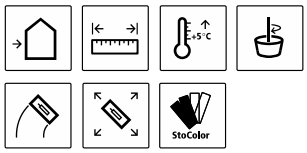
Sto Specification New Zealand

SS256 StoArmat Render System on AFS Logicwall® Construction

StoArmat Render System
Over AFS Logicwall® Construction
Based on BRANZ Appraisal No. 515 and 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:	**StoArmat System 20-year Warranty with StoService Assurance**
StoArmat Render System over AFS Logicwall® construction:	This specification details the application of the **StoArmat Render System** on **AFS Logicwall®** incorporating: **Sto Putzgrund** primer, optional **StoLevell Novo** basecoat plaster with **Stoplex W** sealer to straighten the walls, **StoFlexyl waterproofing** on openings, wall caps and foundations, **StoArmat Classic Jointing** to sheet joints, full coat of **StoArmat Classic** meshed reinforcement render finished in the selected **Stolit coloured finishing render** and selected **StoColor facade paint** or **S-Protect SC sealer** on selected **Stolit MP or Milano finishes.** The **StoArmat Render System** is designed to cover off all aspects of the exterior weathertightness envelope including joinery openings, foundations, penetrations, parapets, and exterior construction elements.
Select Finishing Render:	Select
Select Facade Coating:	Select
Sto Registration Number: (Sto Use Only)	i.e. 23.01_StoReg tec_sales_SS256_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.

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 AFS Logicwall® 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 an LBP registered contractor 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 AFS Logicwall® installer.

2.2 AFS Logicwall® Construction

The AFS Logicwall® installation, including reinforcement and concrete infill, shall be undertaken in strict accordance with the project drawings, specifications, and the manufacturer's technical data. The walls shall be formed 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 AFS Logicwall® manufacturer's details to manage shrinkage and structural stress. It is recommended that the interstorey floors should be poured within the structure leaving the outer shell to continue to avoid cracking. At least 28 days shall be allowed after concrete placement as per CCANZ CP01: 2014, for curing and stabilisation to take place before commencing the Sto Render 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 render system. Building tolerances should be within MBIE Guide to tolerances.

2.3 Construction

- Joinery openings shall be formed with rebates.
- Vertical control joints are placed in accordance with the project structural drawings, manufacturer's documentation or refer to NZS 4229 for guidance on placement and detailing.
- Ensure there is no impediment to grout flow to prevent air pockets
- Fill as per the AFS manual and mechanically vibrate to avoid air voids.
- Remove any slurry from wall faces before it sets.
- Drying times vary according to thickness and weather. A minimum 28 days is the standard to allow for settlement and shrinkage. The walls must be dry before commencing.
- Where retaining walls occur around inhabited spaces, 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 / timber staircases, abutting garden walls, soffits, attached porches, posts etc.
- Exposed wall tops must be waterproofed with StoFlexyl meshed waterproofing.

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 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 StoTherm XPS sheets can be used for vertical edge insulation with 30mm providing the required RV 1.0. Refer to the StoTherm Masonry Foundation Specification for other insulated foundation options.

2.5 Soffits

Soffits are normally fixed before the rendering commences with a 6-8 mm finishing bead of compatible MS Sealant applied after the mesh coat. The main contractor is to ensure any weatherproofing required on the walls behind the soffits or adjacent surfaces is carried out before the soffits are installed.

2.6 Control of External Fire

The specified Sto renders have been tested to EN 13501-1 and have achieved an A2-s1, d0 rating. The StoArmat 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. SURFACE PREPARATION

3.1 Responsibility

All work in this section shall be the responsibility of the **Main Contractor** or his sub-contractors with the **Sto Contractor** responsible for the Sto detailing unless otherwise expressly agreed.

3.2 Aluminium joinery

All joinery shall be fixed over **StoFlexyl waterproofing**, allowing for a 5 mm offset from the face of the rebate leaving a 5 mm gap at the sill prior to render application. Before fixing joinery, fill any holes in the rebates and use **StoFlexyl** to waterproof the rebates mixed correctly (1:1 with fresh cement) and brushed on in two coats to the head, jamb and **internal rebate** of the opening, including the rebate step while the **exterior sills** are to be **StoFlexyl meshed** with the mesh taken 40 mm up the jambs. Sealing the joinery perimeter with MS sealant at the head and jambs after the mesh coat then 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: Timber joinery is also fixed over StoFlexyl. Refer to Sto CAD details for flashing requirements.

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StoFlexyl meshed waterproofing has been tested by BRANZ to **AS/NZS 4858**. **Air seals and sealant work (primer is required where the sealant contacts StoFlexyl) is the responsibility of the window installer.**

3.3 Sealant

All sealant junctions between the render and adjacent surfaces or dissimilar materials shall be jointed with compatible **MS Sealant** applied in accordance with the manufacturer's Technical Data Sheets.

Note: Some manufacturers require primers for PVC or porous substrates.

3.4 Detailing

All details must be in accordance with the project drawings and Sto details available from www.sto.co.nz.

3.5 Penetrations

Penetrations such as waste pipes and fixtures shall be adequately flashed and waterproofed prior to the render installation.

All penetrations through the render must be adequately sealed with MS Sealant applied as a minimum 6 mm sealant bead using PEF backing rod or Sto joint seal tape. Any electrical wiring that penetrates the render shall be encased in an appropriately sized uPVC conduit installed at a minimum 5º downwards rake.

3.6 Parapets, Balustrades, Wall Caps and Foundations (adjoining exterior concrete walkways, terraces splash zones)

All rendered horizontal wall surfaces should have a minimum 10º fall and have **StoFlexyl waterproofing** membrane installed. On **parapets**, **balustrades and wall caps, StoFlexyl** 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.

Any floor slabs that are brought through the walls and non-rebated ground floor slabs/block junctions must have **StoFlexyl meshed waterproofing** applied from 100 mm above and below the transition before the render system commences. Foundation splash zones should have a brush coat of **StoFlexyl** waterproofing applied over the basecoat render from 150 mm above ground level to 50 mm below the render termination point.

Note: StoFlexyl meshed waterproofing has been tested by BRANZ to **AS/NZS 4858** as required by **CCANZ CP 01:2014 and E2/AS1.**

3.7 Architectural Profiles and Shapes

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

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4. STOARMAT RENDER SYSTEM

4.1 Responsibility

All work in this section 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. **Note: Ensure the surfaces of all wall panels have been cleaned before commencing.**

4.2 Selection

The **StoArmat Render System** shall be carried out in stages incorporating **Sto Putzgrund** primer, **Stoanz LevelLite** or **StoLevell Novo** basecoat with **Stoplex W** sealer (as required), **StoFlexyl** waterproofing, **StoArmat Classic** meshed jointing, **StoArmat Classic** meshed reinforcement render finished in the **selected Stolit K or MP** coloured finishing render coated in the **selected StoColor** façade paint or **S-Protect SC** on selected MP or Milano finishes

4.3 Materials

Stoanz Ltd supplies all the following materials:

Sto Putzgrund primer	**StoLevell Novo or LevelLite basecoat render**
Stoplex W sealer	**StoFlexyl meshed waterproofing**
StoArmat Classic meshed reinforcement render	**Selected Stolit coloured finishing render**
Selected StoColor facade paint or S-Protect SC stay clean sealer on MP finishes	**Sto uPVC pre-meshed corner angles, finishing edges and drip edges**
Accessories: Sto fibreglass reinforcing mesh, MS Sealant and Sto Joint Seal Tape	

4.4 Control Joints

All control joints in the walls, as designated by the project drawings, must be expressed through the render system. 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 set, remove the cleaning tab and sealant fill the V joint with a compatible exterior MS sealant and primer (if required by the sealant manufacturer). Alternatively, sealant junctions and apply two coats of the façade paint to the V joint for a negative detail.

4.5 Sheet Priming

Apply one full coat of **Sto Putzgrund** by brush or roller at the approximate spreading rate of 7-8 m² per litre to the total surface area to be rendered ensuring all rebated sheet joints are coated.

4.6 Basecoat Render (as required to straighten formwork)

Deviations between 3 mm can be straightened with a StoArmat basecoat. Where the required amount of levelling is outside of these limits, the process outlined below shall be followed.

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To clean, dry, AFS Logicwall® surfaces containing cured, dry concrete, apply one full coat of **Sto Putzgrund** by brush or roller at the approximate spreading rate of 7-8 m² per litre to the total surface area to be rendered ensuring all rebated sheet joints are coated. Once completely dry, apply one straightening coat of **StoLevell Novo** render by hawk and trowel or pump at an approximate thickness of 6-8 mm to straighten the formwork (minimum 5 mm, maximum 15 mm in one application) before screeding the surface with an h rule to achieve an even straight surface free of hollows and deviations. Allow to set and remove any ridges or bumps in the basecoat with a Sto feathered straight edge or Grid Plane. All application procedures for the **StoLevell Novo** must be in accordance with the Sto Technical Data Sheets. The main contractor is to be advised of any walls that require a written variation for building out with additional coats to achieve a level surface. For thicknesses of 8-20 mm use LevelLite basecoat.

4.7 Stoplex W sealer

To clean dry **StoLevell Novo** basecoat render that has dried and been rasped flat, apply one full coat of **Stoplex W sealer** by brush and roller at approximately 8 m² per litre.

4.8 StoFlexyl meshed waterproofing

Ensure all **StoFlexyl** waterproofing has been completed.

4.9 Joint Treatment

Rebated joints in the wall panels are filled using **StoArmat Classic** reinforced with **Sto Jointing Tape** embedded into the **StoArmat render**, ensuring the joint is level with the surrounding sheet surface before leaving to dry overnight.

4.10 StoArmat Classic reinforcement render
Note: HD with hardener for accelerated drying in cold damp weather are also available.

To clean, dry, base coated or jointed surfaces (old or dusty surfaces must be sealed), apply an even coat of **StoArmat Classic** render by hawk and trowel at approximately 2 mm thick. While the **StoArmat Classic** is still wet, lightly apply **Sto reinforcing 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 thick (minimum overall DFT 2.5 mm) by hawk and trowel to cover the mesh and leave a plane even surface free of voids or deviations.

Once dry, remove any slight ridging etc. of the **StoArmat Classic** with a Sto rasp ready for subsequent top coating. All application procedures for the **StoArmat** must be in accordance with the Sto Technical Data Sheets. Always install **Sto pre-meshed uPVC drip edges** on lintels, **Sto pre-meshed** corner angles on external corners and **Sto pre-meshed finishing edges** as detailed.

4.11 Sealant Installation

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 or dissimilar substrates.

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.

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4.12 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 6-7 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.

4.13 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 m^2 per pail.

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

To 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 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 surfaces. 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 Assurance** 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** façade paint 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.

4.14 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 troweled, floated or lightly randomly sponged to the selected pattern. The spreading rate of the Stolit Milano is approximately 16-18 m^2 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 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 surfaces. 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.

5. GENERAL NOTES

5.1 Colour

As selected by the client or specifier, Stoanz Limited recommends that the selected colour should have a minimum Light Reflectance Value (LRV) of 10%. For colours under 10%, but above 4% 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.

Note: Where Milano render colours are selected with an LRV of less than 10%, the Milano render should be applied in a minimum three coats.

6. STOSERVICE ASSURANCE

6.1 StoService - Refer to StoService Documents for a comprehensive guide.

The Sto Render System should be cleaned 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). Note refer to StoService Maintenance Document online www.sto.co.nz.

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

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Every 2½-years, the building occupier will be notified to engage a Sto Contractor or Professional Property Maintenance Contractor to carry out the StoService Assurance maintenance schedule within the following six months.
On completion, the Contractor will advise Stoanz Ltd to record the Service in the StoWarranty file and notify the owner, so a long-term record of the service history is maintained.

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 to be serviced within the following six months.

7. WARRANTY

7.1 StoArmat Render System 20-year Warranty with StoService Assurance

When the **StoArmat 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 twenty (20) years from the date of practical completion, provided the maintenance requirements as set out in the StoService documents are followed.

This is to comply with the relevant clauses in the New Zealand Building Code for this type of building element being B2 Durability, E2 External Moisture and F2 Hazardous Building Materials

The warranty is supplied by the Sto Contractor on completion of the project with the warranty issued and backed by Stoanz Limited as to the suitability of the material supplied provided that:

a) All specified work is carried out by a registered Sto Contractor who must complete and sign off the Sto Quality Assurance Schedule and 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 physical disturbance, chemical contamination, 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.