BRANZ Appraised
Appraisal No. 870 [2019]

NU-WALL ALUMINIUM VERTICAL WEATHERBOARD CAVITY SYSTEM

Appraisal No. 870 (2019)

This Appraisal replaces BRANZ Appraisal No. 870 (2014)

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 The Nu-Wall Aluminium Vertical Weatherboard Cavity System is a cavity-based, inter-locking, powder coated aluminium weatherboard system. 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 includes vertically fixed Nu-Wall weatherboards, cavity battens, internal and external corner mouldings, base channel, board jointers, board locators, soffit caps, joinery flashings and accessories.

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.

Scope

2.1 The Nu-Wall Aluminium Vertical Weatherboard Cavity System has been appraised as an external wall cladding 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 The Nu-Wall Aluminium Vertical Weatherboard Cavity System 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 and steel 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 The Nu-Wall Aluminium Vertical Weatherboard Cavity System must only be installed vertically on vertical, flat surfaces.

2.4 The Nu-Wall Aluminium Vertical Weatherboard Cavity 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 Nu-Wall Aluminium Vertical Weatherboard Cavity System relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or design wind pressure.)*

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the Nu-Wall Aluminium Vertical Weatherboard Cavity 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 Nu-Wall Aluminium Vertical Weatherboard Cavity System meets the requirements for loads arising from self-weight, wind and impact [i.e. B1.3.3 (a), (h) and (j)]. See Paragraphs 9.1 - 9.3.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years and B2.3.2. The Nu-Wall Aluminium Vertical Weatherboard Cavity System meets these requirements. See Paragraphs 10.1 - 10.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The Nu-Wall Aluminium Vertical Weatherboard Cavity System meets this requirement. See Paragraphs 14.1 - 14.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Nu-Wall Aluminium Vertical Weatherboard Cavity System meets this requirement and will not present a health hazard to people.

Technical Specification

4.1 System components and accessories for the Nu-Wall Aluminium Vertical Weatherboard Cavity System, which are supplied by Aluminium Product Brands NZ Limited are:

Nu-Wall Weatherboards

- Nu-Wall weatherboards are produced in a variety of profiles with covers ranging from 100 mm to 200 mm and are powder coated or anodised on the exposed surfaces. When installed, the cladding is effectively 14.5 mm thick. Nu-Wall weatherboards are supplied in 6.0 m lengths as standard, but can be supplied up to 9.0 m long.
- Nu-Wall weatherboards are manufactured from 6063 T5 or 6060 T5 aluminium alloy. The boards and accessories are extruded, cut to length then either powder coated or anodised.

Accessories

- **AliBat battens** - extruded aluminium structural cavity battens. The battens are pre-drilled for fixing and are available mill-finished or powder coated in 5.8 m lengths.
- **Base channel** - an extruded aluminium profile used to locate and secure the bottom of the weatherboards. The base channel is powder coated or anodised and is available in 6 m lengths.
- **External and internal corner moulding** - an extruded aluminium 90° two-piece internal corner mould and 90° two-piece external corner mould. The mouldings are powder coated or anodised and are available in 6 m lengths.
- **Universal fixing bracket** - an extruded aluminium locator used to secure individual weatherboards. The board locators are 45 mm long and are predrilled for fixing.
- **J-Mould** - an extruded aluminium profile, powder coated or anodised and available in 6 m lengths.
- **Nu-Wall jamb flashing** - an extruded aluminium two piece flashing to conceal the ends of the weatherboards at the jambs and sill of window and door trim openings. The jamb flashing is powder coated or anodised and is available in 6 m lengths.
- **Inter-storey joint flashing** - an extruded aluminium flashing used at drained inter-storey junctions. The flashing is powder coated or anodised and available in 6 m lengths.
- **Nu-Wall weatherboard fixings (timber frame)** - 50 mm long, 8-gauge, Grade 304 stainless steel wood screws.
- **AliBat fixings (timber frame)** - 50 mm long, 10-gauge, Grade 304 stainless steel screws with countersunk heads.
- **Nu-Wall weatherboard, cavity batten, base channel and thermal break fixings (steel frame)** - self drilling 8-gauge or 10-gauge TEK screws to Class 3 of AS 3566.2. The screw length must allow a minimum 10 mm penetration through the steel frame.

- **Starter and locator bracket fixings to AliBat battens** - 16 mm long, 10-gauge galvanised self-drilling TEK screws to Class 3 of AS 3566.2.
- **Foam seals and tape** - closed-cell polyethylene foam seals and tape cut to suit the weatherboard profile. The seals are used with internal and external corner mouldings and jamb flashings to create a weather resistant seal.
- **Plastic soaker** - extruded polythene 110 mm wide with 2 mm upstands on each edge.
- **Cavity batten barrier strip (for use with timber cavity battens)** - 50 mm wide medium density polyethylene (MDPE) tape supplied in rolls.

4.2 Accessories used with the Nu-Wall Aluminium Vertical Weatherboard Cavity System, which are supplied by the building contractor, are:

- **Flexible wall underlay** - building paper complying with NZBC Acceptable Solution E2/AS1 Table 23, or breather-type membranes covered by a valid BRANZ Appraisal for use as wall underlays.
- **Flexible wall underlay support** - polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional cavity 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** - 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** - 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 vent strip** - PVC or aluminium, punched with 3-5 mm holes or slots complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3.
- **Thermal break (steel frame)** - expanded polystyrene (EPS) 10 mm thick in accordance with the requirements of NZBC Acceptable Solution E3/AS1, Paragraph 1.1.4 (d).
- **Cavibat cavity battens** - manufactured from extruded polypropylene. The battens are cut after extruding to a finished size of approximately 45 mm wide by 18 mm thick. The battens are coloured green and are supplied in 1200 mm long lengths. Cavibat cavity battens are covered by BRANZ Appraisal No. 524 (2012).
- **Cavibat R cavity battens** - manufactured from 10 mm thick extruded polypropylene with 10 mm thick extruded polystyrene (XPS) adhered to the back face. The battens are cut after extruding to a finished size of approximately 45 mm wide by 20 mm thick. The battens are coloured blue and are supplied in 1200 mm long lengths. Cavibat R cavity battens are covered by BRANZ Appraisal No. 524 (2012).
- **Cavibat and Cavibat R fixings (timber frame)** - 40 x 2.5 mm flat head hot-dip galvanised nails or stainless steel finishing brads used to temporarily fix the battens in place until the cladding is installed.
- **Cavibat and Cavibat R fixings (steel frame)** - 30 or 38 mm hot-dip galvanised finishing brads used to temporarily fix the battens in place until the cladding is installed.
- **Timber cavity battens** - nominal 50 mm wide by 25 mm thick (minimum finished size of 45 mm wide by 18 mm thick) Radiata pine treated to Hazard Class H3.1 in its final shape. The top edge of the cavity batten is to be bevelled with a minimum 15° slope towards the back of the Nu-Wall weatherboard. The front and back face of the batten must be grooved with 20 mm wide x 5 mm deep rebates at 100 mm centres.
- **Timber cavity batten fixings (timber frame)** - 40 x 2.5 mm flat head hot-dipped galvanised nails or 50 x 2.87 mm hot-dipped galvanised gun nails to temporarily fix the battens in place prior to installation of the cladding.
- **Base channel fixings (timber frame)** – 50 x 2.8 mm flat head hot-dipped galvanised nails.
- **Window and door joinery head flashing** - extruded or folded from aluminium to suit the window or door joinery opening.

- **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 penetrations.
- **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.

Handling and Storage

5.1 Handling and storage of all materials supplied by Aluminium Product Brands NZ Limited or the building contractor, whether on site or off site, is under the control of the building contractor. Nu-Wall weatherboards must be stacked flat, off the ground and supported on a level platform. They must be kept dry either by storing under cover or providing waterproof covers to the stack. Care must be taken to avoid damage to powder coated surfaces. Weatherboards must always be carried on edge.

5.2 Other accessories must be stored so they are kept clean, dry and undamaged. All accessories must be used within the maximum storage period recommended by the manufacturer.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Nu-Wall Aluminium Vertical Weatherboard Cavity 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 Nu-Wall Aluminium Vertical Weatherboard Cavity 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 buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. In all cases studs must be at maximum 600 mm centres. Dwangs must be fitted flush between the studs at maximum 600 mm centres for fixing of the weatherboards.

7.3 Timber wall framing and cavity battens must have a maximum moisture content of 24% at the time of cladding application.

7.4 Additional framing will be required at soffits and internal corners for the support and fixing of Nu-Wall weatherboards.

Steel Framing

7.5 Steel framing must be to a specific design meeting the requirements of the NZBC.

7.6 The minimum framing specification is 'C' section studs and dwangs of overall section size of 75 mm web and 32 mm flange. Steel thickness must be minimum 0.55 mm.

7.7 In all cases studs must be at maximum 600 mm centres, with dwangs fitted flush between the studs at maximum 600 mm centres for fixing of the weatherboards.

General

8.1 When the Nu-Wall Aluminium Vertical Weatherboard Cavity System is used for specifically designed buildings up to design differential 2.5 kPa ULS wind pressure, only the weathertightness aspects of the cladding and maximum framing 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 Punchings in the cavity vent strip must provide a minimum ventilation opening area of 1000 mm^2 per lineal metre of wall in accordance with the requirements of 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 deck or low pitch roof/wall junctions, the bottom edge of the Nu-Wall weatherboards 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 the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.

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 Nu-Wall Aluminium Vertical Weatherboard Cavity 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 Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey drained 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).

8.8 Where the Nu-Wall Aluminium Vertical Weatherboard Cavity 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 with the Technical Literature have not been assessed and are outside the scope of this Appraisal.

Structure

9.1 The mass of the Nu-Wall Aluminium Vertical Weatherboard Cavity System when installed on the wall is approximately 6 kg/m^2. The Nu-Wall Aluminium Vertical Weatherboard Cavity System is therefore considered a light wall cladding in terms of NZS 3604.

Impact Resistance

9.2 The Nu-Wall Aluminium Vertical Weatherboard Cavity System has good resistance to hard and soft body impacts 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

9.3 The Nu-Wall Aluminium Vertical Weatherboard Cavity 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 design differential 2.5 kPa ULS wind pressure when the buildings are specifically designed.

Durability

Serviceable Life

10.1 The Nu-Wall Aluminium Vertical Weatherboard Cavity System is expected to have a serviceable life ranging from 15 to 50 years provided the system is maintained in accordance with this Appraisal. Refer to Table 1.

Table 1: Expected Serviceable Life of the Nu-Wall Aluminium Vertical Weatherboard Cavity System

NZS 3604 Exposure Zone	Expected Serviceable Life (years)
Zone B	50
Zone C	25 - 40
Zone D	15

10.2 On exposure to the environment, the powder coating will gradually lose gloss unless the manufacturer's maintenance requirements are met, and coloured coatings will slowly fade. A faster reduction in appearance and a reduction in serviceable life can be anticipated in severe industrial, geothermal, and marine exposures.

10.3 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. The use of the Nu-Wall Aluminium Vertical Weatherboard Cavity System 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.

10.4 The galvanised TEK screws for fixing to steel framing and AliBat battens must only be used in hidden areas within NZS 3604 corrosion zones B and C. The fixing of Nu-Wall Aluminium Cladding Cavity System 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

11.1 Regular maintenance is essential for Nu-Wall Aluminium Vertical Weatherboard Cavity System installations to continue to meet the NZBC durability performance provision and to maximise their serviceable life.

11.2 Annual inspections must be made to ensure that all aspects of the cladding system, including flashings and any joints remain in a weathertight condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Regular cleaning (every 6 months) of the powder coating with water and a mild detergent is required to remove grime, dirt and organic growth, to maximise the life and appearance of the cladding. Repainting of the powder coating may be considered necessary at some stage during the serviceable life of the system in order to restore the appearance of the cladding. Repainting must be carried out in accordance with the paint manufacturer's instructions for treatment of aged powder coated aluminium.

11.3 Minimum ground clearances as set out in this Appraisal must be maintained at all times during the life of the cladding. *(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 Nu-Wall Aluminium Vertical Weatherboard Cavity System.)*

Control of External Fire Spread

Vertical Fire Spread

12.1 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 to 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

12.2 Nu-Wall weatherboards are composed entirely of aluminium and are therefore defined as non-combustible, as per NZBC Acceptable Solution C/AS2 Definitions. When Nu-Wall weatherboards are uncoated or have a directly applied surface finish of no more that 1.0 mm in thickness, they can be used within 1 m of the relevant boundary. This meets the requirements of Paragraph 5.4 of NZBC Acceptable Solution C/AS1 and Paragraph 5.8.2 a) of NZBC Acceptable Solution C/AS2.

12.3 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

13.1 Nu-Wall weatherboards are considered a non-combustible material and need not be separated from heat sources such as fire places, heating appliances, flues and chimneys. However, when used in conjunction with, or attached to heat sensitive materials, the heat sensitive material must be separated from fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

14.1 The Nu-Wall Aluminium Vertical Weatherboard Cavity 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.

14.2 The cavity formed by the weatherboards must be sealed off from the roof and sub-floor space to meet compliance with NZBC Clause E2.3.5.

14.3 The Nu-Wall Aluminium Vertical Weatherboard Cavity 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.

14.4 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.

14.5 The use of the Nu-Wall Aluminium Vertical Weatherboard Cavity System where there is a designed drainage path for moisture that penetrates the cladding, does not reduce the requirement for junctions and penetrations to remain weather resistant.

Internal Moisture

Water Vapour

15.1 The Nu-Wall Aluminium Vertical Weatherboard Cavity System is not a barrier to the passage of water vapour, and when installed in accordance with this Appraisal and the Technical Literature will not create or increase the risk of moisture damage resulting from condensation. Refer to Paragraphs 15.2 and 15.3 for specific requirements for steel framed buildings.

15.2 Where the Nu-Wall Aluminium Vertical Weatherboard Cavity System is installed over a steel frame, Cavibat R cavity battens must be installed over the wall underlay over each steel member. Where timber cavity battens are used, an EPS thermal break must be installed over each steel member behind the wall underlay to provide a thermal break in accordance with the requirements of NZBC Acceptable Solution E3/AS1, Paragraph 1.1.4 (d). The timber cavity batten must then be installed over the wall underlay and EPS thermal break.

15.3 The Nu-Wall Aluminium Vertical Weatherboard Cavity System is installed over the top of the cavity battens in accordance with the Technical Literature and this Appraisal.

Installation Information

Installation Skill Level Requirements

16.1 All design and building work must be carried out in accordance with the Nu-Wall Aluminium Vertical Weatherboard Cavity System Technical Literature and this Appraisal by competent and experienced tradespersons conversant with the Nu-Wall Aluminium Vertical Weatherboard Cavity System. Where the work involves Restricted Building Work (RBW) this must be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant License class.

System Installation

Wall underlay and Flexible Sill and Jamb Tape Installation

17.1 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 Nu-Wall Aluminium Vertical Weatherboard Cavity 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.

Cavity Battens

17.2 Cavity battens must be installed horizontally over the wall underlay to the framing (dwangs) at maximum 600 mm centres. Timber cavity battens over timber framing must be fixed in place with 40 x 2.5 mm flat head hot-dipped galvanised nails or 50 x 2.87 mm hot-dipped galvanised gun nails at maximum 800 mm centres along the batten. Timber cavity battens over steel framing (and thermal break) must be fixed in place with self-drilling 6-gauge Grade 304 stainless steel screws at maximum 800 mm centres along the batten. Cavibat and Cavibat R cavity battens must be fixed in place with 40 x 2.5 mm flat head hot-dipped galvanised nails or stainless steel finishing brads (Cavibat over timber frame), or 30 or 38 mm hot-dip galvanised finishing brads (Cavibat R over steel frame) at maximum 800 mm centres along the batten.

17.3 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 to prevent the underlay bulging into the cavity space when bulk insulation is installed in the wall frame cavity.

Aluminium Joinery Installation

17.4 Aluminium joinery and associated head flashings must be installed by the building contractor in accordance with the Technical Literature. The joinery must be installed plumb and level and a 7.5 - 10 mm nominal gap must be left between the joinery reveal and the wall framing so an air seal with in accordance with Acceptable Solution E2/AS1, Paragraph 9.1.6 can be installed after the joinery has been secured in place.

Nu-Wall Aluminium Weatherboard Installation

17.5 Nu-Wall weatherboards may be cut on site by power saw fitted with an aluminium cutting blade. Holes and cut-outs may be formed by drilling a number of holes around the perimeter of the opening required, or by using a holesaw suitable for cutting aluminium.

17.6 Before the weatherboards and accessories are installed, the cavity batten barrier strip must be stapled to the face of timber cavity battens to isolate the treated batten and the aluminium weatherboard and accessories. *(Note: the cavity batten barrier strip is not required when Cavibat or Cavibat R cavity battens are used.)*

17.7 Establish the lowest point where the cladding is to start and ensure that the vented base channel can extend minimum 50 mm below the bottom plate. The vented base channel should be installed level around the building perimeter and must be fixed through the channel upstand into the bottom plate. A gap must be maintained between each end of the vented base channel and the corner moulds to allow the corner mould to finish flush with the bottom of the channel.

17.8 Fix the base section of the mouldings in place. The corner mouldings must be continuous in length from the underside of the vented base channel to the soffit, top of the wall or inter-storey joint.

17.9 Nu-Wall vertical weatherboards must be installed starting at a corner. Where possible, the full thickness of the weatherboard profile should occur wherever there is a vertical break. The weatherboards must overhang the bottom plate by a minimum of 50 mm.

17.10 When the wall being clad is higher than one storey, an inter-storey drained joint must be installed at the floor joist level.

17.11 Nu-Wall weatherboards are cut to length allowing a 1 mm gap per metre of board for expansion. The first row of weatherboards must be slotted into the vented base channel and must then be secured at the side of the board with universal fixing brackets fixed through the cavity battens to the dwangs at maximum 600 mm centres. Ensure that the fixing bracket engages correctly with the fixing fin of the board and that the board is held firmly with no sideways pressure on it. This should eliminate distortion or cupping of the weatherboard.

17.12 Subsequent rows of weatherboards must be locked into the channel of the board beside it, and must be secured at the side of the board with universal fixing brackets fixed to the dwangs at maximum 600 mm centres.

17.13 Board fixing into timber framing is carried out using 50 mm long, 8-gauge Grade 304 stainless steel screws. Fixing into steel framing is carried out with self-drilling 6-gauge Grade 304 stainless steel screws.

17.14 At the completion of the weatherboard installation, the cover section of all mouldings must be securely fixed in place.

17.15 Window and door joinery flashings must be installed in accordance with the Technical Literature.

Finishing

17.16 The Nu-Wall Aluminium Vertical Weatherboard Cavity System is pre-finished and does not require painting at the completion of installation. Touch up of scratches and the like must be completed in accordance with the instructions of Aluminium Product Brands NZ Limited.

Inspections

17.2 The Technical Literature must be referred to during the inspection of the Nu-Wall Aluminium Vertical Weatherboard Cavity system.

Health and Safety

18.1 Hearing and eye protection must be worn while cutting Nu-Wall weatherboards and accessories.

Basis of Appraisal

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

Tests

- The Nu-Wall Aluminium Weatherboard Cavity System has been tested to E2/VM1. BRANZ expert opinion on NZBC E2 code compliance for the Nu-Wall Aluminium Vertical Weatherboard Cavity System was based on testing of the Nu-Wall Aluminium Weatherboard Cavity System and evaluation of all details within the scope and as stated within this Appraisal. The testing assessed the performance of the foundation detail, window head, jamb and sill details, meter box head, jamb and sill details, board joints, internal and external corners. 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 Acceptable Solution E2/AS1 for drained cavity claddings.
- Uniform wind face load tests to simulate wind pressures on Nu-Wall weatherboard were carried out by BRANZ, and the results were used in assessing the Nu-Wall Aluminium Vertical Weatherboard Cavity System.

Other Investigations

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

20.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.

20.3 The Technical Literature for the Nu-Wall Aluminium Vertical Weatherboard Cavity System has been examined by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of Nu-Wall weatherboards has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

21.2 The quality of materials, components and accessories supplied by Aluminium Product Brands NZ Limited is the responsibility of Aluminium Product Brands NZ Limited.

21.3 Quality of installation on site of components and accessories supplied by Aluminium Product Brands NZ Limited and the building contractor is the responsibility of the installer.

21.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, wall underlay, flashing tapes, airseals, joinery head flashings and cavity battens in accordance with the instructions of Aluminium Product Brands NZ Limited.

21.5 Sub-trades are responsible for installation of penetrations, flashings etc. that are relevant to their trade in accordance with the Nu-Wall Aluminium Vertical Weatherboard Cavity System Technical Literature.

21.6 Building owners are responsible for the maintenance of the Nu-Wall Aluminium Vertical Weatherboard Cavity System in accordance with the instructions of Aluminium Product Brands NZ Limited.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4211: 2008 Specification for performance of windows.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

BRANZ

In the opinion of BRANZ, the Nu-Wall Aluminium Vertical Weatherborad Cavity 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 Aluminium Product Brands NZ 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. Aluminium Product Brands NZ 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 Aluminium Product Brands NZ 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 Aluminium Product Brands NZ Limited or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
15 October 2019