



BRANZ Appraised

Appraisal No.537 [2007]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 537 (2007)**

Amended 2 September 2013

**JENKIN A-LIGN®
BEVELBACK
WEATHERBOARD
CAVITY CLADDING
SOLUTION**

Jenkin Timber Limited
PO Box 21702
Henderson
Auckland

Tel: 09 836 8450
Fax: 09 836 8453



BRANZ
BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz



Product

1.1 The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution is a cavity-based external wall cladding solution for residential and light commercial type buildings where domestic construction techniques are used.

1.2 The solution consists of horizontally fixed Jenkin A-lign® bevelback timber weatherboards, Jenkin A-lign® timber cavity battens, flashings and accessories and is finished with two coats of 100% premium acrylic house paint.

1.3 The solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution has been appraised as an external horizontally fixed wall cladding solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution has also been appraised for weathertightness and structural wind loading when used as an external horizontally fixed wall cladding solution 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,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.

2.3 The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution, 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 – 9.3.

Clause B2 DURABILITY: Performance B2.3.1(b), 15 years, B2.3.1 (c) 5 years and B2.3.2. The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution meets these requirements. See Paragraphs 10.1 and 10.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution meets this requirement. See Paragraphs 14.1 -14.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution meets this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an Alternative Solution in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Solution components and accessories supplied by Jenkin Timber Limited are as follows:

Jenkin A-lign® Weatherboards

- The Jenkin A-lign® bevelback weatherboards are manufactured from New Zealand Radiata pine. They are finger-jointed in accordance with the requirements of AS/NZS 1491 and treated to Hazard Class H3.1. The weatherboards are supplied factory coated with a two coat system of a premium timber primer and undercoat 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 142 mm and 187 mm wide. They are supplied in 6.1 m and 7.2 m lengths.
- A 25 mm thick A-lign® base weatherboard is also available in 142 and 187 mm widths. They are supplied in 6.1 m lengths.

Cavity Battens

- Jenkin A-lign® structural cavity battens – 45 mm wide by 19 mm thick, clear grade, finger jointed Radiata pine treated to Hazard Class H3.1.

Accessories

- Jenkin A-lign® boxed corners – 102 x 102 x 18 mm pre-made boxed corners supplied in 5.4 m lengths.
- Jenkin A-lign® scribes – 18 mm and 36 mm wide pre-cut scribes with arised edges supplied in 5.4 m lengths.
- Jenkin A-lign® facing boards – 18 mm thick boards in widths of 42, 66, 90, 116, 138 and 185 mm. The facing boards are supplied in 5.4 m lengths.
- Jenkin A-lign® tilting fillet – 42 mm wide fillet for supporting the bottom edge of unsupported Jenkin A-lign® bevelback weatherboards, supplied in 5.4 m lengths.

- Jenkin A-lign® weatherhead capping – 42 x 30 mm, supplied in 5.4 m lengths.
- Jenkin A-lign® bevelled soffit mould – 42 x 18 mm, supplied in 5.4 m lengths.
- Jenkin A-lign® planted sill – 42 x 30 mm, 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.

4.2 Accessories used with the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution are:

- Flashings supplied by Quickflash – 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 available in galvanised steel, aluminium or stainless steel and are supplied in 3.0 m lengths. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.
- Corner soakers – standard bevelback 90° corner soakers are available for 142 and 187 mm wide A-lign® weatherboards. The soakers are available in galvanised steel, aluminium or stainless steel.
- Cavity vent strip supplied by Quickflash – galvanised steel, aluminium or stainless steel, punched with 5 mm diameter holes or slots complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3. Available in 3.0 m lengths.
- A-Lign® End Seal - a solvent based zinc naphthenate treatment for the cut-ends of A-lign® weatherboards and accessories. A-lign® End Seal is supplied in aerosol spray cans.

4.3 Accessories used with the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 building 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.
- Aluminium joinery head flashings – as supplied by the joinery manufacturer or contractor.
- 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.

- Jenkin A-lign® structural cavity batten fixings – 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.
- Jenkin A-lign® bevelback weatherboard fixings (to structural battens) – 75 x 3.15 mm hot-dip galvanised or stainless steel ring shank jolt head nails.
- Jenkin A-lign® boxed corner fixings - 50 x 2.8 mm hot-dip galvanised or stainless steel ring shank jolt head nails.
- Jenkin A-lign® scribe 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

4.4 Paint systems are not supplied by Jenkin Timber Limited and have not been assessed by BRANZ and are therefore outside the scope of this Appraisal.

4.5 All exposed faces, including top edges at sills and all bottom edges of Jenkin A-lign® weatherboards and accessories must be finished with at least two coats of an exterior grade latex acrylic paint complying with any of Parts 7, 8, 9 or 10 of AS 3730.

(Note: For Jenkin A-lign® bevelback weatherboards, Jenkin Timber 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 Jenkin Timber Limited or the building contractor, whether on site or off-site, is under the control of the building contractor. Jenkin A-lign® 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution. 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 800 mm centres. Refer to Paragraphs 17.2 and 17.3 for information relating to the installation of the Jenkin A-lign® structural cavity battens.

7.3 Additional framing may be required at soffits, internal and external corners and window and door openings for the support and fixing cavity battens and the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution.

7.4 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).

7.5 Timber wall framing and Jenkin A-lign® structural cavity battens must have a maximum moisture content of 20% at the time of the cladding application.

7.6 Timber wall framing and Jenkin A-lign® structural cavity battens must have a maximum moisture content of 18% before the weatherboards are painted.

General

8.1 When the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 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 cavity batten fixing lengths must be increased by a minimum of the thickness of the underlay.

8.6 Where cladding penetrations are wider than the cavity batten spacing, allowance must be made for airflow between adjacent cavities by leaving a minimum gap of 10 mm between the bottom of the cavity and the flashing to the opening.

8.7 Where the solution abuts other cladding solutions, 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

8.8 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).

Structure

Mass

9.1 The mass of the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution is approximately 15 kg/m² at equilibrium moisture content. The solution is therefore considered a lightweight cladding in terms of NZS 3604.

Impact Resistance

9.2 The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution has good resistance to impact loads likely to be encountered in normal residential use. The likelihood of impact damage to the solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution is suitable for use in all Building 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution meets the performance requirements of NZBC Clause B2.3.1 (b), 15 years for the Jenkin A-lign® 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution installations are expected to have a serviceable life of at least 50 years provided the solution is maintained in accordance with this Appraisal, and the Jenkin A-lign® weatherboards and fixings are continuously protected by a weathertight coating and remain dry in service. For the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 metres from tidal estuaries and sheltered inlets, and otherwise as shown in NZS 3604 Figure 4.2. These coastal locations are defined in NZS 3604 as Zone D. To achieve a 50 year serviceable life in Zone D, Jenkin A-lign® weatherboards must be fixed with stainless 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 Jenkin A-lign® cavity battens and weatherboards 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 solution.

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 solution, including the paint coating solution, 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 solution. *(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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution.)*

Control of External Fire Spread

12.1 The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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.

(Note: The scope of this Appraisal limits building heights to 10 m in accordance with the limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1(a). The building heights referenced in Paragraph 12.1 above are as defined in the Definitions Sections of NZBC Clauses C1 - C6 Protection from Fire.)

Prevention of Fire Occurring

13.1 Separation or protection must be provided to the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution, 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution, 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 and finishing of the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution must be completed by competent, experienced tradespersons with an understanding of cavity installation and bevelback weatherboard installation, in accordance with instructions given within the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution Technical Literature and this Appraisal.

Jenkin A-lign® Solution Installation

Building Underlay and Flexible Sill and Jamb Tape Installation

17.1 The selected building 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution. 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. 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 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.

Jenkin A-lign® Structural Cavity Batten Installation

17.2 The Jenkin A-lign® structural cavity battens must be installed over the building wrap to the wall framing at maximum 600 mm centres where the studs are at 600 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 475 for further information.

17.3 Where studs are at greater than 450 mm centres and a flexible wall underlay is being used, a building underlay support must be installed over the underlay at maximum 300 mm centres horizontally.

Jenkin A-lign® Bevelback Weatherboard Installation

17.4 Jenkin A-lign® 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 Jenkin A-lign® weatherboards must be dry prior to installation. Before the weatherboards are installed, cut ends must be sealed with A-lign® End Seal.

17.6 Jenkin A-lign® weatherboards must be installed starting at the bottom of the wall. A Jenkin A-lign® tilting fillet must be fixed behind the first course of weatherboards to ensure that the weatherboards are set at the correct angle. The tilting fillet must be continuous around the perimeter of the building. The bottom course of weatherboards must overhang the bottom plate by a minimum of 50 mm. The tilting fillet is not required when the 25 mm thick base weatherboard is used.

17.7 Before the weatherboards are installed, the corner detail must be prepared to suit the selected option, e.g. external box corner, corner soaker. The necessary flashings must be installed before commencing weatherboard fixing and the Quickflash cavity closure must be installed continuously around the bottom of all cavities.

17.8 Jenkin A-lign® weatherboards must be overlapped a minimum of 32 mm. A Jenkin A-lign® pre-cut scribe or storey rod must be used to ensure the weatherboards are accurately set out.

17.9 Fix each weatherboard with one nail per board at every cavity batten. Fixing must be carried out using 75 x 3.15 mm hot-dip galvanised or stainless steel ring shank jolt head nails depending on the location – see Paragraph 10.3. The fixing must be located 10 mm above the line of the weatherboard lap, be located no closer than 32 mm from the end of the 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 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 fixing through the overlapping board.

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, Jenkin A-lign® facing boards, planted sills and scribes may be installed in accordance with the Technical Literature to provide additional weatherproofing for the joinery/weatherboard junction.

Finishing

17.13 To prevent swelling of the weatherboard around the punched fixing, the fixing must be filled immediately, or alternatively the weatherboard and the head of the fixing must be primed with a premium timber primer.

17.14 The paint coating manufacturer's instructions must be followed at all times for application of the paint finish. Jenkin A-lign® bevelback weatherboards must be painted as soon as practicable following fixing and must be clean and dry before commencing. If Jenkin A-lign® weatherboards are exposed to the weather for more than 4 months they must be reprimed with one coat of alkyd primer prior to the application of the finishing coats. Allow the recommended drying time between coats and follow the temperature limitations for application.

Inspection

17.15 The Technical Literature must be referred to during the inspection of Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution installations.

Health and Safety

18.1 Cutting of Jenkin A-lign® 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution was based on testing and evaluation of all details within the scope and as stated within this Appraisal. The Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution details were tested to E2/VM1 (as contained within NZBC Clause E2, Amendment 4). The testing was completed in three stages; the first being the standard AS/NZS 4284 test, the second being the modified AS/NZS 4284 test with defects introduced in the test panel, and the third being the modified AS/NZS 4284 test with the internal linings and building wrap removed. 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 solution will meet the performance levels of Acceptable Solution E2/AS1 for cavity-based weatherboard claddings.
- Fastener pull through testing. 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 Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution has been examined by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of Jenkin A-lign® weatherboards 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 Jenkin Timber Limited is the responsibility of Jenkin Timber Limited. The quality control system for the finger jointing of Jenkin A-lign® weatherboards and accessories has been assessed and registered as meeting the requirements of AS 5069.

21.3 The quality control system for the timber treatment of Jenkin A-lign® weatherboards, cavity battens and accessories has been assessed and registered as meeting the requirements of a timber treatment quality assurance programme.

21.4 Quality of installation on site of components and accessories supplied by Jenkin Timber 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 solutions and joinery, building wraps, flashing tapes, airseals and the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution in accordance with the instructions of Jenkin Timber Limited.

21.6 Building owners are responsible for the maintenance of the Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution in accordance with the instructions of Jenkin Timber Limited.

Sources of Information

- AS 3730 Guide to the properties of paints for buildings.
- AS 5069: 2006 Timber – Finger jointing in non-structural products – Product requirements.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 1491:1996 Finger jointed structural timber.
- AS/NZS 4284:1995 Testing of building facades.
- 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 3602:2003 Timber and wood-based products for use in building.
- 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 475, August 2006, Structurally Fixed Cavity Battens.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 5, 1 August 2011).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

Amendment No. 1, dated 26 June 2009.

The Appraisal has been amended to update the scope to include weathertightness and structural wind loading when the solution is used on timber framed buildings subject to specific design up to a design differential ULS wind pressure of 2.5 kPa. A-lign® End Seal has also been included for the treatment of weatherboard cut ends and references to NZS 4203 have been replaced with AS/NZS 1170.

Amendment No. 2, dated 31 January 2012.

This Appraisal has been amended to update clause changes as required by the introduction of NZS 3604: 2011 and NZBC Acceptable Solution E2/AS1 Third Edition, Amendment 5.

Amendment No. 3, dated 2 September 2013.

This Appraisal has been amended to update clause changes as required by the introduction of NZBC Fire Clauses C1 – C6 Protection from Fire and A3 Building Importance Levels.



BRANZ

In the opinion of BRANZ, **Jenkin A-lign® Bevelback Weatherboard Cavity Cladding Solution** 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 **Jenkin Timber 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. **Jenkin Timber 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.
3. 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.
4. 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 **Jenkin Timber Limited**.
5. 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.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to **Jenkin Timber Limited** or any third party.

For BRANZ

P Robertson
Chief Executive

Date of issue: 17 September 2007