



STOTHERM MASONRY INSULATION SYSTEM SPECIFICATION

STOTHERM MASONRY INSULATION ON EXISTING CONCRETE CONSTRUCTION

BRANZ Appraisal No 604 (2008) - ACAD Details www.sto.co.nz building with Sto

Project:

Prepared for:

StoTherm Masonry System over existing concrete block construction

This specification covers the application of the **StoTherm Masonry Plaster System** incorporating; **StoTherm 80mm Insulation Panels** (600 x 1200 panels) adhesively and mechanically fixed over masonry with **Gluecoat mortar & StoTherm Anchors** plastered in **Multiscreed** basecoat, **StoArmat meshed** reinforcement plaster and finished in selected **Stolit K 1.0 or 1.5mm** coloured finishing render coated in **StoColor Maxicryl** façade paint.

The **StoTherm Masonry Insulation System** mirrors the European methodology of overlaying masonry construction to provide thermal insulation minimizing heating costs and maintaining energy efficiency during seasonal changes.

1. EXISTING CONCRETE BLOCK SURFACES

Responsibility

Unless expressly agreed in writing between the relevant parties all work in this section shall be the responsibility of the owner or their appointed agent.

Existing Building elements

The Sto masonry insulation specification addresses the exterior condition of the existing surface only all other building elements are specifically excluded from the specification. As required it is the responsibility of the owner or their agent to initiate a process to ensure that all the building elements are still sound, free from any contamination and watertight.

Dissimilar material junctions, Flashings and Penetrations

Building flashings, dissimilar material joints and penetrations such as pipes and metre boxes shall be checked to verify they are sound and watertight.

Existing Joinery

All joinery shall be checked that it is still watertight and all mitres, drain holes, vents etc are sound and clear. Joinery jambs and sills (excluding flashed free draining sill trays or joinery flange drainage holes) must have a sealant bead applied to the perimeter at the plaster to joinery transition. **Note:** Joinery may be require testing to ensure the windows & doors are still sound, and watertight.

Joinery Rebates

As required install 25mm rebates in joinery openings to mirror concrete rebated blocks.

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Roofs, Fascias, Deck, Roof Membranes, Outlets etc – StoTherm Masonry System

All existing roofs, fascias and deck or roof membranes must be checked to ensure they are in sound condition. Gutters, downpipes, rainwater heads, scuppers, overflows, fascias and flashings must be correctly re detailed with flashings, drip edges and up stands **to accommodate the new StoTherm Masonry System.**

2. SURFACE PREPARATION

Responsibility

All work in this section shall be the responsibility of the Sto Contractor

Existing Substrate

All existing surfaces are to be checked it is still secure and sound, any cracks are to be cleaned out and loose or drummy plaster remove, corroded fixings shall be replaced as required.

Existing Joinery

All joinery shall have been be checked as per Section One to ensure the units are watertight. A secondary sealant bead is applied to the perimeter at the joinery transition including the sill (unless the sills are free draining) after the meshed reinforcement plaster coat has been applied.

Joinery Rebates

As required install 25mm rebates in joinery openings with a minimum 10 degrees fall at the sill to mirror concrete rebated blocks using temporary timber formwork and LevelLite plaster. Once set to clean dry surfaces apply two brush coats of Sto Flexyl waterproofing to the internal rebate and StoFlexyl meshed waterproofing over the StoTherm overlay as detailed in recessed joinery clause.

Fixtures & Fittings

All fittings and fixtures on the cladding such as downpipes, rain water heads, gas fitments, handrails, taps etc shall have been removed and must be re fitted securely after the system is finished ensuring all connections are watertight. Note: Pipes, wiring and lights must be appropriately sealed.

Moss Kill Treatment

All surfaces to be refurbished shall be treated with a chemical solution to kill all moss and mould spores ensuring the stipulated kill times are observed before commencing.

Cleaning

All surfaces to be refurbished shall be water blasted using a 3000psi machine to remove all contaminates and debris supplemented by removing any loose or friable coatings, texture, etc to establish a clean sound substrate. Cracks or failed joints are to striped out as necessary to remove all defective material and any coatings that are adhesion impairing will require removal.

Note: When using a water blaster due care must be taken to avoid the surface, other building elements or adjacent surfaces being damaged from excessive water pressure.

Control Joints

Any existing control joints are to be expressed through the finished system.

Sealant Beads

All new sealant beads associated with the cladding system shall be **MS Sealant**. The sealant beads around the **joinery, fittings, penetrations shall be checked** and reinstalled as required in accordance with the manufactures TDS Sheets prior to commencement of the system application .

Wall Insulation

StoTherm Insulation Panel values approx - **RV: 80mm 2.0 panel only**

The **Concrete construction** including linings and resistance equates to approx **RV : 0.3**

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 solid construction are: **Climate Zone 1 – R0.8** (Option 1a and 1b); **Climate Zone 2 – R1.0** (Option 2a) or R0.9 (Option 2b) and **Climate Zone 3 – R1.2** (Option 3a) or R1.0 (Option 3b). Refer to the BRANZ House Insulation Guide Third Edition for further information and construction R-values for concrete block construction with External Insulation. **Zone 1** Auckland - Nth + Coromandel – **Zone 2** Sth of Auckland excluding Taupo area **Zone 3** Taupo plateau & South Island.

Note: H1 Insulation - Internally insulated masonry walls must meet the timber insulation code.

Recessed Joinery Detailing

Such joinery shall be detailed in accordance with the Sto details and be fixed over **StoFlexyl Waterproofing** prior to plaster application. Before fixing joinery fill any holes in the rebates with plaster and then **StoFlexyl** shall be used to waterproof the rebates, mixed correctly and brushed onto the inside rebate of the panels the Sill, Head & Jambs are then **StoFlexyl meshed waterproofed** from the bottom edge of the rebate out over the poly to reinforce the junction. Sealing the joinery perimeter with MS sealant at the **head & jambs** then forms the primary seal while the **sill** is left open with a 5mm drainage gap as required for solid masonry construction. To complete the waterproofing process **air seals** are then required to be installed around all interior joinery to rebate openings by the main contractor. **StoFlexyl meshed waterproofing** has been tested by BRANZ to meet **AS/NZS 4858** for a waterproof membrane as required by **CCANZ : CP01 2011 & E2/AS3**.

Soffits

Shall be fixed before the StoTherm Insulation Panel is installed, with a 6/8mm finishing bead of MS Sealant placed after the panel work is completed. The main contractor is to ensure any weatherproofing required on the substrate or adjacent surfaces is carried out before the soffits are installed.

Penetrations

Penetrations such as waste pipes and fixing brackets shall be adequately flashed prior to the insulation installation. All piping and electrical wiring penetrations through the EPS must be weatherproofed as per Sto standard and/or project specific details. All wiring must be sleeved in PVC conduit and the terminations sealed using MS Sealant.

2. STOTHERM PANEL

Responsibility

All work in this section shall be the responsibility of the **Sto Contractor**, unless otherwise expressly agreed. If others fix the polystyrene insulation, the **Sto Contractor** shall satisfy themselves that the surface is satisfactory before proceeding with any plastering work.

Materials

StoTherm Insulation Panels

Shall be **selected** thickness **StoTherm 80mm 600 x 1200 Panels S grade** manufactured to AS1366.3. Ensure where possible the **StoTherm Panel** layout is arranged in a **brick pattern** to avoid continuous joint lines. If there are any voids between the panels joints due to variations in the edges **adhesive foam** shall be used to foam fill them before proceeding with plastering.

Fixing StoTherm Insulation Panels

GlueCoat Adhesive Mortar

StoTherm Panels shall be trued from the base; brick patterned and incorporate a StoTherm foundation detail. **StoTherm Panels** shall be fixed tile like with a minimum 150mm wide notched continuous band of **Gluecoat Mortar** applied to the blocks at the perimeter of the panels (75mm both ways) with three 150mm spots through the middle. All panels are initially tight butted, fixed and then levelled on the **Gluecoat Mortar** the panels are then left to set before being mechanically fixed. Panel joints shall be checked and voids and gaps foam fused filled as required after fixing and the panels rasped as necessary to obtain a straight surface plane.

StoTherm anchors (place & fix in accordance with Sto CAD details allow 7anchors sqm)

Once the **Gluecoat Mortar** has set **StoTherm Panels** are mechanically fixed by drilling holes at the four panel corners covering all panel junctions with one additional hole in the middle of each panel. The position is marked and drilled using a rotary impact hammer with an 8mm masonry bit. Then the **StoTherm Anchors** are placed in the holes with the 60mm washer covering the adjacent panel edges and countersunk using the **ST fixing tool** attached to an electric drill with the **ST tool plate** stopping flush to ensure correct panel compression and security. All fixings are then plugged with the supplied **poly insulation caps** to fit flush and eliminate thermal bridging. Panels require a PVC cap when edges are exposed or for installation against dissimilar materials, junctions and transitions.

Note: Detailing shall be in accordance with Sto ACAD details (see panel installation STCB 3 & 4) external corners panel are staggered and fixed at 300mm centres, Soffits and base at 600mm centres.

Note: StoTherm 60mm Impact fixings (95mm) can be used for face fixed 60mm poly or 80mm counter sunk panels. **StoTherm 40mm Impact fixings (75mm)** for 40mm face fixed poly or counter sunk 60mm panels. For counter sinking the sheet is masonry drilled and routed with **Sto Countersunk tool** before fixing with a **StoTherm Impact fixing** and **poly insulation caps** to fit flush

Control Joints

All control joints as designated by the drawings, set out by the engineer or concrete manufacturer's specifications must be brought through the StoTherm Insulation System using a **Sto uPVC control joints** incorporated in the **StoArmat Classic mesh** coat. All sealant work associated with the system is to be carried out with a MS Sealant applied in accordance with the sealant manufactures instructions.

Architectural Profiles

Any Architectural profiles 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 can be used to position shapes correctly whilst the adhesive cures or for mechanically securing large profiles. Profiles shall be pre meshed or receive a StoArmat mesh coat. Profiles are placed after the reinforcement mesh coat and are meshed on to the surface at the perimeter junction. If used to cover an interstorey joint ensure lower wall remains free at the underside edge.

3. STOTHERM MASONRY INSULATION PLASTER SYSTEM

Responsibility

All work in this section shall be the responsibility of the **Sto Contractor** who must assure themselves that the surfaces to be plastered are dry, free of contamination, satisfactory and all dissimilar material and adjacent surfaces are adequately masked prior to commencing.

General

Installation shall be carried out in stages after the fixing of the **StoTherm Panel** incorporating; **Multiscreed** basecoat plaster, **StoArmat meshed** reinforcement plaster, selected **Stolit K** coloured finishing render coated with **StoColor Maxicryl** facade paint.

Materials

Stoanz Ltd supplies all the following materials

Multiscreed basecoat plaster
Stolit K coloured finishing renders
StoColor Maxicryl façade paint
Sto Premeshed Angles
Sto Adhesive Foam
Sto Spiral Fixings/ Quader Blocks

StoArmat meshed reinforcement plaster
StoTherm uPVC flashings & trays
StoFlexyl meshed waterproofing
Gluecoat Mortar adhesive plaster
StoTherm Panels 80mm
StoTherm Anchors

Control Joints

Designated control joints must be installed in the **StoArmat Classic meshed** plaster using the **Sto uPVC 8.0 or 12mm control joint** ensuring the mesh coat does not overlay the "V" joint that is filled with MS Sealant concave tooled.

Installed StoTherm Panels

Check the surface and adhesive foam fill any voids to avoid thermal bridging, rasp to straighten the surface as necessary, install any sealant work required and ensure all detailing flashings and trays are in place before commencing plastering.

Multiscreed basecoat plaster

To clean dry prepared surfaces apply a levelling basecoat coat of **Multiscreed** by hawk and trowel or pump at approximate thickness of 4 - 5.0mm as a solid basecoat. Float or screed the surface with an **h** rule to achieve an even plane surface free of hollows and deviations allow to set green and remove any ridging or bumps in **Multiscreed** with a Sto feathered straight edge or Grid Plane to achieve a minimum dry film thickness 4.0mm. Allow plaster to dry and apply **StoFlexyl waterproofing** as required before subsequent plaster coats are applied.

StoFlexyl Waterproofing

As required **StoFlexyl Waterproofing** can be applied to surfaces requiring waterproofing. All finished **StoFlexyl waterproofing** are to be over coated in **StoArmat** reinforcement plaster. For waterproofing interior space below ground install a certified 50 year tanking membrane and run it up behind the poly minimum 150mm above ground level. **Note: StoFlexyl waterproofing** has been evaluated by BRANZ to meet the **AS/NZS 4858** waterproof membrane standard as required by **CCANZ : CP01 2011 & E2/AS3**.

StoArmat Classic meshed reinforcement plaster

To clean dry **Multiscreed** plastered surfaces apply an even coat of **StoArmat Classic** plaster by hawk and trowel at approximately 1.5 to 2.0mm and while the **StoArmat Classic** is still wet lightly apply **Sto mesh** ensuring adjacent drops of mesh are overlapped by a minimum 75mm 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 1.0mm thick by hawk and trowel to cover the mesh and leave a plane even surface free of voids or deviations. Before applying the selected finishing render remove any slight ridging etc with a Sto rasp ready for subsequent top coating. All application procedures for the **StoArmat Classic** must be in accordance with the Sto TDS sheets and Stoanz Limited's recommendations. Always install **Sto pre meshed uPVC Drip Edges** on concrete block lintels and **Sto pre meshed or Stainless Steel** corners on external corners.

Sealant Installation

After the mesh coat has dried any joints or detailing between the plaster mesh coat and dissimilar materials shall be sealed with MS Sealant in accordance with the TDS sheets.

Finishing Section

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Stolit K coloured finishing render as selected

To all exterior plastered surfaces apply selected finishing render **Stolit K 1.0 or 1.5mm** 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-/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.

4. GENERAL NOTES**Colour**

As requested by the Architect or Client. Stoanz Limited recommends that the LRV (Light Reflectance Value) of the selected colour be greater than 25%. If a colour is selected outside of this recommendation, the warranty will be affected as darker colours subject the cladding system to additional thermal shock.

5. MAINTENANCE**Refer; Sto Maintenance Schedule for comprehensive guide**

The StoTherm Masonry Insulation System must be cleaned annually by low pressure washing to remove all existing surface contaminants with special attention to non-rain washed areas. When recoating is required at the 7/8-year period to maintain long-term integrity and a pristine condition this can be carried out using a Sto façade paint or sealer over a cleaned surface. 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 **StoTherm Masonry Insulation 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 New Zealand Building Code clauses in B2 Durability, E2/AS3 External Moisture and F2 Hazardous Building Material for this type of building element with maintenance as set out in the Sto Maintenance Schedule.

The warranty is supplied by the Sto Contractor on completion with a five (5) year workmanship warranty signed off by the Sto Applicator carrying out the work. The warranty document including the material warranty is issued by Stoanz Limited 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.



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