



# BEAL Appraisal Certificate



APPRAISAL #: C2150

EXPIRY DATE: 30 June 2024

## The VERDUS Thermally Modified Timber Weatherboard Systems



### Product

1.1 The VERDUS Thermally Modified Timber Weatherboard Systems, are a range of weatherboard claddings that include:

- ⇒ A Shiplap option - either vertical or horizontal - including a new Verdus VX20 Vertical Shiplap profile;
- ⇒ A Bevelback option;

1.2 The VERDUS Thermally Modified Timber Weatherboard Systems are intended to be installed over either timber framing complying with NZS3604, or Light Gauge Steel framing complying with NAS Standard 1.

1.3 The VERDUS Thermally Modified Timber Weatherboard Systems are to be installed under the supervision of an experienced and competent Licensed Building Practitioner in accordance with the manufacturer's instructions.

### NZ Building Regulations

2.1 In the opinion of BEAL, the VERDUS Thermally Modified Timber Weatherboard Systems, when designed, installed and maintained in accordance with the statements and conditions of this Appraisal Certificate, will meet the following provisions of the New Zealand Building Code:

#### Clause B1 STRUCTURE

B1.3.3 (h) – Resistance to wind - there is in-service history to verify the ability of the installed product to resist the forces associated with wind (positive & negative), on buildings up to 10 m in height, demonstrating compliance with clause B1.3.3(h) (Refer para 6.3)

#### Clause B2 DURABILITY

Performance B2.3.1 (b) 15 years for new or repair work. The VERDUS Thermally Modified Timber Weatherboard Systems will meet this requirement. (Refer para 6.4)

The specified iOKA exterior oil will comply with performance clause B2.3.1(c) provided the manufacturer's instructions are followed.

#### Clause E2 EXTERNAL MOISTURE

The thermally modified timber weatherboards, designed to act as rainscreens, are in accordance with Acceptable Solution E2/AS1, and together with local in-service history of like products, show that when correctly installed, the product will resist the ingress of moisture.

#### Clause F2 Hazardous Materials

The absence of chemical materials used in the product, is evidence of compliance.

2.2 The VERDUS Thermally Modified Timber Weatherboard Systems has been appraised as an 'Alternative Solution' in terms of compliance with the New Zealand Building Code.

Applicant:



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## Scope and Limitations

3.1 The VERDUS Thermally Modified Timber Weatherboard Systems are subject to the following scope of use or limitations:

- ⇒ Used in an external environment above ground, with a (seismic) locality factor ( Z ) of up to 0.42 (Upper Hutt), in a temperate climate, with wind zones up to and including 55m/sec (Extra High);
- ⇒ The design height of residential buildings shall be up to and including 10m from the finished ground level with timber framing constructed as per NZS 3604;
- ⇒ The systems are for use over timber framing incorporating a 'frame protection system' and non-structural cavity battens;
- ⇒ The systems are limited to use for residential housing including Class 1 and Class 2 type construction, i.e. stand-alone houses and multi-apartment dwellings, up to three stories high;
- ⇒ The systems shall be installed in accordance with the approved technical and quality plan literature provided by Verdus NZ Limited, available from their web site [www.verdus.nz](http://www.verdus.nz);
- ⇒ The systems shall be installed over a compliant 'frame protection system' (see separate explanatory document available from the BEAL website).

3.2 The owner of the building is responsible for the proper maintenance of the installed VERDUS Thermally Modified Weatherboards as set out in the VERDUS technical literature and maintenance advice document that is provided by VERDUS NZ Ltd. to the owner along with the product Warranty.

## Technical Literature

4.1 The VERDUS Thermally Modified Timber Weatherboard Systems Installation Manual **Ver 1.0** must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained within the Technical Literature and scope of this Appraisal Certificate must be followed.

4.2 iOKA oxygen cleaner instructions

4.5 iOKA Exterior Oils Specification & Maintenance Guide

4.6 iOKA Exterior Oils MSD sheet

4.7 For a copy of this technical literature please contact Verdus NZ Limited. [www.verdus.nz](http://www.verdus.nz)

## Technical Details

5.1 The VERDUS product is derived from thermally modified Norwegian Spruce which can be installed over a properly designed timber or light gauge steel frame compliant with the New Zealand Building Code, protected by either a flexible frame protection system or a weatherproof Rigid Air Barrier.

5.2 Components of the weatherboard systems include:

- VERDUS NZ Ltd. V21 Interlocking Vertical Shiplap with 113mm cover (135 in width), 21 mm thickness
- VERDUS NZ Ltd. 180mm x 21mm VERDUS Facia
- VERDUS NZ Ltd. 45mm x 21mm VERDUS Batten
- VERDUS NZ Ltd. 65mm x 21mm VERDUS Batten

- VERDUS NZ Ltd. 61mm x 21mm Ext Corner Moulding
- VERDUS NZ Ltd. 75mm x 21mm Ext Corner Moulding
- VERDUS NZ Ltd. 45mm x 45mm Ext Corner Moulding
- VERDUS NZ Ltd. Int Corner Moulding

5.3 Accessories supplied by VERDUS NZ Ltd thermally modified weatherboards include:

- Fixings – 75 to 90 x 3.15mm Stainless steel or silicon bronze rose-head annular groove nails, or equivalent screw fixings;
- Battens – 20 x 45mm H3.2 cavity batten (vertically fixed) or 20 x 45mm H3.2 castellated, cavity batten (horizontally fixed);
- µPVC cavity closer to suit;
- Powder-coated aluminium flashings for above windows, internal and external corners, meter boxes, eaves and apron flashings.

Note 1: Fixing centres are 400mm minimum and 600mm maximum.

Note 2: The weatherboards are finished using iOKA finishing oil coating system is an alkyd solvent based single component primer for plywood substrates;

5.4 All components must be stored inside, in a well ventilated area, up off concrete floors, kept dry, out of direct sunlight and away from freezing conditions.

## Advice for designers

### General

6.1 The VERDUS Thermally Modified Timber Weatherboard Systems is used as a durable, decorative vertical weatherboard, used for residential construction.

6.2 Before any installation can be carried out, it is essential that a careful inspection of the framing and frame protection or RAB, is installed as per the manufacture's instructions and as set out in the VERDUS Thermally Modified Timber Weatherboard Systems technical literature.

### Structure - Clause B1.3.3(h)

6.3 The installed VERDUS Thermally Modified Timber Weatherboard Systems has good in-service history in a variety of weather conditions and therefore meets the requirements of the NZBC.

### Durability - Clause B2.3.1(b) - 15 years

6.4 The VERDUS Thermally Modified Timber Weatherboard Systems when used in accordance with this Appraisal Certificate, and subject to normal conditions of environment, use, and good maintenance, will have a serviceable life of at least 15 years. Note the requirement under 7.1.

### External Moisture - Clause E2.3.2

6.7 The VERDUS Thermally Modified Timber Weatherboard Systems will comply with the requirements of this clause when the systems are installed as per the VERDUS Thermally Modified Timber Weatherboard Systems Installation Manual.

### Hazardous Building Materials - Clause F2.3.1

6.9 The Thermally Modified Timber Weatherboard Systems contains no hazardous materials and will not present a health hazard to people using the building.

# Installation Requirements

## Installation Skill Requirement

7.1 The VERDUS Thermally Modified Timber Weatherboard Systems must be installed under the supervision of a person who has been trained and approved by VERDUS NZ Ltd.

## Health and Safety

7.4 The safe use and handling of the weatherboards and protective coatings are described in the VERSUS technical literature. The products must be used in conjunction with the relevant materials safety data sheet for each component.

# Basis of this Appraisal

BEAL use the compliance verification procedure to demonstrate compliance with the relevant clauses of the NZBC based on a risk analysis procedure. The following is a summary of the technical investigations carried out:

## Assessments

8.1 The following assessment of the VERDUS Thermally Modified Timber Weatherboard Systems have been undertaken by BEAL: A review of test data and technical literature supplied by VERDUS NZ Ltd. Weathertightness was assessed on the basis that the weatherboard profiles are in accordance with NZS3617 cited in the Acceptable Solution E2/AS1.

## Testing

8.2 The following testing of the VERDUS Thermally Modified Timber Weatherboard Systems have been undertaken by BEAL:

- MOE and MOR flexural properties for assessment by an engineer
- Fixing shear strength for assessment by an engineer

## In-service History

8.3 Thermally Modified Norwegian Spruce Weatherboard Systems have been in use overseas for many years and more recently in New Zealand, owing to its resistance to fungal decay resulting from the thermal modification treatment.

## Other Investigations

8.4 BEAL investigated the use of thermally modified Norwegian Spruce both overseas and in New Zealand, finding that several other importers were supplying this material for the same purpose as VERDUS NZ Ltd.

8.5 The installation of the VERDUS Thermally Modified Timber Weatherboard System was also evaluated (including site visits) in practical building situations assessing the following;

- Ease of installation
- Potential risks of non-performance when being installed
- Any external factors that could affect the quality of the installed product

## Ease of repair or maintenance

8.6 The Technical Literature has been examined by BEAL and found to be satisfactory.

## Quality

8.7 The quality of materials, components and

accessories supplied by VERDUS NZ Ltd. is managed through the use of a Building Product Quality Plan.

8.9 The VERDUS NZ Ltd. Building Product Quality Plan, based on a manufacturing quality plan, ensures continuous conformance with the quality requirements from purchase to application by experienced and approved applicators.

8.10 VERDUS NZ Ltd.'s Building Product Quality Plan is reviewed and audited at least annually by BEAL or appointed agent.

8.11 Designers are responsible for the substructure design, and building contractors are responsible for the quality of construction of the substructure or new substrate in accordance with the instructions of the substrate manufacturer and this Appraisal Certificate.

8.12 Building owners are responsible for the maintenance of the VERDUS Thermally Modified Timber Weatherboard System in accordance with the manufacturer's instructions and this Appraisal Certificate.

# Sources of Information

- The Building Regulations 1992, version Nov 2021
- NZS 3604:2011 Timber framed Buildings
- E2/AS1 Acceptable Solution for demonstrating compliance with performance clause E2.3.2.
- VERDUS Installation Manual ver 1.0
- The VERDUS Thermally Modified Timber Weatherboard Systems Building Product Quality Plan (BPQP) Ver 1
- A report on the assessment of "Natural durability against basidiomycetes (CEN/TS 15083-1, 2005)" from the University of Goettingen, Wood Biology and Wood Products department. (It is noted that though this particular Standard has been superseded by the 2006 version, this makes no difference to the findings of durability);
- NASH Standard Part 1:2016 Design Criteria - Alternative Solution (for Light Gauge Steel framing);
- A report from SCION titled "DURABILITY AND POTENTIAL END-USES OF SOME TIMBER SPECIES IMPORTED INTO NEW ZEALAND".
- BEAL Test Report TR220531-1 MOE/MOR testing
- BEAL Test Report TR220621-2 Fixing pull-through
- BEAL Opinion of weathertightness and Water Management.



## Concluding statement

9.1 In the opinion of BEAL, the VERDUS Thermally Modified Timber Weatherboard System is fit for purpose and will comply with the NZBC to the extent specified provided that it is used, designed, installed and maintained in accordance with the manufacturer's instructions and this Appraisal Certificate.

The Appraisal Certificate is issued only to VERDUS NZ Ltd., and is valid until further notification, subject to the conditions of this Appraisal.

## Conditions of Appraisal

10.1. This appraisal Certificate:

- a) Relates only to the VERDUS Thermally Modified Timber Weatherboard Systems as described herein;
- b) Must be read, considered and used in full, together with the current version of the Technical Literature
- c) Does not address any legislation, regulations, codes or standards, not specifically named herein;
- d) Is copyright of BEAL

10.2 The Appraisal Certificate holder continues to meet the quality requirements of the VERDUS NZ Ltd.'s Building Product Quality Plan and has the plan audited and Appraisal certificate revalidated by BEAL on an annual basis.

10.3 VERDUS NZ Ltd. shall notify BEAL and obtain approval of any changes of the product specification or quality assurance prior to product being marketed including any trade literature, web site info or the like.

10.4 BEAL makes no representation 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 the Appraisal Certificate holder.

10.5 BEAL's verification of the building product or system complying with one or more of the above-mentioned criteria is given on the basis that the criteria used were those that were appropriate to demonstrate compliance with the NZBC at the date of this Appraisal Certificate. In the event that the criteria is withdrawn or amended at a later date, this Appraisal may no longer remain valid.

10.6 Any reference in this Appraisal Certificate to any other publication shall be read as a reference to the version of publication specified in this Appraisal Certificate.

Authorised Signatory,



C R Prouse - Director

**BEAL** (Building Element Assessment Laboratory Limited)

Updated May 2023.

