BRANZ Appraised
Appraisal No. 739 [2019]

STOPOREN BRICK VENEER CLADDING SYSTEM

Appraisal No. 739 (2019)

This Appraisal replaces BRANZ Appraisal No. 739 (2012)

Amended 13 November 2023

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 The StoPoren Brick Veneer Cladding System is designed to be used as an external cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 The system consists of autoclaved aerated concrete bricks (Poren bricks) installed using ties to form a 40-75 mm cavity.

1.3 The coating system consists of a nominal 5 mm thick cement-based render applied to the Poren bricks, an approximate 2.5 mm thick coat of fibreglass mesh reinforced synthetic resin render (StoArmat render system only), and an approximate 1-3 mm thick coat of coloured finishing render. The render system is finished with a Sto coating.

Scope

2.1 The StoPoren Brick Veneer Cladding System has been appraised for use as a veneer cladding system for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a maximum height of brick veneer of 10 m above the supporting foundation, and a maximum height of 4 m above a roof line or 10 m above an adjacent building foundation, whichever is the lesser; and,
- with a depth of cavity of between 40 mm and 75 mm; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1 Table 2; and,
- with timber framing constructed on slab-on-ground in accordance with NZS 3604 for brick veneer and/or concrete masonry foundation constructed in accordance with NZS 4229; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 The StoPoren Brick Veneer Cladding System is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *[Note: The Appraisal of the StoPoren Brick Veneer Cladding System relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone.]*

2.3 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 StoPoren Brick Veneer 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 StoPoren Brick Veneer Cladding System meets the requirements for loads arising from self-weight, earthquake [out of plane loading], wind, impact and creep and shrinkage [i.e. B1.3.3 [a], [f], [h], [j] and [q]]. See Paragraphs 10.1–10.9.

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years, B2.3.1 [c] 5 years and B2.3.2. The StoPoren Brick Veneer Cladding System meets these requirements. See Paragraphs 11.1–11.4.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The StoPoren Brick Veneer Cladding System meets this requirement. See Paragraphs 15.1–15.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The StoPoren Brick Veneer Cladding System meets this requirement.

Technical Specification

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

Poren bricks

- **Poren bricks** are 75 mm thick, manufactured from autoclaved aerated concrete with an approximate density of 52 kg/m^2. Poren bricks are supplied 600 mm long x 200 mm wide.

Poren lintels

- **Poren steel reinforced lintels** are 75 mm thick, manufactured from autoclaved aerated concrete. Poren lintels are supplied 2,400 mm long x 200 mm high.

Mortar

- **StoPoren Mortar** is a polymer modified, cement-based adhesive mortar comprising graded sand and additives. The mortar is supplied in 25 kg bags and is mixed on-site with clean drinking water. It is trowel-applied in a 10 mm +/- 2 mm layer to joint adjacent bricks and encase the brick tie. The StoPoren Mortar is tooled flush with the face of Poren bricks.

Primers

- **S-Protect WS205** is a milky white, ready-to-use silane sealer available in 20 L containers. It is low pressure sprayed or brush and roller-applied to dry Poren bricks prior to commencing rendering.
- **Stoplex W** is a yellow tinted, ready-to-use, acrylic-based primer available in 10 L containers. It is brush and roller-applied to dry StoPoren or StoLevell Novo Render surfaces prior to the application of the finishing render.

Renders

- **StoPoren Render** is a polymer-modified, white cement-based render comprising graded sand and adhesives. The render is supplied in 25 kg bags and mixed on-site with clean drinking water. It is trowel-applied as a base coat in a 2.5 mm thick layer, followed by the embedment of fibreglass mesh reinforcement in the outer surface [StoMiral render system only]. An additional 1.5 mm layer is applied to fully encase the mesh. StoPoren Render is applied to a minimum 4 mm thickness when used as the base coat for the StoArmat render system.
- **StoLevell Novo** is a polymer-modified, lightweight, cement-based render. The render is supplied in 15 kg bags and is mixed on-site with clean drinking water. It is applied as a base coat in a 3-4 mm thick layer, followed by the embedment of mesh in the outer surface [StoMiral render system only]. An additional 1-2 mm layer is applied to fully encase the mesh. StoLevell Novo is applied to a minimum 5 mm thickness when used as the base coat for the StoArmat render system.

- **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 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 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 L pails, and may be brush, roller or spray-applied. The paint colour selected must have an LRV of 25% minimum when used with the StoMiral Render System, and an LRV of 20% minimum when used with the StoArmat render system.
- **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 L pails, and may be brush, roller or spray-applied. The paint colour selected must have a light reflectance value (LRV) of 25% minimum when used with the StoMiral Render System, and an LRV of 20% minimum when used with the StoArmat render system.
- **StoColor Lastic** is a ready-to-use, tintable, satin matt, acrylic exterior paint for application over finishing renders. It is supplied in 15 L pails, and may be brush, roller or spray-applied. The paint colour selected must have a light reflectance value (LRV) of 25% minimum when used with the StoMiral Render System, and an LRV of 20% minimum when used with the StoArmat render system.
- **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 L pails, and may be brush, roller or spray-applied. The paint colour selected must have an LRV of 15% minimum when used with the StoMiral Render System, and an LRV of 10% minimum when used with the StoArmat render system.
- **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 L 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

- **Poren Lintel Shelf Bracket** – hot-dip galvanised steel angle minimum 75 mm high x 100 mm deep x 310 mm wide x 6 mm thick to support Poren Lintels at the lintel ends when not able to be supported over 200 mm on adjacent brick work. The brackets are fixed to the timber lintel behind with M10 x 75 mm hot-dip galvanised coach screws.
- **Shelf angle** – hot-dip galvanised steel angle minimum 75 mm high x 100 mm deep x 6 mm thick to support Poren bricks above the roof line on 2-storey construction. The shelf bracket is fixed to the timber studs behind with M10 x 75 mm hot-dip galvanised coach screws at maximum 600 mm centres. [*Note: The depth of the shelf angle is determined by the width of the cavity. The shelf angle size must support the StoPoren brick by a minimum of 50 mm.]*

[Note: Coastal locations as defined in NZS 3604 as Zone D and some microclimatic conditions such as geothermal areas require corrosion proof lintels, brick ties and screws as per NZBC Acceptable Solution E2/AS1, Tables 18C and 18D.]

- **Reinforcing mesh** - 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^2.
- **uPVC components** – StoPoren uPVC head flashing, StoPoren joinery flashing, drip edge and control joint flashing.
- **Sto pre-meshed corner beads** – uPVC and fibreglass mesh corner mouldings.

4.2 Accessories used with the system which are supplied by the Sto registered contractor are:

- **Veneer ties and screw fixings** – Grade EM or better ties and screws complying with AS/NZS 2699.1.
- **Flexible sealant** - 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** – paper or underlay complying with NZBC Acceptable Solution E2/AS1, Table 23, or breather-type flexible underlays covered by a valid BRANZ Appraisal for use as wall underlays.
- **Flexible wall underlay support** – polypropylene strap, 75 mm galvanised mesh or galvanised wire 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** – rigid sheathing 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 tapes** – 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.
- **Joinery head flashings** – as supplied by the joinery manufacturer or contractor.
- **Window and door trim cavity air seal** – 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-site or off-site, is under the control of the Sto registered contractor. Poren bricks and lintels must be handled with care to avoid physical damage, particularly to corners and edges, and must be stored so that they are protected from the weather. Dry storage must be provided 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 Components such as ties, lintel shelf brackets and shelf angles must be handled so as to avoid damage. They must also be stored in dry locations protected from the weather.

5.3 Handling and storage of all materials supplied by the building contractor, whether on-site 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.

5.4 Render must be used within the designated shelf life from the date of manufacture.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- SS505 StoMiral Render on StoPoren Brick Construction, 2pa / 23.01, 2023.
- SS506 StoArmat Render on StoPoren Brick Construction, 2pa / 23.01, 2023.
- Sto Brick System Details PB 001 - PB 864, all dated 2019 (Details PB 710 and PB 870-873 are excluded from the scope of this Appraisal).

6.2 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 StoPoren Brick Veneer 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 the AS/NZS 1170 series. Studs must be at maximum 600 mm centres in Low, Medium, High and Very High Wind Zones and at maximum 400 mm centres in the Extra High Wind Zone and on the top storey of 3-storey buildings in all Wind Zones. Dwangs must be fitted flush between the studs at maximum 800 mm centres.

7.3 The maximum span of any external opening where the veneer is supported over the opening must be in accordance with the lintel tables in the Technical Literature.

7.4 The framing must have a maximum moisture content of 24% at the time of the cladding installation. *(Note: If Poren bricks are fixed to framing with a moisture content of greater than 24% problems may occur at a later date due to excessive timber shrinkage.)*

General

8.1 The StoPoren Brick Veneer Cladding System allows brick veneer cladding to be erected to a height greater than that specified by NZBC Acceptable Solution E2/AS1, Section 9.2.

8.2 This system also allows the use of the veneer supported above roof lines on steel shelf angles coach screw fixed to the wall framing (see Paragraph 10.7).

8.3 The StoPoren Brick Veneer Cladding System is designed for use with a veneer cavity of 40-75 mm.

8.4 Ventilation openings through the Poren brick perpends at the base of the wall must provide a ventilation opening area of 1,000 mm^2 per lineal metre of wall in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3 b).

8.5 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 50 mm, and unpaved surfaces by 100 mm in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Table 18.

8.6 At balcony, deck or roof/wall junctions, the bottom edge of the cladding system must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 35 mm in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.6.

8.7 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 wall underlays for buildings in the Extra High Wind Zone. Unlined gables and walls must incorporate a rigid wall underlay 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 brick tie fixing length must be increased by a minimum of the thickness of the underlay.

8.8 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

Control Joints

9.1 Vertical control joints must be constructed in accordance with the Technical Literature and be provided at maximum 12 m centres; aligned with any control joint in structural framing or foundation; where the height of the veneer changes by more than 20%; or where the system abuts different cladding types. *[Note: 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 8.8.]*

Structure

Mass

10.1 The mass of the StoPoren Brick Veneer Cladding System is approximately 55 kg/m^2 at equilibrium moisture content, therefore it is considered a medium 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 type situations should be considered at the design stage, and appropriate protection such as the installation of barriers or bollards should be provided for vulnerable areas. *[Note: Additional coats of reinforced render or a heavier grade mesh can be used to increase impact resistance. This has not been assessed and is outside the scope of this Appraisal.]*

Wind Zones

10.3 The system is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High.

Foundations

10.4 Foundation systems supporting the StoPoren veneer must consist of concrete slab-on-ground systems complying with either NZS 3604 or NZS 4229 for brick veneer, or be to a specific engineering design.

Veneer Height

10.5 The maximum permitted height of veneer for the StoPoren Brick Veneer Cladding System is 10 m above its foundation support. Where veneer is above roofs, the maximum permitted height is 4 m above the veneer roof-line support, or 10 m above an adjacent building foundation, whichever is the lesser.

Wall Bracing Requirements

10.6 Bracing requirements for walls of buildings within the scope of NZS 3604 may be calculated by using the prescribed tables in NZS 3604 for medium weight wall claddings. Bracing requirements for walls of buildings outside the scope of NZS 3604 must be to a specific design.

Supporting Poren Bricks Above Roof Lines

10.7 Shelf brackets must be used to support Poren bricks above a roof line where no direct foundation support is available. The shelf bracket must be fixed to the timber studs behind with M10 x 75 mm hot-dip galvanised coach screws at maximum 600 mm centres.

Poren Lintels

10.8 Poren lintels are used to span clear openings between Poren brick panels to support Poren bricks above. The lintels must be seated 200 mm onto the Poren brick veneer at each side of the opening. Where the opening is wider than the lintel length, Poren shelf brackets must be used at junctions between the Poren lintels. Refer to the Technical Literature for Poren lintel layout drawings and connection details.

Poren Brick Ties

10.9 The Poren bricks are supported laterally by the veneer ties fixed to the framing. The ties must be at least Grade EM and fully embedded in the StoPoren Mortar and must be installed at maximum 600 mm horizontal centres and maximum 400 mm vertical centres (every second course).

Durability

11.1 The StoPoren Brick Veneer Cladding System meets the performance requirements of NZBC Clause B2.3.1 (b) 15 years for the cavity system, Poren bricks and render finish, and the performance requirements of NZBC Clause B2.3.1 (c) 5 years for the Sto coating system.

Serviceable Life

11.2 The StoPoren Brick Veneer Cladding System is expected to have a serviceable life of at least 30 years provided the system is maintained in accordance with this Appraisal and the Poren bricks, Poren lintels, ties and fixings and render are continuously protected by a weathertight coating and remain dry in service.

11.3 Coastal locations can be very corrosive to fasteners, especially locations within distances of up to 500 m from the sea including harbours, or 100 metres from tidal estuaries and sheltered inlets, and otherwise as shown in NZS 3604 Figure 4.2. These coastal locations are defined in NZS 3604 as Zone D. In Zone D, ties must be Grade 316, 316L or 304 stainless steel. Veneer ties outside Zone D must be protected in accordance with NZBC Acceptable Solution E2/AS1, Table 18C. Lintel shelf brackets and shelf angles must be protected in accordance with NZBC Acceptable Solution E2/AS1, Table 18D for the relevant Exposure Zone.

11.4 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert a mildly corrosive atmosphere into aggressive environments for fasteners. The protection of fixings for ties and shelf angles 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.

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 Sto 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, paint coatings and the like must be repaired in accordance with the sealant or Stoanz Limited's instructions.

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 coating. Grime may be removed by brushing with a soft brush, warm water and detergent. The paint system must be recoated at approximately 8-10 year intervals, in accordance with the instructions of Stoanz Limited. Clear sealer systems require recoating at 5-7 year 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 ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of the system.)*

Control of External Fire Spread

Vertical Fire Spread

13.1 This Appraisal only covers buildings 10 m or less in height. NZBC Functional Requirement C3.2 identifies that external vertical fire spread to upper floors only needs be considered for buildings with a building height greater than 10 m. Control of external vertical fire spread is therefore outside the scope of this Appraisal.

Horizontal Fire Spread

13.2 The StoPoren bricks and surface finishes have a peak heat release rate of less than 100 kw/m² and a total heat released of less than 25 MJ/m². Testing was carried out as per Paragraph 5.4 of NZBC Acceptable Solution C/AS1 and Paragraph 5.8.1 of NZBC Acceptable Solution C/AS2, achieving a Type A performance. The StoPoren Brick Veneer Cladding System can therefore be used within 1 m of the relevant boundary.

13.3 Refer to NZBC Acceptable Solutions C/AS1 and C/AS2 and Verification Method C/VM2 for fire resistance rating and control of external fire spread requirements for external walls.

Prevention of Fire Occurring

14.1 Separation or protection must be provided to the StoPoren Brick Veneer Cladding System from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

15.1 The StoPoren Brick Veneer Cladding 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 compliance with NZBC E2.3.5.

15.3 The StoPoren Brick Veneer Cladding System allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet compliance with NZBC 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 the StoPoren Brick Veneer Cladding 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 The StoPoren Brick Veneer Cladding System alone does not meet NZBC Acceptable Solution E3/AS1, Paragraph 1.1.1 a). 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 The StoPoren Brick Veneer Cladding System is not a barrier to the passage of water vapour, and when correctly installed will not create or increase the risk of moisture damage resulting from condensation.

Installation Information

Installation Skill Level Requirement

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 StoPoren Brick Veneer Cladding System 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 rest of the StoPoren Brick Veneer 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.

Aluminium Joinery Installation

18.2 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.

StoPoren Brick Veneer Cladding System

18.3 The system must be installed in accordance with the Technical Literature by a Sto registered contractor. The StoPoren render system must only be applied when the air and substrate temperature is within the range of +5°C to +30°C. A curing time of 5 to 7 days must be allowed after laying the Poren Bricks before application of the StoPoren render system.

Inspections

18.4 The Technical Literature must be referred to during the inspection of the StoPoren Brick Veneer Cladding System installations.

Health and Safety

19.1 Cutting of Poren bricks and lintels must be carried out in well ventilated areas, and a dust mask and eye protection must be worn.

19.2 When power tools are used for cutting, grinding or forming holes, health and safety measures must be observed because of the amount of dust generated.

19.3 Safe use and handling procedures for the components that make up the StoPoren Brick Veneer Cladding 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

20.1 The following testing has been completed by BRANZ:

- BRANZ expert opinion on NZBC Clause E2 code compliance for the StoPoren Brick Veneer Cladding System was based on evaluation of all details within the scope and stated within this Appraisal and testing of the StoTherm Cavity System to E2/VM1. The testing assessed the performance of the window head, jamb and sill details, meter box head, jamb and sill details, vertical control joints, internal and external corners. The StoPoren Brick Veneer Cladding System follows the same flashing and weathertightness design principles as the StoTherm Cavity System. 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 brick veneer cladding.
- BRANZ expert opinion on NZBC Clause B1 code compliance for the StoPoren Brick Veneer Cladding System was based on testing and evaluation of the following properties; differential movement, mortar/brick bond, brick tie strength, internal shear resistance, lintel bending resistance and lintel support.
- Durability testing of the Poren bricks and lintels. The testing included compressive strength, length change during moisture movement, corrosion protection of steel reinforcement and mineralogy by x-ray diffraction crystallography.

Other Investigations

21.1 Structural and durability opinions have been provided by BRANZ technical experts.

21.2 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.

21.3 Site inspections were carried out by BRANZ to assess methods used for construction of the StoPoren Brick Veneer Cladding System and to inspect completed systems.

Quality

22.1 The manufacture of the StoPoren 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.

22.2 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.

22.3 The environmental management system of Sto SE & Co. KGaA has been assessed and registered as meeting the requirements of ISO 14001.

22.4 Sto External Wall Insulation Systems are the subject of a current British Board of Agrément [BBA] Certificate No 95/3132 and the manufacture of the systems continues to be checked by the BBA during the validity period of the Certificate. Renders and paints used within the StoPoren Brick Veneer Cladding System and imported by Stoanz Limited are covered by the BBA Certificate.

22.5 The manufacture of the Poren bricks and lintels has been examined by an agent of 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.

22.6 The quality of materials, components and accessories supplied by Stoanz Limited are the responsibility of Stoanz Limited.

22.7 Quality on-site is the responsibility of the Sto registered contractor.

22.8 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 and joinery head flashings in accordance with Stoanz Limited's instructions.

22.9 Building owners are responsible for the maintenance of the StoPoren Brick Veneer Cladding System in accordance with the instructions of Stoanz Limited.

Sources of Information

- AS/NZS 1170:2011 Structural design actions.
- AS/NZS 2699.1:2000 Built-in components for masonry construction – Wall ties.
- ISO 5660.1:2002 Heat release rate (cone calorimeter method)
- NZS 3603:1993 Timber structures standard.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4210:2001 Masonry construction: Materials and workmanship.
- NZS 4211:2008 Specification for performance of windows.
- SNZ TS 4211:2022 Classification for the performance of windows.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 13 November 2023

This Appraisal has been amended to update the Technical Literature.

BRANZ

In the opinion of BRANZ, the StoPoren Brick Veneer 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.

For BRANZ

Chelydra Percy
Chief Executive
Date of Issue:
23 August 2019