

# Forté Alternative Solution Guidance for Timber Flooring (E3 Installations)

For use with the Forté Timber Overlay Flooring System



## Scope of Use E3 I

This Alternative Solution applies to

- Single-dwelling kitchens / Laundries / WC (Excludes bathrooms\*)
- Multi-dwelling kitchens / Laundries (Excludes bathrooms\* and WC\*\*)

\*We do not recommend the installation of timber flooring in bathrooms (rooms with baths/showers) and installations in these areas are outside the scope of this Alternative Solution guidance. Please contact Forté if you have an area requiring installation in one of these areas for project-specific information.

\*\*A wet-area membrane is required for the installation of timber flooring in a Powder Room/WC in a multi-dwelling building.

## B2 - Durability & Assured Maintenance (B2/AS1)

### DURABILITY REQUIREMENT

#### B2/AS1 Table 1

The durability Requirement for "Floor Coverings - Protective or Acoustic Coverings" is 5 years.

Note: The durability requirement applies to the nominated building element (Any structural and non-structural component or assembly incorporated into or associated with a building). In the case of Timber Flooring, this would mean the flooring plank assembly in its entirety rather than just the topcoat surface of the flooring product

Note 2: Wet Areas containing Baths/Showers are outside the scope of this Alternative Solution, therefore there is unlikely to be frequent water-splash in the area of installation (Refer to Timber and timber-based flooring in wet areas for more information).

### DURABILITY EVIDENCE OF COMPLIANCE

#### B2/VM1 1.1.1 In-service history

Overlay Timber Flooring has been installed in Kitchens, Laundries, and WC's for longer than any other building materials. Forté only supplies timber flooring with Polyurethane finishes.

Additional in-service history evidence:

1. Matai timber flooring that has stood up well to splashes and occasional floods over 25 years. - SOURCE: BRANZ Article 'E3/AS1 and wet area flooring'
2. Forte have supplied thousands of timber floors for the past 20 years which have been installed in kitchens and other Wet Areas without any issue at all (Note if a major flood occurs, the flooring may need to be sanded and recoated). As these are generally private residential homes, please enquire for a specific example if required.

#### B2/VM 1.2.1 Laboratory testing

Forté engaged SGS New Zealand Ltd (An IANZ accredited laboratory) to conduct independent testing on the passage of moisture for all Forté timber flooring products, and all have passed this test. Please enquire for a copy of the test report(s).

#### Timber Subfloors and Assured Maintenance

Point 3.2.2.3 of B2/AS1 States that "Where maintenance of an impervious coating cannot be assured in wet areas, plywood flooring treated to minimum H3, or solid pinus species or Douglas fir flooring treated to minimum H1.2, shall be used"

Timber is hygroscopic and experiences some dimensional movement in response to climatic conditions. Engineered Flooring that is Direct-stuck will minimize the movement; however, we recommend H3-treated plywood or another of the above substrates should be used when installing over a timber Substrate as per the above statement.

Note 1: We do not recommend installing over the top of Particleboard or Oriental Strand Board under this Alternative Solution. These subfloors should be covered with a Wet-Area Membrane as per E3/AS2.

Note 2: Installing over top of existing solid NZ Native timber subfloors is common practice (i.e., in a villa renovation). For added protection, it is recommended to coat the timber with a 2-component epoxy Moisture Barrier to the Native timber subfloor before installing the timber.

## E3 - Impervious (E3.3.3 & E3.3.5)

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"

The Objective (E3.1) and Functional (E3.2) requirement of E3 is to prevent illness/injury or damage through accumulation of moisture, or damage caused by free water penetration.

As there are no verification methods provided to test for an impervious surface, Forté engaged SGS New Zealand Ltd (An IANZ accredited laboratory) to conduct independent testing on the passage of moisture for all Forté timber flooring products, and all have passed the test. Please enquire for a copy of the test report(s).

Further to the above, the Acceptable Solution as per Comment under 3.1.1 of E3/AS1 states, "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 water splash, and/or if the surface is sealed with a suitable durable coating."

This sentence can be broken into three parts to aid in demonstrating compliance:

### 1. Installed in a manner that prevents gaps or cracks within the finish

We recommend a minimum D3 durability class of PVA. The D3 durability class rating means "Interior areas with frequent long-term exposure to running or condensed water. Exterior areas not exposed to weather." Refer to EN204 for more information

To ensure the flooring is installed in a manner that prevents gaps or cracks within the finish, the Timber Flooring Overlay System Installation Guide must be followed. This system requires using a water-resistant PVA adhesive in all joints (both along the length of the plank and at the ends of planks) during installation in areas containing sanitary fixtures or sanitary appliances.

### 2. Installed in a manner that prevents gaps or cracks at any parts of its perimeter that are exposed to watersplash

To ensure the flooring is installed in a manner that prevents gaps or cracks at any parts of its perimeter that are exposed to watersplash, the Timber Flooring Overlay System Installation Guide must be followed. This system requires using an acrylic-based flexible joint filler specialised for use with timber flooring. This is to be used to seal any parts of the perimeter and any fixed items within the area (ie floor to wall junction, kitchen waste pipes) that are exposed to water splash (including a minimum of 1.5m from all sanitary fixtures and sanitary appliances in open-plan rooms as per 3.1.1 of E3/AS1).

It may also be possible to use a silicone sealant, however it is not a preferred option as silicones are not able to be sanded/recoated which may cause aesthetic issues when the timber flooring is sanded and recoated at a future date.

### 3. Surface sealed with a suitable durable coating

All timber flooring from Forté comes factory-finished with durable polyurethane (not oil) coatings with at least four layers of coating. Refer to the relevant product specification sheet for information on the number of coatings for individual products. Polyurethane finishes have had over 50 years of in-service history in kitchens and bathrooms in New Zealand residential and commercial buildings, and provided it is maintained as per 'normal maintenance' requirements of B2/AS1 2.1, a quality polyurethane finish would be classified as "a suitable, durable coating".

## E3 - Overflow (E3.3.2)

E3/AS1 2.0.1 states that overflow is required when "...accidental overflow could damage an adjoining household unit or other property". When in effect, the overflow clause in E3/AS1 requires containment (coving of 75mm), as well as floor wastes (complying with NZBC G13).

As there are complications around the detailing of containment and floor wastes with Timber Flooring, we recommend the specifier adhere to the exemption under E3/AS1 2.0.2, which states "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..."

To satisfy this exemption, the specifier should ensure that.

- 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.

NOTE: The overflow clause does not apply to detached dwellings.

## **E3 - Constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces (E3.3.6)**

Forté has developed the Timber Overlay Flooring System Installation Guide, which requires the flooring to be glued to the substrate rather than 'floated' on top of the substrate and minimizes the natural movement of the timber. This, combined with the joint filling requirements (as mentioned under the 'Impervious' point above), creates a well-designed system that is constructed in a way that prevents water splash from penetrating behind linings or into concealed spaces.

## **F2 - Hazardous Building Materials (F2.3.1)**

All Forté Timber Flooring collections are low-formaldehyde and meet at least an E1 rating when tested in accordance with AS/NZS 2098.11.

The Forté Timber Overlay Flooring System Installation Guide advises the installer that cutting of timber is to be done in a well-ventilated area and for a suitable dust mask, eye protection, and ear protection to be worn, as some fine wood dust can cause nasal cancer.

## **C3 – Critical Radiant Flux for Flooring**

Wood products equal to or greater than 12mm thick with a density of 400kg/m<sup>3</sup> will meet a rating of 2.2 kW/m<sup>2</sup> (see C/VM2 Appendix B Table B1).

This means all Forté wood flooring materials are acceptable in all spaces, with the one exception of buildings with a risk group of SI (Aged Care & Detention) that are un-sprinklered, which requires a 4.4 kW/m<sup>2</sup> rating. Some Forté products meet this rating, please enquire for specific test results.

## **D1 – Slip Resistant Stair Nosings**

As per 2.1.5b of D1/AS1, Handbook HB197 can be used to advise on minimum slip resistance values for various areas based on the Wet Pendulum test conducted as per AS4586 using a slider 96 rubber. The required result for Staircases (provided handrails are present) is Classification X.

All Forté collections achieve a Classification X or W and therefore are suitable for use on staircases (both residential and commercial) without slip-resistant nosings provided handrails are present. If handrails are not present, or if you would like additional slip-resistance, it is possible to create slip-resistant nosing – refer to the Forté Timber Overlay Flooring System Design Guide for more information