AEROBRICK SPECIFICATION

AeroBrick

LIGHTWEIGHT PLASTERED
BRICK VENEER

Project details

Project Name:

Project Address:

Specification Prepared For:

Specifier's Name:

Date:

Certified Specialized Plastering Contractor:

Licensed Building Practitioner Number:

BRANZ Appraised

NEW ZEALAND MADE

Introduction

This specification is for the application of Specialized Construction Products AeroBrick veneer cladding system.
The AeroBrick system is made up of 75mm thick AAC (Autoclaved Aerated Concrete) bricks that are fixed to timber framing using traditional brick ties over a 40-75mm cavity. After the bricks are laid the walls are face finished and reinforced with a range of specialty plasters and reinforcing mesh before being finished with 2-3 coats of a 100% acrylic paint system.

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General

Timber framing must comply with NZS3604 with studs at maximum 600mm centres for Low, Medium, High and Very High wind zones and a maximum of 400mm centres for Extra High Wind Zones. Dwangs must be flush fitted at 800mm centres and additional framing must be provided by the building contractor to allow for membrane up-stands and exterior fixtures.

AeroBricks must be installed by a Specialized Construction Products approved, LBP qualified bricklayer. The maximum height for an Aerobrick veneer is 7.5m above its foundation support, except that at gable ends and some piers this height may be up to 10.0m. Where the veneer is above a roof the maximum permitted height is 4.0m above the veneer roof-line support, or 7.5m above an adjacent building foundation, whichever is the lesser. Overall the system weighs approximately 50kg/m^2 and is therefore classified as a medium weight wall cladding system in terms of NZS 3604.

AeroBricks are manufactured using a proprietary waterproofing agent that ensures the bricks will not take on or hold water. Therefore, the AeroBrick system is not susceptible to 'freeze thaw' and it is possible to continue plastering the walls even after a heavy shower of rain.

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Materials

Wall Underlay and Flexible Flashing Tapes

The AeroBrick veneer cladding system must be installed over a wall underlay complying with NZBC Acceptible Solution E2/AS1, Table 23, or wall underlays covered by a valid BRANZ Appraisal. 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. Rigid underlays must be used for buildings in the Extra High wind zone. 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.

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 AeroBrick Veneer Cladding System. Flexible building underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75mm minimum at horizontal joints and 150mm minimum over studs at vertical joints. Where studs are at greater than 450mm centres, polypropylene strap must be installed at maximum 300mm horizontal centres to prevent bulk insulation bulging into the cavity. Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay.

Particular attention must be paid to the installation of the building 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. All penetrations must have internal air seals applied.

Mortar

The mortar used to bed and bond the bricks in this system must be AeroBond pre-bagged factory made proprietary mortar endorsed by Specialized Construction Products. Alternatively the mortar may be mixed on site using a formula by volume not exceeding 1 cement to 4 wash-mixed plastering sand. AeroBond Concentrate must also be added to each typical concrete mixer sized brick layers mortar mix in a ratio of 80g/mix (1 metric cup). All wash-mixed sand must have a maximum salt content of 0.04%. Non-proprietary mortars must be mixed in accordance with NZS4210 using a mechanical mixer for 4-8 minutes. The sand, cement, AeroBond and water ratios must be kept as consistent as possible to ensure good bond strength. Appropriate measuring equipment must be used.

Table 1: Placement of wall ties

Location	Studs at 400 or 600 centres
Bottom of the wall	In the first course of bricks
The body of the wall	Every second course of bricks (400mm maximum) and 600mm centres maximum horizontally.
Top of the wall	In every perpend joint (50mm from the top brick)
Alternative Top course	In every perpend joint plus expanding foam in the gap between the top brick and the soffit lining.
Unsupported sides and perimeters of openings	Within 200mm of the edge of the veneer.
Control joints	Within 200mm of the edge and 400mm vertically.

Brick Ties

The ties used in conjunction with the AeroBrick System must be screw fixed galvanised or stainless steel Earthquake Heavy (EH) ties that comply with AS/NZS2699.1. In coastal locations (zone D) as defined by NZS3604 and in some microclimatic conditions (i.e. where geothermal activity is present) corrosion proof brick ties and screws must be used – see E2/AS1 Table 18C. The chosen ties must be long enough to span the chosen cavity depth as well as a minimum of 50% into the bedding mortar. However, they must not be over length such that they do not allow for a minimum of 10mm of mortar cover to the outside face of the brick.

In all cases, the AeroBrick System should have a minimum of approximately 5 bricks ties per square metre of wall area. The ties must be fully embedded in the mortar and must be installed at maximum 600mm horizontal centres and maximum 400mm vertical centres (every second course), plus as detailed in Table 1, above.

Penetration Lintels

All lintels must comply with E2/AS1 9.2.9 (openings in masonry veneer) and be treated in accordance with E2/AS1 Table 18D depending on the location of the site and the spray zone the site falls into.

Lintels must span a minimum of 100mm onto the seating on either side of the penetration for up to 2.0m spans and a minimum of 200mm for spans greater than 2.0m. The lintel must be installed completely free of the structural frame (10mm minimum) and be kept 20mm behind the face of the brick.

Flashings

The flashings around all penetrations must be designed and installed using the following guidelines:

Head

(a) An aluminium head flashing with a minimum of 5° slope and 35mm upstand. The head flashing must be secured to the timber lintel and must have a minimum of a 10mm downturn over the front face of the aluminium joinery. In the Very High and Extra High wind zones, sealant must be applied between the underside of the head flashing and the top of the window flange.

(b) 200mm wide Polyethylene or other 2-ply asphaltic pliable waterproofing membrane complying with AS/NZS2904 nailed to the framing and taped appropriately to the wall underlay tucked into the back of the steel lintel which has been sealed to the aluminium joinery section (fig 73C/e – E2/AS1).

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Jamb

200mm wide Polyethylene or other 2-ply asphaltic pliable waterproofing membrane complying with AS/NZS2904, tucked into the side of the joinery section and nailed to the framing using 40mm clots.

Where the membrane terminates against the wall underlay it should be supported by a 20mm timber packer causing the membrane to form a 'C' shape (see AeroBrick technical drawing 02A). The flashing used must extend a minimum of 200mm both above and below the penetration.

Sill

200mm wide Polyethylene or other 2-ply asphaltic pliable waterproofing membrane complying with AS/NZS2904, nailed flush with the top edge of timber plate under the joinery section and supported off the wall underlay on the bottom edge by a 20mm timber packer (see Aerobrick technical drawing 03A). The waterproofing membrane must extend a minimum of 200mm on either side of the joinery penetration. Door sills should be created as per the guidelines of E2/AS1 – masonry veneer.

Control Joints

Control joints must be used in the AeroBrick System to deal with excessive shrinkage or potential movement in the dwelling. Vertical control joints must be provided in walls greater than 12m in length or aligned with any control joint in the structural framing. Control joints must also be provided where the system abuts different cladding types, at the base of the veneer, where it sits on the foundation and where the veneer changes in height by more than 20%.

Brick ties are required on either side of the control joints within 200mm of the edge of the joint and at maximum 400mm vertical centres.

Cavity Ventilation

AeroBrick is considered to be a 'semi' water repellent veneer and as such does not require venting through brick perpends above windows and at the soffit line. However, venting is still required at the base of the wall. Weepholes measuring 75mm high x 7mm wide must be installed in the perpend joints at 500mm centres or in the centre of any wall less than 1200mm in width to achieve a minimum ventilation opening area of 1000mm^2 per lineal metre of wall.

Alternatively, Specialized Construction Products proprietary vents may be installed at the completion of the project, but the required spacing must not exceed 1200mm.

AeroBrick Installation

The minimum cavity size behind the AeroBrick veneer is 40mm. In isolated areas where bracing has been attached to the exterior of the framing it is not necessary to increase the width of the cavity.

AeroBricks must be laid in a brick pattern (i.e. overlaying approximately half of the brick directly underneath), plumb and level in accordance with best trade practice and in full accordance with the specifications contained in this document and the BRANZ Appraisal for the system.

Brick ties must be laid in the middle of the mortar course as required by NZS 3604 unless an alternative solution is provided. All ties must be screwed back hard against the framing member they are attached too. Brick ties shall be positioned as per Table 1, but in general at maximum 600mm horizontal centres and maximum 400mm vertically. In addition to Table 1, bricks ties must be used with 200mm of all penetrations, and control joints. Use stainless steel brick ties in sea spray zones (Exposure Zone D).

The AeroBricks must be clean and free of debris, dirt and dust, cleaning solutions, mould and algae or any other contaminants that may affect the adhesion of the mortar. All mortar joints should be 10mm ± 2mm. All joints both horizontal and vertical (perpends) shall be consistent in thickness. Take particular care to maintain a clean cavity either by the use of protection boards in the cavity, which are raised as the work proceeds, or by the thorough cleaning of the cavity at the end of each laying period. Washouts should be installed every 3m along the base of the veneer and one at each corner.

Window sills cut and shaped from AeroBricks should all be laid in a consistent fashion with a minimum slope of 15 degrees and unless detailed otherwise it is recommended that the sill bricks overhang the remainder of the wall by 30-40mm. All brick veneer must be fully protected from rain for a period of 6 hours after the bricks have been laid to allow the mortar to set.

The curing time of the mortar between the bricks will vary due to ambient temperature, relative humidity, surface temperature and/or the thickness of the material. It is the responsibility of the brick layer to protect their work from excessive heat, rain, snow, dew, and/or any other inclement weather condition that may have a detrimental effect. Before plastering commences a minimum of 7 days must be allowed after placement of the AeroBricks to ensure all of the jointing has completely cured and the walls have stabilised. Failing to allow the jointing to fully cure can lead to excess shrinkage and cracking on the jointing lines after the walls have been plastered.

The finished appearance of the wall is highly dependent on the standard of the AeroBrick wall construction.

Plaster Application

On-site application is beyond the control of Specialized Construction Products Ltd. Therefore, it cannot guarantee workmanship, supervision, aesthetic quality or the correct preparation and application of its products or the substrates to which its products may be applied.

CEMENT PLASTER OPTION (A)

Base Coat Rendering

The entire AeroBrick surface must be mesh reinforced with 160g/m^2 Specialized alkali-resistant fibreglass mesh embedded in Specialized Renderit plaster. The instructions for mixing the base coat plaster are clearly spelt out on the bag.

It is important that each mix stands for approximately 10 minutes, and is then re-stirred and the final consistency adjusted. This allows the thickening agents in the plaster to take effect and stops the brew becoming too thick too quickly. Do not use plaster that has been mixed for more than one hour. The plaster will continue to stiffen slightly over the hour.

Thickness is critical – a minimum thickness of 2-3mm must be achieved with this first coat. Do not force the mesh hard down onto the surface of the substrate. This is best achieved by applying a coat of Renderit to the surface of the AeroBrick before bedding in the mesh with a second coat over the top.

The mesh pattern can be "grinning" through, but the mesh itself must be completely covered with plaster. Apply a 100 to 200mm band of plaster around the corner and imbed the overhanging corner mesh.

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Once imbedded scrape away the plaster at the edge of the mesh to ensure there is no plaster ridge there when you join on later. Repeat the process. Mesh must overlap the adjacent drop and plaster coat by at least 50mm. The mesh and plaster coat must cover all surfaces including the edges around all window reveals and sills.

Finishing Plaster Options

■ **Float finish:**

A polymer modified cement based plaster which is floated flat to achieve a fine granular finish.

■ **Spanish finish:**

A polymer-modified, cement based plaster used to achieve an undulating adobe style finish. This product can be applied in various thicknesses using a number of different techniques. Before finish coating begins ensure the style of finish that is desired has been correctly communicated and understood by the plasterer and owner. A trial sample is highly recommended.

■ **Coarse texture:**

Use coarse base coat. A polymer-modified, cement based plaster which can be sprayed through a hopper gun or a sagola gun to achieve a heavy stucco plaster finish.

■ **Fine texture:**

Use fine base coat. A polymer-modified, cement based plaster which can be sprayed through a sagola gun to achieve a finely spiked texture finish.

■ **GranoporTop 1.5mm Acrylic Texture**:

Ready to use, synthetic resin-based render which is polished flat to achieve a medium granular finish.

■ **Granopor Fine 1.0 mm Acrylic Texture:**

Ready to use, synthetic resin-based render which is polished flat to achieve a fine granular finish or sprayed through a hopper gun or a sagola gun to achieve a fine stippled appearance. Smooth textures will not cover up background imperfections, particularly when walls are subject to side lighting at certain times of the day.

ACRYLIC PLASTER OPTION (B)

Powaflex Polymer Base Coat

The entire AeroBrick surface can be mesh reinforced with 160g/m^2 alkali-resistant fibreglass mesh embedded in Specialized Powaflex plaster. The instructions for mixing the base coat plaster are clearly spelt out on the bag.

It is important that each mix stands for approximately 10 minutes, and is then re-stirred and the final consistency adjusted. This allows the thickening agents in the plaster to take effect and stops the brew becoming too thick too quickly. Do not use plaster that has been mixed for more than two hours. The plaster will continue to stiffen slightly over several hours.

Thickness is critical – a minimum thickness of 2-3mm must be achieved with this first coat. Do not force the mesh hard down onto the surface of the substrate. This is best achieved by applying a coat of Powaflex to the surface of the AeroBrick before bedding in the mesh with a second coat over the top.

The mesh pattern can be “grinning” through, but the mesh itself must be completely covered with plaster. Apply a 100 to 200mm band of plaster around the corner and imbed the overhanging corner mesh. Once imbedded scrape away the plaster at the edge of the mesh to ensure there is no plaster ridge there when you join on later. Repeat the process. Mesh must overlap the adjacent drop and plaster coat by at least 50mm. The mesh and plaster coat must cover all surfaces including the edges around all window reveals and sills.

Finishing Options

There are two options once the Powaflex Base Coat as been applied:

■ **GranoporTop 1.5mm Acrylic Texture**

Ready to use, synthetic resin-based render which is polished flat to achieve a medium granular finish.

■ **Granopor Fine 1.0 mm Acrylic Texture**

Ready to use, synthetic resin-based render which is polished flat to achieve a fine granular finish or sprayed through a hopper gun or a sagola gun to achieve a fine stippled appearance. Smooth textures will not cover up background imperfections, particularly when walls are subject to side lighting at certain times of the day.

Paint

When using the cement plaster option, and ensure efflorescence does not form on the surface of the finished paint system, Specialized Construction Products highly recommends the chosen paint system is applied in 3 coats. One coat of a proprietary Limestop followed by two top coats of 100% acrylic paint in the chosen colour.

A paint system must be used over the AeroBrick finishing plasters to make the system water-resistant and give the desired finish colour to exterior walls. Specialized’s Plastershield is a 100% acrylic-based paint that has been specially formulated for use over cement based plasters. Plastered surfaces must be coated with a minimum of 2 coats of Plastershield tinted to the selected colour and applied by brush and roller at a spread rate of approximately 6m^2/litre.

As an alternative to Plastershield, a latex acrylic-based exterior paint system complying with any of Parts 7, 8, 9 or 10 of AS 3730 may be used. The paint system must be applied in accordance with the paint manufacturer’s instructions. Other paint systems are not covered by this specification sheet and Specialized Construction Products Ltd will not warrant the use or suitability of alternative paint systems over the surface of its plaster finishes.

The chosen paint system must have a Light Reflective Value (LRV) of no less than 20.

Paint colour required:

Manufacturer:

Curing

The curing time of the applied plaster system will vary due to ambient temperature, relative humidity, surface temperature, surface porosity, application methods, and/or the thickness of the material. All freshly applied material must be protected from inclement weather for a minimum of 24 hours after application. It is the responsibility of the plaster applicator to determine if the product is cured and/or dry prior to applying any additional coats that may be required. Although Renderit contains cement and it will therefore not fully cure for 28 days, if the chosen finish and its proceeding coat of Renderit have been lightly hosed down with fresh water 12 hours prior to painting, it can be painted after the finish coats have cured for a minimum of 3-4 days.

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Safety Precautions

Avoid plaster contact with eyes and prolonged contact with skin. Wash your skin thoroughly after handling all wet or dry plaster materials. In case of eye contact, flush immediately with running water for at least 15 minutes. Consult a physician immediately. Do not take internally. The potential irritant nature of the plaster dust (in dry powder form or from subsequent cutting of the hardened product) is recognised. Paper dust masks or a respirator must be worn at all times when the product is being mixed. Be sure to provide adequate ventilation when working in enclosed areas. The wet compound is alkaline and prolonged skin contact should be avoided. People with sensitive skin must wear rubber gloves when handling the product. Materials Safety Data Sheets are available on request.

Limitations

■ DO NOT apply the Specialized RENDERIT plaster or Specialized BONDIT modified mortar when the ambient or surface temperature is below 4°C or above 30˚C or will be in that range for the 24-hour period after application. When hot, dry, or windy conditions exist, moist curing and protection must be provided. Material that is allowed to freeze or material that dries too quickly may suffer irreparable damage.

■ DO NOT add any other materials to Specialized premixed plaster or Specialized BONDIT modified mortar or deviate from the mixing or application procedures outlined in any of Specialized Construction Product's technical data sheets without written approval from Specialized Constructions Products Ltd.

■ DO NOT apply Specialized premixed plaster or Specialized BONDIT modified mortar unless the substrate has been properly cleaned and prepared.

■ DO NOT add any more water than prescribed by the technical data sheet or the bag instructions for this product.

■ DO NOT wet the wall prior to the application of plaster materials.

■ DO NOT reactivate Specialized premixed plaster or Specialized BONDIT modified mortar with more water once it has begun to set.

■ DO NOT mix more plaster than you can use in 45 minutes

Note: Failure to follow the manufacturer's written specifications could result in the following but not limited to; spalling, cracking, peeling, chipping, delamination, discoloration, wash off, and overall system failure.

Cleaning

Cleaning may be accomplished with water immediately after use. Clean the whisk and the bucket between mixes and discard the cleaning water.

Plaster Storage

In bagged form this product must be stored in a dry area, off the floor on a timber pallet or timber dunnage and it must be protected from the weather and from mechanical damage. Rotate the stock to ensure that the oldest material is used first. Plaster stock that is older than six months should be discarded.

Maintenance

The wall cladding system should be cleaned, at least annually, by washing with clean water to remove dirt and to maintain the finish appearance. Grime may be removed with warm water and detergent.

Plastered walls should be recoated with either Plastershield or another approved paint system at 5 to 8 yearly intervals. Regular checks, at least annually, must be made of the system to ensure that the weather resistant coating is maintained weathertight, and that the sealant, flashings, and other joints continue to perform their function and do not allow water to penetrate. Failure to correctly maintain the system may void any long-term warranties offered with the system. Any accidental damage to the cladding must be repaired immediately using Specialized Construction Products Ltd materials. All weepholes at the bottom of the veneer should be checked at least annually to ensure they are not blocked by debris, spiders webs, grass etc. The Building code required minimum distances between the bottom plate and exposed or paved ground must be adhered to at all times.

Warranty

The recommendations, suggestions, statements and technical data provided by Specialized Construction Products Ltd are based on the best current knowledge available and are given for information purposes only without any responsibility for their use. It is expressly understood and agreed that the buyer's sole and exclusive remedy shall be the replacement of defective products, and under no circumstance, shall Specialized Construction Products Ltd be liable for incidental or consequential damages. Specialized Construction Products Ltd neither assumes, nor authorises, any others to assume for it any liability with respect to furnishing of the product. Handling and use of the products are beyond the control of Specialized Construction Products Ltd; therefore, no warranty is made, expressed or implied, as to the results or on site quality that can be obtained from the use of the product.

System Guarantee Period
15 years from date of practical completion to plastering.

Workmanship Guarantee Period
5 years from date of practical completion to plastering.

Technical Assistance

Assistance and information is available by calling Specialized Construction Products Ltd on **(09) 414 4499** or **0800 0800 79** by e-mail at **info@specialized.co.nz.**