

# Product Technical Statement

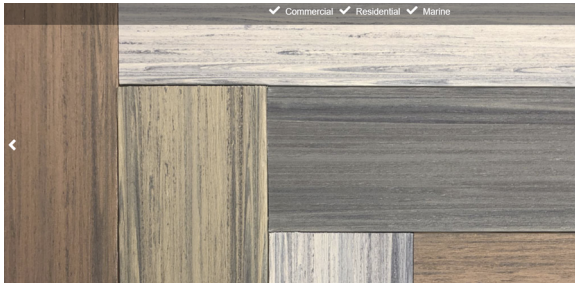
## PERMADECK DeckKorators Composite Decking

TWL-4290-PTS-01  
3/11/2020

Technology **works** LIMITED

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RD 5 Tauranga 3175  
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### 1 Product



1.1 PERMADECK™ DeckKorators Composite Decking is the New Zealand brand name for the US manufactured composite decking boards marketed as DeckKorators Voyage, Vault and Frontier Decking.

1.2 PERMADECK™ DeckKorators Composite Decking is manufactured from a patented mineral-based extruded composite material that consists of a mixture of polypropylene and calcium carbonate that's pultruded, which creates cavitation or tiny air pockets. This keeps the boards lightweight, but with a fibre-like structure similar to wood. The boards are capped on three sides with a durable polymer.

1.3 PERMADECK™ DeckKorators Composite Decking is available in the following styles:

Style	Colour	Finish
Vault	Dusk, Mesquite, Hickory	Enhanced traction
Voyage	Sierra Tundra Costa Mesa Khaya	Textured embossing
Frontier	Summit Woodland Prairie	Enhanced traction

1.4 All three styles of decking boards are available in one profile 139.7mm wide x 21.2mm thick and are available in 5.80m lengths

1.5 The decking boards are manufactured by:

UFP Venture II, Inc.  
1801 E. Lessard St  
Prairie du Chien,  
Wisconsin WI 53821,  
USA

1.6 The products are imported and supplied to the New Zealand market by:

Permadeck Ltd  
11 Maru Street  
Mount Maunganui 3116  
New Zealand  
Phone: 07 928 6564  
Email: [info@permadeck.co.nz](mailto:info@permadeck.co.nz)  
WWW: [www.permadeck.co.nz](http://www.permadeck.co.nz)

### 2 Statement Purpose

2.1 Product Technical Statements were introduced by the NZ Department of Building & Housing (predecessor to MBIE), in their "Using the Product Assurance Framework to Support Building Code Compliance – A guide for Manufacturers and Suppliers of Building Products – April 2010", as a response to providing a range of product certification.

Since then, changes to the Building Act 2004 (introduced via the Building Amendment Act 2013) that included new sections 14B to 14G have made the obligations of key players in the building industry more explicit.

In particular, section 14G now sets out the responsibilities of a product manufacturer or supplier to ensure their product "will, if installed in accordance with the technical data, plans, specifications, and advice prescribed by the manufacturer, comply with the relevant provisions of the Building Code"

2.2 This Product Technical Statement is a statement intended to summarise technical information on the PERMADECK™ DeckKorators Composite Decking for the NZ market to address the needs of designers, specifiers, builder, building owners and building consent officials.

### 3 Scope

3.1 The PERMADECK™ DeckKorators Composite Decking has been assessed for use as external decking material, as an alternative to timber or other conventional materials, within the following scope:

The New Zealand Building Code (NZBC):

- Clause B1 Structure
- Clause D1 Access

Compliance with Clause B2 Durability and Clause C1 Fire are not included under this product technical statement, and are being assessed separately.

#### 3.2 Conflict in Documentation

In the event of a conflict between any information contained within this Product Technical Statement and any clause in any other specification or drawings, this Product Technical statement shall take precedence.

### 4 Building Regulations

4.1 Technologyworks Ltd consider, based on information contained within:

- a) the scope of this product technical statement, and
- b) the Intertek - Code Compliance Research Report CCRR-0195  
Issue Date: 01/10/2015  
Renewal Date: 01/12/2020, and
- c) the NRC CNRC Evaluation Report CCMC 14092-R.  
Issue Date: 13/04/2018  
Renewal Date: 30/04/2019, and
- d) PERMADECK™ Voyage/Vault Decking Installation Instructions. (Document titled: "Deckorators Eovations Installation Guide")

that, if manufactured, designed, used, installed and maintained in accordance with the above documents, the PERMADECK™ DeckKorators Composite Decking, will provide an Alternate Solution that meets the provisions of the following clauses of the New Zealand Building Code:

Clause B1 STRUCTURE: Performance-Acceptable Solutions B1/AS1  
(NZS 3604: 2011 - 7.4 Timber Decks)

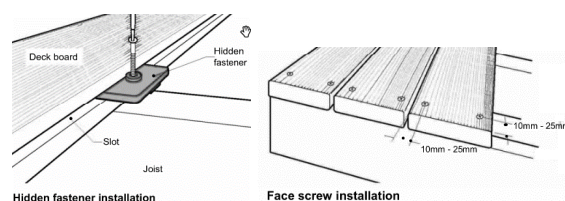
Clause D1 ACCESS  
Acceptable Solution D1/AS1  
Clause 2 Level Access Routes

### 5 Design Requirements

5.1 General design guidance is covered by the documentation on the Permadeck Ltd website ([www.permadeck.co.nz](http://www.permadeck.co.nz)).

5.2 PERMADECK™ DeckKorator Composite Decking is designed to be laid over timber deck framing consisting of joists, bearers and piles, with a separate brace system.

5.3 Each deck board must span over and be supported by at least three 45mm wide deck joists spaced at no greater spacing than provided by paragraph 5.5 or 5.6 and be fixed to these deck joists by the hidden fastening system, or the face fastening system (i.e. 2 screws per joist).



5.4 The supporting deck joist spacing and span is dependent on the design live load, joist grade, fastening type, and the location of the joist blocking providing lateral support to the floor joists.

5.5 Deck Joist Spacing Requirements for Decks Designed to NZS3604:2011.

NZS3604:2011 Table 7.1(b) provides for joist selection for SG8 (wet) grade timbers with a variety of joist spacings for residential decks with a maximum deck live loading of 2kPa uniformly distributed load (UDL) or a 1.8kN concentrated point loading.

Table 7.1 (b) may be used for the selection of deck joists supporting the decking for this live loading providing:

- a) The maximum deck joist spacing is 400mm; and
- b) All other requirements of NZS3604:2011 relating the deck joists, and deck framing and bracing are met, and
- c) Where the decking is fixed to the deck joists using the hidden fastening system the **joist blocking or strutting requirement** of NZS3604:2011 Section 7.1.2.2 (b) is **reduced from 1.80m to 0.90m** centres,

5.6 Specific Engineering Design of Deck Framing.

Where the deck framing falls outside the scope of NZS3604:2011 Table 7.1(b), the decking

boards may be installed over specific engineer designed deck framing.

The following table provides the maximum span of the decking (spacing of 45mm wide deck joists) for the uniformly distributed and concentrated point loading provided .

UDL Load Limit	Point Load Limit	Maximum Joist spacing
3.0 kPa	2.7 kN (1.35 kN /board)	400mm
4.0 kPa	3.6 kN (1.8kN /board)	300mm

The requirements of 5.3 & 5.4 shall also be complied with.

5.7 Materials Properties - The following material properties shall be used for specific engineering design:

Property	Design Value	Units
Modulus of elasticity MOE	2.4	MPa
Density	804	Kg/m3
Mass	2.38	Kg/lm
Surface loading	17.0	Kg/m2
Coefficient of linear expansion	0.96 x 10 <sup>-5</sup>	m/m/°C

5.8 Structural Bracing - PERMADECK™ DeckKorators Composite Decking does not perform the function of a structural bracing elements. Where bracing is required by the NZBC, a separate bracing system shall be provided.

## 6 Installation Instructions

6.1 General installation, handling and storage are covered by documentation on the Permadeck Ltd website ([www.permadeck.co.nz](http://www.permadeck.co.nz)).

New Zealand specific installation shall be in accordance with the following:

6.2 Handling & Storing – deck boards should be stored covered, flat and off the ground. Standard 5800mm long packs of decking boards require a minimum of eight supports under the length of the pack.

6.3 Foundation & Sub-structure - decking should be connected to supporting timber joists, except where being used for a non-structural floating deck overlay.

6.4 Deck boards will follow the alignment of the supporting joists so it is important that:

- care is taken to ensure joists are in line, straight and square.
- the maximum joist span and spacing is not exceeded (refer Section 5.5 and 5.6 above)
- decking is fully supported by the joists
- any overhang of decking boards at the ends or sides of the deck should not exceed 25mm.
- the temperature of the planks should be the same at the time of cutting and installation.

6.5 Cutting - The composite decking boards are similar to work with as MDF, being easy to saw, cut and drill, however the fibrous nature of the material and the outer capping limits planning and mitred finishes.

6.6 Gapping - the decking board design is based on the provision of gapping around the boards to aid air flow, drainage and expansion and contraction.

A 3-6mm gap shall be provided between each decking board as provided by the installation guideline.

The Hidden Fastener deck clips provide the recommended gaps between the sides of the planks for air flow and drainage.

6.7 Expansion – The composite decking boards will respond to temperature changes resulting in minimal lineal expansion when temperatures increase. This expansion must be allowed for when planning the layout of boards, cutting and installation.

It is recommended that the boards are spread out evenly over the deck surface to allow the planks to be at the same temperature prior to cutting and installation.

A guide for expected expansion and contraction is provided in the PERMADECK™ Voyage/Vault Decking Installation Instructions. (Document titled: “Deckorators Eovations Installation Guide”)

6.8 Fastening - Decking boards can either be direct screw fixed, or fixed to the joists using hidden fasteners.

Direct screw fixing shall be with a minimum 65mm 305 stainless steel revers thread composite screws. Pre-drilling and countersinking is recommended for all screw fixing to reduce the risk of splitting.

Drivers should be adjusted to a low or medium torque and screws should not be over tightened into the decking.

Hidden fasteners shall be as recommended by Permadeck Ltd.

6.9 Installer Skill Level - decking can be installed by persons with an understanding and experience of deck installation. The installation instructions from Permadeck Ltd must be followed.

## 7 Care and Maintenance Requirements

7.1 Mould and Mildew will develop on any hard surface if foreign matter can build up.

Periodic washing with soap/mild detergent and water will help remove surface dirt. This will also help prevent the build-up of pollen, debris and spores that can cause and accelerate mould/mildew growth.

Caution, a pressure washer should not be used to "blast" mould/mildew or soils from a deck surface. The abrasive nature of the water stream can potentially cause damage by driving the spores deeper into the material, which may create a more challenging problem to remedy. A pressure washer with a fan-tipped nozzle should be used only to lightly wet or rinse wood or composite deck surfaces.

7.2 Scratching - The surface of the decking boards will conceal minor scratches, but will gouge and mark if heavy objects are dragged across the surface.

It is recommended that protective mats or furniture pads are used to protect against high point loads such as thin furniture legs, BBQ's or planter stands.

7.3 Staining – the boards surface will stain if oil, grease or wine is allowed to remain on the surface and penetrate the fibres.

To avoid grease staining, a protective mat placed over the decking and covering the area immediately around BBQ's is recommended.

7.4 Excessive Heat – hot objects and close proximity to radiant heat can damage the capping.

7.5 Painting or Staining – painting or staining of the boards will void the manufacturer's warranty.

## 8 Basis of Assessment

Technologyworks Ltd have carried out an independent assessment of the technical and other information provided by Permadeck Ltd, including the following:

8.1 The Manufacturers Statement (Appendix A) provided by UFP Ventures II, Inc. that outlines their company background and history, position, performance and acceptance in their market place.

8.2 The manufacturer's Technical Literature has been examined, and found to be satisfactory, subject to the New Zealand specific modifications identified in this statement.

8.3 The products are manufactured by Universal Consumer Products under a quality assurance system that is monitored by an accredited third party (PFS Corporation) with quarterly audits in compliance with ICC-ES (US) and CCMC (Canada).

8.4 A comparison on the material, performance and quality parameters of the New Zealand and US/Canadian standards under which decking materials are required to comply with has been undertaken and the US/Canadian Standards have been found to be comparable to the New Zealand Standards.

## 9 Product Technical Statement Validity

This product technical statement is valid until further notice, subject to the following:

9.1 That this product technical statement:

- relates only the product as described in this product technical statement.
- together with the Appendices shall be read, considered and used as a whole document.
- is copyright to Technologyworks Ltd
- is applicable only in New Zealand

9.2 That Permadeck Ltd undertakes to have the product reviewed by Technologyworks Ltd at:

- either five yearly intervals, or at a lesser interval coinciding with such time as the relevant clauses of the Building Code as referred to under this document are revised, or
- when any change is made to the product specification or quality assurance measures, or the manufacturers published brochure, or
- when any of the manufacturers material performance evaluation reports are

modified or are no longer valid.

## 10 Liability Disclaimer

Technologyworks Ltd make no representation as to the:

- a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship
- b) any guarantee or warranty offered by Permadeck Ltd.

## 11 Signature

On behalf of Technologyworks Ltd



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Sandra D Hardie  
CPEng IPEng 175445  
date of issue: 3/11/2020

Appendix A

Manufacturers Statement

UFP Venture II, Inc.



5 Meadowcraft Pkwy  
Selma, AL 36701  
Phone (334) 872-1580

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UFP Industries Inc. (UFPI), formerly Universal Forest Products, is a multibillion dollar holding company with subsidiaries around the globe serving three markets: retail, industrial, and construction. Eovations LLC, manufacturer of innovative mineral-based composite decking products, is a subsidiary of UFPI.

UFPI has been a producer of composite decking materials since 2002. In 2010 UFPI acquired Eovations technology, which forms the basis for Deckorators mineral-based composite products. Deckorators mineral-based composites have superior strength to weight ratio, thermal expansion, and workability compared to other plastic composite decking. Because of their formulation and manufacturing method, these products also are suitable for installation in contact with the ground and submerged in water. Eovations mineral-based composite boards are sold under the Deckorators Frontier, Vault, and Voyage decking families, as well as Eovations Tractio.

Code compliance reports relevant to Eovations decking products are CCRR-0195 (US) and CCMC 14092 (Canada).