



Stoanz Ltd
Authorized partner of Sto

STOPOREN 50mm PANEL 40mm CAVITY CONSTRUCTION STOARMAT PLASTER SYSTEM ON POREN PANEL SPECIFICATION

BRANZ Appraisal No 772 - ACAD Details www.sto.co.nz building with Sto

Project:

Prepared for:

StoArmat Plaster System on Poren Panel & 40mm Cavity using Timber Spacers or Battens

The specification details the installation of the **StoArmat Plaster System on Poren 50mm Panel Cladding** incorporating; **Poren 50mm Panel on 40mm Cavity**, **WS205 stay dry sealer**, **StoPoren** basecoat plaster, reinforced with **StoArmat Classic meshed** plaster, finished in selected **Stolit K or MP** coloured finishing render coated with **StoColor Maxicryl** facade paint on timber and steel frame construction built within the scope of NZBC Acceptable Solution E2/AS1.

1. 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 he or she is fully conversant with the Sto Poren specification and ACAD installation and fixing details (see 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 weather tightness of joints or connections affecting the system are strictly in accordance with the ACAD standard or project specific details, i.e. items such as dissimilar materials junctions, electrical wiring, flashings, plumbing etc or any items that are adjacent or penetrate the cladding. The main contractor shall be responsible for ensuring all joinery is installed in accordance with the specification and details before the cladding has commenced.

A Sto QA Compliance Form is required to be filled out by the various parties involved 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 the AS/NZS 1170series. Studs must be at maximum 600 mm centres with dwangs 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 NZBC Acceptable Solution B2/AS1 and NZS 3602, generally a minimum treatment level of H1.2 and an overall maximum moisture content of 24% prior to the cladding being installed.

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.

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 manufacturers instructions. Flexible 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 underlay specification.

Note: Gables must be lined or incorporate an air barrier in accordance with NZBC E2/AS1 Table 23.

Ensure any items requiring fixing or items penetrating the wall frame such as fixing brackets etc are installed and flashing taped onto the building underlay 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 Flashings

All windows, doors etc shall be fitted prior to installation of the panels by the appointed window installer positioned to sit approximately 6.0 mm in the panel reveal line (approximately 23 – 24 mm from the frame to back of window flange to allow for tapes). Where a WANZ joinery support bracket is used ensure that it finishes 15 mm short of the joinery jambs (30 mm total). All Joinery is fitted with **StoPoren uPVC Stick On Sill & Jamb flashings** including sills fitted with WANZ joinery bars before the Poren Panels are installed and a proprietary aluminium head flashing is fitted as the panels are installed positioned 10mm past the joinery jambs.

Joinery Head Flashings

All proprietary aluminium head flashings are to be supplied by the Main Contractor taped onto the building underlay they must measure 10 mm past the joinery frame jambs (20 mm total) so they cover the StoPoren Stick On sealant channel with the punched plaster continuing 30mm past the head flashing. The proprietary aluminium head flashing is required to have a minimum 35 mm up stand taped to the underlay ,15 degree slope, 10 mm cover to the joinery and 10 mm stopends (refer to section two Joinery installation).

Penetrations

Penetrations such as waste pipes and fixing brackets shall be flashed with flashing tape to the wall underlay or the underlay backed by min 75 mm blocking and the exterior pipe finished with a flange sealed in accordance with E2/AS1 Fig 68. All penetrations through the panels 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° downwards rake. Plumbing piping should be set at a downwards rake and sealed using MS Sealant before plastering.

NOTE: MAIN CONTRACTOR & ALL SUB TRADES INVOLVED IN ANY EXTERIOR WORK

All Details must be in strict accordance with E2/AS1 and Sto standard or project specific details

2. POREN 50mm PANEL CONSTRUCTION

Responsibility

All work in this section shall be the responsibility of the **Sto Contractor** who shall satisfy themselves that the timber or steel frame construction is satisfactory before proceeding with the installation of the Sto Poren System. The **Sto Contractor** is to ensure adequate protection apparel and equipment is supplied to meet their responsibilities under the Health and Safety regulations and that all dissimilar surfaces are protected.

General

The **StoPoren Panel Cladding System** incorporating; **Poren 50mm Panel** cladding installation on 40mm cavity, **WS 205 stay dry sealer** to seal the panel, **StoPoren basecoat** plaster, **StoArmat Classic** mesh reinforcement plaster finished in selected **Stolit K or MP** coloured finishing render coated in **StoColor Maxicryl** facade paint or **S-Protect SC** stay clean sealer on MP.

Materials

Poren Panels

Poren Fixings & Timber Spacers

WS 205 stay dry sealer

StoArmat Classic meshed plaster

StoFlexyl waterproofing

Sto uPVC, trays, caps, joinery flashings, finishing edges, corners drip edges, and control joints

Poren Adhesive Mortar or AAC Adhesive

StoPoren uPVC Sill and Jamb flashings

StoPoren basecoat plaster

Stolit K or MP coloured finishing render

StoColor Maxicryl facade paint

Framing

The framing is to be checked to ensure it is straight and any blocking or additional framing is in place before starting.

40mm Cavity Timber Spacers (33mm can be used as required for bracing etc)

All exterior framing shall have H3.1 timber spacers cut at minimum 200mm long x 40 or 45mm wide x 40 or 33mm deep with the top and bottom end cut at 22½ degrees angle placed in accordance with the timber spacer layout in the Sto Poren Panel 40mm timber spacers ACAD details fixed to the studs with two 75 x 3.06 mm hot dipped galvanised flat head ring shank nails at maximum 300mm centres. The battens must be centred on the studs with an additional batten or strap at 300 mm horizontal centres required where stud centre's are greater than 450 mm to prevent the insulation bulging into the cavity. The timber spacers are placed on the bottom plate at each stud (max 600mm centres) and continue on the stud centred at each panel join extra spacers are required to support the panels around penetrations and at dissimilar material junctions. The cavity is limited to two stories with maximum height of 7 metres, a drained interstorey metal flashing is required for three storey cavity construction.

Note: StoTherm 40 x 50mm VH Battens or H3.1 timber battens can also be used.

Foundations

At the foundation to cladding junction a vented vermin tray or StoPoren vented foot tray (min 1000mm² per l/m venting) is installed with the cladding set 50 mm below the bottom plate or supporting frame.

Rebated Concrete Foundations

Where a solid concrete rebate detail is detailed the rebate must be a minimum 50 mm below the floor or supporting frame and approximately 90 mm wide (panel 50 mm + 40 mm cavity) with allowances made for frame overhang, tolerances, etc. The rebate is to have a coat of **StoFlexyl** brushed on or other approved liquid waterproofing.

Ventilation Openings

Where a solid concrete rebate detail is detailed, weather screened vents shall be installed through the bottom of the panel at the rebate line. The vents shall provide a ventilation opening area of 1000 mm² per lineal metre of wall.

Poren 50mm Panel Installation

Poren Panels are installed horizontally starting from the foundation in a straight line at least 50 mm below the supporting frame or on a rebate with vertical joints occurring on or off the stud and alternative panels laid brick pattern to avoid continuous vertical joints. The panels are fixed to the timber spacers centred 50 mm down or up from the edge of the panels using **75 mm long Poren Fixings**. Fixings must always be at least 30 mm from the edge of the panel and sunk min 5mm or maximum 12 mm below the surface. In particular the panels shall be laid true, in both vertical and horizontal planes in running bond bedded **Poren Mineral Panel Adhesive or AAC 2hr Construction Glue** with all joinery and services cut outs correctly detailed. After placement cut off any excess adhesive before it dries, rasp back any irregularities and allow to dry before the application of the **StoPoren Plaster 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 3 mm surface alignment deviation over a 1200 mm radius. The Poren panels shall be free of all surface contaminants and be dry enough to accept a the stay dry sealer or plastering before commencing. The Main Contractor is to ensure that any areas or details adjacent to the panels have been adequately waterproofed or flashed to avoid any water migration behind the cladding.

Notes: Any exposed panel reinforcing steel is to be primed with Sto steel primer.
Where a rigid underlay is used the Poren fixings are to be countersunk up to a maximum of 12 mm to maintain 30 mm embedment into the spacers.
Wind Zones: BRANZ Appraised up to 2500 Pa – 59.5 m/s – Extra High 2130 Pa – 55 m/s

S-Protect WS 205 stay dry

The Poren Panel surfaces is to be treated with a sealer coat of **S-Protect WS 205 stay dry** at 5 square metres per litre applied with low-pressure garden sprayer or brush on dry clean surfaces and left over night or longer before plastering.

Control Joints

All control & interstorey joints as designated by the project drawings, or Sto details must be followed. Refer StoPoren ACAD details for specific control joint design details. **Vertical control joints** are required to be placed at **maximum 8.0 lineal metres** as detailed. **Horizontal control joints** are required at **7.0 metres** including gables in accordance with NZBC E2/AS1 paragraph 9.1.9.4. and at **two storey Interstorey junctions** where un seasoned timber has been used. An **Interstorey drained joints** is required at the third storey to limit the cavity to two stories.

Note: Horizontal control joints are not required at two storey interstorey junctions where seasoned (dry) floor joists have been used.

Aluminium Joinery (refer to section one)

Joinery is flashed using **StoPoren uPVC Stick On Sill & Jamb flashings** and the **Sto uPVC Vented Base Cap detail** all installed as per the **StoPoren ACAD** details and bonded in place as the panel is installed. The **StoPoren uPVC Stick On Jamb flashings** is cut to tight butt to the sill, the sealant channel terminates at the head flashing with the punched leg extending 30mm past the proprietary aluminium head flashing with stopends that is fitted as the panels are installed positioned 10mm past the joinery jambs to cover the sealant channel. A Sto vented base cap or Sto vented head flashing is used to finish the panel at the head junction.

Sealant

All junctions between the cladding and adjacent dissimilar material surfaces shall be flashed by the main contractor and detailed and sealed using **MS Sealant** over PEF rod. The sealant must be applied in accordance with the manufacturer's TDS sheet instructions.

3. STOARMAT PLASTER SYSTEM

StoPoren basecoat plaster

To clean, cured dry surfaces apply a basecoat of **StoPoren plaster** by hawk and trowel at approximate thickness of 3.0 - 4.0mm by hawk and trowel to leave an even straight plane surface free of hollows and deviations.

Plastered Balustrades Caps

All plastered horizontal surfaces must have a minimum 10° fall (sills 15° fall). On plastered **parapets** or **balustrades caps Sto Flexyl** 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 and allow to dry overnight. Apply **StoFlexyl waterproofing** over the StoPoren basecoat before the **StoArmat Classic** plaster to avoid a shadow line.

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

StoArmat Classic meshed reinforcement plaster

To clean dry plastered surfaces apply one coat of **StoArmat Classic** by hawk and trowel at approximate thickness of 1.5 to 2.0mm. While the **StoArmat Classic** is still wet, lightly embed **Sto Mesh**, 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 1.0mm thick by hawk and trowel to leave a level plane surface free of voids or deviations. Once dry remove any slight ridging etc of finished surface with a Sto rasp ready for subsequent finishing coats.

Detailing

As required install **Sto pre meshed Drip Edges** on lintel openings, **Sto pre meshed corners** and **Sto Stop Beads** in **StoArmat Classic** plaster as required.

Sealant Installation

After the sealer has dried, all junctions between joinery and adjacent dissimilar surfaces and the Sto Plaster and around penetrations details shall be sealed with **MS Sealant**.

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 or for mechanically securing large profiles. Profiles are placed after the reinforcement mesh coat and are edge meshed on to the surface at the perimeter junction.

Finishing Section

Stolit K coloured finishing render as selected

Stolit K texture is available in 1.0 mm , 1.5 mm or 2.0 mm sized aggregate plaster

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/1.0 mm, 9sqm/1.5 mm, 7sqm/2.0 mm-/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 1.5 mm** 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 NOTES

Colour

As selected by the client or specifier Stoanz Limited recommends that the selected colour should have a minimum Light Reflectance Value of 25% to avoid thermal stress. If a colour is selected outside of this recommendation the warranty offered will be affected.

5. MAINTENANCE

Refer; Sto Twenty Year Maintenance Schedule for comprehensive guide

The StoArmat Plaster System should 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 9 -10 year period to maintain long-term integrity and a pristine condition this can be carried out using the appropriate Sto coating over a cleaned surface. Physical damage must be repaired using the appropriate Sto Plaster materials as required. Where a colour change is required, Stoanz Limited should be consulted for a specific specification.

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 **StoArmat Plaster Cladding System** described in this specification is warranted for a period of twenty (20) years from the date of practical completion. This is to comply with the relevant clauses in the New Zealand Building Code; B1 Structure, B2 Durability, E2 External Moisture and F2 Hazardous Building Material for this type of building element provided maintenance requirements as set out in the Sto Twenty Year 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 Contractor carrying out the work with provision for 3 further 5 year workmanship warranties. The warranty is issued and backed by Stoanz Limited as to the suitability 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.

