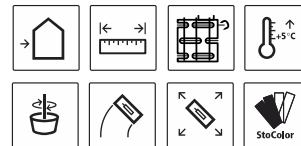


Sto Specification New Zealand

SS405RC StoStucco Roughcast Render System

StoStucco Roughcast Render System
 over **StoStucco Lath** on timber frame construction
 BRANZ Appraisal No. 605
 CAD Details www.sto.co.nz



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: **StoStucco Roughcast Render System 15-year Warranty with StoService Assurance**

StoStucco Roughcast Render over StoStucco welded S/S Lath (mesh) on timber frame construction.

This specification details the installation of the **StoStucco Lath** rendered in the **StoStucco Render System** incorporating: 45 x 25 mm H3.1 treated timber cavity battens on timber frame construction, Stoanz supplied welded stainless-steel stucco mesh with a backing sheet, **StoStucco PVC flashings**, **Levellite** basecoat, **StoLevell Novo** flanking coat that is cast in the **selected Roughcast Slurry / Stone** mix while still wet and coated in **Lime lock sealer** and minimum two coats of **StoColor Maxicryl** once it is dry and cured.

The **StoStucco Render System incorporating Sto S/S Lath** is approximately **25 mm thick** and has been developed and tested using modern technology to emulate traditional stucco in accordance with NZBC Acceptable Solution E2/AS1.

Select Facade Coating:

Sto Registration Number: (Sto Use Only)

i.e.23.01_StoReg tec_sales_SS406RC_project address.

Project Notes:

Note: The stones vary in size and shape so it's important that a sample of the selected Roughcast is applied and approved 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 previously agreed in writing. 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 legislation requirements, the project specifications and details, fibre cement sheet manufacturer's documents, current Sto specification and Sto CAD details (www.sto.co.nz) and any specific installation requirements relating to the Main Contractor's responsibilities before any works commence. The Main Contractor is also responsible for the various sub-contractors to ensure that all items relating to weathertightness, penetrations and dissimilar material junctions affecting the exterior facade are strictly in accordance with project specific details, manufacturer's specifications and Sto CAD details, i.e. items such as roofs, soffits, openings, lights and security fittings, electrical wiring, flashings, deck membranes, dissimilar junctions etc. that abut, flash or penetrate the system. The Main Contractor shall also ensure that all exterior licensed work is carried out by LBP registered contractors and the window and door joinery is installed in accordance with the project drawings, manufacturer's details and Sto CAD details. Building assembly tolerances should be within MBIE Guide to tolerances.

In conjunction with the **StoStucco sheet installation QA**, a **Sto Armat Render Quality Assurance Document** is to be filled out as a record of the work undertaken by the sheet installer and Sto Contractor.

2.2 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 Wind Zones and maximum 400 mm centres for Extra High Wind Zones and specifically designed buildings. Dwaings must be fitted flush between the studs at maximum 800 mm centres when the studs are at 600 mm centres and at maximum 1200 mm centres when the studs are at 400 mm centres. All framing shall be true in vertical and horizontal planes with 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 cladding fixings for the designated wind zone, membrane upstands, dissimilar materials, and exterior fixtures on the cladding. The level of timber treatment shall be in accordance with the current requirements contained in NZBC Acceptable Solution B2/AS1. 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 cavity cladding system.

2.3 Insulation

Thermal resistance requirements of the building envelope shall be determined using the Schedule or Calculation methods of NZBC Acceptable Solution H1/AS1 for all housing and buildings up to 300 m² and NZBC Acceptable Solution H1/AS2 for housing and buildings greater than 300 m², or the Modelling method in H1/VM1. The minimum construction R-value for walls that do not contain embedded heating elements is R2.0, and for heated walls is R2.9.

Foundations: H1/AS2 require –Vertical edge insulation with an R -value of 1.0 m² K/W, installed on all exterior vertical faces of the concrete slab / wall footings, extending from the outermost top edge down to bottom of wall footing.

Rasped StoTherm XPS sheets can be used for vertical edge insulation with 30 mm providing the required RV 1.0. Refer to the StoTherm Masonry Foundation Specification for insulated foundation options.

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2.4 Wall Underlay

A flexible wall underlay is suitable for use in NZS 3604 Wind Zones up to, and including, Very High. A rigid wall underlay is required in the Extra High Wind Zone and specific design wind pressures.

Flexible wall underlays complying with NZBC Acceptable Solution E2/AS1, Table 23 shall be installed in accordance with the underlay manufacturer's instructions. The underlay shall be installed horizontally and be continuous around corners. The underlay must be lapped minimum 75 mm at horizontal joints, and minimum 150 mm over studs at vertical joints. Where studs are at greater than 450 mm centres, a wall underlay support must be installed over the underlay at maximum 300 mm centres horizontally (or additional vertical cavity battens can be installed) to prevent bulging of the underlay into the cavity space.

Generic rigid wall underlay materials shall be installed in accordance with E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems covered by a valid BRANZ Appraisal or CodeMark Certificate shall be installed in accordance with the manufacturer's instructions. Where rigid wall underlays are used, the fixing length shall be increased by at least the thickness of the underlay.

Unlined gables or walls shall incorporate a rigid wall underlay or a flexible air barrier which meets the requirements of E2/AS1, Table 23.

Note: Ensure any items requiring fixing to the timber frame or items penetrating the wall underlay such as fixing brackets etc. are installed and flashing taped onto the wall underlay in accordance with E2/AS1.

2.5 Soffits

Shall be fixed before cladding is installed and allowance made to close off the cavity with cavity battens to provide for the fixings and to stop air flow into the roof space. The **StoStucco uPVC soffit cap** with masking tab is used to terminate the stucco system at the soffit to render junction (placed under the cavity battens) once the render is finished the masking tab is removed a compatible MS sealant bead is applied to close off any gaps before the coating system is applied.

2.6 Penetrations and Fittings - refer E2/AS1 Fig 68

Penetrations and fittings such as waste pipes, vents etc. shall slope to the exterior, be adequately supported by blocking and as required be sealed to the underlay with flexible flashing tape in accordance with E2/AS1 Fig 68, or with a proprietary penetration seal covered by a valid BRANZ Appraisal or CodeMark Certificate, prior to cladding installation. Exterior flange plates shall be installed as required around the penetration after the cladding has been installed.

Blocking must be installed for the fixing of taps, door hooks, lights, gas fittings, security alarms etc. Electrical wiring shall only penetrate the cladding and render system in a PVC conduit with a downwards rake of 5 degrees. MS sealant applied over a backing rod shall be used to seal around the conduit where it penetrates the cladding.

2.7 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.

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2.8 Aluminium Joinery

All joinery shall be detailed and fitted before the installation of the Sto Lath cladding with joinery support bars cut to finish 10 mm short of the joinery jambs. Proprietary head flashings are supplied by the main contractor, shall be fitted to butt into the pre-cut joinery jambs that form stop ends in the cavity, a minimum 15-degree slope, and be fixed prior to installation of the Sto Lath with flexible flashing tape securing the flashing upstand to the wall underlay.

All window and door joinery shall be positioned 24 – 25 mm off the timber frame to allow for the **StoStucco uPVC Jamb and Sill flashings** to clip into the joinery and be bonded in place - refer current StoStucco CAD details.

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 have PVC flange tabs removed and extend 30mm above the window head and be cut at the sill to the 15° sill angle, so they fit tight. Proprietary aluminium joinery head flashings are butted into the jamb flashings (remove the StoStucco jamb flange leg and 5mm kick tab off the back leg to fit) and then have the junction sealant sealed to form stop ends. The **Sto Adhesive uPVC sill flashing** is cut 40mm longer than the window and positioned 20mm either side to under seat the jamb flashings that are scribed/cut to allow the sill flashing to butt under the jambs. To fit with WANZ joinery sill bar cut Stucco sill back flange off leaving punched cavity wing that can be positioned on cavity spacers for support and adhere PVC Sill flashing to window flange with panel bond premium (urethane) avoiding covering any drainage vents.

Note: Always refer to **StoStucco CAD** details or project specific details before commencing. Air seals are required to be fitted by the window installer in accordance with E2/AS1 details and the main contractor is to supply the head flashings.

2.9 Timber Cavity Battens

All exterior framing shall be battened starting from the pre-installed **StoStucco uPVC vented 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 in accordance with the StoStucco CAD drawings.

Cavity battens shall be installed over the wall underlay to the wall frame at maximum 300 mm centres where studs are at 600 mm centres or at 400 mm centres, where the studs are at 400 mm centres. The timber studs shall receive a cavity batten to the full length of the stud, preferably in one continuous length. Should joints be necessary, they should be tight butted with a 15 mm gap occurring when interstorey floor junctions are required in accordance with the StoStucco details.

The cladding cavity is closed off at the top of the wall with a horizontal batten or a soffit plate on dwangs though a horizontal batten is still required for lath fixings. A horizontal packer with a minimum 5 degree slope and minimum 50 mm gap between the vertical battens is required on the bottom plate. Additional battens or packers may also be required at openings and detailing for fixings as per the StoStucco CAD batten layout. **Note:** Continuous cavity heights are limited to the lesser of 2-storeys or 7 m in height before an inter-storey drained flashing joint is required.

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.

2.10 Control of External Fire

We confirm the specified Sto Render System has been tested to EN 13501-1 / A2-s1, d0 and with ISO 5660.1 achieved a peak heat release rate of less than 100 kW/m² and total heat released less than 25 MJ/m². The system is therefore suitable for use on buildings at any distance from the relevant boundary.

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Note: The Sto Contractor is to supply the StoStucco Flashings but the StoStucco flashings 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.

MAIN CONTRACTOR & ALL TRADES INVOLVED IN ANY EXTERIOR WORK
 Details must be in accordance with the Project Drawings and Sto CAD details

3. STO STAINLESS-STEEL LATH INSTALLATION

3.1 Responsibility

All work in this section is the responsibility of the **Sto Contractor** who shall check that the timber frame construction is satisfactory before proceeding with installing the lath. The **Sto Contractor** is to ensure adequate protection, access and equipment is supplied to meet their responsibilities for the work and the Health and Safety regulations and that all dissimilar materials junctions are correctly detailed.

3.2 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 **horizontally** to the studs/cavity battens in a staggered brick pattern working from the bottom tray up with labelling facing the applicator. Sheet joints are over-lapped by 2 sections vertically and one section horizontally with any overlapping bituminous paper & card on the second sheet of lath removed when joining to allow the render to bond through around the overlapping wires. All lath 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.

The lath is fixed to the vertical cavity battens at 150mm centres over the double reinforcing wires, at the top horizontal batten and bottom plate spacer's fixings are required between the vertical battens and all battens laps must be secured. Where the join is not over a batten sheets must be wired together at 150mm every fourth mesh square. 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. Control joints are formed by installing two parallel battens 10mm apart on double studs and cutting through lath after the lath has been securely erected with fixings both side of the control joint.

Note: Refer to **Stucco Mesh Application Guide** and cover joinery when cutting with grinder to avoid **marring glass with metal splatter**. All narrow widths, stress points, doors, etc are to be reinforced with lath butterflies (remove backing card & wrap).

3.3 Control Joints

All control & interstorey joints as designated by the project drawings or Sto details must be followed. Refer Sto ACAD details for specific control joint design details. **Sto uPVC 8mm Vertical control joints** are required to be placed at **maximum 8.0 metres** as per Sto details. **Sto uPVC 12mm Sto Horizontal Control joints** are **not required** at **Interstorey junctions** unless **unseasoned timber floor joists** have been used. **Horizontal drained junctions** are required at the third storey or **7.0 metres** in accordance with NZBC E2/AS1.

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

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3.4 Sealant

All junctions between the cladding and adjacent dissimilar material surfaces shall be flashed by the main contractor in accordance with the consented project drawings and shall be finished where necessary with a compatible **MS Sealant** over PEF rod. The sealant must be applied in accordance with the manufacturer's TDS Sheet including primers as required.

Note: Some manufacturers require primers for PVC or porous substrates and a primer is always required on **StoFlexyl** surfaces. Certain types of joinery also have drainage holes under the sill flange ensure these remain free.

3.5 Balustrade Caps

On **balustrades StoFlexyl** must be correctly mixed (drill mix 1/1- with **fresh** cement) and applied over a **LevelLite** basecoat 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 1.5mm. Extend membrane 75 mm up or down adjacent vertical surfaces. Note look up StoStucco ACAD details to view build details before commencing and allow to dry overnight.

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

3.6 Parapet Flashings

Metal parapet caps shall be installed with a min 5° slope and overlap the cladding minimum 50 mm in Low, Medium and High Wind Zones, minimum 70 mm in the Very High Wind Zone, and minimum 90 mm in the Extra High Wind Zone and specific design wind pressures.

3.7 Architectural Profiles & Shapes

Architectural shapes used to create decorative detailing shall be correctly cut to size and fitted using **StoFlexyl** notch towelled to the back of the shape prior to placing. As required construction fixings are used to mechanically fix large or heavy shapes but care is required to avoid distortion. Joins are butted together using **StoFlexyl** and any control joints must be mirrored through the profile. Profiles shall be pre-meshed or receive a Sto render mesh coat and are placed after the reinforcement mesh coat with the perimeter edges meshed to the wall.

4. STOSTUCCO ROUGHCAST RENDER SYSTEM

4.1 Responsibility

All work in this section is the responsibility of the **Sto Contractor** who shall assure himself that the lath surfaces to be rendered are acceptable and correctly detailed. The **Sto Stucco Roughcast Render System** installation shall be carried out in stages over the **Sto Stainless Steel lath**. Adequate protection of all dissimilar material and adjacent surfaces must be undertaken before any render work commences and the Sto Contractor shall ensure they have the necessary equipment to carry out the render work. **Note:** it is recommended to use a render pump for Stucco projects.

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4.2 Selection

The **StoStucco Roughcast Render System** shall be approximately 25mm thick, installation shall be carried out in stages over the stainless-steel lath consisting of; **LevelLite** basecoat render to completely cover the lath, (**LevelLite** or **StoLevell Novo** render mesh reinforced as required for narrow widths or complex design), **StoLevell Novo** intermediate coat cast with **Roughcast Stone mix** sealed and painted in **StoColor Maxicryl** facade paint. Adequate protection of all dissimilar material and adjacent surfaces must be undertaken before any render work commences and the Sto Contractor shall assure himself that the surfaces to be rendered are acceptable and correctly detailed.

4.3 Materials

Stoanz Ltd supplies all the following materials

Sto LevelLite basecoat	Sto Levell Novo render intermediate coat (mesh reinforced as required)
Roughcast Stone Slurry	Sto uPVC pre meshed corner angles, finishing edges and drip edges.
StoColor Maxicryl facade paint	Sto S/S lath & Sto Fixings
StoFlexyl waterproofing	

4.4 Detailing

The **StoStucco Render System** detailing shall be strictly in accordance with StoStucco ACAD details. **Sto Stainless Steel angles** shall be installed in the basecoat on external corners fixed with render dabs. All pre-fixed **StoStucco uPVC joinery flashings, foot trays and soffits caps** should have clean edges ready for the **LevelLite** coat. As required apply **StoFlexyl meshed waterproofing** over the finished basecoat.

4.5 Basecoat Render

To clean dry stainless steel lath apply by machine pump the **LevelLite** basecoat render at approximately 10.0 – 12.0 mm closing off wet render with an h shaped rule to completely basecoat the lath before setting stainless steel corner beads screed guides etc to establish the wall plane and allow to set before applying another coat of **LevelLite** or **StoLevell Novo** render at approximately 6.0 – 7.0 mm closing off the wet render with an h shaped rule flush with the flashing guides and straighten the basecoat with a feathered straight edge to achieve a straight even plane surface free of hollows and deviations. **Note:** reinforce narrow widths, stress points and openings by installing Sto glass mesh butterflies on top of the basecoat render. For more complex designed facades fully mesh the second basecoat layer.

4.6 Sealant Installation

After the render has dried, all render junctions between joinery and adjacent dissimilar surfaces and around penetrations shall be sealed with **MS Sealant** in accordance with the manufacturer's TDS sheets. Some manufactures require primers for PVC or porous substrates.

Note: some types of joinery have drainage holes under the sill flange ensure these remain clear. Where sealant is being applied directly over **StoFlexyl waterproofing**, the StoFlexyl must be primed to promote adhesion in accordance with the sealant manufacturer's instructions.

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4.7 StoLevell Novo intermediate render

To clean, dry, straight, base coated surfaces apply **StoLevell Novo** render at approximately 5.0 – 6.0 mm thick, straightening the render with an h rule before applying the **Roughcast Stone Render** into the wet intermediate render.

4.8 Stoanz Roughcast Stone Render (select stone mix)

Into the wet **StoLevell Novo** intermediate coat thrown on the **Roughcast Stone Render** simultaneously. The **Roughcast Stone Render** is made up in a concrete mixer by adding the **selected stones** to the **Roughcast Stone Slurry** in approximately in equal quantity (check sample mix recipe). Cast roughcast mix in an even random pattern using a hearth pan or similar shovel to match selected finish or existing surfaces and allow to dry.

Note: A sample board of the finish is recommended given the variability of the stones, mix and casting patterns. Protect render from inclement weather, adverse conditions and damage while curing.

4.9 StoColor façade paint

To cured, dry, (approximately 7 days in fine weather) clean **Roughcast Stone Rendered** surfaces apply a **Lime block sealer** before applying a minimum two (2) coats of **StoColor Maxicryl or Dryonic façade paint** tinted to the selected colour and applied by airless spray (to achieve an even film build over the surface) and determinedly brushed out the voids and hollows to avoid filling up the craters that can result in mud cracking. The spreading rate is determined by the aggregate shape and size but is normally at least half the normal textured rate. Refer **Section 6. StoService** for recoating requirements.

Note: It is important to ensure that excess paint is removed from the craters on the rough surface to avoid the coating mud cracking.

To create a Dry Pebble Dash (roughcast) the dry washed stones are thrown into the selected bedding render and once dry the surface is sealed with **S-Protect SC** stay clean silane sealer.

5. GENERAL NOTES

5.1 Colour

As selected by the client or specifier. Stoanz Limited recommends that the selected colour must have a minimum Light Reflectance Value of 35%. Where a colour less than 35% LRV but above 20% is selected, two coats of **StoColor Dryonic a Sto iQ coating with X-Black technology additive** to avoid thermal stress.

StoColor Dryonic façade paint with Sun blocker and fast dry film biomimetics. is available in the StoColor range, with other colours available depending on formulation.

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6. STOSERVICE ASSURANCE

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

The Sto Render System should be cleaned annually by low pressure washing or hosing down 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 manufactures instructions). Note refer to StoService Maintenance Documents (online www.sto.co.nz).

After cleaning a visual inspection is to be undertaken 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 defects 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.

Depending on the prevailing environmental conditions and the service record, recoating of the paint finish is normally required at the 7½ to 9-year period where one coat of paint or S-Protect Silane was applied, or 10 – 12½ -years where two coats were applied to maintain long-term integrity. This is carried out using a **StoColor Coating System** applied in accordance with a Sto specification. Where a colour change is required, Stoanz Limited should be consulted.

7. WARRANTY

7.1 Sto Stucco Roughcast Render System 15-year Warranty with StoService Assurance

When the **Sto Stucco Roughcast Render System** is applied in accordance with the Sto specification, Sto details and Sto PS3 Quality Assurance schedule a warranty is available to cover the Sto System for fifteen (15) years from the date of practical completion, provided maintenance requirements as set out in the StoService documents are followed.

This is to comply with the relevant clauses in the New Zealand Building Code being B2 Durability, E2 External Moisture and F2 Hazardous Building Materials for this type of building element.

The fifteen (15) year 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 render system is subjected to physical disturbance, chemical contamination, structural movement, or interference.

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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.