



STOSTUCCO PLASTER ON STO S/S LATH SPECIFICATION

STOSTUCCO PLASTER SYSTEM ON STO STAINLESS LATH CONSTRUCTION

BRANZ Appraisal No 605 - ACAD Details www.sto.co.nz building with Sto

Project:

Prepared for:

StoStucco Plaster System on Sto Stainless Steel lath

This specification is written for the application of the **StoStucco Plaster System** consisting of; A bituminous backed welded stainless steel lath including Sto PVC flashings, **LevelLite** basecoat plaster, **StoArmat Classic meshed** reinforcement plaster finished in selected **Stolit** coloured finishing render coated in **StoColor Maxicryl** façade paint on timber cavity battens over building wrap on timber frame constructed to NZBC

Note: This system has been developed and tested using modern technology to emulate the traditional plastering techniques that relied on the knowledge of the plasterer to mix regional sands and cement that when reinforced with galvanized mesh has been historically known as stucco plaster.

1. CONSTRUCTION & DETAILING

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 the current Sto standard installation and fixing details (Sto ACAD details @ www.sto.co.nz – Building with Sto) and the Main Contractor's responsibilities before works commence. The Main Contractor is to be responsible for all liaison with the various sub contractors to ensure that all items relating to weathertightness, joinery, penetrations and dissimilar material junctions affecting the cladding system are strictly in accordance with Sto ACAD or any project specific details, i.e. items such as roofs, soffits, joinery, lights & security fittings, flashings, deck membranes etc that abut, flash or penetrate the Sto Cladding System. A Sto QA Compliance Form is required to be filled out for the Sto Warranty.

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 NZS 4203 (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.

Dwangs 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 between top plate, floor joists and bottom plate in multi-storey construction. Adequate timber framing including blocking shall be provided by the Main Contractor to facilitate adequate cladding fixings for the designated wind zone, membrane up stands, dissimilar surfaces and exterior fixtures for the plaster system.

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.

The timber grade and level of treatment shall be in accordance with the latest requirements contained in NZS: 3602. Generally, this will require a minimum treatment level of H1.2. The Moisture content of the timber frame shall be no more than 24% prior to installing the cladding system.

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 Third Edition provides thermal resistances of common building elements and is based on calculations from NZS 4214. Calculations in accordance with NZS 4214 require that the ventilated air gap and the thermal resistance of each layer between the ventilated air gap and the outside air be de-rated by 45%.

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 manufactures 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.

Soffits

Shall be fixed before cladding is installed and allowance made to close off the cavity with framing or battens to stop air flow into the roof space. A 6/8mm bead of MS Sealant is installed after the StoTherm panel work is completed and before plastering commences. Inclined soffits require a flashing, soffits less than 450mm wide may require a flashing see table 1: E2/AS1 alternatively Sto Joint Seal Tape can be installed in accordance with StoTherm ACAD details.

Penetrations and Fittings refer E2/AS1 fig 68

Penetrations and fittings such as waste pipes, vents etc shall be adequately supported by blocking and as required taped onto the underlay with a square sized flexible flashing tape fixed 100mm all round onto the building wrap and a 25mm strip wrapped around pipe or fitting to secure the star cut in the square, prior to cladding installation. Where penetrations pass through solid blocking with a minimum 75mm blocking overlap to the underlay they don't require taping but must have an exterior flange fitted over the sealant. Blocking must also be installed for taps, door stops/hooks, lights, security fittings etc and all electrical wiring shall only penetrate the cladding and plaster system in PVC conduit at a minimum downwards rake of 5 degrees with a exterior flange installed.

StoStucco uPVC Flashings

All **Sto Stucco uPVC flashings** including joinery, foot trays and soffits caps **must be fitted to the framing** before the cavity battens are installed. A diverter flashing is required (unless a WANZ joinery support bar is fitted) after battening under the window joinery to direct any water back against the lath see StoStucco ACAD details.

Aluminium Joinery

The window/door joinery shall be offset from the timber frame to the back face of the window flange by 23mm to allow for the installation of the **StoStucco joinery uPVC flashings** to clip behind the aluminium joinery be bonded in place and junction sealed with MS Sealant. All joinery shall be fitted with **StoStucco uPVC joinery flashings** before the installation of the cavity battens or Stainless Steel lath.

StoStucco uPVC jamb flashings must extend 40mm above the window head and be cut at the sill to the 15° window sill angle so they fit tight. Proprietary aluminium joinery head flashings must have a min 15 degree slope, be butted into the jamb flashings by removing the window jamb outer leg and 5mm kick tab off the inner leg and then sealanting the junction to form stop ends with a flexible flashing tape securing the aluminium head flashing to the building wrap. The **StoStucco uPVC sill flashing** is cut 60mm longer than the window and positioned 30mm either side to over mask the jamb flashings.

Note: Always refer to **StoStucco ACAD** details or project specific details before commencing.

Timber Cavity Battens - Sto uPVC vermin tray (providing min 1000mm² venting per lineal metre)

All exterior framing shall be battened with timber cavity battens. Using a **StoStucco uPVC Foot Tray** installed horizontally as a datum starter on the timber bottom plate, fix to all studs a **45mm x 25mm thick H3.1** treated timber batten to the full length of the stud, preferably in one continuous length. Should joints be necessary, they must be tight butted with a 15mm clearance occurring at any interstorey junction. The battens must be centred on the timber framing. Additional vertical battens are required at internal and external corners, at openings, between 600 centred studs and as required to join lath joints. At the soffits infill battens are required between the studs for fixing. Horizontal packers off set by 5 degrees with a minimum 50mm gap at the vertical batten junctions are required at the bottom plate and can be used on nogginns for additional lath fixing. Cavity battens or packers under a window opening must not be located closer than 50 mm to the edge of the opening. The Jamb battens are notched by 50 x 30mm both sides for the sill flashing and diverter flashing unless a joinery support bar is used. The battens and any packers shall be mechanically fixed using 75 x 3.15mm sized flat head hot dipped galvanized nails driven home at minimum 300mm centres on studs (all dwangs for any intermediate battening) using two nails into the top and bottom plates. All timber-framing batten set out must comply with the relevant **StoStucco ACAD details** and technical data to provide the required support and fixing requirements for the lath.

Note: The Sto Applicator is to supply the StoStucco Flashings But all Building Wrap & Wrap tapes, joinery, proprietary window head flashings and cavity battens, are supplied and installed by the Main Contractor or their nominated Sub-Contractors unless specifically agreed.

Additional Building Wrap required if Stainless Steel Lath doesn't incorporate Bituminous Wrap.

All exterior cavity battens shall be covered with a taunt craft based building paper or synthetic BRANZ Appraised wrap supported with 75 mm galvanised mesh or plastic tape or wire at 150 mm centres run across the cavity battens to limit the deflection of the wrap to a maximum of 5mm all securely fastened in accordance with the manufacturer's specifications to form a backing for the lath.

**NOTE: MAIN CONTRACTOR & ALL SUB TRADES INVOLVED IN ANY EXTERIOR WORK
All Details must be in strict accordance with project specific or StoTherm ACAD details**

2. STUCCO LATH INSTALLATION

Responsibility

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

Stainless Steel Lath Installation

The Stainless Steel lath shall be installed strictly in accordance with the StoStucco CAD details and instructions. Care shall be taken to ensure that fixing patterns are maintained, and that sheet edges are not damaged. Sheets must be installed **perpendicular** to the studs/cavity batten in a staggered brick pattern working from the bottom tray up with labelling facing the applicator. Sheets are over lapped by 2 sections vertically and one section horizontally with a gap or cut between double stapled joint at the designated control joints. Remove any overlapping bituminous paper on the lath (leave back paper) when joining the lath to allow the plaster to bond through around the double wires. All laths must be bent around internal and external corners by at least 200mm min (normally to next batten) and taken past all joinery jambs by 200mm min. All fixings and ties shall be minimum Grade 304 stainless steel; minimum 16g x 32mm min staples used with an air driven stapler.

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The lath is fixed to the cavity battens at 150mm centres on the parallel double reinforcing wires and around the wall perimeter battening with two fixings at horizontal laps. Where the join is not over a batten sheets must be wired together at 150mm centres. When sheets are to be continued over junctions particularly between floors, care shall be taken to ensure that the horizontal and vertical planes are maintained true across the junction and an interstorey joint is formed. Normally control joints are formed by cutting through lath with a grinder after the lath has been securely erected with fixings both side of the anticipated joint (**Warning:** cover windows to avoid **marring glass with grinder splatter**).

Note: All narrow widths, stress points, doors, etc are to be reinforced with lath butterflies (no paper).

Interstorey Joints

Interstorey floor joints require a 15.0mm break in the battening combined with a **Sto uPVC 10mm Finishing Edges or Drip Square Edge and 12mm Sto Control Joint** or inter storey metal flashing with a poly profile to cover the joint. The cavity is required to be closed with a non-vented interstorey joint at second floor transition (third storey). Refer to **StoStucco ACAD details** or project specific control/interstorey joint details before installation.

Sealant

All new sealant beads associated with the cladding system shall be **MS Sealant** applied in accordance with the manufactures instructions.

Control Joints

All control joints as designated by the drawings, **StoStucco ACAD details** or as set out by the engineer must be followed. Refer **Stoanz** for specific project control joints design details. Control joints must be installed in the **StoArmat Meshed** reinforcement plaster coat using the **Sto uPVC 'V' control joints**. Ensure the lath/mesh coat has been cut for the control joint. Control joints are required to be placed **vertically at maximum 5.4 lineal metre centres preferably** above and below the joinery jamb openings and **horizontally at interstorey floor transitions, maximum 5.4 lineal metre centres** excluding gables under 7.0 metres or as specifically required by the project drawings. **Note:** Sto uPVC flexible control joints are available from Stoanz Limited.

Penetrations

Penetrations such as waste pipes and fixing brackets shall be sealed to the Building Wrap with a square sized flexible flashing tape fixed 100mm all round onto the building wrap with a 25mm strip wrapped around pipe / fitting to secure the star cut in the square, prior to cladding installation. Note: All penetrations through the **StoStucco Plaster System** are to be adequately supported by blocking sized to suit and sealed during cladding installation with **MS Sealant** and flanges as necessary. Refer StoStucco details for approved set out and detailing. All penetrations through the **StoStucco Plaster System** shall have **MS Sealant** applied again after the reinforcement mesh coat. All Penetrations through the plaster system must be installed by the relevant trade with a minimum 5 degrees downwards slope to avoid encouraging water penetration.

Architectural Profiles

Any Architectural shapes used to create detailing shall be correctly cut to size and fitted using **GlueCoat Mortar** applied to the back of the shape with a notch trowel prior to placing. Fixings may be used to position shapes correctly whilst the adhesive cures or for mechanically securing large profiles. The profiles shall be pre meshed or receive a **StoArmat** mesh coat. Profiles are placed after the StoArmat mesh coat and are edge meshed onto the surface. **Note:** If used to cover an interstorey joint ensure lower wall remains free with a 5.0mm gap at drained joints.

Parapet & Balustrade Caps

Parapet **metal caps** must be installed with a min 5° slope and over lap the cladding 50mm in low medium and high wind zones, 70mm in very high and 90mm in extra high wind zones.

Any horizontal plastered surfaces must have a minimum 10° fall and have **StoFlexyl waterproofing** membrane installed.

On **balustrades StoFlexyl** must be correctly mixed (drill mix 1/1- with **fresh** cement) and applied with a layer of Sto mesh embedded into the **StoFlexyl** which is then floated to a level surface attaining a total minimum film thickness of 1/1.5mm. Extend membrane 75 mm up or down adjacent vertical surfaces see StoArmat ACAD Details and allow to dry overnight. All **StoFlexyl waterproofing** is to be over coated in **StoArmat Classic** meshed reinforcement plaster.

Note: StoFlexyl meshed waterproofing has been evaluated by BRANZ to meet **AS/NZS 4858** waterproof membrane requirements as required by E2/AS1.

3. STOSTUCCO PLASTER

General

The Sto Contractor shall assure himself that all lath and surfaces to be plastered are satisfactory. The **StoStucco Plaster System** is approximately 20mm thick, installation shall be carried out in stages over the **Sto Stainless Steel** lath consisting of; **LevelLite** basecoat comb finished, **LevelLite** levelling coat, **StoArmat Classic meshed** reinforcement plaster finished in selected **Stolit** coloured finishing render coated with **StoColor Maxicryl** facade paint. Adequate protection of all dissimilar material and adjacent surfaces shall be undertaken before commencing and the Sto Contractor shall assure himself that the surfaces to be plastered are correctly detailed.

LevelLite basecoat plaster

To clean dry Stainless Steel lath apply by hawk and trowel or machine pump the **LevelLite** basecoat plaster at approximately 7.0mm closing off wet plaster with an h shaped rule to the surface of the lath and finishing with a comb and set stainless steel corner beads etc leave to dry and then apply by machine pump another coat of **LevelLite** plaster at approximately 10.0mm closing off wet plaster with an h shaped rule to the flashing guide lines and straighten the **LevelLite** with a feathered straight edge to achieve a straight even plane surface free of hollows and deviations. Remove any ridging, lines or deviations in **LevelLite** with a rule or grater plane while the plaster is still green and leave to dry.

Detailing

The **StoStucco Plaster System** detailing shall be strictly in accordance with StoStucco ACAD details. **Sto Stainless Steel angles** shall be installed in the basecoat on external corners as detailed. All **StoStucco uPVC flashings, foot trays and soffits caps** should have clean edges ready for the mesh coat. As required apply **StoFlexyl Meshed waterproofing** over LevelLite basecoat.

StoArmat Classic meshed reinforcement plaster

To clean dry cured **LevelLite** basecoat, apply one coat of **StoArmat Classic** plaster by hawk and trowel at approximate thickness of 1.5/2.0mm whilst the **StoArmat Classic** is still wet, lightly embed **Sto mesh** and **Sto pre meshed corners** into joinery rebates ensuring adjacent drops of mesh are overlapped by a minimum of 75mm and the mesh is encapsulated into the **StoArmat Classic**. Allow to dry and apply one further coat of **StoArmat Classic** at approximately 1.0/1.5mm thick by hawk and trowel to achieve a minimum DFT of 2.5mm and a level plane surface free of voids or deviations. Once dry remove any slight ridging etc with a Sto rasp ready for subsequent finishing coats.

Sealant Installation

All junctions between joinery and StoArmat plaster and around penetrations, flashings and dissimilar material junctions shall be sealed with a minimum 6.0mm bead of **MS Sealant**.

Finishing Section select finish

Stolit K coloured finishing render as selected

Stolit K texture is available in a flat 1.0mm , 1.5mm or 2.0mm coloured render

To all exterior plastered surfaces apply selected finishing render **Stolit K** tinted to the selected colour, applied with a stainless steel trowel gauging to the thickness of the aggregate size and finished with a plastic trowel to the requisite pattern and allow to dry normally overnight. The spreading rate shall be approximately 12sqm/1.0mm, 9sqm/1.5mm, 7sqm/2.0mm -/per pail.

StoColor Maxicryl façade paint

All **Stolit K** surfaces shall receive one (1) full coat of **StoColor Maxicryl** façade paint tinted to the selected colour and applied by brush and roller at approximately 6/7 m² per litre. **Note:** Always maintain wet edges between cutting in and rolling in tight to ensure an even film build is maintained.

ALTERNATIVE SELECTION

Stolit MP or MP Natural coloured finishing render

Stolit MP or MP Natural are fine pre coloured sponge finishes applied in two (2) tight coats.

A basecoat of **Stolit MP or MP Natural** or alternatively depending on finish **Stolit K 1.0 or 1.5mm** tinted to the selected colour is applied and allowed to dry before the finishing coat of **Stolit MP or MP Natural** is applied and float finished or randomly lightly sponged to the selected pattern. The spreading rate of the Stolit MP is approximately 12 – 16sqm -per pail.

S-Protect SC easy clean sealer

To **Stolit MP** Apply an even coat of **S-Protect SC easy clean** Silane sealer (clear invisible sealer) in a flood coat using a low pressure garden sprayer and Sto block brush to work the product into the Stolit plaster wiping off any lingering drips etc. Surfaces must be well coated and work in a pattern preferably out of the sun to ensure that there are no misses as the sealer is invisible once dry.

Note: S-Protect SC easy clean all joinery and glazing must be completely masked off to prevent the glazing being damage and any excess product must be removed or polished into the surface during application to avoid a surface film forming.

4. GENERAL

Colour

NZBC E2/AS1 recommends that the Architect/Client select a colour, which has a minimum LRV (Light Reflectance Value) of 40%. For the specific colour value please consult the selected Colour Range where the value should be listed. Colours selected below the recommended values will affect the warranty as darker colour subject the cladding system to thermal stress.

5. MAINTENANCE

Refer; Sto Maintenance Schedule for comprehensive guide

The **StoStucco Plaster System** must be cleaned annually by washing to remove all existing surface contaminants with special attention to non-rain washed areas. When recoating is required at the 8/10 year period to maintain long-term integrity and a pristine condition this can be carried out using Sto façade paint over a cleaned surface. Physical damage must be repaired using the appropriate Sto materials as required. Where a colour change is required, Stoanz Limited should be consulted for a specific specification.

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Annual inspections are to be implemented after completion to clearly identify any faults in the cladding, sealant beads, flashings and any other connections. A repair process must be implemented immediately to address any faults so the long-term warranty is not compromised.

6. WARRANTY

The **StoStucco Plaster System** described in this specification is warranted for a period of fifteen (15) years from the date of practical completion. This is to comply with the relevant clauses in the New Zealand Building Code, B1 Structural, B2 Durability, E2 External Moisture and F2 Hazardous Building Material for this type of building element provided normal maintenance requirements as set out in the Sto Maintenance Schedule are followed.

The warranty is supplied by the Sto Contractor on completion and includes a five (5) year workmanship warranty signed by the Sto Applicator carrying out the work. The warranty is issued and backed by the Stoanz Limited as to the quality of the material supplied provided that;

- (a) All specified work is carried out by the approved Sto Contractor who must complete and sign the Sto QA Compliance Procedure Forms and a PS3 Workmanship Warranty.
- (b) All work is carried out in accordance with this Specification or any written amendments issued by the Manufacturers.
- (c) The warranty does not cover situations where the plaster system is subjected to physical disturbance, chemical spillage or interference.

