

Vulcan Joinery



Overview

Vulcan Joinery is created from thermally modified New Zealand plantation timber and engineered with a vertical grain construction for superior weathering characteristics.

The thermal modification process combined with lamination means Vulcan Joinery has enhanced stability, reduced resin content, is a beautiful homogenous brown colour, and is naturally durable so does not require any chemical preservatives.

An excellent choice for windows, doors and interior joinery in both paint and stain finish.

Wood species: Thermally Modified Radiata Pine (Pinus Radiata).

Lengths: 3.6, 4.2, 4.8, 5.4 (lengths are subject to availability).

*Specified fixed lengths may be available but are subject to conditions including minimum quantity of 1 packet per length, price premium and availability. Please check with Abodo prior to placement of order.

Sizes:

Standard rough sawn blank sizes

Approx only (mm)

72x47

91x47

143x47

183x47

91x72

143x72

183x72

146x95

183x95

Standard stock laminated block sizes

Approx only (mm)

143x146

183x146

Custom laminated block sizes

Approx only (mm)

146x238

146x295

192x146

192x183

192x238

192x295

Dimensions and construction may vary.

Supplied as standard with fine band sawn and/or dressed blanked finish.

Some stepping and glue run-off may be present in the glue line edges of laminated blocks.

Custom laminated sizes >183mm height are subject to prior approval by Abodo, minimum order volume and lead time.

Supplied to order in packet lots only.

Vulcan Joinery

Product specifications

Name:	Abodo Vulcan.
Quality:	Select Grade /Front face and edges virtually free of any defects but with one edge knot and one small face defect allowed per piece in 20% of boards only. Back side with some defects allowed. Equal to CE EN14915 GRADE A for use as claddings and BS1186:3 1990 Grade CSH and BS EN942 Grade J5 for use in joinery.
Substrate colour:	Chocolate Brown. (Timber will weather to grey unless a pigmented coating is applied and maintained).
Finish:	Rough sawn with blanked edges. Some stepping and glue run-off may be present in the glue line edges of laminated blocks.
Durability:	Thermally modified – INTENZ Thermowood 230 degrees schedule. No chemical preservatives used. Field tested at SCION, Rotorua. Approved for uses described in NZS3602:2003 Table 2A 'Requirements for wood-based building to achieve a 15 year durability performance Members exposed to exterior weather conditions and dampness'. Durability Class 1 (EN350-1), Class 2 above ground (AS5604). Available optionally treated for termite-prone areas.
Insect attack:	Thermally modified pine is resistant to most wood boring insects but is not always resistant to termites. Preservative treatment is required for termite zones.
Intended use:	Intended for above ground use in residential and light commercial buildings.
Serviceable life:	30 years or more when maintained according to manufacturer's recommendations.
Warranty:	15 years against fungal decay (subject to terms and conditions).
Moisture content:	Approx. 7% MC (+/-2%) at time of dispatch.
Construction:	Laminated with vertical grain orientation.
Glue:	New generation polyurethane adhesive- VOC, solvent and formaldehyde free. Exterior Type 1 - AS/NZS4364. Approved for Service Class 3 (exposed exterior applications).
Fire (interior):	Group 3.
Expected dimensional change in structure:	Width expansion approx 2%, length expansion approx 0.25%, thickness expansion approx 2.5% (from 7%MC to fibre saturation - variation will occur between boards).
Density:	420 kg/m ³ .
Hardness:	Low (2.5kN Janka).
Thermal properties:	-0.11 W/(mK).
pH (indicative):	3.9
Compatibility:	Vulcan has little or no corrosiveness on most metals (though should be separated from zinc) and can be placed in contact with most building materials. Normal PVA, PU, MUF glues and RF resins can be used.
Coating:	Vulcan will take most stains, penetrating oils and paints well, though up-take of coating is generally higher than normal. See separate coating section below.
Quality assurance:	Third party certified to AS/NZS1328.1 and AS/NZS1491.1.
Certification:	FSC®- certified mixed, No.: SGS-COC-004944. Declare Certified - Red List Free.

Characteristic strength/
stiffness:

Characteristic strengths (MPa)				Elastic moduli (GPa)		
Gl grade rigidity	Bending (MOR)	Tension parallel to grain	Shear in beam	Compression parallel to grain	Short modulus of elasticity parallel to end grain (MOE)	Short duration modulus for beams
8	20.50	9.60	-	38.50	10.40	-

Characteristic lateral load strength

Joint Group	
Nail:	JD4
Screw:	JD5

Vulcan Joinery

Product handling

- Must be kept clean dry, under cover and out of the weather prior to installation.
- Must be stored horizontally on bearers at least 100mm off the ground.
- Wear dust mask, eye protection when cutting timber.
- Non-preserved treated timber may be burnt or mulched. Do not burn preservative treated timber- dispose of off-cuts in lined land fill or an approved furnace.

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 can be easily cut to square the block for further machining.
- Sawdust can be fine, extraction required on bandsaw.
- Dust masks should be worn, along with other PPE.

Grade rules:

- Clear 1 grade feedstock is used to produce Vulcan laminated blocks. However, defects embedded in the wood may arise during resawing and for that reason finished product is sold as Select Grade.

Machining:

- 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 extraction required in all cases.
- Agitation of piping system may be required to prevent settling of dust at junctions.
- Laminated blocks should be cut using a fine kerf bandsaw perpendicular to the glue line in order to achieve vertical grain orientation in the face of the boards, or otherwise as appropriate to the profile being made.

Vertical grain oriented towards the weather



Weather-exposed face



Weather-exposed face

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:

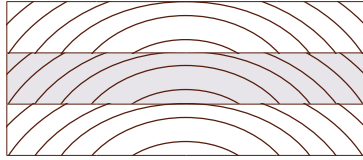
- Profiles designed to shed water away from the building by use of a slope on horizontal members with a pitch of not less than 1:8.
- Windows/ doors designed to allow free draining of water, and to prevent pooling or entrapment of water on or around timber members and other adjacent materials.
- Rounding 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 Joinery

Product handling

Vulcan – Laminated Vertical Grain

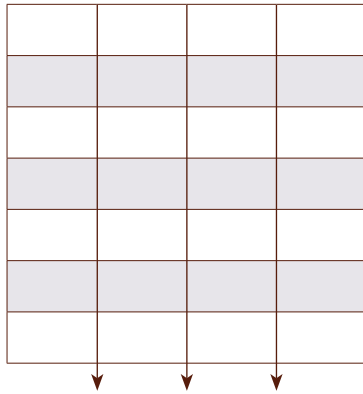
Abodo's flagship product is produced from thermally modified radiata pine that has been laminated and grain oriented into large blocks.



Quarter sawn grain

Bandsawing

Bandsawing is the first step to process larger pieces known as "laminated block". 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.

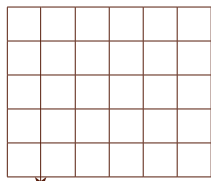


Cutting direction

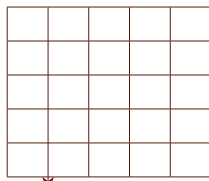
Standard laminated block dimensions

Block size 146mm wide

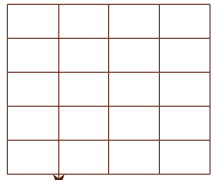
6 out – 23mm blanks



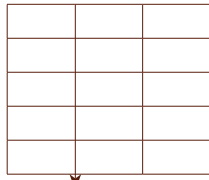
5 out – 28mm blanks



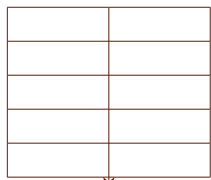
4 out – 35mm blanks



3 out – 47mm blanks

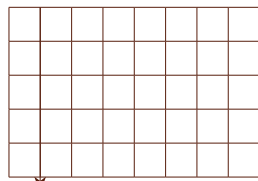


2 out – 72mm blanks

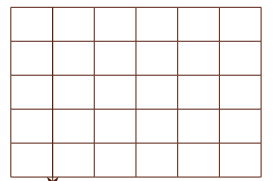


Block size 192mm wide

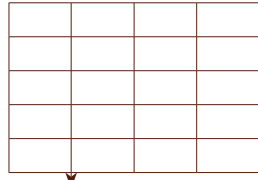
8 out – 23mm blanks



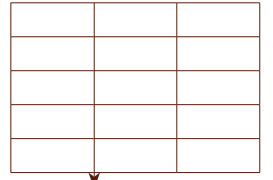
6 out – 30mm blanks



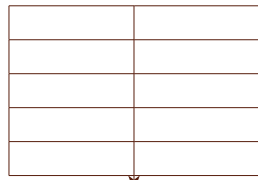
4 out – 47mm blanks



3 out – 63mm blanks



2 out – 95mm blanks



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Fastening

- For exterior appearance applications, high quality stainless steel fixings (screws or nails) are recommended.
- Quality Hot Dip Galvanised may be used in non-appearance exterior applications.
- Stainless steel 316 (A4) fixings should be used in areas near the sea.
- Note: Silicone bronze/copper fixings can be subject to oxidation during weathering, resulting in discolouration and weeping around fixing head.
- For interior applications bright or zinc coated fixings may be used.
- Fixings at ends of boards must be at least 12mm from edge, and must be pre-drilled before applying fastener.
- In exterior applications Vulcan should generally be installed minimum 100mm above paved surface or 175mm above un-paved surfaces. Base of posts must finish minimum 35mm above paved surface and be sealed to prevent moisture ingress.

Coating

In all cases timber must be thoroughly sanded and be clean and free of dust prior to application of coating.

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 mandatory.

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 arched 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 timber movement.

Vulcan Joinery

Coating

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.

Maintain all coatings as per manufacturer's recommendation.

Note: The above is an overview only. Installers should refer to specific design information on the construction specification for more details.