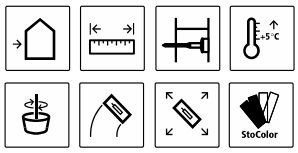
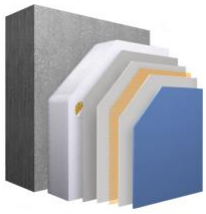
Sto Specification New Zealand

SS215F StoTherm Miral Render on Insulated Masonry Foundations

StoTherm Miral Render System
On XPS Vertical Edge Insulated Masonry Foundations
Based on BRANZ Appraisal No. 604 / CCANZ CP 01:2014

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:	**Sto 10-year Warranty on Vertical Edge Insulated Masonry Foundations with StoService Assurance**
StoTherm Miral Render System on XPS vertical edge insulation panels over insitu concrete or concrete block foundations. **Note: Use either Gluecoat Adhesive or StoFlexyl to butt joint the panels.**	The **StoTherm Miral Render System on Masonry Insulated Foundations** incorporates: **Selected XPS Insulation Panels** abraded (rasped) both sides and adhesively fixed to the masonry foundation using **Gluecoat adhesive render** applied with a 10 mm notch trowel (foundations requiring waterproofing are to be coated in **StoFlexyl waterproofing**) before installing the panels. The panels are then mechanically fixed with **StoTherm Anchors from 200 mm** above the ground as deemed necessary. The abraded insulation panels can either be pre-coated before installation in **meshed Gluecoat basecoat render** and finished in the selected **Stolit** coloured finishing render or rendered once installed and finish coated with the selected **StoColor facade paint** or **S-Protect SC sealer for Stolit MP finishes.** The **StoTherm Render Systems are** built on 50 years of worldwide experience in insulating and refurbishing masonry buildings to achieve interior energy efficiency.
Select Insulation:	**XPS - 30 mm x 300 x 2500 extruded panel with R-Value of 1.1** Other sizes and 30, 40, 50, 75, 100 mm thicknesses available on request
Select Finishing Render:	Select
Select Facade Coating:	Select
Sto Registration Number: (Sto Use Only)	i.e. 24.04_StoReg tec_sales_SS215 F project address
Project Notes:	The intersection of the insulation with the wall cladding (cavity or non-cavity) must be detailed accordingly, including a tapered edge to shed water. The insulation must not block the ventilation openings of any drained cavities above.

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz

SS215F StoTherm Miral Render on Insulated Masonry Foundations

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 conversed with exterior legislation requirements, the project specifications and details, current Sto Specification and Sto details (www.sto.co.nz) and any specific concrete or block installation requirements relating to the Main Contractor's responsibilities before any work commences. 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 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. Note concrete driveways, paths, stairs or terraces that are laid against the finished render system must incorporate a bond breaker to avoid differential movement cracking the render 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, joinery manufacturer's details and Sto details.

A **Sto Quality Assurance Document** is to be filled out as a record of the work undertaken by the Sto Contractor. **Note:** All products are to be installed in accordance with their current Technical Data Sheet, MSDS, Specifications and QA documents.

2.2 Concrete Blocks, Insitu Concrete, Masonry - General

The masonry installation, including reinforcement and concrete infill, shall be undertaken in strict accordance with the project drawings, specifications, and the masonry block manufacturer's technical data. The walls shall be laid true in both vertical and horizontal planes with all work correctly formed and waterproofed in accordance with Sto details. Control joints must be installed as per the project's structural drawings or 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 positive water stop. 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 Masonry Foundation 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 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 buildings greater than 300 m^2, or the Modelling method in H1/VM1.

2.4 Insulation R Values XPS Extruded Foam Boards

- 30 mm (R 1.1)
- 40 mm (R 1.43)
- 75 mm (R 2.7)

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz

3. SELECTED XPS PANEL INSTALLATION

3.1 Responsibility

All work in this section shall be the responsibility of the **Sto Contractor**, unless otherwise expressly agreed. 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.

3.2 Cleaning

All surfaces to be insulated shall be treated as required and water blasted clean with sufficient pressure to remove any contaminants or loose, friable material supplemented by hand or mechanical removal of any remaining debris or friable material.

Note: When cleaning with the waterblaster, due care must be taken to avoid any damage to the building elements, dissimilar materials, or adjacent surfaces.

3.3 Foundations Waterproofing

Porous foundations or foundations situated in high water tables or exposed to water must be waterproofed with two brush coats of **StoFlexyl waterproofing** from 150 mm above ground down to the footing before adhering the insulation in place. A vented capillary break or vented control joint is required where the exterior cladding meets the insulated foundations.

3.4 Penetrations

Penetrations such as waste pipes, fixing brackets, fixtures, 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.

3.5 Insulation: Extruded XPS is to be abraded both sides to provide adhesion for the render system

Depending on the site conditions, finish, and the Sto Contractor, the panels can be pre-rendered before installing and finishing. Starting from the Sto plinth foundation detail or a starter track, ensure the StoTherm Insulation panel layout is installed true from the base in a brick pattern for larger widths with no continuous vertical joints, using alternating panels on the external corners. Install Sto uPVC, trays, channels, and flashings as required at termination points.

All XPS panels (generally 30 x 300 x 2500 mm) must be manufactured in accordance with AS 1366.4. Other sizes are available on request. Ensure the XPS Panel layout is arranged in a brick pattern with no continuous vertical joints. The 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 for a flat surface.

Note: The minimum insulation thickness for countersunk fixings is 50 mm panel using **StoTherm impact anchors**. Ensure the substrate is suitable, i.e. it is a sound, load bearing and an even solid plane as required before installing the insulation panels.

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz

3.6 Control Joints

Any existing control joints in the foundations as designated by the project drawings must be brought through with an 8 mm gap in the panels. Control joints should be installed in **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 sealant any joints and either apply two coats of the paint and leave as a negative detail or fill with a compatible **MS Sealant** applied in accordance with the manufacturer's Technical Data Sheets and priming requirements.

3.7 Adhering XPS Insulation Panels

Note: Extruded XPS foam panels must be abraded with a Sto Rasp before rendering.

The **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 280 mm x 10 mm notched trowel or **StoTherm notched trowel** by applying a full coat of **Gluecoat Adhesive Render** to the back of the **insulation panels.** All panels are installed immediately while the adhesive is wet, tight butted and levelled on the mortar bed. Where mechanical fixings are required (minimum 200 mm above ground) **allow the render to set** before installing. Insulation panel joints shall be checked after fixing and any gaps filled with adhesive foam before the panels are rasped to obtain an abraded flat surface.

Note: Always ensure the perimeter of the panel (not sides) is well coated with **Gluecoat Adhesive**. 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.

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

3.8 StoTherm Anchors (fix in accordance with Sto details)

Insulation panels are mechanically fixed **above ground** in accordance with the **StoTherm anchor** pattern (normally 600 centres horizontally and 300 centres vertically from minimum 200 mm above ground or as deemed necessary to 60 mm below finishing point) 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).

StoTherm Anchors are placed in the pre-drilled holes and countersunk using the **Sto Router 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 insulation caps** set flush to eliminate thermal bridging.

StoTherm 75 mm or 95 mm Impact Fixings can be used for 30, 40, 50 mm thick panels. They are face fixed flush with the surface or countersunk in 50, 75, 100 mm panels using a **Sto Router tool** to cut the fixing hole. The fixings are then covered with Sto insulation caps.

4. STOTHERM MIRAL RENDER SYSTEM ON MASONRY INSULATED FOUNDATIONS

4.1 Responsibility

All work in this section shall be the responsibility of the **Sto Contractor** who must assure themselves that the surfaces are dry, free of contamination, satisfactory and all adjacent surfaces are adequately protected prior to commencing.

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz

SS215F StoTherm Miral Render on Insulated Masonry Foundations

Note: All products are to be installed in accordance with their current Technical Data Sheets, MSDS, Specifications and QA documents.

4.2 Selection

The **StoTherm Miral Render System on Insulated Masonry Foundations** shall be carried out in stages incorporating: **Gluecoat Adhesive, Gluecoat meshed basecoat** finished in the selected **Stolit** coloured finishing render coated in **StoColor** façade paint or sealed with **S-Protect SC o**n selected MP finishes.

Note: Insulation panels can **either be pre coated** before installation with **meshed Gluecoat basecoat render** and then finished in selected **Stolit** coloured finishing render joints butted together, or **rendered to any stage insitu** and coated with the selected **StoColor facade paint** or **S-Protect SC sealer for Stolit MP finishes.**

4.3 Materials

Stoanz Ltd supplies all the following materials:

Selected Insulation Panels	**Gluecoat Adhesive and Gluecoat meshed basecoat**
Selected Stolit coloured finishing render	**Selected StoColor facade paint or S-Protect SC on sponge finishes**
Gluecoat or StoFlexyl Jointing	**Sto uPVC pre meshed corner angles, and finishing edges, etc.**

4.4 Detailing

As required, porous foundations are to be waterproofed with **StoFlexyl waterproofing** and detailed with **Sto pre-meshed corners, finishing edges and control joints** that are lightly embedded in the basecoat render before being encapsulated in the meshed reinforcement render coat.

4.5 Meshed Gluecoat Basecoat Render (apply insitu or preinstall for strip foundations)

To clean, dry, insulation panels that been lightly abraded to open the surface and level the joints, apply a coat of Gluecoat Adhesive meshed render by hawk and trowel at approximate thickness of 3 mm to leave an even, straight surface free of hollows and deviations. While the render is still wet, lightly embed with **Sto mesh** ensuring adjacent drops of mesh are overlapped by a minimum 75 mm. Float the surface to ensure the mesh has been embedded before applying a further basecoat at approximately 1.5 mm (minimum overall DFT 4 mm) by hawk and trowel to cover the mesh and leave a flat, even surface free of voids or deviations. Once set, remove any ridging or bumps in the basecoat with a Sto feathered straight edge, or Sto rasp ready for finishing coat.

4.7 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).

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz

- **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 to **Section 6** for recoating requirements.

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

4.8 Selected Stolit MP Finished Renders (refer to front page for selected finish) Stolit MP fine coloured finish, MP Natural salt & pepper finish

Stolit MP fine, MP Natural 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 or MP Natural,** 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** is approximately 12-14 m^2 per pail.

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

To clean, dry, **Stolit MP** or **MP Natural**, apply an even coat of **S-Protect SC** 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. Refer to **Section 6** for recoating requirements.

Note: All joinery, glazing, and adjacent surfaces must be masked off to prevent the **S-Protect SC** contaminating the surface. 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 6-8 m² per litre. One (1) coat is acceptable though it will need recoating more frequently. Refer **Section 6** for recoating.

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

4.9 Jointing for installing prefinished strip panels.

Select a tight butt joint or leave a 5 mm joint depending on selected finish and tool off excess or form a neat 5 mm joint.

4.10 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.

Note: Some manufacturers require primers for PVC, dissimilar substrates and some coatings.

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz

SS215F StoTherm Miral Render on Insulated Masonry Foundations

Note: Where sealant is being applied directly over **StoFlexyl waterproofing**, the StoFlexyl must be sealant primed to promote adhesion in accordance with the sealant manufacturer's instructions.

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 20%. Where a colour less than 20% 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. For colours below 10% a StoArmat reinforcement coat is also required.

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 - 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 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 10-12½ years where two coats were applied to maintain long-term integrity or 8-year period where one coat of paint or S-Protect Silane was applied. 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 Miral Render System 10-year Warranty with StoService Assurance

When the **StoTherm 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 ten (10) years from the date of practical completion, provided maintenance requirements as set out in the StoService Schedule are followed.

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz

SS215F StoTherm Miral Render on Insulated Masonry Foundations

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, movement, 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.

Stoanz Ltd | Subsidiary of Sto SE and Co KGaA.
72 Abel Smith Street, Wellington, 6011, New Zealand.
Ph: +64 4 801 7794, fax: +64 4 384 9828, email: info@sto.co.nz