**Specification Ref:** S_13-13942

**System Description:** WBS External Wall Insulation System Incorporating 60mm Phenolic Insulation & Silicone 'K' 1.5mm Textured Finish Applied to Masonry

**Project Name:** Queens Road, Cheetham, Manchester

**Date:** 15 May 2013

**Technical Manager:** Steve Kilbride

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# M
# Surface finishes

## M21
## Insulation with rendered finish

## M21 Insulation with rendered finish

To be read with Preliminaries/General conditions.

**GENERAL/ SYSTEM REQUIREMENTS**

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.
  - Any other information considered relevant.

160 REMEDIAL WORK

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

180 STRUCTURAL SUBSTRATE

- Description: Masonry.
- Preparation:
  Remove any existing loose material and dub-out the surface level, ready to receive the render system. Treat areas of moss, algae and mould growth with WBS Fungicidal Treatment. Dense smooth surfaces may require treating with WBS Stabilising Solution / Bonding Agent to ensure adequate adhesion.

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: WBS Epsiwall External Wall Insulation System.
  - Location: External Walls, Refer to Drawings.

- Substrate: Masonry.
  - Fungicidal Wash: Not Required.
  - Stabilising Solution / Bonding Agent: Not Required.

- Movement Joints: As per drawings.

- Fire Breaks: Not Required.

- Insulation: WBS Phenolic Insulation Boards.
  - Thickness: 60mm.
  - Board Size: 1200 x 600mm.
  - Density: 40 Kg/m³.
  - Minimum Compressive Strength: 150 KN/m².
  - Thermal Conductivity: 0.020 Wm²/K.
  - Performance in relation to fire:
    - Class 0 Rating (Low Risk) classified by Building Regulations.
  - Environmental:
    - CFC / HCFC Free.
    - Zero ODP.
    - GWP Less Than 5.

- Fixing: Mechanical Only.
  - Insulation Adhesive: N/A.
  - Fixing Type: ISO 40/60 90mm (Subject to pull out tests).

- Reinforcement: WBS Alkali Resistant Scrim Cloth incorporated into top third of the scrim adhesive.
  - Reinforcement Adhesive: Wetherby Premium K&A Scrim Adhesive.
  - Secondary Fixing: Not Required.
    - Fixing Type: N/A.

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

- Beads / Trims / Accessories.
  - Wetherby Starter Track Ref: WBS 9146 60mm Aluminium Base Rail fixed to substrate at 300mm centres using a WBS HIT 6/5 Hammerscrew Bead Fixing.
  - Wetherby Corner Reinforcement Ref: WBS 3707. PVCu corner bead with pre-bonded alkali resistant glass-fibre mesh wings.
  - Wetherby Sealing Tape: Pre-compressed, expanding waterproof sealing tape (2-6mm joint widths) for abutments to cills, soffits and other surfaces.

- Accessories:
  WBS RS6 6-8mm PVCu Render Stop Bead
  WBS 37400 6mm PVCu Base Profile Clip with Mesh
  WBS MJ6 6-8mm PVCu Movement Joint Bead
  WBS 741/110 Verge Trims
  WBS Jointing Pieces
  WBS End Caps to suit 741/110
  WBS Silicone Sealant.

310 DESIGN

- Complete the detailed design of system and associated features shown on drawings: Complete to meet requirements of this specification. Refer to drawings.

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 shall be: Wetherby Standard Reinforcing Mesh.

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 WBS 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, then please refer to WBS Limited 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.
- 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.

**INSTALLATION**

410A INSTALLATION

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

415A EWI SILICONE APPLICATION

- Attach base rails horizontally at the base of the system, true to line and level and in full lengths where possible. Wetherby base rails to be fixed at 300mm centres with additional fixings at 50mm from each end. Packing shims to be used where required to ensure base rail is true to line and level.
- Attach full system stop beads where required, true to line and level. Fix stop beads at 300mm centres with additional fixings 50mm from each end. Fix all other system trims and flashings in place at 300mm centres ensuring they are true to line and level.
- Position insulation boards horizontally to the substrate and ensure they are line and level. Stagger all vertical joints. No joints in boards at corners of windows and doors and all boards are interleaved at external corners. All joints must be tightly butted to eliminate thermal breaks. Where the insulation boards butt up against dissimilar materials, supply and install WBS Sealing Tape to the adjacent surface and ensure the boards are fitted tight against the seal ensuring full compression of the tape.

- Fix boards mechanically to the substrate using approved WBS fixings at a rate of 8 - 9 fixings per m² in accordance with WBS fixing patterns (fixing pattern located at the back of this document). Fixings shall be installed so that the fixing head is flush with the insulation board surface.
- Mix WBS Scrim Adhesive with paddle mixer and 4-5 litres cold clean water. When mixed allow to stand for 4-5 mins then remix to ensure polymers are fully dispersed and use immediately.
- Apply the WBS scrim adhesive to an even thickness of 4-6mm. Bed the WBS Mineral Fibre Mesh into the top third of the basecoat, overlapped by 75mm. Mesh to be kept taught and fixed from top downwards. No laps within 150mm of any reveal or corner. Ensure mesh is covered by the basecoat.
- Position 200mm x 200mm off cuts of mesh at 45° to window opening corners. Apply PVC surface render beads as specified.
- Allow reinforcement layer to dry and harden.
- Apply a further tight levelling coat of 2-3mm WBS Scrim Adhesive to the entire wall surface ensuring all alkali resistant mesh is covered. Trowel the WBS Scrim Adhesive smooth using a damp sponge float or spatula to achieve a uniform flat and even surface ready to receive the WBS final finish.
- Allow thorough drying time before proceeding with the WBS system.
- WBS Primer: Apply the WBS Primer over the basecoat with a roller or brush and leave to dry.
- Decorative Finish Coat: WBS Silicone Textured Finish.
- Using a clean, rust-free low speed mixer, thoroughly stir the WBS texture finish to a uniform consistency.
- Apply WBS Silicone Textured Finish in a continuous application always working to a wet edge and in the same direction to ensure consistency of finish.
- Wherever possible, entire elevations shall 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 WBS Silicone Texture with different batch numbers on the same elevation. Care should be taken to avoid texture changes at different levels.
- Always ensure that the scaffold boards are free from dust before commencing application of the final coat to prevent staining of the finish coat.
- Observe temperature and humidity requirements for the applications of water based materials during application and drying.
- Prior to setting, polish render with plastic float to give an even texture and remove all trowel in marks.

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 on a falling thermometer or below 3°C on a rising thermometer where temperatures are expected to stay above 5°C for an extended period.
- 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.
- 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.

430 SUBSTRATES

- Condition before pre-treatment/ application of coatings: Structurally sound, adequately true to plumb line and level. Dry, free from contamination by dirt, dust, efflorescence or other deleterious substances, and in a suitable condition to receive specified coatings.

440 ON SITE PULL OUT TESTS ON FIXING PINS

- Objective: To prove suitability of structural substrate and determine size and number of fixings required.
- Pull out test load: 3 x design load.
- Period of notice: Five working days.

490 CONSTRUCTION / MOVEMENT JOINTS / SLIP JOINTS

- Location: As shown on drawings.
- Formation: Accurately to detail.
- Modifications to joint locations/ design: Agree revisions before proceeding.

515 LIGHTNING CONDUCTOR

Fix Mineral Fibre insulation strip around the Lightning Conductor with Stainless Steel fixings. Notch the back of the insulation board to allow for movement of Lightning Conductor leaving a 10mm gap as per detail drawing (WBS-LIGHTC-SIL-01).

520 SUPPORTS FOR SERVICES / FITTINGS

- Supports for soil and rainwater pipes, signs, CCTV cameras, etc: Provide in locations shown on the drawings.
- Type: timber patresses same thickness as the insulation, fixed back to the load-bearing background using proprietary countersunk stainless steel screws or other non-corrodible fixings. Timber patress to be no more than 200 x 200mm.
- No load is to be transferred to the insulated render system.
- Alternatively, sleeved fixings shall be installed into the load-bearing background after completion of the render works in accordance with the manufacturer's 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 or left open and visible and must not be contained by ducting irrespective of duct cover type.

530 SEALANT JOINTS

- Sealant: Type recommended by system manufacturer.
- Joints: Formed in accordance with section Z22 and system manufacturer's recommendations using any necessary joint fillers, backing strips, etc.

540 STORAGE OF MATERIALS

- Adequate dry weatherproof and ventilated storage shall be provided for materials.
- All materials shall be protected against frost.
- Cementitious products shall be stored off the floor.
- Renders to be stored in temperatures of at least 5°C.

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.

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 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 POLUTION

- 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.

950 BS EN ISO 9001: 2008 QUALITY MANAGEMENT SYSTEMS

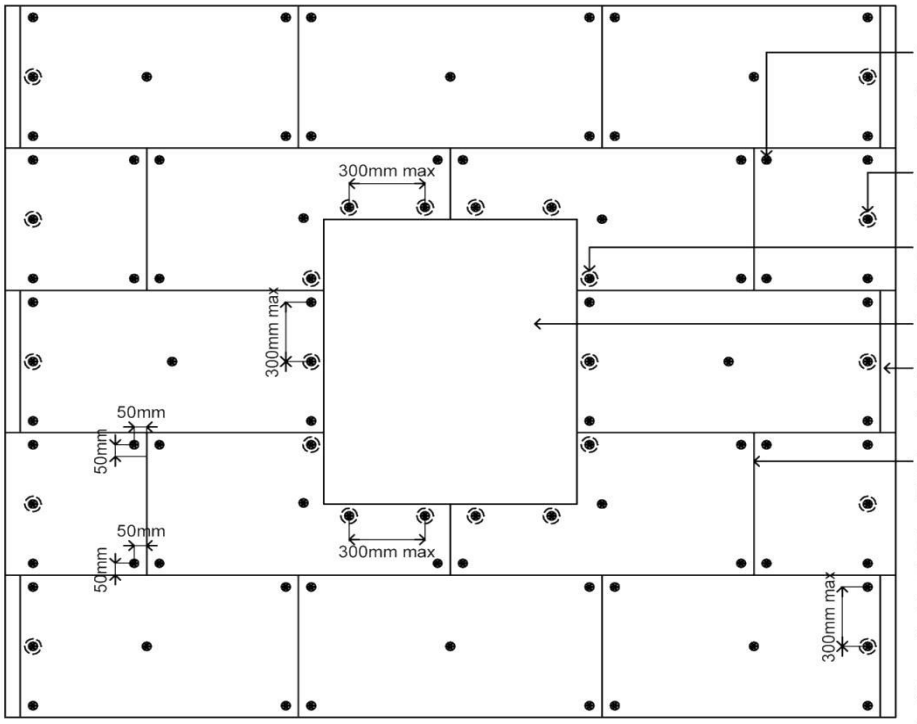
The Manufacture and Supply of the WBS External Wall Insulation System must comply to the requirements of BS EN ISO 9001: 2008 in the following areas:-

- Training of Applicators: The Application of the WBS External Wall Insulation System shall be undertaken by Approved contractors who have been trained in the installation of the System.
- Technical Services: A Technical Service facility shall be provided to ensure adherence to Specification.
- Quality Control: All component parts of the External Wall Insulation System must comply with the requirements of BS EN ISO 9001: 2008 in the area of Quality Control.

960 BS EN ISO 14001: 2008 ENVIRONMENTAL MANAGEMENT SYSTEMS

The Supply of the WBS External Wall Insulation System must comply to the requirements of BS EN ISO 14001: 2004.

## Wetherby EWI Fixing Pattern




WBS approved insulation fixings 1 in each corner of the board set in 50mm in each direction and 1 in the centre of each board

Fixings at a maximum of 300mm centres at building corner

Fixings at a maximum of 300mm centres around all openings

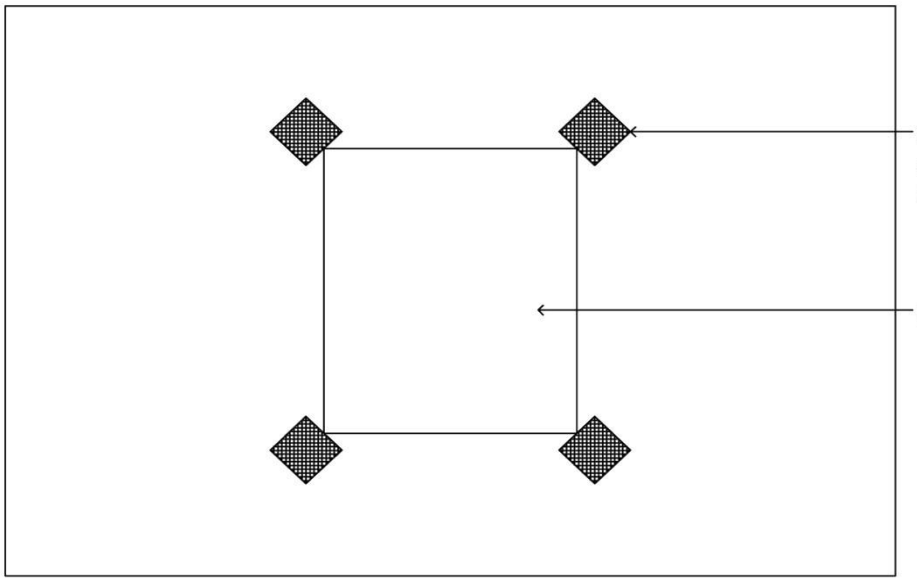
Window / door opening

Staggered insulation board joints at building corner

1200x600mm WBS approved insulation boards

N.B. 1 fixing per m2 must be installed through the glass fibre mesh where mineral fibre is the chosen insulant. 100 x 100mm scrim patch to be applied over fixing head

Stainless steel secondary fixings are required on all buildings 4 storeys and above



200x200mm glass fibre reinforcing mesh scrim bedded in adhesive to all window/door corners on top of main reinforcing coat

Window / door opening