



STOPROTECT CLEAR COATING SPECIFICATION OVER CONCRETE BLOCK / BRICK VENEER CONSTRUCTION

Complies with CCANZ CP 01: 2011 (E2/AS3) - ACAD Details www.sto.co.nz building with Sto

Project:

Prepared for:

StoProtect Clear Coating System on Veneer Block Construction

This specification is written to cover the application of a clear coating system over exterior concrete block veneer construction incorporating; **StoFlexyl waterproofing** as required followed by sealing the surface with **S-Protect WS405 Silane sealer** that is then finished in three coats of **StoProtect transparent** to leave a durable clear finish.

Note; Concrete based veneers are susceptible to water penetration the cavity must be constructed as a dry cavity with all openings, penetrations, weep holes and the first course in the rebate waterproofed to avoid water penetration.

1. NEW CONSTRUCTION

Responsibility

All work in this section shall be the responsibility of the Main Contractor, unless otherwise expressly agreed. The Main Contractor is to ensure that they are fully conversant with all the block veneer manufactures specifications, drawings and the applicable Sto ACAD details including the Main Contractor's responsibilities before works commence. The Main Contractor is responsible for all liaison with the various sub contractors to ensure that all items relating to weather tightness of joints or connections affecting the veneer are strictly in accordance with standard or project specific details, i.e. items such as the joinery, dissimilar materials junctions, electrical wiring, flashings, decks, plumbing etc or any items that are adjacent or penetrate the veneer.

Timber Frame

Timber framing must comply with NZS 3604 for buildings or parts of a building within the scope limitations of NZS 3604. Buildings or parts of a building outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Studs must be at maximum 600 mm centres in Low, Medium, High and Very High Building Wind Zones and maximum 400 mm centres for Extra High Wind Zones and specifically designed buildings. Dwargs must be fitted flush between the studs at maximum 800 mm centres. All framing shall be true in vertical and horizontal planes with particular attention to intersections of top plate/floor joists/bottom plate in multi-storey construction. Adequate timber framing & blocking shall be provided by the Main Contractor to facilitate membrane up stands and exterior fixtures. The timber grade and level of treatment shall be in accordance with the latest requirements contained in NZS 3602 generally, a minimum treatment level of H1.2 with lintel beams H3.1 and an overall maximum moisture content of 24% prior to the cladding being installed.

A concrete foundation is required for veneer construction with a minimum 40mm cavity, 50mm high rebate and a minimum height of 150mm to unpaved ground or 100mm to paved surfaces from the top of the rebate.

Wall insulation

NZBC Acceptable Solution H1/AS1 or NZBC Verification Method H1/VM1 can be used for housing, communal residential, communal non-residential and commercial buildings. For buildings with a glazing area of 30% or less of the total wall area, the minimum wall R-values required for non-solid construction are: Climate Zone 1 & 2 – R 1.9 and Climate Zone 3 – R 2.0. The Thermal resistance of building elements may be verified by using NZS 4214. The BRANZ House Insulation Guide Fourth Edition provides thermal resistances of common building elements based on calculations from NZS 4214.

Wall Underlay

A flexible wall underlay is suitable for use in NZS 3604 Wind Zones up to, and including, Very High. A rigid underlay is required in Extra High Wind Zones and specific design wind pressures. A wall underlay meeting the requirements of E2/AS1 shall be installed in strict accordance with the manufacturer's instructions. The wall underlay shall always be returned into the recesses of all openings and double lapped and flashing taped as per E2/AS1, Wanz or a BRANZ appraised wrap specification.

Note: Ensure any items requiring fixing or penetrating the timber frame such as fixing brackets etc are installed and flashing taped onto the building wrap in accordance with E2/AS1. Proprietary rigid sheathing systems shall be installed in accordance with the manufacturer's instructions. Generic sheathing materials shall be selected and installed in accordance with NZBC Acceptable Solution E2/AS1 Table 23. Generic sheathing materials shall be overlaid with a flexible wall underlay in accordance with E2/AS1 Table 23.

Aluminum Joinery

Plastered Reveal - The joinery is fixed before the veneer with a builder supplied proprietary aluminium head flashing positioned approximately 10mm over the jambs with min 10mm stopends and the reveals plastered using **Sto uPVC Stick On Sill & Jamb flashings** for a positive seal placed before laying the blocks. Sealing with the joinery perimeter with MS Sealant after the **StoArmat** mesh coat then forms the primary seal.

Alternatively were a clear reveal is required the block veneer is installed with a 8.0mm gap at the joinery junction but the block or bricks under the joinery must be waterproofed with **S-Protect WS 205** and **StoProtect Clear Coating System** with two extra coats around the joinery reveal before installing a MS Sealant joint at the joinery jambs and sill as the primary seal.

Note the joinery installer is responsible for joinery airseals

Penetrations

Penetrations such as waste pipes and fixing brackets shall be flashed with flashing tape to the wall underlay in accordance with E2/AS1 Fig 68. All penetrations through the blocks shall be adequately sealed using MS Sealant installed over a backer rod. All electrical wiring etc shall only penetrate the cladding system with the appropriate sized uPVC conduit installed at minimum 5° down wards rake. Plumbing piping should be set at a downwards rake and sealed using MS Sealant before plastering.

Note concrete veneer; Weep holes, rebates, rebate blocks, joinery openings need to be waterproofed.

Block Veneer

The block veneer installation, including reinforcement, ties, weep holes and mortar joints shall be made in strict accordance with the Manufacturer's Design and Installation Manual. In particular the blocks shall be laid true, in both vertical and horizontal planes, with all joinery and services cut outs correctly made including galvanised lintels set back 15/20mm as required. Mortar joints should be 10mm+/-2mm with the blocks squared off the foundation on a mortar course of up to 20mm. To prevent cracking install snake wire reinforcing at 800 centre's on corners, above large joinery openings, across narrow widths and at stress points. Ensure the manufacturer's required curing time is allowed after placement, for curing and stabilization to take place, before application of the coating system. All Maximum Tolerances shall be in strict accordance with NZS 4210: 2001 2.7.1.4 Table 2.2, i.e. No more than 3mm surface alignment deviation over a 1200mm radius. The Main Contractor is to ensure the block veneer is clean and free of all surface contaminants and that any areas or details adjacent to the veneer have been adequately waterproofed or flashed to avoid any water migration.

The information contained in this Specification is based on our experience and testing and represents the latest information available at the date of production. No responsibility is taken for uses to which this information may be put, but we advise that where application of products and processes is in complete conformity with this specification an appropriate warranty is available. We reserve the right to alter or update information parameters and formulations at any time without prior notice.

**NOTE: MAIN CONTRACTOR & ALL SUB TRADES INVOLVED IN ANY EXTERIOR WORK
All Details must be in strict accordance with E2/AS1 and standard or project specific details**

Concrete Block Veneer Construction - Clear Coating Systems

- 40mm minimum cavity + minimum 50mm high veneer rebate required in foundations.
- Rebate and first course needs to be waterproofed.
- Joinery openings are to be waterproofed and formed with sill blocks.
- Clear coated block faces must be of an even colour & consistency.
- Block must be covered on site and laid dry. Where honed Architectural blocks are used ensure any on site honing matches the manufactures honing to achieve continuity.
- Before starting be conscious that certain soils, clays, vegetation etc can cause staining.
- Control joints are placed at manufactures required centres refer to the project documentation and NZS 4229 for placement and detailing.
- Mortar to be minimum 12.0MPa, tooled smooth and compressed as per NZS 4210.
- Where specified use the manufactures bagged mortar.
- Mortar to full depth and up to 20mm thick in first course and then 10mm +/- 3mm.
- Washout ports to be used to remove all droppings.
- Sill blocks require minimum 15 degree fall.
- Remove any mortar or grout slurry from block faces before it sets.
- Drying times vary according to weather, follow the manufactures recommendation settlement and curing – the blocks must be completely dry before coating.
- Always waterproof blocks behind or adjacent to any flashings, overlays or abutments such as staircases especially adjoining concrete stairs or separate garden walls etc.

Cleaning – Visual Presentation

The finished block veneer 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 are defective, 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 veneer 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 or specialist cleaning required **must** be undertaken before the Sto Coatings Contractor commences.

2. BLOCK VENEER COATING PREPARATION

Responsibility

All coating work in this section shall be the responsibility of the nominated Sto Coatings Applicator

Joinery Revels

Joinery revels are either plastered with **StoPoren Stick On Sill & Jamb flashings** over the block veneer rebate all as previously detailed taking care to avoid marring the face of the blocks.

Alternatively they can be clear coated in the **StoProtect Clear coating system** taken under the joinery with two extra coats applied to the revels and the jambs and sills junction sealed with MS Sealant.

Note: the main contractor must incorporate **air seals** to the interior of all joinery openings as required by NZBC acceptable solution E2/AS1.

Foundation Rebates

The block veneer must be laid in a minimum 50mm rebated waterproofed floor slab to ensure this transition remains waterproof the **StoProtect Transparent System** should then extend a minimum 100mm past the interior floor level. Exposed foundations can be coated or alternatively plastered in the **StoArmat Miral Plaster System**.

3. STOPROTECT CLEAR COATING SYSTEM

All work in this section shall be the responsibility of the Sto Coating Applicator who must check the block veneer are clean, dry and adequate masking has been undertaken before commencing.

Clear Coating Procedure

Before commencing **check the block veneer surfaces are clean enough for the coating, the jointing is tight and any flashings, dissimilar material overlays or joinery rebates are completely waterproofed.** Though the coatings are transparent appropriate masking must be undertaken to protect joinery and adjacent surfaces.

Note application rates will vary depending on the block veneer being treated the spreading rates are based on honed blocks - standard blocks and pumice blocks etc all have different matrixes and porosities that may require additional product.

S-Protect WS 405 Silane Sealer

To cured, dry, clean exterior block veneer surfaces apply a flood coat of **S-Protect WS 405 Silane** at 4 - 6 square metres per litre applied with low-pressure back pack sprayer using a block brush to control the wet edge and remove lingering drops, allow to dry a **minimum 2 hours** before applying a second coat of **S-Protect WS 405** at 7 - 8sqm per litre. Then **leave a minimum 5 days** for full catalysis reaction all in accordance with the TDS sheets before applying the **StoProtect Transparent**.

Note: Ensure all weep holes etc are flood coated. Spray gun application is not recommended unless a low pressure Silane delivery system is available.

Note; **S-Protect WS 405** 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 off with plastic.

StoProtect Clear Coating System

To clean dry honed blocks pre treated with **S-Protect WS405** apply three (3) coats of **StoProtect Transparent** thinning the first coat by adding approximately 1.5 litres of clean fresh water and applying by brush and roller at approximately 7 – 8 square metres per litre for honed blocks. Allow the first coat to dry completely before applying the second and third coat un-thinned at approximately 7 - 8 square metres Always maintain wet edges when applying to prevent shadow lines especially between cutting in and roller applications. Ensure the surface is well coated and that the mortar joints are brushed, and any block pit holes, voids weep holes and joints are well coated before applying the final coat. Depending on the block profile and porosity the spreading rate will vary accordingly. The **StoProtect** is not to be spray applied as the surface must be well coated with the coating worked into the block profile to fill block pit holes and the pointing to achieve a minimum dry film thickness of 150 microns.

Note: The spreading rates are based on **honed block veneer surfaces** allowances must be made for other block veneers depending on their porosity and profile. Where the blocks haven't been honed or the matrix is particularly porous an additional coat of **StoProtect** will be required. On negative pointing clear coated sills or horizontal caps additional coats are required to give a minimum dry film build of 180 microns.

4. GENERAL

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

5. MAINTENANCE

Refer; Sto Maintenance Schedule for comprehensive guide

The **StoProtect Transparent System** must be checked and cleaned annually by low pressure washing or chemical cleaning to remove all surface contaminants, with special attention to non-rain washed areas. When recoating is required at seven year cycles to maintain long-term integrity and a pristine condition this can be carried out using **StoProtect Transparent** coating over a cleaned surface.

Block Veneer Substrate Maintenance Inspections

The owner is to arrange for an initial inspection of the block veneer surfaces six months after practical completion to ensure there are no defects in the block veneer surface from curing or settlement. After the six month inspection the exterior is to be cleaned and checked annually to clearly identify any faults relating to substrate stress, sealant beads, flashings and other penetrations. A repair process is to be implemented immediately to address any faults discovered so the warranty is not compromised.

6. WARRANTY

The **StoProtect Transparent System** described in this specification is warranted for a period of ten (10) years from the date of practical completion to comply with the coating requirements of the NZBC for this type of building element provided the maintenance requirements as set out in the StoProtect Specification & Maintenance Schedule are followed.

A five (5) year workmanship warranty is issued by the Sto Applicator carrying out the work, and is backed by the Manufacturer as to the suitability for use of the material supplied, provided that.

- (a) The approved Sto Applicator who must adequately complete the Sto QA Compliance Procedure Form and PS3 Applicator Warranty carries out all specified work.
- (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 coating system is subjected to physical disturbance, substrate stress, chemical spillage or interference.

