# Forté

DESIGN GUIDE

## Millboard Exterior Decking System

FOR USE WITH MILLBOARD MINERAL BOARD DECKING

ISSUE 2025.Q2

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## PRODUCT OVERVIEW





Millboard is a high-performance decking solution designed to replicate the appearance of natural timber while offering enhanced durability. This section introduces the board composition, available profiles, compatible fixings and touch-up coatings to support accurate specification and detailing.

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Millboard decking blends the authentic character of natural timber with the performance of innovative material technology, offering a surface that is both refined and resilient.

### COMPOSITION

Each board is hand-moulded from carefully selected oak, capturing the intricate grain, knots and texture of real timber. This process ensures a unique, organic appearance that enhances the natural variation of the finished deck.

Beneath the surface, the board's core is made from a blend of natural minerals and polymer resin, reinforced with long fibres for added strength, dimensional stability and resistance to moisture. This construction allows Millboard to perform exceptionally well in outdoor settings without warping, rotting or absorbing water.

The surface layer is formed from Lastane, a durable elastomer that delivers excellent slip resistance and a comfortable underfoot feel. A two-part UV-stable coating is applied to protect against fading and wear, preserving the board's appearance with minimal maintenance over time.



### DECKING BOARDS

#### Enhanced Grain Decking Board

Enhanced Grain SB Decking Board Weathered Oak Decking Board







DIMENSIONS	176 x 32 x 3600mm	126 x 32 x 3600mm	200 x 32 x 3600mm
WEIGHT	11.8kg	8.5kg	12.5kg
BOARDS PER M <sup>2</sup>	1.54	2.14	1.36
COLOURS	Antique Oak	Antique Oak	Driftwood
	Ashwood	Ashwood	Vintage
	Brushed Basalt	Brushed Basalt	Embered
	Burnt Cedar	Burnt Cedar	
	Coppered Oak	Coppered Oak	
	Ebony Grey	Ebony Grey	
	Golden Oak	Golden Oak	
	Limed Oak	Limed Oak	
	Smoked Oak	Smoked Oak	
FIXINGS	Durafix® 60mm screws	Durafix® 60mm screws	Durafix® 60mm screws

### EDGING BOARDS

#### Fascia Board

#### **Bullnose Decking Board**





DIMENSIONS	146 x 16 x 3600mm	150 x 32 x 3600mm
WEIGHT	8.5kg	8.3kg
GRAIN	Enhanced Grain	Enhanced Grain
COLOURS	Antique Oak	Antique Oak
	Ashwood	Ashwood
	Brushed Basalt	Driftwood Oak
	Driftwood Oak	Brushed Basalt
	Golden Oak	Coppered Oak
	Limed Oak	Ebony Grey
	Smoked Oak	Golden Oak
		Limed Oak
		Smoked Oak
FIXINGS	Durafix® 35mm screws	Durafix® 60mm screws

### FIXINGS





Durafix® Decking Fixings 45mm



Durafix® Decking Fixings 60mm



DIMENSIONS	4.5 x 35mm	4.5 x 45mm	4.5 x 60mm
QUANTITY	Box of 100	Box of 250	Box of 250
FIXINGS	A2 stainless steel fixings used to fix fascia boards	A2 stainless steel fixings used to fix decking to aluminium subframe batten	A2 stainless steel fixings used to fix decking boards to timber subframe

Cut ends of Millboard decking can be colour matched on site using a specially formulated touch-up coating for a more consistent and refined finish.

### TOUCH-UP COATINGS

When Millboard boards are cut to length, the exposed ends may reveal a lighter core material. Although this has no effect on the board's durability or performance, applying touch-up coating can improve the visual continuity of the installation—particularly in high-visibility areas or where the ends are exposed.

Millboard is inert in composition and does not require end-grain sealing for protection. The use of touch-up coating is purely aesthetic and optional, but recommended where a uniform appearance is desired. The coating is available in colours matched to the standard Millboard ranges for ease of application on site.



SMOKED OAK



ANTIQUE OAK



BURNT CEDAR



GOLDEN OAK



LIMED OAK



EBONY GREY



VINTAGE OAK



ASHWOOD



COPPERED OAK



BRUSHED BASALT



## SCOPE & LIMITATIONS





Understanding where and how Millboard can be used is essential to ensure long-term performance and compliance. This section outlines the recommended applications, key limitations and relevant standards to help guide appropriate design decisions.

2.1	Scope and Limitations
2 2	Compliance

### SCOPE & LIMITATIONS OF USE

The following guidance outlines where the Forté Millboard Decking System can be used, and any limitations or conditions that apply to ensure safe, compliant and long-lasting installations.

SCOPE	LIMITATIONS		
Location In all exposure zones as defined in NZS 3604:2011	<ul> <li>Where microclimatic conditions apply, as defined in NZS 3604:2011, contact Millboard for technical advice.</li> </ul>		
	<ul> <li>Fixings must be in accordance with section 4 of NZS 3604:2011. In exposure zone D, stainless steel fixings must be used.</li> </ul>		
Building	<ul> <li>The framing must have a minimum</li> </ul>		
On timber framing that complies with the NZ Building Code or with the Outdure Qwickbuild System.	design load of 2kPa or be subject to specific engineering design requirements.		
As an external decking board.	<ul> <li>Joist spacing must be at maximum of 400mm centres for residential applications or 300mm centres for commercial applications.</li> </ul>		
	<ul> <li>Durafix® fixings must be used (4.5mm x 60mm dimension) to fasten the</li> <li>Millboard Decking boards to a timber subframe.</li> </ul>		
	<ul> <li>Durafix® 4.5mm x 45mm fixings can be used to fasten the Millboard Decking boards to a plastic subframe.</li> </ul>		

### COMPLIANCE

NZ BUILDING CODE CLAUSE	COMPLIANCE STATEMENT	DEMONSTRATED BY		
B1 STRUCTURE B1.3.1, B1.3.2, B1.3.3 (a, b, c, e, f, j, m, & q)	Alternative Solution	<ul> <li>Tested in accordance with ASTM D7032-17 for creep-recovery and mechanical fastener holding tests [element, 17/10/22).</li> </ul>		
		<ul> <li>Tested in accordance with ASTM D7032-17, section 4.4.1 and 4.4.2, and ASTM D6109 for bending stiffness/flexural rigidity (product of modulus of rupture) and bending strength/ moment capacity (product of modulus of elasticity) [element, 17/10/22].</li> </ul>		
		<ul> <li>Meets a minimum value of 96,848 in2-lbf for flexural rigidity and 1,834 in2-lbf for moment capacity [element, 17/10/22].</li> </ul>		
<b>B2 DURABILITY</b> B1.3.1, B1.3.2, B1.3.3 (a, b, c, e, f, j, m, & q)	Alternative Solution	<ul> <li>Tested to ASTM D7032-17 for elevated temperature, moisture and freeze-thaw [element, 17/10/22].</li> </ul>		
		<ul> <li>Tested for UV/accelerated ageing [Q-Lab, 11/11/22a, 11/11/22b].</li> </ul>		
		<ul> <li>Composite material will not rot, warp or split as it is non-porous, not extruded and has no timber content. Composite material will not support algal growth as it has no protein content and has a 2K UV-resistant polyurethane coating.</li> </ul>		
D1 ACCESS ROUTES	Alternative Solution	<ul> <li>Tested in accordance with BS 7976-2:2002, cited in AS/NZS 4586:2004 D1.3.3 (d) for average slip measurements in wet and dry conditions. Classified as low slip potential [SATRA Technology Centre, 10/11/22 a,b,c,d, 25/3/20,19/03/20].</li> </ul>		
<b>F2 HAZARDOUS BUILDING MATERIALS</b> F3.2.1	Alternative Solution	<ul> <li>Manufactured material is inert</li> <li>Use in accordance with supplier's safety information</li> </ul>		

## SPECIFYING SUBSTRATE





The choice of subframe plays a critical role in the success of any decking installation. This section presents the key considerations for using timber or aluminium substrates with Millboard, including structural requirements, compatibility and typical applications.

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3.2	Aluminium Subframe	20

Correct joist spacing and fixings are essential to ensure the performance and durability of Millboard decking in both residential and commercial applications.

### TIMBER SUBFRAMES

#### Residential Application (1.5kN/m2 uniform distributed load).

Joists must support boards at 400mm centres when boards are installed at  $90^{\circ}$  to the joists. If boards are installed at  $45^{\circ}$ , joists must be set at 300mm centres

#### Commercial Applications (4kN/m2 uniform distrubted load).

Joists must support boards at 300mm centres when boards are installed at 90° to the joists. If boards are installed at 45°, joists must be set at 240mm centres.

#### Working Specification for all Decking Boards

For all applications, there are two spacing options. A 6mm gap using the Multi Spacer is recommended as it looks better aesthetically, however a standard 4mm gap can be applied without using the side fixing tool, depending on the desired look. The maximum unsupported overhang is 50mm, and each cut board must be supported by a minimum of three joists. Boards must be fixed with two Durafix® screws at every joist crossing. Three fixings are recommended at the ends of boards.

#### Working Specification for Edging and Fascia

Millboard edging trims must be supported along their full length with an edge joist.

 The flexible square edging (50×33×2400mm) and fascia trim (146×16×3200mm) will bend to a 1.2m radius.

Fix trims at 300mm intervals along their length while easing the profile around the bend.

Edge trims are available in eight colours, which can be used to match the decking boards, provide contrast for visual interest or assist partially sighted persons, as may be required for public applications. For details on structures for curved deck subframes, refer to Figure 5: Creating Curved Corners.





#### Millboard decking can be installed over low-height areas using the QwickBuild aluminium subframe system, offering a versatile solution for complex or constrained sites.

### ALUMINIUM SUBFRAME SYSTEM

The QwickBuild aluminium subframe allows Millboard decking to be installed over a variety of surfaces, including waterproof membranes, concrete, pavers or natural ground. This makes it ideal for rooftop terraces, balconies or areas where traditional timber subframes are not practical.

The system's integrated adaptor batten enables Millboard to be screw-fixed directly using Millboard lost-head screws, ensuring a secure and discreet finish.

With a build-up as low as 90mm from membrane to finished deck level, QwickBuild offers a low-profile, high-performance solution without compromising appearance or durability.



#### SUPPORT HEIGHT COMBINATIONS



#### QWICKBUILD PROFILES

The QwickBuild aluminium subframe system offers flexibility across deck heights, making it easy to create a stable, low-maintenance substructure for Millboard decking.

With a range of joist and bearer profiles available, QwickBuild can accommodate installations from low-height rooftop decks to full-height platforms, ensuring structural integrity across a variety of applications.



#### FIXING MILLBOARD TO QWICKBUILD

The integrated adaptor batten allows Millboard decking to be screw-fixed directly to the QwickBuild subframe using 4.5x45mm Durafix® screws.

Boards can be fixed either through the surface for a traditional finish or from the side for a more concealed look, depending on the design intent.





## DESIGN CONSIDERATIONS





Successful deck design goes beyond material selection. This section provides guidance on integrating Millboard into architectural projects, including layout, board variation, fixing methods and specific applications such as ramps, stairs, pools, spas and curved features.

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A well-considered board layout Mi enhances the natural appearance va of your deck, creating a more authentic timber look through In:

variation in grain and pattern.

### BOARD SETOUT

Millboard decking features eight unique grain patterns designed to replicate the natural variation found in real timber. To achieve a randomised, natural-looking finish, boards should be sorted into separate piles based on grain pattern before installation.

#### Installation Tips

During installation, pull boards from different piles to ensure a varied layout. Additionally, alternate the orientation of board end-cuts to reduce repetition and enhance the visual randomness of the surface.



### COLOUR CHARACTERISTICS

Millboard decking is crafted to reflect the tonal depth and natural variation of real timber, giving each board a unique and authentic appearance. Each board is hand-moulded from selected timber samples, then individually handcoloured using multiple pigments. This process creates subtle tonal shifts across the surface, ensuring no two boards are exactly the same. The result is a layered, authentic finish that mirrors the way real timber weathers and varies in nature. This deliberate variance in tone and grain pattern is what gives Millboard its natural look.

Colour tone may vary from batch to batch



#### CUT-END COLOUR MATCHING

When boards are trimmed on-site, exposed ends can be treated with Millboard's matching touch-up coating for a consistent look. This is purely aesthetic—Millboard's unique composition is moisture-resistant and doesn't require end sealing for protection.



### FIXING METHODS

Millboard decking can be installed using two recommended fixing methods, selected based on the visual requirements, structural layout and overall design intent of the project. Choosing the appropriate fixing method is an important part of the deck design process. Both options provide secure installation and long-term performance, with the main difference being whether the fixings are visible or concealed. The selected method should be considered early to ensure compatibility with the subframe, board type and spacing requirements.

#### SIDE FIXING TOOL -HIDDEN FIXING

The Side Fixing Tool method offers a concealed finish by driving screws through the side of each board at an angle. This approach eliminates visible fixings on the surface and creates a uniform 6mm spacing between boards. It is ideal where a clean, uninterrupted appearance is desired, particularly in premium residential or design-focused applications.



#### SURFACE FIXING -LOST HEAD SCREW

Durafix® screws provide a discreet surface-fixing solution. Designed specifically for Millboard, these 4.5mm head screws pass through the face of the board, with the Lastane surface layer gently closing over the fixing point. The result is a secure hold with only a minimal surface mark, making it a practical and efficient option for a wide range of applications.







Screw driven below surface with drill; Lastane layer begins to compress around the fixing.



Completed installation with no visible fixing point; the Lastane surface self-heals for a clean finish.



Thoughtfully integrated lighting can elevate outdoor spaces, adding warmth, safety and ambiance that extends the use of your deck well into the evening.

### LIGHTING

Incorporating LED lighting into your decking design is an effective way to create atmosphere and improve visibility, particularly around steps and transitions. When planned early, lighting can be seamlessly integrated without compromising the finish or durability of the deck.

#### Application

LED strip lights can be recessed into Bullnose boards, casting a subtle downward glow beneath stair treads. This highlights architectural details while improving safety in low light.

LED spotlights or uplights can also be used to illuminate vertical surfaces or feature areas, adding drama and depth to the space.

A considered lighting plan brings both functional and aesthetic benefits, helping your deck feel like a natural extension of the home at any time of day.

#### LED SPOT OR UPLIGHTS

LED spotlights or uplights can be used to define spaces and illuminate walkways and stairs, or purely for aesthetic purposes.



#### RECESSED LED LIGHTING

With a maximum cantilever of 40mm, LED strip lighting can be neatly recessed into the underside of the board for a clean, subtle finish.





Careful planning around pool edges ensures a durable, safe and cohesive finish that complements both residential and commercial outdoor spaces.

### POOL EDGE DETAILING

When designing a deck around a pool, it's important to consider how the decking will finish at the pool edge. This detail influences both the visual outcome and the long-term durability of the installation.

Millboard decking can be installed flush to the pool edge and continued down the vertical face, offering a clean and modern look ideal for residential applications. However, it is not intended for submerged use and should not sit below the waterline.



#### Commercial & High-Use Areas

In high-use settings such as hotel or public pools, a coping stone is recommended to form the pool edge. Coping creates a durable transition between the pool and deck, protecting both surfaces from constant exposure to water and foot traffic while maintaining a refined appearance.

Choosing the right edge detail enhances both the function and finish of your poolside environment.



### SPA POOL DETAILING

Spa pools add luxury and relaxation to outdoor spaces, but must be factored into your deck design early to ensure structural integrity and safety. Spas and hot tubs are heavy—especially when filled with water and in use—so it's essential to account for their weight from the outset. This includes calculating correct joist spacing, reinforcing the substructure, and potentially integrating concrete support pads or slabs. Proper planning ensures the deck can safely carry the load and provides lasting performance over time.

#### DECK MOUNTED

The spa sits fully on top of the finished deck surface. Subframe reinforcement is essential beneath the spa to support its weight.



#### FLUSH (LEVEL WITH DECKING)

The spa is installed at the same level as the deck. Where possible, a concrete pad should be used to support the spa, with the deck constructed around it.



#### RECESSED

The spa is set into the deck and supported by a concrete slab beneath, offering a seamless look and easier step-in access.



When designing ramps with decking for access or accessibility, selecting the right board is critical to ensure safety, usability and compliance with slip resistance standards.

### RAMP DETAILING

The slope of the ramp has a direct impact on the slip resistance required of the decking material. As the gradient increases, so too does the need for a surface that provides adequate grip underfoot. To ensure suitability, decking boards should be tested using the shod foot wet pendulum test, in line with AS 4586, which measures slip resistance in wet conditions with footwear.

For user comfort and accessibility:

- The recommended gradient is as gentle as possible 1 in 14 is considered ideal.
- The maximum allowable slope is 1 in 12, which requires higher slip resistance.
- Ramps must also provide a minimum clear width of 1200mm, unobstructed by fixtures or landscaping elements, to allow safe and easy passage for all users.



#### MILLBOARD ENHANCED GRAIN

With a refined timber grain and subtle surface texture, Millboard Enhanced Grain offers a natural timber aesthetic with dependable slip resistance. Ideal for ramp designs where both visual appeal and performance matter, it allows for a seamless continuation across outdoor surfaces.

#### SHOD FOOT - WET PENDULUM TEST

PTV					A
WEIGHT	А	В	с	NZ RATING	В
Dry	49	59	60	P4	
Wet	42	37	36	P3	Direction of manufacture





#### MILLBOARD LASTAGRIP

Specifically designed for areas were the highest slip resistance is required, the addition of integrated texture strips ensure ultimate slip resistance. Available in the same colour range as Enhanced Grain, this profile allows a seamless transition from deck area to access ramp.

#### SHOD FOOT - WET PENDULUM TEST

PTV					A
WEIGHT	А	В	с	NZ RATING	В
Dry	58	75	58	P5	
Wet	45	63	43	P5	Direction of manufacture



Stair design requires careful consideration of both safety and aesthetic detail—particularly when it comes to how the tread edges and risers are finished.

### STAIR DETAILING

The tread edge can be finished with either Bullnose boards, featuring a radiused edge, or SB boards, offering a clean square edge. Both profiles can be used with a maximum cantilever of 40mm, allowing flexibility in achieving the desired aesthetic while maintaining structural performance.

Millboard Fascia boards are used to complete the riser detail, providing a seamless finish on the vertical face and tying the overall look together.

Accurate calculation of tread and riser dimensions during the design phase is essential to determine which board best suits your application—ensuring a safe, durable and visually refined stair installation.



SB BOARD 32 x 126 x 3600mm

BULLNOSE BOARD 32 x 150 x 3600mm

FASCIA BOARD 16 x 146 x 3600mm



Curves can be achieved with Millboard using the specifically designed Flexible Square Edge profile.

### CREATING CURVES

This flexible edging profile can bend to a 1.2m radius at 20° angle, allowing curves or circles to be created.

Decking boards can then be cut to the desired radius to suit the application.

Using curves to define spaces, levels or texture, creates flow between spaces and gives you the freedom and flexibility with your design.

## FLEXIBLE SQUARE EDGE 50x32x2400mm



EXTERNAL CURVE

An example of the Flexible Square Edge profile used around an external radius.



#### INTERNAL CURVE

An internal radius finished with the Flexible Square Edge profile in situ.



