



BRANZ Appraised
Appraisal No. 684 [2017]

**SMARTCLAD™
BEVELBACK
WEATHERBOARD
CAVITY CLADDING
SYSTEM**

Appraisal No. 684 [2017]

This Appraisal replaces BRANZ
Appraisal No. 684 [2010]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 The SmartClad™ Bevelback Weatherboard Cavity Cladding System is a cavity-based external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used. The system utilises the SmartClip™ fixing clip to aid speed of installation.
- 1.2 The system consists of horizontally fixed SmartClad™ Bevelback timber weatherboards installed over timber battens to form the cavity, flashings and accessories and is finished with a 100% premium acrylic house paint.
- 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 frame with a nominal 20 mm drained cavity.

Scope

- 2.1 The SmartClad™ Bevelback Weatherboard Cavity Cladding System has been appraised as an external horizontally fixed wall cladding system for buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - constructed with timber framing complying with the NZBC; 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 SmartClad™ Bevelback Weatherboard Cavity Cladding System has also been appraised for weathertightness and structural wind loading when used as an external horizontally fixed wall cladding system for buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - constructed with timber framing subject to specific engineering design with regards to building height and floor plan area; and,
 - situated in specific design wind pressures up to a maximum design differential ultimate limit state [ULS] of 2.5 kPa.
- 2.3 The SmartClad™ Bevelback Weatherboard Cavity Cladding 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 SmartClad™ Bevelback Weatherboard Cavity Cladding System relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or wind pressure.]*



Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the SmartClad™ Bevelback Weatherboard Cavity 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 SmartClad™ Bevelback Weatherboard Cavity Cladding System meets the requirement for loads arising from self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. See Paragraphs 9.1 – 9.4.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years, B2.3.1 (c) 5 years and B2.3.2. The SmartClad™ Bevelback Weatherboard Cavity Cladding System meets these requirements. See Paragraphs 10.1, 10.3 and 10.4.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The SmartClad™ Bevelback Weatherboard Cavity Cladding System meets this requirement. See Paragraphs 14.1 – 14.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The SmartClad™ Bevelback Weatherboard Cavity Cladding System meets this requirement and will not present a health hazard to people.

Technical Specification

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

SmartClad™ Weatherboards

- The SmartClad™ Bevelback weatherboards are manufactured from New Zealand Radiata pine. They are finger-jointed with a one-pot polyurethane adhesive. The boards are treated to Hazard Class H3.1. The weatherboards are supplied factory coated with one coat of a premium timber primer on the front and back face and top and bottom edges, and are beige in colour.
- The weatherboard profiles are in accordance with BRANZ Bulletin 411. The weatherboards are 18 mm thick and are available 140 mm and 185 mm wide. They are supplied in 6.0 m lengths.
- A 30 mm thick SmartClad™ Starter board is also available in 140 and 185 mm widths. They are supplied in 6.0 m lengths.

SmartClip™ and Fixings

- SmartClip™ - 40 x 10 mm ABS fixing clip.
- SmartClad™ Screws - stainless steel 65 mm x 8 gauge, used in conjunction with the SmartClip™.

Accessories

- SmartClad™ Pre-scribed Scriber - 40 mm wide x 10 mm, or 40 mm wide x 18 mm pre-scribed scribes supplied in 5.4 m lengths.
- SmartClad™ Pre-scribed Facing - 88 mm wide x 34 mm, or 42 mm wide x 34 mm pre-cut facings supplied in 5.4 m lengths.
- SmartClad™ Box Corner [2 piece] - 100/88 mm x 34 mm box corner [2 piece] supplied in 5.4 m lengths.
- SmartClad™ Eaves Moulding - 40 x 27 mm eaves moulding supplied in 5.4 m lengths.
- SmartClad™ Sill - 55 x 42 mm plant-on sill section supplied in 5.4 m lengths.
- SmartClad™ Internal Corner Scriber - 36 x 36 mm corner scriber, supplied in 5.4 m lengths.

Note: All timber accessories are manufactured from finger jointed New Zealand Radiata pine treated to Hazard Class H3.1. The accessories are supplied factory coated with two coats of premium timber primer on the front and back face and top and bottom edges, and are beige in colour.

- Joint Soakers and Corner Soakers - The soakers are available in galvanised steel or stainless steel. They are 150 or 200 mm high, 49 mm wide each side and with an 18.5 mm lip.



4.2 Accessories used with the SmartClad™ Bevelback Weatherboard Cavity Cladding System which are supplied by the building contractor are:

- **Structural cavity battens** – 45 mm wide by 20 mm thick, clear grade, finger-jointed Radiata pine treated to Hazard Class H3.1.
- **Cavity base closure [vermin proofing]** – Aluminium, stainless steel or uPVC punched with 3-5 mm diameter holes or slots complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3.
- **Flashings** – including external corner flashing, internal corner flashing, horizontal inter-storey joint flashing, sill flashing, window and door head flashing, balustrade and parapet saddle flashing and balustrade and parapet cap flashings. The flashings are to be galvanised steel, aluminium or stainless steel. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.
- **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 vertical battens for securing the flexible building 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.
- **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 suitable for use around window, door and other wall penetration openings.
- **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.
- **Eaves Moulding** – 40 x 27 mm clear grade, finger-jointed Radiata Pine treated to Hazard Class H3.1.
- **SmartClad™ structural cavity batten fixings** – 60 x 2.8 mm hot-dip galvanised or stainless steel ring shank jolt head hand driven nails or 65 x 2.87 mm hot-dip galvanised or stainless steel ring shank gun driven nails.
- **SmartClad™ Starter Board fixings or SmartClad™ weatherboard to structural cavity battens** [where SmartClip™ screw fixing is not suitable e.g. top board, gable ends] – 75 x 3.15 mm hot-dip galvanised or stainless steel ring shank jolt head nails.
- **SmartClad™ Box Corner [2 piece], Pre-scribed Facings and SmartClad™ Sill [plant-on] fixings** – 75 x 3.15 mm hot-dip galvanised or stainless steel ring shank jolt head nails.
- **SmartClad™ Pre-scribed Scriber, Internal Corner Scriber and Eaves Moulding fixings** – 60 x 2.8 mm hot-dip galvanised or stainless steel ring shank jolt head nails.

[Note: Hot-dip galvanising must comply with AS/NZS 4680 and stainless steel fixings must be Grade 316.]

Paint System Specification

4.3 Paint systems are not supplied by PurePine Mouldings Limited and have not been assessed by BRANZ and are therefore outside the scope of this Appraisal.

4.4 All exposed faces, including top edges at sills and all bottom edges of SmartClad™ weatherboards and accessories must be finished with sufficient coats of an exterior grade latex acrylic paint complying with any of Parts 7, 8, 9 or 10 of AS 3730 to achieve a minimum wet film thickness of 150 microns.

[Note: For SmartClad™ Bevelback weatherboards, PurePine Mouldings Limited recommends using paint with a colour which has a Light Reflective Value [LRV] of greater than or equal to 45%.]



Handling and Storage

- 5.1 Handling and storage of all materials supplied by PurePine Mouldings Limited or the building contractor, whether on site or off-site, is under the control of the building contractor. SmartClad™ weatherboards must be stacked flat, clear of the ground by a minimum of 150 mm and supported on timber bearers at maximum 900 mm centres. They must be kept dry at all times either by storing within an enclosed building or when stored externally an additional secondary cover to the plastic wrapping is required. Care must be taken to avoid damage to edges, ends and the primed surfaces. Weatherboards must always be carried on edge.
- 5.2 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 SmartClad™ Bevelback Weatherboard Cavity Cladding System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

Framing

Timber Treatment

- 7.1 Timber wall framing behind the SmartClad™ Bevelback Weatherboard Cavity 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 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, except where 185 mm boards are to be used in the Extra High Wind Zone, studs must be at maximum 450 mm centres. Dwargs must be fitted flush between the studs at maximum 800 mm centres. Refer to Paragraphs 17.2 and 17.3 for information relating to the installation of the SmartClad™ structural cavity battens.
- 7.3 In situations where the SmartClip™ cannot be used, such as gable ends, the boards may be conventionally nail fixed. For buildings situated in NZS 3604 Wind Zones up to, and including Extra High, studs must be at maximum 600 mm centres. For timber framed buildings subject to specific design up to a design differential ultimate limit state [ULS] wind pressure of 2.5 kPa, the studs must be at maximum 400 mm centres.
- 7.4 Additional framing may be required at soffits, internal and external corners and window and door openings for the support and fixing of cavity battens and the SmartClad™ Bevelback Weatherboard Cavity Cladding System.
- 7.5 Timber wall framing behind where weatherboards are joined over a cavity batten must be nominal 50 mm thickness [i.e. 45 mm minimum finished thickness].
- 7.6 Timber wall framing and SmartClad™ structural cavity battens must have a maximum moisture content of 20% at the time of the cladding application and a maximum moisture content of 18% before the weatherboards are painted.



General

- 8.1 When the SmartClad™ Bevelback Weatherboard Cavity Cladding System is used for specifically designed buildings up to 2.5 kPa design differential 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 mm² 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 balcony, deck or roof/wall junctions, the bottom edge of the SmartClad™ Bevelback Weatherboard Cavity Cladding System must be kept above the top surface of any adjacent roof flashing by a minimum of 35 mm in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.
- 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 wall 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 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 cavity batten fixing lengths must be increased by a minimum of the thickness of the underlay.
- 8.6 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Some guidance is given within the Technical Literature. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

Inter-storey Junctions

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

Structure

Mass

- 9.1 The mass of the SmartClad™ Bevelback Weatherboard Cavity Cladding System is approximately 15 kg/m² at equilibrium moisture content. The system is therefore considered a lightweight cladding in terms of NZS 3604.

Impact Resistance

- 9.2 The SmartClad™ Bevelback Weatherboard Cavity Cladding System has good resistance to impact loads likely to be encountered in normal residential use. The likelihood of impact damage to the system when used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers should be considered for vulnerable areas.

Wind Zones

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

Durability

- 10.1 The SmartClad™ Bevelback Weatherboard Cavity Cladding System meets the performance requirements of NZBC Clause B2.3.1 (b), 15 years for the SmartClad™ weatherboards and flashings, and the performance requirements of NZBC Clause B2.3.1 (c), 5 years for the exterior paint system.

Serviceable Life

- 10.2 SmartClad™ Bevelback Weatherboard Cavity Cladding System installations are expected to have a serviceable life of at least 50 years provided the system is maintained in accordance with this Appraisal, and the SmartClad™ Bevelback weatherboards and fixings are continuously protected by a weathertight coating and remain dry in service. For the SmartClad™ Bevelback Weatherboard Cavity Cladding System to achieve a serviceable life of 50 years, it must be painted as soon as practicable following weatherboard and trim installation.
- 10.3 Coastal locations can be very corrosive to fasteners, especially locations within distances of up to 500 m from the sea including harbours, or 100 m 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. To achieve a 50 year serviceable life in Zone D, SmartClad™ Bevelback structural battens and SmartClad™ Bevelback weatherboards at scarf joints, and where conventional nail fixing is required, must be fixed with stainless steel or protected hot-dip galvanised steel fasteners. Fasteners outside Zone D may be hot-dip galvanised steel.
- 10.4 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of SmartClad™ Bevelback structural battens and SmartClad™ Bevelback weatherboards at scarf joints, and where conventional nail fixing is required 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 to ensure the performance requirements of the NZBC are continually met and to ensure the maximum serviceability of the system.
- 11.2 Regular cleaning (at least annually) of the paint coating is required to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent. Paint systems must be recoated at approximately 7 – 10 yearly intervals in accordance with the paint manufacturer's instructions.
- 11.3 Annual inspections must be made to ensure that all aspects of the cladding system, including the paint coating system, flashings and any sealed joints remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress must be repaired immediately. Sealant and paint coatings must be repaired in accordance with the relevant manufacturer's instructions.
- 11.4 Minimum ground clearances as set out in this Appraisal and the Technical Literature must be maintained at all times during the life of the system. *[Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of the SmartClad™ Bevelback Weatherboard Cavity Cladding System.]*

Control of External Fire Spread

- 12.1 The SmartClad™ Bevelback Weatherboard Cavity Cladding System is suitable for use on buildings with an SH Risk Group classification, a building height of ≤ 10 m and at a distance of ≥ 1.0 m to the relevant boundary. Refer to NZBC Acceptable Solutions C/AS2 – C/AS6, Paragraph 5.8.1 for the specific exterior surface finishes requirements for other building Risk Groups.

Prevention of Fire Occurring

- 13.1 Separation or protection must be provided to the SmartClad™ Bevelback Weatherboard Cavity Cladding System from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.



External Moisture

- 14.1 The SmartClad™ Bevelback Weatherboard Cavity Cladding System, when installed in accordance with this Appraisal and the Technical Literature will prevent the penetration of moisture that could cause undue dampness or damage to building elements.
- 14.2 The cavity must be sealed off from the roof and sub-floor space to meet code compliance with NZBC Clause E2.3.5.
- 14.3 The SmartClad™ Bevelback Weatherboard Cavity Cladding System allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with Clause E2.3.6.
- 14.4 The details given in the Technical Literature for weather sealing are based on the 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 SmartClad™ Bevelback Weatherboard Cavity Cladding System, where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirements for junctions, penetrations, etc to remain weather resistant.

Internal Moisture

Water Vapour

- 15.1 The SmartClad™ Bevelback Weatherboard Cavity Cladding System is not a barrier to the passage of water vapour, and when installed in accordance with this Appraisal will not create a risk of moisture damage resulting from condensation.

Installation Information

Installation Skill Level Requirements

- 16.1 Installation must always be carried out in accordance with the SmartClad™ Bevelback Weatherboard Cavity Cladding System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.

SmartClad™ 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 SmartClad™ Bevelback Weatherboard Cavity Cladding. 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 wall underlays 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 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.

SmartClad™ Structural Cavity Batten Installation

- 17.2 The SmartClad™ structural cavity battens must be installed over the building underlay to the wall framing at maximum 600 mm centres where the studs are at 600 mm centres, at 450 mm centres where studs are at 450 mm centres, or at 400 mm centres when studs are at 400 mm centres. The cavity battens must be fixed in place with 60 x 2.8 mm hot-dip galvanised or stainless steel ring shank jolt head hand driven nails or 64 x 2.8 mm stainless steel ring shank gun driven nails at 300 mm centres. The nail fixings must be staggered 12 mm either side of the batten centre line. Refer to BRANZ Bulletin Number 582 for further information.
- 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.



SmartClad™ Bevelback Weatherboard Installation

- 17.4 SmartClad™ weatherboards may be cut on site by power or hand saw. Holes and cut-outs may be formed by using a hole saw.
- 17.5 SmartClad™ weatherboards must be dry prior to installation. Before the weatherboards are installed, cut ends must be sealed with two coats of premium timber primer.
- 17.6 Before the weatherboards are installed, the corner detail must be prepared to suit the selected option, i.e. external box corner or mitred corner. The necessary flashings must be installed before commencing weatherboard fixing and the cavity closure must be installed continuously around the bottom of all cavities.
- 17.7 SmartClad™ weatherboards or SmartClad™ Starter Boards must be installed starting at the bottom of the wall. The bottom course of weatherboards or the Starter Boards must overhang the bottom plate by a minimum of 50 mm. A tilting fillet is required if SmartClad™ weatherboards are used for the bottom course.
- 17.8 The weatherboards are fixed at the top with the SmartClip™ fitted into the face groove and screw fixed to the structural cavity batten. The subsequent board clips onto the front face of the SmartClip™ by slotting into the groove at the rear of the board. SmartClad™ weatherboards must be overlapped by a minimum of 30 mm. A SmartClad™ pre-scribed scribe or storey rod should be used to ensure the weatherboards are accurately set out.
- 17.9 Each weatherboard is fixed with a SmartClip™ and screw at every cavity batten. Nail fixing is generally required for the top boards. Where nail fixing is used, the nail must be located 40 mm above the bottom edge of the overlap board and be punched a maximum of 2 mm below the surface of the board. Start fixing the weatherboards at the middle of their length and work outwards to the ends. Pre-drill all nail fixings within 50 mm of the end of the board.
- 17.10 Fix weatherboards in full lengths where possible. Where joints are unavoidable, scarf the weatherboard at 45° over a cavity batten and fix with one nail fixing through the overlapping board. Prime the cut ends of all scarf joints with two coats of premium timber primer before fixing. Alternatively SmartClad™ joint soakers may be used.

Aluminium Joinery Installation

- 17.11 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.
- 17.12 After installing the window and door joinery, SmartClad™ facings, plant-on sills and scribes are installed in accordance with the Technical Literature to provide additional weatherproofing for the joinery/weatherboard junction.

Finishing

- 17.13 The paint coating manufacturer's instructions must be followed at all times for application of the paint finish. SmartClad™ Bevelback weatherboards must be painted as soon as practicable following fixing and must be clean and dry before commencing. If SmartClad™ weatherboards are exposed to the weather for more than 60 days they must be reprimed with one coat of alkyd primer prior to the application of the finishing coats. The recommended drying time between coats and the temperature limitations for application must be followed.

Inspection

- 17.14 The Technical Literature must be referred to during the inspection of SmartClad™ Bevelback Weatherboard Cavity Cladding System installations.

Health and Safety

- 18.1 Cutting of SmartClad™ weatherboards must be carried out in well ventilated areas and eye and hearing protection must be worn.
- 18.2 Safe use and handling procedures for the components that make up the SmartClad™ Bevelback Weatherboard Cavity 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

19.1 The following testing has been completed by BRANZ:

- BRANZ expert opinion on NZBC E2 code compliance for SmartClad™ Bevelback Weatherboard Cavity Cladding System was based on testing and evaluation of all details within the scope and as stated within this Appraisal. The SmartClad™ Bevelback Weatherboard Cavity Cladding System details were tested to E2/VM1. The testing assessed the performance of the foundation detail, window head, jamb and sill details, vertical and horizontal weatherboard 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 cavity-based weatherboard claddings.
- From suction tests in a 2.4 m square pressure box, BRANZ determined design wind suction pressures, and by comparing these pressures with AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber framed walls.

Other Investigations

- 20.1 Structural and durability opinions have been provided by BRANZ technical experts.
- 20.2 The performance and testing of bevelback weatherboard wall cladding products in New Zealand and Australia has been considered, including the structural and weathertightness performance, durability and non-hazardous nature.
- 20.3 Site visits have been carried out by BRANZ to assess the practicability of installation and to examine completed installations.
- 20.4 The Technical Literature for the SmartClad™ Bevelback Weatherboard Cavity Cladding System has been examined by BRANZ and found to be satisfactory.

Quality

- 21.1 The manufacture of SmartClad™ weatherboards and timber accessories 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.
- 21.2 The quality of materials, components and accessories supplied by PurePine Mouldings Limited is the responsibility of PurePine Mouldings Limited. The quality control system for the finger jointing of PurePine Mouldings Limited weatherboards and accessories has been assessed by BRANZ and found to be satisfactory.
- 21.3 The quality control system for the timber treatment of SmartClad™ weatherboards, cavity battens and accessories has been assessed and registered as meeting the requirements of the WOODmark® Quality Assurance Programme for treated timber by the New Zealand Timber Preservation Council Inc., Licence Number 132.
- 21.4 Quality of installation on site of components and accessories supplied by PurePine Mouldings Limited and the building contractor is the responsibility of the installer.
- 21.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, building underlays, flashing tapes, airseals and the SmartClad™ Bevelback Weatherboard Cavity Cladding System in accordance with the instructions of PurePine Mouldings Limited.
- 21.6 Building owners are responsible for the maintenance of the SmartClad™ Bevelback Weatherboard Cavity Cladding System in accordance with the instructions of PurePine Mouldings Limited.



Sources of Information

- AS 3730 Guide to the properties of paints for buildings.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 4534: 2006 Zinc and zinc/aluminium-alloy coatings on steel wire.
- AS/NZS 4680: 2006 Hot-dip galvanized [zinc] coatings on fabricated ferrous articles.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4211: 2008 Specification for performance of windows.
- BRANZ Bulletin Number 411, April 2001, Recommended Timber Cladding Profiles.
- BRANZ Bulletin Number 582, April 2015, Structurally Fixed Cavity Battens.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 (Amendment 7, 01 January 2017).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



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WEATHERBOARD CAVITY
CLADDING SYSTEM



In the opinion of BRANZ, the **Smartclad™ Bevelback Weatherboard Cavity 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 **PurePine Mouldings 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. **PurePine Mouldings 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 **PurePine Mouldings 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 **PurePine Mouldings Limited** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

16 June 2017