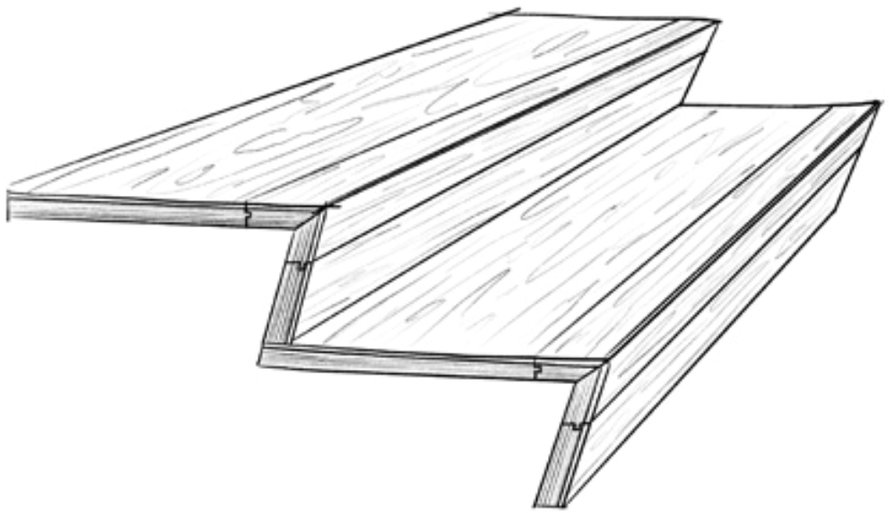
VidaSpace®

VidaSpace Stair Design Guide

Ver 001 | 2024

Contents



Scope of Use

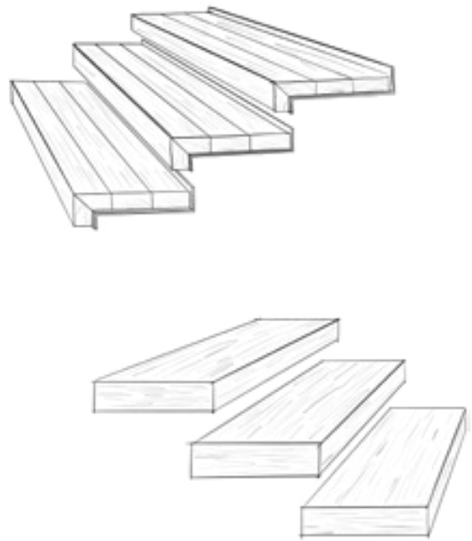
The VidaSpace Stair Design Guide has been created for Architects and Designers by the VidaSpace Technical Team.

This VidaSpace Stair Design Guide aims to equip Architects and Interior Designers with comprehensive guidelines for creating functional, safe, and aesthetically pleasing timber stairs. It intends to facilitate the design, construction, and implementation of timber staircases in residential, commercial, and public spaces while aligning with New Zealand's building codes and regulations.

This guide contains the following:
Design Elements
Design Styles
Visual and Technical Aids
Building Code Compliance and Safety Standards

Limitations: This guide does not cover specialised industrial or heavy-load-bearing timber staircase designs. It also does not delve into the structural engineering aspects beyond the scope of designing timber stairs within architectural and interior design considerations.

Legal and Compliance Aspects:
The content within this guide aligns with New Zealand building codes, standards, and regulations concerning timber staircases. However, users are advised to verify and ensure compliance with the latest local regulations and seek professional structural engineering consultation for specific structural requirements.



Overview

The VidaSpace Stair Design Guide offers a comprehensive exploration of design styles and elements specifically tailored for four key areas: Timber Stairs, Metal Detailing, Light Detailing, and Hand Rails to be used in conjunction with the VidaPlank timber flooring collection. It provides architects, designers, and builders with a versatile toolkit to craft unique and harmonious staircases while seamlessly integrating with VidaSpace timber flooring collections.

Timber Stairs: Combines innovative designs and elements to blend functionality, aesthetics and structural integrity.

Metal Detailing: Explore the possibilities of incorporating metal elements within staircases to complement your VidaPlank timber flooring.

Light Detailing: Illuminate staircases creatively by integrating lighting solutions that accentuate the VidaPlank collection's textures and colors. This section explores various lighting designs to enhance ambiance and visual appeal.

Hand Rails: A selection of handrail designs that perfectly harmonise with VidaPlank's style and texture.

This guide serves as a flexible design resource, allowing adaptation and customisation for other VidaSpace timber flooring collections. By leveraging the principles and elements outlined within the VidaPlank Stair Design Guide, designers can effortlessly extend these concepts to suit and enhance the unique characteristics of other VidaSpace flooring collections, ensuring a cohesive design language across spaces.

Specifier Considerations

Quality

Quality is important when it comes to specifying any product but especially timber stairs. Staircases have to be durable and capable of withstanding the wear and tear of everyday life. Stairs rely on three vital elements: their materials, construction, and proper installation, all essential for enduring the rigors of everyday use

Sustainable and Environmentally Friendly/Healthy

When specifying timber for staircases, consider using sustainably-sourced timber, recycled timber, or timber from certified forests. Additionally, opt for low-VOC finishes or treatments that further promote environmental and occupant health. Prioritising these aspects supports sustainable building practices and contributes to creating healthier environments while minimising the ecological footprint.

Installation Quality

Designers and specifiers must be mindful that even high quality materials are quickly undermined by poor installation. The installation craftsmanship and integrity is the major determinant of its performance; having a stair case that has been well-installed will improve their longevity in terms of both aesthetics and function.

Easy to Install

Considering ease of installation for timber staircases benefits the construction process by streamlining installation, reducing costs, minimising disruptions, and ensuring a more efficient and error-free construction phase.

Easy to Maintain

Specifiers considering ease of maintenance for timber staircases should opt for durable timber types, protective finishes, or surface treatments that resist wear and stains, making cleaning and upkeep simpler. Prioritizing these factors can lead to longer-lasting, visually appealing, and cost-effective staircases

Aesthetic Appeal/Finishes

When specifying finishes for timber staircases, consider the desired aesthetic, the level of protection required, ease of maintenance, and how it complements the overall design. Selecting high-quality finishes that align with the aesthetic vision while providing adequate protection can significantly enhance the visual impact and longevity of the staircase.

Slip Requirements

Slip resistance is crucial for timber staircases due to safety concerns. When exposed to moisture or in environments prone to dampness, timber can become slippery.

The slip resistance of any timber products used on staircases must comply with NZBC Clauses D1: Access Routes & F1: Safety from Falling

Request information or further advice from VidaSpace as evidence of compliance.

Durability in High Traffic

By considering durability in high-traffic areas, specifiers can select appropriate timber types, treatments, or finishes that can withstand heavy usage in such environments.

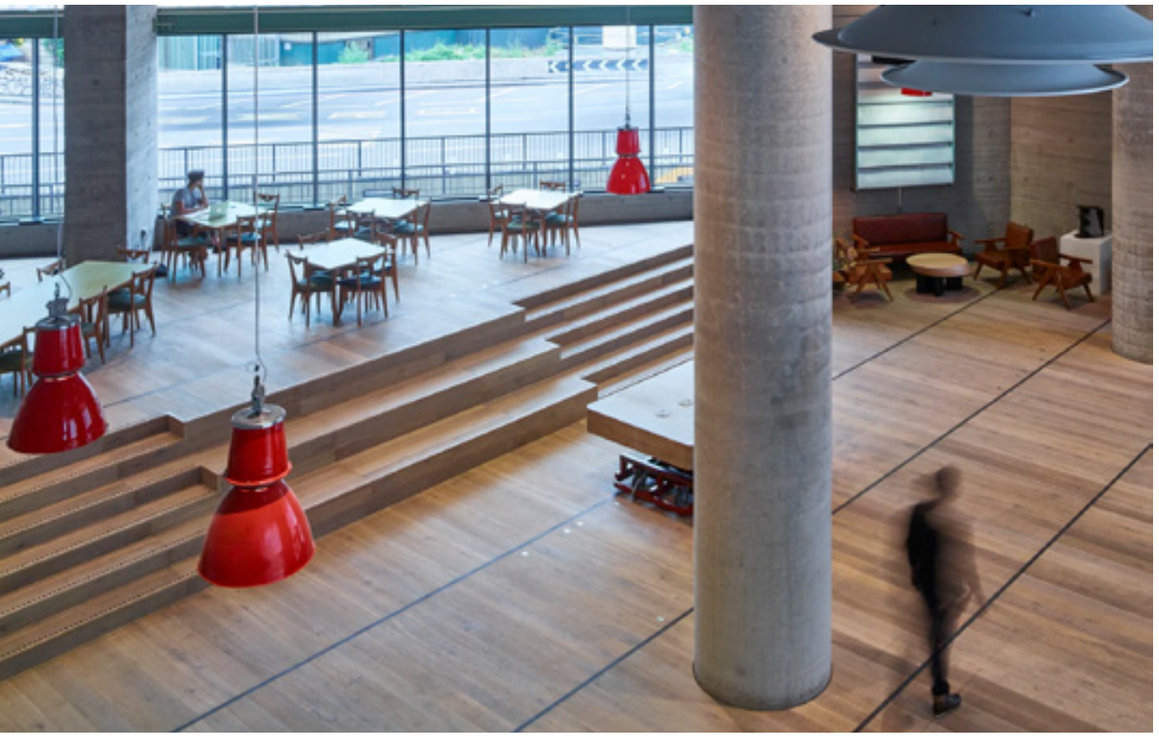
Wear and Tear: High-traffic areas experience more footfall, leading to increased wear and tear. Timber, while a durable material, can degrade over time with heavy use. Specifying a durable timber with a durable finish can extend the staircase's life and maintain its aesthetic appeal.

Maintenance Requirements: High-traffic areas often require more frequent maintenance. Choosing a durable timber or applying suitable finishes can reduce the frequency and intensity of maintenance needed, ensuring the staircase remains safe and visually appealing without constant attention.

Safety Concerns: Wear in high-traffic areas can lead to changes in the surface texture, potentially affecting slip resistance. Ensuring the durability of the timber helps maintain its structural integrity and slip resistance over time, promoting safety.

Long-Term Cost Efficiency: Investing in durable timber or protective coatings upfront might have a higher initial cost but can result in cost savings in the long run. It reduces the need for frequent replacements or extensive repairs, ultimately saving both time and money.

Aesthetic Appeal: High-traffic areas contribute significantly to the overall aesthetics of a space. Durable timber, properly maintained, retains its appearance, contributing positively to the ambiance and appeal of the staircase and the surrounding area.



VidaSpace Stair Elements

VidaSpace Stair Elements present a sophisticated solution that seamlessly integrates into the world of interior design, offering a range of features that make it an ideal choice for designers seeking both functionality and aesthetics.

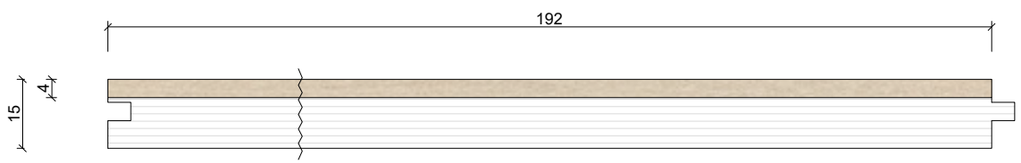
Designed with the designer's convenience in mind, VidaSpace Stair Elements streamline the specification process. The elements are thoughtfully crafted to effortlessly blend with the VidaPlank Collection. While tailored to complement VidaPlank, these versatile stair elements also provide the flexibility to be seamlessly incorporated with other VidaSpace flooring collections.

Engineered for simplicity, these elements are user-friendly and designed to ensure a smooth installation process. The design not only saves time during installation but also adds to the overall convenience for both designers and installers.

The sizes of these elements are presented in our standard dimensions, providing a convenient starting point for designers. However, recognising the diversity of design requirements, there is also an option for customisation. This adaptability allows you the freedom to tailor the stair elements to fit the unique specifications of your projects, ensuring a perfect match with the overall design scheme.

V1 Engineered Tread *Stocked*

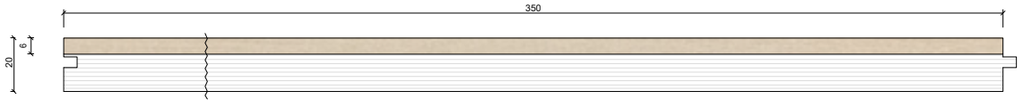
Construction:	Engineered
Finish:	Prefinished
Length:	Up to 2350mm
Installation Requirements:	Cut to size on site



V2 Single Piece Engineered Tread *Indent*

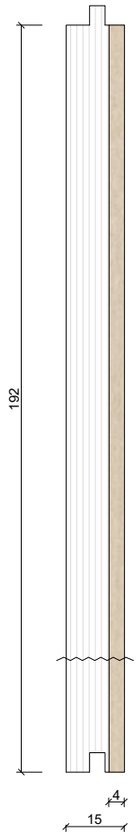
Construction:	Engineered
Finish:	Prefinished
Length:	Up to 2350mm
Installation Requirements:	Cut to size on site

Due to tread depth, 20mm thickness is required (indent order). We recommend that the risers and flooring are made-to-order alongside the Single Piece Engineered Treads within the same batch.



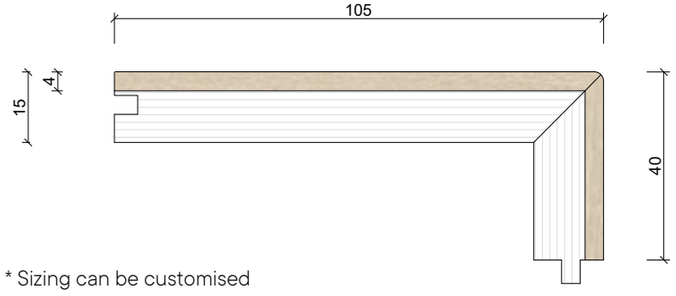
V5 Engineered Riser *Stocked*

Construction:	Engineered
Finish:	Prefinished
Length:	Up to 2350mm
Installation Requirements:	Cut to size on site



V7 Flush Nosing *Made-to-order in NZ*

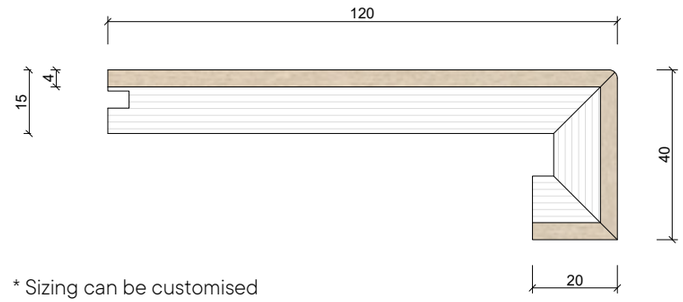
Construction:	Engineered
Finish:	Prefinished
Length:	Supplied as full plank lengths or cut to length option



* Sizing can be customised

V8 Square Nosing *Made-to-order in NZ*

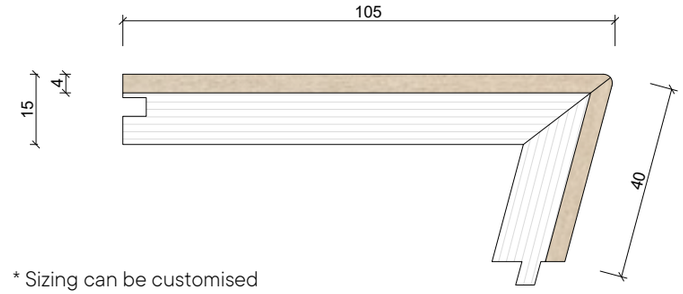
Construction:	Engineered
Finish:	Prefinished
Length:	Supplied as full plank lengths or cut to length option



* Sizing can be customised

V9 Raked Nosing *Made-to-order in NZ*

Construction:	Engineered
Finish:	Prefinished
Length:	Supplied as full plank lengths or cut to length option

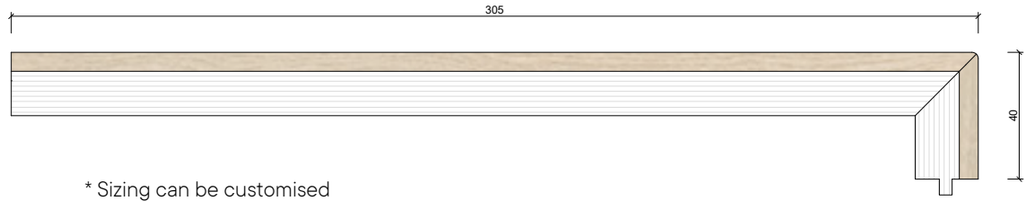


* Sizing can be customised

V10A Flush Single Tread *Indent*

Construction: Engineered
Finish: Prefinished
Length: Supplied as full plank lengths or cut to length option

Due to tread depth, 20mm thickness is required (indent order). We recommend that the risers and flooring are made-to-order alongside the Flush Single Treads within the same batch.

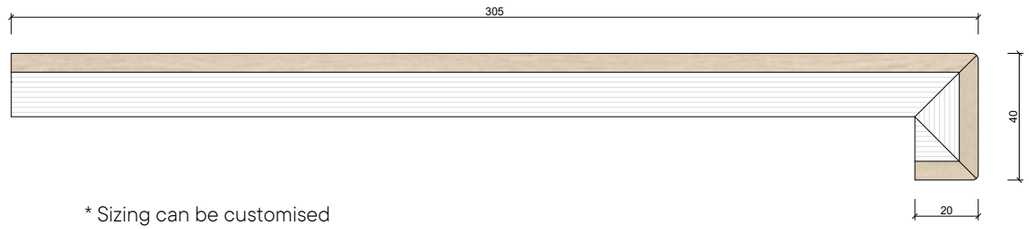


* Sizing can be customised

V10B Square Single Tread *Indent*

Construction: Engineered
Finish: Prefinished
Length: Supplied as full plank lengths or cut to length option

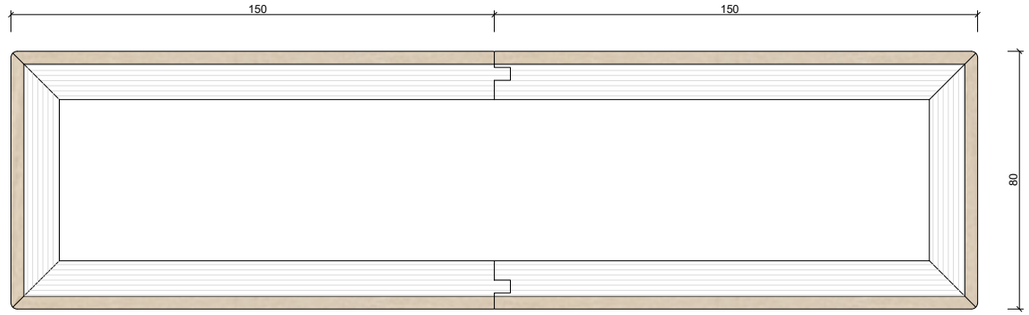
Due to tread depth, 20mm thickness is required (indent order). We recommend that the risers and flooring are made-to-order alongside the Square Single Treads within the same batch.



* Sizing can be customised

V11A Floating Tread – Hollow Core *Made-to-order in NZ*

Construction: Engineered (using 192mm Board with 0.5mm Micro Bevel)
Finish: Prefinished
Length: Supplied as full plank lengths or cut to length option

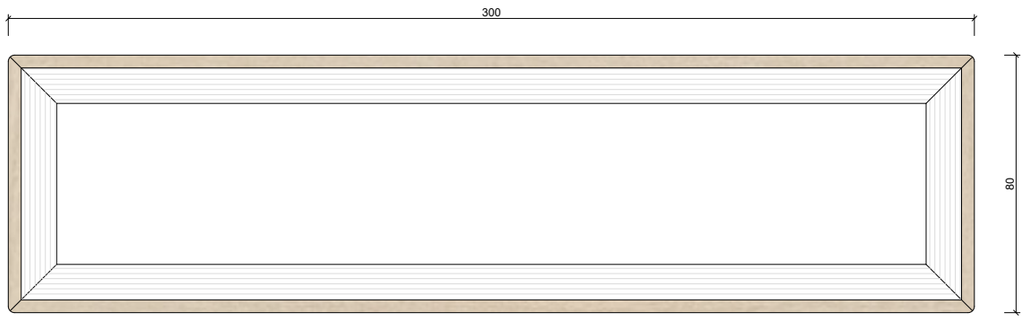


* Sizing can be customised

V11B Floating Tread – Hollow Core Seamless *Indent*

Construction: Engineered
Finish: Prefinished
Length: Supplied as full plank lengths or cut to length option

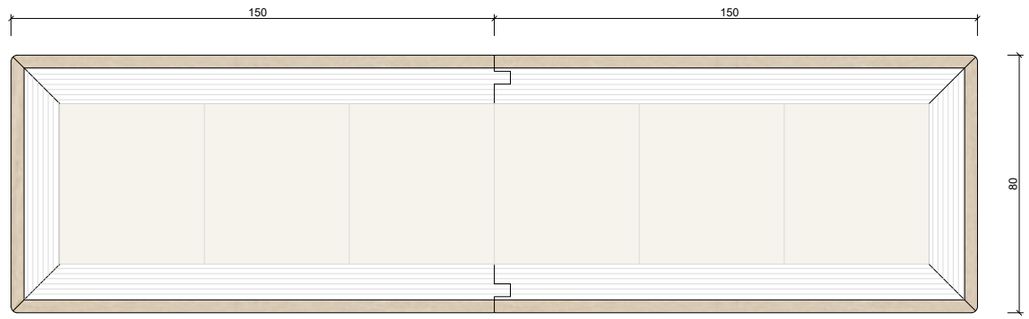
Due to tread depth, 20mm thickness is required (indent order). We recommend that the flooring is made-to-order alongside the Floating Treads within the same batch.



* Sizing can be customised

V12A Floating Tread – Solid Core *Made-to-order in NZ*

Construction: Engineered, Solid Core Engineered (using 192mm Board with 0.5mm Micro Bevel)
Finish: Prefinished
Length: Supplied as full plank lengths or cut to length option

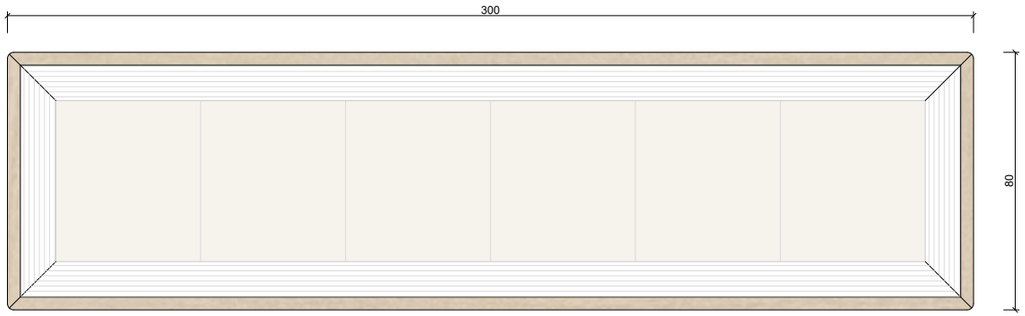


* Sizing can be customised

V12B Floating Tread – Solid Core Seamless *Indent*

Construction: Engineered, Solid Core
Finish: Prefinished
Length: Supplied as full plank lengths or cut to length option

Due to tread depth, 20mm thickness is required (indent order). We recommend that the flooring is made-to-order alongside the Floating Treads within the same batch.



* Sizing can be customised

V13A End Cap – Flat Grain – Flush *Made-to-order in NZ*

Construction: Engineered
Finish: Prefinished

* Sizing can be customised

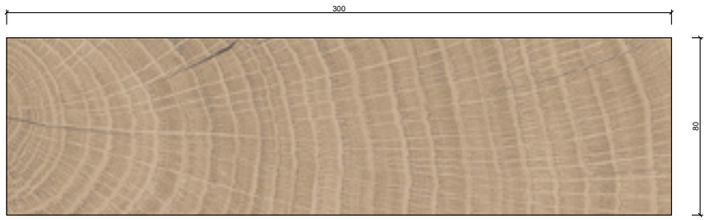
V13B End Cap – Flat Grain – Floating *Made-to-order in NZ*

Construction: Engineered
Finish: Prefinished

* Sizing can be customised

V13C End Cap – End Grain – Flush *Indent*

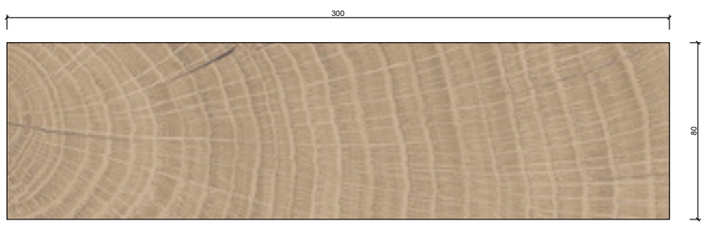
Construction: Engineered
Finish: Prefinished



* Sizing can be customised

V13D End Cap – End Grain – Floating *Indent*

Construction: Engineered
Finish: Prefinished

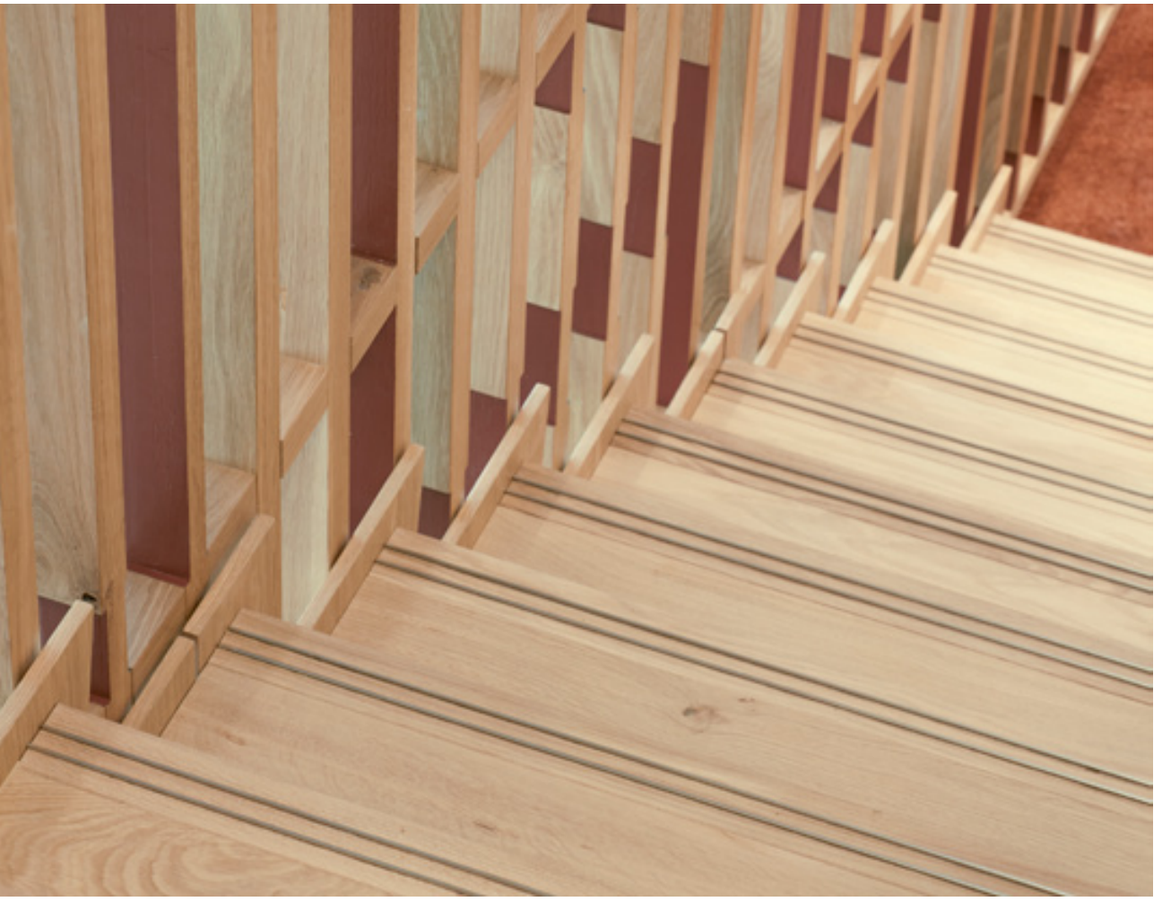


* Sizing can be customised

V14 Edge Clashing *Stock*

Construction: Solid
Thickness: 2mm
Finish: Unfinished (Stain on site to match using VidaColour Stain)
Installation Requirements: Glued, Trimmed & Stained on site.

* Sizing can be customised



VidaSpace Stair Styles

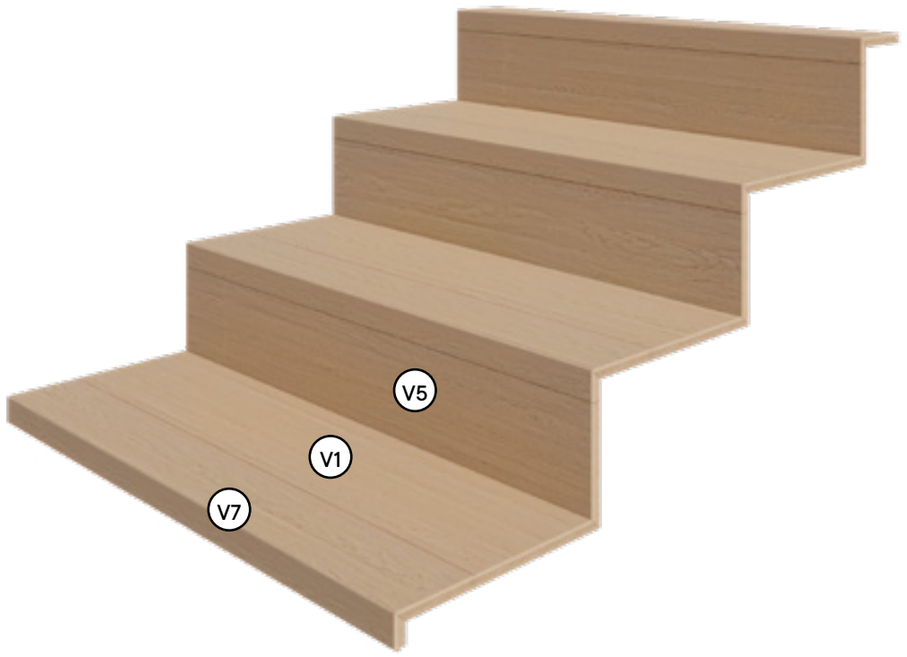
VidaSpace introduces our diverse range of stair styles meticulously crafted to work with our VidaPlank timber flooring collection.

From classic elegance to contemporary flair, our designs embody versatility and sophistication, offering architects and designers an expansive canvas for creative expression.

Each style reflects the intrinsic beauty of VidaPlank timber flooring while accommodating customisation to suit diverse design preferences and project requirements.

With our designs the possibilities are boundless, and stand as a testament to our dedication to empowering ambitious design.

The Classic – Flush©



Elements Used:

V1 Engineered Tread

V5 Engineered Riser

V7 Flush Nosing

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Classic – Square©

Elements Used:

V1 Engineered Tread

V5 Engineered Riser

V8 Square Nosing

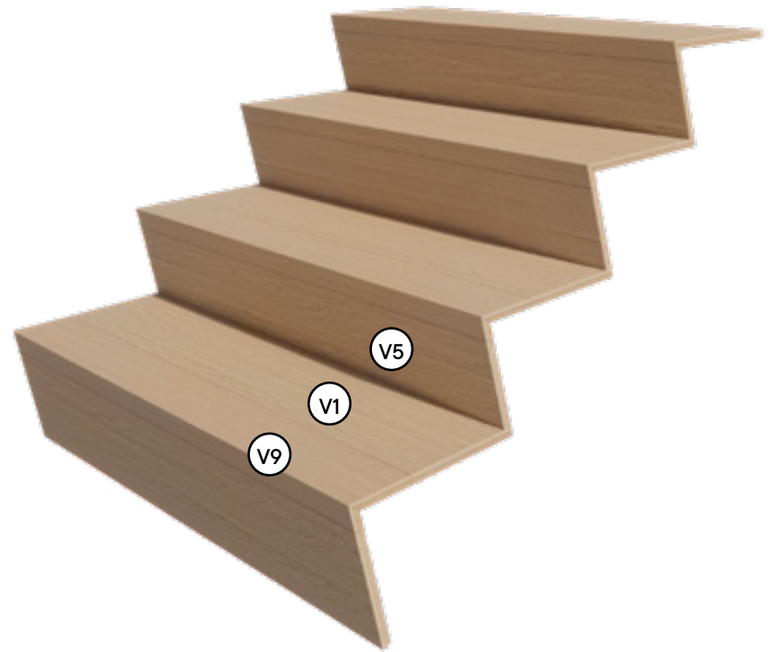
Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Classic – Raked©



Elements Used:

V1 Engineered Tread

V5 Engineered Riser

V9 Raked Nosing

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Seamless – Flush©

Elements Used:

V2 Single-Piece Engineered Tread

V5 Engineered Riser

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Seamless – Square©

Elements Used:

V10B Square Single Tread

V5 Engineered Riser

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Seamless – Raked©

Elements Used:

V2 Single-Piece Engineered Tread

V5 Engineered Riser

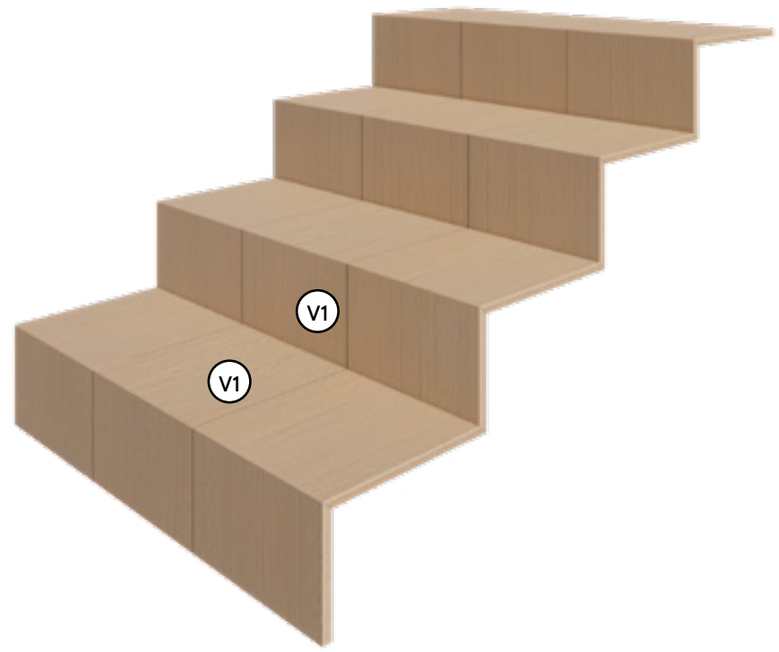
Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Waterfall©



Elements Used:

V1 Engineered Tread

- *Mitred Joints*
- *Continuous Planks*

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

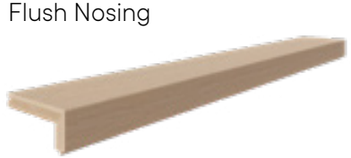
The Border©

Elements Used:

V1 Engineered Tread

V5 Engineered Riser

V7 Flush Nosing



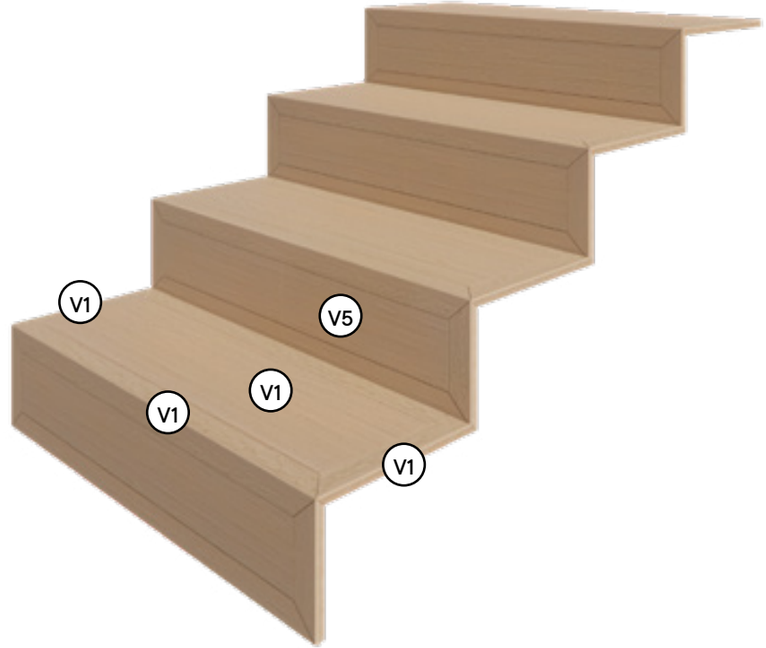
Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Picture Frame©



Elements Used:

V1 Engineered Tread

V5 Engineered Riser

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Beam Stack©

Elements Used:

V12B Floating Tread - Solid Core Seamless

V13C End Cap - End Grain - Flush

Other End Cap Options:

V13A, V13B or V13C - See Pg 17-18

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

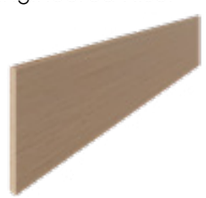
Common, Main Private, Minor Private, Private, Secondary Private, Service

The Runner©

Elements Used:

V2 Single Piece Engineered Tread

V5 Engineered Riser



V14 Edge Clashing

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Painted Riser©

Elements Used:

V10B Square Single Tread

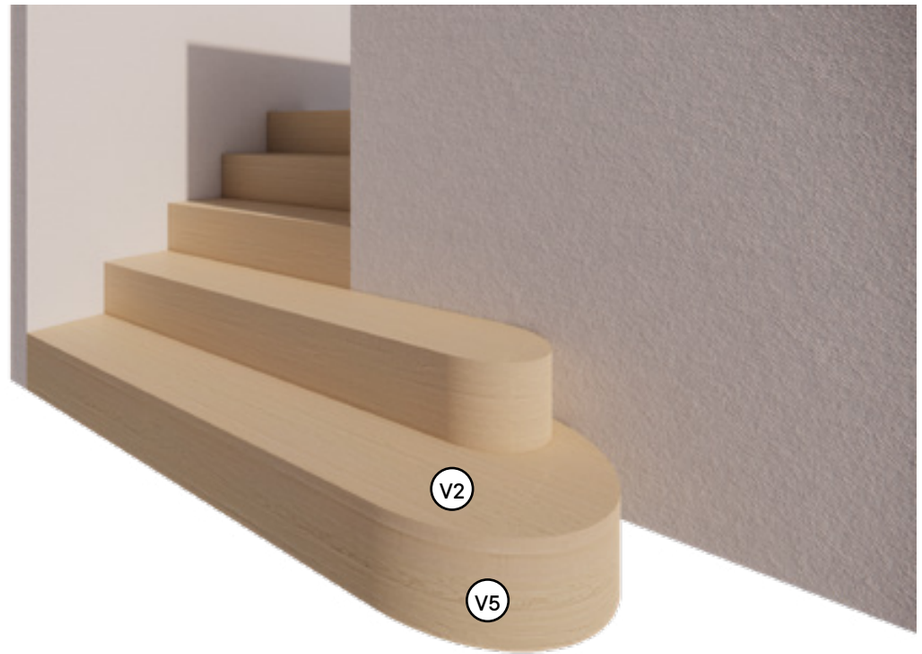
Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Flush Curve©



Elements Used:

V2 Single-Piece Engineered Tread

V5 Engineered Riser - *Customised on site*

On-site application with a minimum radius of 300mm.

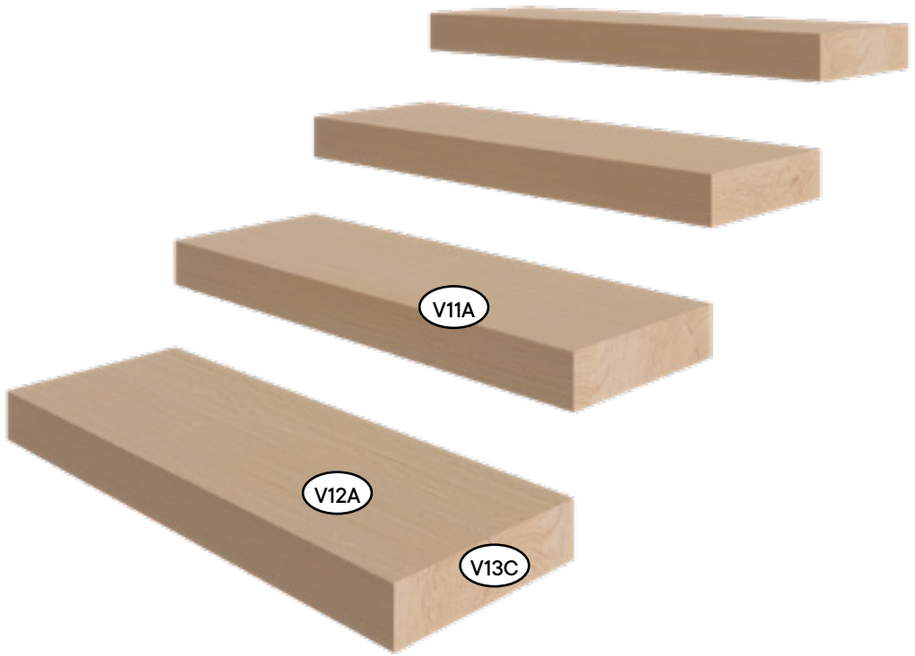
Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Floating Cantilever©



Elements Used:

V11A Floating Tread - Hollow Core

or

V12A Floating Tread - Solid Core

V13C End Cap - End Grain - Flush

Other End Cap Options:

V13A, V13B or V13C - See Pg 17-18

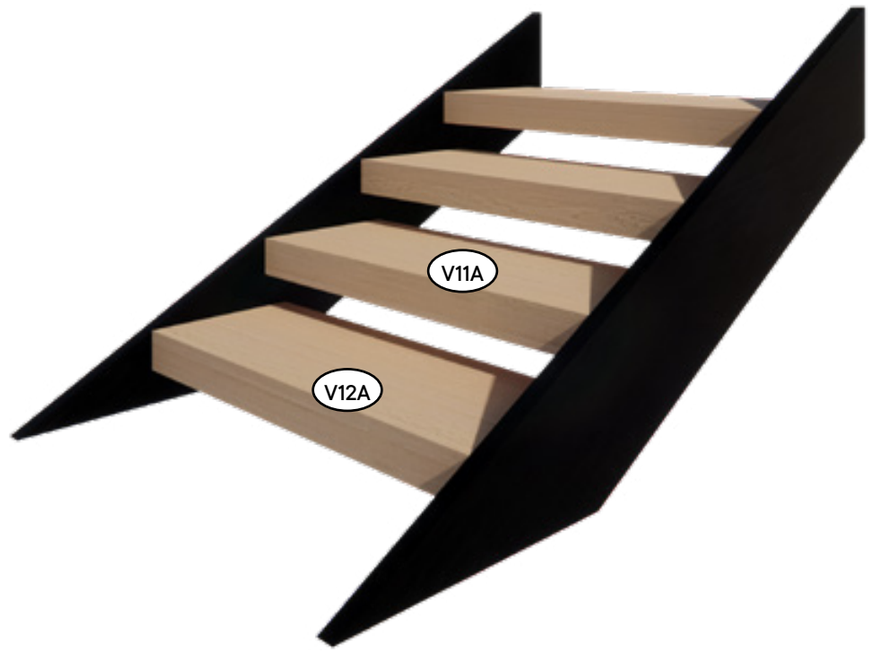
Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Floating Double Stringer©



Elements Used:

V11A Floating Tread - Hollow Core

or

V12A Floating Tread - Solid Core

Alternative Elements V11A or V12A

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Floating Central Stringer©

Elements Used:

V12A Floating Tread - Solid Core

or

V12B Floating Tread - Solid Core Seamless

V13C End Cap - End Grain - Flush

Other End Cap Options:

V13A, V13B or V13C - See Pg 17-18

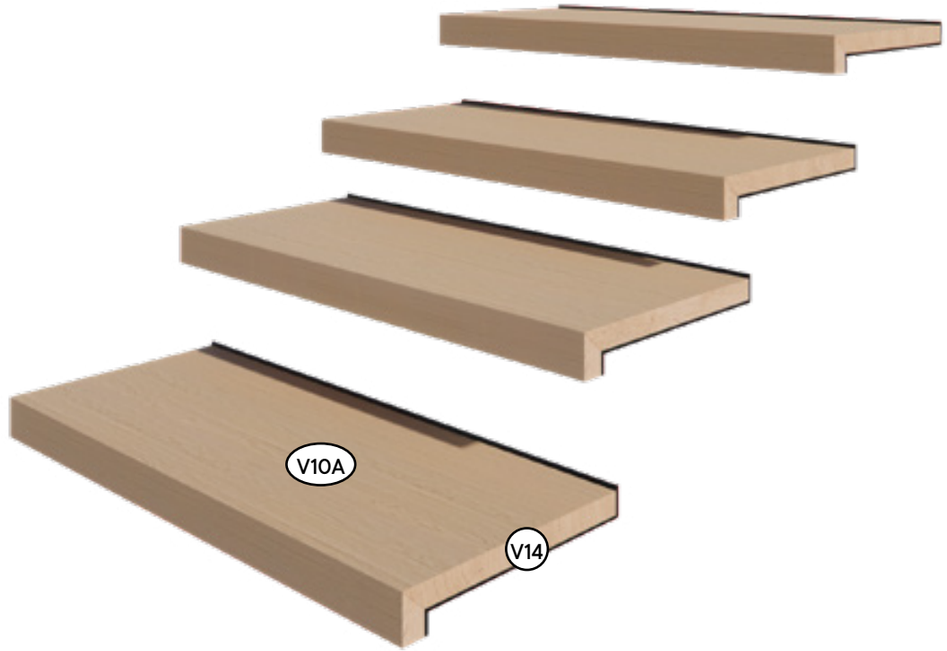
Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Floating Waterfall©



Elements Used:

V10A Flush Single Tread

V14 Edge Clashing

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

Common, Main Private, Minor Private, Private, Secondary Private, Service

The Helix©

Elements Used:

V2 Single-Piece Engineered Tread

** If widest is > 350mm - Multiple Planks required for Tread*

V5 Engineered Riser - *Customised*

Available in the VidaPlank colours below:

Note: Also available across all VidaSpace Flooring Collections

Compliant to be used in the following Stairways:

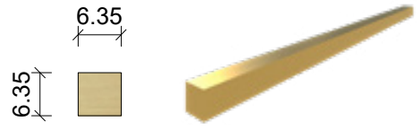
Common, Main Private, Minor Private, Private, Secondary Private, Service

Metal Detailing Elements

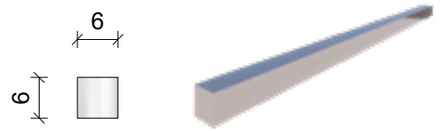
Elevate your design with sleek and durable metal trims. These precision-crafted accents seamlessly blend style and functionality. Add a touch of modern sophistication while protecting the edges of your beautiful wood finishes.

V15 Square Bar

V15A Organic Brass - Square Bar



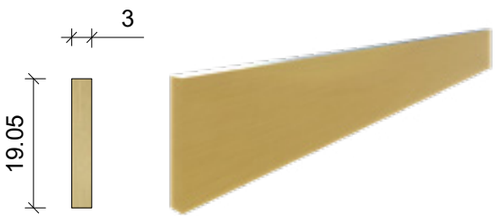
V15B Stainless Steel - Square Bar



V16 Flat Bar - Organic Brass

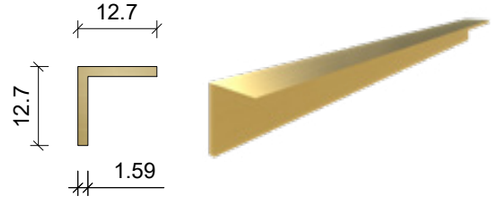
V16A Small Organic Brass - Flat Bar

V16B Large Organic Brass - Flat Bar

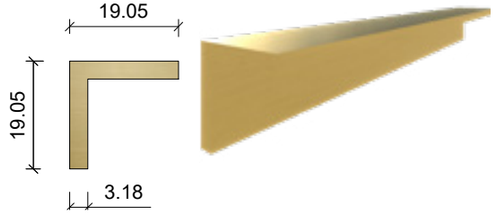


V18 Angle Bar - Brass

V18A Small Organic Brass - Angle Bar

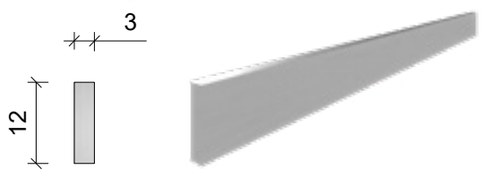


V18B Large Organic Brass - Angle Bar



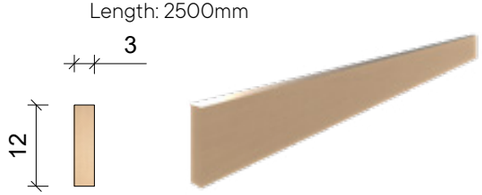
V17 Flat Bar - Anodised

V17A Silver Anodised - Flat Bar
Length: 2500mm



V17B Pewter Anodised - Flat Bar
Length: 2500mm

V17C Light Champagne Anodised - Flat Bar
Length: 2500mm



V17D Champagne Anodised - Flat Bar
Length: 2500mm

V17E Light Bronze Anodised - Flat Bar
Length: 2500mm

V17F Smoked Bronze Anodised - Flat Bar
Length: 2500mm

V17G Matte Black Anodised - Flat Bar
Length: 2500mm

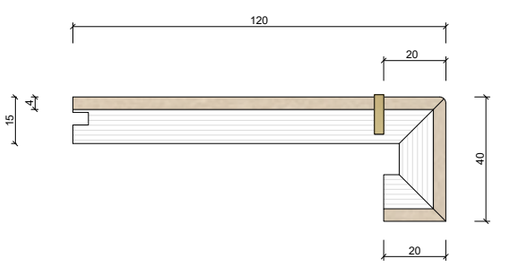
Metal Detailing Styles

All Metal Detailing styles are suitable for Flush, Square or Raked nosing profiles.

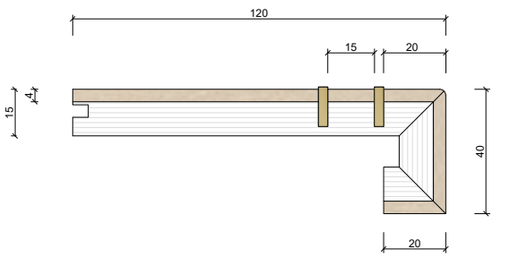
Dimensions shown below are indicative and can be customised.

Metal Trims will be supplied loose with the option to have the slots precut. Alternatively your installer can cut these on site. Note Metal Trims will need to be glued into place on site.

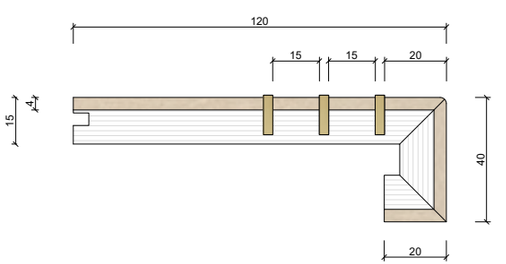
1-Strip Flat Bar



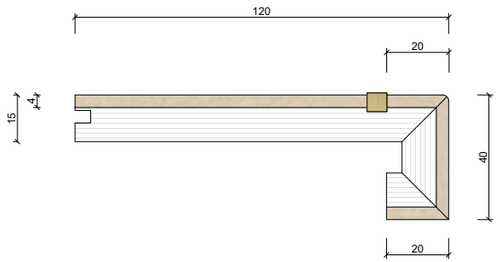
2-Strip Flat Bar



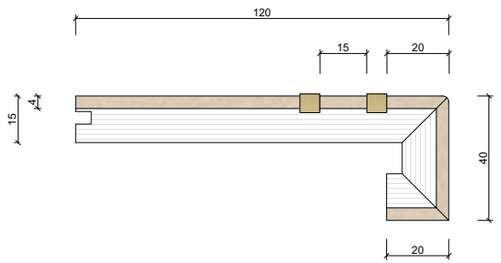
3-Strip Flat Bar



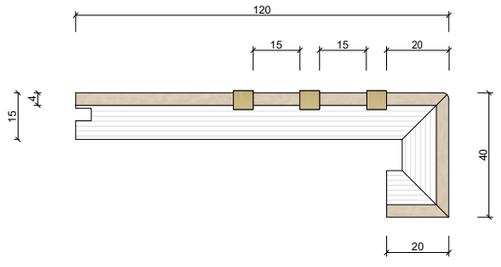
1-Strip Square Bar



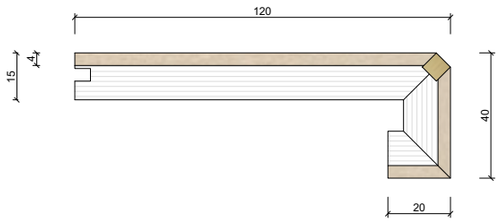
2-Strip Square Bar



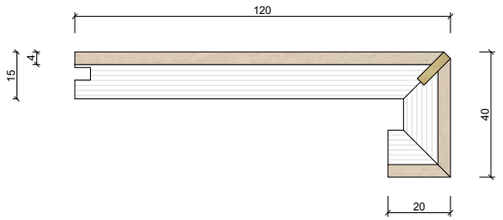
3-Strip Square Bar



The Square Angle



The Flat Angle



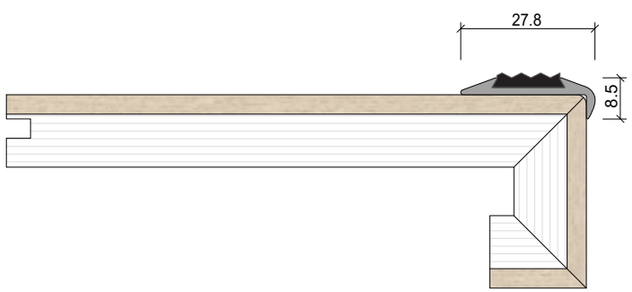
The Waterfall Strip - Single

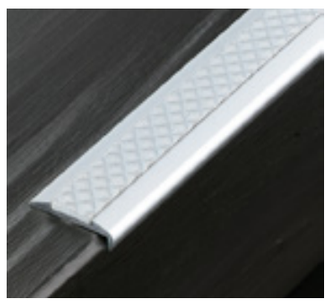
The Waterfall Strip - Double

TreadSafe Trims

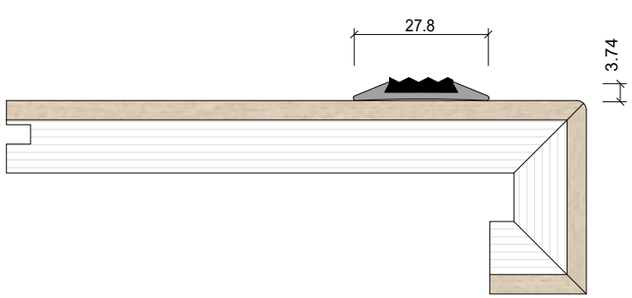
The trims below are suitable for Flush, Square or Raked nosing profiles.
Please Note: TreadSafe Trims not Supplied by VidaSpace. Profiles shown below are examples only.

AA139 Anodised Aluminium

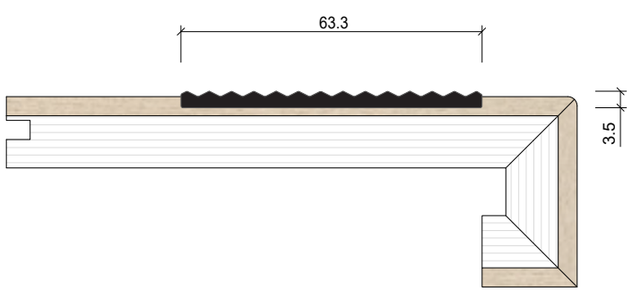


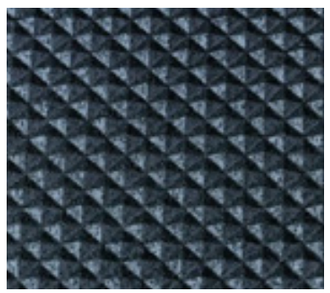


AA140 Anodised Aluminium



Rebated Nonslip Tread

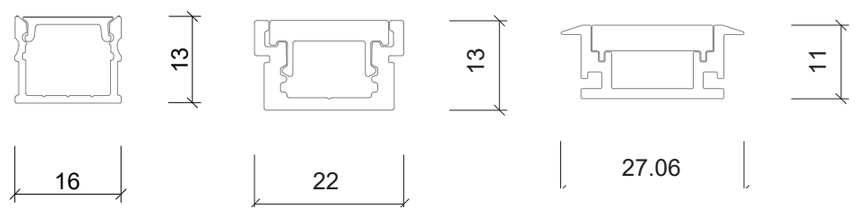




Lighting Styles

Enhance your design with LED lighting. These light fixtures effortlessly combine modern aesthetics with practical functionality. Infuse a dash of contemporary elegance while illuminating your space with the durability and sophistication of LED lighting.

LED Strip Lighting Options

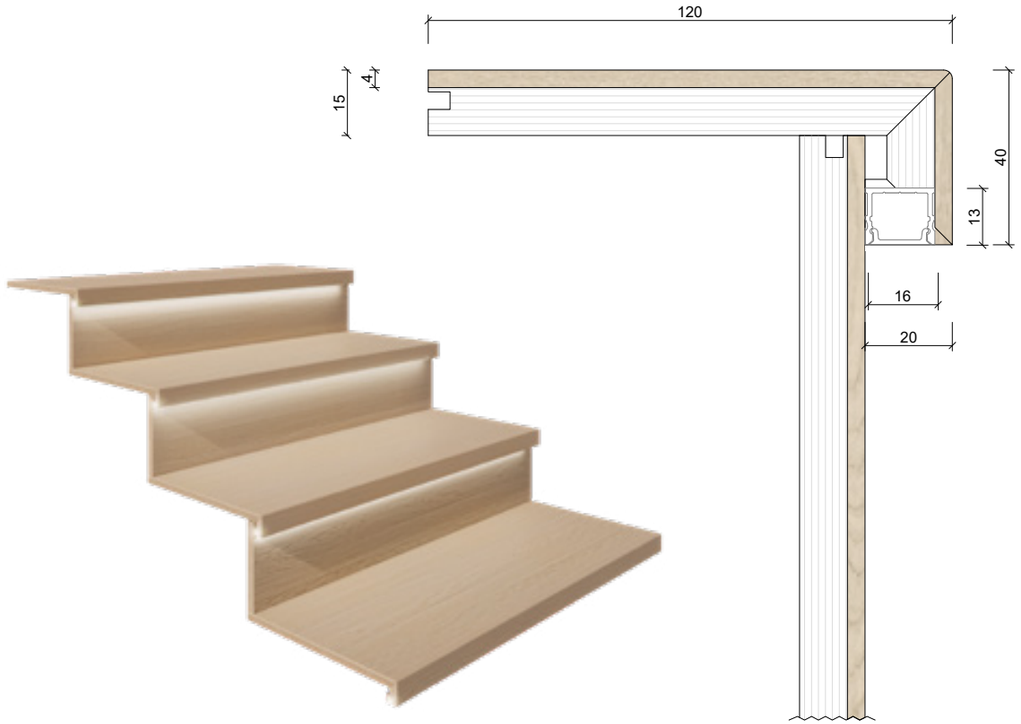


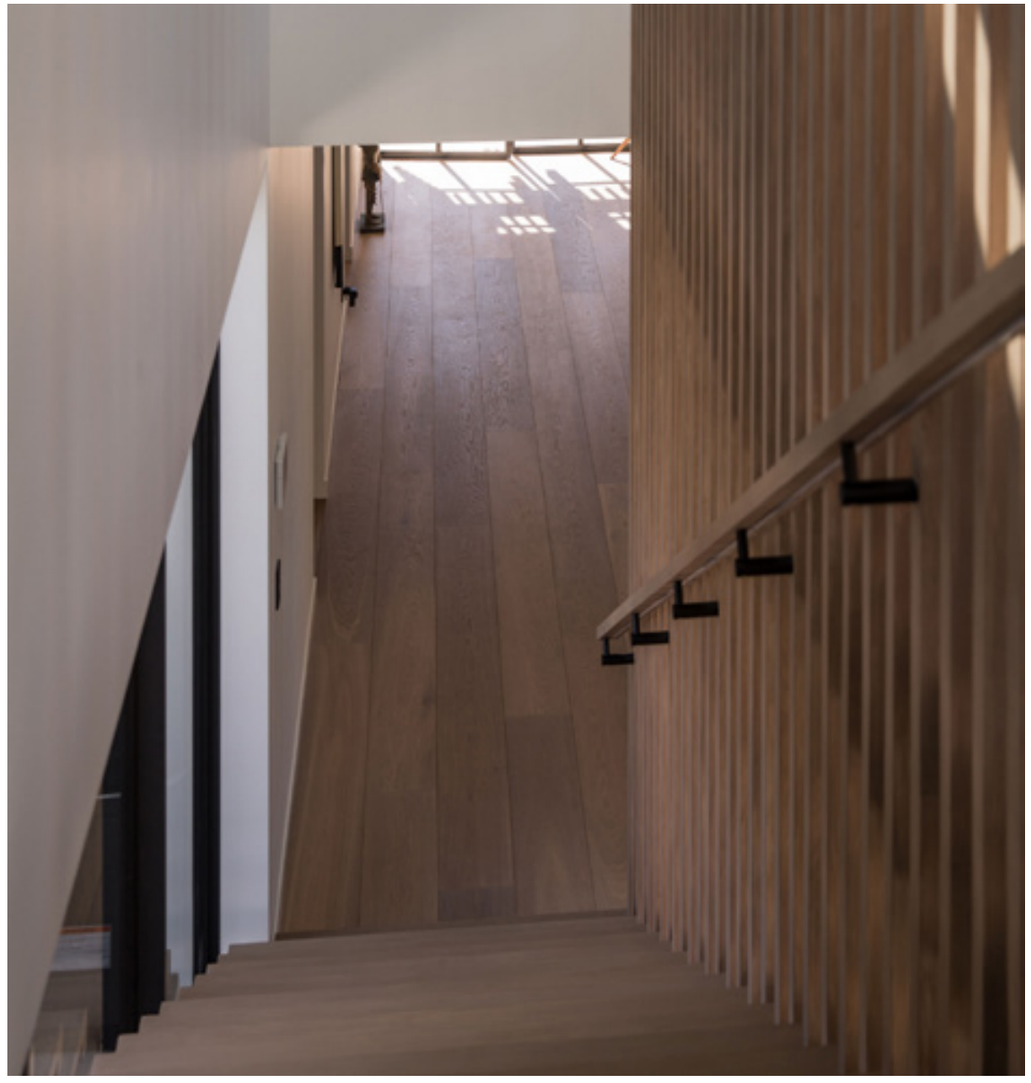
Please Note: LED Strip Lighting Not Supplied by VidaSpace. Profiles shown above are examples only.

Feature LED Strips

Under Floating Tread LED Strip

Under Box Tread Nosing LED Strip





Hand Rails

At VidaSpace, our commitment to delivering exceptional interior solutions extends to every detail of your project. While we do not provide hand rails as part of our offerings, we understand the importance of cohesive design. To ensure your project achieves a harmonious aesthetic, we offer a range of VidaColour stains for colour matching purposes. This allows you to seamlessly integrate handrails into your space, ensuring they complement and enhance the overall design.

VidaColour Stains

Designed for colour-matching applications of European Oak components and finishing edging on site with required protective topcoat of your choice to be applied. Available in 4L Tins.

Pumice

Sandstone

Mudbrick

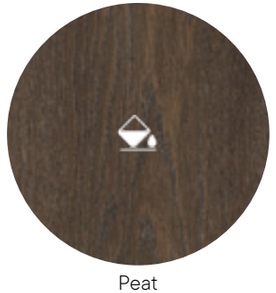
Dawn

Mist

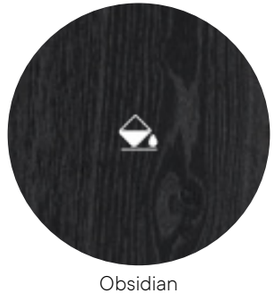
Haze

Slate

Equinox



Peat

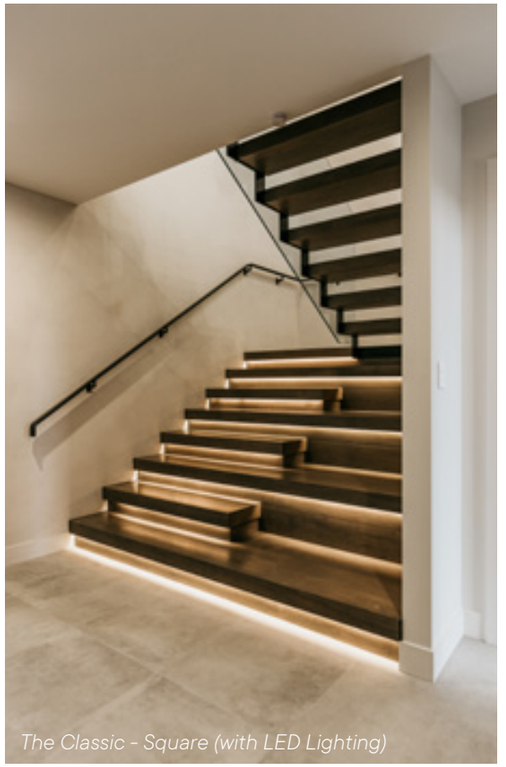


Obsidian

Please Note: Designed to be a similar tone - different applications & wood undertones will influence the outcome.

Stair Gallery

The Seamless Flush

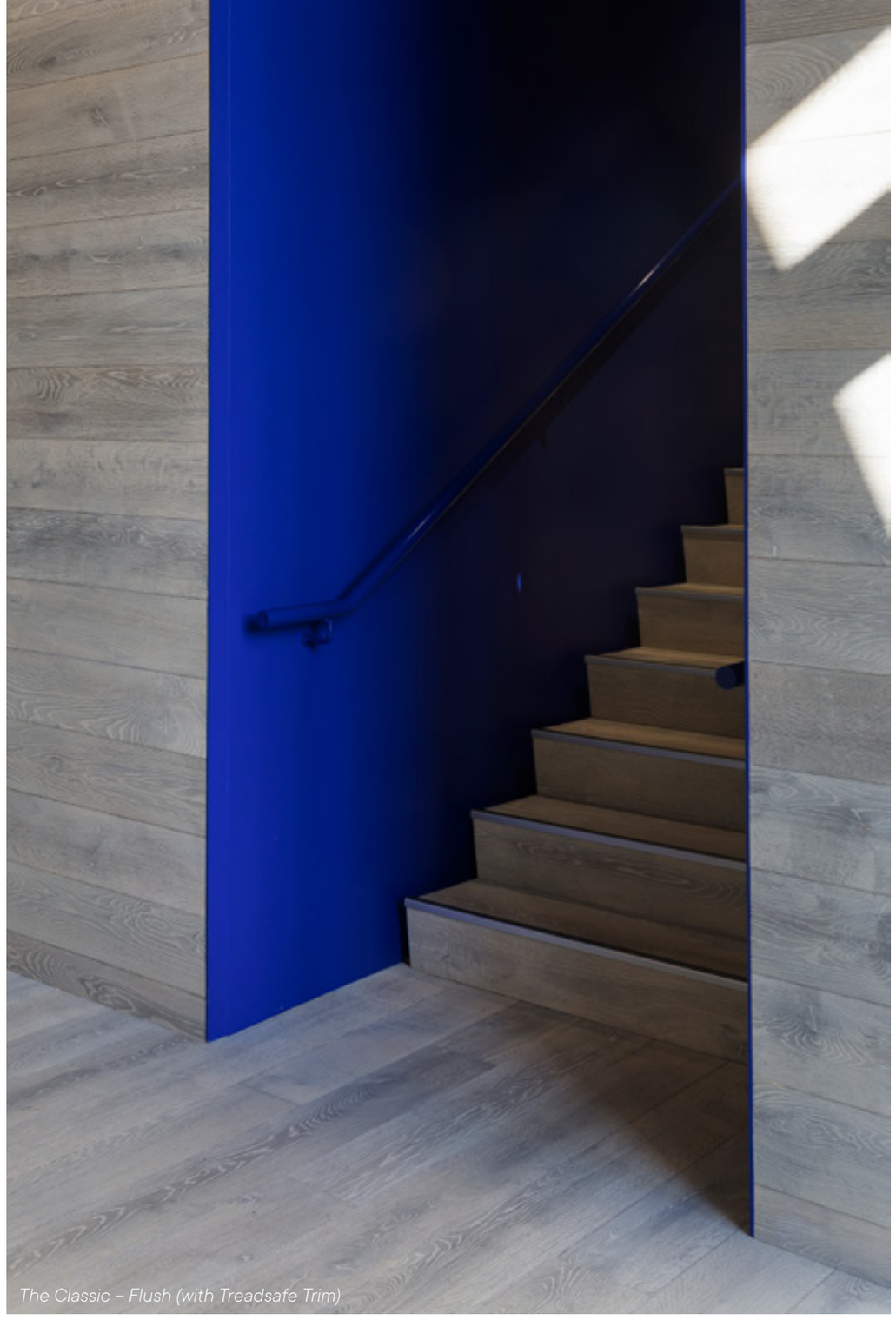


The Classic - Square (with LED Lighting)

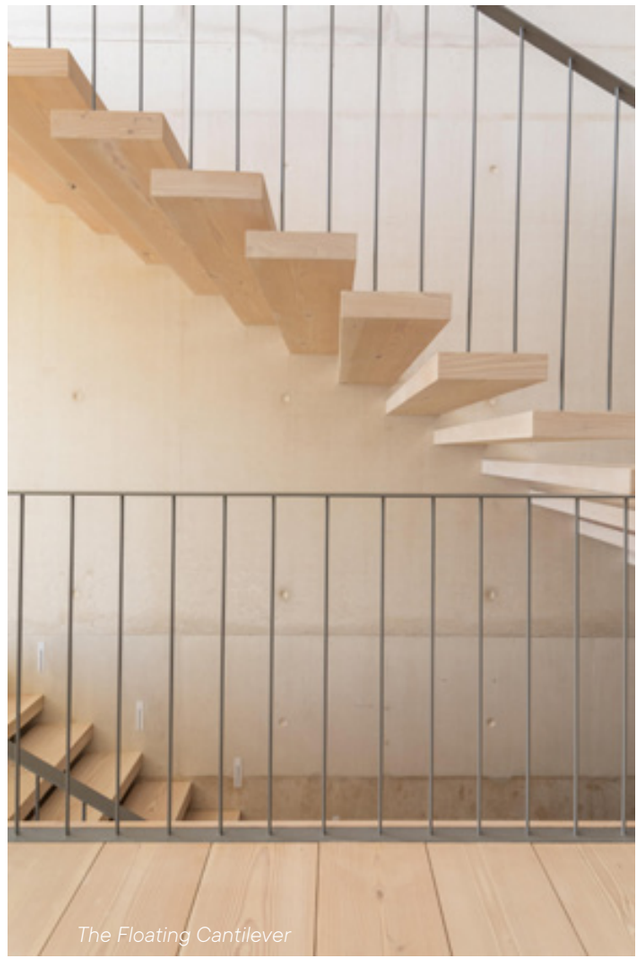
The Classic - Square (with LED Lighting)

The Painted Riser

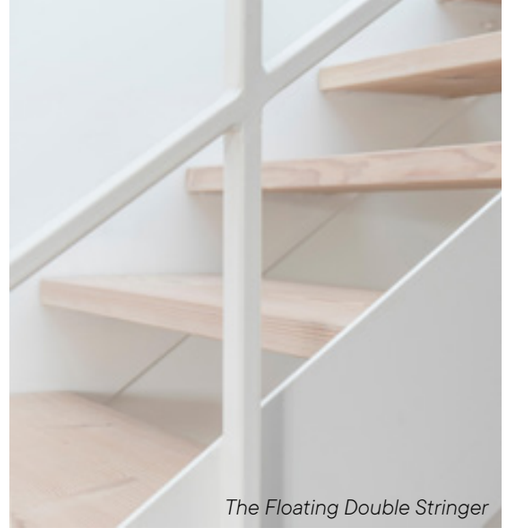
The Floating Cantilever



The Classic – Flush (with Treadsafe Trim)



The Floating Cantilever

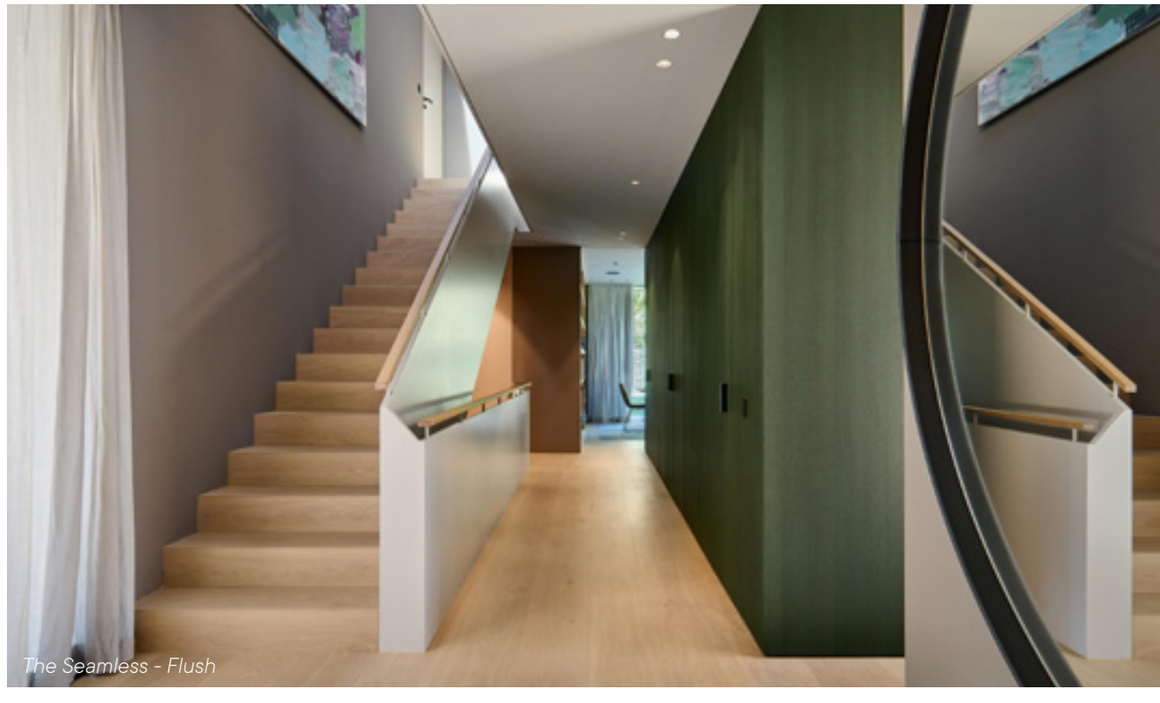


The Floating Double Stringer

The Classic - Flush

The Helix (with Metal Trims)

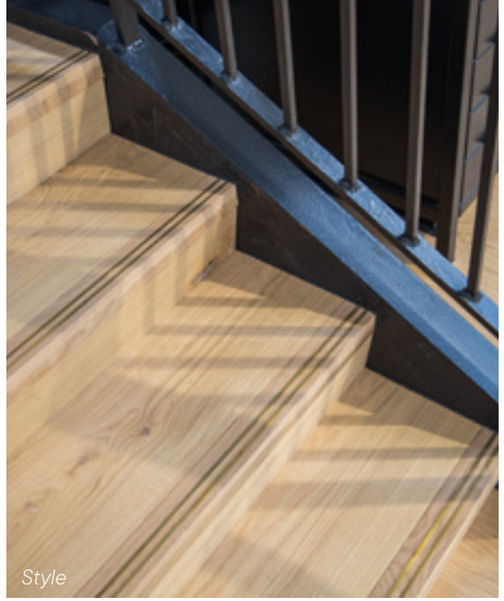
The Seamless - Flush



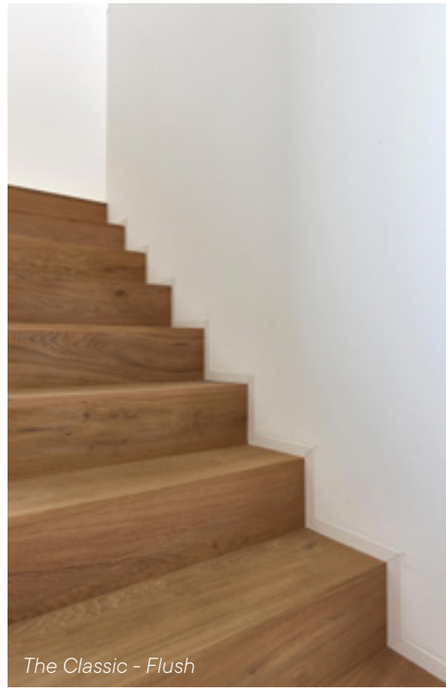
The Seamless - Flush

The Classic - Flush (with Brass Trims)

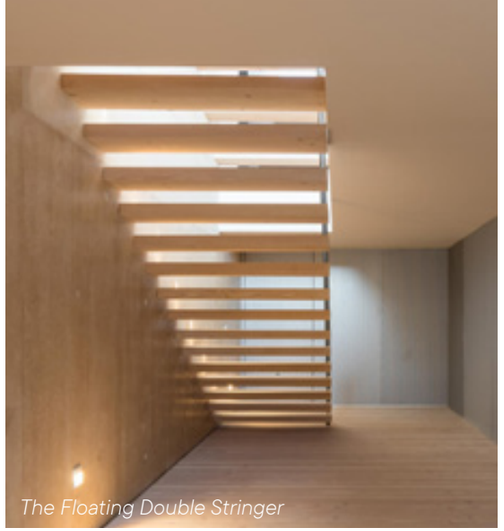
The Classic - Square (with Metal Trims)



Style

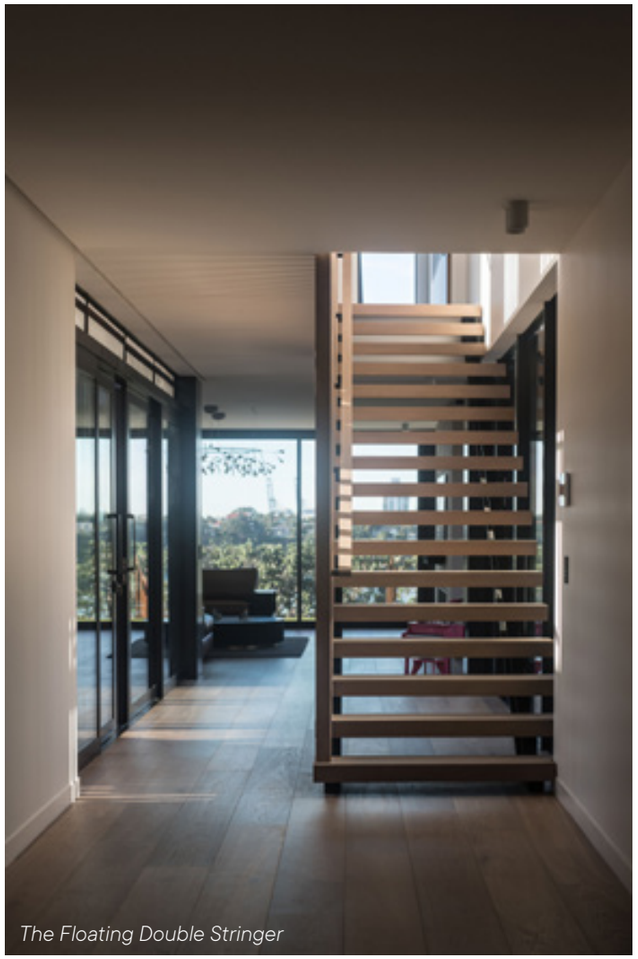


The Classic - Flush



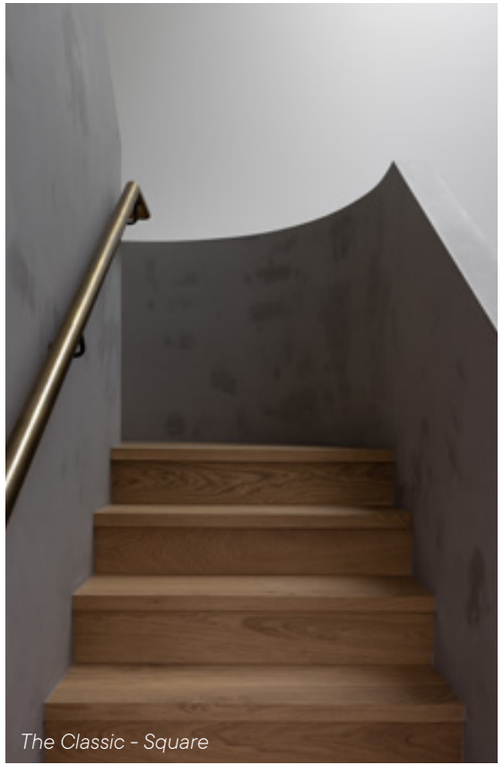
The Floating Double Stringer

The Floating Cantilever

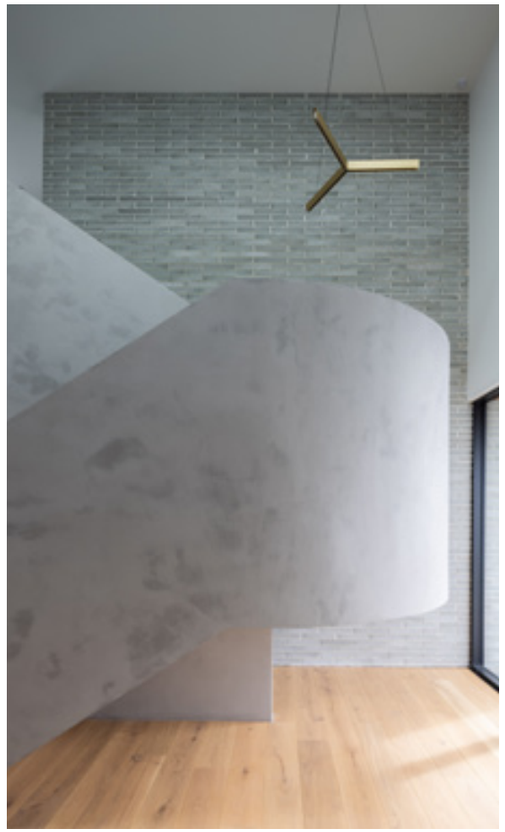


The Floating Double Stringer

The Classic - Flush



The Classic - Square



The Double Stringer

Floating End Cap

Building Code Requirements

Definitions

Accessible Stairway A stairway having features for use by people with disabilities. Buildings required to be accessible shall have at least one accessible stairway leading off an accessible route whether or not a lift is provided.

Common Stairway A stairway which is used, or intended to be used, by the public whether as of right or not, and is not a private stairway, service stairway, or accessible stairway

Main Private Stairway A private stairway intended to provide access to and between frequently used spaces such as living areas, kitchens and garages, and includes all exterior private stairways

Minor Private Stairway A private stairway not on a main thoroughfare, and intended to provide infrequent access to a single room which is not a living area or kitchen.

Private Stairway A stairway used, or intended to be used, by the occupants of a single household unit.

Secondary Private Stairway A private stairway other than a main or minor private stairway, intended to provide access to another floor containing only bedrooms, bathroom, or similar accommodation

Service Stairway A stairway that is used, or intended to be used, infrequently by service personnel to gain access to spaces for the purposes of maintenance and the movement of goods.

Building Code

The New Zealand Building Code consists of several clauses that cover various aspects of construction and building design of stairs.

Below is the Acceptable Solution D1/AS1 Access Routes which covers all the requirements for stairs.

4.0 Stairways

4.1 Pitch, risers and treads
4.1.1 Acceptable stairway pitch line slopes, and step riser heights are given in Table 6 and Figure 11.
COMMENT:
1. Figure 11 and Table 6 refer to several types of stair. Descriptions for all these types of stair and where they are to be used are given in the Definitions section.
2. Stairs having a pitch line slope of less than 23° do not permit a person to use the stair with an acceptable gait. Dangerous falls occur where the rhythm of movement is broken.

4.1.2 The method of measuring risers and treads is shown in Figure 12. If a landing on an outside stairway is formed by ground sloping across the width of the flight, the rise is measured at mid-width.
4.1.3 Uniformity – Riser height and tread depth for all steps in one flight, shall be uniform within the tolerance of ± 5 mm measured at the centreline on straight flights and at the pitch line on curved and spiral flights.
COMMENT: *The foot is normally only lifted a few mm above the treads during ascent. A minor variation in riser height can cause someone to stumble.*

Table 6: Design Limits for Stairs
Paragraphs 4.1.1, 4.1.4 a), 4.4.2, 4.5.1 a) and Figure 17

Stair	Maximum pitch	Maximum riser height (mm)	Minimum tread (mm)
Service, minor private	47°	220	220
Secondary private	41°	200	250
Common and main private	37°	190	280
Accessible	32°	180	310

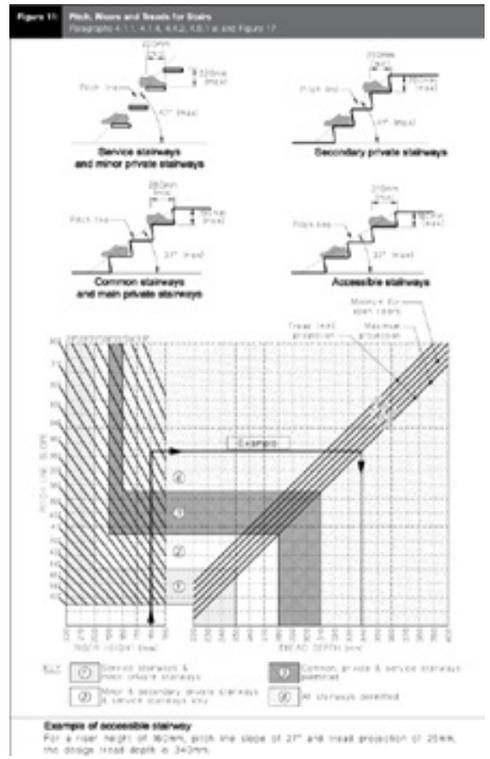


Figure 12: Measurement of Rise and Tread Depth
Paragraphs 4.1.2 and 4.1.6

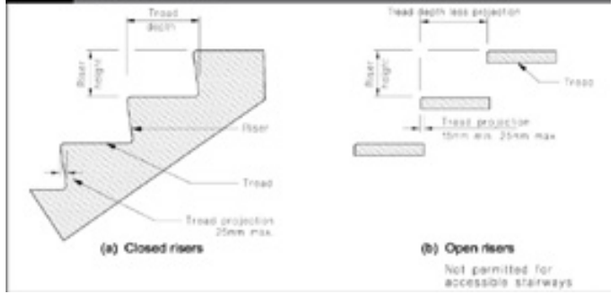
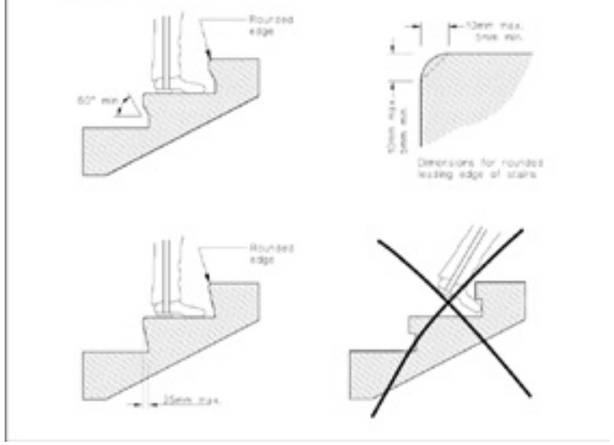


Figure 13: Accessible Stairway Projections
Paragraph 4.1.7



4.1.4 Stair treads – Acceptable stair treads (see Figure 11) have:

a) A tread depth of no less than that specified in Table 6,
b) A level surface,
c) Slip resistant surfaces complying with Table 2.

COMMENT:

1. Adequate tread depth is essential for stairway safety. Analysis of stairway related accidents shows that overstepping of treads is a common cause of accidents.

2. Glazed or polished surfaces are normally unsuitable for stair treads unless the stairs are fitted with slip resistant nosings. (See Table 2, Notes 3 and 7.)

4.1.5 Service stairs having treads less than 250 mm in depth shall have open risers.

4.1.6 Tread projection – Figure 12 illustrates acceptable projections for the leading edge of successive stair treads. Limiting dimensions are:

a) For open risers – 15 mm minimum and 25 mm maximum,
b) For closed risers – nil projection minimum, and 25 mm maximum.

4.1.7 Leading edges of treads or nosings (if any) on accessible stairways shall:

a) Be rounded to avoid a sharp edge (see Figure 13), and
b) Be colour contrasted with the rest of the tread.

COMMENT:

Visibility of the stair tread is essential for stair safety. The difference between two dark colours does not necessarily provide sufficient tonal contrast to allow the edge of the tread to be seen by a person with impaired vision. The lighting levels required by Paragraph 4.5 are essential for stairway safety.

4.1.8 Open risers

a) To prevent children falling or becoming held fast, the space between treads shall not permit the passage of a 100mm sphere in areas frequented by children under 6 years of age.
b) Open risers are not to be used within accessible stairways, and may be used on common stairways only if both the following criteria are satisfied:
i) there is an accessible stairway available as an alternative, and
ii) leading edges of the nosings are colour contrasted with the rest of the tread.

COMMENT:

1. Paragraph 4.1.8 a) does not apply to stairs within Industrial Buildings, Outbuildings or Ancillary buildings, or other stairways in areas not frequented by children under 6 years of age.

2.Open risers are hazardous to ambulant people with disabilities. People who wear leg braces or prosthetic devices need a solid riser to guide the foot up over the riser to the next step and to maintain balance.

4.2 Width

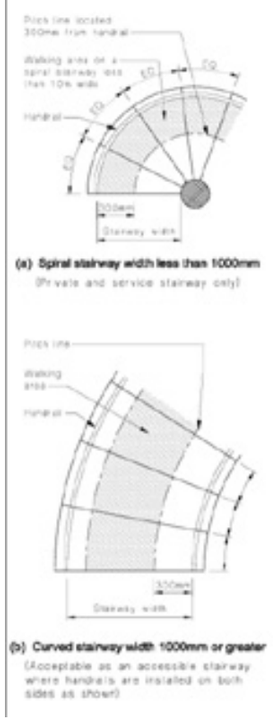
4.2.1 The width between handrails on an accessible stairway or between handrail and wall on a common stairway shall be no less than 900 mm.

COMMENT:

While no minimum width is given for stairways within household units it should be noted that C/AS2 Paragraph 3.3.2 for risk group SM (multi-unit dwellings) requires a minimum stair width of 850 mm. This is also a practical minimum requirement for any private stairway. Narrow private stairways can make the movement of furniture difficult, if not impossible.

4.4 Curved and spiral stairways

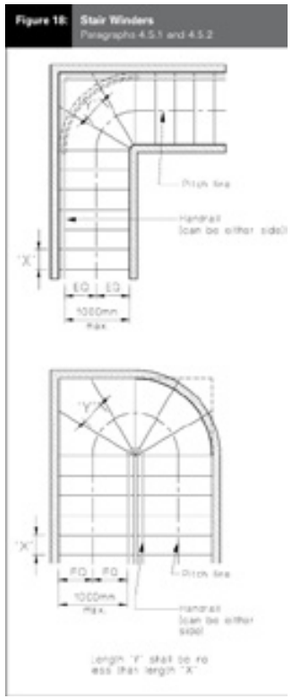
Figure 17: Curved Stairway with Tapered Treads
Paragraphs 4.4.1 a) and b) and 4.5.2



4.4.1 Curved and spiral stairways with tapered treads shall have their pitch line located:

a) For a spiral stairway of width less than 100 mm – as shown in Figure 17 (a)), and
b) For a curved stairway of width 1000mm or greater – as shown in Figure 17 (b)). BS 5395: Part 2 is an acceptable solution for spiral stairways having a diameter of no less than 1500mm.

Figure 18: Stair Winders
Paragraphs 4.5.1 and 4.5.2



COMMENT:
1. The dimensions of Figure 17 are based on the assumption that people walk up and down only on the outside of a narrow stairway, but both the inside and outside of wider stairways.
2. Spiral stairways complying with BS 5395.2 and being less than 1500 mm in diameter (measured to the inside of handrail), may be acceptable as an additional means of access to spaces adequately served by alternative access routes.

4.4.2 Consecutive tapered treads shall have uniform taper angles. Pitch line slope, riser height and tread depth along both pitch lines shall comply with Table 6 and Figure 11.

4.5 Stair winders
4.5.1 Winders are acceptable on private stairways and service stairways provided that all the following conditions are satisfied:
a) Riser heights and tread depths on the pitch line comply with Table 6 and Figure 11.
b) Riser height is uniform and the same as that on the adjoining straight flights of stairs.
c) Tread depth on the pitch line is no less than that on adjoining straight flights of stairs.
d) Winders have a uniform taper angle.
e) Consecutive winders do not turn through an angle of more than 180°.
4.5.2 For a stairway width of less than 1000 mm the pitch line shall be located as shown in Figure 18. For widths of 1000 mm or more, the pitch line shall be located as shown in Figure 17 (b)).
4.5.3 BS 585: Part 1 is an acceptable solution for winders on stairways having a width of between 770 and 1200 mm.

4.6 Visibility of stair treads

4.6.1 To ensure that the leading edge of stair treads can be easily seen, the lighting levels given in Table 8 shall be provided. 4.6.2 Except for external private stairways, switches for stairway lighting shall be able to be activated at:
a) The top of the stairway,
b) The bottom of the stairway, and
c) Any intermediate landings having access to or from any floor.

Table 8: Lighting for Stairways
Paragraph 4.6.1

Luminaire type	Lighting output Watts/m²	
	Private and service stairways	Accessible and common stairways
Incandescent (plastic shade)	20	30
Incandescent (general diffusing enclosure)	25	35
Flourescent 36/58 W cool white (enclosed diffusing fitting)	7	10
Flourescent compact single ended 16-38 W (enclosed diffusing fitting)	10	15
Discharge 50/80 W mercury or high pressure sodium (enclosed diffusing fitting)	7	10

Notes:
The values given are based on:
– 150 lux at tread level for *accessible* and *common stairways*.
– 100 lux at tread level for *private* and *service stairways*.
– A stair lobby 7 m by 4 m including two landings and a single flight of stairs.
– Light coloured walls and ceilings and medium coloured floors.

For futher info: www.building.govt.nz/assets/Uploads/building-code-compliance/d-access/d1-access-routes/asvm/d1-access-routes-2nd-edition-amendment6.pdf

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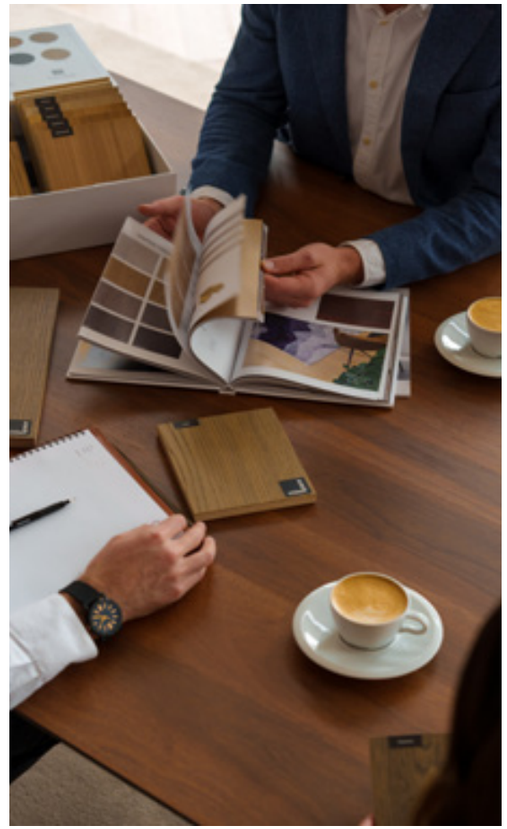

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