with the relevant clauses of the specification and the manufacturer's instructions.
- A clean, fresh supply of water shall be provided for the works, via the management contractor.
- Suitable scaffolding that has a minimum gap of 300mm (all scaffold items) from the elevation surface in order to facilitate application requirements, shall be provided, erected, maintained and later removed for the proper and efficient execution and completion of the works.
- All necessary temporary supports for drains, water pipes, gas pipes, electrical cables and telephone cables shall be provided and maintained until the permanent supports are reinstated.
- Temporary flexible tubing shall be provided for the efficient discharge of rainwater from the buildings to protect the system during the progress of the works.

**580 CLEANLINESS OF WORKS**

- Protect all existing works, approaches and adjacent surfaces including windows and doors etc. using suitable sheeting, boards, covers etc.
- Remove all splashes, droppings etc. from completed works immediately and before drying takes place.

**590 CONTROL OF POLLUTION**

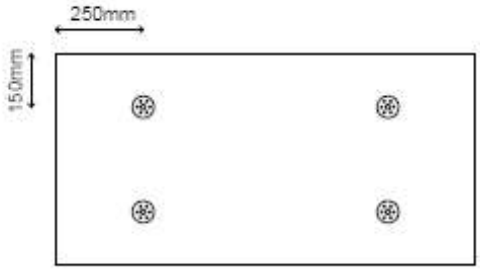
- All debris and rubbish arising from the works shall be removed off site from time to time to keep the site and works clean and tidy. All measures shall be taken to control the noise levels produced by the operatives on site to comply with the Control of Pollution Act. Precautions should be taken to prevent pollution of any river watercourse, reservoir, drainage or the like by the operatives on site.

## 600 MAINTENANCE

- An initial inspection should be made within 12 months and regularly thereafter to include:
  - visual inspection of the render for signs of damage. Cracks in the render exceeding 0.2 mm must be repaired. Impact damage must be repaired to prevent moisture ingress into the system.
  - 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, as such leakage could stain or penetrate the rendering.
  - Sealant joints at window and door frames, etc which must be replaced as required. Sealant is not covered as part of the Wetherby warranty.
- Maintenance schedules must be created and maintained for the building, which should include any repairs undertaken and the replacement and resealing of joints (for example, between the insulation system and window and door frame). **Please see Wetherby High Rise Maintenance Information**.
- The render may become discoloured with time, the rate depending on the initial colour, the degree of exposure and atmospheric pollution, as well as the design and detailing of the wall. In common with traditional renders, discoloration by algae and lichens may occur in wet areas and can be removed simply with a biocidal wash.
- Damaged areas must be repaired using the appropriate components and procedures detailed in the Certificate holder's installation instructions and in accordance with BS EN 13914-1: 2005. Please see **Wetherby High Rise O&M Manual** for further details.
- Regular maintenance/ repairs where required must be carried out to ensure the system warranty is not indicated.

## Wetherby EWI Fixing Pattern (Subject to Pull Out Tests & Wind-Load Calculations)

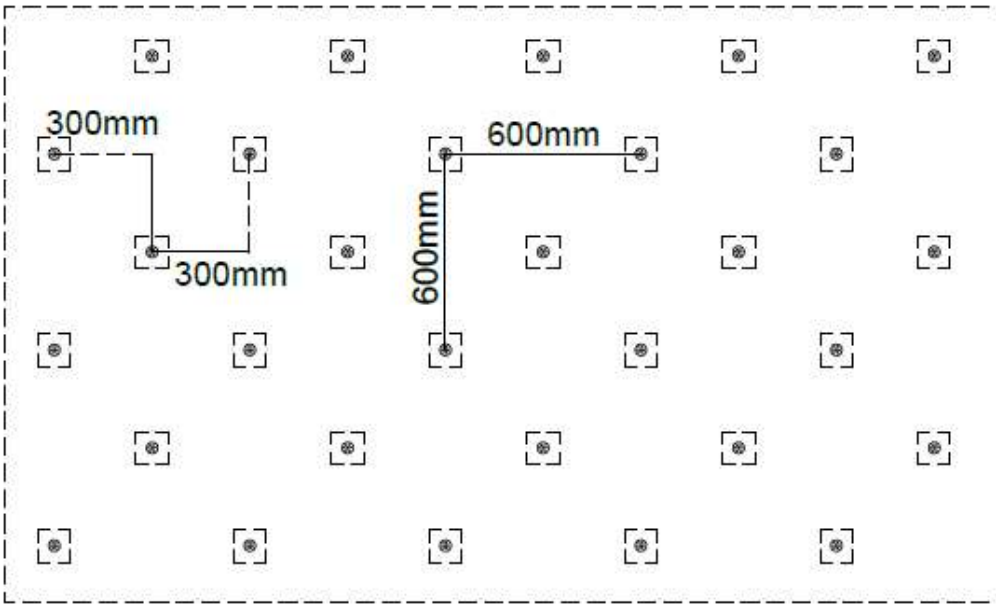
### Initial Fixing Pattern (Through Insulation Board)




⊗ 4 fixings required through each insulation board, fixings to be located 150 mm from horizontal edges, 250 mm from vertical edges.

All insulation boards to be both adhesively and mechanically fixed to existing substrate.

### Main Fixing Pattern (Through Reinforcing Mesh)




Mechanical fixings installed through reinforcing mesh and scrim adhesive at a rate of 5.5 per m2