SOLTHERM
EWI SYSTEMS

SOLTHERM ULTIMATE A1 HD MINERAL STEEL FRAME SUBSTRATES

External Wall Insulation System

Fire Safe and Reliable

INSTALLATION GUIDE

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INTRODUCTION

This application guide is designed for use by qualified and Soltherm registered installers, who already have an extensive knowledge of external wall insulation (EWI) install techniques.

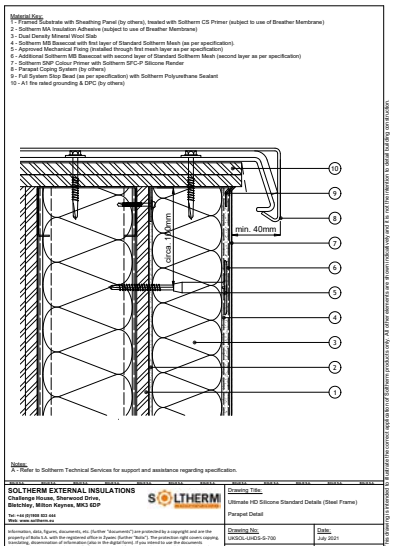
Soltherm introduce the only KIWA (BDA) certified A1 non-combustible external wall insulation system, for application direct onto steel frame substrates.
Ultimate A1 HD Mineral has been designed with fire performance its top priority, achieving a classification of A1 non-combustible in accordance with BS EN 13501-1:2018 fire classification of construction products and building elements. Fire regulation compliance is 100% guaranteed when specifying the Ultimate A1 HD Mineral System on buildings anywhere in the United Kingdom, including within boundaries and/or on high rise.

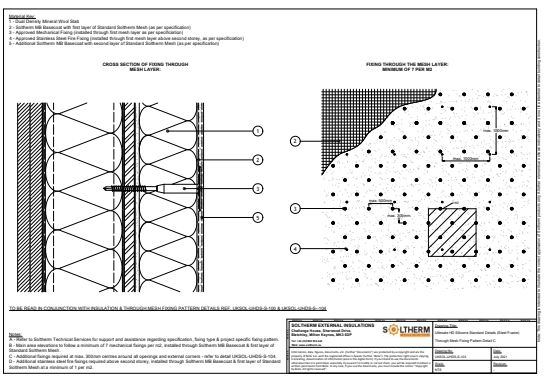
Utilisation of specialist A1 components and materials are what allow this system to achieve this industry leading A1 fire classification.

Important information

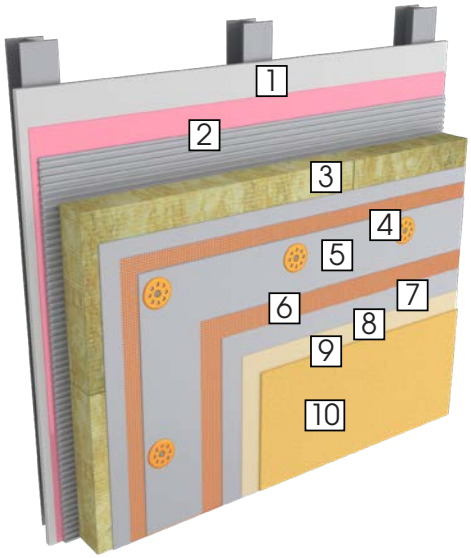
Prior to commencing with the installation of the Soltherm Ultimate A1 HD Mineral system, the Soltherm Registered Contractor is required to ensure the following;

- The installation team have had Soltherm Ultimate A1 HD Mineral training.
- A non-draft project specification has been issued by Soltherm with fixing pattern and any unique detailing requirements.
- Datasheets of all the Soltherm materials are readily available and guidelines contained within are adhered to in relation to application, preparation and health and safety (H&S).
- If the building is high rise, as defined in Building Regulations, the Contracts Administrator has confirmed that the substrate is structurally suitable to carry the EWI system and any structural repairs deemed necessary have been completed to required specification.
- Scaffold and/or access is in accordance with all H&S requirements.
- Enabling works have been completed to a satisfactory standard.
- Windows, walkways, driveways and other features are protected from damage.
- Requirement for mechanical fixing pull out tests
- Wind load calculations

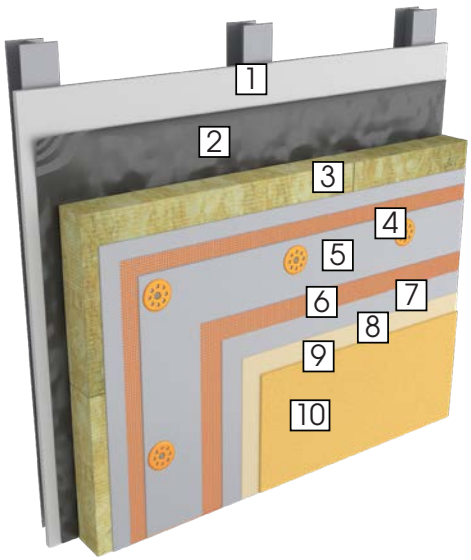




THE SYSTEM



ULTIMATE A1 HD MINERAL
(WITH ADHESIVE)



ULTIMATE A1 HD MINERAL
(EXCLUDING ADHESIVE)

1. Substrate
Ultimate A1 HD Mineral is suitable for use on steel frame substrates with 12mm (minimum thickness) A1 / A2-s1, d0 sheathing board. The substrate must be clean, dry and primed prior to the application of the system.

2. Soltherm MA Adhesvie/ Breather Membrane
A1 Insulation adhesive designed specifically for use with mineral wool insulation. If required by design, the use of a Breather Membrane may be incorporated into the wall construction, omitting the use of adhesive.

3. Mineral Wool Insulation
The A1 insulation utilising two different densities, providing improved impact resistance and thermal performance.

4. Mechanical Fixings
Soltherm approved screw or self-drilling fixings are specified. Refer to Soltherm standard details as well as fixing pattern implemented in the specification. Stainless steel fixings (fire fixings) only required above second storey to be installed through 1st layer of reinforcing coat.

5. Soltherm MB
A1 basecoat designed to encapsulate the reinforcement mesh, providing the system with water resistivity, breathability and impact protection.

6. Soltherm Glass Fibre Mesh
An alkali resistance reinforcement mesh bedded into the base coat providing increased flexibility, durability and impact resistance.

7. Soltherm AP Colour
Primer designed to aid the adhesion of the mineral topcoat to the basecoat whilst still allowing the system to achieve A1.

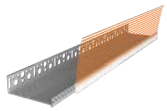
8. Soltherm MTC
A1 textured mineral topcoat available in different grain sizes depending on the projects aesthetic requirements.

9. Soltherm SNP
Primer designed to aid the adhesion of silicone paints to the mineral topcoats.

10. Soltherm STC-P
Industry leading silicone paint formulated so as to complement the Ultimate A1 Mineral System by providing a hydrophobic decorative protection layer that is available in hundreds of colours according to Soltherm Spectrum Colour Chart as well as RAL and NCS colour palettes, etc.

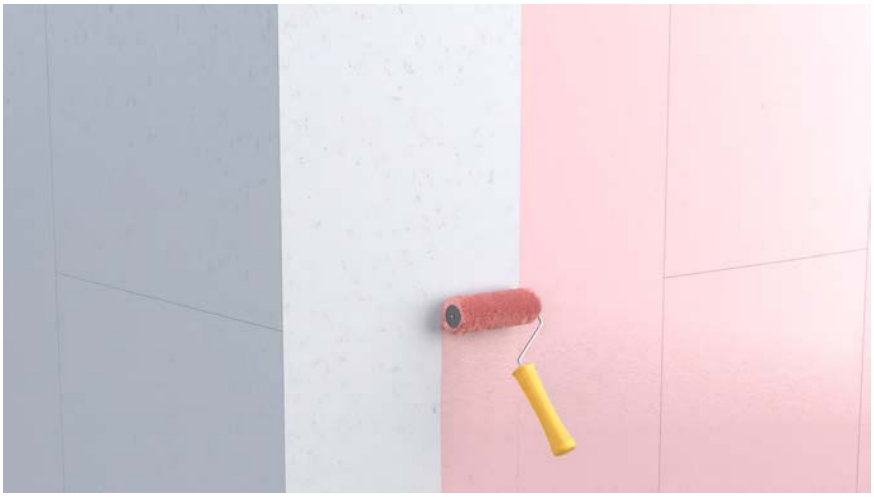
SYSTEM COMPONENTS & MATERIALS

IMPORTANT: When using any component, product or material, refer to the technical datasheet before proceeding with the installation.

SOLTHERM CS	A substrate primer for smooth, low porous substrates	14kg Bucket	Applied directly to the sheathing board by brush, or roller.	
SOLTHERM PROFILES & BEADS	Aluminium, PCG steel & PVC full system & surface mounted profiles.	Mostly 2.5m in length. Always refer to the specification and quotation	Full system beads are mechanically fixed and surface beads mainly bedded into base coat used as the adhesive. Always refer to the specification.	
SOLTHERM MA	Insulation adhesive specifically formulated for mineral wool insulation	25kg bag	Mix thoroughly with clean water (4.8 - 5.3 litre) allow to stand for 5 minutes and remix before applying in accordance with the specification.	
DUAL DENSITY MINERAL WOOL	A mineral wool insulation slab that has a denser surface to aid the application of renders and provide improved impact resistance.	1200x600mm slab of varying 10mm incremental thicknesses 50-250mm	If required, the insulation slabs can be cut with a saw to a suitable size.	
MECHANICAL FIXINGS	Soltherm approved screw or self-drilling fixings are specified – the fixing is installed through the insulation and through scrim coat in accordance with specification.		The fixing is installed through insulation or through scrim coat in accordance with the specification.	
SOLTHERM MB	Flexible, polymer modified base coat specifically formulated for application onto mineral wool insulation	25kg bag	Mix thoroughly with clean water (5.0 - 5.5 litre) allow to stand for 5 minutes and remix before applying in accordance with the specification.	
SOLTHERM GLASS-FIBRE MESH	An alkali resistance reinforcement mesh	50X1m roll	Cut to size with sharp knife.	
SOLTHERM AP COLOUR	Base coat primer to aid the adhesion of the mineral topcoat to the base coat.	25kg bucket	Mix thoroughly before application to the entire base coated area with a brush or roller.	
SOLTHERM MTC	A 2.0mm textured mineral top coat, white colour	25kg bag	Mix thoroughly with clean water (5.25 - 5.75 l per bag), allow to stand for 10 minutes and remix before applying in accordance with the specification.	
SOLTHERM SNP	Primer to aid the adhesion of silicone paint to the mineral topcoat.	20kg bucket	Mix thoroughly before application to the entire textured area with a brush or roller.	
SOLTHERM STC-P	Silicone paint, colour tinted as required.	18l bucket	Mix thoroughly. If necessary thin with a small amount of clean water (maximum 10 % for first top coat and 5% for second) making sure that the thinning proportions are the same for the entire painted area.	

INSTALLATION GUIDE

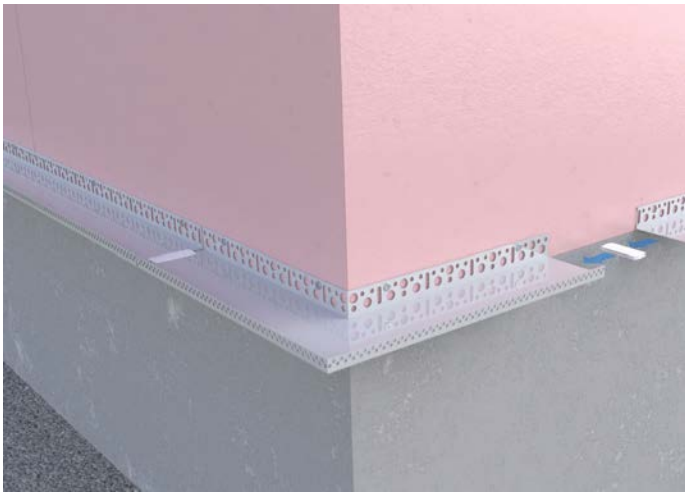
SUBSTRATE PREPARATION



Apply SOLTHERM CS primer to the substrate in accordance with the specification and technical datasheet and allow to dry.

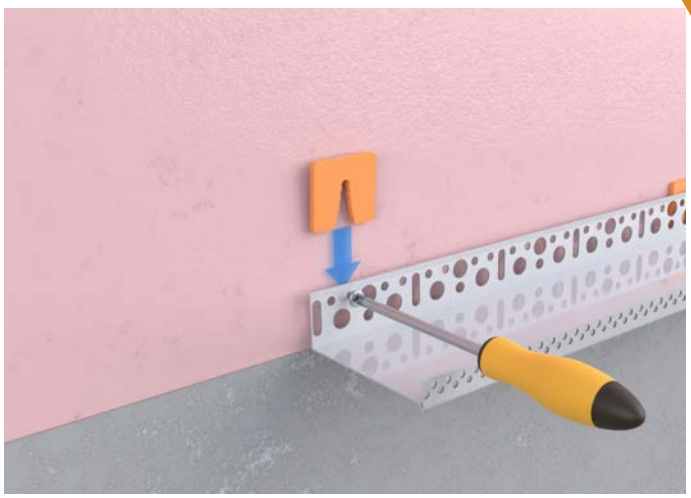
Surface irregularities and cavities must be made good prior to the installation of the system, any excessive irregularities, i.e. over plus or minus 5mm, must be made good prior to the installation to ensure that the system is installed correctly.

STARTER TRACK INSTALLATION



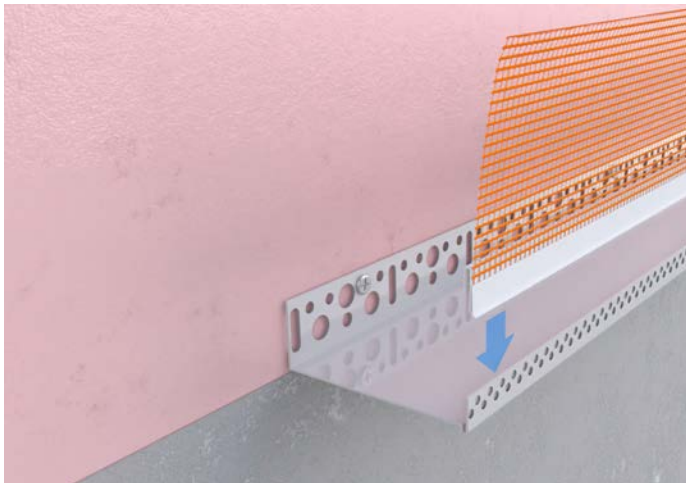
The SOLTHERM STARTER TRACK is installed at DPC level and at least 150mm above ground. The starter track is mechanically fixed at 300mm centres with specified fixing and approx. 50mm from the edge.

The SOLTHERM STARTER TRACK must be mitred at external corners and linked together with adjacent profiles using profile joint clips.

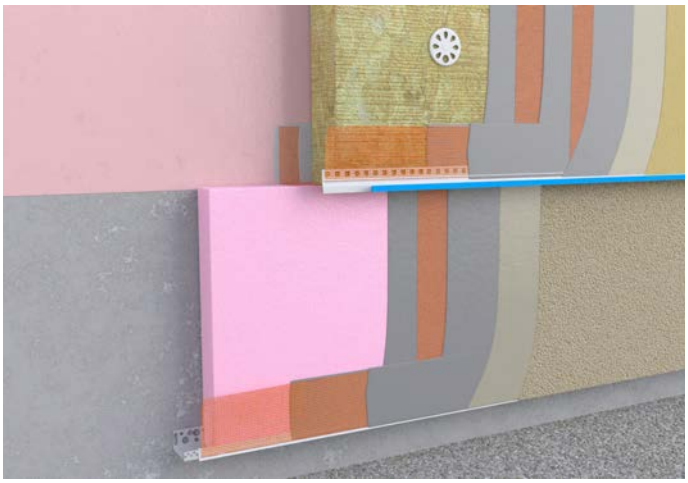


If the substrate is undulating and not line and level, it is acceptable to use packers

Due to the weight of the mineral wool insulation, it may be a requirement to temporarily support the SOLTHERM STARTER TRACK.



Once the starter track is installed, the SOLTHERM CLIP-ON STARTER BEAD can be clipped to the front of the SOLTHERM STARTER TRACK.



If the contract does require insulation below DPC, please refer to your specification and contact Soltherm Technical with any queries relating to the materials, installation techniques and detailing.

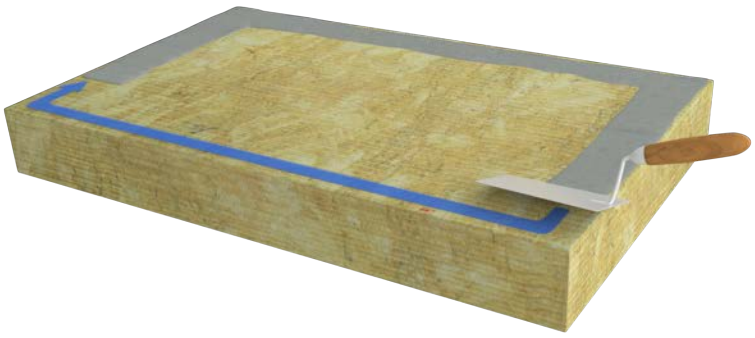
INSULATION ADHESIVE APPLICATION

Insulation adhesive, SOLTHERM MA, may be specified subject to the use of Breather Membrane. Refer to project specification for further guidance.

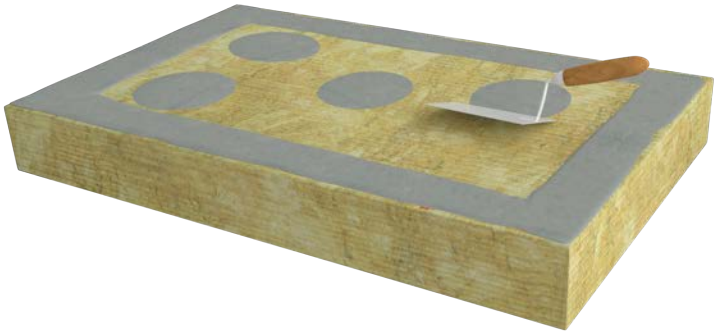
There are two approved application options for the installer to choose from, both must be applied to the non-dense face of the dual density board;

1. Ribbon & Dab Method – Suitable for substrate that have slight undulations
2. Notch Trowel Method – Suitable for line and level substrates,

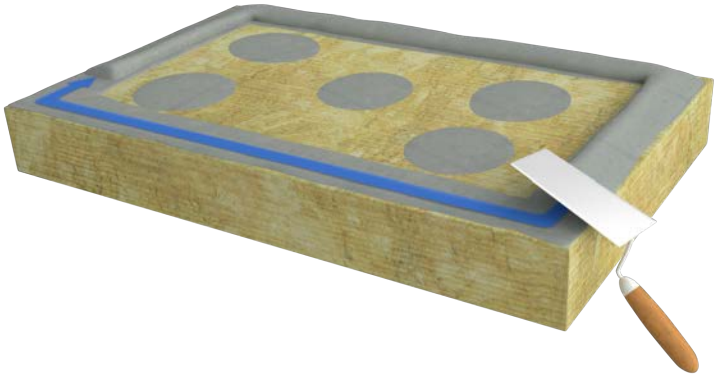
Both methods of adhesive application must have a contact layer applied prior, this is to aid adhesion.



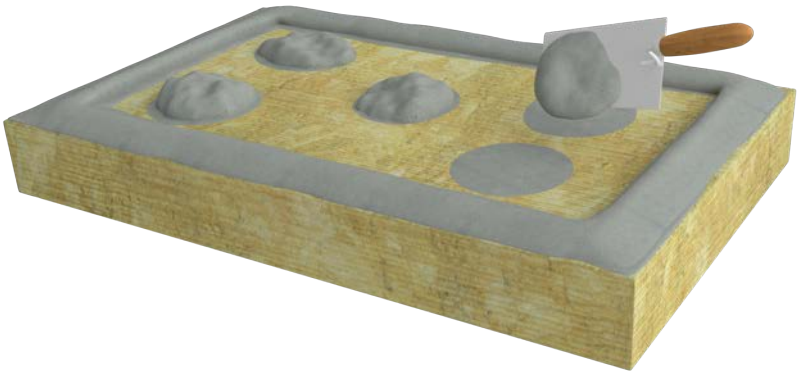
Ribbon & Dab Method
Apply the SOLTHERM MA as a contact layer to the insulation around the perimeter of the board, minimum 30mm



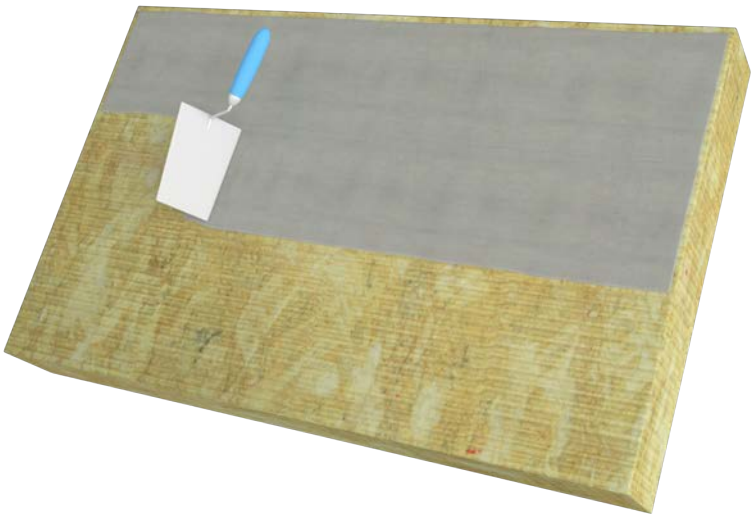
Repeat the contact layer application for 6-8 large dabs (80-100mm) to the centre of the board



Once the contact layer is applied, apply further insulation adhesive to the perimeter and where the dabs are located.

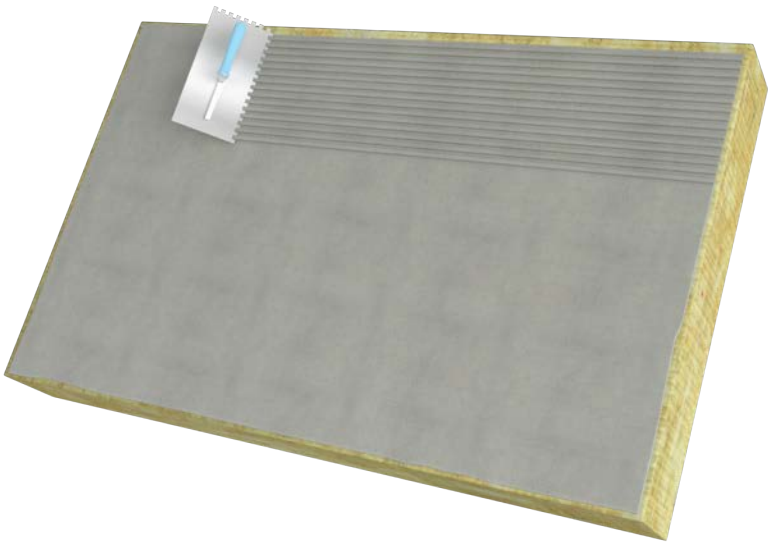


The adhesive thickness of the insulation adhesive layer, after pressing against the substrate wall, must be ≤10mm and cover ≥40% of the overall area of the board.



Notch Trowel Method
A contact layer must be applied to the entire back of the insulation board.

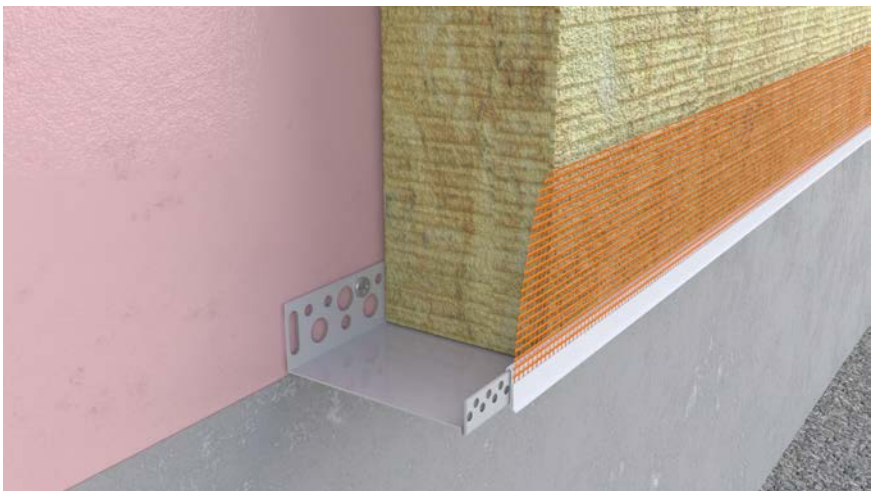
Once the contact layer is employed, the insulation adhesive can be applied with a 10X10mm notch trowel.



The insulation board is then pressed against the substrate wall and should achieve ≥90% contact area.

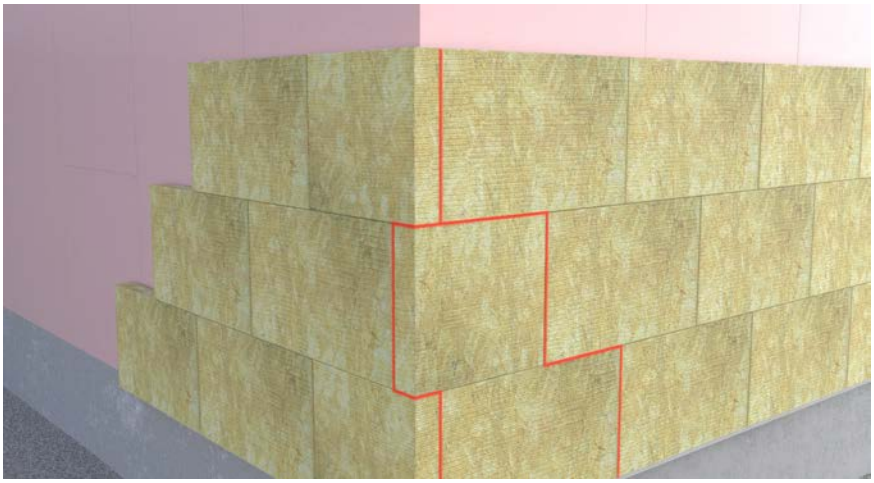
Important Note: The insulation adhesive must be allowed to dry before installing the mechanical fixings.

INSULATION BOARD INSTALLATION



The first course of dual density mineral wool boards are placed into the SOLTHERM STARTER TRACK with the mesh of the clip on bead facing outwards.

Insulation boards must be placed against the substrate in a brickbond manner achieving a minimum 150mm stagger with the above/below insulation panel.



External corners are formed as per a brickwork corner, ensuring a full brickbond.

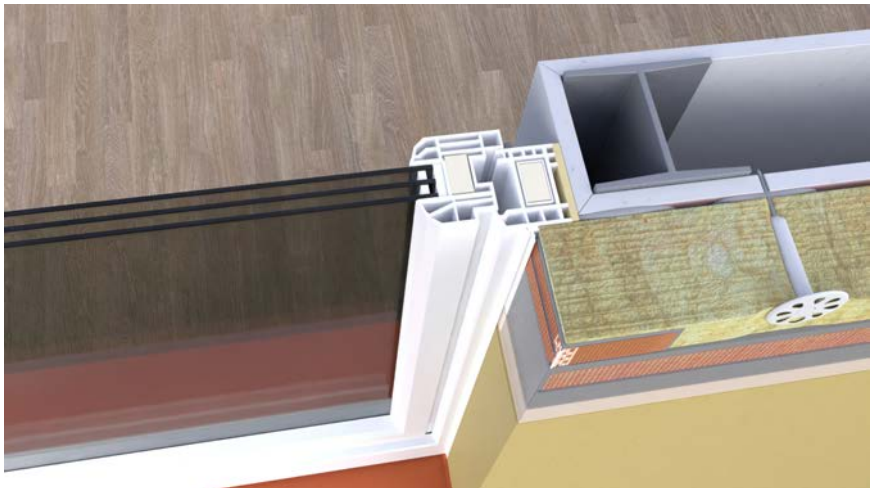
Always ensure that the insulation board are line and level throughout the façade, paying particular attention to external corners.

L shaped boards must be installed around all openings ensuring that no edge is smaller than 150mm and no piece of insulation smaller than 150mm throughout the installation.

INCORRECT

CORRECT

Any gaps between adjacent insulation panels must be filled with mineral wool slithers.



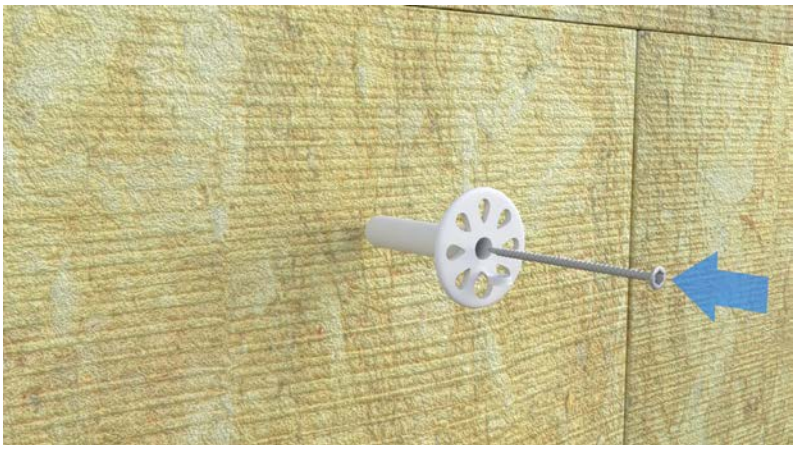
If windows are flush with the substrate, the main elevation insulation panels can simply over sail onto the window frame a minimum 20mm.

FIXING APPLICATION

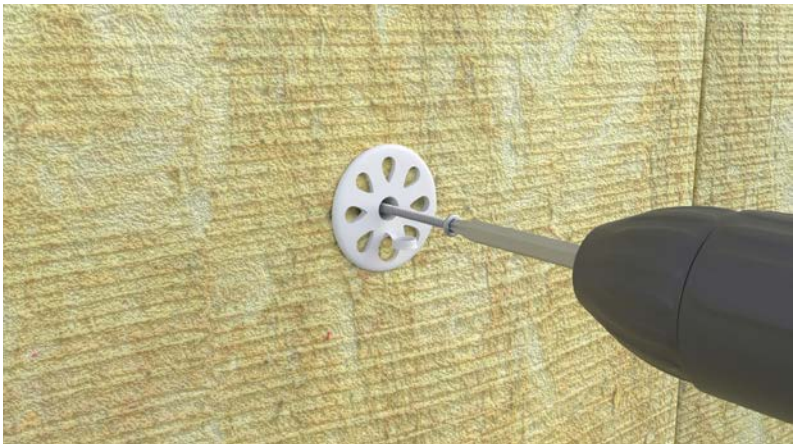
ULTIMATE A1 HD MINERAL

INITIAL FIXING APPLICATION FOR ULTIMATE A1 HD MINERAL

Once the insulation adhesive has cured (if specified), proceed with the installation of the mechanical fixings. Always refer to the specification for the appropriate fixing pattern.



Following the specified fixing pattern, drill & insert the screw fixing through the insulation into the substrate to the appropriate embedment depth.

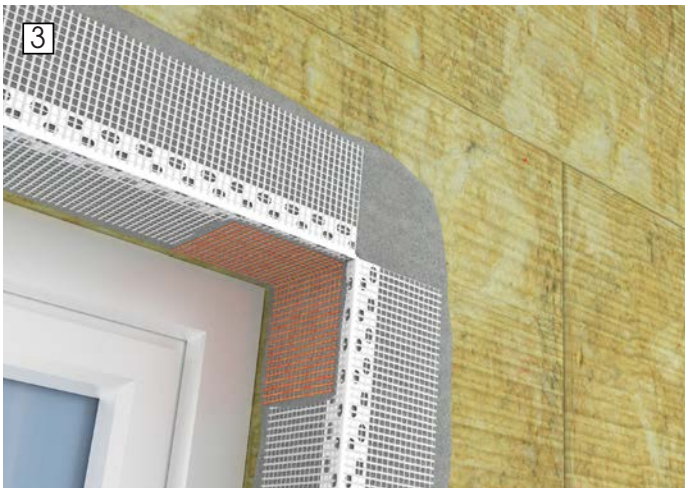


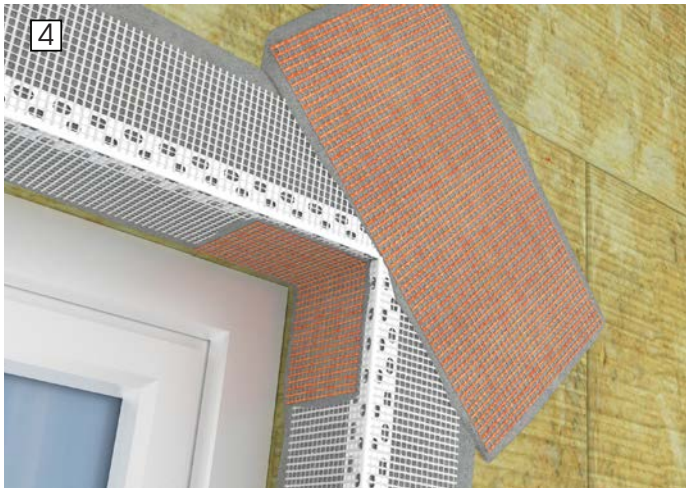
The fixing head should be slightly recessed into the insulation face by approx. 1-2mm.

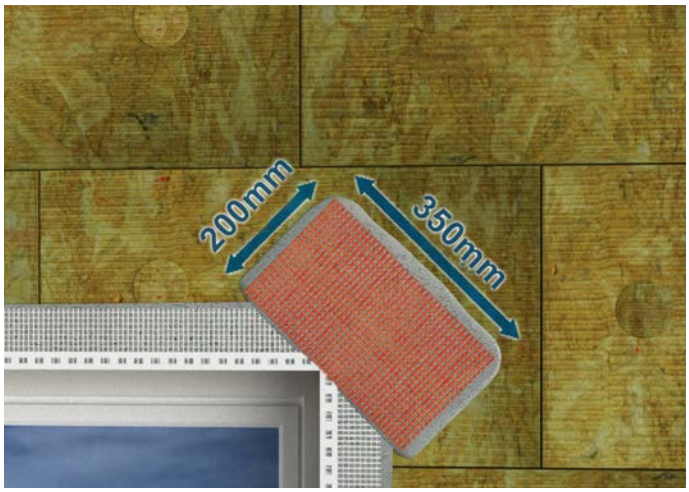
Where required, washers with integral caps must be set into the plate.

GENERAL SURFACE MOUNTED BEAD APPLICATION

All surface mounted beads must have an additional reinforcing mesh patch, min. 200x200mm, placed over the joint of adjacent beads to prevent cracking in the future. Additional stress patches of minimum 200x350mm cut from standard reinforcing mesh must be placed at the corners of all structural openings at an approximate 45° angle.







GENERAL SURFACE MOUNTED BEAD APPLICATION

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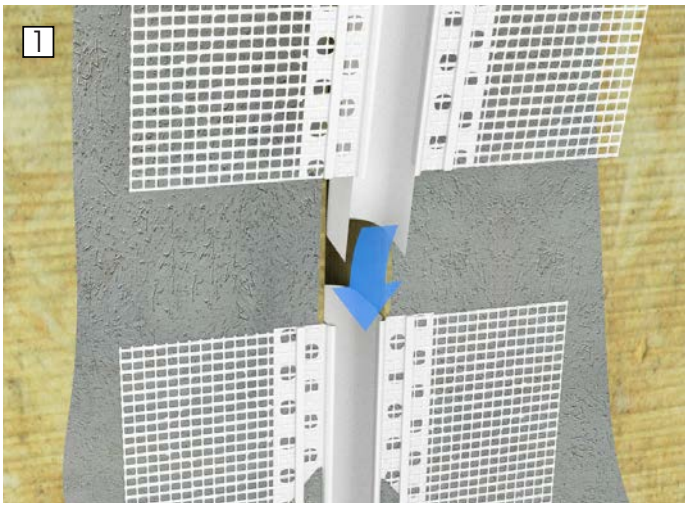

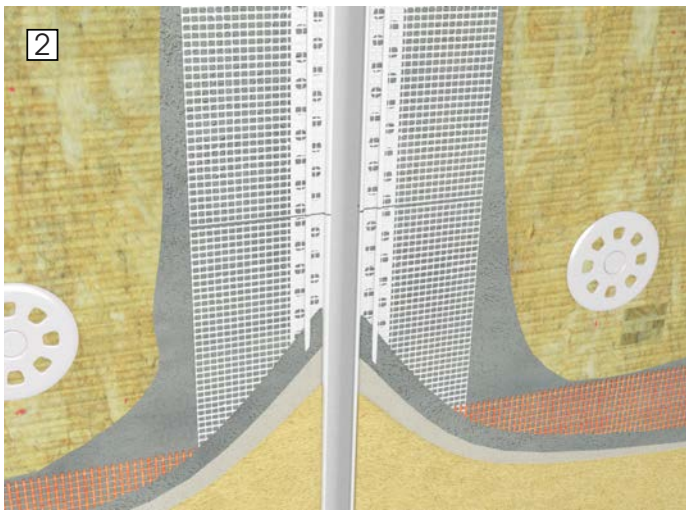

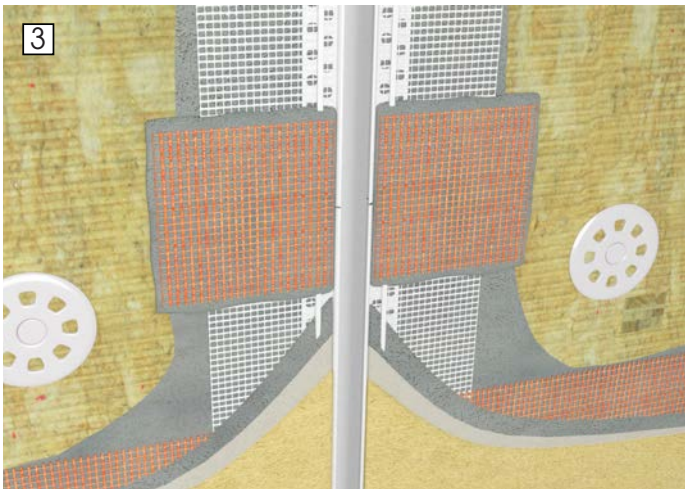

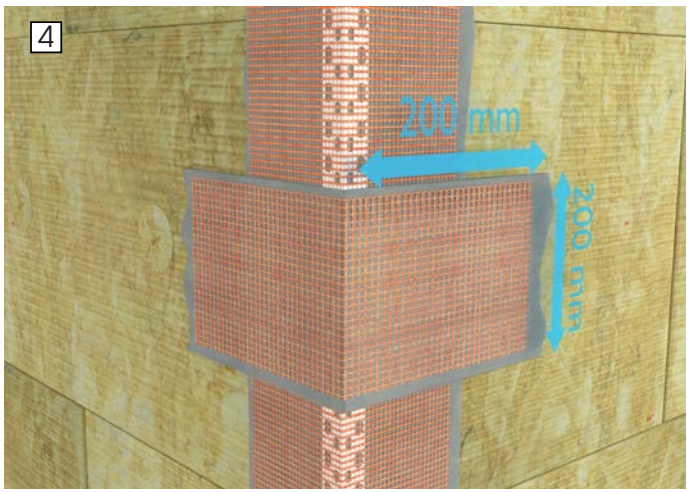

WINDOW BEAD APPLICATION

Window beads are used where the system interfaces with window frames. The beads interface perfectly with accommodating sacrificial window protection. The window must be cleaned prior to the application of the window bead.

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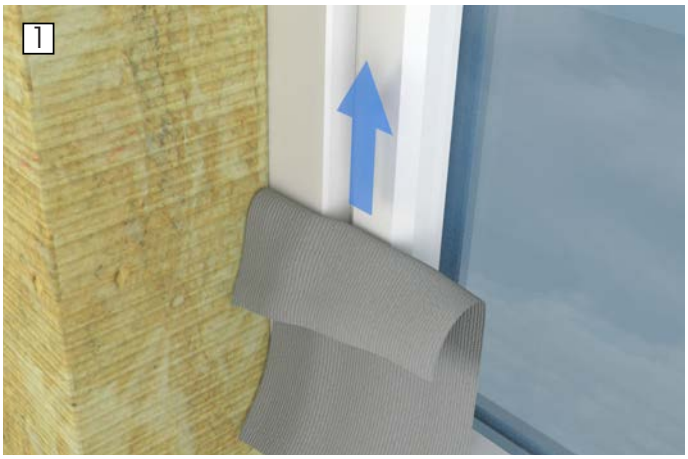

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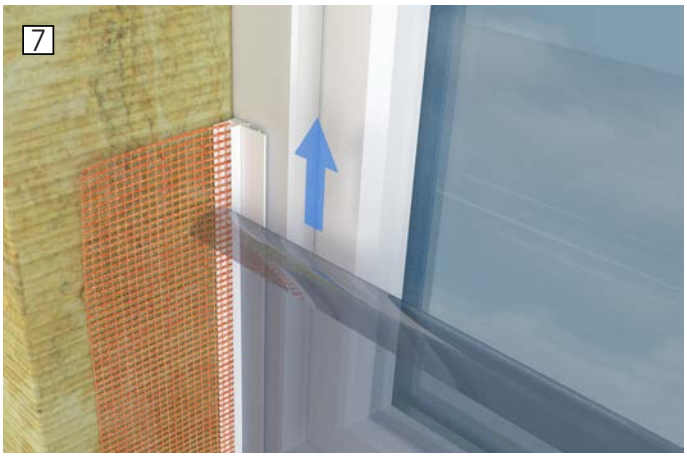

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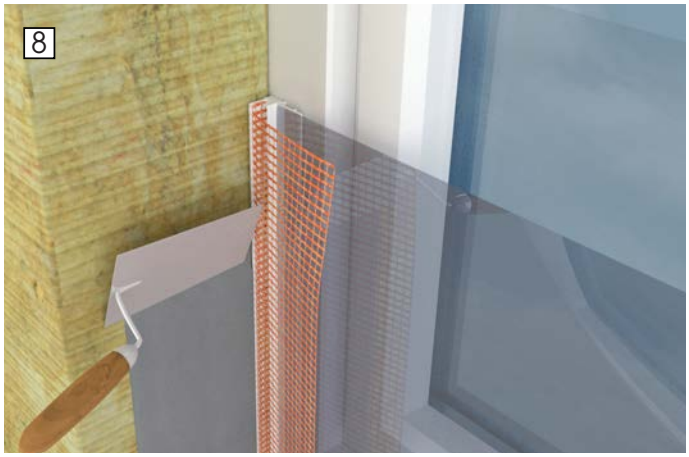
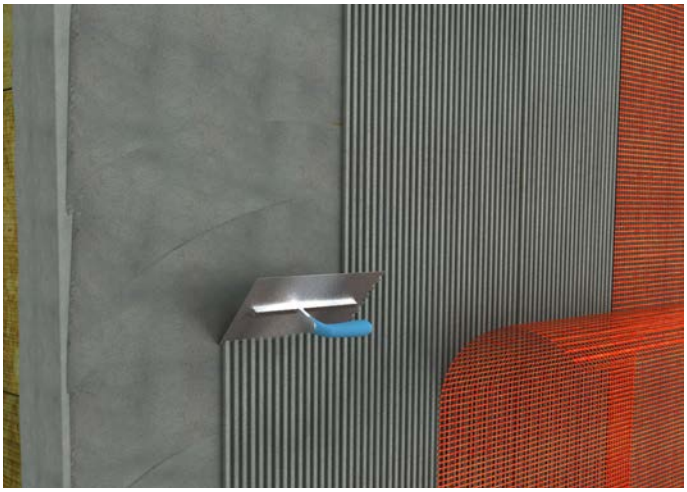
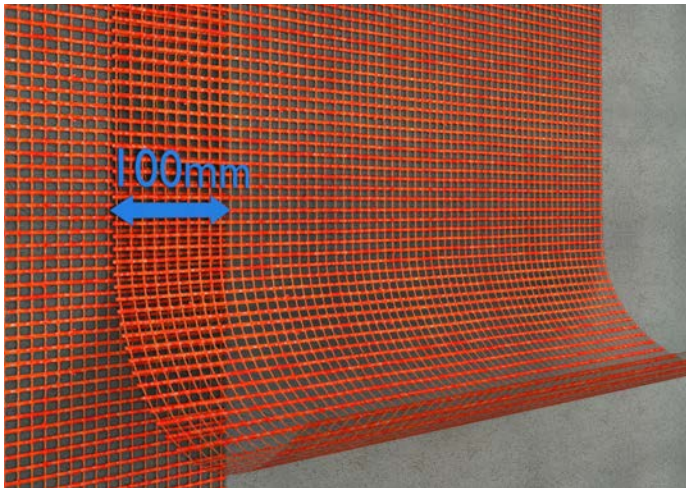


BASE COAT APPLICATION

Once all the beads are cured and in place, mix the SOLTHERM MB base coat in accordance with the technical datasheet. Using a clean stainless steel trowel, apply a very tight contact layer of the base coat to the insulation boards, then apply a layer of base coat over the contact layer "wet on wet", 3-4mm thick, working up to the beads.

While the base coat is thoroughly wet, using an 8-10mm notch trowel, apply a vertical notch. Gently lay the reinforcement mesh into the wet base coat, keeping the mesh in the top third of the material and ensuing the mesh has a minimum lap of 100mm with all adjacent meshes.

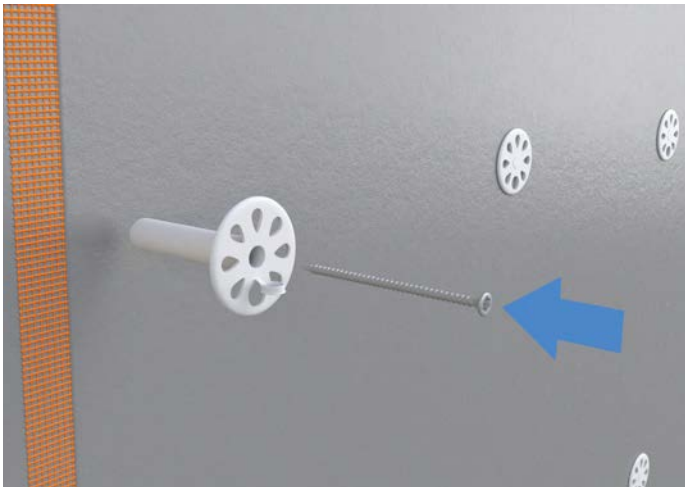




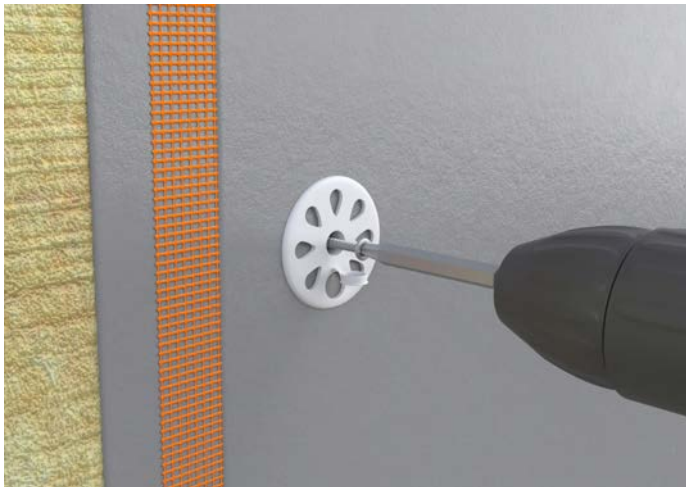
Allow the base coat to dry for approximately 24 hours before applying a tight slurry coat 1-2mm. The overall thickness of the base coat for ULTIMATE A1 MINERAL system should be between 3-5mm.

FIXING THROUGH THE MESH APPLICATION ULTIMATE A1 HD MINERAL

Whilst the specified basecoat is still wet and the Soltherm reinforcing mesh has been bedded in, proceed with the installation of the mechanical fixings.
Always refer to specification for the appropriate fixing pattern.

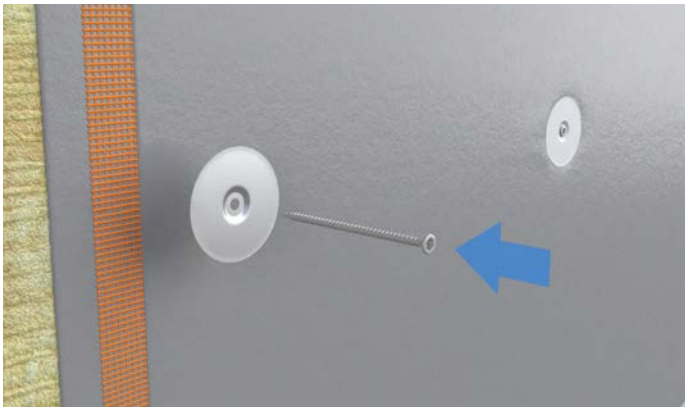


Following the specified fixing pattern, drill & insert the screw fixing through the basecoat and mesh, insulation into the substrate to the appropriate embedment depth.

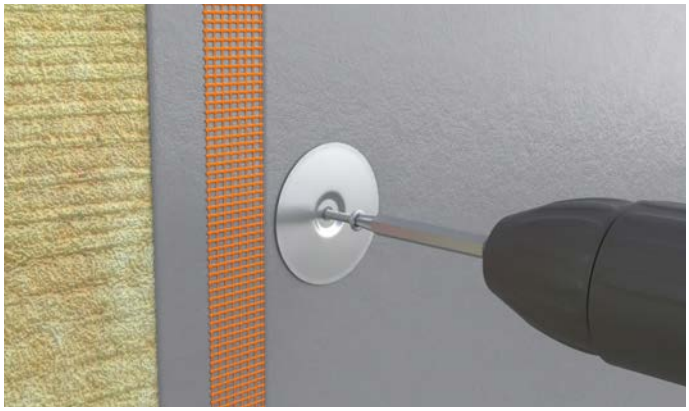


The fixing head should be slightly recessed into the scrim coat face by approx. 1-2mm.

FIRE FIXING INSTALLATION ULTIMATE A1 MINERAL & ULTIMATE A1 HD MINERAL



Whilst the specified basecoat is still wet and the Soltherm reinforcing mesh has been bedded in, proceed with the installation of the stainless steel fire fixings. Always refer to specification for the appropriate fixing pattern.

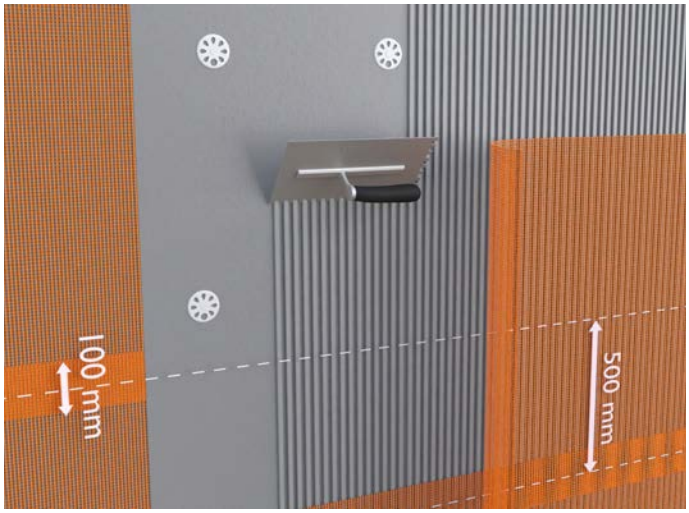


Drill & insert the screw fixing through the basecoat and mesh, insulation and into the substrate to the appropriate embedment depth. The fixing head should be slightly recessed into the scrim coat face about 1-2mm.

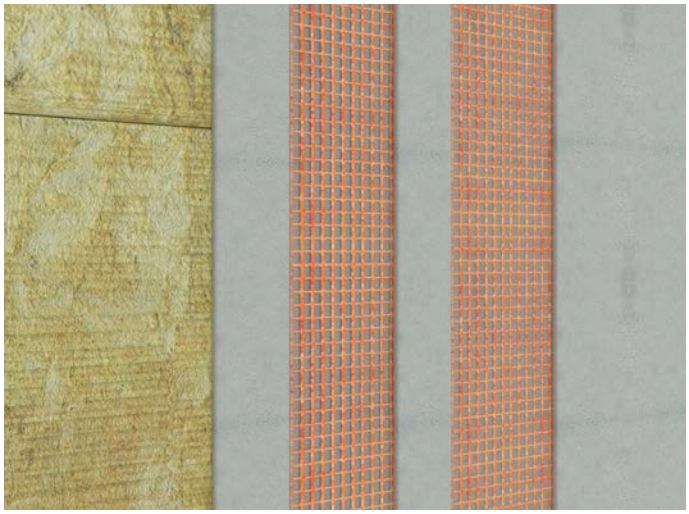
BASE COAT WITH SECOND MESH APPLICATION ULTIMATE A1 HD MINERAL

Allow SOLTHERM MB to sufficiently cure before proceeding with secondary reinforcing mesh application.
In case of salt efflorescence sighting on the surface of the first reinforcing coat, prior to application of second reinforcing coat, it must always be dry cleaned with a brush and removed thoroughly. Then apply substrate primer SOLTHERM SP exactly once in one layer.

Apply a further coat of SOLTHERM MB at 1-2mm thick and lay through Standard SOLTHERM MESH ensuring no mesh is visible and is fully encapsulated in the base coat.



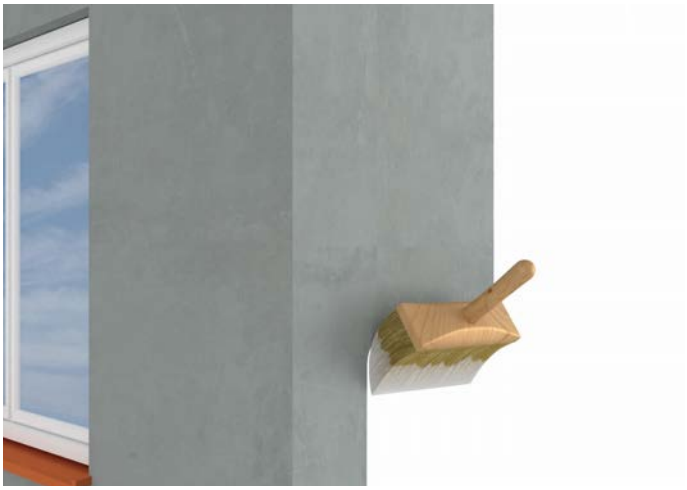
All secondary reinforcing mesh must maintain a minimum overlap of 100mm with adjacent mesh and all mesh joints must be staggered approximately 500mm from the joints the first reinforcing mesh application.



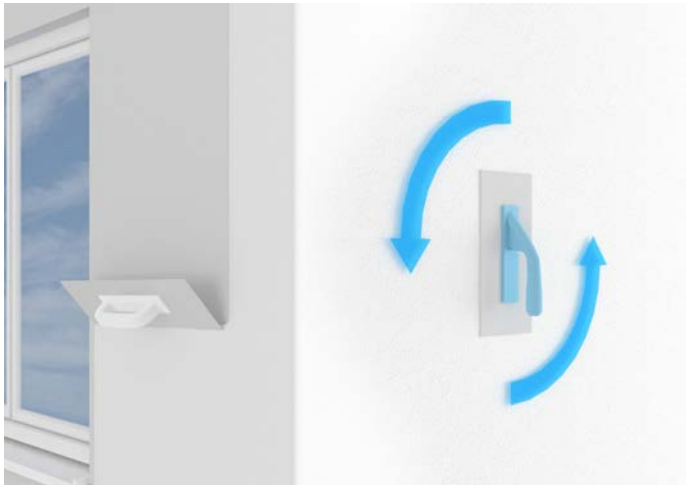
Allow the base coat to dry for approximately 24 hours before applying a tight slurry coat 1-2mm if required.
The overall thickness of the base coat for ULTIMATE A1 HD MINERAL system should be between 4-6mm with two reinforcing meshes.

Allow SOLTHERM MB to fully cure before rasping any remaining trowel lines or protrusions and proceeding with the installation of the system.

TEXTURE COAT AND SILICONE PAINT APPLICATION

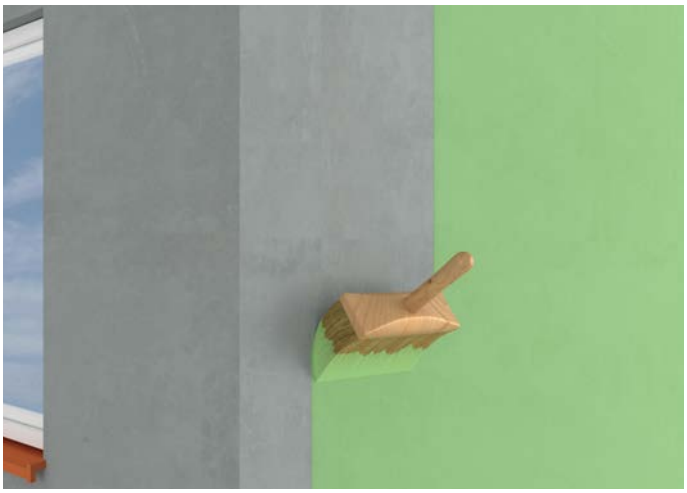


Primer SOLTHERM AP COLOUR must be applied in with a brush or a paint roller and allowed to completely dry for 4 to 6 hours prior to the application of the mineral texture coat.



The mineral texture coat SOLTHERM MTC 2.0 is applied to the required thicknesses (2 mm grain size), using a stainless steel trowel and finished with a plastic float to create a textured finish. The drying time is dependent on weather conditions.

Primer SOLTHERM SNP must be applied onto fully cured textured coat with a roller, brush or by spraying ensuring good coverage and allowed to completely dry for 4 to 6 hours prior to the application of the silicone paint SOLTHERM STC-P



Apply SOLTHERM STC-P to the primed decorative finish with a roller or brush in 2 coats.
Allow the first coat to fully cure before proceeding with the application of the second coat.

Once the system has fully cured, apply mastic seals in accordance with specification.

SOLTHERM
EWI SYSTEMS

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