

# Timber Overlay Flooring System Design Guide

FOR USE WITH GLUE DOWN PRE-FINISHED ENGINEERED PLANK FLOORING



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Lake Rotoiti House  
Evelyn McNamara Architecture



Gisborne Apartment  
Abbey Lang Home

# 1. Scope of Use

The Forté Timber Overlay Flooring System as per the [Installation Guide](#) is designed for use as non-structural overlay flooring inside residential and commercial buildings. Installations outside of the scope of use will not be covered under warranty.

## FORTÉ TIMBER OVERLAY FLOORING SYSTEM

The flooring is suitable for all areas other than garages and commercial kitchens.

The flooring should always be installed onto an approved substrate (refer to [Approved substrates](#)).

Additional requirements must be adhered to for installations in wet areas (refer to [Wet areas](#)).

Additional requirements must be adhered to for installations with underfloor heating (refer to [Underfloor heating](#)).

The area with flooring should be protected against changes in climate. Refer to [Forté Care & Maintenance Guide](#).

The flooring should be separated from fuel-burning appliances, flues, and chimneys in accordance with NZBC Section C AS/1.

For installations where a single length/run of the timber flooring will be over 15 meters, please contact Forté to ensure suitability for installation.



Roy's Peak Crib  
Mason & Wales Architects

## 2. Product Overview

All flooring collections from Forté are suitable for use with the Forté Timber Overlay Flooring System. See below overview of our flooring collections.

\* herringbone and chevron options available.

### ARTEFACT COLLECTION

Artefact Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

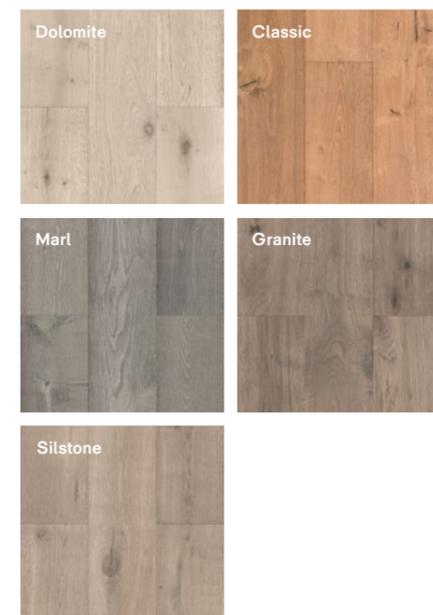
<b>Dimensions</b>	15mm T x 220mm W x 1800–2200mm L	
<b>Format</b>	Plank	
<b>Colour</b>	<b>Grade</b>	<b>Code</b>
<b>Ammonite*</b>	Rustic	ART-AMMRP
<b>Amulet*</b>	Rustic	ART-AMURP
<b>Flint*</b>	Rustic	ART-FLRP
<b>Obsidian*</b>	Rustic	ART-ORP



### ATELIER

Atelier Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

<b>Dimensions</b>	15mm T x 220mm W x 2200mm L 21mm T x 260mm W x 2200mm L	
<b>Format</b>	Plank	
<b>Colour</b>	<b>Grade</b>	<b>Code</b>
<b>Dolomite*</b>	Rustic	AT-DRP15 / AT-DRP21
<b>Classic*</b>	Rustic	AT-CRP15 / AT-CRP21
<b>Siltstone*</b>	Rustic	AT-SRP15 / AT-SRP21
<b>Marl*</b>	Rustic	AT-MRP15 / AT-MRP21
<b>Granite*</b>	Rustic	AT-GRP15 / AT-GRP21



## ARTISTE RUSTIC

Villa Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 20mm T x 250mm W x 2480mm L

**Fomat** Plank

Colour	Grade	Code
--------	-------	------

<b>Picasso*</b>	Rustic	AR-PRP
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<b>Monet</b>	Rustic	AR-MRP
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<b>Da Vinci*</b>	Rustic	AR-DVRP
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<b>Van Gogh*</b>	Rustic	AR-VGRP
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<b>Vermeer*</b>	Rustic	AR-VRP
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## INDUS COLLECTION

Indus Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 18mm T x 240mm W x 2400mm L

**Fomat** Plank

Colour	Grade	Code
--------	-------	------

<b>Atacama*</b>	Feature	IN-AFP
	Prime	IN-APP

<b>Kharan</b>	Feature	IN-KFP
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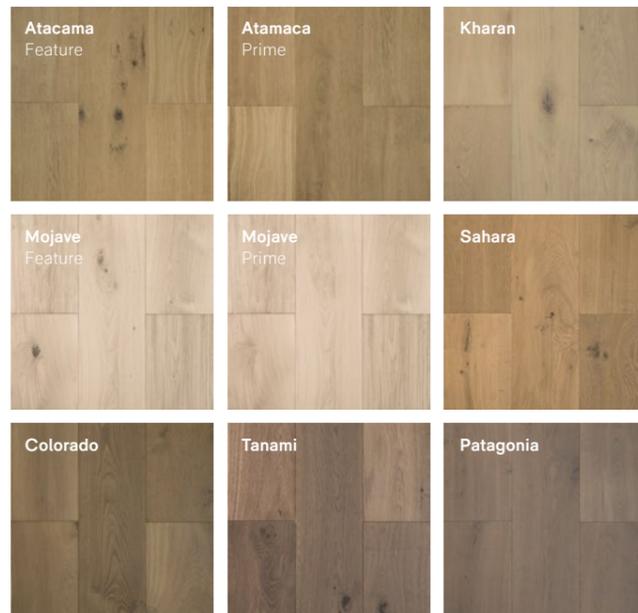
<b>Mojave</b>	Feature	IN-MFP
	Prime	IN-MPP

<b>Sahara*</b>	Feature	IN-SFP
	Prime	IN-SPP

<b>Colorado</b>	Feature	IN-CFP
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<b>Tanami</b>	Feature	IN-TFP
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<b>Patagonia*</b>	Feature	IN-PFP
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## MODA ALTRO COLLECTION

Moda Altro Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 15mm T x 220mm W x 1830-2190mm L

**Fomat** Plank

Colour	Grade	Code
--------	-------	------

<b>Amalfi</b>	Feature	MOA-AFP
---------------	---------	---------

<b>Capri*</b>	Feature	MOA-CAFP
---------------	---------	----------

<b>Como</b>	Feature	MOA-CFP
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<b>Mondello</b>	Feature	MOA-MFP
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<b>Sorrento*</b>	Feature	MOA-SFP
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<b>Verona</b>	Feature	MOA-VFP
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<b>Tuscany</b>	Feature	MOA-TFP
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<b>Isola</b>	Feature	MOA-IFP
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<b>Dolcedo*</b>	Feature	MOA-DFP
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## MODA MEZZO COLLECTION

Moda Mezzo Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 15mm T x 190mm W x 2190mm L

**Fomat** Plank

Colour	Grade	Code
--------	-------	------

<b>Amalfi</b>	Feature	MOM-AFP
---------------	---------	---------

<b>Capri*</b>	Feature	MOM-CAFP
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<b>Como</b>	Feature	MOM-CFP
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<b>Mondello</b>	Feature	MOM-MFP
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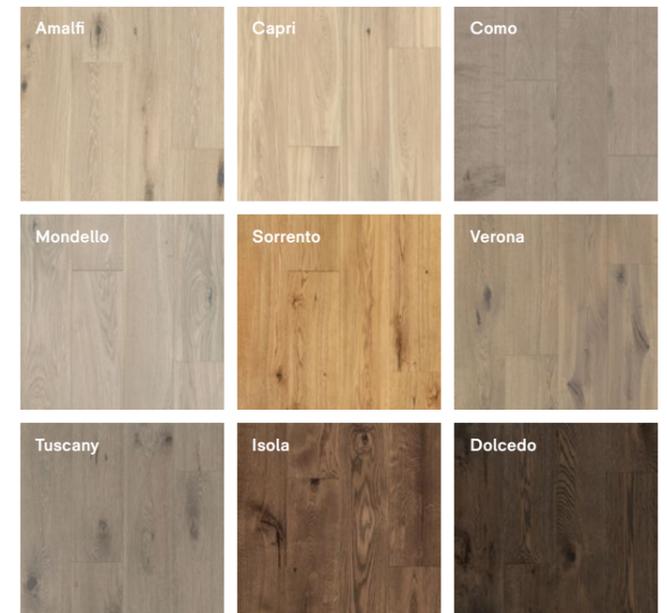
<b>Sorrento*</b>	Feature	MOM-SFP
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<b>Verona</b>	Feature	MOM-VFP
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<b>Tuscany</b>	Feature	MOM-TFP
----------------	---------	---------

<b>Isola</b>	Feature	MOM-IFP
--------------	---------	---------

<b>Dolcedo*</b>	Feature	MOM-DFP
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## MODA STRETTO COLLECTION

Moda Stretto Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 15mm T x 138mm W x 2190mm L

**Fomat** Plank

**Colour** **Grade** **Code**

**Amalfi** Feature MOS-AFP

**Capri\*** Feature MOS-CAFP

**Como** Feature MOS-CFP

**Mondello** Feature MOS-MFP

**Sorrento\*** Feature MOS-SFP

**Verona** Feature MOS-VFP

**Tuscany** Feature MOS-TFP

**Isola** Feature MOS-IFP

**Dolcedo\*** Feature MOS-DFP



## SMARTFLOOR COLLECTION

Smartfloor Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 15mm T x 190mm W x 2200mm L

**Fomat** Plank

**Colour** **Grade** **Code**

**Blonde Oak\*** Feature SBOF190

Light Feature SBO190

**Clay Oak** Feature SCOF220

Light Feature SCO220

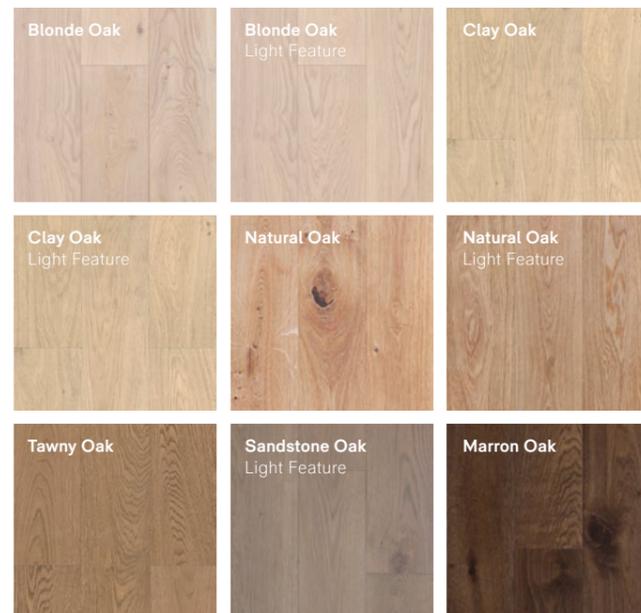
**Natural Oak\*** Feature SNOF190

Light Feature SNO190

**Tawny Oak\*** Feature STO220

**Sandstone Oak** Light Feature SSO190

**Marron Oak\*** Feature SMO190



## ULTRA COLLECTION

Ultra Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 21mm T x 190mm W x 1900mm L

**Fomat** Plank

**Colour** **Grade** **Code**

**Marbled Oak** Prime UL-MPP

**Bordeaux Oak** Feature UL-BFP

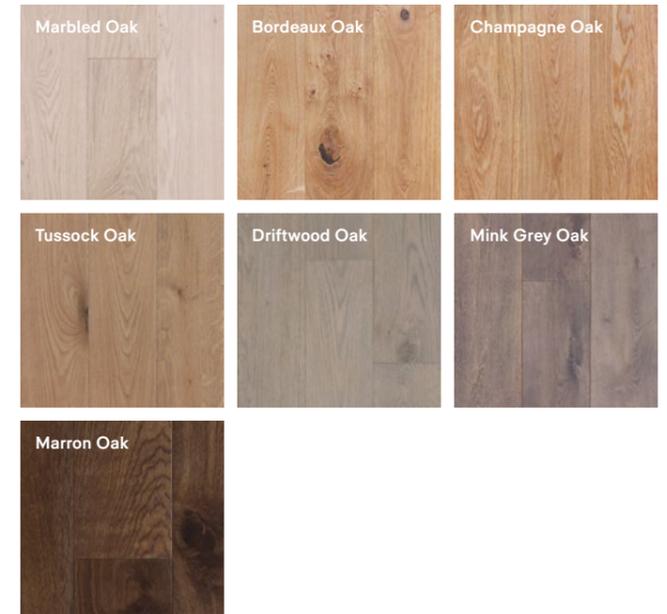
**Champagne Oak** Prime UL-CPP

**Tussock Oak** Feature UL-TFP

**Driftwood Oak** Feature UL-DFP

**Mink Grey Oak** Feature UL-MGFP

**Marron Oak** Feature UL-MFP



## VILLA COLLECTION

Villa Collection Engineered T&G plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 18mm T x 240mm W x 2400mm L

**Fomat** Plank

**Colour** **Grade** **Code**

**Cashmere** Rustic VI-CRSP

**Dune** Rustic VI-DRSP

**Limestone** Rustic VI-LRSP

**Chai** Rustic VI-CHRSP

**Raven** Rustic VI-RRSP



## URBAN COLLECTION

Urban Collection Engineered locking profile plank by Forté. Direct stick installation method onto approved substrate. Pre-finished with Italian UV Cured Polyurethane Lacquer.

**Dimensions** 14mm T x 190mm W x 1830mm L

**Fomat** Plank

**Colour** **Grade** **Code**

**Copenhagen** Prime UR-CPP  
Feature UR-CFP

**Berlin** Feature UR-BEFP

**Milan** Feature UR-MFP

**New York** Prime UR-NYPP  
Feature UR-NYFP

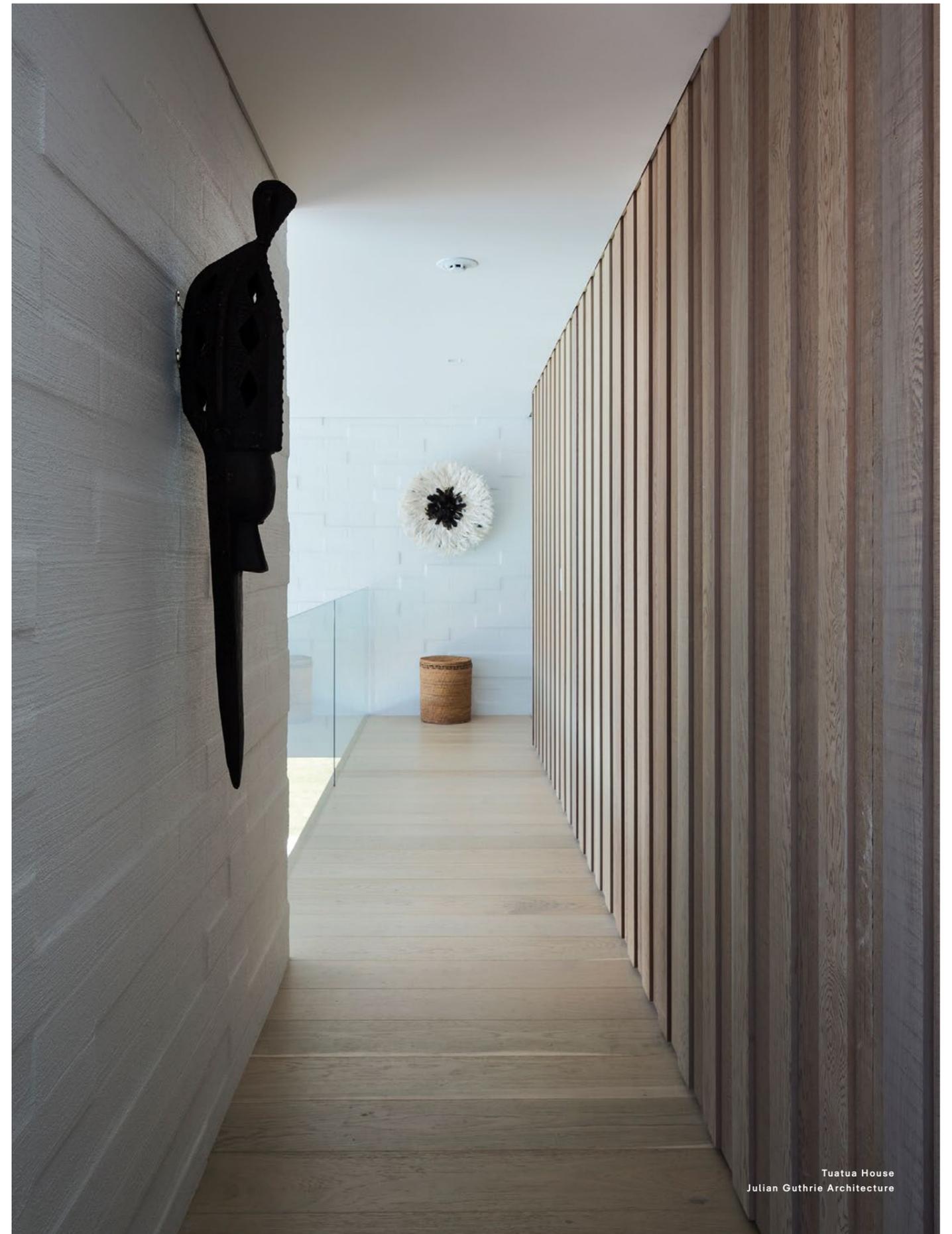
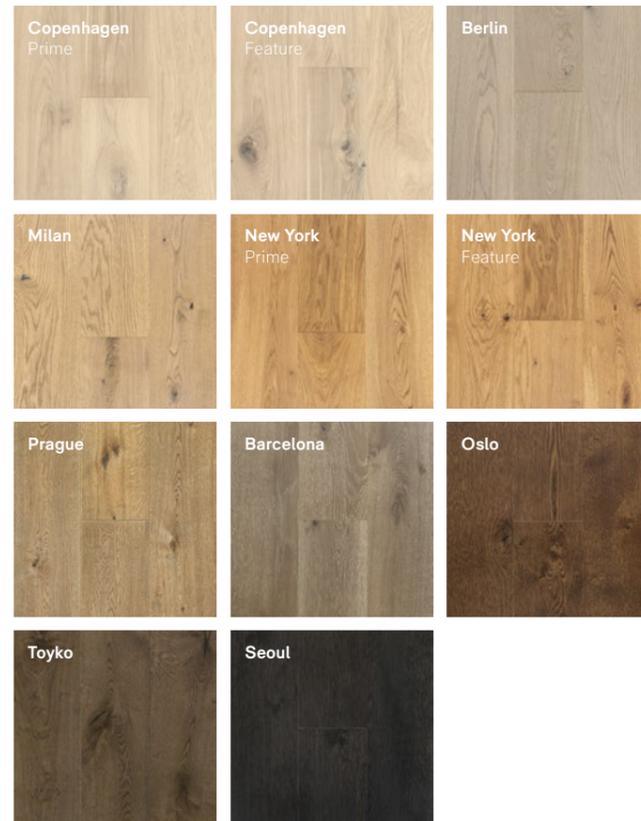
**Prague** Feature UR-PFP

**Barcelona** Feature UR-BAFP

**Oslo** Feature UR-OFP

**Toyko** Feature UR-TFP

**Seoul** Feature UR-SFP



Tuatua House  
Julian Guthrie Architecture



## 3. Approved Substrates & Flooring Heights

### 3.1

#### APPROVED SUBSTRATES

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- a) Concrete floors (slab-on-grade or suspended)
- b) Timber flooring (structural or overlay, but not timber joists)  
*When installing over solid native timber subfloors in wet areas, a two component epoxy moisture barrier should be applied.*
- c) Concrete floors with Hydronic Underfloor Heating system (set into slab 30mm minimum)
- d) Electric underfloor heating system (set into screed 8mm minimum)
- e) Wet-Area Membrane systems (when approved by the membrane system supplier)
- f) Acoustic underlay glued to an approved substrate

### 3.2

#### FLOORING HEIGHTS

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If there is a major variance of height within the subfloor where the timber flooring is to be installed, ie. a renovation, plywood sheets/squares can be used to level this out to achieve a flush transition prior to installation.

For a minor variance of height within the subfloor where the timber flooring is to be installed, screed or levelling compound can be used to level this out prior to installation.

**Note:** As a general rule, the total finished height of the flooring on top of the substrate is the thickness of the product plus 2mm for glue and moisture barriers.

Where possible, consult with the flooring installer for site specific advice.

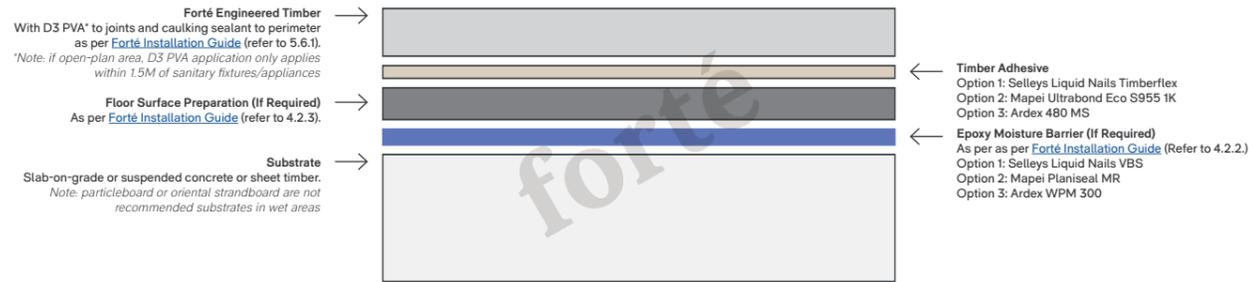
### 3.3

## FLOORING BUILDUP DIAGRAMS

### SINGLE (STANDALONE) DWELLING

#### Wet Areas (E3 Alternative Solution Compliance)

*Includes Kitchens, Bathrooms, Toilets, and Laundries*



Forté E3 Technical Documentations for Submitting to Council

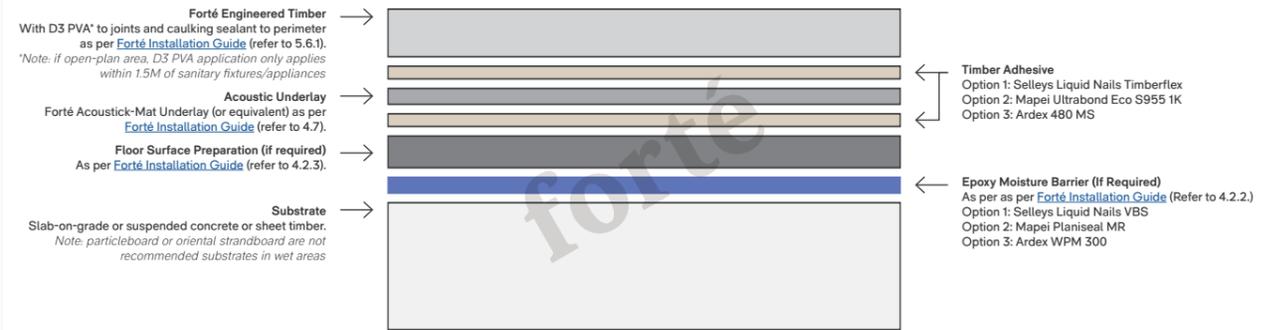
1. [Selley's](#)
2. [Mapei](#)
3. [Ardex](#)

*Note: Moisture barriers, surface preparation, and adhesives should be from the same supplier*

### MULTI DWELLING

#### Wet Areas (E3 Alternative Solution Compliance)

*Includes Kitchens, Bathrooms, Toilets, and Laundries*



Forté E3 Technical Documentations for Submitting to Council

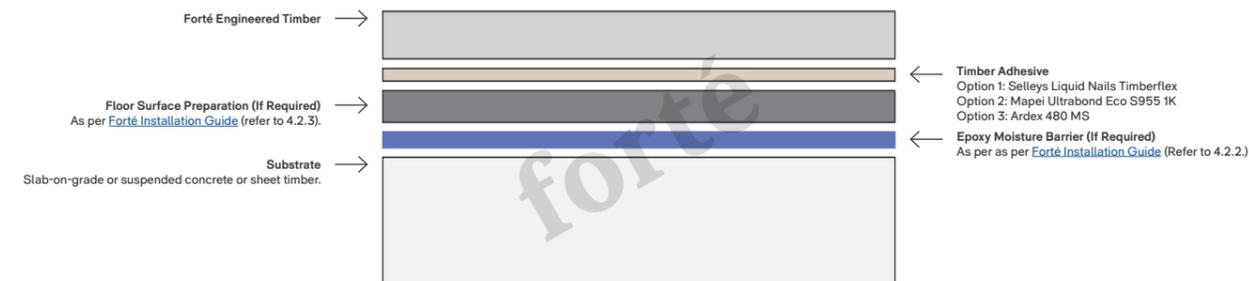
1. [Selley's](#)
2. [Mapei](#)
3. [Ardex](#)

*Note: Moisture barriers, surface preparation, and adhesives should be from the same supplier*

### SINGLE (STANDALONE) DWELLING

#### Non Wet Areas

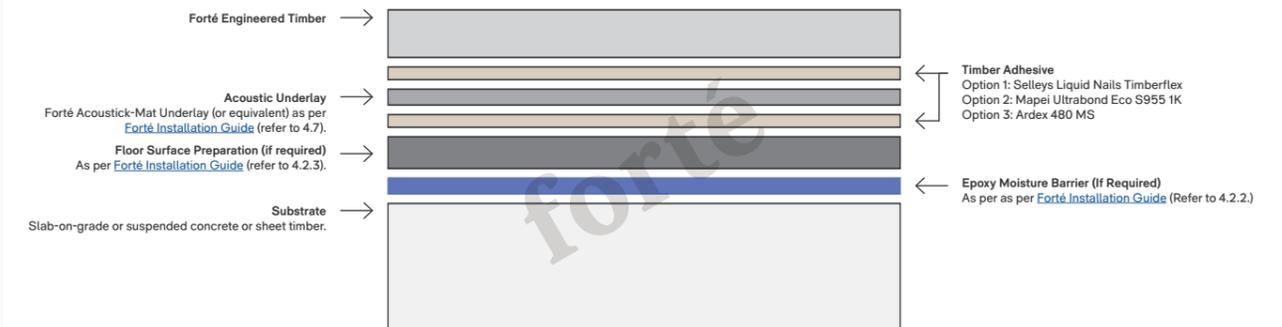
*Areas other than Kitchens, Bathrooms, Toilets, and Laundries*



### MULTI DWELLING

#### Non Wet Areas

*Areas other than Kitchens, Bathrooms, Toilets, and Laundries*



## 4. Slip resistance (D1 Compliance)



Active Healthcare  
Pennant & Triumph

#### 4.1

### ENTRANCE MATTING IN COMMERCIAL ENTRANCE POINTS

Entrance mats should always be incorporated into the main entrance points in commercial spaces to minimise water and stones damaging the timber floor (required as per 2.1.6 'Transition Zones' of D1/AS1).

If the entrance mat is inset to the timber flooring, we recommend an aluminium or brass flat bar to be installed around the perimeter to protect the edge of the timber. These are available to purchase from Forté.



#### 4.2

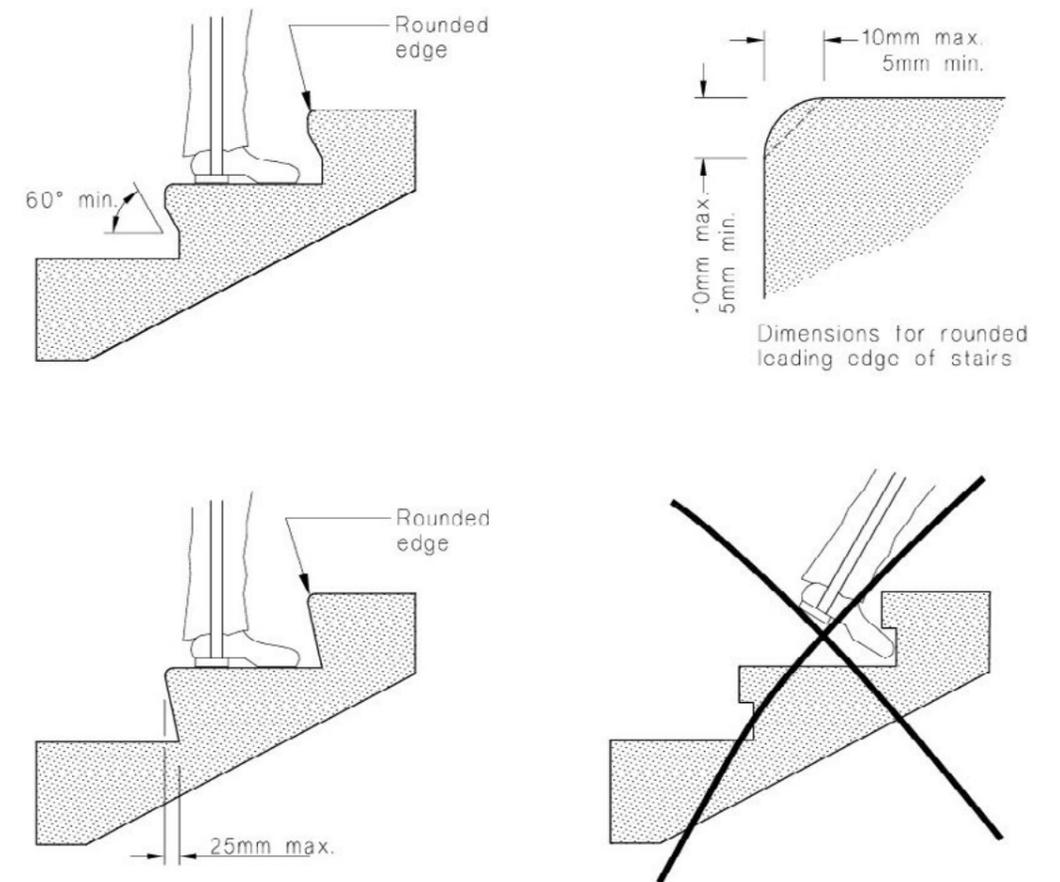
### ACCESSIBLE STAIRWAY DESIGN

As per NZBC Clause D1 an accessible stairway has features for use by people with disabilities. Accessible buildings need at least one accessible stairway leading off an accessible route, even if a lift is provided.

Rounded edge – need solid nosing needs to be made up for accessible stairways – contact Forté for more information.

See below accessible stairway projections.

**Figure 13: Accessible Stairway Projections**  
Paragraph 4.1.7



### 4.3

#### SLIP-RESISTANT 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.

Wet Pendulum Slip Resistant Value (SRV) to HB197 Classification

	SRV (slider 96)	Classification	Slip-Resistant Nosings Required?
More Slip Resistant ↓	<12	Z	
	12—24	Z	Yes
	25—34	Y	
	35—44	X	
	45—54	W	No
	>54	V	

HB197:1999 Table 1 – Flooring selection pendulum recommendations for specific locations (Extract)

Location	Required Pendulum Result
Accessible internal stair nosings (dry areas)- handrails present	Classification X

As per the below table, 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 as per the below guidelines.

D1 Access — Stairs / Ramps

Collection	Artefact	Artiste Refined	Artiste Rustic	Indus	Moda Altro	Moda Mezzo & Stretto	Smartfloor	Ultra	Urban	Villa
SRV Value	42	38	35	40	48	43	41	38	46	40
Classification	X	X	X	X	W	X	X	X	W	X
P Rating	P3	P3	P3	P3	P4	P3	P3	P3	P4	P3
Slip Resistant Nosings required?	No	No	No	No	No	No	No	No	No	No

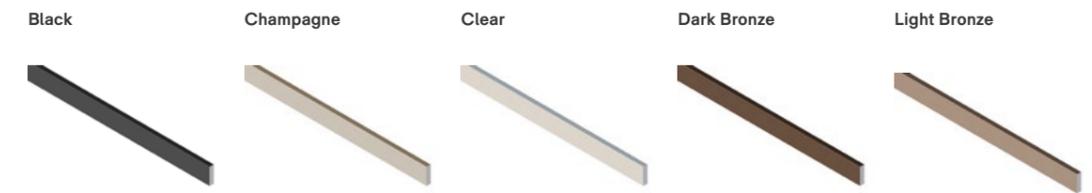
### 4.3.1

#### ALUMINIUM OR BRASS INSERTS

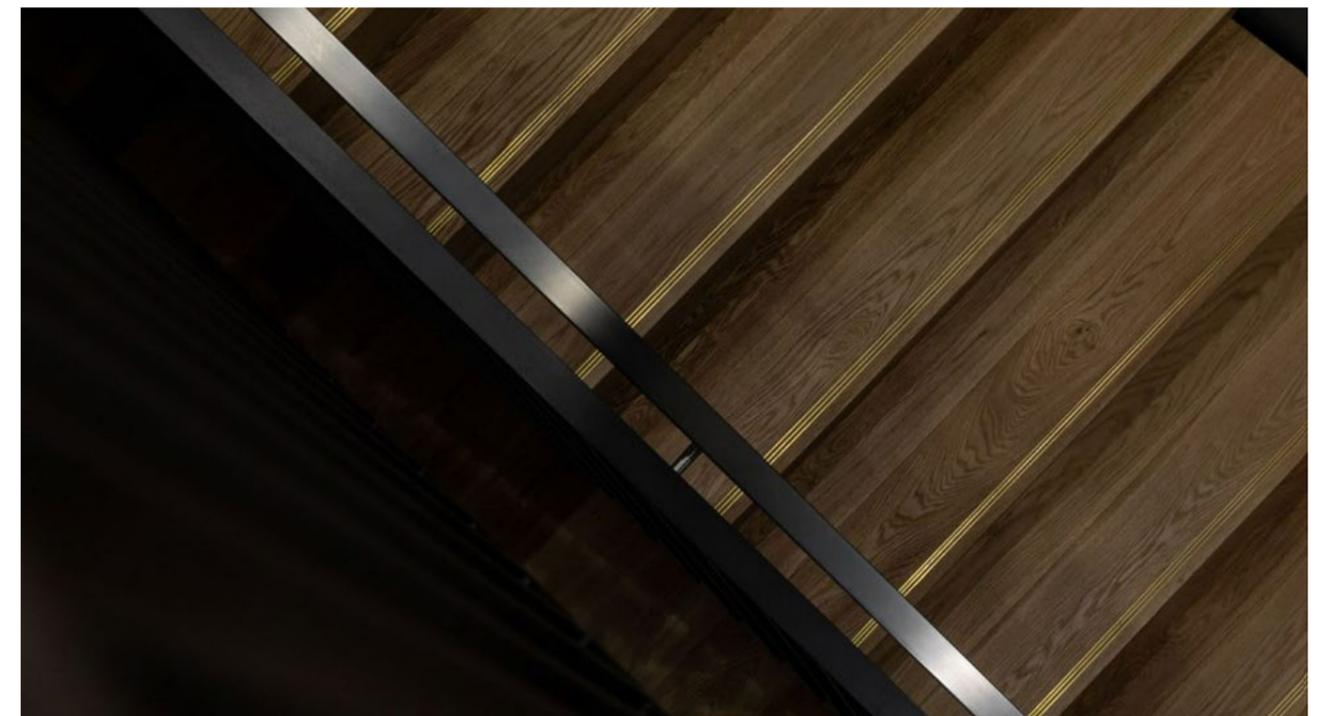
Forté offer brass stair tread options as well as aluminium in a range of colours. Refer to our [website](#) for all options and availability or enquire with your Forté Account Manager for more information.

For a minimal aesthetic, flat bars can be inserted into the stair tread to create a slip-resistant nosing. We supply a 9mm x 3mm Flat bar in selected colours specifically designed for this application. Please enquire with your Forté Account Manager for more information.

#### ANODISED



#### ORGANIC



4.3.1 CONT.

**DESIGN CONSIDERATIONS WHEN USING ALUMINIUM OR BRASS INSERTS**

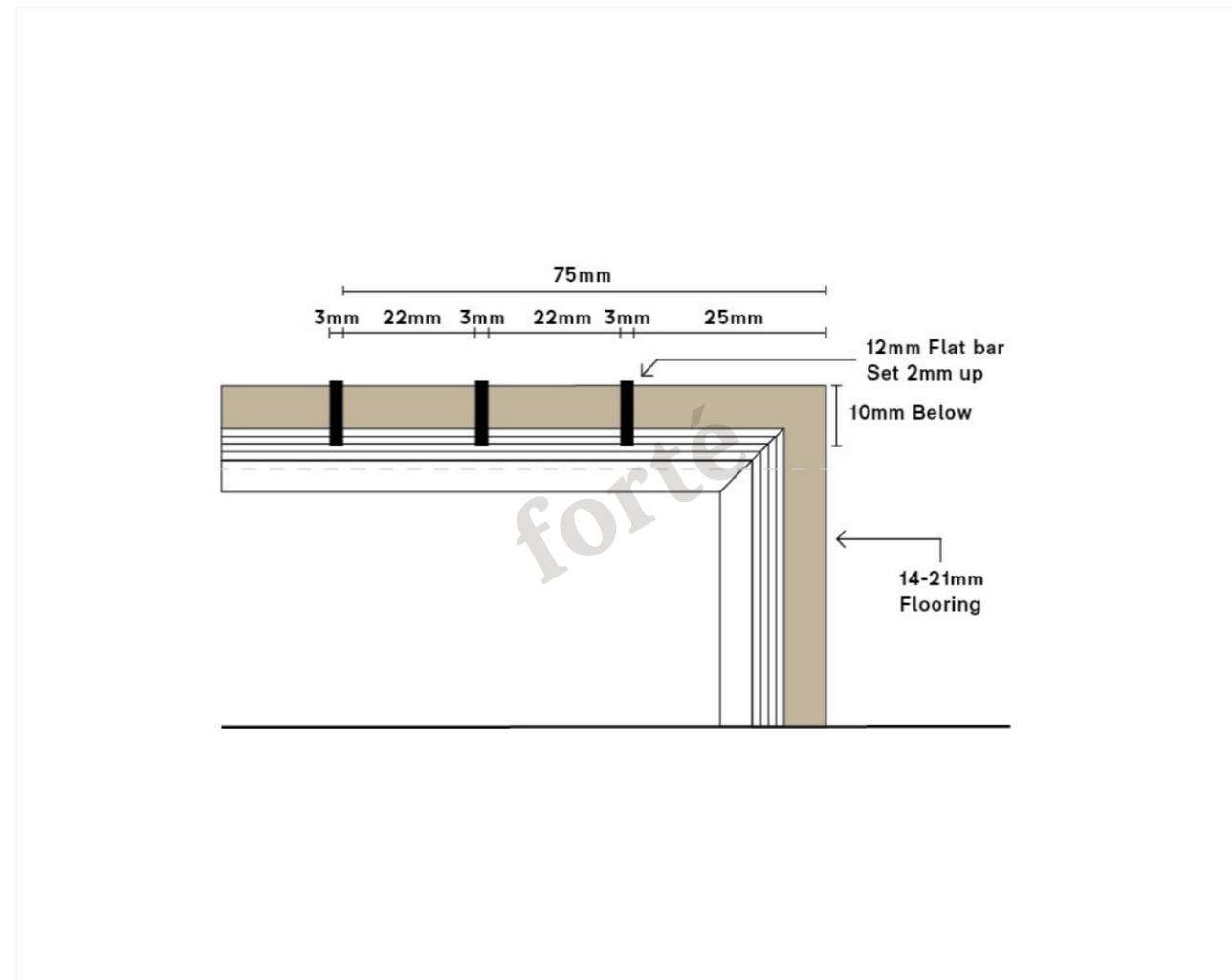
The first insert should be set back 25mm from the edge of the nosing to ensure the structural integrity of the timber overlay.

**Width:** The total width should be between 50-75mm wide, and we recommend 2-3 evenly spaced inserts per tread. For example, we recommend using 3 x 3mm inserts with 22mm spacing between the inserts for a total cover of 75mm.

**Depth:** Each insert should protrude 2mm from the surface of the flooring, and 1mm additional depth should be allowed for adhesive.

The insert should have a minimum luminance contrast of 30% to the tread (e.g., if the flooring is a very dark colour, do not specify/install a black insert as it is unlikely to be seen).

**Adhesive:** Inserts can be glued using Quilosa FMS, Tredlock, or an equivalent adhesive



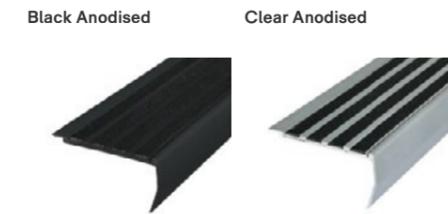
4.3.2

**HEAVY-DUTY ALUMINIUM COVER**

Alternatively, a heavy-duty aluminium profile with tread inserts can be used to create a slip-resistant nosing e.g., Stepmaster SMN112 and SMN113 from Freedom Strategies.

Both the Stepmaster SMN112 and SMN113 may be available in black and clear finishes. Refer to the Freedom Strategies [website](#) for all options and availability.

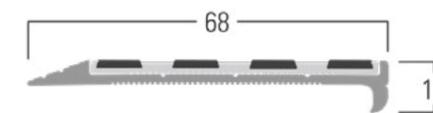
**FINISHES**



SMN112



Side profile



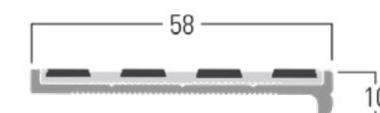
SMN112 on timber



SMN113



Side profile



SMN113 recessed into timber





Point Chevalier House  
Sticks + Stones Design

## 5. Wet Areas (E3 Compliance)

As of 5 November 2021, additional Building Code changes came into effect, which has impacted how wood flooring is to be specified in wet areas.

This change is only relevant to timber flooring being specified in wet areas such as kitchens, bathrooms, toilets, and laundries and does not include living areas, dining spaces, hallways, or entrances.

As Timber Flooring has been removed from Acceptable Solution E3/AS1, Timber flooring must now be submitted for Building Consent using one of the two below compliance pathways:

- Alternative Solution (D3 PVA Joints/Caulk Perimeter); or
- E3/AS2 (Wet Area Membrane)

Read this section for information about these options so you can decide which is best for your project.

## 5.1

### SHOULD I SPECIFY AN ALTERNATIVE SOLUTION OR E3/AS2?

There are two pathways to comply with the E3 clause Building Code when installing Timber flooring in wet areas, below is an overview of each.

#### Alternative Solution (D3 PVA Joints/Caulk Perimeter)

Submit as an Alternative Solution by specifying Forté Timber flooring (all products have passed testing to ISO4760), sealing plank joints with D3 PVA, and sealing the perimeter with Caulking within the Wet Area.

Refer to [Forté Alternative Solution Guidance for Timber Flooring](#) for more information.

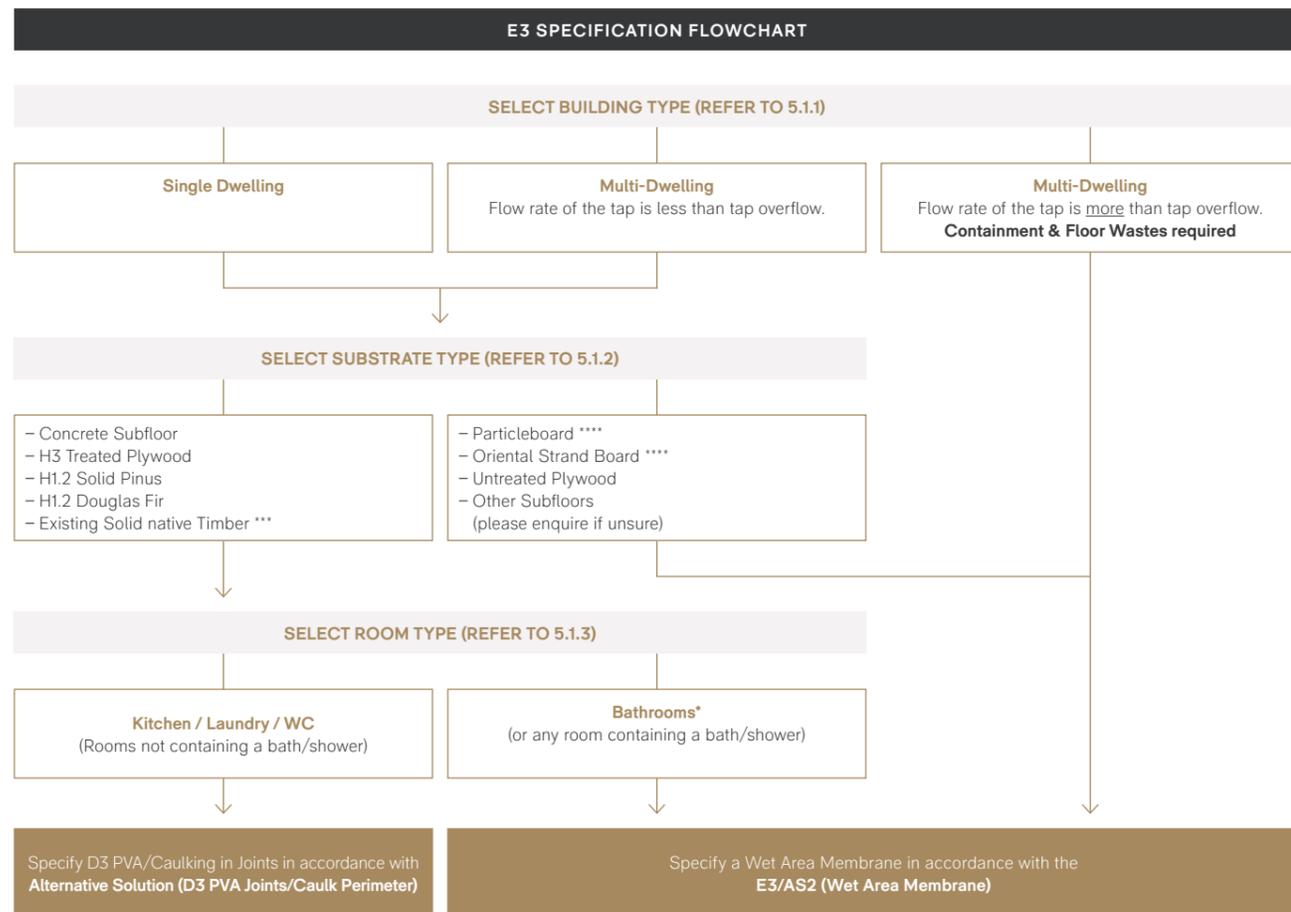
#### E3/AS2 (Wet Area Membrane)

Submit under E3/AS2 by specifying a Wet Area Membrane in accordance with the Code of Practice for Internal Wet-area Membrane Systems. This is to be installed beneath the area the Timber Flooring is to be installed.

Refer to the [Code of Practice for Internal Wet-area Membrane Systems](#) for more information.

Where possible, it is recommended to specify an Alternative Solution (D3 PVA Joints/Caulk Perimeter) rather than a E3/AS2 (Wet Area Membrane).

The below table has been produced to provide general guidance on whether we recommend submitting the flooring as an Alternative Solution or not. Forté recommend using the Alternative solution, however a Wet Area Membrane can be used at all times.



\* Forté does not recommend the installation of timber flooring in bathrooms (rooms with baths / showers)

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

\*\*\* If subfloor is an existing Solid Native Timber, apply a 2-Component Epoxy Moisture Barrier to the subfloor before installation. This will provide additional protection to the structure in the case of a major floor/leaking.

\*\*\*\* Forté does not recommend the installation of Timber Flooring and Particleboard & Oriental Strand Board without a Wet Area Membrane, as the scope of use statement on the product Appraisal / Codemark for these products generally require a wet-area membrane to be installed for use in wet-areas.

## 5.1.1

### CONSIDER THE BUILDING TYPE (OVERFLOW)

Multi-Dwelling Buildings (Residential and Commercial) require overflow to be considered in order to protect leaks from damaging adjoining properties.

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)

— 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:

- 1) Either 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
- 2) 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:** This does not apply to single (detached) dwellings

Building Type	Alternative Solution	E3/AS2
Single Dwelling	✓	✓
Multi Dwelling (flow rate of tap <u>less</u> than overflow rate of sink/tub)	✓	✓
Multi Dwelling (flow rate of tap <u>more</u> than overflow rate of sink/tub)	✗	✓

### 5.1.2

#### CONSIDER THE SUBSTRATE/STRUCTURE OF THE WET AREA

The second point to consider is the substrate beneath the area of Timber Flooring within the Wet Area. The table below shows the common substrates with comments about their suitability for submission as an Alternative Solution or whether an E3/AS2 Wet Area Membrane is required.

Substrate		Alternative Solution	E3/AS2
Concrete (Slab-on-Grade or Suspended)	Concrete is deemed impervious by BRANZ and is a good substrate for the installation of Forté timber flooring.	✓	✓
H3 Treated Plywood	H3 Treated Plywood is the preferred substrate for installation over framed timber substructures. (Refer to 'Timber Subfloors and Assured Maintenance' in the Forté Alternative Solution Guidance for Timber Flooring)	✓	✓
H1.2 Solid Pinus / H1.2 Douglas Fir	(Refer to 'Timber Subfloors and Assured Maintenance' in the Forté Alternative Solution Guidance for Timber Flooring)	✓	✓
Existing Solid Native Timber	(Refer to 'Timber Subfloors and Assured Maintenance' in the Forté Alternative Solution Guidance for Timber Flooring)	✓	✓
Particleboard / Oriented Strandboard	Forté does not recommend the installation of Timber Flooring over Particleboard & Oriented Strandboard without a Wet Area Membrane, as the scope of use statement on the product Appraisal/Codemark for these products generally require a wet-area membrane to be installed for use in wet-areas. <b>Particleboard Note:</b> Further to the above, the E3/AS2 solution states, "Particleboard must not be used as a new substrate in any wet area", and so should not be specified for use in any new construction in wet areas. For renovations with existing particleboard framed flooring, refer to point 4.1.3 of the Code of Practice for Internal Wet-area Membrane Systems for compliance pathway with sheet overlay prior to apply Membrane.	✗	✗
Untreated Plywood Other Subfloors	It may be possible to install Forté timber flooring directly to some Fiber Cement compressed sheet types, please enquire for more information. For untreated plywood and any other subfloor type, we would generally recommend installing over the top of a Wet Area Membrane in accordance with E3/AS2 (provided it is suitable). Please enquire for more information.	✗	?

### 5.1.3

#### CONSIDER BATHROOMS (ROOMS WITH A BATH/SHOWER) VS. WATERSPLASH AREAS

Although it is possible, Forté does not recommend the installation of timber flooring in bathrooms (rooms with baths/ showers), and installations in these areas are outside the Alternative Solution guidance.

Please contact Forté if you have an area requiring installation in one of these areas for project-specific information.

### 5.2

#### ALTERNATIVE SOLUTION (INSTALL WITH D3 PVA/CAULKING IN JOINTS)

Refer to the [Forté Alternative Solution Guidance for Timber Flooring Document](#) for more information.

### 5.2.2

#### SCOPE OF USE

This Alternative Solution applies to

- Single-dwelling kitchens / Laundries / WC (Excludes bathrooms – refer to 5.1.3)
- Multi-dwelling kitchens/laundries (where flow rate of the tap is less than tap overflow)

### 5.2.3

#### REQUIRED FOR COMPLIANCE

- Forté Timber Flooring installed in accordance with Timber Flooring Overlay System [Installation Guide](#)
  - Water-resistant D3 PVA applied to all joints during installation (within 1.5m of Sanitary Fixture/Appliance)
  - Water-resistant caulking silicone gap filler applied to seal around the perimeter as well as any fixed items in the room/area (within 1.5m of Sanitary Fixture/Appliance)
- Forté Timber Flooring, which has passed an E3 Moisture Test (all flooring products have passed)
- [If subfloor is an existing Solid Native Timber] Apply a 2-Component Epoxy Moisture Barrier to the subfloor before installation.

### 5.2.4

#### HOW TO SUBMIT ALTERNATIVE SOLUTION

##### MASTERSPEC

Forté have updated their work section on Masterspec (refer to 6311FF Forté Timber Overlay System) with all the required documentation to specify timber flooring in accordance with E3 requirements.

##### OTHER

Our team are able to put together a specification for you using our MasterSpec account if you do not use Masterspec. Otherwise, if you require a customised solution, please contact your Forté representative.

Note: Refer to '3.3 Flooring Buildup Diagrams' for a link to the documents required to submit to council.

### 5.3

#### INSTALL OVER A WET AREA MEMBRANE (E3/AS2)

The Waterproofing Membrane Association Incorporated have developed a Code of Practice as a guide for installing Wet-area Membranes in accordance with E3/AS2. This Code of Practice for Internal Wet-area Membrane Systems should be used in conjunction with the Forté Timber Overlay Flooring [Installation Guide](#) for installations over top of Wet-area Membrane Systems.

**Note:** The E3/AS2 solution states, "Particleboard must not be used as a new substrate in any wet area", and so should not be specified for use in any new construction in wet areas.

For renovations with existing particleboard framed flooring, refer to point 4.1.3 of the Code of Practice for Internal Wet-area Membrane Systems for compliance pathway with sheet overlay prior to applying the Membrane.

#### 5.3.1

#### SYSTEMS APPROVED FOR USE WITH FORTÉ TIMBER FLOORING

Forté have worked with wet-area membrane suppliers to ensure there is a suitable membrane available for use with all of our products. The two systems we commonly recommend are:

- 1) [Ardex WPM002](#)
- 2) [Mapei Aqua Defense](#)

#### 5.3.2

#### WATER-STOPS/TRANSITIONS (E3/AS2 4.5.1, 4.5.2, 4.5.5)

For ease of use, please see specific sections below relating to the transitions as noted in the [Code of Practice for Wet-area Membrane Systems](#):

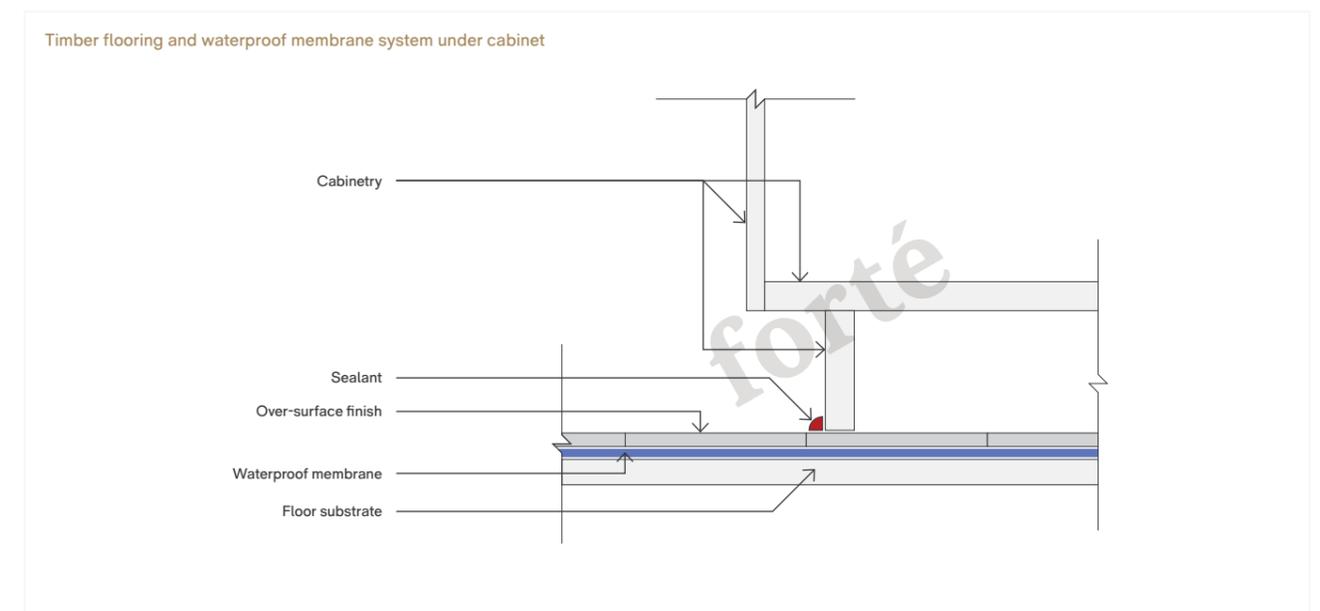
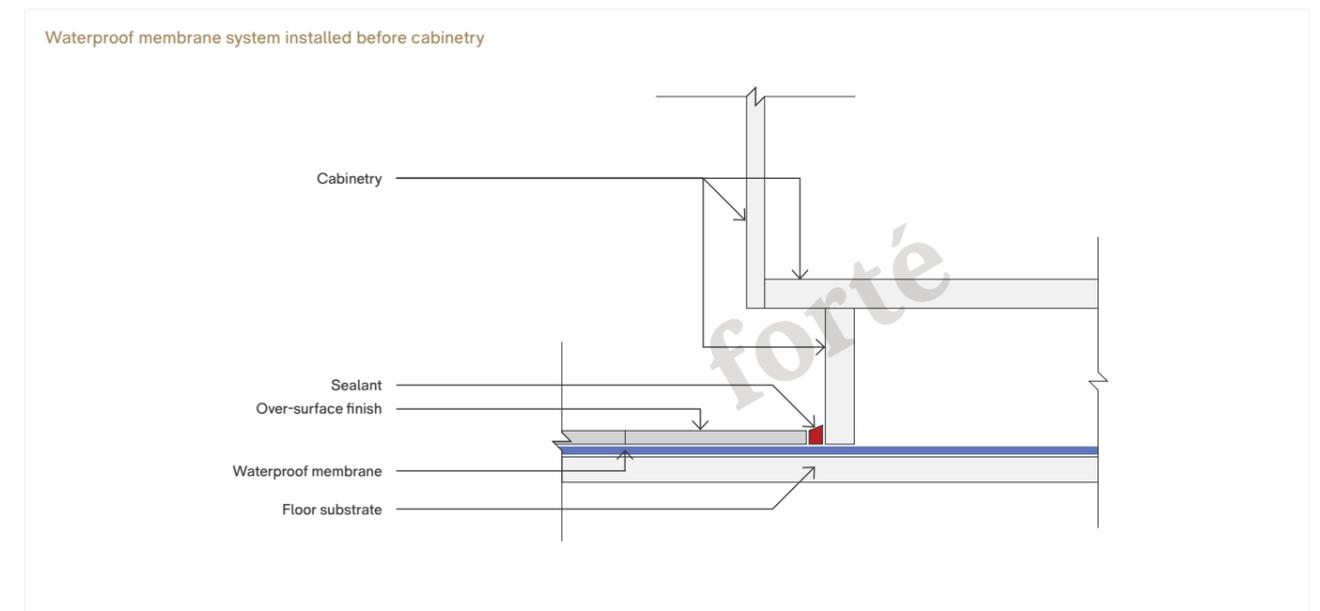
- 1) Water-stop at termination of waterproof membrane system
  - a) Open Plan area: Refer to Figure 14
  - b) Under Door: Refer to Figures 18/19/20
- 2) Cabinetry Water-stops
  - a) Membrane installed before/under cabinetry: Refer to Figures 15/16 (Recommended)
  - b) Membrane installed after cabinetry installation: Refer to Figure 17 (Not Recommended)
- 3) Floor-to-wall Junction: Refer to Figure 21
- 4) Penetrations for Piped Services: Refer to Figures 27/28

#### 5.3.3

#### WET AREA MEMBRANES IN KITCHENS

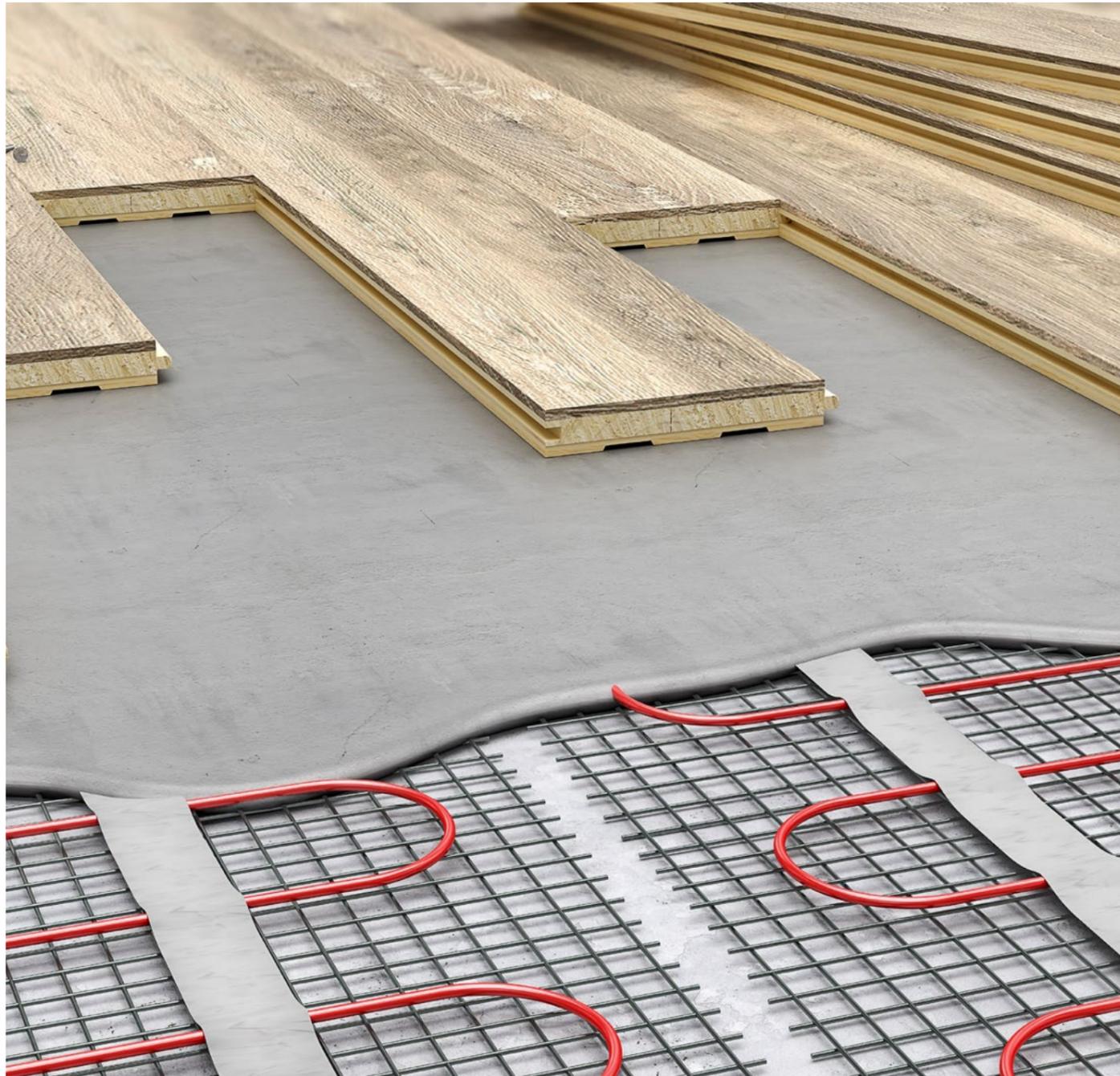
When installing Wet-Area membranes it is strongly recommended that the timber flooring is installed beneath the entire kitchen area.

This is because the membrane must extend 75mm up the wall, and if the kitchen is installed prior to the flooring, then the Code of Practice recommendation is that the membrane must extend 75mm up the cabinetry toe kicks, and this can cause aesthetic issues.



# 6. Underfloor Heating

When installing timber flooring over underfloor heating, additional requirements for both the underfloor heating system and the flooring being installed must be adhered to so risk is minimised and to ensure the warranty is not voided.



## 6.1 ENSURING THE TIMBER FLOORING IS SUITABLE FOR USE WITH UNDERFLOOR HEATING

All our engineered wood flooring collections are suitable for installation over underfloor heating, however, it is also recommended to specify and install a Fidbox in the floor in the area with Underfloor heating.

For more information on Fidbox, refer to <http://www.fidbox.net/>

## 6.2 UNDERFLOOR HEATING SYSTEM COMPATIBILITY

Always ensure that the chosen underfloor heating system installer has proven experience of installation with timber flooring, and that the company supplying the system recommends installing under timber flooring with glue-down installation method.

For any other system, please contact Forté Customer Care for specific recommendations.

Systems	Approved
Concrete floors with Hydronic Underfloor Heating system	<ul style="list-style-type: none"> <li>The spacing (width) between heating tubes should not be more than 150mm.</li> <li>The surface of the slab from the heating tubes may not be less than 30mm and the recommended thickness is 60mm.</li> </ul> ✓
In-Screed Electric Underfloor Heating	<ul style="list-style-type: none"> <li>The surface of the screed should be at least 8mm above the cables.</li> <li>The screed must be structurally sound and free from laitance.</li> <li>Ensure the screed used is suitable for use with timber flooring.</li> </ul> ✓
Electric Blanket Systems	<ul style="list-style-type: none"> <li>These systems are not designed to cope with the movement of a timber floor that is glued down, and the speed of sudden temperature changes with these systems can cause stability issues with your timber flooring (such as splitting, warping, cracking).</li> </ul> ✗
Hydronic with exposed water types	✗

## 6.2 CONT.

### DESIGN REQUIREMENTS

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The underfloor heating system must be laid throughout the entire area that the timber flooring is to be installed (even if the heat demand does not justify it). If this is not possible, then it may be possible to separate the area while allowing for expansion. Contact Forté Customer Care for more information.

Ensure the system is designed to minimise 'hot spots' by consistent spacing and height positioning of pipework/wires in the slab/screed of the entire underfloor heating system.

There should be a probe located in each zone/room where there is underfloor heating to ensure accurate temperature readings and to regulate the surface temperature and that the probe is set so that it cannot exceed 27°C.

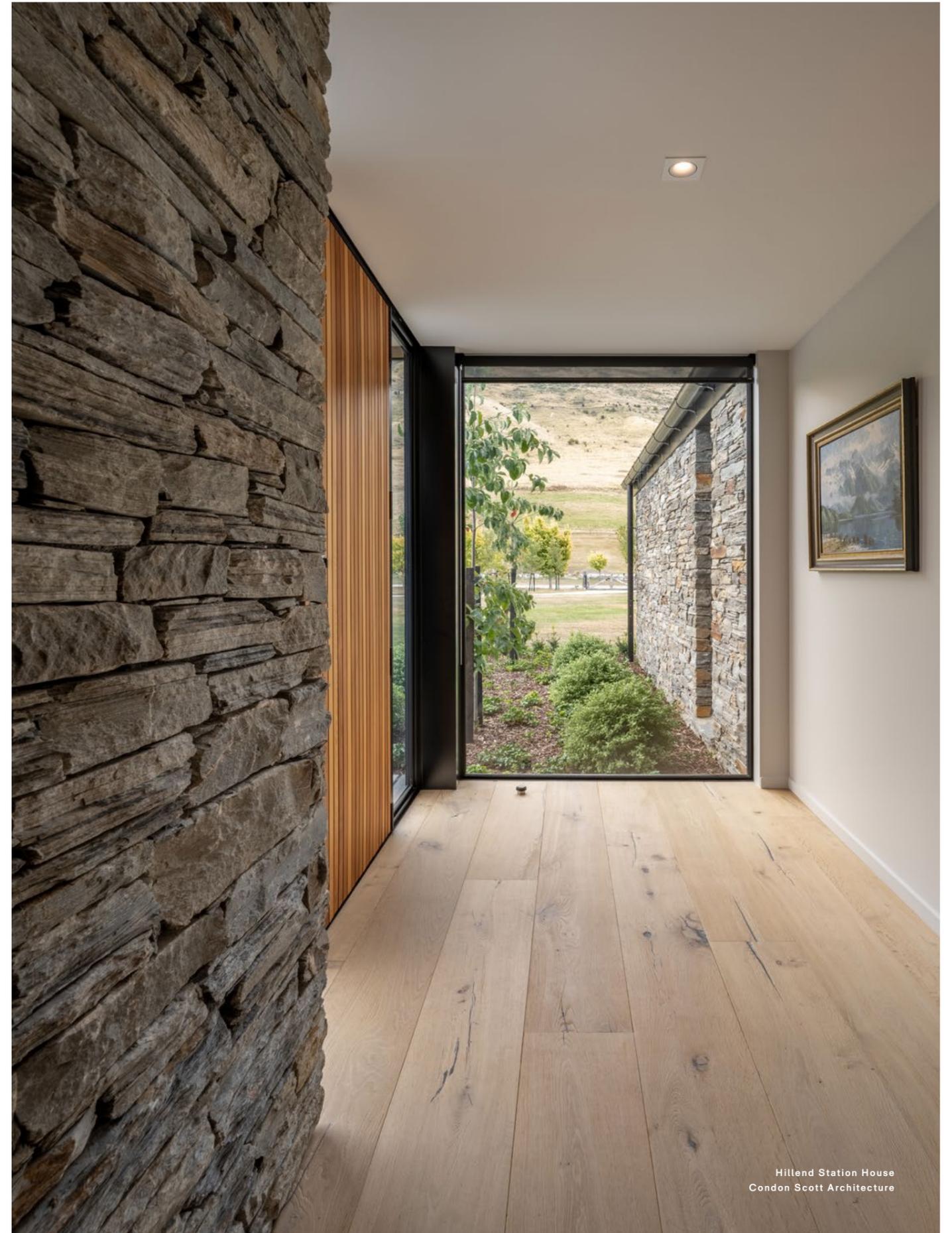
When specifying electric underfloor heating systems set into screed, it is important that the subfloor beneath the heating system is prepared correctly for glue-down timber flooring. Please ensure that the underfloor heating contractor talks to the timber flooring installer prior to installation of the heating system.

## 6.3

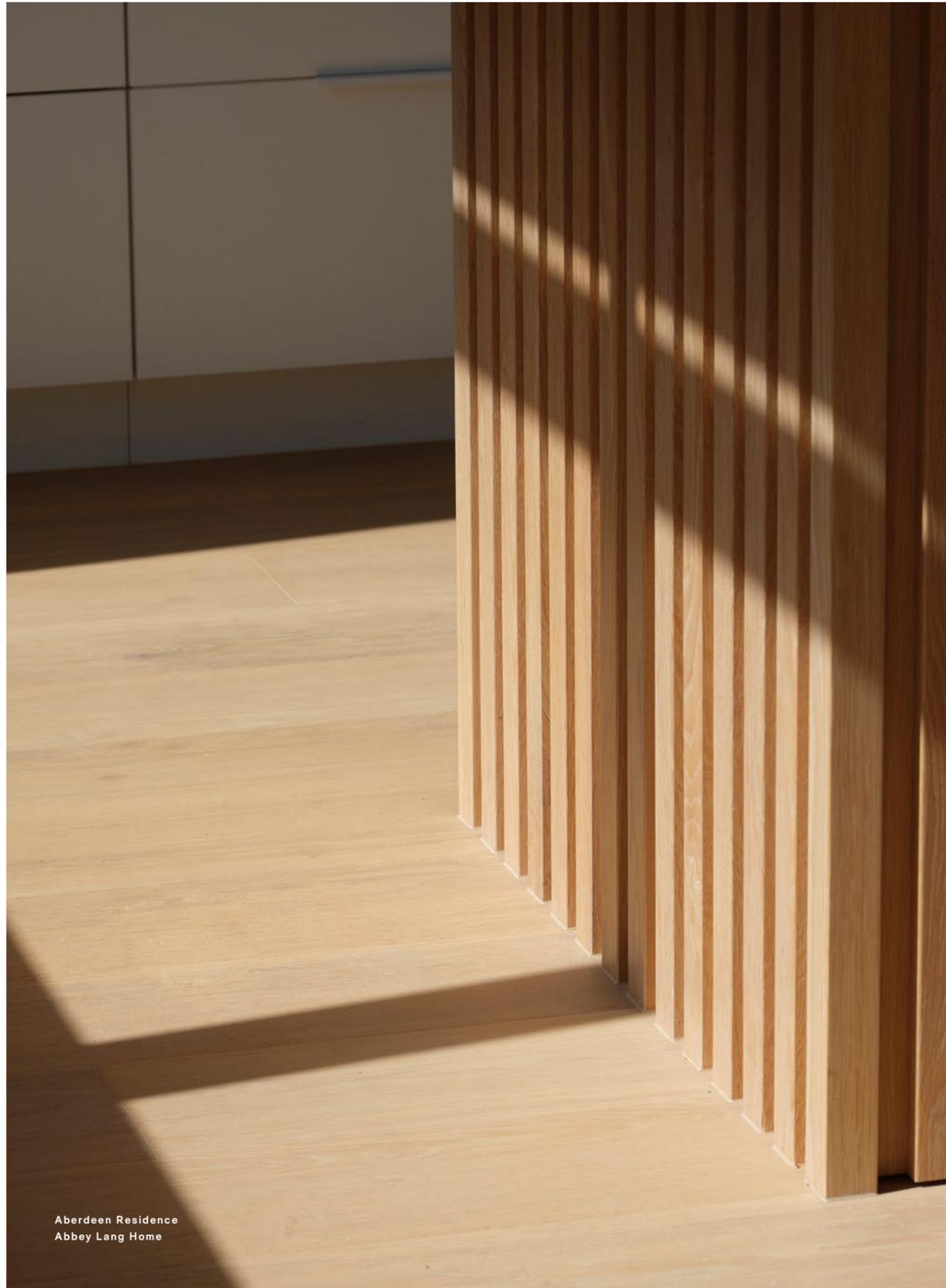
### ADDITIONAL CARE & MAINTENANCE WITH UNDERFLOOR HEATING

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Large rugs or any object covering the flooring that is restricting heat dispersion from the system should be avoided. The 'accumulated' heat caused by these objects may lead to surface cracking, shrinkage/cupping, and coating breakdown of your timber flooring.



Hillend Station House  
Condon Scott Architecture



# 7. Maintaining a Stable Climate

## 7.1

### CONTROLLING AMBIENT TEMPERATURE AND HUMIDITY

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Timber is hygroscopic, meaning that it will absorb/release moisture towards the EMC of the temperature & humidity of the area it is installed in. Therefore it is important to consider including ways to control the temperature & humidity in spaces where timber floor is installed.

#### AMBIENT RELATIVE HUMIDITY

An internal relative humidity of between 40% and 60% is ideal for timber flooring. There is an increasing risk of product movement and hairline cracks in the veneer degradation as humidity reaches outer ranges of below 35%, or above 70%. We strongly recommend the use of a humidification or dehumidification system to maintain relative humidity within these parameters.

Note: [BRANZ](#) recommends a relative humidity of 40-60% for optimum occupant comfort.

#### AMBIENT TEMPERATURE

Maintaining an average internal ambient temperature of between 16 and 27 degrees Celsius is recommended. The further outside this range increases the chance of product movement and hairline cracks in the veneer.

Note: [The Ministry of Social Development](#) recommends maintaining the internal temperature between 18 and 21 degrees Celsius.

## 7.2

### CONTROLLING FLOOR SURFACE TEMPERATURE

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#### SURFACE TEMPERATURE

It is important to protect the floor from extreme temperatures. Floor-to-ceiling windows coupled with the New Zealand sun have been known to create floor surface temperatures of over 70 degrees Celsius. It is recommended for homeowners to keep the floor surface temperature below 45 degrees Celsius when exposed to direct sunlight.

Where temperatures majorly or regularly exceed this level, there is a higher likelihood of cupping and warping, rapid deterioration of the product coating. Timber left exposed to direct, unfiltered UV rays will noticeably change in colour in the first 1-3 months. Changes in appearance may include darkening, lightening, or yellowing of the timber.

## 7.3

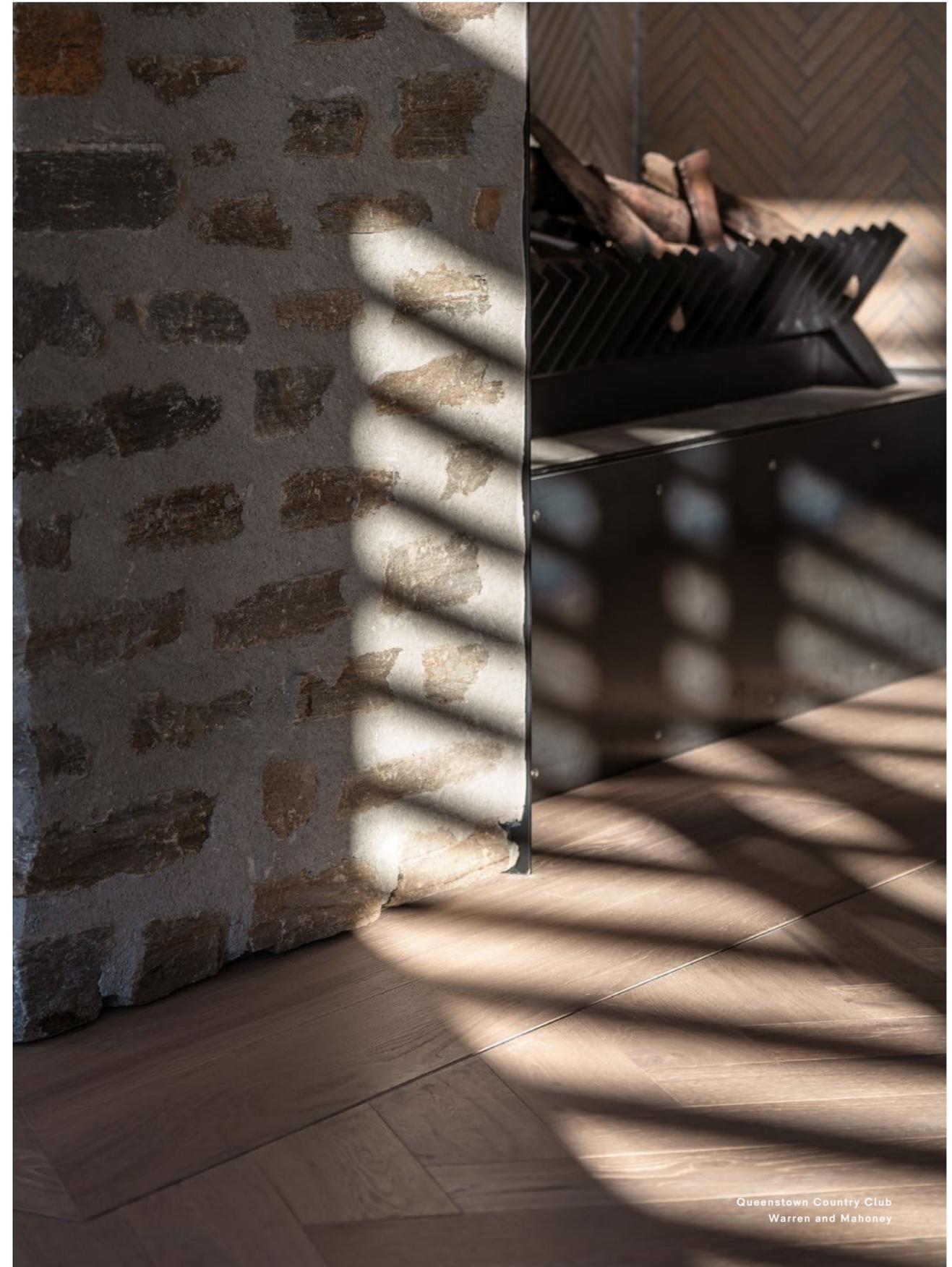
### DESIGN CONSIDERATIONS

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Filtering sunlight through curtains, blinds or UV treated windows and doors can reduce direct heat in rooms that are exposed to a lot of sun.

Note: The above design considerations should be regarded for homes that have large, north-facing joinery or homes that are north facing with no soffit.

For more information, refer to the "[Care and Maintenance Guide - Residential](#)"



Queenstown Country Club  
Warren and Mahoney



## 8. Flooring Trims & Transitions

### FLOORING TRIMS

Forté offer a range of flat bars, including unfinished, organic and anodised aluminium flat bar options. Refer to our [website](#) for all options and availability or enquire with your Forté Account Manager for more information.

#### ANODISED

Black



Champagne



Clear



Dark Bronze



Light Bronze



#### ORGANIC

Aged Brass



Brass



Steel Waxed



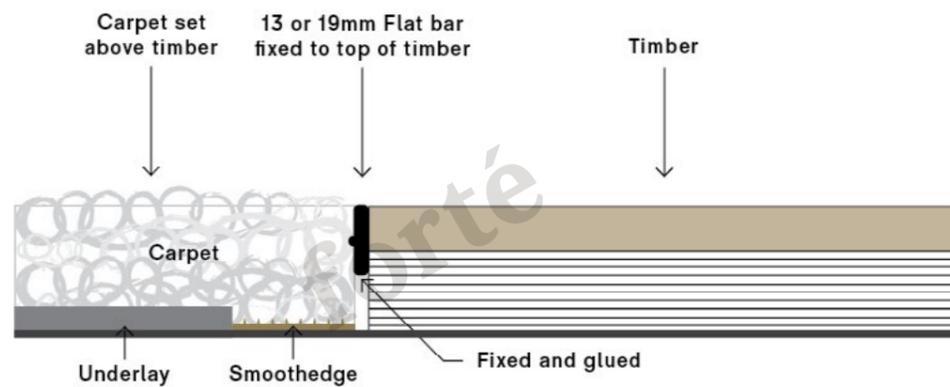
### FLOORING HEIGHT

Ensure there are no variances in height between the two transition flooring surfaces. Refer to section 3.1 for advice on how to raise the level of a subfloor for a flush transition.

## 8.1 TIMBER TO CARPET

**Note:** Generally the carpet should be set as litter higher above the timber to start with, as it will settle over time to be flush with the timber flooring.

If required, you can install an MDF ramp beneath the carpet to smooth any difference in heights (e.g. <https://giltedge.co.nz/product/ramp-edge-5mm>)

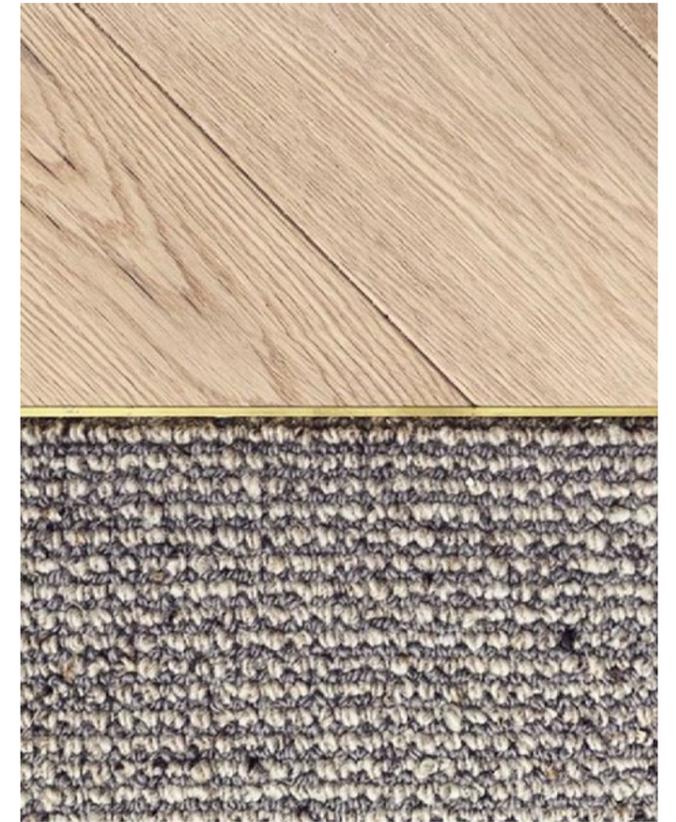


### 8.1.1 TRANSITION WITH INSERT (RECOMMENDED)

We recommend transitioning from carpet to timber using an extruded Flat Bar (Brass / Aluminium are often used) inserted into the flooring.

When the flat bar is installed along the edge of the timber it creates a protective edge for the wood which reduces the risk of damage and provides a quality finish.

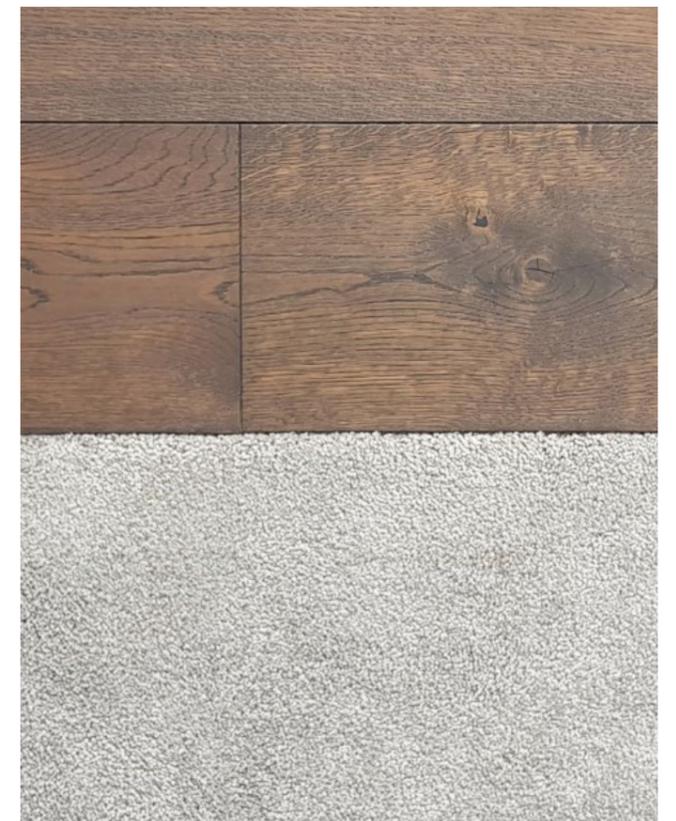
**Design requirements:** The top of the flat bar should be set level with the top of flooring.



### 8.1.2 TRANSITION WITH NO INSERT (NOT RECOMMENDED)

It is also possible to transition to carpet with no flat bar, however it becomes even more important to set the carpet height correctly as when the carpet settles, the edge of the timber has no protection, and may chip off if heavy objects are dragged across the transition.

**Design requirements:** The pile of the carpet should be set a little higher above the timber floor as the carpet pile will settle and potentially leave the timber edge exposed without protection.

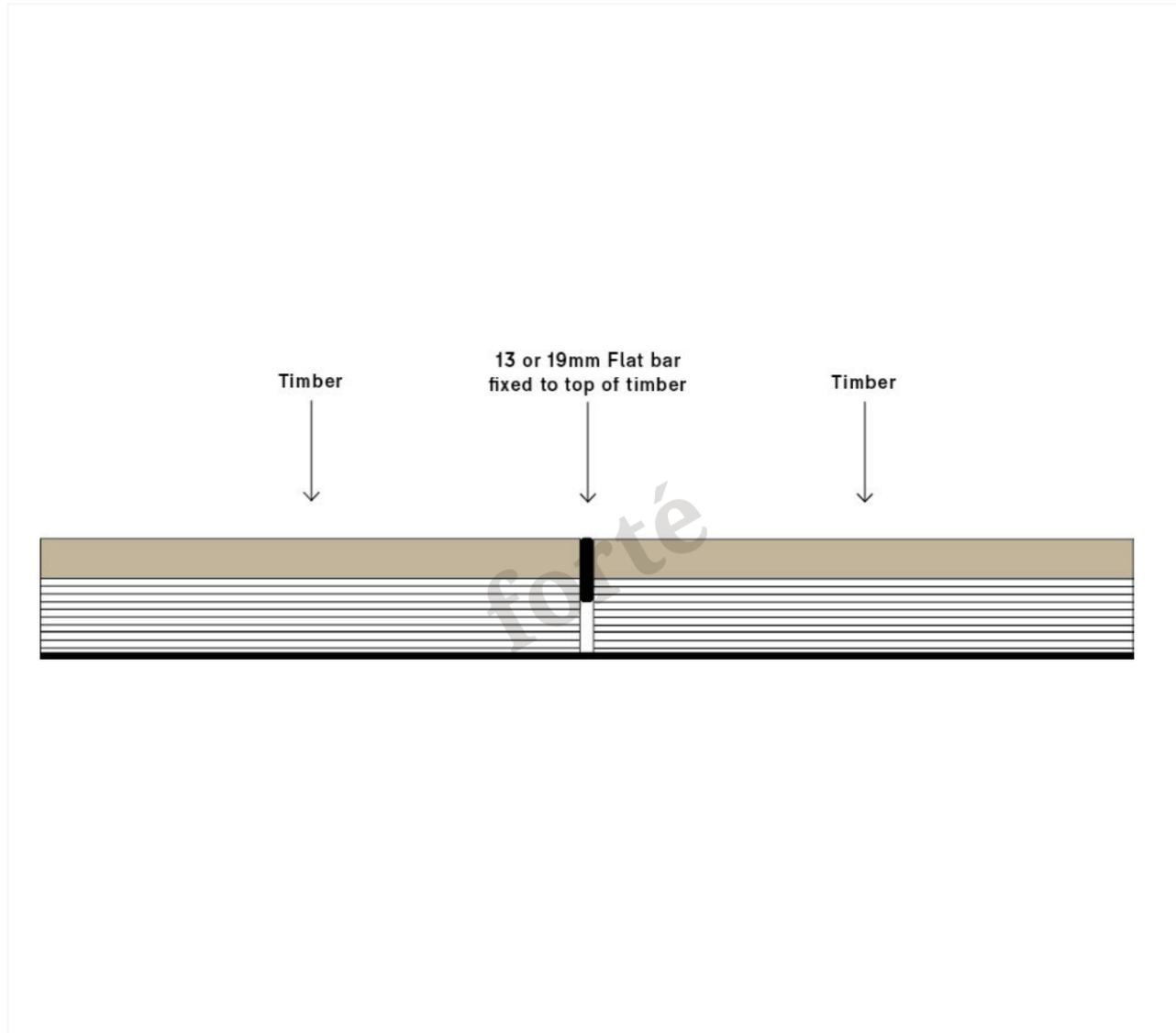


## 8.2

### TIMBER TO TIMBER (BORDER OR FLOORING DIRECTION CHANGE)

Timber to timber transitions are commonly found with borders around the perimeter of rooms installed with herringbone and chevron flooring or when the room changes direction and a break in the floor is needed to allow the flooring to continue to run along the length of the room.

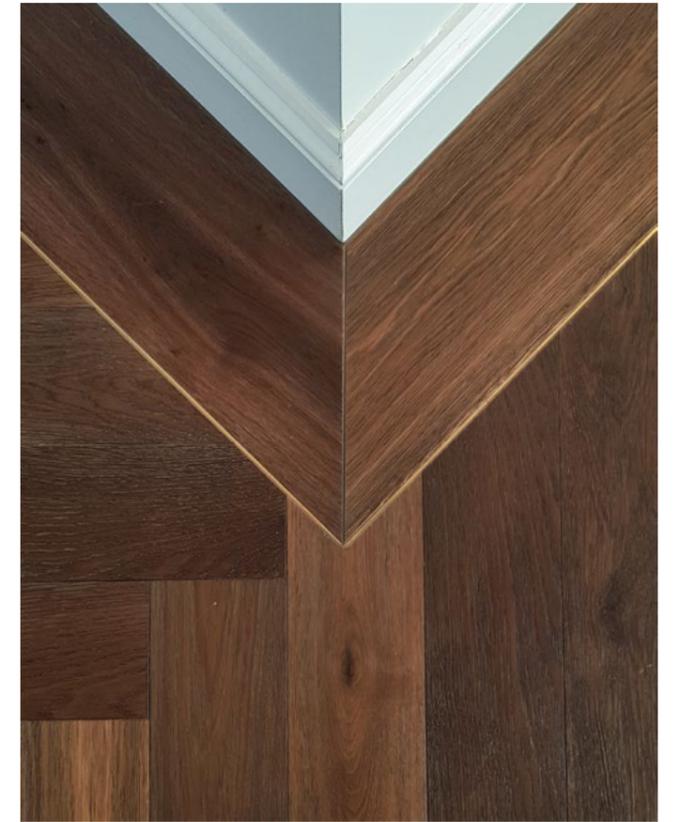
For transitions using an insert, we recommend using an extruded Flat Bar for the most quality finish and appearance.



## 8.2.1

### TRANSITION WITH INSERT

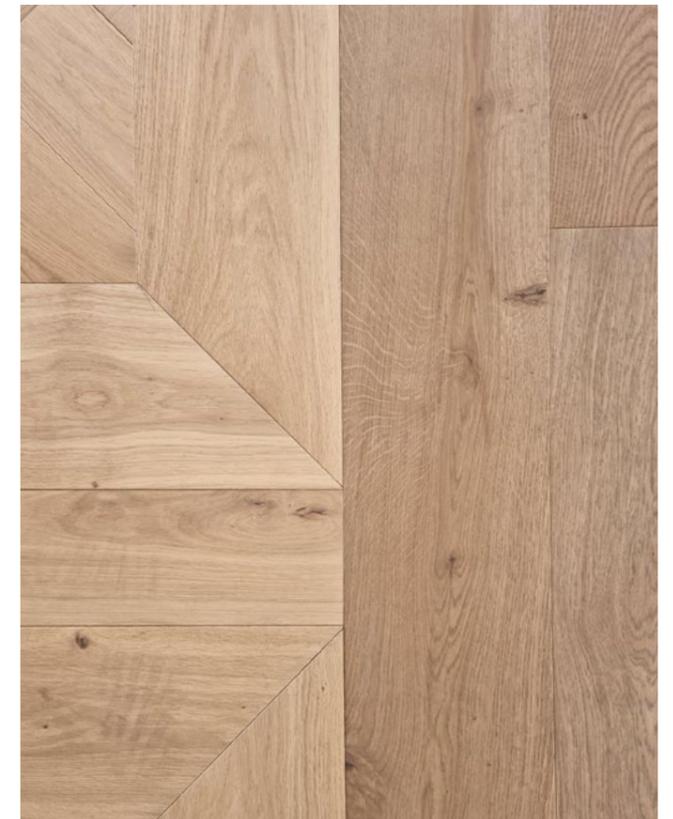
**Design requirements:** The bar should be fixed to the transition edge with screws with the top of bar set level with the top of the flooring.



## 8.2.2

### TRANSITION WITH NO INSERT

**Design requirements:** If you are not planning to use an extruded flat bar when adding a border or creating a break in your flooring, then where possible a T&G profile should be used to join the boards together. Sometimes this is not possible (where the profile has been removed).

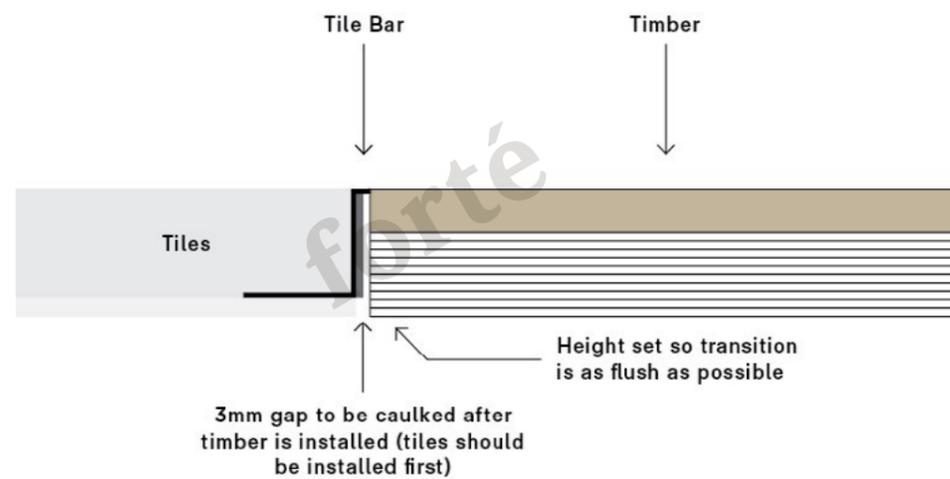


### 8.3

#### TIMBER TO TILE

While flat bars are often used for other applications, transitions between timber and tiles should use a tile bar which is attached directly to the tile (not the timber).

**Note:** The height of the transition should be considered prior to installation.

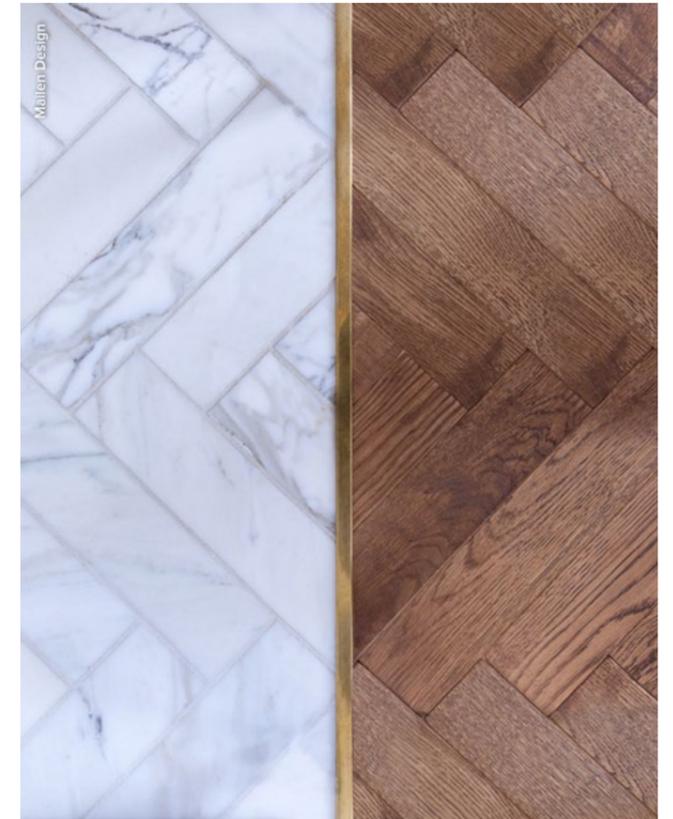


### 8.3.1

#### TRANSITION WITH TILE BAR AND SILICONE (RECOMMENDED)

**Design requirements:** The tile bar is attached directly to the tile (not the wooden plank) and must be installed by the tiler prior to the wood floor being laid. When installing the timber, it should finish 2-3mm from the tile bar (to allow for expansion).

The silicone colour should match the colour of the flooring or the tile bar for ideal aesthetics. The tile bar colour should be selected to best match the space (black/silver/brass etc.)



### 8.3.2

#### ALTERNATIVE METHOD

The transition is finished with silicone only to look like grout.

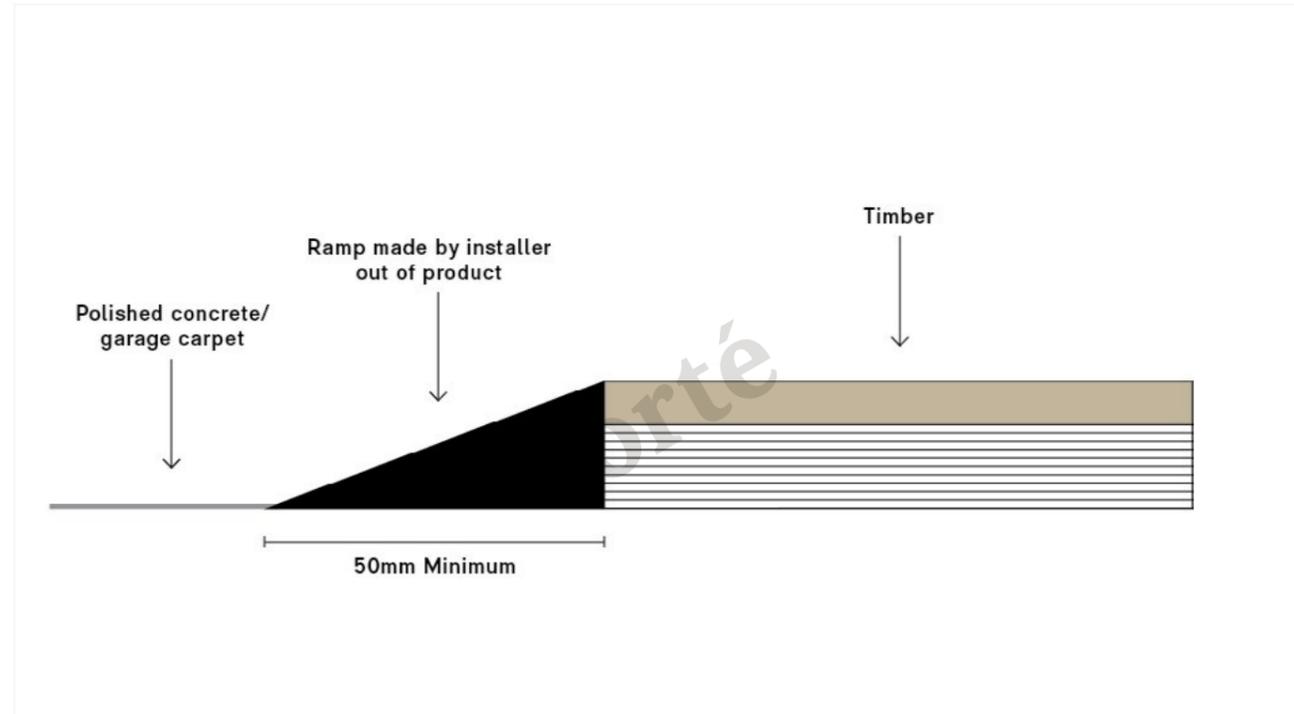
**Design requirements:** The tiles should be installed before the timber. As mentioned above, when installing the timber, it should finish 2-3mm from the tiles (to allow for expansion) and the gap should be finished with silicone. The silicone colour should match the colour of the flooring or tile grout for ideal aesthetics. This is ideal for a curved transition or where a transition bar does not look good aesthetically.



**8.4**  
**TIMBER TO POLISHED CONCRETE / GARAGE FLOOR**

When transitioning from timber to a polished concrete floor (or garage carpet), it is important to remember that there may be a substantial height difference as the timber is glued to the concrete that it is transitioning to.

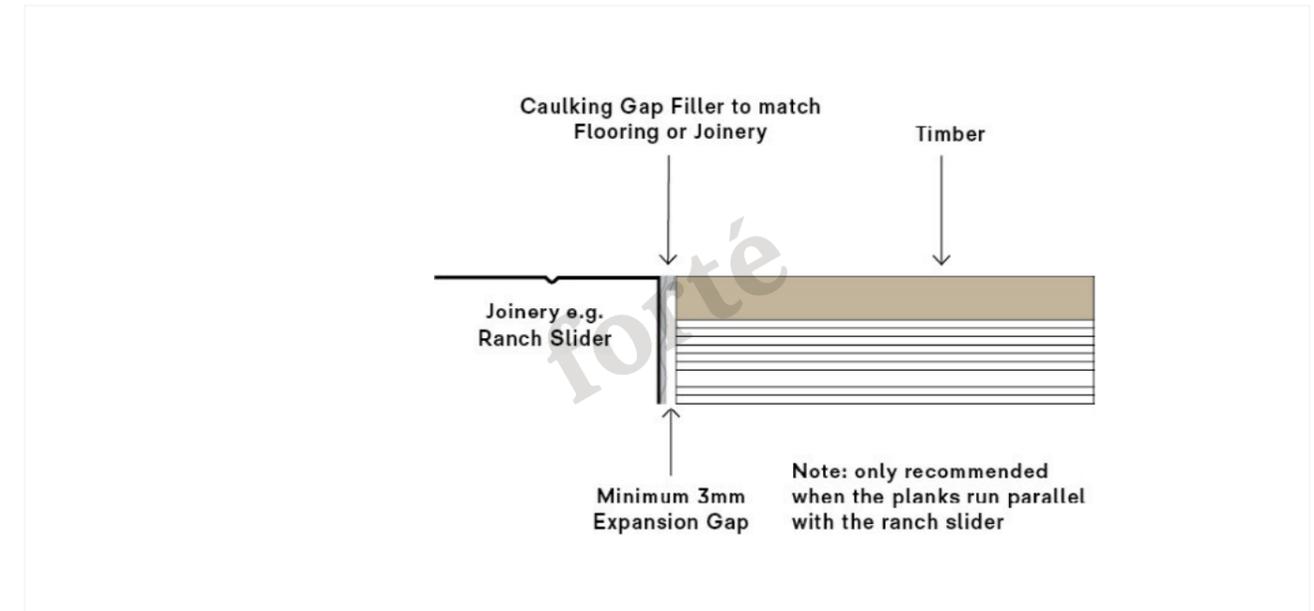
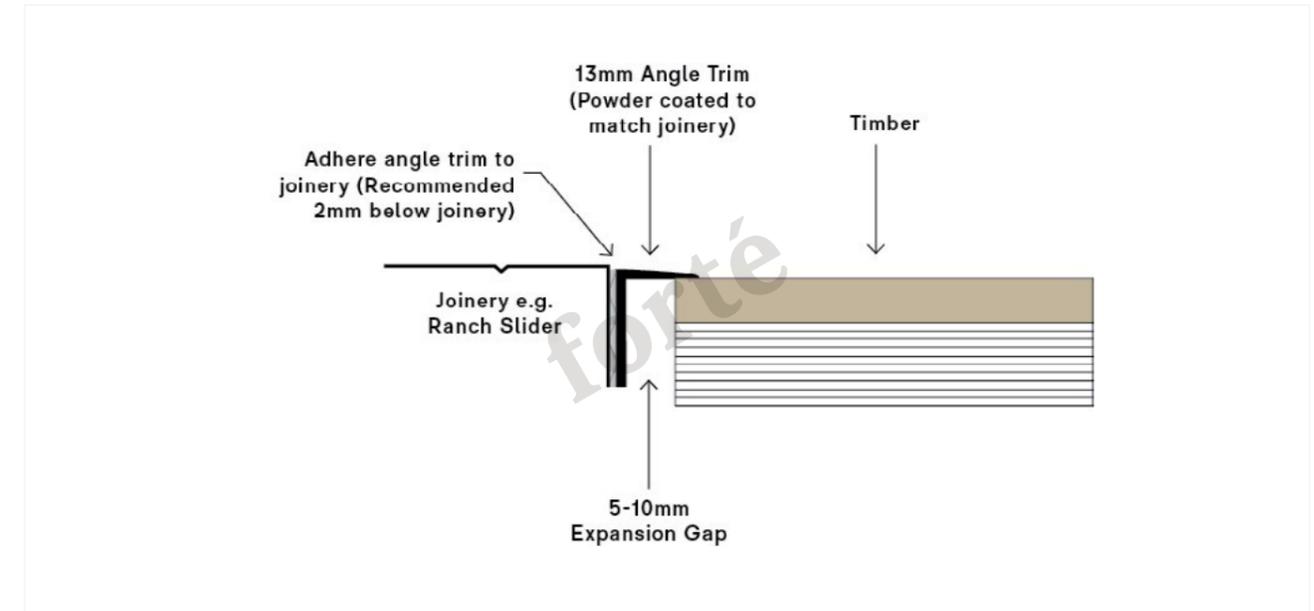
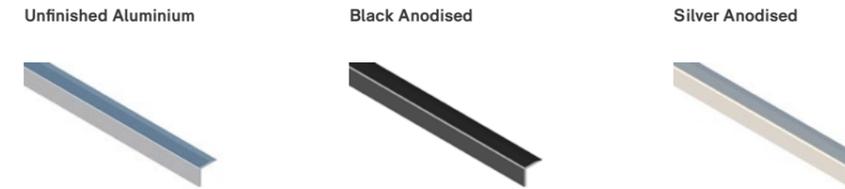
**Design requirements:** Experienced installers can make a ramp from the product being installed for a perfect colour match. Where possible, ramp down in an inconspicuous place like a doorway.



**8.5**  
**TIMBER TO JOINERY**

Forté offer unfinished aluminium angle trims as well as silver and black anodised options. Angle trims are usually supplied unfinished and then powder coated by the contractor to match the joinery colour.

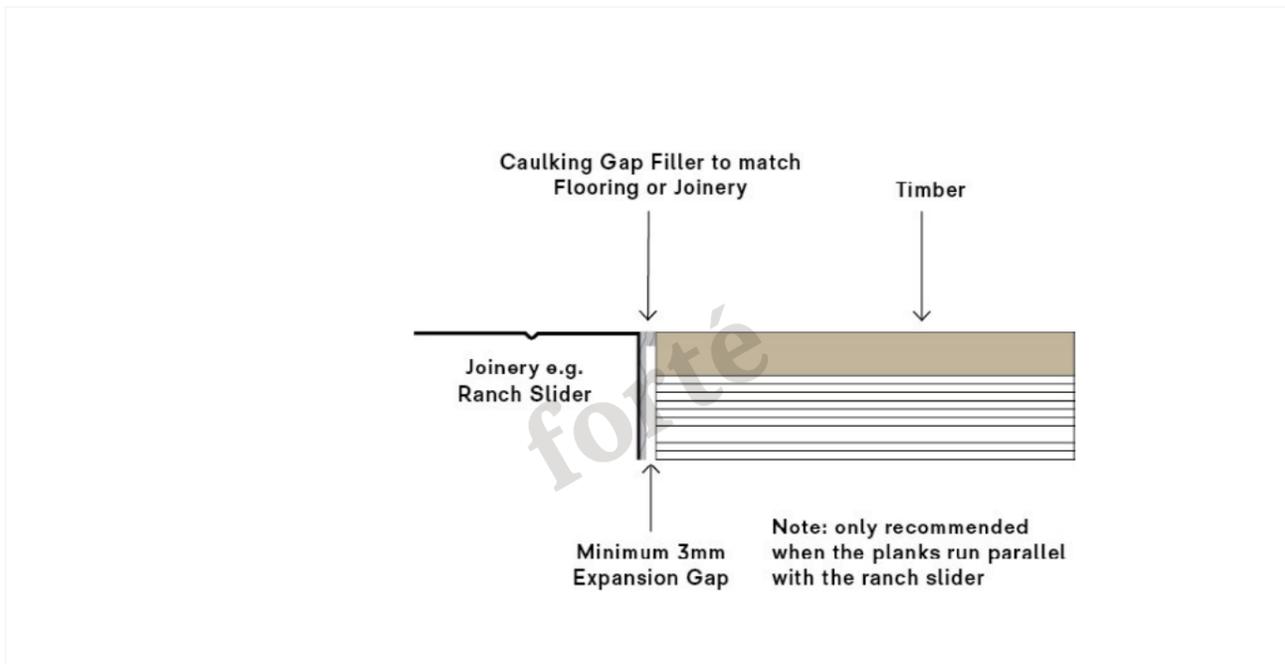
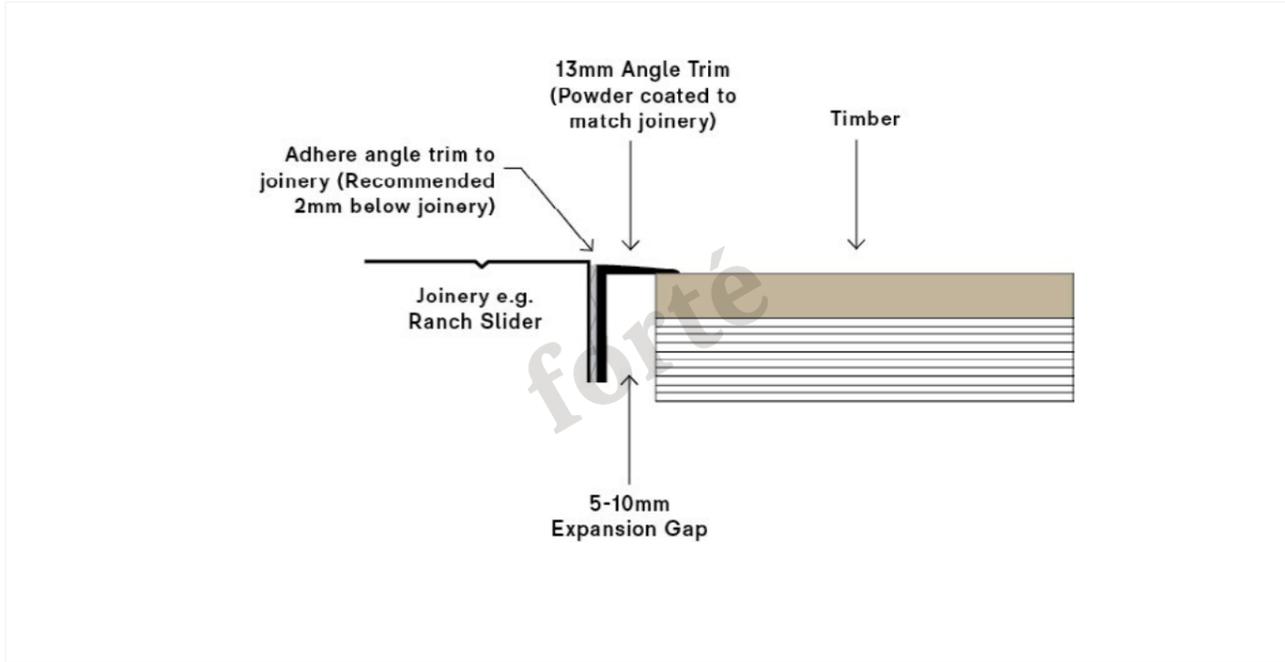
Refer to our [website](#) for all angle trim options and availability or enquire with your Forté Account Manager for more information.



**RANCH SLIDER WITH ANGLE TRIM**

If the flooring level is higher or lower than the ranch slider threshold, then a 13mm angle trim will be necessary to protect the flooring edges from wear and tear. The angle trim will need to be glued/taped to joinery.

**Design requirements:** Use a slim 13mm aluminium angle trim that is powder-coated to match the colour of the aluminium joinery.



## 8.6 TIMBER TO FRONT DOOR

Our recommendation would be to get the front door sill removed, or purchase one without a sill, before having the wood flooring installed as it gives a cleaner and more professional look overall.

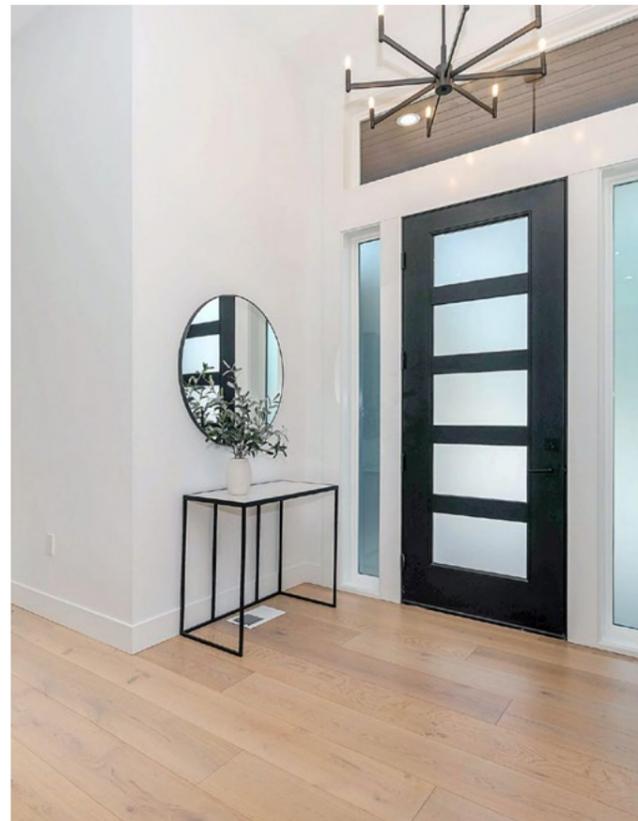
### 8.6.1 FRONT DOOR WITH TIMBER SILL REMOVED (RECOMMENDED)

**Design requirements:** The wood floor will need to be installed leaving a 2–3mm gap between the adjoining surfaces and finished off with a coloured caulking that matches your flooring.



### 8.6.2 FRONT DOOR WITH TIMBER SILL

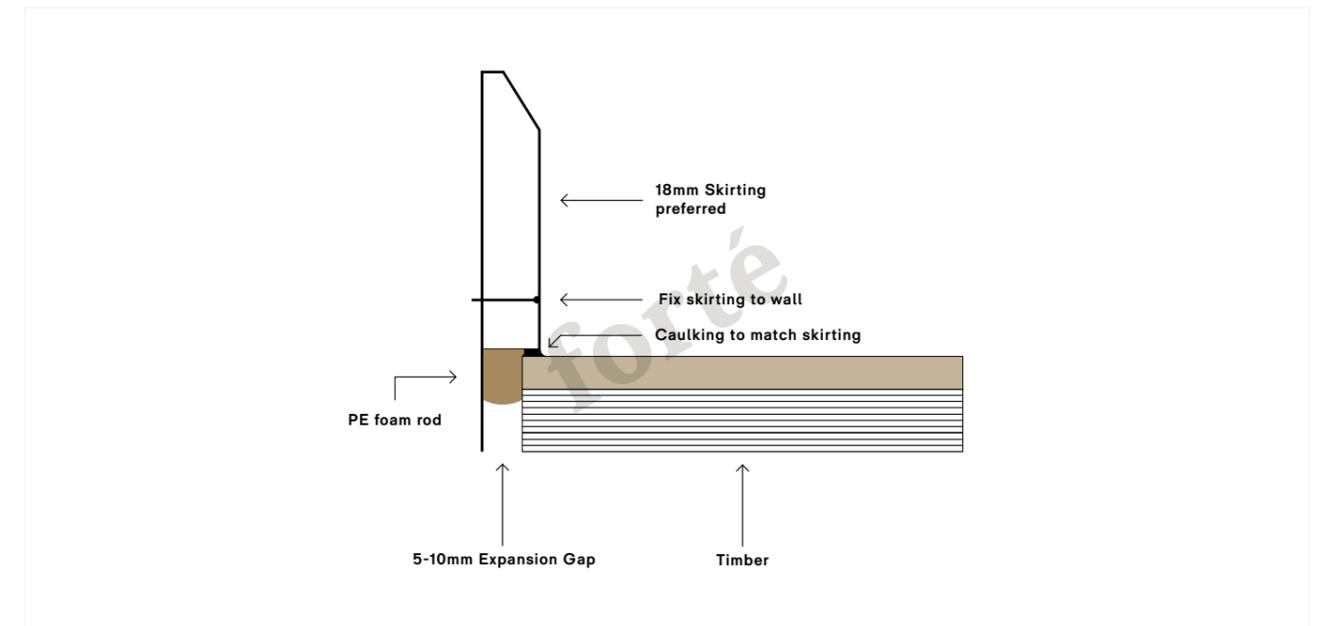
**Design requirements:** Timber should finish 2-3mm from the sill and gap should be finished with silicone/ caulking gun. Silicone colour should match colour of flooring or sill for ideal aesthetics. Paint the Sill to match flooring or skirtings.



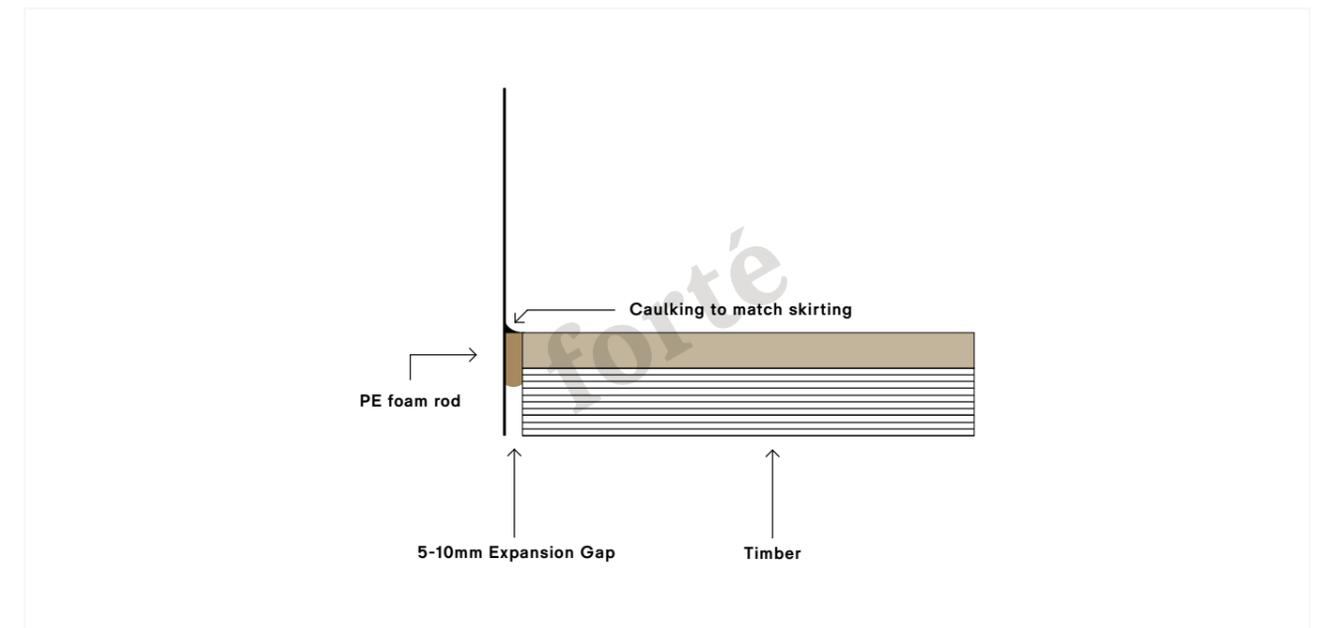
## 8.7 SKIRTINGS

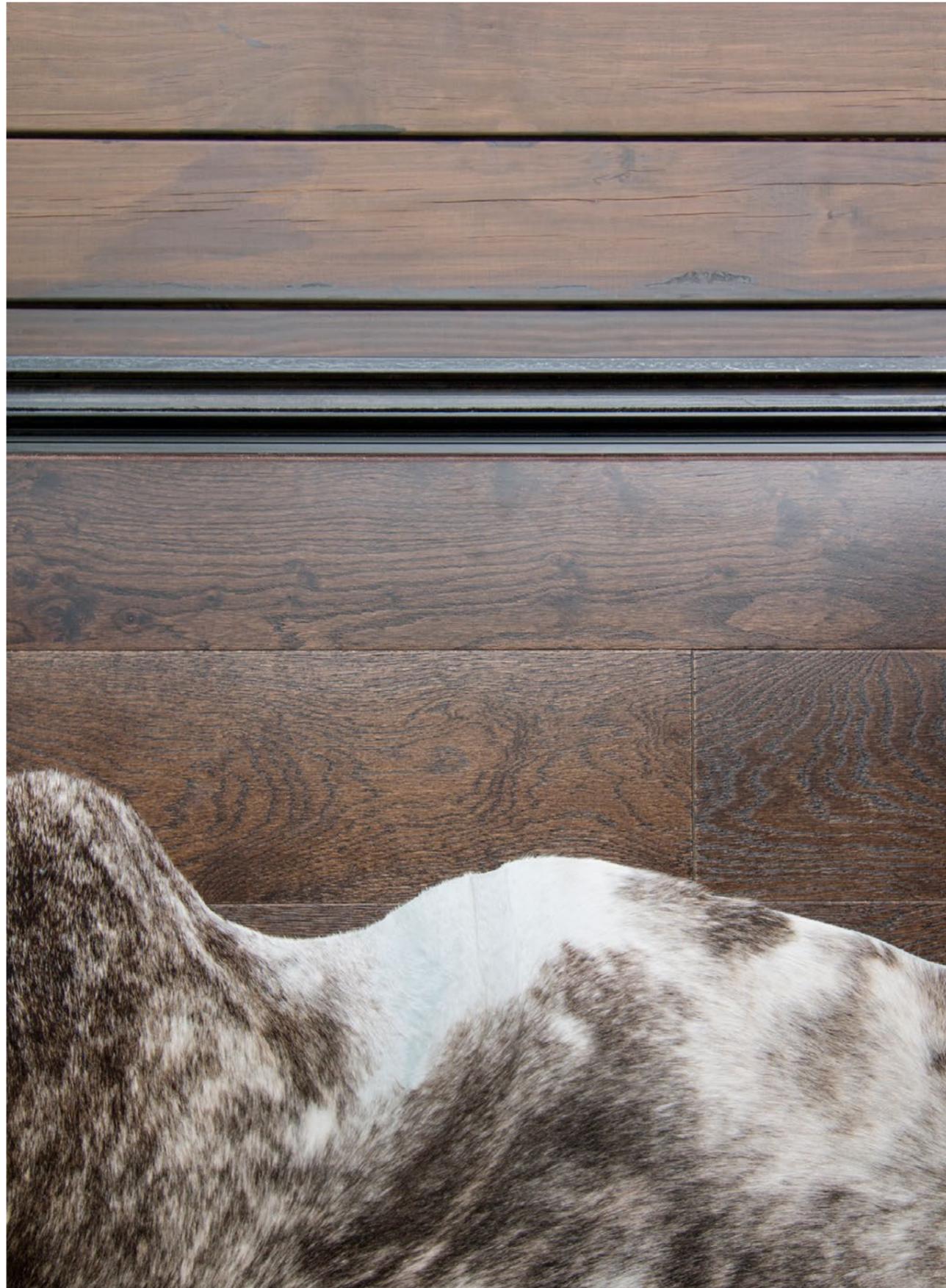
We recommend an 18mm skirting board to accommodate for expansion gap around perimeter.

### 8.7.1 FLOOR TO WALL WITH SKIRTING



### 8.7.2 FLOOR TO WALL WITHOUT SKIRTING





## 9. Caulking Colours

### COMPLEMENTARY CAULKING COLOURS FOR FORTÉ PRODUCTS

Brand	Colour	Code	Products	
<b>Aquaseal Flexfill</b>	Afromosia	CA-ASA	Artiste Rustic: Vermeer Indus: Patagonia, Tanami Smartfloor: Marron Oak Urban: Oslo Ultra: Marron Oak	
	Light Oak	CA-BOOL	Smartfloor: Natural Oak Urban: New York	
		Dark Oak	CA-BOOD	Indus: Mojave Moda Altro, Mezzo, Stretto: Sorrento Ultra: Bordeaux Oak , Champagne Oa Urban: Prague Villa: Chai
		Wenge	CA-BOWE	Artefact: Obsidian Moda Altro, Mezzo, Stretto: Dolcedo, Isola Urban: Tokyo
<b>HB Fuller Caulk in Colours</b>	Black	CA-BOB	Urban: Seoul Villa: Raven	
	Vanilla	CA-FLV	Atelier: Marl Indus: Kharan Moda Altro, Mezzo, Stretto: Capri, Mondello Smartfloor: Clay Oak Urban: Berlin, Copenhagen Villa: Dune, Limestone	
<b>Selleys No More Gaps</b>	Mocca	CA-FLM	Artiste Rustic: Da Vinci, Monet Atelier: Classic, Siltstone Ultra: Tussock Urban: Milan	
	Ivory	CA-SEI	Ultra: Marbled Oak Moda Altro, Mezzo, Stretto: Amalfi Villa: Cashmere Smartfloor: Blond Oak	
<b>Selleys No More Gaps</b>	Coffee	CA-SEC	Artiste Rustic: Picasso, Van Gogh Atelier: Granite Indus: Atacama , Colorado, Sahara Moda Altro, Mezzo, Stretto: Como, Tuscany, Verona Smartfloor: Sandstone Oak, Tawny Oak, Urban: Barcelona Ultra: Driftwood, Grey Mink Villa: Flint, Ammonite, Amulet	



Top Notch  
Jack McKinney Architecture

## 10. Thermal Resistance (H1)

Timber's R-value refers to its ability to resist thermal conductivity. Higher R-values equate to better insulation; materials with large R-values keep heat from escaping the home during the winter and permeating it during the summer.

Forté flooring products will ultimately add to the building performance index of the building envelope, however additional insulation material may be needed to meet the NZBC H1.3.2 requirements.

Forté 14-15mm has an R-value of 0.11 m<sup>2</sup> K/W and 18-21mm planks have an R-value of 0.17 m<sup>2</sup> K/W.

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Pukekohe, Auckland

**Christchurch**  
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Christchurch

**Queenstown**  
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