



## Product Guide

### Vulcan Thermally Modified Timbers

Carefully Crafted Timber





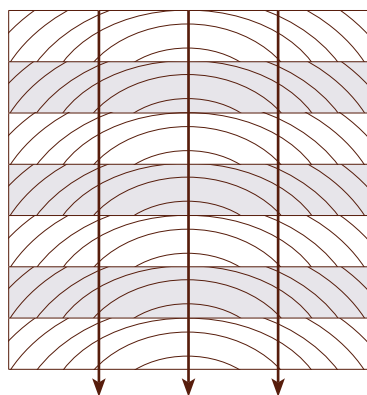
This guide has been developed to illustrate the quality and variety of materials produced by Abodo for their Vulcan range of products. Abodo's unique methodology involves grain orientation, which is critical to the performance of the product. Cutting patterns and grain orientation at installation is important to ensure optimum performance. Please note, this guide is specific to the UK.



## Vulcan – Laminated Vertical Grain Block

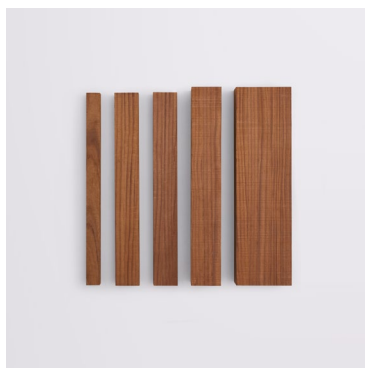
Abodo's flagship product is produced from thermally modified Radiata Pine that has been laminated and grain oriented into large blocks.

Laminated blocks are formed, which can then be converted into more manageable sizes – and can be cut down into boards for profiling (into a wide variety of finished items). It is critical that the bandsaw runs perpendicular to the glue lines. Some stepping can occur during the glue lamination process – a centre cut through the block allows a square edge to run against guides. Prior to shipment the laminated blocks are squared off to make additional conversion easy.



Cutting direction

NOTE: It's important that the blocks are cut with the grain set in the direction shown to ensure the boards produced have the grain vertically orientated.



# Grading Rules

Our Select Grade provides boards equivalent to those used to make CE EN14915 GRADE A for timber claddings and BS1186:3 1990 Grade CHS and BS EN942 Grade J5 for use in joinery applications. However, defects embedded in the wood may arise during resawing and for that reason finished product is sold as Select Grade.

All Vulcan joinery timber products are visually selected to achieve BS1186:3 1990 Grade CHS and BS EN942 Grade J5 for use in joinery applications.

Where used in cladding applications timber grading is equivalent to CE EN14915 Grade A.

## Specifications

A high appearance grade with front face and edges primarily clear but with some small defects allowed in some boards. Grade equivalent to CE EN14915 GRADE A for cladding applications and BS1186:3 1990 Grade CHS and BS EN942 Grade J5 for use in joinery applications.

Front face and edges allow isolated defects as follows:

- Birds eye fleck – medium.
- Sap stain – insufficient to obscure grain.
- Edge defect – one tight knot, resin or bark pocket in bottom two thirds of edge only.
- Bow, crook, cup, twist as given in tables 1, 2, 3, 4 of appendix.

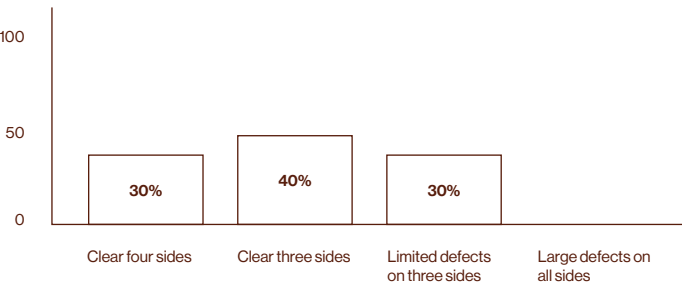
In **20% of boards** one defect is allowed on the best face as follows:

- Small tight knot (inter-grown or tight encased) <5mm diameter.
- Resin or bark pocket <30mm length x 3mm width.
- Kiln check less than 1mm wide x 50mm long.

The reverse face of the board may contain knots and defects as described in Premium Grade.

Laminated cladding boards may have one under thickness laminate up to 4mm depth on the back face, provided the function of the product is not compromised i.e. boards fit together correctly and will sit flat on a wall.

## Indicative percentage of lengths per grade



Best Face



Reverse

# Standard Dimensions

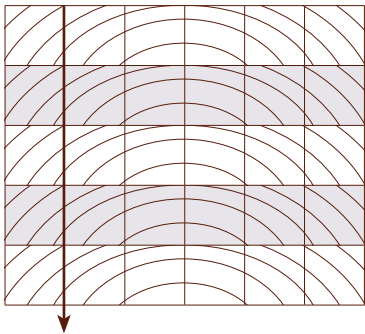
## Standard laminated block dimensions

Vulcan laminated block	Grade	Dimension w x h
Laminated vertical grain	Select	146x143mm
Laminated vertical grain	Select	146x147mm
Laminated vertical grain	Select	146x183mm
Laminated vertical grain	Select	146x228mm
Laminated vertical grain	Select	146x295mm
Laminated vertical grain	Select	192x143mm
Laminated vertical grain	Select	192x183mm
Laminated vertical grain	Select	192x228mm
Laminated vertical grain	Select	192x295mm

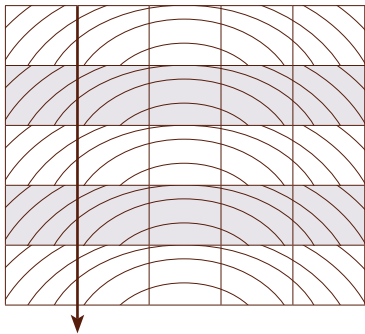
\*Dimensions and construction may vary.  
\*Ex stock UK.

Illustrated board conversion sizes – block size 146mm wide

6 out – 23mm blanks

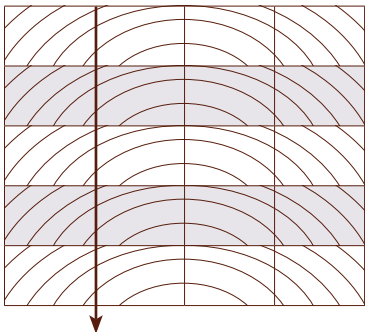


5 out – 28mm blanks

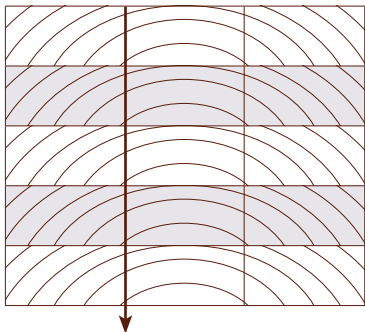


Boards are cut through in this direction

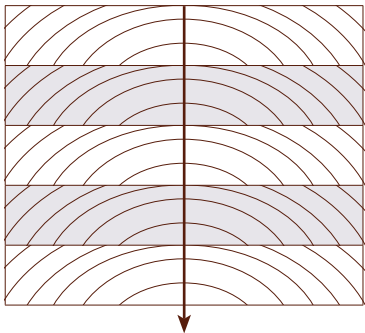
4 out – 35mm blanks



3 out – 47mm blanks



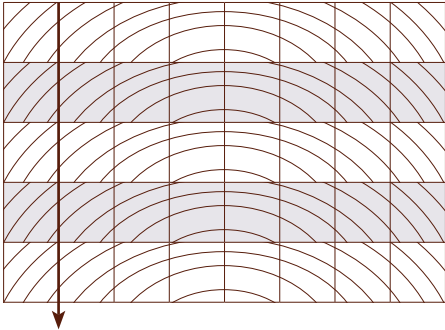
2 out – 72mm blanks



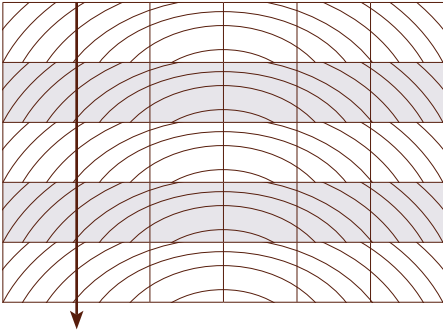
### Standard laminated block dimensions

Block size 192mm wide

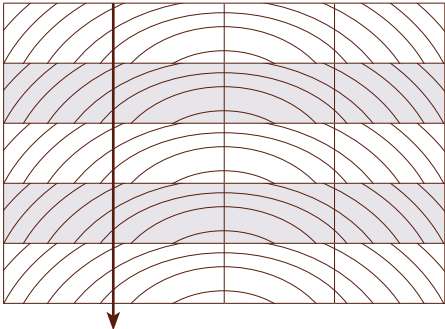
8 out – 23mm blanks



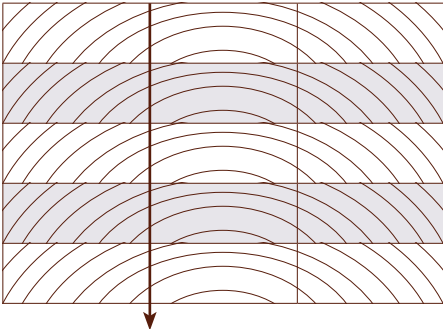
6 out – 30mm blanks



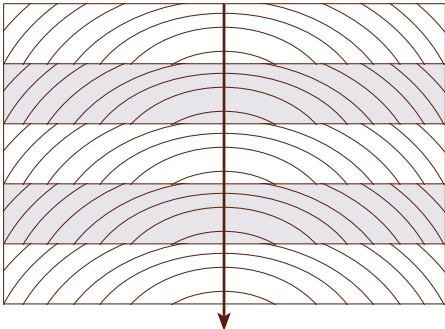
4 out – 47mm blanks



3 out – 63mm blanks



2 out – 96mm blanks



### Length specification

As standard, Vulcan laminated block is available in 3.6, 4.2 and 4.8m solid lengths. Finger jointing to exact length is optional, up to 7.2m.

### Suggested bandsaw specification

Manufacturer	Product	Website link
Lenox	Woodmaster B 2" x .050" x .090" x 1/1.3 VT	<a href="http://www.lenoxtools.com/pages/woodmaster-b-band-saw-blades.aspx">www.lenoxtools.com/pages/woodmaster-b-band-saw-blades.aspx</a>

### Bandsawn finish

Should be 'fine sawn'. Use sharp, thin kerf fine tooth saw ensuring consistent finish to faces. Visible saw skip or aggressive cut lines are not acceptable.







### Moulding

Vulcan timber machines and moulds very well.

A bandsawn face finished product can be created by moulding the back face and edges and leaving the clean sawn face without further finishing.

Lower roller pressures should be used as the thermal modification process does increase the brittleness of the timber.

Sawdust can be fine, good strong dust extraction required in all cases.

Agitation of piping system may be required to prevent settling of dust at junctions.

Operators and others should wear face masks if exposed to dust.

### Glue specification

New generation polyurethane adhesive – VOC, solvent and formaldehyde free are used.

- Exterior polyurethane adhesive – VOC, solvent and formaldehyde free.
- Complies with EN 15425.

Brands suitable:

Manufacturer	Product	Website link
Henkel	Purbond HBS	<a href="https://henkel-adhesives.com/au/en/industries/engineered-wood/engineered-wood-product-solutions.html">henkel-adhesives.com/au/en/industries/engineered-wood/engineered-wood-product-solutions.html</a>

In general these glues have low abrasiveness against tooling, and are easily worked. We suggest contacting the adhesive manufacturer to confirm your use application.

### General processing notes

- Due to the increased stability from thermal modification and lamination significant movement is reduced when resawing.
- Material can contain some resin pockets that will be uncovered after resawing.
- Some glue spill may be evident on the edges of block, this is easily cut.
- Sawdust can be fine, dust extraction required on bandsaw.
- Dust masks should be worn, along with other PPE.

## Standard profiles (mm)

A range of standard Abodo profiles are available in vertical grain. Other profiles are available on request.



WB10 145x20  
(125mm cover) vertical/horizontal



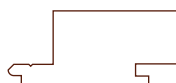
WB10 180x20  
(160mm cover) vertical/horizontal



WB12 138x20  
(118mm cover) vertical



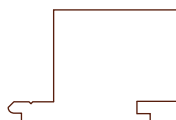
WB12 180x20  
(160mm cover) vertical



WB12 90x40  
(70mm cover) vertical



Fineline WB12F 180x20  
(160mm cover) vertical



WB12 90x60  
(70mm cover) vertical



Bevelback AW62 180x20  
(148mm cover) horizontal

- Above profiles generally to be machined with band sawn faces.
- Other profiles available on request.
- All cladding profiles are manufactured in accordance with BS8605-1:2014 External Timber Cladding. Timber used equivalent to CE EN14915 Grade A.

Finishes:



Fine band sawn



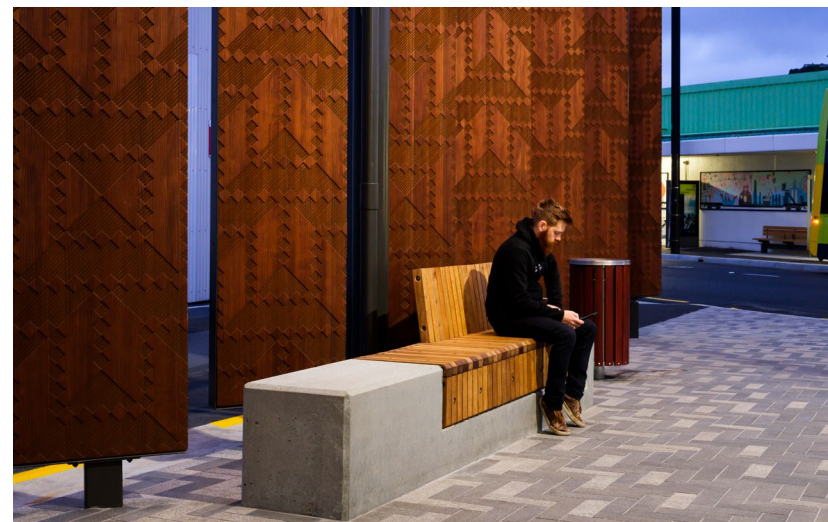
Riven



Ribbed

## Additional processing

Additional processing services are available, including finger jointing and CNC detailing to order.



**Joinery Design:** The long term service life of window and door joinery is highly dependent on how it has been designed, detailed, installed and maintained. Prediction of service life is not precise and is based on the assumption of good design and a regular maintenance regime.

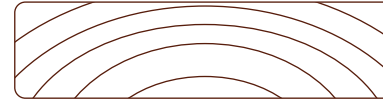
Abodo recommends industry best practice in joinery design including:

- Profiles designed to shed water away from the building by use of a slope on horizontal members with a pitch of not less than 1:8.
- Windows/ doors designed to allow free draining of water, and to prevent pooling or entrapment of water on or around timber members and other adjacent materials.
- Rounding arises at edges to 3mm radius to increase performance of paint/film forming coatings.
- Sealing of end grains thoroughly with an appropriate exterior sealant to prevent water ingress at the ends of timber.
- Coating with an appropriate wood coating that is maintained during the lifetime of the joinery.





## Vulcan – Flat Sawn



Abodo offers a flat sawn solid thermally modified Radiata Pine, known as Vulcan flat sawn. This is typically used for the following applications:

- Interior or protected applications.
- Paint finish exterior.
- Specialty finishes, e.g. charred finish.

### Grade rules

Vulcan flatsawn is typically supplied as a Clear 2 grade sawn timber. This grade allows defects on the back face. In finished product form it is sold as Select Grade – equivalent to CE EN14915 GRADE A for timber claddings and BS1186:3 1990 Grade CSH and BS EN942 Grade J5 for use in joinery.

Also available as fingerjointed clears to specified lengths.



# Grading Rules

## Specifications

A high appearance grade with front face and edges primarily clear but with some small defects allowed in some boards. Vulcan flat sawn is typically supplied as a Select Grade sawn timber. Grade equivalent to CE EN14915 Grade A for claddings / BS1186:3 1990 Grade CSH and BS EN942 Grade J5 for use in joinery.

Front face and edges allow isolated defects as follows:

- Birds eye fleck – medium.
- Sap stain – insufficient to obscure grain.
- Edge defect – one tight knot, resin or bark pocket in bottom two thirds of edge only.
- Bow, crook, cup, twist as given in tables 1, 2, 3, 4 of appendix.

In **20% of boards** one defect is allowed on the best face as follows:

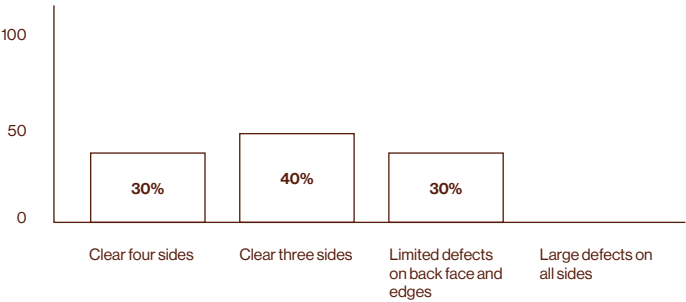
- Small tight knot (inter-grown or tight encased) <5mm diameter.
- Resin or bark pocket <30mm length x 3mm width.
- Kiln check less than 1mm wide x 50mm long.

The reverse face of the board may contain knots and defects as described in Premium Grade.

Cladding profiles may have skip dress present on the back face.

Laminated cladding boards may have one under thickness laminate up to 4mm depth on the back face, provided the function of the product is not compromised i.e. boards fit together correctly and will sit flat on a wall.

## Indicative percentage of lengths per grade



Best Face



Reverse

Grain Orientation	Grade	Dimensions
Flat sawn	Select	25 x 150mm
Flat sawn	Select	25 x 200mm
Flat sawn	Select	32 x 150mm
Flat sawn	Select	32 x 200mm
Flat sawn	Select	38 x 150mm
Flat sawn	Select	38 x 200mm

Sizing tolerances: Thickness +/- 1mm Width +/- 3mm.

## Standard profiles (mm)

### Vulcan Cladding:



WB10P 135x18  
(115mm cover)



WB10P 180x18  
(160mm cover)



WB10FP 180x18  
(160mm cover)



AW62P 187x18  
(155mm cover)

- Above profiles generally to be machined with band sawn faces.
  - Other profiles available on request.
  - All cladding profiles are manufactured in accordance with BS8605-1:2014 External Timber Cladding.
- Timber used equivalent to BS EN942 Grade J5/ CE EN14915 Grade A.

### Finishes:



Fine band sawn



Riven



Ribbed

### Vulcan Decking:



DK16V 142x27



GT16 142x27

### Length specification

As standard, Vulcan laminated block is available in 3.6, 4.2 and 4.8m solid lengths. Finger jointing to exact length is optional.

### General processing notes

- Some minor distortion can be expected in the timber due to the thermal modification process.
- Material can be brittle and lower roller pressures should be used.
- Material can contain some resin pockets that will be uncovered after resawing.
- Sawdust can be fine, extraction required on bandsaw fine, strong extraction required on bandsaw and moulder.
- Dust masks should be worn, along with other PPE.



# Coatings

Factory application of Abodo's coating systems are ideally applied prior to delivery to site.

In all cases timber must be thoroughly sanded and be clean and free of dust prior to application of coating. Note: Bandsawn or textured timber does not need sanding.

## Exterior claddings – Protector Oil

Abodo recommends the use of Protector Oil. Protector Oil is a two coat, water borne penetrating oil. Protector Oil is best applied in a flood/brush type coating line, or alternatively a spray type coating line. Caution should be applied to vacuum or roller coating.

Things to watch:

- When applying Protector Oil in a flood system ensure it is not over applied, excess oil can pool on the surface, causing over-pigmentation or patchiness.
- Ensure that coating sits into the wood surface not on top. Use brush and/or air knife on out-feed to remove excess oil and relieve surface tension.
- Lighter colours like Straw, Patina and Pearl can appear washed out on Vulcan timber. The dark substrate of Vulcan does not initially blend well with lighter pigments. This will quickly change on exposure to UV, when the substrate begins to lighten. End users should be made aware of this in advance.
- Follow the technical datasheet for application instructions.
- At minimum Abodo recommends coating boards with one coat, four sides prior to site delivery.
- Second and final coat can be applied on site, if required.

## Primer

- Oil borne alkyd primers are generally recommended for optimal performance (please consult with Abodo if unsure).
- Apply 2 coats all sides and ends via machine spray, vacuum or flood coat method.
- Spot fill, sand, prime prior to/ between coats as appropriate to eliminate defects such as cracks or pinhole.
- Rack dry between coats as appropriate to atmospheric conditions and manufacturers recommendations.



## Joinery

**Exterior:** For weather-exposed applications such as window and door joinery, approved exterior grade semi-transparent coating or paint finish must be applied to all sides and end grains sealed thoroughly.

In fully exposed exterior applications e.g. no eaves, paint finish is recommended.

**Paint finish:** Factory Prefinished Exterior Vulcan TMT Joinery.

The performance of paint systems on exterior doors and windows is dependent on careful surface preparation and painting. Top and bottom surfaces must have the full coating system applied to them. This is best undertaken before they are hung or fitted.

Particular attention is needed to ensure that there are proper flashings above doors and windows and that the sides of joinery are properly weatherproofed by use of adequate scribes and/or sealants.

All edges of the joinery and future hidden surfaces must be primed before assembly with particular attention to priming the seal end grains.

Attention is needed to ensure all sharp edges on joinery are sanded to a rounded profile before painting.

Step 1: Ensure any sharp edges are arrissed to a rounded profile.

Step 2: Ensure all surfaces are clean and free from contamination before painting. All timber faces are to be lightly sanded and the dust removed.

Step 3: Apply Alkyd Wood Primer to achieve 12 square metres per litre as per manufacturers instructions. (Note: the application rate may vary with timber porosity and application method).

Step 4: Any nail holes or areas of damaged timber should first be primed with the specified timber primer before filling with a wood filler in accordance with manufacturer's instructions. Sand smooth and spot prime the filled areas, with specified timber primer.

Step 5: Apply Acrylic Primer Undercoat to achieve 12 square metres per litre as per manufacturers instructions.

Step 6: Apply semigloss or gloss waterborne enamel to achieve 12 square metres per litre as per manufacturers instructions.

Step 7: Apply a second coat to achieve 12 square metres per litre as above.

**Colour note:** Dark colours may be used, however increased maintenance can be expected due to increase.

**Semi-transparent finish:** Semi-transparent finishes are recommended only in protected or semi-protected applications e.g. under eaves >400mm depth. Semi-transparent finishes will require more regular re-coating throughout the life of the joinery compared to paint. This maintenance regime must be agreed and signed off by the end user prior to supply to ensure.

Care must be taken to ensure that timber profiles are oriented with vertical grain exposed to the weather only.

Specialist exterior joinery finishes must be used. Pigmented, UV stable, film forming or high solids coatings are recommended for UV protection and to maintain colour.

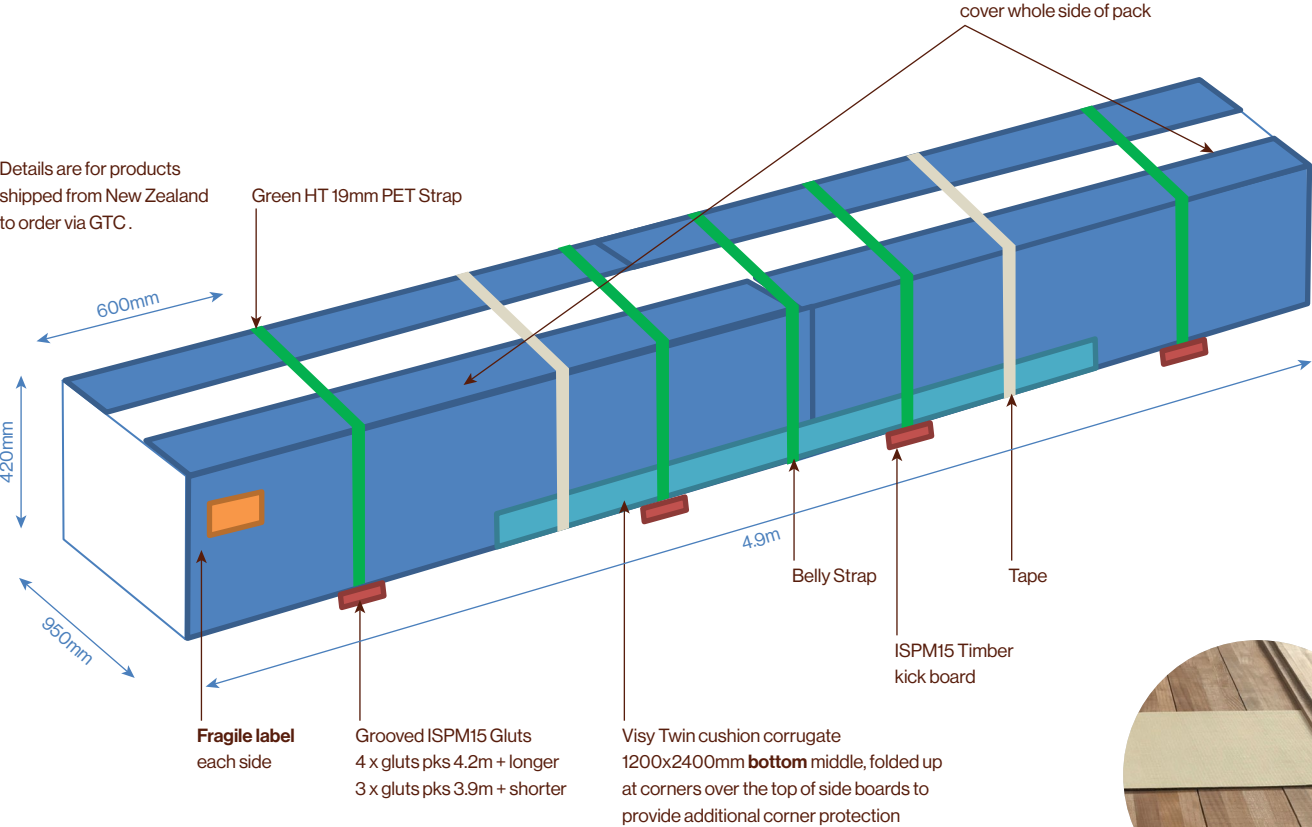
**Interior:** For interior applications coating is optional, though sealing is recommended to allow for easy cleaning and to maintain colour.

Specialist interior finishes should be used only. Options include high solids hard wax oils for a more natural appearance, or film forming polyurethane or acrylic systems that tend to be harder wearing but less natural in appearance.

# Recommended Packaging Specifications

When shipping finished product, it is recommended to pack with side and corner protection.

Band sawn or textured face material should have some form of slip sheet to protect from rubbing in transit.



Band sawn face material and coated boards with – cardboard slip sheets between faces.



## Basic Specifications

Grade	Select
Species	Radiata Pine
Treatment	Thermally Modified TMT230
Origin	North Island, New Zealand
Sustainability	Forest Stewardship Council® (FSC®) Certified FSC MIX, FSC-C010962, SGS-COC-004944.
Average density	~420 kg/m <sup>3</sup>
Moisture content at mill	~7% (+/-2%)
Durability	Class 1 Durability (EN335). Suitable for exterior above ground vertical applications
Expected exterior above ground service life	30 years or more when properly installed and maintained
Warranty	15 years against fungal attack (subject to terms and conditions)
Approx expansion when wet (from 7% MC to fibre saturation point)	Flat Sawn: Tangential 3-4%, Radial 1.5-2.0%, Longitudinal 0.25%
Compatibility	Non-corrosive to most metals including aluminium. Use hot dip galvanised or stainless steel fixings for exterior applications
Fixings	Nail hold strength same as for Radiata Pine (JD4). Screw hold strength reduced by around 20% (JD4-JD5)
Gluing	Normal PVA, PU, MUF glues and RF resins can be used
pH (indicative)	3.9
Hardness	Medium-Low (3.5kN Janka)
Thermal properties	~0.12 W/mK / -R1.35 per 25mm thickness
Characteristic structural properties (clear sap wood)	Stiffness (MoE) 8GPa, Bending strength (MoR) 50MPa
Workability	Excellent machinability. Timber exhibits reduced splitting strength, therefore care should be taken to use sharp tools and pre-drill fixings. Fine dust is created from machining so good extraction is required
Coating	Takes most oil and water borne coatings well, absorption rates tend to be higher
Fire	Euroclass D-s1-d0.  Can be fire treated to Euroclass B-s2-d0 (s2 Smoke Production – d0 Flaming Droplets). BS EN 13823 & BS EN 11925-2 Single Burning Item Equivalent to UK “Class O” BS 476: Part 6 & BS 476: Part 7





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