



**SOLTHERM ULTIMATE SILICONE &  
ULTIMATE ACRYLIC  
SOLTHERM ULTIMATE HD SILICONE  
& HD ACRYLIC**  
External Wall insulation on

**APPLICATION GUIDE**



# CONTENTS

INTRODUCTION	PAGE 3
THE SYSTEM	PAGE 4
SYSTEM COMPONENTS & MATERIALS	PAGE 5
APPLICATION GUIDE	PAGE 6 - 20

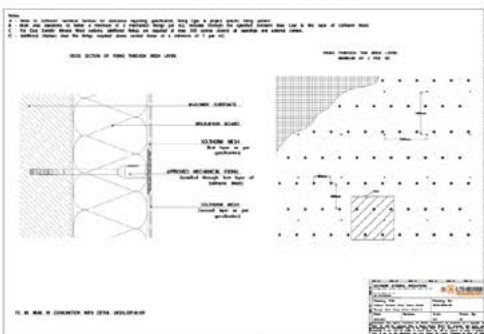
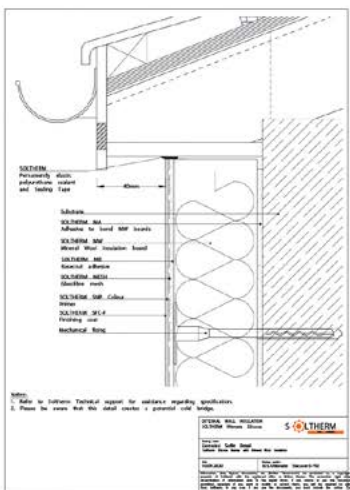


# INTRODUCTION

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.

Ultimate Silicone/Acrylic and Ultimate HD Silicone/Acrylic systems utilise A1 non-combustible mineral wool. The systems achieve fire rating A2-s1,d0 with compliance for use on high rise projects anywhere in Ireland and in the UK. Ultimate systems are available in a variety of finishes and colours, providing designers with unparalleled architectural freedom achieved with a diverse colour palette and multiple textures. All systems have low water absorbency, which protects against the penetration of wind-driven rain, dirt and destructive chemicals within the atmosphere, also preventing failure from freeze-thaw. Of equal importance is vapour permeability and durability, allowing the systems to breathe whilst protecting the system from day to day damage with a high level of impact resistance offered.

All the Ultimate Silicone & Ultimate Acrylic systems contain encapsulated biocides. These prevent the growth of algae and mould for longer periods than standard biocides, without affecting other technical performance parameters. This has been proven and demonstrated in Soltherm's on-site R&D centre, ensuring the paints and renders that arrive on your project are perfect for the environment they are to be used within.



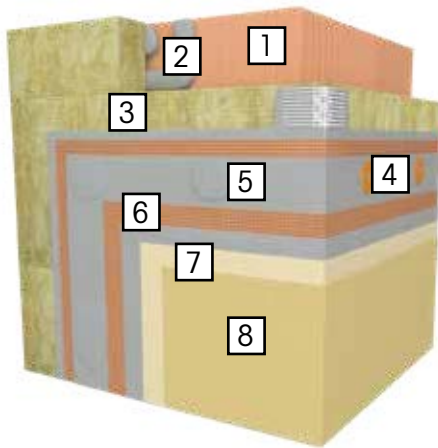
## Important information

Prior to commencing with the installation of the Soltherm Ultimate Silicone and Ultimate HD Silicone systems, the Soltherm Registered Contractor is required to ensure the following;

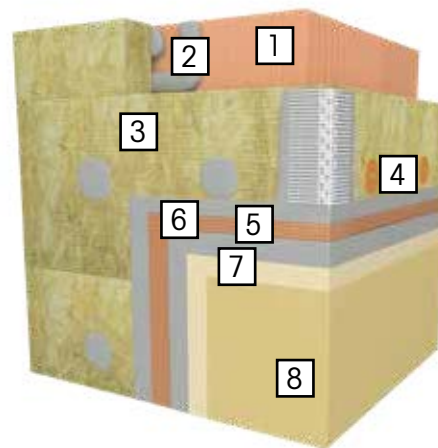
- The installation team have had Soltherm Ultimate Silicone training.
- A non-draft project specification has been issued by Soltherm with fixing pattern and any unique detailing requirements.
- Datasheets of all the Soltherm materials are readily available and guidelines contained within are adhered 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 HD SILICONE ULTIMATE HD ACRYLIC



## ULTIMATE SILICONE ULTIMATE ACRYLIC

### 1. Substrate

The Soltherm Ultimate Silicone/Acrylic & Ultimate HD Silicone/Acrylic Systems must only be utilised on masonry substrates. The substrate must be clean, dry and primed prior to the application of the system.

### 2. Adhesive: SOLTHERM MA or SOLTHERM UB Special

A1 Insulation adhesive designed specifically for use with mineral wool insulation.

### 3. Mineral Wool Insulation

A1 insulation utilising monodensity or dual density mineral wool boards, providing improved fire resistance and thermal performance.

### 4. Mechanical Fixings

ETA approved screw-in or hammerset fixings with steel nails are used. 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 or SOLTHERM UB Special

A1 basecoat : Soltherm MB or Soltherm UB Special 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 SNP Colour














Tinted base coat primer, allowing it to penetrate deep into the base coat. This aids the adhesion of the finish coat and ultimately improves the systems durability.

### 8. SOLTHERM SFC-P 15 or SOLTHERM AF-P+ 15

Silicone & Acrylic texture finishes offering the diverse colour, enhanced algae and fungal growth resistance, UV radiation resistance, lower water absorption and flexibility.

# SYSTEM COMPONENTS & MATERIALS

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

<b>FUNGICIDAL WALL WASH</b>	A concentrated biocide for cleaning masonry walls	5L Bottle	Diluted with clean water in accordance with the datasheet. The level of dilution will depend on the severity of the fungal growth on the wall.	
<b>SOLTHERM SP</b>	A substrate primer for absorptive substrates	10kg Bucket	Applied directly to the masonry wall by brush, roller or low pressure spray.	
<b>SOLTHERM CS</b>	A substrate primer for smooth, low porous substrates	14kg Bucket	Applied directly to the masonry wall by brush, or roller.	
<b>SOLTHERM PROFILES &amp; BEADS</b>	Aluminium, PCG steel & PVC full system & surface mounted profiles.	Mostly 2.5 or 2.0 m 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.	
<b>SOLTHERM MA</b>	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.	
<b>MINERAL WOOL</b>	A1 insulation board	1200x600mm or 1000x600mm slab of varying 10mm incremental thicknesses 50-250mm	If required, the insulation slabs can be cut with a saw to a suitable size.	
<b>MECHANICAL FIXINGS</b>	ETA certified screw-in fixings with steel nails.		The fixing is installed through insulation and through scrim coat in accordance with the specification.	
<b>SOLTHERM MB</b>	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.	
<b>SOLTHERM UB Special</b>	Grey polymer modified base coat specifically formulated for application onto Grey EPS insulation and MW boards	25kg bag	Mix thoroughly with clean water (5.0 - 6.0 litres) allow to stand for 5 minutes and remix before applying in accordance with the specification.	
<b>SOLTHERM GLASS-FIBRE MESH</b>	An alkali resistance reinforcement mesh	50x1,1m roll	Cut to size with sharp knife.	
<b>SOLTHERM SNP COLOUR (If required)</b>	Base coat primer to aid the adhesion of the silicone topcoat to the base coat.	25 kg bucket	Mix thoroughly before application to the entire base coated area with a brush or roller.	
<b>SOLTHERM SFC-P 15</b>	A 1.5mm textured silicone topcoat, colour tinted as required.	25 kg bucket	Mix thoroughly, a small amount of water ( $\leq 330$ ml) can be added to achieve the desired viscosity.	
<b>SOLTHERM AF-P+ 15</b>	A 1.5 mm textured siliconeacrylic topcoat, colour tintes as required)	25 kg bucket	Mix thoroughly, a small amount of water ( $\leq 330$ ml) can be added to achieve the desired viscosity.	

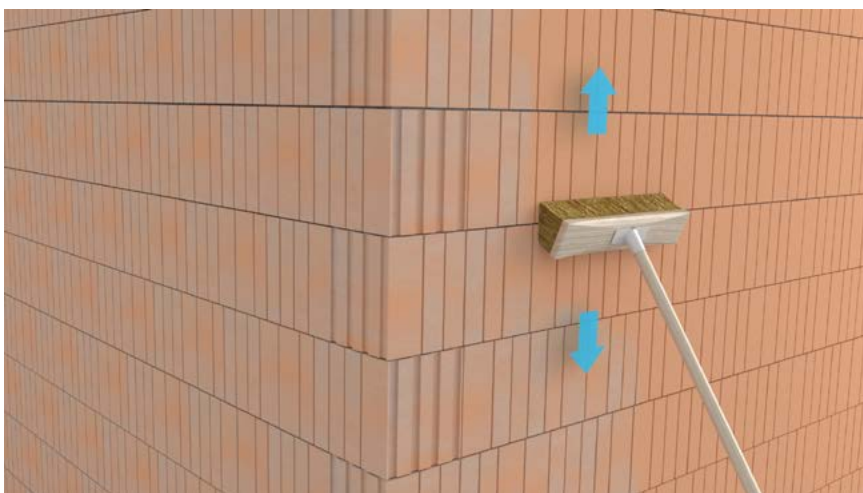
# APPLICATION GUIDE

## SUBSTRATE PREPARATION



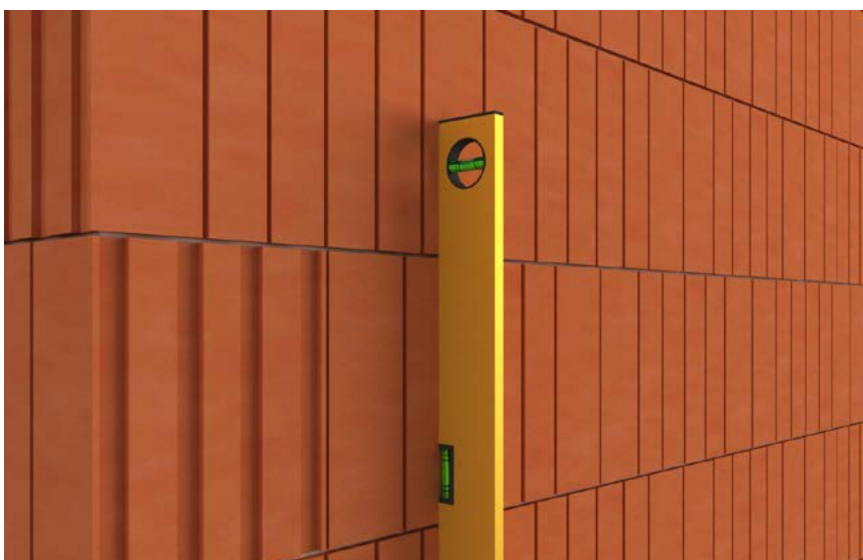
All heavy fungal growth must be removed from the substrate by either scraping or power wash and allowed to dry.

If the system is to be applied to an existing render substrate, it must be hammer tested first.



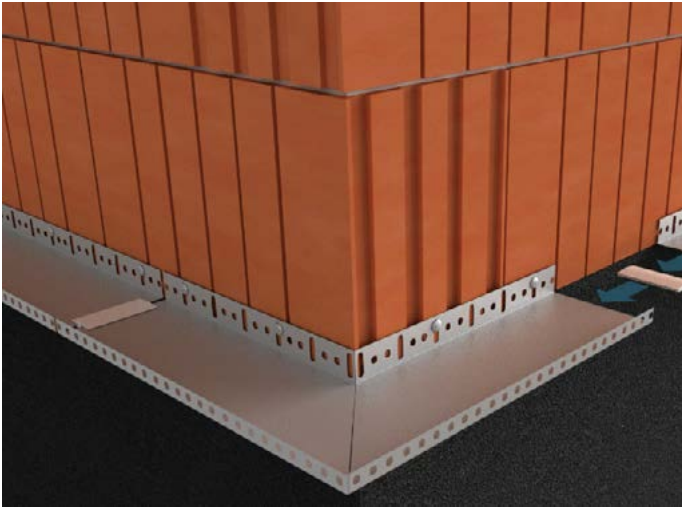
If required, apply FUNGICIDAL WALL WASH to the substrate in accordance with the specification and technical datasheet and allow to dry.

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



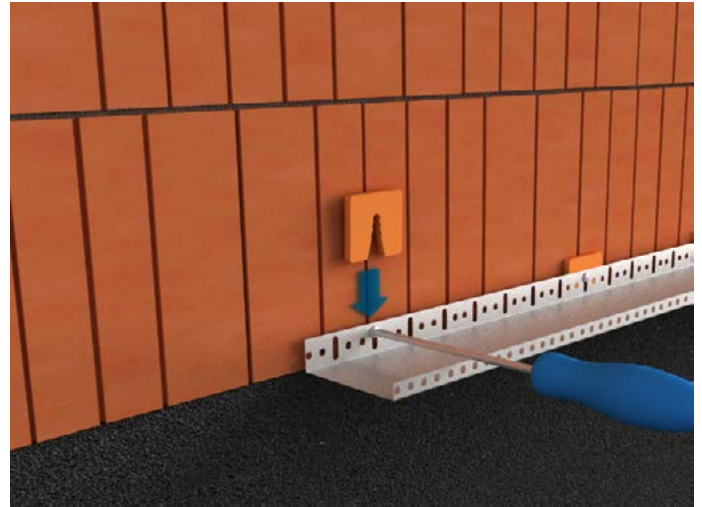
Surface irregularities and cavities (5-15mm) must be made good with SOLTHERM LRC, irregularities  $\leq 5$ mm can be levelled using SOLTHERM MB or SOLTHERM UB Special

# STARTER TRACK INSTALLATION



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

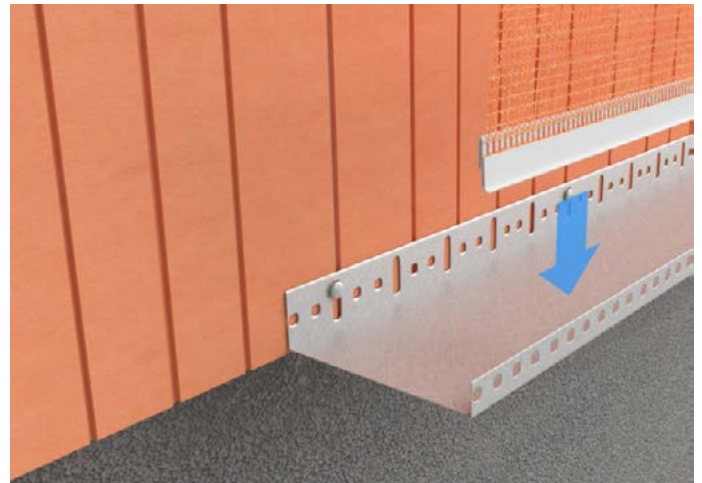
The SOLTHERM STARTER TRACK must be mitred at external corners and linked together with adjacent profiles using profile joint clips.



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.

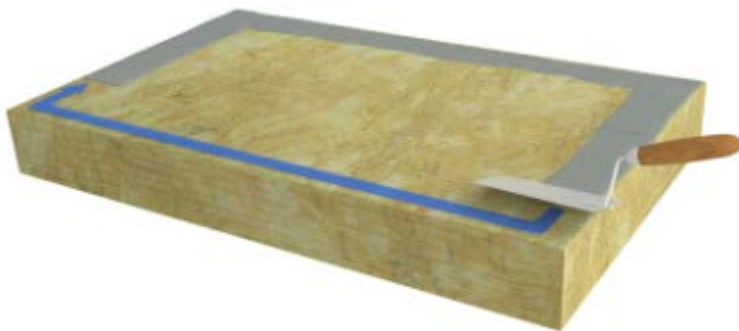
# INSULATION ADHESIVE APPLICATION

**Insulation adhesive, SOLTHERM MA or SOLTHERM UB Special must be applied in all circumstances.**

There are two approved application options for the installer to choose from.

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.

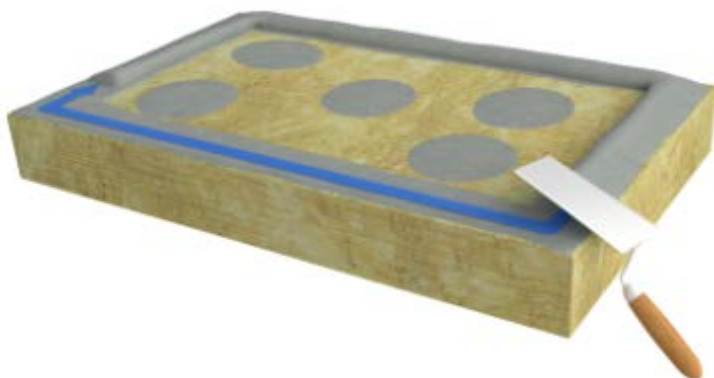


## **Ribbon & Dab Method**

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.



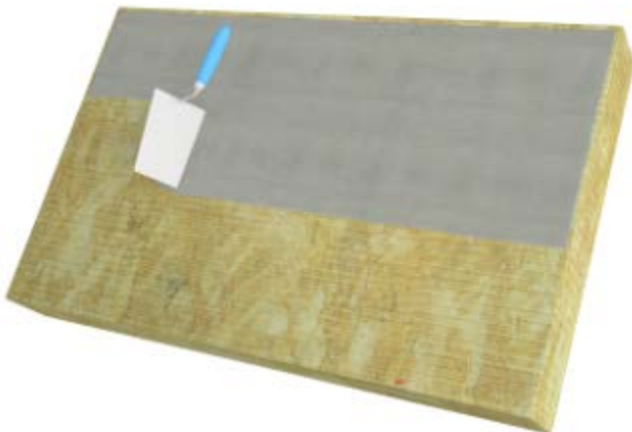
Once the contact layer is applied, apply further insulation adhesive to the perimeter and where the dabs are located.



# INSULATION ADHESIVE APPLICATION



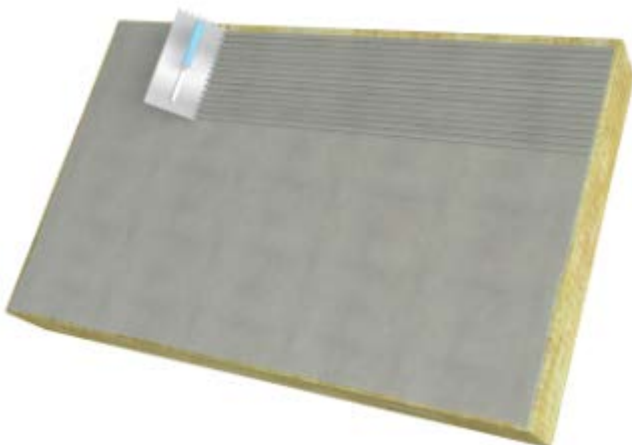
The adhesive thickness of the insulation adhesive layer, after pressing against the substrate wall, must be  $\leq 10\text{mm}$  and cover  $\geq 40\%$  of the overall area of the board.



## **Notch Trowel Method**

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

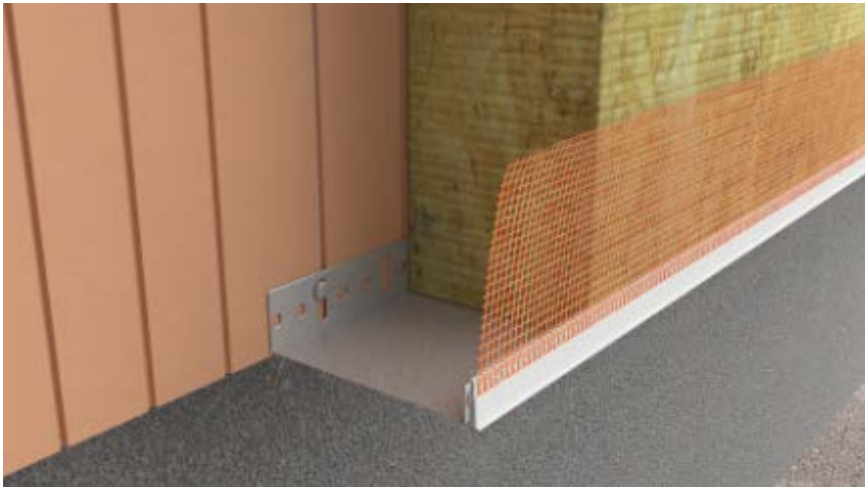
Once the contact layer is employed, the insulation adhesive can be applied with a 10x10mm notch trowel.



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

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

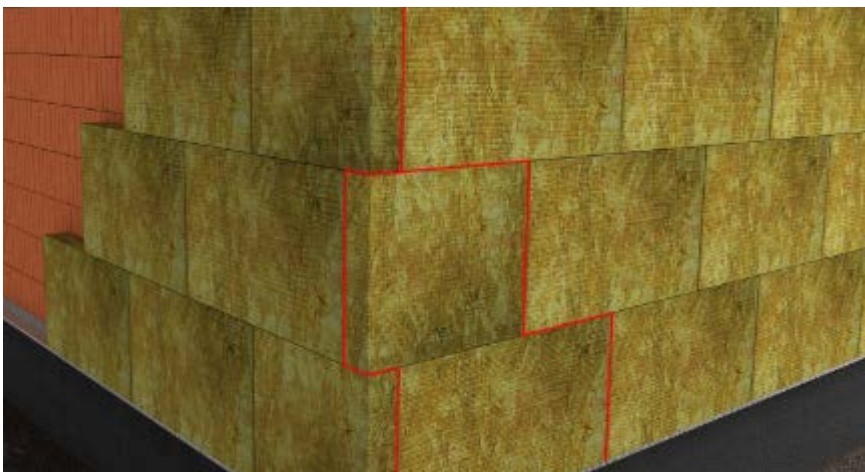
# INSULATION BOARD INSTALLATION



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.

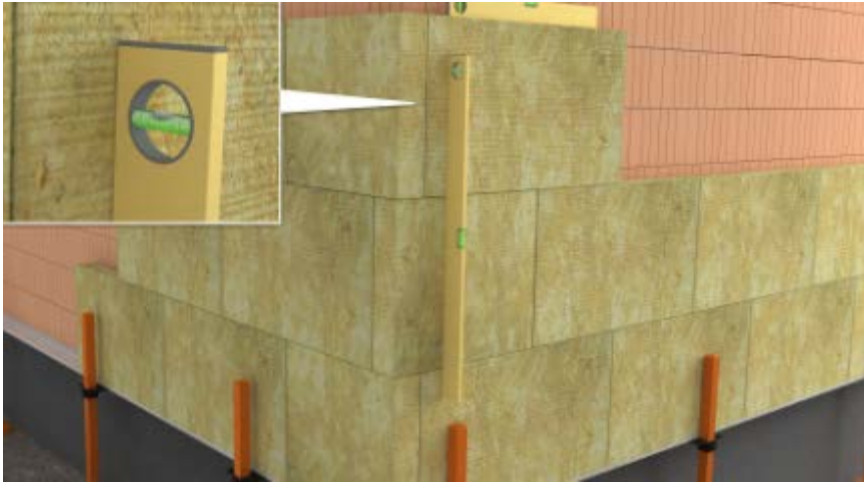


Insulation boards must be placed against the substrate in a brickbond manner achieving a minimum 150mm stagger with the above/below insulation panel.



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

# INSULATION BOARD INSTALLATION



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**

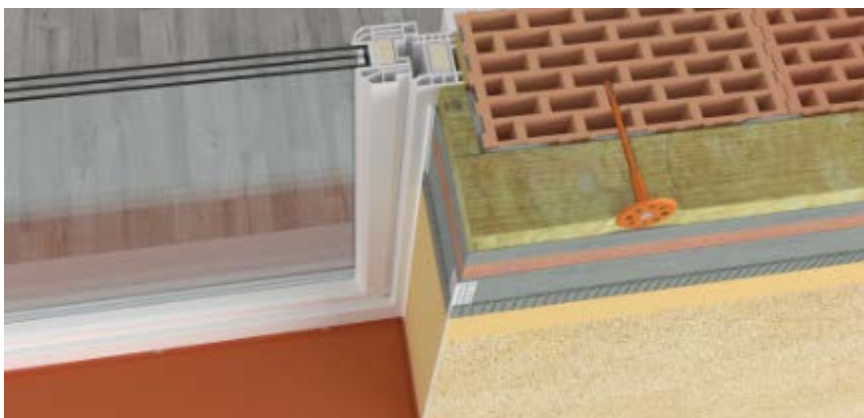
# INSULATION BOARD INSTALLATION



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



Where windows have recessed reveals and or heads, oversail the insulation board beyond the existing to create a channel to set a 30mm thick mineral wool insulation strip in place within the reveal, adhesively fit as appropriate.



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

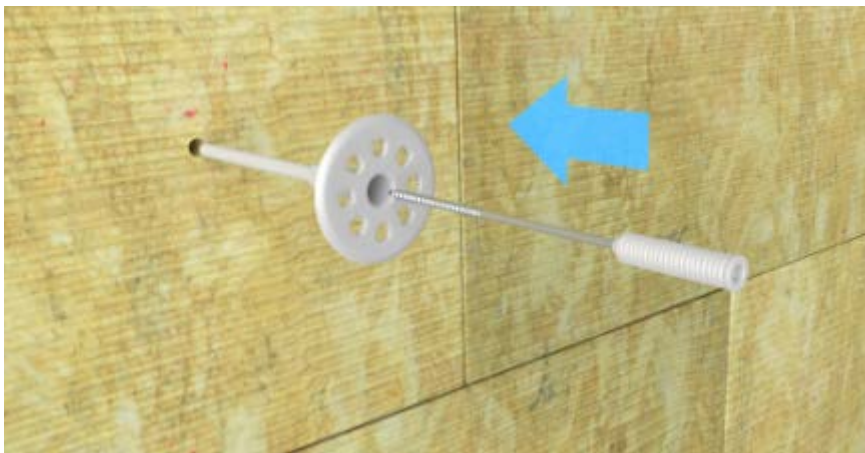


## INITIAL FIXING APPLICATION FOR ULTIMATE HD SILICONE & ULTIMATE HD ACRYLIC

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



Following the specified fixing pattern, first drill through the insulation and into the masonry substrate with an 8mm diameter drill bit to the appropriate depth.



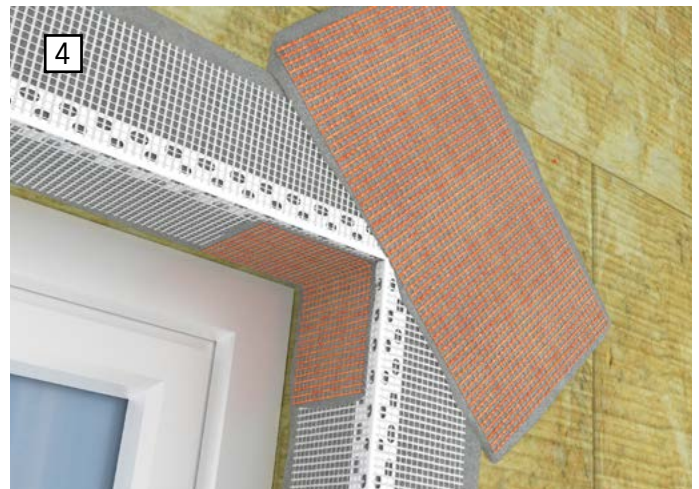
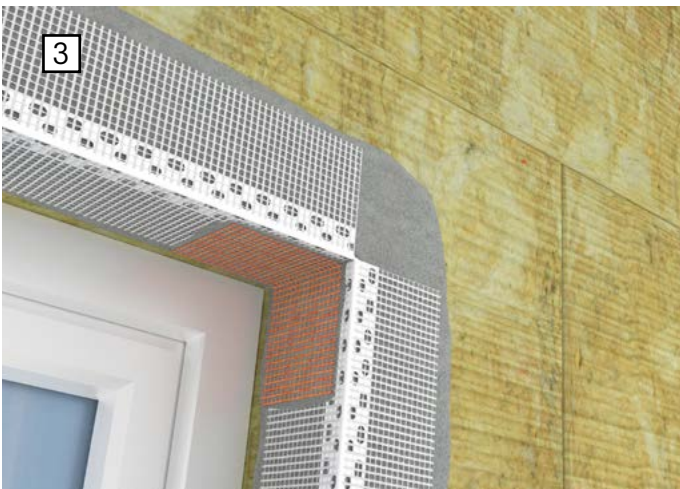
Place the fixing into the pre-drilled hole and push the fixing in until the head of the fixing is flush with the face of the insulation.



Screw or hammer (depending on fixing specification) the fixing into place ensuring the central pin is either flush with the fixing head or slightly recessed. The fixing head should be slightly recessed into the insulation face about 1-2mm.

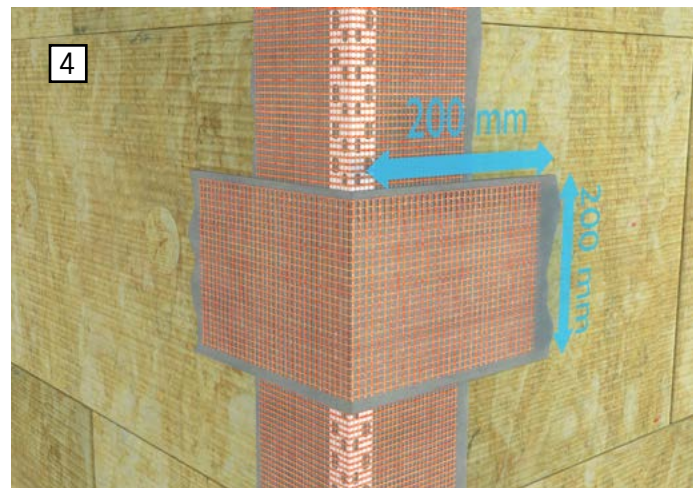
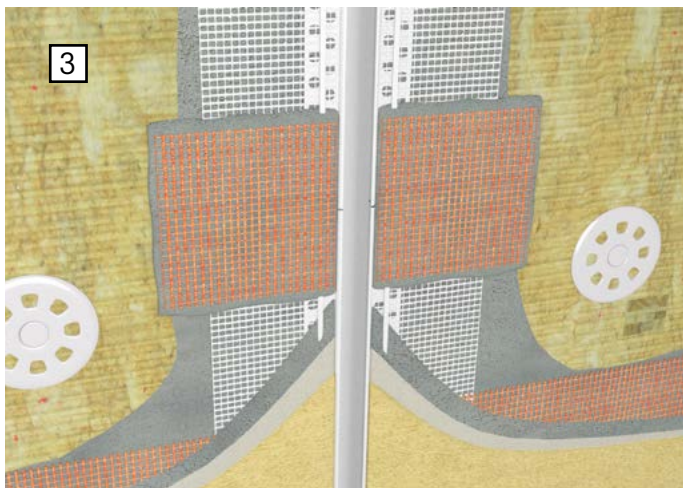
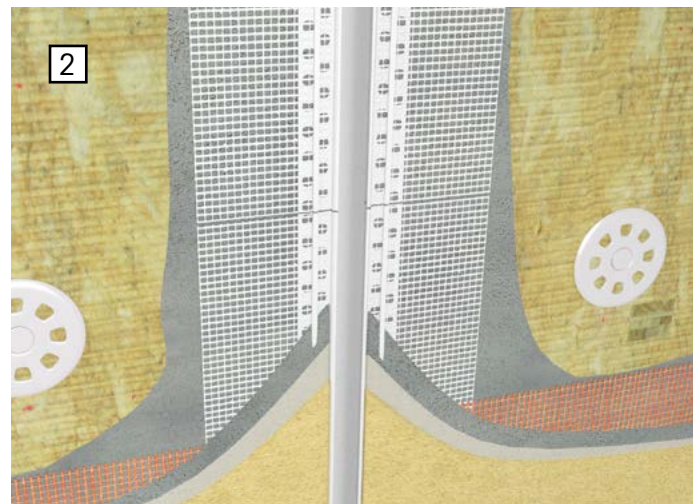
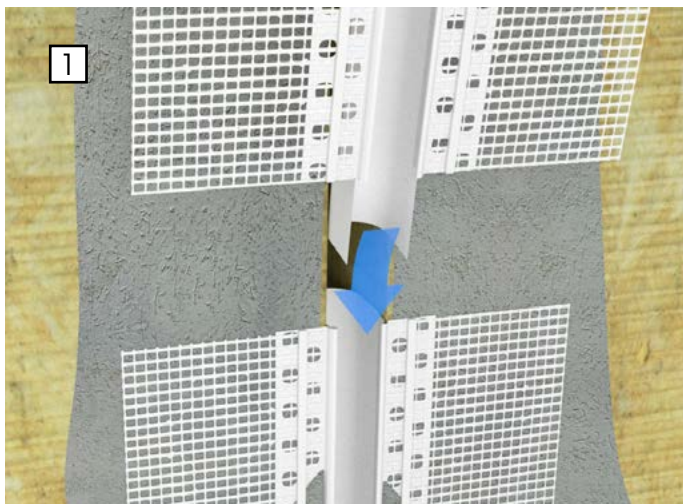
# GENERAL SURFACE MOUNTED BEAD APPLICATION

All surface mounted beads must have additional reinforcement placed over the join 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.



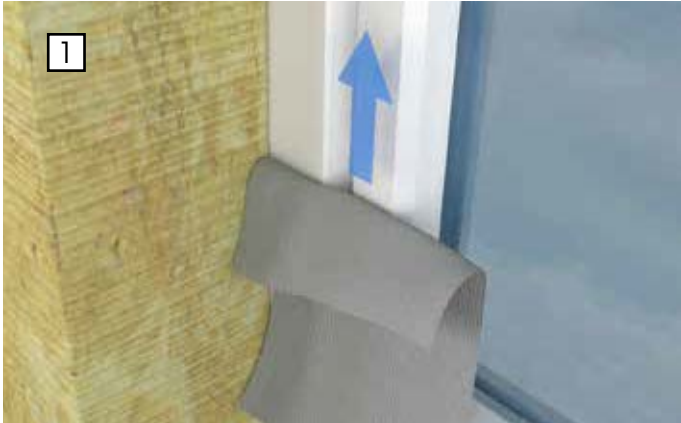
# GENERAL SURFACE MOUNTED BEAD APPLICATION

All surface mounted beads must have additional reinforcement placed over the join of adjacent beads to prevent cracking in the future.



# 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.





# BASE COAT APPLICATION

Once all the beads are cured and in place, mix the SOLTHERM MB or SOLTHERM UB Special 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 ensuring the mesh has a minimum lap of 100mm with all adjacent meshes.



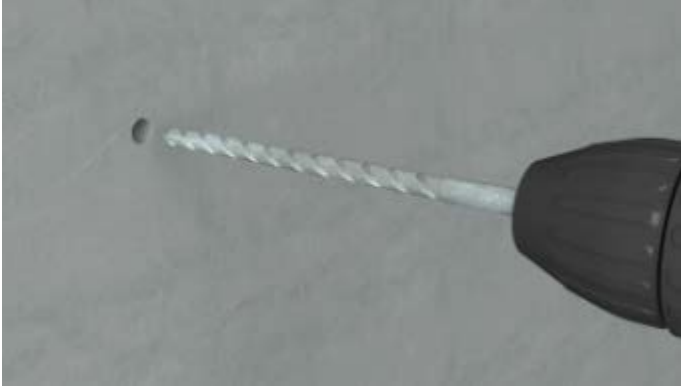
Allow the base coat to dry for approximately 24 hours before applying a tight slurry coat 1-2mm. The overall thickness of the base coat for ULTIMATE SILICONE & ULTIMATE ACRYLIC system should be between 3-5mm.

# FIXING THROUGH THE MESH APPLICATION

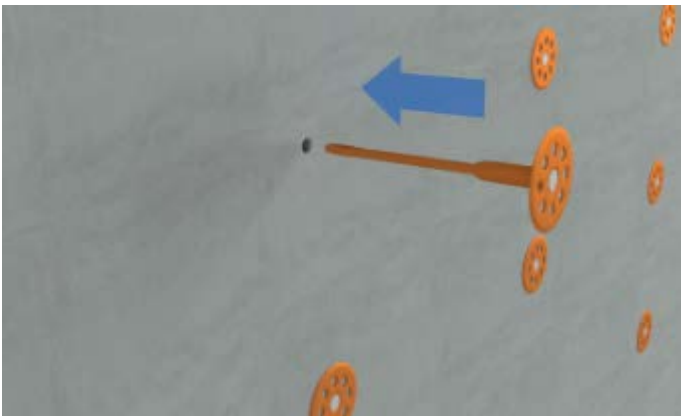
## ULTIMATE HD SILICONE & ULTIMATE HD ACRYLIC

Whilst the specified basecoat is still wet and the Soltherm reinforcing mesh has been bedded in, proceed with the installation of the mechanical fixings.

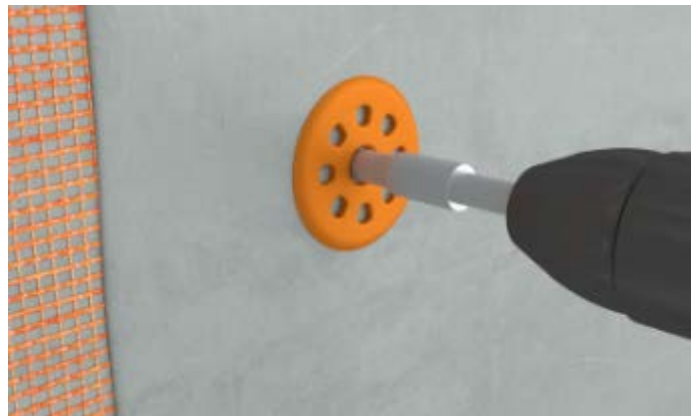
Always refer to the specification for the appropriate fixing pattern.



Following the specified fixing pattern, first drill through the basecoat and mesh, insulation and into the masonry substrate with an 8mm diameter drill bit to the appropriate depth.



Place the fixing into the pre-drilled hole and push the fixing in until the head of the fixing is flush with the face of the base coat.



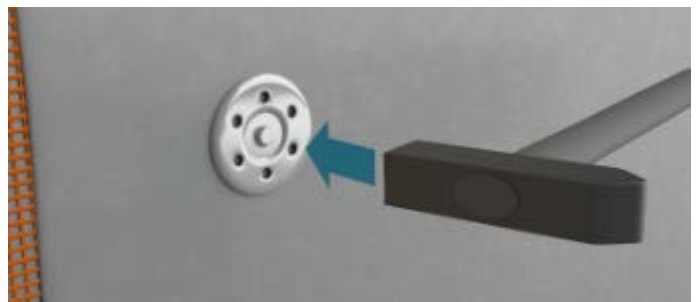
Screw or hammer the fixing into place ensuring the central pin is either flush with the fixing head or slightly recessed. The fixing head should be slightly recessed into the scrim coat face about 1-2mm.

# FIRE FIXING INSTALLATION

## ULTIMATE HD SILICONE & ULTIMATE HD ACRYLIC



Drill an 8 mm diameter hole through the scrim and wet base coat at the required depth. Insert the stainless steel fixing into the hole with your hand as far as physically possible

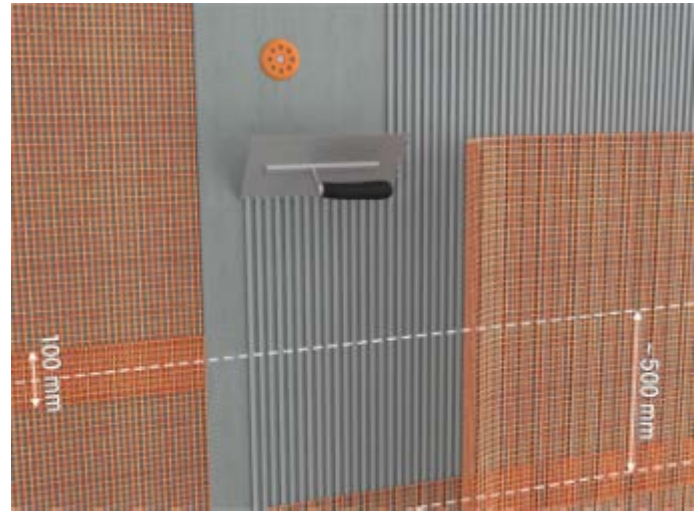
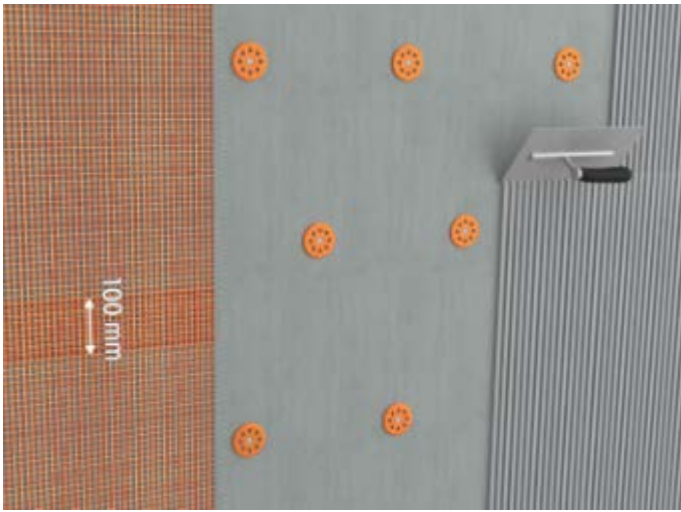


Using a hammer, gently hit the fixing centrally until it is recessed within the mesh and base coat approx. 1-2mm. While the base coat is still wet for ULTIMATE SILICONE & ULTIMATE ACRYLIC, place a mesh patch (100x100mm) over the fixing head and smooth over with additional base coat if required.

# BASE COAT WITH SECOND MESH APPLICATION

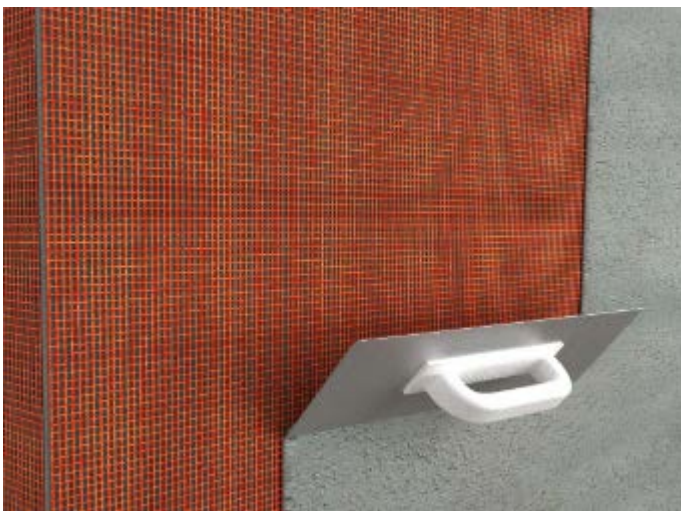
## ULTIMATE HD SILICONE & ULTIMATE HD ACRYLIC

Allow SOLTHERM MB or SOLTHERM UB Special 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 or SOLTHERM UB Special 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 100 mm with adjacent mesh and all mesh joints must be staggered approximately 500 mm 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 HD SILICONE & ULTIMATE HD ACRYLIC system should be between 4-6mm with two reinforcing meshes.

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

# SILICONE-ACRYLIC & SILICONE TOPCOAT APPLICATION



Primer SOLTHERM SNP 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 silicone topcoat.



The silicone-acrylic texture coat SOLTHERM AF-P+ 15 or silicone texture coat SOLTHERM SFC-P 15 is applied to the required thicknesses (1.5 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.

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



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