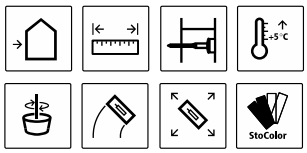
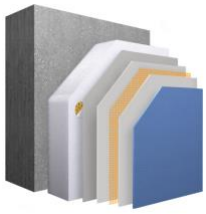
Sto Specification New Zealand

SS216 StoTherm Armat Render System on Masonry Insulation

StoTherm Armat Miral Render System on Masonry Insulation
over concrete and masonry surfaces
BRANZ Appraisal No. 604 / CCANZ CP 01:2014
CAD Details www.sto.co.nz

Sto Registration: To register your project with Stoanz Ltd please email the completed specification to info@sto.co.nz





1. PROJECT DETAILS

Specifier:	
Project and Address:	
Project Owner:	
Sto Warranty:	**StoTherm Armat Miral Render System 20-year Warranty with StoService Assurance**
StoTherm Armat Miral Render System on selected insulation panels over concrete block and insitu concrete. **Suitable for most sound, load bearing, masonry surfaces**	The **StoTherm Armat Miral Render System** incorporating: **Selected Insulation Panels** adhesive and mechanically fixed with **StoLevell Novo** and **StoTherm Anchors** over concrete and masonry construction, rendered in **StoLevell Novo** basecoat, sealed with **Stoplex W sealer** then rendered in **StoArmat Classic** meshed reinforced render finished in selected **Stolit coloured finishing render** coated with selected **StoColor facade paint** or **S-Protect SC sealer** on selected **Stolit MP and Milano finishes.** The **StoTherm Armat Render System** is built on 50 years of worldwide experience in insulating and refurbishing masonry buildings to achieve energy efficiency.
Select Insulation:	Select Insulation – White EPS, Graphite EPS, Mineral wool
Select Finishing Render:	Select
Select Facade Coating:	Select
Sto Registration Number: (Sto Use Only)	 i.e. 24.01_StoReg_ tec__sales__SS216__project
Project Notes:	

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SS216 StoTherm Armat Render System on Masonry Insulation

2. CONSTRUCTION & DETAILING

2.1 Responsibility

All work in this section shall be the responsibility of the Main Contractor, unless previously agreed in writing. Stoanz Limited accepts no responsibility for defective workmanship in relation to the application of the Sto system, or for defects in the design, construction, or condition of the building, either as built or in relation to the works or site conditions.

The Main Contractor is to ensure that they are fully conversant with exterior legislation requirements, the project specifications and details, current Sto Specification and Sto CAD details (www.sto.co.nz) and any specific concrete block installation requirements relating to the Main Contractor's responsibilities before any works commence. The Main Contractor is also responsible for the various subcontractors to ensure that all items relating to weathertightness, penetrations and dissimilar material junctions affecting the construction system are strictly in accordance with project specific details, manufacturer's instructions and Sto CAD details i.e. items such as roofs, soffits, openings, lights and security fittings, electrical wiring, flashings, deck membranes, dissimilar junctions etc. that abut, flash or penetrate the system. The Main Contractor shall also ensure that all exterior licensed work is undertaken by LBP registered contractors and the joinery is installed in accordance with the project drawings, manufacturer's details and Sto CAD details.

A **Sto Quality Assurance Document** is to be filled out as a record of the work undertaken by the Sto Contractor and concrete block installer.

2.2 Concrete Blocks and Insitu Concrete - General

The concrete installation, including reinforcement and concrete infill, shall be undertaken in strict accordance with the project drawings, specifications, and the block manufacturer's technical data. The blocks shall be laid true in both vertical and horizontal planes with all joinery and service openings correctly formed and waterproofed in accordance with Sto details. Control joints must be installed as per the project's structural drawings or block manufacturer's details to manage shrinkage and structural stress. It is recommended that the ground floor slab to block junction should be rebated to provide a water stop and interstorey floors should be poured within the block structure leaving the outer block shell to continue to avoid cracking. At least 28 days shall be allowed after concrete placement as per CCANZ CP 01:2014, for curing and stabilisation to take place before commencing the StoTherm Armat Masonry Insulation System. The exterior surface shall be clean, dry and free of all surface contaminants before commencing and the Main Contractor is to ensure that any areas or details adjacent to the Sto Render System have been adequately waterproofed or flashed to avoid any water migration behind the insulation or render system. Building tolerances should be within MBIE Guide to tolerances.

2.3 Concrete Block Construction

- A rebate is recommended in the concrete ground floor slab to block junction to form a weatherproof stop.
- Joinery openings are formed using rebated blocks and sill blocks that have been cut flush.
- Concrete Blocks should be covered on site and laid dry.
- Vertical control joints are placed in accordance with the project structural drawings or block manufacturers documentation or refer to NZS 4229 for placement and detailing.
- Mortar to be minimum 12.5 MPa, tooled smooth and compressed as per NZS 4210.
- Manufacturers bagged mortar is recommended to meet the specifications.
- Mortar to full depth of webbing up to 20 mm thick in first course and then 10 mm +/- 3 mm.
- Washout ports are required to remove mortar droppings from foundation.
- Ensure there is no impediment to grout flow. Remove ends or biscuits to prevent air pockets.
- Do not use stack bonded or column blocks that are more suspectable to structural stress.

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- Blocks should be filled in accordance with manufacturers recommendations and mechanically vibrated to avoid air voids and subsequent efflorescence.
- Sill blocks should be filled using a gap in the blocks to avoid air entrapment.
- Remove any grout slurry from block faces before it sets.
- Drying times vary according to block thickness, grout and weather. A minimum 28 days is required for settlement and curing. The blocks must be completely dry before commencing.
- Where retaining walls occur around inhabited areas, a 50-year rated waterproofing or tanking membrane is required. Garden retaining walls must be waterproofed against any back fill to avoid water migration damaging the finished render.
- Always waterproof blocks before installing any adjacent overlays or items such as concrete staircases, abutting dissimilar walls, soffits, etc. and as necessary allow clearances for insulation and rendering.
- Insulated wall caps and joinery openings must be sloping to drain water and reinforced with StoFlexyl meshed waterproofing membrane.

2.4 Insitu Concrete Construction

- The insitu concrete construction including reinforcement shall be completed in accordance with the project drawings, specifications, and the concrete manufacturers technical data.
- The concrete shall be placed true in both vertical and horizontal planes with all joinery and service openings correctly formed and waterproofed in accordance with Sto details.
- Control joints must be installed as per the project's structural drawings to manage shrinkage and structural stress.
- It is recommended that the ground floor slab to wall junction be rebated to provide a water stop.
- At least 28 days shall be allowed after concrete placement as per AS/NZS 2311:2000, for curing and stabilisation to take place before commencing the StoTherm Masonry Insulation System. Ensure the concrete is cured before application commences.
- All tolerances shall be in accordance with NZS 4210, i.e., no more than 3 mm surface alignment deviation over a 1200 mm radius.
- All concrete surfaces shall be clean, dry and de-nibbed to present an even surface. The exterior surface shall be free of all surface contaminants including formwork releasing agents. Walls may require moss-killing/degreasing and/or high-pressure water blasting to ensure existing mould, surface dirt and laitance/scale are removed exposing a sound surface.
- The Main Contractor is to ensure that any concrete areas behind or adjacent to the Sto Insulation System, e.g., concrete / timber staircases, abutting garden walls, soffits, attached porches, posts etc. have been adequately waterproofed or flashed to avoid any water migration behind the render system.
- Concrete shall be formed true and even. Off-form concrete shall be a minimum F3 finish, with all nibs and protrusions ground off, and step discontinuities no greater than 3 mm. Bagging of the surface is not normally required with concrete of the prescribed standard. If the concrete has had any fast cure additives added or release agents applied, this may affect the adhesion of the applied plaster system. Confirm with the Sto Applicator before they proceed.
- Any defects shall be patched with the Sto Concrete Repair System.
- Rebated joinery openings are to be formed using formwork cut to profile and securely held in place during placing of concrete.
- Where retaining walls occur around inhabited areas, a 50 year tanking/waterproofing membrane is required. Garden retaining walls should be tanked to avoid water migration damaging the finished render.
- Exposed tops of walls must be sloping to drain water and reinforced with StoFlexyl meshed waterproofing membrane.

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2.5 Soffits

Soffits are normally fixed before commencing the installation of the insulation panels. A 6-8 mm finishing bead of compatible MS Polymer Sealant is applied after the render mesh coat is applied. The main contractor is to ensure any weatherproofing required on the blocks behind the soffits or adjacent surfaces is carried out before the soffits are installed.

Note: In exposed situations water can penetrate the soffits, ensure that the blocks are waterproofed above the soffits and so it laps under the render system below.

2.6 Insulation

Thermal resistance requirements of the building envelope shall be determined using the Schedule or Calculation methods of NZBC Acceptable Solution H1/AS1 for all housing and buildings up to 300 m^2 and NZBC Acceptable Solution H1/AS2 for housing and buildings greater than 300 m^2, or the Modelling method in H1/VM1. The minimum construction R-value for walls that do not contain embedded heating elements is R2.0, and for heated walls is R2.9.

Foundations: H1/AS2 require –Vertical edge insulation with an R -value of 1.0 m^2 K/W, installed on all exterior vertical faces of the concrete slab / wall footings, extending from the outermost top edge down to bottom of wall footing.

Rasped XPS sheets can be used for vertical edge insulation with 30 mm providing the required RV 1.0.

- **Selected EPS Insulation Panels**: 80 mm (R1.95) and 100 mm (R2.43) based on a thermal conductivity (k-value) of 0.041 W/m °C.
- **Selected Graphite EPS Insulation Panels**: 60 mm (R1.88), 80 mm (R2.5) and 100 mm (R3.13) based on a thermal conductivity (k-value) of 0.032 W/m °C.
- **Mineral Wool non-combustible panels**: 75 mm (R2.2) and 100 mm (R2.9) – above ground use only.

Note: Other insulation panel thicknesses and grades are available.

2.7 Control of External Fire

The specified Sto renders have been tested to EN 13501-1 and have achieved an A2-s1, d0 rating. The StoTherm Armat Miral Render System has been tested to ISO 5660.1 and achieved a peak heat release rate of less than 100 kW/m^2 and total heat released of less than 25 MJ/m^2. The system is therefore suitable for use on buildings at any distance to the relevant boundary.

3. SELECTED INSULATION PANEL INSTALLATION

3.1 Responsibility

All work in this section shall be the responsibility of the **Sto Contractor**, unless otherwise expressly agreed. The masonry surfaces must be clean dry and free of any contaminants before any panels are installed. If others fix the insulation panel, a Sto QA document must be signed off and the Sto Contractor shall satisfy themselves that the panels are acceptable before proceeding. Adequate protection of all dissimilar materials and adjacent surfaces must be undertaken before commencing.

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3.2 Aluminium joinery

All joinery shall be fixed over **StoFlexyl waterproofing** prior to render application. Before fixing joinery, fill any holes in the rebates and use **StoFlexyl** mixed correctly (1:1 with fresh cement) and thin to a thick brushing consistency before applying two coats onto the **internal head, jamb and sill rebates** of the blocks including the rebated step. The **exterior head, jamb and sill rebates** are to be coated with trowel applied **StoFlexyl meshed membrane** extending out over the StoTherm panels to the external edge.

Sealing the joinery perimeter with MS Polymer sealant applied over a primer at the head and jambs forms the primary seal, while the sill is left open with a 5 mm drainage gap. To complete the waterproofing process **air seals** are required to be installed around all interior joinery to rebate openings.

Note: StoFlexyl meshed waterproofing has been tested by BRANZ to AS/NZS 4858 as required by **CCANZ CP 01: 2014.**

Note: Joinery air seals and sealant (primer required) are the responsibility of the window installer.

Note: On un-insulated block reveals, StoTherm panels are installed before the **StoFlexyl mesh coat** is applied so that the mesh extends out to the external corner of the StoTherm panel covering the block to panel transition.

3.3 Insulated Reveals

To insulate the block reveals with 20 or 30 mm EPS panels, the internal rebate must be increased to provide approximately 25 mm of joinery flange cover by installing fibre cement sheet packers (e.g., James Hardie Axent Trim 89 mm wide x 19 mm thick) adhered with 5 mm of Sto Adhesive Mortar before the 20-30 mm thick StoTherm EPS insulation panels are installed around the reveal and are reinforced with **StoFlexyl meshed waterproofing.**

Note: new Joinery masonry fixings must penetrate through the packers into the existing masonry by minimum 30 mm.

3.4 Foundations Capillary Break

The foundations should be waterproofed with **StoFlexyl waterproofing** or another proprietary system. StoTherm panels that are to be used in ground as foundation insulation must have a thinned down coat of **StoFlexyl** brushed/rolled onto all faces before being installed with **StoFlexyl** adhesive.

Bituminous products should be sand/grit blinded or have a proprietary water based bituminous adhesive. A **StoFlexyl capillary break** is formed below the interior floor level and generally 150 mm above ground using a continuous **StoFlexyl meshed strip** adhered onto the masonry substrate by approximately 100 mm, extending out over the StoTherm panel previously adhered to the foundation. See the Sto CAD foundation details.

3.5 Parapets, Balustrades and Wall Caps

All rendered horizontal wall surfaces should have a minimum 10º fall and have **StoFlexyl meshed waterproofing** installed over the basecoat render. On parapets, balustrades and wall caps, **StoFlexyl waterproofing** must be correctly mixed (drill mix 1:1 with fresh cement) and applied with a layer of Sto mesh embedded into the **StoFlexyl** coat giving a total film thickness of 1.5 mm. The meshed **StoFlexyl** should extend 75 mm up or down adjacent vertical surfaces as per Sto CAD details and be left to dry overnight. All **StoFlexyl waterproofing** is to be over coated in **StoArmat Classic meshed** reinforcement render.

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StoFlexyl meshed waterproofing has been tested by BRANZ to **AS/NZS 4858** as required by **CCANZ CP 01:2014.**

3.6 Penetrations

Penetrations such as waste pipes, fixing brackets and fixtures shall be installed on Sto EPS high density Power Bloc's. Power Bloc shall be installed at the same time as the insulation panel is installed. Sto EPS Zylinders, Sto EPS Spirals or Sto EPS masonry Iso Darts can be used after the panels are installed if Power Bloc has not been installed. All piping and electrical wiring penetrations through the insulation panels must be weatherproofed as per Sto and/or project specific details. All wiring must be sleeved in PVC conduit and the terminations sealed using a compatible MS Polymer Sealant.

3.7 Insulation Panels

Starting from the Sto plinth foundation detail or a starter track, ensure the Insulation panel layout is installed true from the base in a brick pattern with no continuous vertical joints, using alternating panels on the external corners. Install Sto uPVC, trays, channels, and flashings as required at termination points.

Use 600 x 1200 mm sized panels to avoid pillowing especially on uneven substrates. All the EPS panels are manufactured from white S-grade or graphite grey EPS to AS 1366.3. Ensure the **Insulation Panel** layout is arranged in a **brick pattern with** no continuous vertical joints. If, after fixing, there are any gaps in the panel joints due to variations, **adhesive foam** shall be used to foam fill the gap before proceeding with the rendering.

Note: The minimum sized insulation for countersunk fixings is 50 mm panel using **StoTherm impact anchors**. Ensure the substrate is suitable, i.e., sound, load bearing and straight as required before installing the insulation panels. Repair any defects.

3.8 Control Joints

All existing control joints in the blocks as designated by the project drawings must be brought through with a 10 mm gap in the panels. Control joints must be installed in the mesh coat using the **Sto uPVC Control Joints** ensuring the mesh coat does not overlay the "V" joint. Once dry, remove the cleaning tab, sealant fill any joints and either apply two coats of the selected paint and leave as a negative detail or fill with a compatible **MS Polymer Sealant** applied in accordance with the manufacturer's Technical Data Sheets and priming requirements.

3.9 Adhering Insulation Panels

The **selected insulation panels** shall be trued from the base, laid in a horizontal brick pattern, and incorporate a StoTherm insulated foundation detail. **The insulation panels** shall be fixed using a 10 mm notched trowel or **StoTherm notched trowel** by applying a full coat of **StoLevell Novo** to the back (not the sides) of the 600 x 1200 mm insulation panel. All panels are installed immediately while the adhesive is wet, tight butted and levelled on the **StoLevell Novo** adhesive. **They shall be allowed to set** before being mechanically fixed.

Insulation panel joints shall be tight butted and sheet joints, gaps etc. flush filled with low expansion adhesive polyurethane foam as per the manufacturer's Technical Data Sheets before the panels are rasped once cured to obtain a flat surface.

Note: Always ensure the back face of the panel is well coated right out to the panel edge (not sides) with **StoLevell Novo**. Depending on the substrate, the notch size may need to vary to compensate for irregularities in the surface. Always ensure there is enough adhesive applied to bond and bed the panels onto the surface - if required coat both surfaces.

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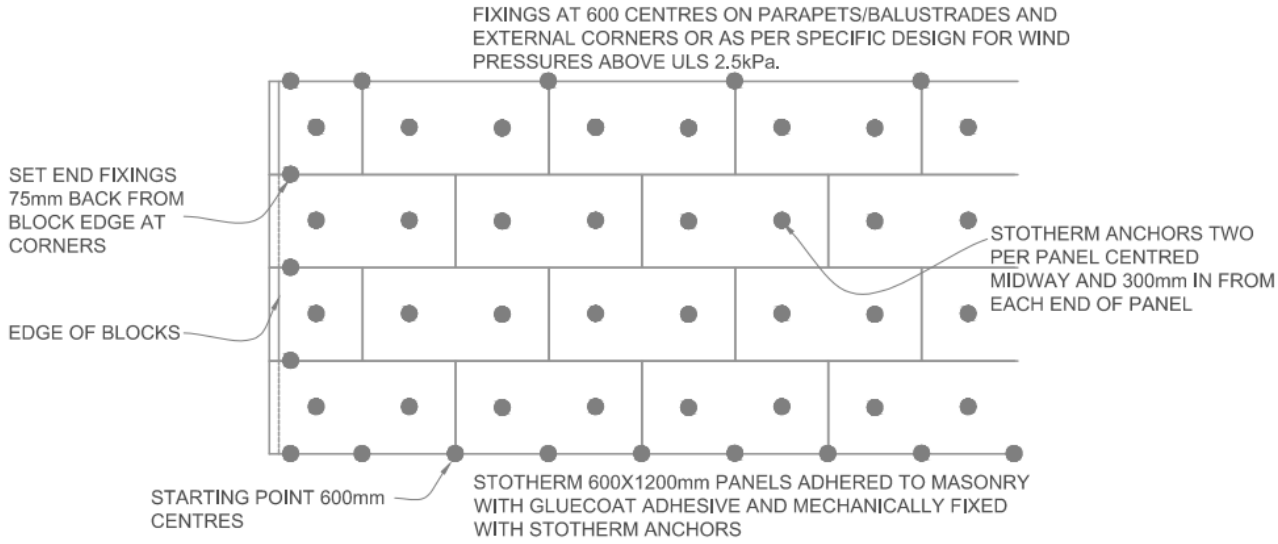
3.10 StoTherm anchors (fix in accordance with Sto details – new work requires 3-4 anchors per m^2)

Insulation panels are mechanically fixed in accordance with the **StoTherm anchor** pattern. Once the adhesive is set, use a rotary impact hammer drill with an 8 mm masonry bit at the designated fixing centres (note drill 5 mm extra). On 600 x 1200 mm panels that have been adhered with **StoLevell Novo**, use two (2) **StoTherm anchor** fixings per panel centred midway through the panel 300 mm in from the ends. Refer to Figure 1.

Note: Detailing shall be in accordance with Sto CAD details. Panels at soffits and foundations (above the capillary line) are fixed at 600 mm centres, and external corner panels are staggered and fixed at 600 mm centres.

Figure 1: StoTherm Anchor Layout



StoTherm Anchors are placed in the pre-drilled holes and countersunk using the **ST fixing tool** attached to an electric drill with the **ST tool plate** stopping flush to ensure correct panel compression and security. All fixings are then plugged with the **Sto EPS or mineral wool insulation caps** set flush to eliminate thermal bridging.

StoTherm 75 or 95 mm Impact Fixings can be used for countersunk in 60 or 80 mm thick panels using a **Sto Router tool** to cut the fixing hole. The fixings are then covered with EPS insulation caps.

Sto Ecotwist Anchors are available for 100 mm to 400 mm thick insulation panels. The fixings are placed in the pre-drilled hole and, using the Ecotwist MT fixing tool, are drilled below the surface with the 60 mm spiral head stopping on contact with the concrete wall. The small surface hole is plugged with a Sto VE EPS plug.

Note: For design wind pressures above 2.5 kPa, refer to Stoanz Limited.

3.11 Architectural Profiles and Banding

Architectural shapes used to create decorative detailing shall be correctly cut to size and fitted using **StoFlexyl adhesive** notch towelled to the back of the shape prior to placing. As required, construction fixings are used to mechanically fix large or heavy shapes, but care is required to avoid distortion. Joints are butted together using

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StoFlexyl and any control joints must be mirrored through the profile.
Profiles shall be pre-meshed or receive a Sto mesh coat and are placed after the wall reinforcement mesh coat with the perimeter edge meshed onto the wall.

4. STOTHERM ARMAT MIRAL RENDER SYSTEM

4.1 Responsibility

All work in this section, including provision of external sealant beads and finishing system, shall be the responsibility of the **Sto Contractor** who must assure themselves that the surfaces to be plastered are dry, free of contamination and satisfactory before work commences. Adequate protection of all adjacent surfaces shall be undertaken prior to commencing.

4.2 Selection

The **StoTherm Armat Render System** shall be carried out in stages incorporating: **StoLevell Novo** basecoat render**, Stoplex W sealer, StoFlexyl** waterproofing, **StoArmat Classic** meshed reinforcement render finished in the **selected Stolit K, MP** or **Milano** coloured finishing render coated in the selected **StoColor** façade paint or sealed with **S-Protect SC stay clean** for selected **Stolit MP,** or **Milano** render.

4.3 Materials

Stoanz Ltd supplies all the following materials:

Selected Insulation panels fully adhered with StoLevell Novo render	**StoLevell Novo basecoat render with Stoplex W sealer**
StoTherm uPVC pre meshed corner angles, finishing edges, drip edges etc.	**StoArmat Classic meshed reinforcement render**
Selected Stolit coloured finishing render	**Selected StoColor facade paint or S-Protect SC stay clean on Stolit MP or Milano finishes**
StoFlexyl waterproofing and Adhesive Foam for EPS insulation	**Sto Power Bloc, Sto Zylinder blocks, Sto Spirals, Iso Darts**

4.4 Detailing

The masonry joinery reveals, wall caps and foundations are to be detailed with **StoFlexyl meshed waterproofing** as per previous Clauses 3.2, 3.3, 3.4 and 3.5. **Sto pre-meshed corners, reveal drip edges, finishing edges and control joints** are lightly embedded in the **StoLevell Novo basecoat render** before being encapsulated in the **StoArmat Classic meshed reinforcement render**.

4.5 Basecoat Render

To clean, dry and sound StoTherm insulation panels that been lightly abraded to open the surface and level the joints, apply **StoLevell Novo** basecoat render by hawk and trowel at approximate thickness of 5-6 mm to leave an even, straight surface free of hollows and deviations. While the render is still wet, lightly embed **Sto uPVC pre meshed corners, drip edges** and **finishing edges** and reinforce any stress points with mesh butterflies. Once set remove any ridging or bumps in the basecoat with a Sto feathered straight edge, Grid Plane or Sto rasp and leave ready for the **StoArmat r**einforcing coat. Application procedures for the **StoLevell Novo** must be in accordance with the Sto

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Technical Data Sheets.
Note: Ensure the **StoFlexyl meshed waterproofing** over the **wall caps** and around the **joinery openings** is undertaken over the dry basecoat before the **StoArmat** meshed reinforcing coat.

4.6 Sealer

To clean, dry **StoLevell Novo** basecoat render that has been rasped flat, apply one coat of **Stoplex W** primer by brush and roller to seal the surface at approximately 8 m² per litre.

4.7 StoArmat Classic reinforcement render

StoArmat Classic HD with hardener for accelerated drying in cold damp weather are also available.

To clean, dry, base coated surfaces apply an even coat of the selected **StoArmat Classic** render by hawk and trowel at approximately 2 mm thick and while the **StoArmat Classic** is still wet, lightly apply **Sto mesh** ensuring adjacent drops of mesh are overlapped by a minimum 75 mm and float the surface to ensure the mesh has been embedded in and allow to dry. Apply a further coat of **StoArmat Classic** at approximately 1.5 mm (min DFT 2.5 mm) by hawk and trowel to cover the mesh and leave an even surface plane free of voids or deviations.

Once dry, remove any slight ridges etc. with a Sto rasp ready for subsequent render. **StoArmat Classic** must be installed in accordance with the Sto Technical Data Sheets. Always install **Sto pre-meshed uPVC drip edges** on lintels and joinery heads, **Sto pre-meshed** corner angles on external corners and **Sto pre-meshed finishing edges** as detailed.

4.8 Sealant

All junctions or detailing between the render mesh coat and dissimilar materials shall be sealed with compatible exterior MS Sealant in accordance with the manufacturer's Technical Data Sheets using a primer on **StoFlexyl surfaces** and as required for PVC, porous substrates, and dissimilar materials.

Note: StoFlexyl must be primed to promote adhesion in accordance with the sealant manufacturer's instructions. The joinery sills must remain unsealed and open to permit ventilation of the window trim cavity.

4.9 Stolit Float Finish Renders (refer to header for selected finish)

Stolit K texture is available in a flat 1.0, - 1.5, 2.0, 3.0 mm aggregate as selected.

- **Stolit K coloured finishing render as selected**

Apply the selected **Stolit K** coloured finishing render to prepared rendered surfaces with a stainless-steel trowel, gauging to the thickness of the aggregate size. Finish with a plastic float to the requisite pattern and allow to dry (normally overnight). The spreading rate shall be approximately 12 m^2 per pail (1.0 mm), 9 m^2 per pail (1.5 mm), 7 m^2 per pail (2.0 mm) and 4 m^2 per pail (3.0 mm).

- **StoColor Façade Paint**

It is recommended that all **Stolit K** surfaces receive two (2) coats of **StoColor Maxicryl, or StoColor Dryonic façade** paint tinted to the selected colour and applied by brush and roller at approximately 6-8 m² per litre. One (1) coat is acceptable though it will need recoating more frequently. Refer **Section 6. StoService** for recoating requirements.

Note: Always maintain wet edges between cutting in and roll in tight to ensure an even film build is maintained.

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4.10 Selected Stolit MP Finished Renders (refer to front page for selected finish)
Stolit MP fine coloured finish, MP Natural salt & pepper sand, RMP Sponge coarser salt & pepper sand

- **Selected Stolit MP, MP Natural, and RMP Sponge coloured finishing render**

Stolit MP fine, MP Natural and **RMP Sponge** are coloured finishing renders applied in two (2) coats. A basecoat of the selected **Stolit MP** or alternatively, depending on the finish, **Stolit K 1.0 mm** tinted to the selected colour, is applied, and allowed to dry. The finishing coat of **Stolit MP, MP Natural, or RMP Sponge** is then applied, float finished and randomly lightly sponged. Alternatively, the finish can be float finished, sponged, or smooth finished with a stainless steel Marmorino trowel to the selected pattern. The spreading rate of the **Stolit MP**, **MP Natural or RMP Sponge** is approximately 12-14 m^2 per pail.

- **S-Protect SC Stay Clean Invisible Silane Sealer (clear sealer)**

To clean, dry selected **Stolit MP**, apply an even coat of **S-Protect SC stay clean** hydrophobic sealer (clear invisible Silane sealer) in a flood coat using a low-pressure sprayer and Sto block brush to work the product into the Stolit render, avoiding runs and brushing in any lingering drips etc. so they do not show up. Surfaces must be well coated, and it is recommended to work in a pattern, out of the sun to ensure that there are no misses as the sealer is invisible once dry. **Note:** All joinery, glazing, and adjacent surfaces must be masked off to prevent the **S-Protect SC Stay Clean** contaminating the surface. Any excess product must be removed after 15 minutes to avoid a surface film forming that can be difficult to remove. Refer **Section 6. StoService** for recoating requirements.

- **StoColor façade paint (paint finish if selected)**

If selected it is recommended that all **Stolit MP** surfaces receive two (2) coats of **StoColor Maxicryl, or StoColor Dryonic** façade paint tinted to the selected colour and applied by brush and roller at approximately 6-8 m^2 per litre. One (1) coat is acceptable though it will need recoating more frequently. Refer **Section StoService** for recoating requirements.

Note: Always maintain wet edges between cutting in and roll in tight to ensure an even film build is maintained.

4.11 Stolit Smooth Finish Render

- **Stolit Milano coloured finishing render**

Stolit Milano is a smooth pre-coloured finish applied in two (2) or three (3) coats. A basecoat of **Stolit Milano** or **Stolit K 1.0 mm** tinted to the selected colour is applied and allowed to dry before the finishing coats of **Stolit Milano** are applied and steel troweled, floated or lightly randomly burnished to the selected pattern. The spreading rate of the Stolit Milano is approximately 18 m^2 per pail.

- **S-Protect SC Stay Clean Invisible Silane Sealer (clear sealer)**

To clean, dry **Stolit Milano**, apply an even coat of **S-Protect SC stay clean** hydrophobic sealer (clear invisible Silane sealer) in a flood coat using a low-pressure sprayer and Sto block brush to work the product into the Stolit render, avoiding runs and brushing in any lingering drips etc. so they do not show up. Surfaces must be well coated, and it is recommended to work in a pattern preferably out of the sun to ensure that there are no misses as the sealer is invisible once dry.

Note: All joinery, glazing, and adjacent surfaces must be masked off to prevent the **S-Protect SC Stay Clean** contaminating the surface. Any excess product must be removed after 15 minutes to avoid a surface film forming that can be difficult to remove. Refer to **Section 6** for recoating requirements.

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5. GENERAL NOTES

5.1 Colour

As selected by the client or specifier, Stoanz Limited recommends that the selected colour must have a minimum Light Reflectance Value (LRV) of 25%. Where a colour less than 25% LRV but above 10% is selected, the render system is finished with two coats of **StoColor Dryonic a Sto iQ coating** with **X-Black technology additive** to avoid thermal stress.

StoColor Dryonic iQ façade paint with **Sun blocker** and **fast dry film biomimetics**. is available in the StoColor range, with other colours available depending on formulation.

6. STOSERVICE ASSURANCE

6.1 StoService - Refer to StoService Documents for comprehensive guide.

It is the owner's responsibility to clean the Sto System annually by low pressure washing or hosing down to remove surface contaminants with special attention to sheltered areas, as required, use a proprietary house wash sprayed on first with a low-pressure garden spray in accordance with the manufactures instructions. The owner is also responsible for organising the maintenance in accordance with the 3-yearly StoService Schedule available online www.sto.co.nz.

After cleaning a visual inspection is to be undertaken by the person undertaking the annual maintenance to check for any physical damage or faults in the exterior building elements, to ensure any damage or defects are identified and repaired.

To assist the property owner in establishing a regular maintenance cycle, the property owners email address can be registered with service@sto.co.nz. Stoanz Limited will then provide 2½ yearly reminder notices that the property is due for the 3-yearly StoService.

Depending on the prevailing environmental conditions and the service record, recoating of the paint finish is normally required at the 10 to 12½ -years where two coats were applied or 8-year period where one coat of paint or S-Protect Silane was applied, or to maintain long-term integrity. This is carried out using a **StoColor Coating System or S-Protect System** applied in accordance with a Sto specification. Where a colour change is required, Stoanz Limited should be consulted.

7. WARRANTY

7.1 StoTherm Armat Miral Render System 20-year Warranty with StoService Assurance

When the **StoTherm Armat Miral Render System** is applied in accordance with the Sto specification, Sto details and Sto PS3 Quality Assurance schedule, a warranty is available for the Sto System for twenty (20) years from the date of practical completion, provided maintenance requirements as set out in the StoService Schedule are followed.

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SS216 StoTherm Armat Render System on Masonry Insulation

This is to comply with the relevant clauses in the New Zealand Building Code for this type of building element.

The Sto Warranty is supplied by Stoanz Limited to the Sto Contractor who signs off the work on completion of the project. Stoanz Limited confirms the materials supplied have been appraised and are fit for purpose provided that:

a) All specified work is carried out by a registered Sto Contractor who must complete the Sto Quality Assurance Schedule, submit the Sto Warranty Request, and sign off five-year the PS3 Workmanship Warranty.

b) All work is carried out in accordance with this Specification, or any written amendments issued by Stoanz Limited.

c) The warranty does not cover situations where the Render system is subjected to damage, physical disturbance, chemical contamination, or interference.

d) The masonry substrate under the render must be structurally sound. Cracks in the substrate that reflect through the render are not covered by the StoWarranty.

8. DISCLAIMER

8.1 Disclaimer

The information contained in this specification is based on our findings, experience, testing and certification at the revision date. End users are still responsible for establishing the suitability of the specified products regarding their intended use. No liability is undertaken for use of this information outside of Stoanz Limited parameters or for the substrates, design, construction, and project site conditions that are outside of Stoanz Limited's control. Where a Sto registered contractor applies Stoanz purchased products in accordance with the Sto Specifications, Material Technical Data Sheets and Sto Details, a Sto Material Warranty document is available, but the installation of the materials remains the responsibility of the Sto Contractor who provides the PS3 Warranty. Any warranty is conditional on the system being maintained and serviced in accordance with the StoService documentation. Stoanz reserves the right to alter or update information and formulations at any time without prior notice.

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