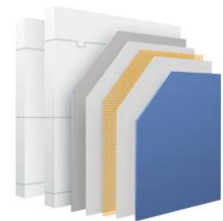
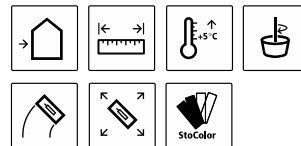


Sto Specification New Zealand

SS706F StoTherm Armat Miral on ICF / EPS Block Foundation

StoTherm Armat Miral Render System

On ICF/ EPS (poly) block construction foundations
BRANZ Appraisal No. 515 / CCANZ CP 01:2014
Sto 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 10-year Warranty with StoService Assurance

StoTherm Armat Miral Render System on ICF / EPS (poly) block foundations construction:

The **StoTherm Armat Miral Render System** incorporates: Preparation, **StoLevell Novo** basecoat render with **Stoplex W** sealer, **StoFlexyl** meshed waterproofing, **StoArmat Classic** meshed reinforced render finished in selected **Stolit coloured finishing render** coated with selected **StoColor facade paint** on ICF / EPS block foundations.

The **StoTherm Armat Miral Render System** is built on 50 years of worldwide experience of rendering over insulated masonry buildings to achieve interior energy efficiency.

Select Finishing Render:

Select Facade Coating:

Sto Registration Number:
(Sto Use Only)

i.e. 24.01_StoReg tec_sales_SS706F_project address

Project Notes:

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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 EPS block installer.

2.2 ICF/EPS Block Construction

All ICF/EPS blocks shall be laid, reinforced, and filled with concrete grout in strict accordance with the project drawings, specifications, and the applicable ICF/EPS block manufacturer's installation manual. The ICF/EPS blocks shall be laid true in both vertical and horizontal planes with joinery and service openings correctly formed. The concrete pour shall be undertaken in strict accordance with the block manufacturer's instructions. Walls must be adequately propped, and care must be exercised to avoid water retention and voids in the cells, as these weaken the structure and cause cracking. The surface alignment should be within acceptable standards no more than 3 mm deviation over a 1200 mm radius. A minimum 28 to 42 days shall be allowed after concrete placement, for curing and stabilisation to take place. The render details must be in accordance with the current Sto details (www.sto.co.nz) and any contamination, yellowed polystyrene or shiny EPS skin must be rasped so the block surfaces are clean, dry and ready to accept the render system. The Main Contractor is to ensure that any elements or details adjacent to the render system have been adequately waterproofed or flashed to avoid any water migration behind the render.

2.3 ICF/EPS Block Instillation

- A rebate is recommended for the ground floor slab to ICF/EPS block junction to provide a physical water stop.
- StoFlexyl waterproofing is required to waterproof foundations from minimum 150 mm above ground to the 100 mm past the render termination, foundation plinth or over a proprietary tanking membrane as detailed in the Sto CAD details.
- Place control joints in accordance with project drawings or block manufacturer's technical manual.
- Ensure there is no impediment to the flow of block grout to prevent voids.
- Blocks should be filled in 1.2 m lifts and be vibrated to compact the grout.
- Remove any grout slurry from block faces before it sets.
- Drying times vary according to the concrete mix, block widths, and weather. A minimum 28-42 days is required for settlement and curing. The block grout should have cured before rendering.
- Where inhabitable areas or exposed rendered exterior walls are backfilled behind, install a proprietary certified waterproofing/tanking membrane.

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- Always waterproof blocks behind or adjacent to any overlays or abutments such as concrete staircases, separate adjoining walls, soffits, porches etc.
- Structural fixing points can be formed by cutting out a piece of the block shell and blocking to then allow the poured block fill to form a solid surface for masonry anchors.
- Attached concrete decks should be detailed with a minimum 100 mm solid wall plinth at the junction.

2.4 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 m² and NZBC Acceptable Solution H1/AS2 for housing and buildings greater than 300 m², 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 m² 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. Refer to the StoTherm Masonry Foundation Specification for insulated foundation options.

2.5 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/m² and total heat released of less than 25 MJ/m². The system is therefore suitable for use on buildings at any distance to the relevant boundary.

3. SURFACE PREPARATION

3.1 Responsibility

All work in this section shall be the responsibility of the **Sto Contractor**, unless otherwise expressly agreed. The Sto Contractor shall satisfy themselves that the EPS panels are acceptable before proceeding. Adequate protection of all dissimilar materials and adjacent surfaces must be undertaken before commencing.

3.2 Foundations Waterproofing

The foundations must be waterproofed with **StoFlexyl** meshed waterproofing or another proprietary system.

On foundation edges, damp proof membranes should finish 100 – 150mm below ground with EIFS tape over the junction (50mm onto the EPS block and 100mm onto the DPM). Meshed **StoFlexyl** waterproofing (minimum 1.5mm thick in two coats) is then applied from minimum 150mm above ground to minimum 50mm past the EIFS tape junction.

When connecting to a tanking system termination finish 100mm below ground with EIFS tape over the termination bar junction, (if not compatible with Sto Render) 50mm onto the EPS block and 50mm onto the tanking membrane system). Meshed **StoFlexyl** waterproofing (minimum 1.5mm thick in two coats) is then applied from minimum 150mm above ground to minimum 50mm overlap of tanking membrane/EIFS tape.

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3.3 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.

3.4 Control Joints

All existing control joints in the blocks as designated by the project drawings, must be brought through the render finish. 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 and fill with a compatible **MS Sealant** applied in accordance with the manufacturer's Technical Data Sheets, priming the joint before sealing.

3.5 Detailing

As required use Sto uPVC accessories including **Sto pre-meshed corner beads**, **Sto flexible control joints** and **Sto 10, 6, or 3 mm finishing edges** installed in accordance with the Sto details.

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 rendered are dry, free of contamination and satisfactory before work commences. Adequate protection of all adjacent surfaces shall be undertaken prior to commencing work.

4.2 Selection

The **StoTherm Armat Miral 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** coloured finishing render coated in **StoColor** façade paint or **S-Protect** clear sealer on MP or Milano finishes.

4.3 Materials

StoLevell Novo basecoat render with Stoplex W sealer	StoArmat Classic reinforcement render
Selected Stolit coloured finishing render	Sto uPVC pre-meshed corner angles, finishing edges and drip edges.
Selected StoColor facade paint or S-Protect SC stay clean	Sto Power Bloc, Sto Zylinder blocs, Spirals, Iso Darts
Applicable StoTherm uPVC components	StoFlexyl waterproofing

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4.4 Detailing

The foundations are to be detailed with **StoFlexyl meshed waterproofing** as per previous Clause 3.2. **Sto pre-meshed corners, 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, sound ICF/EPS blocks that have been lightly abraded to open the surface, apply **StoLevell Novo** basecoat render by hawk and trowel at an 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** 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 ready for the **StoArmat Classic** reinforcing coat.

Application procedures for the **StoLevell Novo** basecoat must be in accordance with the Sto Technical Data Sheet.

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

4.6 Sealer

To the clean, dry, **StoLevell Novo basecoat**, 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 and sealed surfaces, apply an even coat of **StoArmat Classic** render by hawk and trowel at approximately 2.0 mm thick. 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. Once dry, apply a further coat of **StoArmat Classic** at approximately 1.5 mm (minimum DFT of 2.5 mm) by hawk and trowel to cover the mesh and leave a flat, even surface free of voids or deviations. Once dry, remove any slight ridging etc. with a Sto rasp ready for subsequent render.

StoArmat Classic must be installed in accordance with the Sto Technical Data Sheet. Always install **Sto pre-meshed corner angles** on external corners and **Sto pre-meshed finishing edges** as detailed.

4.8 Sealant

All junctions between joinery and render and around penetrations, flashings and similar details, shall be sealed with a compatible **MS Polymer Sealant** applied in accordance with the manufacturer's Technical Data Sheets with primer as required for PVC or porous surfaces.

Note: Where sealant is being applied directly over StoFlexyl waterproofing, the 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.

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- **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 m² per pail (1.0 mm), 9 m² per pail (1.5 mm), 7 m² per pail (2.0 mm) and 4 m² 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 6-7 m² per litre. One (1) coat is acceptable though it will need recoating more frequently. Refer **Section 6. StoService** for recoating requirements.

Note: Maintain wet edges between cutting in and roll in tight to achieve an even film build.

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 sandy and **RMP Sponge sandy** 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 S/S Marmorino trowel to the selected pattern. The spreading rate of the **Stolit MP, MP Natural or RMP Sponge** is approximately 12-14 m² per pail.

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

To **Stolit MP** or **MP Natural**, 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 don't 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. Refer to **Section 6 StoService Assurance** for maintenance and recoating requirements.

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

- **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 6-7 m² per litre. One (1) coat is acceptable though it will need recoating more frequently. Refer **Section 6. StoService** for recoating requirements. **Note:** Maintain wet edges between cutting in and roll in tight to achieve an even film build.

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** tinted to the selected colour is applied and allowed to dry before the finishing coats of **Stolit Milano** are applied and steel

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troweled, floated or lightly randomly sponged to the selected pattern. The spreading rate of the Stolit Milano is approximately 16-18 m² per pail.

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

To **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 don't 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. Refer to **Section 6 StoService** for maintenance and recoating requirements.

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

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 of 25%. Where a colour less than 25% LRV but above 15% 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 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 Assurance - Refer to StoService Documents for a 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 manufacturer's instructions. The owner is also responsible for organising the maintenance in accordance with the 3-yearly StoService Schedule available online at www.sto.co.nz.

After cleaning a visual inspection is to be undertaken by the person undertaking the maintenance to check for any physical damage or faults in the exterior building elements, to ensure any damage or faults 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 8-year period where one coat of paint or S-Protect Silane was applied, or 10 – 12½ -years where two coats of paint were applied to maintain long-term integrity. This is carried out using a **StoColor Coating System** applied in accordance with a Sto specification. Where a colour change is required, Stoanz Limited should be consulted.

To register your project with Stoanz Ltd for the warranty and StoService email new specifications to: info@sto.co.nz

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7. WARRANTY

7.1 StoTherm Armat Miral Render System 10-year Warranty with StoService Assurance

When the **StoTherm Armat Miral Render System** is applied in accordance with the Sto specification, Sto details and Sto Quality Assurance schedule, a warranty is available for the Sto System for ten (10) years from the date of practical completion, provided maintenance requirements as set out in the StoService Schedule are followed.

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 the five-year 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, structural stress, or interference.

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.