



Vidaspace[®]

NZ Building Code Compliance for Timber Flooring (E3 Alternative Solution)

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— Overview



There is a requirement that flooring solutions must now have a finish that is both impervious and easily cleaned and in open spaces, this surface must extend at least 1.5m out from all sanitary fixtures (including sinks and basins) and appliances (including washing machines and dishwashers). Timber flooring is no longer used under E3/AS1 as an Acceptable Solution, but can be used in kitchens, laundries and powder rooms as an Alternative Solution.

The Acceptable Solutions and verification methods, New Zealand Building Code E3 Internal Moisture is defined on page 9 as - "Impervious" - that which does not allow the passage of moisture.

While Clause E3 requires an impervious floor surface in any space containing sanitary appliances/ fixtures, the Verification Method E3/VM1 mentions "No specific methods have been adopted for verifying compliance with the performance of NZBC E3." (The Acceptable Solutions and Verification Methods For New Zealand Building Code Clause E3 Internal Moisture - page 11)

In summary, the Objective (3.1) and Functional requirement (3.2) of E3 is to prevent illness/injury or damage through accumulation of moisture, or damage caused by free water penetration.

The NZBC is a performance-based Building Code and evidence compliance is critical. This document is to show evidence our Timber Flooring complies with the performance requirements set in the Building Code as an alternative solution. And provides evidence of compliance with the NZ Building Code clauses – B2 Durability, C3 Critical Radiant Flux, D1 Slip Resistance, E3 Internal Moisture, and F2 Hazardous Materials.

— Applications & Limitations

Applications

This document covers the requirements of Clause E3 Internal Moisture in the NZ Building Code regarding the use of timber flooring in areas that contain sanitary appliances/fixtures in single-level & multi-level buildings.

This alternative solution applies to habitable spaces, kitchens, laundries and other spaces where moisture may be generated or accumulate.

Limitations

VidaSpace do not recomend or warranty our timber flooring in bathrooms.

— Special Notes & Exclusions

- Projects consented prior to 4th November 2021, Amendment 6 are still included as an Acceptable Solution so timber flooring can still be used on that basis and does not require to be changed to an Alternative Solution under Amendment 7 as outlined in this document.
- Timber flooring is still deemed an Acceptable Solution in other areas not near sanitary fixtures or appliances e.g., living rooms, bedrooms, hallways, entrances and stairs.
- Replacement of existing timber flooring, paneling, or sarking does not require building consent (unless there is other consented works as part of the refurbishment). Full information on what building work doesn't require a consent can be found here www.building.govt.nz/assets/Uploads/projects-and-consents/building-work-consent-not-required-guidance.pdf

Types of Engineered Timber Flooring

Type 1: Lacquer + 5G

Prefinished Lacquered Engineered Timber Floor with 5G Click System

Composition

- Coating: 4-7 coats of factory applied lacquer
- Top Layer: 2.5mm of European Oak Hardwood
- Bottom Layers: 11.5mm Pine Plywood - Cross Laminated



Type 2: Lacquer + Uniclic/Unifit X

Prefinished Lacquered Engineered Timber Floor with Uniclic/Unifit X Click System

Composition

- Coating: 8 Layers of Factory Applied Lacquer
- Top Layer: 0.6mm Wood Veneer
- Core: 6-9mm High Density Fibreboard (HDF)
- Bottom Layer: 0.6mm Wood Veneer
- Aquaseal on edge & ends of profiles



Type 3: Lacquer + T&G

Prefinished Lacquered Engineered Timber Floor with with Tongue & Groove Joints

Composition

- Coating: 4-7 coats of factory applied lacquer
- Top Layer: 2.5mm of European Oak Hardwood
- Bottom Layers: 11.5mm Pine Plywood



Type 4: UV Oiled + T&G

Prefinished UV Oiled Timber Floor with Tongue & Groove Joints

Composition

- Coating: Factory Applied UV Oil
- Top Layer: 3-6mm of European Oak Hardwood
- Bottom Layer: 8-17mm Birch Plywood



— Installation

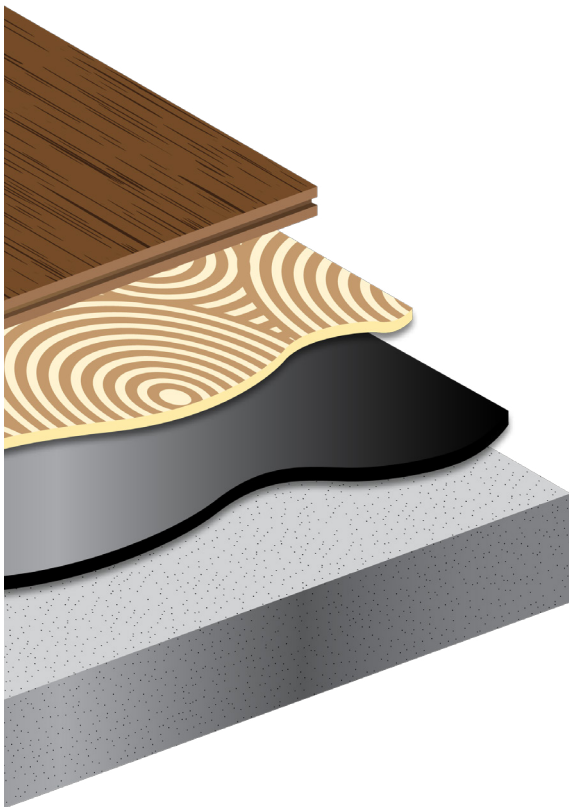
Timber flooring can be installed in 2 different methods, Direct Glue Fix & Floating. These methods apply to any pattern of wood floor – plank, herringbone, chevron.

The following VidaSpace collections must use the direct fix method:

- VidaPlank Oak
- VidaPlank Lite
- VidaPlank Douglas Fir
- Oscar Ono
- Hand Grade
- Venture Plank
- Henley
- PurePlank Tongue & Groove products

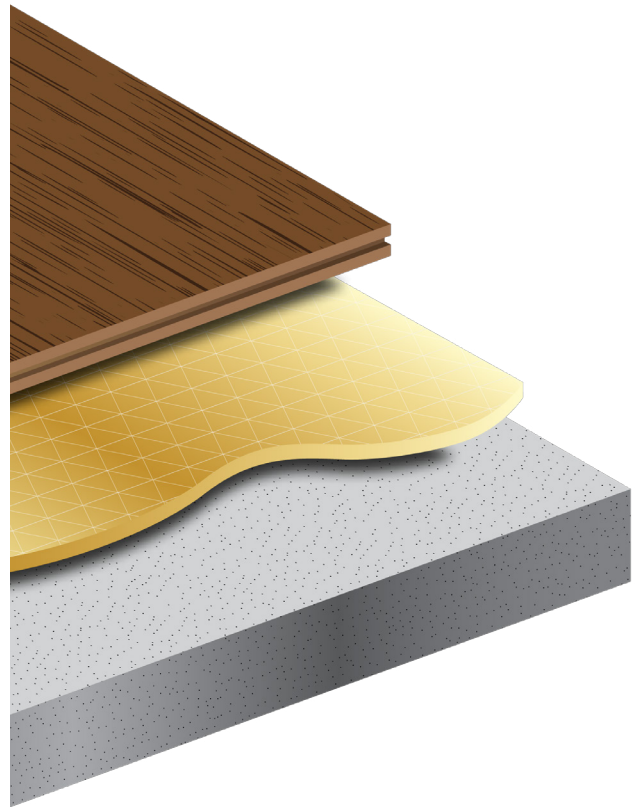
The following collections can use either a direct fix or floating method:

- Parky
- PurePlank 5G products



Method 1: Direct Fix

The timber flooring is installed by gluing directly to the subfloor, using a trowel applied wood floor adhesive. Recommended to be installed with a DPM applied to Subfloor first



Method 2: Floating

Floating timber floor installation is a method where timber planks are not attached to the subfloor but instead are laid over the subfloor. Recommended installation over either: Provent Underlay or Kingley Gold/Silver Underlay.

Installation Considerations

To meet the requirements of Clause E3 Impervious, a D3 Poly Vinyl Acetate (PVA) Adhesive will need to be applied to seal the joints and the around perimeter 1.5m out from sanitary fixtures & sanitary appliances including where the floor meets cabinetry or skirtings. The flexible sealant can be colour matched to the flooring or cabinetry to disguise it.

VidaSpace has created a unique and user-friendly build-up flooring systems that allows you to choose the complete subfloor solution for your build in seconds. Combining high performance products with low environmental impact and delivering quality without compromise, our installation products overcome build challenges, saving time, and speeding up your build. Simply make your selection from our options on our website and you will receive full details of the complete sub-floor build-up you need to support your project.

Please note that the subfloor will need to be an approved substrate to comply with the Building Codes mentioned in this document.

Ensure an industry trained professional is engaged to do the installation.

VidaSpace Installation Guides can be found here - www.vidaspace.co.nz/downloads-resources#Installation

VidaSpace Flooring Systems can be found here - www.vidaspace.co.nz/flooring-systems



Evidence of Building —— Code Compliance

*Covers: B2 Durability, C3 Critical Radiant Flux, D1 Slip Resistance,
E3 Internal Moisture, F2 Hazardous Materials*

Evidence of B2 Durability for Timber Flooring

(B2/AS1 - Table 1 + B2/VM1.1.1 + B2/VM1.2.1 + B2.3.2)

Requirements

1. B2/AS1 - Table 1

Table 1:		Durability Requirements of Nominated Building Elements			
Note: Clause B2.3.2 requires that all hidden elements have at least the same durability as that of the element that covers it (i.e. must have the same expected life) which may be more than the requirement in clause B2.3.1. For example, the reason that a brick tie has a requirement of not less than 50 years in this table, instead of the 15 year requirement for cladding, is that the brick veneer that hides it has an expected durability of 50 years or more.					
Building Element	Component	Situation/Function	Not less than 50 years	Not less than 15 years	Not less than 5 years
Damp-proof membranes (DPM) (See note at top of table)	Damp-proofing generally	DPMs applied to the top of concrete slabs		✓	
Fixings	Adhesives	Used to fix non-structural or moderately difficult to replace building elements		✓	
Floor Coverings		Protective or acoustic coverings			✓

2. B2/VM1.1.1 - Verification of durability based on in-service history of a building *element*, including materials, components and systems shall take into account but not be limited to

- a) Length of service,
- b) Environment of use,
- c) Intensity of use,
- d) Any reaction with adjacent materials,
- e) Limitations in performance,
- f) Degree of degradation, and
- g) Changes in formulation.

3. B2/VM1.2.1 - Verification of durability based on successful performance in a laboratory test shall be accompanied by an assessment of the tests performed, their relevance to field and service conditions, and in particular:

- a) Types of degradation mechanisms likely to be induced by testing,
- b) The degradation mechanisms likely in service,
- c) Details of methods of assessment,
- d) Variability of results, and
- e) The relevance of the test to the building element under study.

4. B2.3.2 - Individual *building elements* which are components of a *building system* and are difficult to access or replace must either:

- (a) all have the same durability, or
- (b) be installed in a manner that permits the replacement of *building elements* of lesser durability without removing *building elements* that have greater durability and are not specifically designed for removal and replacement.

Evidence of Compliance

B2/VM1.1.1 In-Service History

VidaSpace has supplied our timber flooring products and floor build up systems to the New Zealand market for over 8 years and they have been used for longer periods in global markets including in kitchens and laundries.

Case Studies:

Project Name – QV Conversion, The Wellington Company
Location – Wellington
Areas of Application – Kitchens, Living Rooms
Products Used – Lacquered Uniclic Timber Flooring
Installation Method – Floating
Installation Date – 2019

Project Name – Edwards Home
Location – Queenstown
Areas of Application – Kitchens, Living Rooms, Hallways
Products Used – UV Oiled Tongue & Groove Timber Flooring
Installation Method – Direct Stick/Glue Down
Installation Date – 2016

Project Name – Nuffield Street Apartments
Location – Auckland
Areas of Application – Kitchens, Living Rooms, Hallways
Products Used – UV Oiled Tongue & Groove Timber Flooring
Installation Method – Direct Fix/Glue Down
Installation Date – 2018

Project Name – Jones the Grocer
Location – Auckland
Areas of Application – Floor
Products Used – Lacquered 5G Click System Timber Flooring
Installation Method – Floating
Installation Date – 2015

Project Name – Island Bay Home, Alex & Corban
Location – Auckland
Areas of Application – Kitchen, Laundry, Living Room, Hallways, Stairs
Products Used – Lacquer 5G Click System Timber Flooring
Installation Method – Direct Fix/Glue Down with Damp Proof Membrane
Installation Date – 2020

Project Name – Kepa Road Townhouse Development
Location – Auckland
Areas of Application – Kitchen, Living Room, Hallways
Products Used – Lacquered Tongue & Groove timber Flooring
Installation Method – Direct Fix/Glue Down
Installation Date – 2021

B2/VM1.2.1 Laboratory Testing

VidaSpace engaged NZWTA Textiles and Material Testing – Napier, NZ to conduct independent testing on the passage of moisture for all VidaSpace timber flooring products in accordance with ISO 4760:2022(E).

All products have passed this test. See E3 Impervious Surface section of this document for test results.

BRANZ Guidance

In 2021, BRANZ, released a bulletin titled “E3/AS1 and wet area flooring” in response to a modification in the E3 Building Code clause that was causing challenges within the industry.

On the first page of the bulletin, Figure 1 displays a notable example with the subtitle “Matai timber flooring that has endured splashes and occasional floods for 25 years.” This example serves to demonstrate the durability of solid Matai flooring over a span of 25 years.

Approved Timber Substrates & Maintenance

Clause 3.2.2.3 in B2/AS1 modifies Table 1A and Table 2A – NZS 3602 requires the use of H3 treated plywood flooring in wet areas where maintenance of impervious coatings cannot be assured. B2/AS1 modifies this to permit H1.2 treated solid radiata pine or Douglas fir flooring to be used in this situation.

Wood is hygroscopic, meaning it expands and contracts with moisture, so this means humidity swings can cause wood floors to bulge or shrink which can cause problems with the sealed joints. To mitigate this movement, we advise for a Direct stick installation method. However, you will need to comply with the changes in B2/AS1 when installing over a timber substrate, we recommend H3 treated plywood is used.

Evidence of C3 Critical Radiant Flux for Timber Flooring

C3.4

Requirements

1. **C3.4 - (B)** floor surface materials in the following areas of *buildings* must meet the performance criteria specified below:

Area of <i>building</i>	Minimum critical radiant flux when tested to ISO 9239-1: 2010	
	<i>Buildings not protected with an automatic fire sprinkler system</i>	<i>Buildings protected with an automatic fire sprinkler system</i>
Sleeping areas and exitways in <i>buildings</i> where care or detention is provided	4.5 kW/m ²	2.2 kW/m ²
Exitways in all other <i>buildings</i>	2.2 kW/m ²	2.2 kW/m ²
<i>Firecells</i> accommodating more than 50 persons	2.2 kW/m ²	1.2 kW/m ²
All other occupied spaces except <i>household units</i>	1.2 kW/m ²	1.2 kW/m ²

Evidence of Compliance

Wood products equal to or greater than 12mm thick with a density of 400kg/m³ will meet a rating of 2.2 kW/m² (see Page 71 Appendix B Table B1 – of C/VM2 Protection from Fire Amendment 4).

Note 1 mentions “Some timber species and thicknesses and with/without applied coatings when tested may achieve a higher CRF”

As seen in the table above 2.2kW/m² is acceptable in all areas except “*Sleeping areas and exitways in buildings where care or detention is provided*” where a CRF of 4.4kW/m² is required.

CRF Ratings for VidaSpace Timber Flooring Collections

- VidaPlank Oak: 3.3kW/m²
- VidaPlank Lite: 2.2kW/m²
- Oscar Ono: 2.2kW/m²
- Hand Grade: 2.2kW/m²
- Venture Plank: 3.3kW/m²
- Henley: 2.2 - 3.3kW/m²
- The Italian Collection: 4.1kW/m²
- PurePlank: 4.2kW/m²
- Parky: 5.8kW/m²

CRF ratings for specific products can be found on the individual Technical Data Sheets on our website here - www.vidaspace.co.nz/technical-data-downloads

Evidence of D3 Access Routes (Slip Resistance Stair Nosing)

D1.3.3. D1/AS1

Requirements

The New Zealand Building Code reference to anti-slip requirements is section D – Accessways, specifically D1.3.3. D1/AS1 is the updated publication of Acceptable Solutions to ensure compliance with Section D covers a wider scope than just accessways particularly for commercial situations.

D1/AS1 now refers to both Pendulum testing (SRV not less than 39) as well as Ramp testing which provides an R value (R9, R10, R11).

D1/AS1 requires that public areas within commercial buildings, wet areas & access routes have slip resistant flooring. A slip resistant flooring is defined as having a surface that gets a Co-efficient of Friction (CoF) reading greater than 0.4 or a Slip resistant value (SRV) of 39 or greater.

For a standalone residential building, D1/AS1 2.1.1 describes access routes which public use as ‘walking surfaces such as decks, patios and steps on the approach to the main entrance to housing and common areas of communal residential and multi-unit dwelling accommodation.’

With the exception of stairs, there is no mandatory slip resistance requirement for floor surfaces within residential individual dwelling units.

The standard referenced in New Zealand for slip ratings for floors is AS/NZ 4586-2013.

AS/NZ 4586-2013 refers to Slip ratings are measured by the ‘Pendulum Test’, which measures the friction between a wet tile and a standard shoe. It ranges from P0 to P5. The higher the number, the lower the risk of slipping.

AS/NZ 4586-2013 also refers to Ramp tests (R values). R values are commonly recognised in New Zealand. R10 will have a SRV greater than 39.

Evidence of Compliance

Slip Resistance Ratings for VidaSpace Timber Flooring Collections

- VidaPlank Oak: AS/NZS 4586 Dry Test Classification F, Mean COF 0.85
AS/NZS 4586 Wet Test Classification X, Pendulum Mean 40 BPN
- VidaPlank Lite: AS/NZS 4586 Dry Test Classification F, Mean COF 0.51
AS/NZS 4586 Wet Test Classification X, Pendulum Mean 39 BPN
- Hand Grade: CEN/TS15676 (Pendulum Test) – 82(dry)/42(wet)PTV/SRV
- Venture Plank: CEN/TS15676 (Pendulum Test) – 65(dry)/39(wet)PTV/SRV
- Henley: CEN/TS15676 (Pendulum Test) – 65(dry)/39(wet)PTV/SRV
- The Italian Collection:
 - Lacquered: CEN/TS15676 (Pendulum Test) – 55(dry)/32(wet) PTV/SRV
 - UV Oiled CEN/TS15676 (Pendulum Test) – 63(dry)/43(wet)PTV/SRV
- PurePlank: CEN/TS15676 (Pendulum Test) – 57(dry)/28(wet) PTV/SRV
- Parky: CEN TS15676: 2017 (Pendulum Test) – 62.25 USRV (dry) / 47.75 USRV (wet)

Slip Resistance ratings for specific products can be found on the individual Technical Data Sheets on our website here - www.vidaspace.co.nz/technical-data-downloads

— E3 Internal Moisture Overview



The objective of E3 is to safeguard people against illness, injury, or loss of amenity that could result from the accumulation of internal moisture. To meet this objective, buildings must be constructed to avoid fungal growth and excessive moisture or free water overflow. Floor surfaces in wet areas must be impervious, easily cleaned, and have ventilation to meet conditions for health and safety.

Impervious is defined in the E3/AS1 Acceptable solution as “Impervious – that which does not allow the passage of moisture”. While performance clauses E3.3.3 and E3.3.5 require impervious surfaces around sanitary fixtures/appliances, there are no verification methods provided. Refer to page 11 of E3/AS1 which states “No specific methods have been adopted for verifying compliance with the Performance of NZBC E3”

As there are no specific methods for verifying compliance, VidaSpace had our flooring products tested by NZWTA Textiles and Material Testing - Napier, NZ. See Method 1. Impervious Surface for test results.

As commented on page 16 of E3/AS1 - “Other floor finishes may also be capable of satisfying the performance for impervious and easily cleaned, if installed in a manner that prevents gaps or cracks within the finish and at any parts of its perimeter that are exposed to watersplash, and/or if the surface is sealed with a suitable durable coating.”

Evidence of E3 Impervious & Easily Cleaned

E3.3.3 + E3.3.5 + E3.2

Functional & Performance Requirements

- E3.3.3** - Floor surfaces of any space containing *sanitary fixtures* or *sanitary appliances* must be *impervious* and easily cleaned.
- E3.3.5** - Surfaces of *building elements* likely to be splashed or become contaminated in the course of the *intended use* of the building, must be *impervious* and *easily* cleaned.
- E3.2** - *Buildings* must be constructed to avoid the likelihood of—
 - fungal growth or the accumulation of *contaminants* on linings and other *building elements*; and
 - free water overflow penetrating to an adjoining *household unit*; and
 - damage to *building elements* caused by the presence of moisture.
- E3.1.1 E3/AS1 - COMMENT:** Other floor finishes may also be capable of satisfying the performance for impervious and easily cleaned, if installed in a manner that prevents gaps or cracks within the finish and at any parts of its perimeter that are exposed to watersplash, and/or if the surface is sealed with a suitable durable coating.

Evidence of Compliance

Easily Cleaned

E3.2 Buildings must be constructed to avoid the likelihood of (a) Fungal growth or accumulation of contaminants on linings and other building elements.

VidaSpace Engineered timber floors are easily cleaned using a vacuum and a damp mop.

We supply detailed care and maintenance guides with our wood floors along with the option to supply the correct products or we can recommend suitable ones available on the market. Cleaning methods recommended are comparable to those required for other floor finishes that are still classified as an Acceptable Solution e.g. vinyl.

Our VidaCare Guide for Timber Flooring can be found here - www.vidaspace.co.nz/downloads-resources#Care-Maintenance
Timber Flooring Care Products available to purchase here - www.vidaspace.co.nz/care-shop

Durable Coatings

Lacquer Finishes

Our VidaSpace Engineered lacquered timber flooring products are factory coated with multiple coats of leading brands of water-based lacquer polyurethane). These are water, dust and stain resistant. This coating is warranted and tested for use in kitchen and laundry applications by the manufacturer and have had extensive in-service history in New Zealand and globally.

Oiled Finishes

VidaSpace Engineered Oiled timber flooring products are factory coated with multiple coats of leading brands of Oil. These are water, dust and stain resistant. This coating is warranted for use in kitchen and laundry applications by the manufacturer and have had extensive in-service history in New Zealand and globally.

Gaps or Cracks in Coating

As stated in 3.1.1 E3/AS1 - "Other floor finishes may also be capable of satisfying the performance for impervious and easily cleaned, if installed in a manner that prevents gaps or cracks within the finish..." We recommend a D3 PVA is used in all joints (along the length & ends of the plank) when installing in areas containing sanitary fixtures or sanitary appliances.

A D3 durability class of PVA adhesive is the minimum class rating required. D3 durability class rating means "Interior areas, with frequent short-term exposure to running or condensed water and/or heavy exposure to high humidity. Exterior areas not exposed to weather."

All VidaSpace Timber Flooring must follow our Installation Guides.

Gaps or Cracks at Perimeter exposed to Watersplash

As stated in 3.1.1 E3/AS1 - "Other floor finishes may also be capable of satisfying the performance for impervious and easily cleaned, if installed in a manner that prevents gaps or cracks... ..at any parts of its perimeter that are exposed to watersplash, and/or if the surface is sealed with a suitable durable coating."

When installing our Timber Flooring our Installation Guide must be followed to help ensure it is installed in a manner that prevents gaps or cracks at any parts of its perimeter that are exposed to water-splash. We recommend a flexible joint filler (e.g. Bona Gap Master Sealant or similar) is applied to seal all parts of the perimeter of the timber flooring within the areas exposed to water splash including a minimum of 1.5m out from all sanitary fixtures and appliances. Including but not limited to: floor to wall junctions, waste pipes etc.

Laboratory Testing

As there are no specific methods for verifying compliance, VidaSpace had our flooring products tested by NZWTA Textiles and Material

Testing Authority: NZWTA Textiles and Material Testing - Napier, NZ

Test Name: ISO 4760:2022(E) Laminate Flooring - Topical Moisture Resistance - Assembled Joint (MODIFIED)

Test Method:

- The sample was cut into pieces then connected using the profiled locking edges and fastened into an assembled floating "T joint" configuration as per the test method. The testing was performed in triplicate.
- Weights were not used on these samples.
- 100mls of dye solution was applied onto the sample surface. It was poured into a cylinder 100mm diameter placed in the centre of the sample at the "T joint." Sealant was used at the plank/cylinder interface to avoid leakage.
- The sample was placed on white paper towels prior to testing to enable detection of any dye penetration through the joints.
- The sample was left at 20oC, 65% Relative Humidity room conditions for 24 hours after the dye was added and then examined for dye penetration through the backing (not 23oC, 50% RH as stated in the method).
- If swelling measurements are requested, thickness measurements are taken at specified test positions - before water, within 15 minutes after water removal (qualitative and quantitative) and 24 hours after removal of water (qualitative and quantitative).
- Quantitative measurements are used to calculate surface swell in mm (within 15 minutes after water removal) and recovery swell (24 hours after removal of water).

Purpose of test: Demonstrate the flooring is impervious and meets the objectives in the Building Code

Lacquer + 5G Click System Timber Flooring Test

Test No. 1434614.2
Date Tested: 03/10/2022
Joint System: 5G Valinge Click System Joint
Product Finish: Lacquered
Test Summary: The result of this test verified that this product's assembled joint over a 24 hour period did not allow water penetration through to the substrate, or if tested at the edges where edge seal has been applied.

Lacquer + Uniclic/Unifit X Click System Timber Flooring Test

Test No. 11434615.9
Date Tested: 27/09/2022
Joint System: Uniclic/Unifit X Click System Joint
Product Finish: Lacquered
Test Summary: The result of this test verified that this product's assembled joint over a 24 hour period did not allow water penetration through to the substrate, or if tested at the edges where edge seal has been applied.

Lacquer + T&G Timber Flooring Test

Test No. 1439706.1
Date Tested: 03/10/2022
Joint System: T&G (Tongue & Groove) System Joint
Product Finish: Lacquered
Test Summary: The result of this test verified that this product's assembled joint over a 24 hour period did not allow water penetration through to the substrate, or if tested at the edges where edge seal has been applied.

UV Oiled + T&G Timber Flooring Test

Test No. 1434613.4
Date Tested: 21/09/2022
Joint System: T&G (Tongue & Groove) System Joint
Product Finish: UV Oiled
Test Summary: The result of this test verified that this product's assembled joint over a 24 hour period did not allow water penetration through to the substrate, or if tested at the edges where edge seal has been applied.

The full individual NZWTA test reports are available on request.
Contact us at info@vidaspace.co.nz

— Evidence of E3 Overflow

E3.3.2 + 2.0.1 E3/AS1 + 2.1.1 E3/AS1

Requirements

1. **E3.3.2** - Free water from accidental overflow from *sanitary fixtures* or *sanitary appliances* must be disposed of in a way that avoids loss of *amenity* or damage to *household units* or *other property*.
2. **2.0.1 E3/AS1** - If a sanitary fixture is located where accidental overflow could damage an adjoining household unit or other property, then either:
 - a) Containment and floor wastes that meet the requirements of Paragraphs 2.1.1 and 2.2.1 shall be provided, or
 - b) The exemption for household kitchen sinks and laundry tubs with integrated overflows that meet Paragraph 2.0.2 shall apply.
3. **2.1.1 E3/AS1** - Containment provided to satisfy Paragraph 2.0.1 a) may be achieved by using impervious floor coverings which:
 - a) Are continuous and covered (minimum of 75mm) or joints sealed where they meet the wall. and
 - b) Extend to the doorway and all walls of the room, or to at least 1.5 m from all sanitary fixtures and sanitary appliances in open-plan rooms.

Evidence of Compliance

Due to complexities involved in the implementation of containment and floor waste systems with Timber Flooring, we recommend the specifier to comply with the exemption as mentioned in 2.0.2 E3/AS1.
Note the overflow clause does not apply to detached dwellings.

- 2.0.2 E3/AS1** - Household kitchen sinks and laundry tubs that have an integrated overflow with a minimum flow rate of 0.25 l/s do not require additional overflow provision such as containment and a floor waste where:
- a) The maximum flow rate from the inlet tap(s) is less than the flow rate of the integrated overflow for that sink or tub, or
 - b) The water supplies to the inlet tap(s) for that sink or tub are fitted with proprietary flow restrictors (such as cartridges) to limit the tap flow rate to less than the flow rate of the integrated overflow for the sink or tub.
- Integrated overflows shall be tested and verified in accordance with BS EN 274 to determine their minimum flow rates.

Evidence of E3 Constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces

E3.3.6 E3/AS2

Requirement

1. **E3.3.6 E3/AS2** - Surfaces of *building elements* likely to be splashed must be constructed in a way that prevents water splash from penetrating behind linings or into *concealed spaces*.
2. **2.3.1.3 Class 1C: Water-borne Epoxies (chemically cured)** - Water-borne epoxies when used as a complete multi-coat waterproof system are defined as rigid. - *Extract from Code of Practice for Internal Wet-area Membrane Systems - Pg 14*
3. **4.6 Over-surface Finish Requirements** - The general requirements for over-surface finishes include (but are not limited to):
 - Must not be able to damage membrane.
 - Must not involve un-sealed penetrations through the membrane.
 - All products including adhesives must be compatible with the membrane.
 - The over-surface finish must be easy to clean.
4. **3.8 Table 3: Waterproof Membrane System Selection Guide - Extract (Pg22)**

Legend: A = no hazard involved E = requires some ventilation for safety and curing = recommended for use X = not recommended N/A = not applicable		Class 1
		1C: Rigid, water-borne
Intensity of use	Domestic service	
	Heavy service	X
Substrate Compatibility	Plywood & reconstituted wood panels & overlay	X
	Compressed sheet flooring & overlay	X
	Fibre-cement sheet wall lining or flooring overlay	
	Gypsum plasterboard wall lining	
	Concrete, concrete masonry, cement plaster/screed	
	AAC panel or block	
Over Surface Finishes	Self-finish possible	
	Suitable for tiling	X
	Suitable for vinyl tile or sheet overlay	
Construction Constraints	Handling safety during application	A
	Ventilation requirement	E
	Use where design requires complex detailing	X
	Orientation of installation	N/A
Programme Constraints	Install in a day	
	Multi-coat	
	Multi-coat extended dry	N/A
Use with specialist systems	Compatible with heating layer	N/A
	Use with specialist systems	O

Evidence of Compliance

Our Timber flooring must be installed following the guides VidaSpace has developed. We recommend the Direct Fix method be applied as it minimises natural movement in the timber flooring and substrates. If Combined with the D3 PVA adhesive on all joints as discussed in previously will help prevent water splash from penetrating behind linings or into concealed spaces.

E3/AS2 references a code of practice for the selection, design and installation of internal wet-area membrane systems that help protect buildings from the effects of overflow and water splash when required as part of clauses E3.3.2 – E3.3.6 of the Building Code. VidaSpace has created Floor Build up systems for different install methods which include the use of Bonded 2 part epoxy based DPM (Damp Proof Membrane) to help prevention of penetration behind the linings and into concealed spaces.

Our recommended Marldon MXS140 Damp Proof Membrane has been approved for use with Timber Flooring as per the manufacturers technical Data Sheets. It is compatible with several different floor types – including concrete and sand and cement based subfloors as well as Under Floor Heating (UFH) systems. It produces a guaranteed surface damp proof membrane, accommodating up to 97% RH with just a single coat. Designed for use in conjunction with all other Marldon sub floor preparation products including MXA 200 wood floor adhesive.

We require the DPM to be installed in accordance with the most recent product safety data sheet, technical data sheet, handling/ installation instructions, application manual, and any other technical document or instructions provided.

If installing the timber flooring by adhesive fixing, direct stick it to the waterproof membrane system or direct stick to a screed over the waterproof membrane system. Do not use any mechanical fixings which will penetrate the waterproof membrane system, as these will destroy its integrity.

Evidence of Over-surface finish

- Timber Overlay - Easily Cleaned: As covered in the E3 section of this document
- Timber Overlay - Impervious: As covered in the E3 section of this document

Floor Build Up Systems

VidaSpace has created Floor Build up systems that allows you to choose the complete subfloor solution for your build in seconds. Combining high performance products with low environmental impact and delivering quality without compromise, our products overcome build challenges, saving time and speeding up your build. Simply make your selection from the options below and you'll receive full details of the complete sub-floor build-up you need to support your project. Includes build-ups for both Timber & Concrete Subfloors.

Installation Accessories Compatibility

All our Marldon brand Products are compatible to be used with each other when using our different floor build up systems.

TECHNICAL DATA SHEET

MARLDON MXS140 RAPID DPM
250036

PRODUCT DESCRIPTION

Marldon Rapid DPM MXS140 is a solvent free, accelerated two-part epoxy based surface damp proof membrane, especially developed for suppressing residual moisture in concrete and sand and cement based subfloors. MXS140 is compatible UFH systems and provides a guaranteed surface damp proof membrane, accommodating up to 97% RH with just a single coat. We do not recommend the use of this product over anhydrite/calcium sulphate based screeds when UFH systems are installed within the screed. Due to its rapid drying properties, floor coverings are compatible. Adhesive smoothing compounds can be installed in as little as 3 hours after application.

Designed for use in conjunction with all other Marldon sub-floor preparation products including MXA 200 wood floor adhesive.

Coverage	Approx 12.5sqm per litre (dependent on the porosity of the substrate and method of application) to give a dry film thickness of approximately 200 – 300 microns per coat.
Drying Time	1 to 4 hours at +20°C
Composition	MXS140 is a self-leveling epoxy, which contains wetting agents and penetrants to maximize adhesion. Flow control agents to maximize adhesion and conditioning properties which provide an even surface in moisture vapour.
Working Time	This is the 'Pot' cure profile designed into the product, all product should be applied onto the floor as a thin, immediate after mixing. This will allow for the maximum working life to be achieved and facilitate application and surface coverage.
Storage	Temperature during storage and transport of the goods must not fall below +5 or exceed +30°C. Protect from fire, at all times. Keep out of reach of children and out of the reach of children.
Shelf Life	12 months from date of production when stored in the original unopened container in line with recommended storage temperatures and conditions.
Packaging	Supplied in two parts, Part A (Epoxy) and Part B (Hardener) in a convenient metal tin, which should be used for mixing both parts together. Part B is supplied in smaller metal tin, should be passed in to Part A prior to mixing.
Colour / Mix Ratio	Part A - Resin - Dark Grey / Part B - Hardener - Brown. Mix Ratio 4:1 only.
Service Temperature Range	+5°C to +40°C.

KEY BENEFITS

- ✓ One coat DPM system up to 97% RH.
- ✓ Suitable for applications with underfloor heating.
- ✓ Cures twice as fast as conventional epoxy-based surface damp proof membranes.
- ✓ Substantial time-saving benefits - Floorcoverings can be laid the same day.

This information is given to the best of our knowledge but without liability.

EC1

Marldon UK, 172 Bireley Road, Walton Summit, Preston, Lancashire, PR5 6AH | 01772 696600 | www.marldonuk.com

SYSTEM: VS209

Fitting a timber floor over a damp concrete subfloor

- **TIMBER FLOOR**
Refer to Manufacturer for compatibility.
- **MXA200 ADHESIVE**
This should be trowelled out using the Marldon 3mm or 4mm notched trowel with a coverage of approx. 1KG/sqmetre.
- **MXS140 RAPID DAMP PROOF MEMBRANE**
This should be applied by either a roller or poured into ribbons along the surfaces and trowelled out using a 3mm trowel with a coverage of approx 12.5 – 15 sqmetres / 4 litre units. The MXS140 will isolate moisture up to 97% RH.
- **CONCRETE SUBFLOOR**

VOC- NIL and Fully BREEAM accredited*

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All of our Floor Build up systems can be found on our website (example above right) - www.vidaspace.co.nz/flooring-systems

— Evidence of F2 Hazardous Materials

F2.3.1

Requirements

1. **F2.3.1** - The quantities of gas, liquid, radiation or solid particles emitted by materials used in the *construction of buildings*, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space.

Evidence of Compliance

All VidaSpace Timber Floorings products are low formaldehyde and meet an E1 rating. Please refer to individual product technical data sheets for full test standards and results.

We recommend the cutting of any of our timber is done in a well-ventilated area and ensuring the installer uses a suitable dust mask, eye protection and ear protection. In some cases fine wood dust can cause nasal cancer.

— References

Sources referred to throughout this document

- Building Regulations 1992 (SR 1992/150) - Version as at 15 November 2021
- Acceptable Solutions and Verification Methods. For New Zealand Building Code Clause B2 Durability
- C/AS2 Acceptable Solution for Buildings other than Risk Group SH For New Zealand Building Code Clauses C1-C6 Protection from Fire
- Acceptable Solutions and Verification Methods For New Zealand Building Code Clause D1 Access Routes
- Acceptable Solutions and Verification Methods. For New Zealand Building Code Clause E3 Internal Moisture
- Acceptable Solution E3 Internal Moisture – E3/AS2 Internal Wet-area Membrane Systems.
- BRANZ Bulletin - 'E3/AS1 and wet area flooring' Pg 37-38 - published in October/November 2021 — Build 186

Sources referred to throughout this document

- VidaCare Guide for Timber Flooring – Both Lacquer & Oiled
<https://www.vidaspace.co.nz/downloads-resources#Care-Maintenance>
- Glue Down Timber Floor Installation Guide (Direct Fix)
<https://www.vidaspace.co.nz/downloads-resources#Installation>
- Floating Timber Floor Installation Guide
<https://www.vidaspace.co.nz/downloads-resources#Installation>
- Individual Product Technical Datasheets
<https://www.vidaspace.co.nz/downloads-resources#Technical-Data>

Definitions

This is an abbreviated list of definitions for words or terms particularly relevant to the Building Codes mentioned throughout this document.

- **Acceptable Solution** - means a solution that must be accepted as complying with the Building Code.
- **Access route** - A continuous route that permits people and goods to move between the apron or construction edge of the building to spaces within a building, and between spaces within a building.
- **Alternative solution** - means a solution that is compliant with the Building Code but is not part of the Compliance Document.
- **Amenity** - means an attribute of a building which contributes to the health, physical independence, and well being of the building's users but which is not associated with disease or a specific illness.
- **Building** - has the meaning given to it by sections 8 and 9 of the Building Act 2004.
- **Building Code** - means the regulations made under section 400 of the Building Act 2004.
- **Building element** - Any structural and nonstructural component or assembly incorporated into or associated with a building. Included are fixtures, services, drains, permanent mechanical installations for access, glazing, partitions, ceilings and temporary supports.
- **Concealed space** - Any part of the space within a building that cannot be seen from an occupied space. COMMENT: This term includes any ceiling space, roof space, space under a raised floor (such as computer rooms, floors, or stages), plenums, spaces under a tiered floor, "left-over spaces" created when some structural element or the like has been covered in; small service or duct spaces within the volume of a firecell and the like, but not a protected shaft.
- **Contaminant** - includes any substance (including gases, odorous compounds, liquids, solids, and microorganisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat.
(a) When discharged into water, changes or is likely to change the physical, chemical, or biological condition of water, or
(b) When discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged.
- **Damp-proof membrane (DPM)** - A sheet material, coating or vapour barrier, having a low water vapour transmission, and used to prevent water and water vapour movement through concrete in contact with the ground. (Also known as a concrete underlay.)
- **Durable** - Resistant to wear and decay.
- **Firecell** - Any space including a group of contiguous spaces on the same or different levels within a building, which is enclosed by any combination of fire separations, external walls, roofs, and floors.
- **Fixture** - An article intended to remain permanently attached to and form part of a building.
- **Floor waste** - An outlet located at the low point of a graded floor or in a level floor designed to receive accidental or intentional discharges.
- **Habitable space** - A space used for activities normally associated with domestic living, but excludes any bathroom, laundry, watercloset, pantry, walk-in wardrobe, corridor, hallway, lobby, clothes-drying room, or other space of a specialised nature occupied neither frequently nor for extended periods.
- **Hazardous** - Creating an unreasonable risk to people of bodily injury or deterioration of health.

- **Household unit -**
 - a) means any building or group of buildings, or part of a building or group of buildings, that is:
 - i) used, or intended to be used, only or mainly for residential purposes; and
 - ii) occupied, or intended to be occupied, exclusively as the home or residence of not more than one household; but
 - b) does not include a hostel, boarding house or other specialised accommodation.
- **Impervious -** That which does not allow the passage of moisture.
- **Intended use -** in relation to a building,—
 - (a) includes any or all of the following:
 - (i) any reasonably foreseeable occasional use that is not incompatible with the intended use;
 - (ii) normal maintenance;
 - (iii) activities undertaken in response to fire or any other reasonably foreseeable emergency; but
 - (b) does not include any other maintenance and repairs or rebuilding.
- **Nosing -** The rounded projecting edge of a stair tread.
- **NZBC -** New Zealand Building Code.
- **Person -** includes the Crown, a corporation sole, and also a body of persons, whether corporate or unincorporated.
- **Sanitary appliance -** An appliance which is intended to be used for sanitation, but which is not a sanitary fixture. Included are machines for washing dishes and clothes
- **Sanitary fixture -** Any fixture which is intended to be used for sanitation. COMMENT: Toilets, urinals, bidets, baths, showers, basins, sinks and tubs are examples of common sanitary fixtures.
- **Sanitation -** The term used to describe the activities of washing and/or excretion carried out in a manner or condition such that the effect on health is minimised, with regard to dirt and infection.
- **Specified intended life -** has the meaning given to it by section 113(3) of the Building Act 2004. Section 113(3) states: “(3) In subsection (2), specified intended life, in relation to a building, means the period of time, as stated in an application for a building consent or in the consent itself, for which the building is proposed to be used for its intended use.”
- **Surface finish -** The combination of a surface coating and substrate material on surfaces of building elements exposed to view. It can be an applied decorative coating or the uncoated building element itself.
- **Thermal resistance -** The resistance to heat flow of a given component of a building element. It is equal to the temperature difference (°C) needed to produce unit heat flux (W/m²) through unit area (m²) under steady conditions. The units are °Cm²/W.
- **Total thermal resistance -** The overall air-to-air thermal resistance across all components of a building element such as a wall, roof or floor. (This includes the surface resistances which may vary with environmental changes, e.g. temperature and humidity, but for most purposes can be regarded as having standard values as given in NZS 4214.)
- **Vapour barrier -** Sheet material or coating having a low water-vapour transmission, and used to minimise water-vapour penetration in buildings. (Vapour barriers are sometimes referred to as damp-proof membranes.)
- **Wet area -** An area within a building supplied with water from a water supply system including bathrooms and showers, laundries, sanitary compartments and kitchen areas.

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