



## BRANZ Appraised

Appraisal No. 468 [2018]

## STOLITE STUCCO CLADDING SYSTEM

### Appraisal No. 468 [2018]

This Appraisal replaces BRANZ  
Appraisal No. 468 [2005].



### BRANZ Appraisals

Technical Assessments of  
products for building and  
construction.



#### Stoanz Limited

72 Abel Smith Street  
Wellington

Tel: 04 801 7794

Email: [info@sto.co.nz](mailto:info@sto.co.nz)

Web: [www.sto.co.nz](http://www.sto.co.nz)



#### BRANZ

1222 Moonshine Rd,  
RD1, Porirua 5381  
Private Bag 50 908  
Porirua 5240,  
New Zealand  
Tel: 04 237 1170  
[branz.co.nz](http://branz.co.nz)



## Product

- 1.1 StoLite is a cavity-based monolithic stucco render wall cladding. It is designed to be used as an external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.
- 1.2 The system consists of minimum 6.0 mm thick fibre cement sheets fixed over timber battens to form the cavity. The coating system consists of a nominal 8 mm thick polystyrene bead saturated, polymer-modified, cement-based render applied to the fibre cement sheets, an approximate 2.5 mm thick coat of meshed reinforcement render, and an approximate 1-3 mm thick coat of coloured finishing render. The render system is finished with a Sto coating.
- 1.3 The system incorporates a primary and secondary means of weather resistance [first and second line of defence] against water penetration by separating the cladding from the external wall framing with a nominal 20 mm cavity. The cavity allows for any occasional ingress of water that may get past the external skin to drain to the exterior of the building, and any remaining moisture to dry by evaporation.

## Scope

- 2.1 StoLite has been appraised as an external wall cladding system for buildings within the following scope:
  - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
  - with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
  - situated in NZS 3604 Wind Zones up to, and including Extra High.
- 2.2 StoLite has also been appraised for weathertightness and structural wind loading when used as an external wall cladding system for buildings within the following scope:
  - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
  - constructed with timber framing subject to specific engineering design; and,
  - situated in specific design wind pressures up to a maximum design differential ultimate limit state [ULS] of 2.5 kPa.
- 2.3 StoLite must only be installed on vertical surfaces [except for tops of parapets, sills and balustrades, which must have a minimum 10° slope and be waterproofed in accordance with the Technical Literature].



- 2.4 The system is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *[The Appraisal of the StoLite Stucco Cladding System relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or wind pressure.]*
- 2.5 Installation of components and accessories supplied by Stoanz Limited and Sto registered contractors must be carried out only by Sto registered contractors.

## Building Regulations

### New Zealand Building Code [NZBC]

- 3.1 In the opinion of BRANZ, the StoLite Stucco Cladding System if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

**Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. The StoLite Stucco Cladding System meets the requirements for loads arising from self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. See Paragraphs 10.1 - 10.5.

**Clause B2 DURABILITY:** Performance B2.3.1 (b), 15 years, B2.3.1 (c) 5 years, and B2.3.2. The StoLite Stucco Cladding System meets these requirements. See Paragraphs 11.1 and 11.2.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. The StoLite Stucco Cladding System meets this requirement. See Paragraphs 15.1 - 15.5.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. The StoLite Stucco Cladding System meets this requirement and will not present a health hazard to people.

## Technical Specification

- 4.1 System components and accessories supplied by Stoanz Limited are as follows:

### Primer

- **Stoplex W** is a yellow tinted, ready to use, acrylic-based primer available in 10 litre containers.

### Renderers

- **Levellite** is a polymer-modified, cement-based render comprising coarse sand, polypropylene fibres, polystyrene beads and adhesives. The render is supplied in 20 kg bags and mixed on site with clean water. It is trowel applied as a jointing plaster reinforced with Sto jointing mesh over all fibre cement sheet joints, and is trowel or pump-applied as a base coat in a nominal 8 mm thick layer.
- **StoArmat Classic** is a plasticiser free, tintable, ready-to-use, polymer-modified, cement free reinforcement render comprising granulated quartz sands, calibration grain, polypropylene fibre and additives. It is supplied in 23 kg pails, and after diluting with water as necessary and mixing, is ready for use. It is trowel-applied in a 2.0 mm thick layer followed by the embedment of fibreglass mesh reinforcement in the outer surface. Once dry, a further coat of StoArmat Classic approximately 1.0 mm thick is applied to cover the mesh and leave a flat, even surface.
- **Stolit K** is a plasticiser free, tintable, ready-to-use, polymer-modified, cement free finishing render with a 1, 1.5, 2 or 3 mm grain size. It is supplied in 25 kg pails and is trowel-applied to an approximate thickness of 1 - 3 mm, gauging to the thickness of the aggregate size.
- **Stolit MP and MP Natural** are plasticiser free tintable, ready-to-use, polymer-modified, cement free finishing renders. They are supplied in 25 kg pails, are trowel-applied in two coats and are either float finished, or lightly sponged to the selected pattern.
- **Stolit Milano** is a smooth, plasticiser free tintable, ready-to-use, polymer-modified, cement free finishing render. It is supplied in 25 kg pails, is trowel-applied in two coats and is either steel troweled, floated, or lightly randomly sponged to the selected pattern.
- **Sto Flexyl** is a cementitious waterproof paste. It is mixed on site with a 1:1 ratio of fresh cement and is used as a waterproofing membrane over rendered balustrades and fixing blocks. Sto Flexyl is supplied in 18 kg pails.

### StoColor Paints and Clear Sealers

- **StoColor Maxicryl** is a ready-to-use, tintable, matt, acrylic exterior paint for application over finishing renders. It is supplied in 15 litre pails, and may be brush, roller or spray applied. The paint colour selected must have an LRV of 35% minimum.
- **StoColor Lotusan** is a ready-to-use, tintable, special dirt and algae resistant mineral silicone resin exterior paint for application over finishing renders. It is supplied in 15 litre pails, and may be brush, roller or spray applied. The paint colour selected must have a light reflectance value [LRV] of 35% minimum.
- **StoColor Lastic** is a ready-to-use, tintable, satin matt, acrylic exterior paint for application over finishing renders. It is supplied in 15 litre pails, and may be brush, roller or spray applied. The paint colour selected must have an LRV of 35% minimum.
- **StoColor X-Black** is a ready-to-use, tintable, matt, heat reflective acrylic exterior paint for application over finishing renders. It is supplied in 15 litre pails, and may be brush, roller or spray applied. The paint colour selected must have an LRV of 25% minimum.
- **S-Protect SC** is an invisible, silane based, hydrophobic sealer for application over Stolit MP, MP Natural and Milano finishing renders. It is supplied in 10 and 20 litre pails, and is applied in a flood coat using a low pressure sprayer and Sto block brush.
- **StoPur WV200** is a two component PUR, water-based, matt transparent sealer for application over Stolit Milano finishing render. It is applied by brush and Sto Micro roller.

### Accessories

- **Sto jointing mesh** is an adhesive alkali-resistant fibreglass mesh with a nominal mesh size of approximately 4 x 4 mm and an approximate weight of 165 g/m<sup>2</sup>. It is supplied in rolls 150 mm wide.
  - **Reinforcing mesh** is an alkali-resistant fibreglass mesh with a nominal mesh size of approximately 7 x 7 mm or 4 x 4 mm and an approximate weight of 165 g/m<sup>2</sup>.
  - **Sto pre-meshed corners** are uPVC and fibreglass mesh corner mouldings.
  - **uPVC components** comprise a Clip On foot tray, a vermin tray acting as a ventilated cavity closure, a jamb flashing, a sill flashing, a control joint and a finishing edge.
  - **Sto Joint Sealing Tape 2D** is a black, compressed polyurethane foam. The foam is coated on one side with a pressure sensitive adhesive, which is covered by a release paper. The tape is available 2 and 5 mm thick, expanding to maximum 6 and 12 mm thick after installation, and is supplied in rolls 15 mm wide and 18 and 9 m long respectively.
- 4.2 Accessories used with the system which are supplied by the Sto registered contractor are:
- **Flexible sealant** complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.
- 4.3 Accessories used with the system which are supplied by the building contractor are:
- **Flexible wall underlay** is either building paper complying with NZBC Acceptable Solution E2/AS1, Table 23, or a breather-type membrane covered by a valid BRANZ Appraisal for use as a wall underlay.
  - **Flexible wall underlay support** is polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible wall underlay in place and preventing bulging of the bulk insulation into the drainage cavity. *[Note: mesh and wire galvanising must comply with AS/NZS 4534.]*
  - **Rigid wall underlay** is plywood or fibre cement sheet complying with NZBC Acceptable Solution E2/AS1, Table 23, or rigid sheathing covered by a valid BRANZ Appraisal for use as rigid air barrier systems.
  - **Flexible sill and jamb flashing tape** are flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.
  - **Cavity battens** are nominal 50 mm wide by 25 mm thick [minimum finished size of 45 mm wide by 18 mm thick] timber treated to Hazard Class H3.1.



- **Cavity batten fixings** are 30 x 2.5 mm hot-dip galvanised flat head nails.
- **Fibre cement sheet** is minimum 6 mm thick HardieFlex® [supplied by James Hardie New Zealand], or 6 mm thick PACBLD Base [supplied by Pacific Build Supply].
- **Fibre cement sheet fixings** are 60 x 3.15 mm hot-dip galvanised flat head fibre cement nails. *[Note: Hot-dip galvanising must comply with AS/NZS 4680.]*
- **Joinery head flashings** are as supplied by the joinery manufacturer or contractor.
- **Window and door trim cavity air seals** are air seals complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self-expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal for use around window, door, and other wall penetration openings.

## Handling and Storage

- 5.1 Handling and storage of all materials supplied by Stoanz Limited or the Sto registered contractor, whether on or off site, is under the control of the Sto registered contractor. Dry storage must be provided on site for the fibreglass mesh and bags and pails of render mix. uPVC flashings and profiles must be protected from direct sunlight and physical damage, and should be stored flat and under cover. Liquid components must be stored in frost-free conditions.
- 5.2 Handling and storage of all materials supplied by the building contractor, whether on or off site, is under the control of the building contractor. Materials must be handled and stored in accordance with the relevant manufacturer's instructions.
- 5.3 Render must be used within the designated shelf life from the date of manufacture.

## Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the StoLite Stucco Cladding System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

### Framing

#### Timber Treatment

- 7.1 Timber wall framing behind the StoLite Stucco Cladding System must be treated as required by NZBC Acceptable Solution B2/AS1.

#### Timber Framing

- 7.2 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. In all cases studs must be at maximum 600 mm centres for buildings situated in NZS 3604 Wind Zones Low, Medium, High and Very High, and at maximum 400 mm centres for buildings situated in NZS 3604 Wind Zone Extra High and specifically designed buildings. Dwalgs must be fitted flush between the studs at maximum 800 mm centres when studs are at 600 mm centres, and maximum 1200 mm centres when studs are at 400 mm centres.
- 7.3 Timber framing and battens must have a maximum moisture content of 24% at the time of the cladding application. *[Note: If sheets are fixed to framing or battens with a moisture content of greater than 24% problems may occur at a later date due to excessive timber shrinkage.]*
- 7.4 Wall framing behind cavity battens where fibre cement sheets are joined must be nominal 50 mm thickness [i.e. 45 mm minimum finished thickness].

### Fibre Cement Sheet Setout

- 7.5 All vertical fibre cement sheet edges must be supported and fixed through the cavity battens to the framing. Horizontal sheet edges must be supported at fixing locations with cavity spacers in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.2 [f]. At the base of the wall, the fibre cement sheets must hang minimum 35 mm past the bottom of the cavity batten (50 mm below the bottom plate) and have the Sto Clip On foot tray fitted.
- 7.6 Additional framing will be required at soffits, internal and external corners and window and door openings for the support and fixing of sheet edges.

### General

- 8.1 When the system is used for specifically designed buildings up to 2.5 kPa design differential ULS wind pressure, only the weathertightness aspects of the cladding, maximum framing centres and sheet fixing centres are within the scope of this Appraisal. All other aspects of the building need to be specifically designed and are outside the scope of this Appraisal.
- 8.2 Holes in the vermin tray provide a minimum ventilation opening area of 1000 mm<sup>2</sup> per lineal metre of wall in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3 [b].
- 8.3 The ground clearance to finished floor levels as set out in NZS 3604 must be adhered to at all times. At ground level, paved surfaces, such as footpaths, must be kept clear of the bottom edge of the cladding system by a minimum of 100 mm, and unpaved surfaces by 175 mm in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Table 18.
- 8.4 At roof/wall junctions, the bottom edge of the system must be kept above the top surface of any adjacent roof flashing by a minimum of 35 mm in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3. At balcony or deck junctions, the bottom edge of the system must be kept clear of any adjacent surface by a minimum of 35 mm.
- 8.5 All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for Wind Zones up to and including Very High, and rigid underlays for buildings in the Extra High Wind Zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the fixing lengths must be increased by a minimum of the thickness of the underlay.
- 8.6 Where penetrations through the StoLite Stucco Cladding System are wider than the cavity batten spacing, allowance must be made for airflow between adjacent cavities. A minimum 10 mm gap must be left between the bottom of the vertical cavity batten and the flashing to the opening.
- 8.7 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. These details are outside the scope of this Appraisal.

### Control Joints

- 9.1 Control joints must be constructed in accordance with the Technical Literature, and be provided as follows:
- Horizontal control joints - at maximum 5.4 m centres and at all inter-storey floor levels.
  - Vertical control joints - at maximum 5.4 m centres; aligned with any control joint in the structural framing; where the system abuts different cladding types, or where the system covers different structural materials.

*[Note: Horizontal and Vertical Control joints must be located over structural supports. The design of vertical control joints where the system abuts different cladding types is outside the scope of this Appraisal and is the responsibility of the designer - see Paragraph 8.7.]*

### Inter-storey Junctions

9.2 Inter-storey junctions must be constructed in accordance with the Technical Literature. Inter-storey joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 metres in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4 [b].

## Structure

### Mass

10.1 The mass of the StoLite system is approximately 19.5 kg/m<sup>2</sup> at equilibrium moisture content. It is therefore considered a light wall cladding in terms of NZS 3604.

### Impact Resistance

10.2 The system has adequate resistance to impact loads likely to be encountered in normal residential use. The likelihood of impact damage to the system when used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers should be considered for vulnerable areas.

### Wind Zones

10.3 The system is suitable for use in all Wind Zones of NZS 3604, up to, and including, Extra High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, or up to 2.5 kPa design differential ULS wind pressure where buildings are specifically designed.

### Fibre Cement Sheet Fixing

10.4 Fibre cement sheets must be fixed through the cavity battens and cavity spacers to the wall framing at maximum centres as specified in Table 1.

**Table 1: Fibre Cement Sheet Fixing Centres for Edges and Body of the Sheet**

Fibre Cement Sheet Type	NZS 3604 Wind Zones up to and including Very High with studs at maximum 600 mm centres	
	Maximum vertical fixing centres (mm) along studs	Maximum horizontal fixing centres (mm) along top and bottom edges
HardieFlex®	200	150
PACBLD Base	150	150

Fibre Cement Sheet Type	NZS 3604 Wind Zone Extra High and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure with studs at maximum 400 mm centres	
	Vertical fixing centres (mm) along studs	Horizontal fixing centres (mm) to all framing
HardieFlex®	150	150
PACBLD Base	100	100

10.5 The fixings must be positioned a minimum of 12 mm from all sheet edges, and a minimum of 75 mm vertically and 150 mm horizontally from sheet corners. The fastener heads must finish flush with the sheet surface.

## Durability

### Serviceable Life

11.1 StoLite is expected to have a serviceable life of at least 30 years provided the system is maintained in accordance with this Appraisal, and the fibre cement sheets, fixings and render are continuously protected by a weathertight coating and remain dry in service.

- 11.2 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of fibre cement sheets in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604, Paragraph 4.2.4, and is outside the scope of this Appraisal. Refer to the fibre cement sheet manufacturer.

### Maintenance

- 12.1 Regular maintenance is essential to ensure the performance requirements of the NZBC are continually met and to ensure the maximum serviceability of the system.
- 12.2 Annual inspections must be made to ensure that all aspects of the cladding system, including the coating system, render, flashings and any sealed joints remain in a weatherproof condition. Any cracks, damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant, coatings and the like must be repaired in accordance with the instructions of Stoanz Limited.
- 12.3 Although the paint system is designed as a special dirt and algae resistant type, regular cleaning [at least annually] is still required to remove any grime, dirt and organic growth that may have accumulated, and to maximise the life and appearance of the paint system. Grime may be removed by brushing with a soft brush, warm water and detergent. The paint system must be recoated at approximately 8-10 yearly intervals in accordance with Stoanz Limited instructions. Clear sealer systems require recoating at 5-7 yearly intervals.
- 12.4 Minimum ground clearances as set out in this Appraisal and the Technical Literature must be maintained at all times during the life of the system.

*[Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of the StoLite system.]*

### Control of External Fire Spread

- 13.1 The Sto Lite Cladding System exterior surface finishes have a peak heat release rate of less than 100 kw/m<sup>2</sup> and a total heat released of less than 25 MJ/m<sup>2</sup>. Testing was carried out as per NZBC Acceptable Solutions C/AS1-C/AS6 Paragraph 5.8.1 and the results are limited to the exterior surface finishes detailed within this Appraisal.
- 13.2 Refer to NZBC Acceptable Solutions and Verification Methods C/AS1-C/AS7 and C/VM2 for requirements for fire rating and exterior surface finish requirements of external walls.

### Prevention of Fire Occurring

- 14.1 Separation or protection must be provided to the StoLite system from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

### External Moisture

- 15.1 The StoLite system, when installed in accordance with this Appraisal and the Technical Literature, prevents the penetration of moisture that could cause undue dampness or damage to building elements.
- 15.2 The cavity must be sealed off from the roof and sub-floor space to meet code compliance with Clause E2.3.5.
- 15.3 The StoLite system allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with Clause E2.3.6.



- 15.4 The details given in the Technical Literature for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.
- 15.5 The use of StoLite system where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirement for junctions, penetrations, etc. to remain weather resistant.

### Internal Moisture

- 16.1 Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

### Water Vapour

- 16.2 StoLite is not a barrier to the passage of water vapour, and when installed in accordance with this Appraisal will not create or increase the risk of moisture damage resulting from condensation.

## Installation Information

### Installation Skill Level Requirements

- 17.1 Installation and finishing of components and accessories supplied by Stoanz Limited and the Sto registered contractor must be completed by trained applicators, approved by Stoanz Limited.
- 17.2 Installation of the accessories supplied by the building contractor must be carried out in accordance with the StoLite Technical Literature and this Appraisal by, or under the supervision of a Licensed Building Practitioner [LBP] with the relevant Licence Class.

### System Installation

#### Wall Underlay and Flexible Sill and Jamb Tape Installation

- 18.1 The selected wall underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the StoLite Stucco Cladding System. Flexible wall underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems shall be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the wall underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.
- 18.2 Where studs are at greater than 450 mm centres and a flexible wall underlay is being used, a wall underlay support must be installed over the underlay at maximum 300 mm centres horizontally.

#### Aluminium Joinery Installation

- 18.3 Aluminium joinery and associated head flashings must be installed by the building contractor in accordance with the Technical Literature. A 7.5 - 10 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

#### Fibre Cement Sheets

- 18.4 The fibre cement sheets must be installed by the building contractor in accordance with the relevant manufacturer's Technical Literature, except where varied by the StoLite Technical Literature and this Appraisal. The StoLite Technical Literature contains full details for the installation of the system that must be followed.



### **StoLite System**

- 18.5 Components and accessories supplied by Stoanz Limited and the registered contractor must be installed in accordance with the Technical Literature by Stoanz Limited registered contractors.
- 18.6 The StoLite render and finishing system must only be applied when the air and substrate temperature is within the range of +5°C to +30°C.

### **Inspections**

- 19.1 The Technical Literature must be referred to during the inspection of StoLite installations.

### **Health and Safety**

- 20.1 Safe use and handling procedures for the components that make up the StoLite system are provided in the relevant manufacturer's Technical Literature.

## **Basis of Appraisal**

The following is a summary of the technical investigations carried out:

### **Tests**

- 21.1 The following testing has been completed by BRANZ:
- BRANZ expert opinion on NZBC clause E2 code compliance for StoLite was based on testing and evaluation of all details within the scope and as stated within this Appraisal. The StoLite system and balustrade to wall junction details were tested to NZBC E2/VM1. The testing assessed the performance of the foundation detail, window head, jamb and sill details, meter box head, jamb and sill details, vertical and horizontal control joints, internal and external corners and balustrade to wall junction with a rendered cap. In addition to the weathertightness test, the details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of NZBC Acceptable Solution E2/AS1 for drained cavity claddings.
  - Uniform wind face load tests to simulate wind pressures on HardieFlex® and PACBLD Base fibre cement sheet were carried out by BRANZ, and the results were used in assessing the StoLite system.
  - Tests to determine the bond strength of LevelLite Render to fibre cement sheet were carried out by BRANZ.
  - Cone Calorimeter testing of the StoLite render system was carried out in accordance with AS/NZS 3837.

### **Other Investigations**

- 22.1 Structural and durability opinions have been given by BRANZ technical experts.
- 22.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.
- 22.3 The Technical Literature for the StoLite system has been examined by BRANZ and found to be satisfactory.

### **Quality**

- 23.1 The manufacture of the LevelLite base render has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. The quality control system of the LevelLite render manufacturer has been assessed and registered as meeting the requirements of the Telarc Q-Based Code.



- 23.2 The manufacture of the Sto renders and finishes has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. The quality management system of the manufacturer, Sto SE & Co. KGaA, has been assessed and registered as meeting the requirements of ISO 9001.
- 23.3 The environmental management system of Sto SE & Co. KGaA has been assessed and registered as meeting the requirements of ISO 14001.
- 23.4 The quality of materials, components and accessories supplied by Stoanz Limited is the responsibility of Stoanz Limited.
- 23.5 Quality on site is the responsibility of the Sto registered contractor.
- 23.6 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, wall underlays, flashing tapes, air seals, joinery head flashings, cavity battens and fibre cement sheets in accordance with the instructions of Stoanz Limited.
- 23.7 Building owners are responsible for the maintenance of the StoLite Stucco Cladding System in accordance with the instructions of Stoanz Limited.

### Sources of Information

- AS/NZS 1170: 2011 Structural design actions.
- AS/NZS 4680: 2006 Hot-dip galvanised [zinc] coatings on fabricated ferrous articles.
- AS/NZS 4534: 2006 Zinc and zinc/aluminium-alloy coatings on steel wire.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4211: 2008 Specification for performance of windows.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 [Amendment 7, 01 January 2017].
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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STOLITE STUCCO CLADDING  
SYSTEM



In the opinion of BRANZ, the **StoLite Stucco Cladding System** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Stoanz Limited**, and is valid until further notice, subject to the Conditions of Appraisal.

### Conditions of Appraisal

1. This Appraisal:
  - a) relates only to the product as described herein;
  - b) must be read, considered and used in full together with the Technical Literature;
  - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
  - d) is copyright of BRANZ.
2. **Stoanz Limited**:
  - a) continues to have the product reviewed by BRANZ;
  - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
  - c) abides by the BRANZ Appraisals Services Terms and Conditions;
  - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
  - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
  - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
  - c) any guarantee or warranty offered by **Stoanz Limited**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Stoanz Limited** or any third party.

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**For BRANZ**

**Chelydra Percy**

Chief Executive

Date of Issue:

20 December 2018