Sto Specification New Zealand

SS910 StoProtect Clear Coating on Concrete Block

StoProtect Transparent Coating System
over exterior Architectural Concrete Block Construction
In accordance with CCANZ CP 01:2014 (E2/AS3)

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:	**StoProtect Coating System 7½ year Warranty with StoService**
StoProtect Transparent Coating System on solid fill concrete block construction	The specification details the application of **StoProtect Transparent Coating System** over exterior **honed architectural concrete block with tooled concave pointing** incorporating: **StoFlexyl waterproofing**, **S-Protect WS 410 Silane sealer** finished in **three (3) coats** of **StoProtect transparent** to leave an even, clear, durable finish. **Note**: **The system requires four (4) coats of Sto Protect waterproofing on the following:** Any blocks or surfaces that haven't been honed, fair faced blocks, all stack bonded blocks, Firth HotBloc, where the block matrix is porous or pitted, blocks that have negative or raked pointing, clear coated openings, horizontal caps (must have StoFlexyl beneath cap) and joinery sills or sites in an exposed environment (wind zones are Extra High or specific design). The Sto Protect 4 coat system must have a minimum Dry Film Thickness of 180 microns. The **StoProtect Clear Coating System** has been tested to meet the requirements of **CCANZ CP 01:2014 (E2/AS3)** and **StoFlexyl meshed waterproofing** has been tested to **AS/NZS 4858** waterproof membrane requirements as required by E2/AS3.
Sto Registration Number:	23.01_StoReg_tec_sales_SS910_Project Address
Project Notes:	**Note:** The application of the **StoProtect Coating System** must be undertaken by a professional contractor experienced in the application of waterproofing coating systems. The contractor must fill out the **StoProtect QA** and have read the **StoProtect Specification** before commencing.

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2. CONSTRUCTION & DETAILING

2.1 Responsibility

All work in this section shall be the responsibility of the Main Contractor, unless otherwise expressly agreed. Stoanz Limited accepts no responsibility for defective workmanship in relationship 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 the project specifications and details, block manufacturer's documents and the current Sto specification, Sto CAD details (www.sto.co.nz) and the Main Contractor's responsibilities before works commence. The Main Contractor is responsible for the various sub-contractors to ensure that all items relating to weathertightness of penetrations and dissimilar material junctions affecting the coating system are strictly in accordance with project specific details, manufacturer's or Sto CAD details, e.g., items such as roofs, soffits, openings, lights and security fittings, electrical wiring, flashings, deck membranes dissimilar junctions etc. that abut, flash or penetrate the coating system. The Main Contractor shall ensure that all coating is applied by a Sto registered coating applicator and exterior licensed work is carried out by LBP registered contractors with the window and door joinery 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.

2.2 Concrete Block Construction - Select masonry blocks suitable for clear coating.

The concrete block installation, including reinforcement and concrete infill shall be made in strict accordance with the project specifications and drawings and the **block manufacturer's design and installation manual.**

The blocks shall be laid true in both vertical and horizontal planes in a minimum 45 mm ground floor foundation rebate using 12.5 MPa mortar in a nominal 10 mm width, compressed by tooling, with all joinery and service cutouts correctly made using rebated blocks for all joinery openings. At least 28 drying days shall be allowed after concrete placement as per AS/NZS 2311, for curing and stabilisation to take place before application of the Sto coating system. Any minor surface damage or defective pointing shall be repaired before commencing. The main contractor shall ensure concrete blocks are laid by an LBP contractor using bagged mortar that is tooled tight and true, that the blocks are clean, dry and free of all surface contaminants before the coating applicator commences, and that any areas, details or flashings above or adjacent to the Sto Coating System have been adequately waterproofed to prevent water migration behind the Sto Coating System.

All mortar joints are to be tightly tooled and neatly pointed. Rebated joinery blocks must be waterproofed with StoFlexyl waterproofing and sills must incorporate mesh in the StoFlexyl, joinery is to be installed as per Sto CAD details for concrete block using StoFlexyl meshed waterproofing as required. All construction contaminants must be removed, and the maximum tolerances shall be in accordance MBIE Guide to tolerances.

Note: Some concrete block builds (i.e., partial filled) or block profiles may be unsuitable for clear coating. The Main Contractor and Sto Contractor are to check the surface thoroughly before commencing.

2.3 Solid Concrete Block Construction - Clear Coating Conditions

- Selected blocks should be honed, laid in stretcher (running, ½ block) bond and concave tool pointed.
- Honed blocks must be vacuumed or cleaned to remove all concrete dust, and any contaminants.
- Other blocks such as fair face or stack bonded can be coated but require a minimum of four coats.

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- CCANZ CP 01:2014 requires a minimum 45 mm rebate in foundations to provide a weathertight junction.
- Joinery openings are to be StoFlexyl waterproofed and formed with rebated jamb, head and sill blocks.
- Block faces must be of an even consistency with chipped corners etc. avoided.
- Blocks must be covered on site and laid dry. Where factory honed Architectural blocks are used, ensure any on site honing matches the manufacturer's honing to achieve appearance continuity.
- Before starting, note that certain soils, vegetation, timber, and mortar droppings etc. can cause staining, especially on light coloured blocks. As required, the main contractor is to provide adequate protection.
- Control joints are placed at maximum 6 m centres. Refer to the project documentation and NZS 4229 for placement and detailing.
- Block mortar is to have a minimum compressive strength of 12.5 MPa, with additives and shall be **manufactured specifically for blocks** with all of the standard joints concave tooled smooth and compressed as per NZS 4210. **Note**: **Negative pointed blocks** are to be tooled off with a **sledge runner with sides** to apply mortar to the exposed block edges and will require the coating over the pointing to be brushed applied to encapsulate the negative joints.
- Mortar to full depth of webbing up to 20 mm thick in first course and then 10 mm +/- 3 mm.
- Washout ports to have the block face removed, mortared back after and braced for grout.
- Ensure there is no impediment to grout flow. Remove ends or biscuits to prevent air pockets.
- Blocks, especially stack bonded and insulated blocks, must have full mortar joints both horizontally and vertically, and any voids created by leaving ends in etc. need to be mortared by the block layer during the laying process to achieve a continuous solid wall with inverted blocks fully mortared across the web.
- Blocks are always laid open end to depressed web end.
- Column blocks must only be used on the ends of walls and must be cut to allow the grout to flow through on every course.
- Block layer to ensure a solid fill is achieved throughout the entire wall. The block cavity must be clean and blocks should be filled in 1.2 m lifts and mechanically vibrated to eliminate air pockets that can cause problems.
- Sill blocks should be filled by leaving one sill block out to avoid air entrapment.
- Remove any mortar, grout slurry or bleed water from block faces and pointing before it sets.
- Drying times vary according to block thickness, grout and weather. A minimum 28 days is required for settlement and curing. Always ensure the blocks are completely dry before commencing with any coating work.
- Where walls are back filled, a certified tanking membrane fit for the purpose is required.
- Always waterproof blocks behind or adjacent to any overlays or abutments such as staircases (especially concrete stairs) or independent wall abutments to eliminate any water ingress.
- Exposed tops of walls must be filled flush with a mortared 5° slope to the inside that is coated StoFlexyl mesh waterproofing before block caps are installed and finished in the StoProtect coating system.
- Check honed blocks for minor aesthetic defects such core bar cracks and fill prior to coating.
- Beware of efflorescence and protect walls from inclement weather during construction to avoid water ingress. As necessary, scrub off efflorescence with detergent while in powdered form and if necessary, engage a specialist to green acid clean and neutralise the blocks. **Note:** Coloured blocks can change colour if subjected to aggressive acid washing.

2.4 Soffits

Soffits are normally fixed before the coating commences, with the finishing trim placed after the work is completed. The main contractor is to ensure that blocks are coated (weatherproofed) above soffits, behind flashings and fascia's and any adjacent surfaces overlaying the blocks before these items are installed to prevent water ingress behind the Sto coating system.

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2.5 Cleaning (Visual Presentation)

The finished concrete blocks must be clean and visually acceptable. It is the responsibility of the main contractor and their appointed block layer to ensure a clean unified surface is achieved with an acceptable continuity of block faces. If the blocks batches vary in colour, are stained, or discoloured, the block manufacturer must be notified before any blocks are laid.

The coating system is transparent therefore it is essential to ensure **that the block layer has left the concrete block walls clean with no marks, stains, slurry, uneven pointing, or defects and that the continuity of colour in the laid blocks is acceptable to the client or specifier.** Any repairs to the blocks or mortar joints, or specialist cleaning required must be undertaken before the Sto Coating Contractor commences.

2.7 Control of External Fire

The exterior surface finish requirements of NZBC Acceptable Solution C/AS1 Table 5.1 and C/AS2 Paragraph 5.8.1 do not apply. The StoProtect coating applied directly to the concrete block is less than 1 mm thick.

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 **StoProtect detailing** unless it is otherwise expressly agreed. Adequate masking must have been undertaken before commencing any work that could affect the finished surfaces.

Note: The blockwork must be inspected by the Sto Contractor prior to commencing. Some blockwork / pointing may be unsuitable for a clear coating system and may require a render system to ensure the wall is weathertight.

3.2 Joinery Rebates, Parapet and Balustrade Caps (Horizontal Surfaces)

Joinery shall be fixed over rebated concrete blocks that have been waterproofed with **StoFlexyl waterproofing** prior to the joinery installation. The main contractor shall ensure all joinery openings are formed using rebated concrete blocks and sill blocks that have been solid filled.

The main contractor must ensure air seals are incorporated around all interior joinery openings and the nominated joinery contractor installs a compatible MS Polymer Sealant in accordance with the manufacturer's Technical Data Sheets to the exterior head and jamb block junction after the rebates have been coated.

Note: Sills shall have a 5 mm drainage gap with no sealant.

Note: StoFlexyl waterproofed surfaces require a **sealant primer** before installing the sealant.

Note: Parapet block caps, balustrade block caps and horizontal surfaces shall have a minimum fall of 5 degrees and must also be waterproofed using **StoFlexyl meshed waterproofing** which can be installed under concrete block finishing caps where required before they are coated in the **StoProtect Waterproofing System.**

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3.3 Clear Finished Rebates

Where a clear finish is required on the head, jamb and sill rebates, the **StoFlexyl waterproofing** is applied approximately 15 mm out from the rebate step onto the exterior rebate to sit in line with the joinery flange (once the joinery is installed). The StoFlexyl is then covered by the sealant joint at the jamb and head (window flange 8-10 mm + 5 mm air gap). Internal joinery rebates must be patched as necessary and three (3) coats of **StoFlexyl waterproofing** is to be applied with the first coat thinned as a primer and subsequent coats thinned to achieve a thick brushing paste. The **StoProtect** coating is lapped over the dry **StoFlexyl waterproofing** to the top of the rebate step. Sill blocks require a minimum 4 coats of **StoProtect** to achieve a minimum dry film thickness (DFT) of 180 microns.

Note: Ensure there are no voids in the pointing and all **StoFlexyl** surfaces are well coated to provide a solid membrane.

Note: Not suitable for unfilled sill blocks. Unfilled sill blocks require **StoFlexyl meshed waterproofing** finished in **Putzgrund primer / Stolit** coloured finishing render (refer to Paragraph 3.4).

3.4 Exposed StoFlexyl Waterproofing

To clean, dry, **StoFlexyl** waterproofed surfaces, apply one coat of **Sto Putzgrund** primer tinted to the selected colour then finish in the selected **Stolit coloured finishing render** ensuring adequate masking is undertaken to keep the blocks clean before coating in the **StoProtect Transparent System.**

3.5 Foundation Splash Zone

The blocks should be laid in a minimum 45 mm rebated floor slab to ensure this transition remains watertight. The **StoProtect Transparent System** must be applied to any block edges that overhang the slab and should extend down over the foundation a minimum 100 mm past the interior floor level. Foundations can alternatively be coated in a **Sto Render System** or **StoTherm Insulated Foundation System**.

StoFlexyl Meshed waterproofing has been evaluated by BRANZ to meet **AS/NZS 4858** as a waterproof membrane for use with render and clear coat systems as required by **E2/AS1** and **CCANZ CP 01:2014**.

3.6 Penetrations

Penetrations such as waste pipes and fixtures shall be adequately flashed and waterproofed prior to the render installation. Any electrical wiring that penetrates the render shall be encased in an appropriately sized uPVC conduit sheathing acting as an insulator installed at a minimum 5º downwards rake. Conduits and any plumbing piping etc. must be sealed using compatible MS Polymer Sealant as detailed.

Note: All penetrations through the coating system must be adequately sealed with MS Polymer Sealant applied as a minimum 6 mm sealant bead over PEF backing rod or Sto joint seal tape.

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4. STOPROTECT CLEAR COATING SYSTEM

4.1 Responsibility

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

4.2 Selection

The **StoProtect Clear Coating System on Concrete Blocks** shall be carried out in stages incorporating **S-Protect WS 410 Silane** sealer, **StoFlexyl waterproofing** detailed as required, and the **StoProtect Clear Coating System** with the minimum number of coats required for the selected block wall system.

4.3 Surface

Before commencing, **check the block wall surfaces are dry, clean**, **visually acceptable, pointing is tight tooled and any flashings, dissimilar material overlays, parapets or joinery rebates are waterproofed**. Though the coatings are clear, appropriate masking must be undertaken to protect joinery and adjacent surfaces.

Note: Application rates will vary depending on the blocks being treated. The standard spreading rates are based on manufacturer honed blocks. Standard fair faced blocks, coloured blocks, pumice blocks, negative pointing, etc. all have different matrixes and porosities that are likely to require particular attention and additional coats.

4.4 S-Protect WS 410 Silane Sealer

To cured, dry, clean exterior block surfaces apply a flood coat of **S-Protect WS 410 Silane** in a double wet coat with a low-pressure backpack sprayer using a block brush to control the wet edge running down saturating the surface and remove any lingering drops left behind by brushing into the surface. Spreading rate is approximately 200 g/m^2 (5 m^2/l) to 250 g/m^2 (4 m^2/l). The surface must be left between 3-5 days to catalyse before applying the **StoProtect Coating.**

Note: S-Protect WS 410 silane will not etch glass but leaves a film that can be difficult to remove once it dries. Ensure adjacent surfaces and dissimilar materials are masked with plastic before proceeding. In wet, wintery conditions the **S-Protect WS 410** can take longer to catalyse.

4.5 StoProtect Clear Coating (as required apply an extra coat other blocks as noted below)

To clean, dry, honed concrete blocks sealed with **S-Protect WS 410** that have catalysed (minimum 3-5 days required), apply a minimum of three (3) coats of **StoProtect Transparent**, thinning the first sealer coat by adding approximately 10% clean fresh water (depends on blocks and conditions) before applying by brush and roller. Allow the first coat to dry completely before applying the second coat un-thinned at approximately 6-7 m^2 per litre and leave to dry overnight before applying the third coat, allowing to dry between coats. Always maintain wet edges when applying to prevent shadow lines, especially between cutting in and roller applications.

Ensure the surface is well coated, the mortar joints are fully coated, and any block pit holes, voids and joints are well filled before applying the final coat. The spreading rate will vary depending on the type of block, surface, pointing, porosity, and block configuration. Finished walls should have an even sheen with no patchiness when viewed side on.

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StoProtect is not to be spray applied. The surface must be flood coated using a Sto 18 mm nap roller working the product into the surface to fill block pit holes and the pointing to achieve a minimum dry film thickness of 180 microns for four coats, (150 microns with three coats).

Do not apply with rollers on extension poles and ensure you have good access to work the coating into the block faces and pointing.

Note: The spreading rates are based on **dense honed blocks**. Allowances must be made for other blocks depending on their porosity and profile. Where the blocks haven't been honed, the matrix is porous/pitted, the blocks are **Stack bonded, Onyx blocks, Hotbloc or fair faced blocks**; the site is situated in an exposed environment (e.g. sea spray zone), and/or there are negative (raked) pointing, clear coated sills or horizontal caps, additional coats are required to achieve a minimum dry film thickness of 180 microns.

Negative / raked pointing must be brush applied at every coat to ensure the pointing is well coated**.**

Equipment: It's recommended to use a Sto roller handle, Sto 18 mm nap roller, Sto short extension pole, 15 litre Sto pail, Sto roller grid, and 2"-3" brush.

5. GENERAL NOTES

5.1 Contractors Assessment

Before removing the masking, check the block faces are evenly coated and that any blemishes have been rectified.

5.2 Environmental Conditions

Refer to BRANZ Maps (Earthquake Zone, Exposure Zone, Rainfall Range, Wind Region, Wind Zone) to determine the position of the proposed work in relationship to the surrounding conditions.

6. STOSERVICE

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

The Sto Coating System should be cleaned annually by low pressure washing or hosing down with clean water 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). Refer to the StoService Maintenance Documents (online www.sto.co.nz).

After cleaning, a visual inspection is to be completed by the owner or 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 to be serviced within the following six months.

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Depending on the prevailing environmental conditions (harsh exposed conditions such as beach side properties may require recoating more frequently) and the service record, recoating of the clear finish is normally required every 8 years to maintain long-term integrity. This is carried out using a StoProtect Clear Coating System applied in accordance with a Sto specification.

7. WARRANTY

7.1 StoProtect Coating System 7½ year Warranty

When the **StoProtect Coating System** is applied by a Sto Contractor in accordance with the Sto specification, Sto details and Sto PS3 Quality Assurance schedule, a warranty is available for the Sto System for seven and a half (7½) years from the date of practical completion. This is to comply with the relevant clauses in the New Zealand Building Code for an exterior coating element, provided the maintenance requirements as set out in the StoService documents are followed.

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 system is subjected to physical disturbance, chemical contamination, structural movement, interference, or where the system was used on retaining walls.

(d) **Note:** Exposed sites subjected to sand abrasion or other severe conditions may require additional coats more frequently to maintain the integrity of the StoProtect coating system.

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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