

Specification Ref: SP_20-11-10 10601245-1JA
Description: StoTherm Mineral-M-RotofixMini-LSF_and_CCB-StoSilco_K1.5
Project Name: Design House
Project Address: 108 High Street, Manchester, M4 1HT
Client: DMWR Architects
Date: 10-Nov-20
Project Manager: Jeremy Ash 07730 912905

M21 INSULATION WITH RENDERED FINISH

SPECIFICATION OF MATERIALS

NBS Clause 220 EXTERNAL WALL INSULATION SYSTEM M - Mechanically Fixed.

StoTherm Mineral Sto Ltd provide a range of external wall insulating systems comprising insulation boards, reinforcing render and decorative finishes.

StoTherm Mineral M Rotofix Mini. A mechanically fixed externally insulated mineral fibre based façade system available with rendered finishes or with Sto-Resin Brick Slips, suitable for use on buildings up to and above 18 metres in height (dependent upon location and finishes specified).

THERE MAY BE A REQUIREMENT FOR CAVITY BARRIERS TO OPENINGS IN THE SYSTEM, AND THIS SHOULD BE CONSIDERED AT AN EARLY STAGE IN THE DESIGN. ANY SUCH REQUIREMENTS SHOULD BE VERIFIED THROUGH CONSULTATION WITH THE LOCAL BUILDING CONTROL OFFICE OR OTHER RESPONSIBLE BODIES.

Basic System Components

Sto Perforated Aluminium Starter Track

Sto-Mineral Fibre Board MHD – Square Edged (Mono-High Density)

Insulation Fixing: Sto-Rotofix Mini

Accessories: Sto-Clip Profile Novo

Accessories: Sto PVC Mesh Angle Beads

Accessories: Sto Armour Angle

Accessories: StoSeal Joint Sealing Tape Lento 15/2-5, 15/5-12 or 25/9-18.

Accessories: StoSeal Beads (Standard / Bravo / Perfekt / Expert / Supra)

Reinforcing Coat: StoLevell-Duo Plus

Reinforcing Mesh: Sto-Glass Fibre Reinforcing Mesh

Sto-Primer (Putzgrund)

Finish: StoSilco K

StoSilco renders contain approximately 20% silicone resin content by mass of the

binder.

Note: The above are standard products and accessories used with this system. Refer to construction issue drawings for information regarding the requirement for other beads / trims in specific locations.

Manufacturer:

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Survey of Existing Walls / Substrates

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To assess the suitability of the substrate prior to commencement of installation, carry out a survey of each elevation of the existing structural substrate.

Include the following:

Condition of substrate.

Form of the substrate (with particular regard to line / straightness).

A schedule of repairs necessary to leave the substrate in a suitable condition to receive the system.

A schedule of services, fixtures and fittings to be either removed or installed to facilitate correct installation of the system.

A schedule of areas where the maximum spacing capacity of the Sto-Rotofix fixing is likely to be exceeded, and adjustment of either the substrate or the finished facade will be required.

Any other information considered relevant.

Substrate Condition:

Calcium Cement Board: substrates require no special preparation and the Sto-Rotofix mini system can accommodate limited changes in levels.

Structural substrate:

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Calcium Cement board on light steel frame. 12mm thick for StoTherm 'M' Rotofix Plus / Rotofix Mini systems, minimum 12mm thick for all other StoTherm systems.

The suitability of the board as a sheathing material for the given application must be confirmed by the Contract Administrator.

Substrate Preparation:

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Existing substrate requires no special preparation. Make good as necessary.

Substrate Pre-treatment:

Depending upon specific site conditions, there may be a requirement for surface pre-treatment(s) in addition or as an alternative, to any described above. In cases where the substrate is not as described above, please consult Sto Ltd for further advice.

Insulation support rails:

'M' Rotofix Mini system: Sto perforated aluminium horizontal starter track; 2.0m or Sto-Aluminium Flexicurve starter track 2.5m (also used to radius). Size of aluminium starter track to suit thickness of insulation.

Method of fixing:

All StoTherm external wall insulation system installations will require a system fixing assessment to determine the fixing requirement(s) for each project.

In the event that a fixing assessment has not been issued, please contact the Sto Project / Account Manager to discuss wind loadings for the project and arrange for a fixing assessment to be carried out.

Starter tracks (and firebreak rails where required) fixed using Sto-Screw Rail Fixing CS 5.5 x 50/70 to light steel frame &/or cement based sheathing board substrates in accordance with Sto Ltd recommendations, and on-site pull out tests.

Alternative stainless steel fixing: Sto-Screw Rail Fixing SS 5.5 x 50/70.

Fixings to be at maximum 300mm centres and with a fixing in the nearest available suitably sized hole to the end of the track.

Packing shims to be used to overcome surface irregularities in the substrate.

Sto Rotofix Mini adjustable fixings used with Sto-Mineral Fibre Board MHD (mono-high density) insulation onto dense masonry, 12mm cement particle board, 18mm plywood / OSB or CLT panels.

For 60 – 100mm thick MF insulation – Sto-Rotofix Mini Yellow 80T fixing.

PLEASE NOTE: The Rotofix Mini fixing is 80 mm long. Consequently, the system depth where 60 mm or 70 mm thick insulation is specified will be a minimum of 80 mm (+thickness of render coatings).

Where a sheathing board is installed onto a timber framed structure, the 80T Rotofix Mini fixing must only be installed into the sheathing board and is not suitable for fixing into the timber studs.

Insulation:

Sto-Mineral Fibre Board MHD (mono-high density) for use with StoTherm Mineral M Rotofix Plus / Rotofix Mini systems.

A1 Non-combustible in accordance with EN 13501-1.

Thermal Conductivity 0.039 W/Mk to BS 3958-5: 1986 & DIN 52 612.

Density: 140 kg/m³

Minimum Compressive strength: 20 kN/m² @ 10% compression

Sto-Mineral Fibre Board MHD (mono-high density) used to create horizontal (and vertical where required) firebreaks in conjunction with StoLevell Uni adhesive of minimum width 200mm (100mm in vertical fire barriers) to close the cavity and provide a smoke barrier where the cavity does not exceed 24mm.

A1 Non-combustible in accordance with EN 13501-1.

Thermal Conductivity 0.039 W/Mk to BS 3958-5: 1986 & DIN 52 612.

Density: 140 kg/m³

Minimum Compressive strength: 20 kN/m² @ 10% compression

ALTERNATIVELY: where the cavity exceeds 24 mm, compressed mineral fibre quilt (minimum width 400mm) may be used behind the Mineral Fibre boards in lieu of the Sto adhesive, and the firebreaks restrained by Sto-Stainless Steel firebreak fixings at maximum 300mm centres.

Insulation – Board Size & Thickness:

60mm Mineral Fibre. 1200mm x 600mm board size, square edged. Standard thicknesses for StoTherm Mineral 'M' Rotofix Mini system from 60 to 100mm in 10mm increments. Thicknesses from 30mm upwards are available in Sto Mineral 'K' system boards (dual density) for use at reveals to openings. Consult with Sto Ltd for details and recommendations.

Beads/ Trims:

Sto Perforated Aluminium starter tracks 2.5M Flexicurve (where available in the required width), or alternatively, Sto-Aluminium starter track 2.0M, pre-drilled by the installer with minimum 6mm diameter holes at maximum 75mm centres, centrally along the entire length of the profile.

Sto PVC Mesh Angle beads.

Sto Armour Angle.

Sto-Seal Joint Sealing Tape Lento compressible waterproof sealing tape, available in either 15/2-6, 15/3-9 or 25/9-18 sizes.

StoSeal Beads. Available in five formats, some of which in addition to sealing interfaces, may be used to provide enhanced movement capabilities and a clean finished edge at reveals & heads of openings.

Sto-Stop Bead Standard - for face attachment on un-insulated reveals / heads with protective foil.

Sto-StopSeal Bead Bravo – Stop profile for face attachment with reinforcing mesh, seal and protective foil.

Sto-Seal Bead Perfekt – Stop profile for face attachment with reinforcing mesh and telescopic mechanism to accommodate movement and protective foil.

Sto-Seal Bead Expert – for side attachment to window / door frames, etc. with protective foil

Sto-Seal Bead Supra – Stop profile for face attachment with integrated PU sealing tape and protective foil.

Do not use Sto-Seal Beads around cills or at the bottom of openings in the system.

Sto Clip Profile Novo - A profile designed to clip onto the front edge of Sto Aluminium Starter Tracks, available in 6mm, 10mm and 15mm variants.

The Sto Clip Profile Novo is used to ensure the minimum render thickness is achieved at the base of the system and support the bottom edge of the render coatings, and shall be installed wherever mineral reinforcing coats are specified or wherever the total render coatings depth is 6mm or greater.

NOTE: The above are standard items used with this system. Refer to construction issue drawings for information regarding the requirement for other beads / trims in specific locations.

Consult with Sto Ltd for recommendations and details.

Fixings into / through system:

A range of fixing options is available. Contact Sto Ltd for recommendations and details.

Reinforcing coat:

StoLevell Duo Plus calcium silicate based reinforcing coat. Thickness to be nominal 5mm ensuring the reinforcing mesh is fully embedded and a level surface is provided.

Sto Primer (Putzgrund). Apply 1 full coat by brush or roller and allow to dry thoroughly.

Reinforcement:

Sto Glass Fibre Reinforcing Mesh.

In high traffic, vandal prone and anticipated impact areas additional reinforcement shall be Sto Armour Mesh.

Areas where Sto Armour Mesh is to be applied shall be clearly defined either within the contract documentation or marked on construction drawings.

Finish:

StoSilco cement free silicone resin render.

StoSilco renders contain approximately 20% silicone resin content by mass of the binder.

StoSilco QS – can be used in temperatures from +1°C to +10°C (max. +15°C) and relative humidity of up to 95%. Do not mix standard and QS grade of the same material type on the same elevation.

Thickness:

1.5mm

Texture:

K – Stippled.

NOTE: Where the colour specified below is in the C2, C3 or C4 categories, it is advisable to have the preceding coat tinted to the same colour reference as the finish colour.

Finish colour / reference:

Colour - TBA

Consult with Sto Ltd for details of colour options and to obtain samples.

NOTE: The use of surface finishes with a light reflectance value of less than 20% is restricted on StoTherm External Wall Insulation Systems. Written approval for the use of surface finishes whose LRV is less than 20% must be obtained from Sto Ltd before orders are placed.

Due to the natural chalking effect of dark or intense coloured renders, and to aid the appearance of colour consistency, it is either essential or strongly advised that such renders be overpainted with a compatible Sto façade paint as follows:

Essential: Colours of 15% light reflectance or less, or from C3 and C4 colour charge bands.

Strongly recommended: Colours between 15% and 20% light reflectance.

It is also strongly recommended that any render with 20% light reflectance or less, have a grain size of 1.5 mm or greater.

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| 310 | <p>DESIGN: Complete the detailed design of the system and associated features shown on the drawings to meet the requirements of this specification.</p> |
| 320 | <p>INTEGRITY:</p> <p>The installation must be weathertight under all anticipated conditions. Consult with Sto Ltd for specific details and relating to particular conditions.</p> <p>The installation must be capable of resisting all dead loads and design live loads, including impact and wind loads, and accommodate all thermal movements without damage.</p> <p>Render systems may not be applied to horizontal or near-horizontal surfaces. To enable the integrity of the system to be maintained at parapets / wall heads, it will be necessary to install copings or cappings. Render systems may not be continued over wall heads / parapets without the provision of suitable protection.</p> |
| 330 | <p>IMPACTLOADING: Resistance to hard body impact shall be:</p> <p>Category II - 10 Joules using a single layer of Sto-Glass Fibre Reinforcing Mesh.</p> <p>Category I - 10 Joules using 1 layer of Sto-Armour Mesh + 1 layer of Sto Glass Fibre Reinforcing Mesh.</p> <p>(The standard ETA requirement for impact resistance is based upon impacts using energy of 3 Joules & 10 Joules).</p> <p>The above categories are defined in the Guideline for European Technical Approval ETAG 004 and correspond to the degrees of exposure in use. They do not include an allowance for acts of vandalism.</p> |
| 340 | <p>WIND LOADING: Wind Loading should be calculated to BS EN 1991 - 1 - 4: 2005 + A1: 2010. In accordance with BS EN 1990: 2002, it is recommended that a load factor of 1.5 be applied to the calculated values to determine the ultimate wind suction load(s) to be resisted by the system.</p> <p>TO ENABLE ECONOMIC DESIGN, ACCURATE CALCULATIONS INDICATING NEGATIVE WIND LOADS MUST BE PRESENTED TO STO LTD AT THE EARLIEST POSSIBLE OPPORTUNITY, IN ORDER TO ENABLE A WIND LOAD / FIXING ASSESSMENT TO BE CARRIED OUT.</p> |

INSTALLATION

- 361 **SAMPLE(S):**
Provide sample(s) of:
StoSilco K1.5 / Colour - TBA
Obtain approval before starting work.
Keep sample(s) available on site throughout the contract for inspection/comparison purposes.
- 380 **UNIFORMITY OF COLOUR AND TEXTURE:** Once samples of coatings have been approved do not change type or proportion of constituent materials. Ensure that supplies of materials are sufficient to give consistent and uniform colour and texture.
- 410 Installation to be carried out by a contractor registered with Sto Ltd. It is also recommend that the contractor is a member of INCA, The Insulated Render and Cladding Association and subscribe to the INCA guideline that 75% of the work force, whether directly employed or subcontract, have been certified as being competent in the installation of External Wall Insulation Systems, by an INCA approved assessor.
- 420 Installation shall be made strictly in accordance with Sto Ltd instructions. Reference should be made to the project specification, method statement, drawings, technical data sheets, and all other relevant literature. Consult with Sto Ltd for latest literature.
- 440 **ADVERSE WEATHER:** Do not use materials that are or have been frozen. Do not apply materials to frost bound surfaces. Do not apply when the air or surface temperature is below 5 °C. Do not apply in direct sunlight or to surfaces recently exposed to direct sunlight.
Maintain temperature of the work above freezing until materials have fully hardened. Protect newly applied surfaces against rain and snow by covering when precipitation occurs.
Remove and replace any materials damaged by rain or frost.
- 460 **PULL OUT TEST(S) ON FIXING PINS** to be carried out on site to prove the suitability of the structural background and determine the size and number of fixings required. Give advance notice of testing to allow CA the opportunity to be present.
- 470 **CLEANLINESS:** Carefully protect all existing work and approaches using suitable boards, sheets, etc. Clean off any droppings from finished work immediately.
- 480 **RENDER THICKNESS GAUGES** or other suitable means must be used to ensure the specified coating thickness.
- 490 a **CURING:** Allow applied materials to dry out thoroughly before applying subsequent coats.
Take all necessary precautions to prevent newly applied materials from drying out too rapidly.
- 490 b **CONSTRUCTION / CONTRACTION JOINTS:** The system may be carried over construction / contraction joints within the building structure.
- 490 b **MOVEMENT JOINTS:** It may be possible – depending upon the degree and direction of movement expected - to extend the system over movement / expansion / deflection / structural joints within the building structure.

NOTE: It is likely that installations on timber framed substrates will require

horizontal movement joints at each floor level to accommodate shrinkage and compression as the building dries & settles.

CONSULT WITH STO LTD TO VERIFY JOINT REQUIREMENT AND TYPE.

Form joints accurately to detail and in locations shown on the drawings. If modifications to any joint location or design are necessary on site, agree revisions with CA before proceeding.

- 510 a **HORIZONTAL FIRE BARRIERS:** Non-combustible material with a reaction to fire classification of A1 in accordance with EN13501-1
 Size: Minimum 200mm (or as otherwise described above) x total thickness of external wall insulation.
 Install barriers at every floor level above the second storey/beginning of third storey (or below if required). Wherever possible, fire barriers should be positioned to be coincident with (or as close as possible to) the horizontal fire compartment within the structure.
 Adhere to the substrate using full width coverage of non-combustible Sto mineralic adhesive between back of fire break insulation and structural background. Closely butt at joints and intersections, leaving no gaps. Incorporate any mechanical fixings as shown on the drawings or described elsewhere.
- The provision of horizontal fire barriers shall be compliant with local Building Regulations / Technical Handbooks and to Building Control approval.
 Refer to Sto Standard Details for this system for specific fire barrier design.
- 510 b **VERTICAL FIRE BARRIERS:** Install vertical fire barriers where required to achieve integrity of fire compartments using Non-combustible material with a reaction to fire classification of A1 in accordance with EN13501-1. Minimum 200mm wide (or as otherwise described above) x total thickness of external wall insulation, shall be used in a staggered pattern to ensure a band of non-combustible material extending 100mm wide for the full height of the compartment. Wherever possible, fire barriers should be positioned to be coincident with (or as close as possible to) the vertical fire compartment within the structure.
 Adhere to the substrate using full width coverage of non-combustible Sto mineralic adhesive between back of fire break insulation and structural background. Closely butt at joints and intersections, leaving no gaps.
- The provision of vertical fire barriers shall be compliant with local Building Regulations / Technical Handbooks and to Building Control approval.
 Refer to Sto Standard Details for this system for specific fire barrier design.
- 510 c **CAVITY BARRIERS TO OPENINGS:** Install cavity fire barriers of an approved design above and to the sides of all openings through the system to meet the requirements of the relevant national Building Regulations / Technical Handbooks and to Building Control approval.
 Cavity barriers may consist of an appropriately positioned and fire resistant window / door frame, or other suitable non-combustible material or approved material of limited combustibility.
- 510 d **FIRE BARRIER FIXINGS:** All Sto Specified fixings to fire barriers to be stainless steel or as otherwise approved by Sto Ltd.
 Where the inclusion of such fixings is visible at the face of the insulation, this will introduce a cold bridge and may therefore result in the appearance of light spots in the render finish.
- 520 **SUPPORTS FOR SERVICES/FITTINGS:** Provide secure supports within the

insulation for soil and rainwater pipe brackets, aerials, cameras, lighting, signage and the like in locations shown on drawings. Consult with Sto Ltd for fixing methods / details.

- 530 **SEALANT JOINTS:** Location(s): At all interfaces between insulation / render and dissimilar materials.
Sealant:
StoSeal Joint Sealing Tape Lento 15/ 2-5, 15mm wide, installed thickness 2 – 5mm
OR
StoSeal Joint Sealing Tape Lento 15/ 5-12, 15mm wide, installed thickness 5 – 12mm
OR
StoSeal Joint Sealing Tape Lento 25/ 9-18, 25mm wide, installed thickness 9 – 18mm.
- StoSeal Beads (Perfect / Supra / Expert) may be used at recessed head and reveal interfaces in lieu of the above.
- Alternative: Sto PVC Stop Beads in conjunction with mastic sealant in locations where there is insufficient room / provision for StoSeal Joint Sealing Tape Lento or StoSeal beads to be installed.
NOTE: Mastic sealants are not generally supplied by Sto Ltd and are not specified in this document. The performance requirements, specification and suitability of mastic sealants must therefore be determined by the contract administrator.
- 550 **INSPECTION OF COMPLETED INSTALLATION:** As soon as possible after completion of the work and before removing scaffolding, carry out an inspection with the CA to identify any defects.