



BRANZ Appraised
Appraisal No.765 [2011]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 765 (2011)**

**SHADOWCLAD®
DIRECT FIXED
CLADDING SYSTEM**

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Product

1.1 Shadowclad® Direct Fixed is an external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 The system consists of vertically fixed Shadowclad® plywood, flashings and accessories.

1.3 The system is applied direct to the external wall framing over a building underlay and is finished with either an acrylic paint system, penetrating, or film forming stain.



Scope

2.1 Shadowclad® Direct Fixed has been appraised as an external vertically fixed wall cladding 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 0-6, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including 'Very High'.

2.2 Shadowclad® Direct Fixed is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. (*The Appraisal of Shadowclad® Direct Fixed relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone.*)

2.3 Shadowclad® Direct Fixed has also been appraised for use as wall bracing systems for timber framed buildings within the scope of NZS 3604.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Shadowclad® Direct Fixed, 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. Shadowclad® Direct Fixed meets the requirement for loads arising from self-weight, earthquake, wind, impact and creep [i.e. B1.3.3 (a), (f), (h), (j) and (q)]. See Paragraphs 9.1 – 9.4.

Clause B2 DURABILITY: Performance B2.3.1(a), not less than 50 years, B2.3.1(b), 15 years, B2.3.1(c) 5 years and B2.3.2. Shadowclad® Direct Fixed meets these requirements. See Paragraphs 10.1 – 10.7.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Shadowclad® Direct Fixed meets this requirement. See Paragraphs 14.1 - 14.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Shadowclad® Direct Fixed 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.

3.3 Shadowclad® Direct Fixed is used to satisfy the bracing demand requirements of Section 5 of NZS 3604 which is an NZBC Compliance Document.

Technical Specification

4.1 Shadowclad® Direct Fixed components and accessories supplied by Carter Holt Harvey Woodproducts New Zealand are as follows:

Shadowclad® Sheets

- Shadowclad® sheets are nominal 12 mm thick structural plywood sheets manufactured from New Zealand pinus radiata veneers. They are 1216 mm wide and either 2440 mm or 2745 mm long. They have a textured surface finish on the exposed face.
- Shadowclad® sheets are available as either Shadowclad® Natural or Shadowclad® Prime finish. Shadowclad® Natural is an uncoated panel for use with penetrating stains, film forming stains and paints. Shadowclad® Prime has a factory applied powder coat exterior primer for use with paints and film forming stain topcoats. Shadowclad® Prime is not suitable for use with penetrating stains.
- Shadowclad® Natural and Shadowclad® Prime are both available as Texture and Texture Groove surface finish. Texture Groove has 9 mm wide by 5 mm deep grooves at 150 mm centres running vertically down the outside face of the sheet.
- Shadowclad® sheets are available as Hazard Class H3.1 treated or Hazard Class H3.2 CCA treated. *(Note: H3.2 CCA treatment is available for Shadowclad® Prime finished products only.)*

Accessories

- Shadowclad® flashings: horizontal 'Z' flashing, inter-storey 'Z' flashing, internal 90° angle, internal 'W' angle, large internal 'W' angle, external box angle, large external box angle and flat flashing for vertical negative detail. Shadowclad® flashings are manufactured from extruded aluminium.
- Exterior Battens: 65 mm wide x 18 mm thick timber batten, dressed or bandsawn, treated to Hazard Class H3.1.

4.2 Accessories used with Shadowclad® Direct Fixed which are supplied by the building contractor are:

- Shadowclad® sheet fixings: 50 x 2.8 mm hot dip galvanised or ring shank stainless steel flat head nails, 60 x 3.15 mm ring shanked stainless steel nails, 8 gauge x 40 mm AS 3566 Corrosion Class 4 mechanically zinc plated wood screws or 8 gauge x 40 mm stainless steel wood screws. *(Note: Stainless steel fixings must be Grade 316 and hot-dip galvanising must comply with AS/NZS 4680.)*
- Flexible wall underlay: building paper or wrap complying with NZBC Acceptable Solution E2/AS1 Table 23, or breather-type membranes covered by a valid BRANZ Appraisal for use as wall underlay.
- Flexible 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.
- Joinery head flashings - folded from aluminium or galvanised steel to suit the window or door trim opening. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.
- 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.
- Bracing panel end stud connection: GIB® HandiBrac™ galvanised steel 90 x 62 x 54 x 1.55 mm thick angle bracket, GIB® HandiBrac™ 50 x 60 x 5 mm thick electroplated washer and GIB® HandiBrac™ fixings, 8 Type 17 screws 5 x 35 mm.
- Timber floor end stud hold down: 12 mm x 150 mm hot-dipped galvanised coach screws.
- Concrete floor end stud hold down: cast-in bolts M12 x 150 mm minimum or proprietary fixings with a minimum characteristic strength of 15 kN.

Finishing System Specification

4.3 Paint and stain systems are not supplied by Carter Holt Harvey Woodproducts New Zealand 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 Shadowclad® sheets must be finished with a latex exterior paint system complying with any of Parts 7, 8, 9, or 10 of AS 3730, or at least two coats of a film forming or penetrating stain to protect the Shadowclad® and give the desired finish colour to the exterior walls.

(Note: For Shadowclad®, Carter Holt Harvey Woodproducts New Zealand recommends using paints and stains with a Light Reflective Value (LRV) of greater than or equal to 40%.)

Handling and Storage

5.1 Handling and storage of all materials supplied by Carter Holt Harvey Woodproducts New Zealand or the building contractor, whether on site or off-site, is under the control of the building contractor. Shadowclad® sheets must be stacked flat, clear of the ground on at least three evenly spaced timber bearers. They must be kept dry at all times either by storing within an enclosed building or under cover when stored externally. Care must be taken to avoid damage to edges, ends and the primed surfaces.

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 Shadowclad Direct Fixed. 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.

Framing

Timber Treatment

7.1 Timber wall framing behind Shadowclad Direct Fixed 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. Dwargs must be fitted flush between the studs at maximum 800 mm centres.

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 Shadowclad® Direct Fixed.

7.4 Timber wall framing must be positioned to allow a 6 mm capillary gap behind Shadowclad® sheets where they overlap the edge of the concrete floor, brick veneer or lower storey cladding.

7.5 Timber wall framing must have a maximum moisture content of 20% at the time of the cladding application. *(Note: If Shadowclad® is fixed to framing with a moisture content of greater than 20% problems may occur at a later date due to excessive timber shrinkage.)*

General

8.1 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 Shadowclad® 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.

8.2 At deck or roof/wall junctions, the bottom edge of Shadowclad® Direct Fixed 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.

8.3 All buildings must have barriers to airflow in the form of interior linings with all joints stopped, or alternatively, 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. Where a rigid underlay is used, the Shadowclad® fastener lengths must be increased by at least the thickness of the underlay to ensure the required fastener pull out strengths are achieved.

8.4 Where Shadowclad® Direct Fixed abuts other cladding solutions, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

Structure

Mass

9.1 The mass of Shadowclad® Direct Fixed is approximately 6.6 kg/m² at equilibrium moisture content. The system is therefore considered a lightweight cladding in terms of NZS 3604.

Impact Resistance

9.2 Shadowclad® Direct Fixed has good resistance to impact loads likely to be encountered in normal residential use. The likelihood of impact damage to Shadowclad® 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 Shadowclad® Direct Fixed is suitable for use in Wind Zones of NZS 3604, up to and including 'Very High'.

Bracing

9.4 When used in accordance with this Appraisal and the Technical Literature, Shadowclad® Direct Fixed can be used to meet the wall bracing element requirements of NZS 3604, for timber framed buildings not requiring specific design. The Technical Literature contains details of the construction of the bracing system and the bracing unit ratings achieved for this system. The bracing ratings are also given within Table 1. 60 x 3.15 mm ring-shanked stainless steel nails must be used when Shadowclad® Direct Fixed is used as bracing.

Table 1: Bracing Ratings for Shadowclad® Direct Fixed

Specification No.	Minimum Wall Length	Lining Requirements	BU's/m Wind	BU's/m EQ
SC1	0.6 m	Shadowclad® one side	105	120

Durability

10.1 Shadowclad® Direct Fixed meets the performance requirements of NZBC Clause B2.3.1 (a), not less than 50 years when the system is used as a bracing system, the performance requirements of NZBC Clause B2.3.1 (b), 15 years for the Shadowclad® and flashings when used as a non-structural cladding and the performance requirements of NZBC Clause B2.3.1 (c), 5 years for the exterior paint system where used.

10.2 Shadowclad® Direct Fixed must installed with stainless steel nails when used as a bracing element.

Serviceable Life

10.3 For Shadowclad® Direct Fixed installations to achieve a serviceable life of 50 years, Shadowclad® Prime must be used, and they must be finished with two top coats of 100% acrylic paint with a light reflectance value (LRV) of 40% or greater and be maintained in accordance with this Appraisal to ensure the Shadowclad® sheets and fixings remain dry in service. Shadowclad® Direct Fixed must be painted as soon as practicable following installation.

10.4 Shadowclad® Direct Fixed installations finished with penetrating stain or non-penetrating film forming stain are expected to have a serviceable life of at least 15 years provided they are maintained in accordance with this Appraisal. *(Note: This opinion only covers serviceability with regards to structural and weathertightness performance. It does not cover appearance, which may deteriorate significantly, especially when proper and regular maintenance is not carried out.)*

10.5 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, Shadowclad® sheets must be fixed with stainless steel fasteners.

10.6 When using CCA treated Shadowclad® aluminium extrusions must be coated in accordance with the requirements of NZBC E2/AS1 Table 20, and are not suitable for use in NZS 3604 Corrosion Zone D. When used with CCA treated Shadowclad®, horizontal Z-flashings must be manufactured from stainless steel in all Corrosion Zones.

10.7 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert a mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of Shadowclad® sheets 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 sheet 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. Penetrating and non-penetrating stains must be recoated every 2 – 3 years in accordance with the stain manufacturer's instructions.

11.3 Annual inspections must be made to ensure that all aspects of the cladding, including the selected finishing 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. *(Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of Shadowclad® Direct Fixed installations.)*

Control of External Fire Spread

12.1 Shadowclad® Direct Fixed is considered to meet the performance provisions of NZBC C3.3.5 for use as an external wall cladding system when restricted to:

- Single storey buildings 1 m or more from the boundary for all purpose groups.
- Buildings up to 7 m high, 1 m or more from the boundary, for all purpose groups other than SC and SD.
- Fully sprinklered buildings up to 10 m high, 1 m or more from the boundary for all purpose groups other than SC, SD, SA and SR.
- Buildings containing purpose group SH, with a building height less than 10 m and located 1 m or more from the boundary.

(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 Section of the Fire Safety Clauses of the NZBC.)

Outbreak of Fire

13.1 Shadowclad® Direct Fixed must be separated from chimneys and flues in accordance with the requirements of Acceptable Solution C/AS1 Part 9, for the protection of combustible materials.

External Moisture

14.1 Shadowclad® Direct Fixed, 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 Shadowclad® Direct Fixed 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.

14.3 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.

Internal Moisture

15.1 Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

Water Vapour

15.2 Shadowclad® Direct Fixed 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 Shadowclad® Direct Fixed must be completed by competent, experienced tradespersons with an understanding of plywood installation, in accordance with instructions given within the Shadowclad® Technical Literature and this Appraisal.

Shadowclad® Direct Fixed 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 Shadowclad® Direct Fixed. Building wrap must be installed horizontally and be continuous around corners. The underlay must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. 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.

Shadowclad® Installation

17.2 Shadowclad® sheets may be cut on site by power or hand saw. Holes and cut-outs may be formed by using a hole saw.

17.3 Shadowclad® sheets must be dry prior to installation. Before the sheets are installed, cut edges must be sealed with a brush on timber preservative. The bottom edges and back of the Shadowclad® sheets to a height of 150 mm must be primed or stain coated at ground level and where the sheets are installed above apron flashings on roofs.

17.4 Shadowclad® sheets must be installed starting at the bottom of the wall. The bottom of the Shadowclad® sheets must overhang the bottom plate by a minimum of 50 mm.

17.5 Before the Shadowclad® sheets are installed, the corner detail must be prepared to suit the selected option, i.e. external box angle or boxed corner. The necessary flashings must be installed before commencing sheet fixing.

17.6 The Shadowclad® sheets are fixed with 50 x 2.8 mm hot dip galvanised or ring shanked stainless steel flat head nails, or 8 gauge x 40 mm mechanically zinc plated or stainless steel wood screws at 150 mm centres around the edge of the sheets starting at the corners, and at 300 mm centres in the body of the sheet. The fasteners must be no closer than 7 mm to the sheet edges, and on the rebated edge the fasteners must be inside the weather groove.

Aluminium Joinery Installation

17.7 Aluminium window and door 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.

Finishing

17.8 The coating manufacturer's instructions must be followed at all times for application of the paint or stain finish. Shadowclad® sheets must be painted or stained as soon as practicable following fixing and must be clean and dry before commencing. If Shadowclad® sheets are exposed to the weather for more than 3 months, the surfaces must be washed with a mild detergent solution to remove any dirt, dust, mould or sea spray prior to coating. Allow the recommended drying time between coats and follow the temperature limitations for application.

17.9 Coatings should be applied by brush to ensure adequate coating film build is achieved. Application via roller or spray is not recommended.

Inspection

17.10 The Technical Literature must be referred to during the inspection of Shadowclad® Direct Fixed installations.

Health and Safety

18.1 Cutting of Shadowclad® sheets 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 Shadowclad® Direct Fixed 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 Shadowclad® Direct Fixed was based on evaluation of all details within the scope and as stated within this Appraisal. 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 direct fixed plywood claddings.
 - Wind face load and fastener slip testing for Shadowclad® Direct Fixed. BRANZ determined design wind suction pressures, and by comparing these pressures with the NZS 3604 design wind speeds and AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber framed walls.
 - P21 testing of Shadowclad® Direct Fixed was carried out by BRANZ and expert opinion given to confirm the wall bracing ratings given in the Technical Literature.

Other Investigations

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

20.2 The performance and testing of plywood wall cladding products in New Zealand and Australia have 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 Shadowclad® Direct Fixed has been examined by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of Shadowclad® 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 Carter Holt Harvey Woodproducts New Zealand is the responsibility of Carter Holt Harvey Woodproducts New Zealand. The quality control system for the manufacture of Shadowclad® has been assessed and registered as meeting the requirements of AS/NZS 2269 by the Engineered Wood Products Association of Australasia, Certificate No. 911 and ISO 9001 by TELARC, Certificate No. 130.

21.3 The quality control system for the timber treatment of Shadowclad® has been assessed and registered as meeting the requirements of the AsureQuality Timber Treatment Programme for treated timber by the New Zealand Timber Preservation Council Inc., Licence Number 46 for H3.2 CCA treatment by Carter Holt Harvey and Licence Number 500 for H3.1 LOSP treatment by North Sawn Lumber Ltd.

21.4 Quality of installation on site of components and accessories supplied by Carter Holt Harvey Woodproducts New Zealand 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 Shadowclad® sheets in accordance with the instructions of Carter Holt Harvey Woodproducts New Zealand.

21.6 Building owners are responsible for the maintenance of Shadowclad® Direct Fixed in accordance with the instructions of Carter Holt Harvey Woodproducts New Zealand.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269 Plywood – Structural.
- 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.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (including Amendment 5, 1 August 2011).
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.



BRANZ

In the opinion of BRANZ, Shadowclad® Direct Fixed 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 Carter Holt Harvey Woodproducts New Zealand, 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. [Carter Holt Harvey Woodproducts New Zealand](#):
 - 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 [Carter Holt Harvey Woodproducts New Zealand](#).
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 [Carter Holt Harvey Woodproducts New Zealand](#) or any third party.

For BRANZ

P Burghout
Chief Executive

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