Vulcan Shingles – Roofing

New Growth Feature Timbers

ABODO

○ Overview

Vulcan Shingles are created from thermally modified New Zealand plantation timber and engineered with a patented vertical grain construction for superior weathering characteristics. A fine sawn face allows a depth of grain, and optimal weathering performance.

The thermal modification process combined with vertical grain structure and OPX water-based preservation system means Vulcan Shingles have enhanced stability and reduced resin content. The beautiful homogenous brown colour will silver off with exposure to weather if left uncoated.

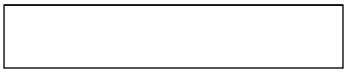
Vulcan Shingles provide a unique high end architectural finish for roofing applications.

○ Wood Species

Thermally Modified Radiata Pine (Pinus Radiata).

○ Standard Profiles

Width: 85mm, 114mm and 171mm – supplied as mixed width.
Thickness: 12mm/6mm tapered with bandsawn face.
Length: 450mm.



450x85mm

450x114mm

450x171mm

12mm/6mm tapered

○ Coverage

			Approximate coverage pcs/m²			Approximate weight kg/m²
Application	**Pitch[1]**	**Exposure[2]**	**85mm**	**114mm**	**171mm**	
Roofing	>18°	140mm	78	60	40	12

Notes:
[1] Pitch = slope of the roof.
[2] Exposure = the section of shingle left exposed to the weather after fixing.
[3] Coverage rates above are indicative only and do not include allowance for on-site wastage, starter course, valleys and capping.
More accurate quantities should be confirmed prior to order.

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○ Packaging	Mini-bundles of 6 pcs each, one width per mini-bundle. Approx 14.5m^2 per pallet. Supplied as mixed widths. Pallets, with 3 x sizes per pallet: 85mm - 384pc 114mm - 288pc 171mm - 192pc

Product Specifications

○ Name	Abodo Vulcan Shingles.
○ Intended Use	Intended for above ground use in residential and light commercial buildings as part of a wall, gable-end or roofing system greater than 18˚ pitch.
○ Quality	**Light Character Grade**/A good appearance grade that combines mainly clear three sides product, along with some product containing defects including knots, resin pockets and glue cavities individually up to 1/3rd of the board width. Back side with some defects allowed including skip dress or missing laminas. Being a visually graded product up to 5% may be out of grade allowing for human error.
○ Finish	Bandsawn face, back face may be smooth (Variation in sawn finish appearance can be expected).
○ Durability	Thermally modified 230 degrees Celsius schedule. Suitable 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'. Class 2 above ground (AS5604), Durability Class 1 (EN350-1).
○ Preservative Treatment	OPX – water-based azole + permethrin H3 (AS1604).
○ Insect Attack	Resistant to attack from termites and borer.
○ Wind Zone	Up to and including Extra High up to 1.82kps ULS.
○ Warranty	25 years against fungal decay (subject to terms and conditions).
○ Moisture Content	Approx. 12% MC (+/-2%) at time of dispatch.
○ Construction:	Laminated with vertical grain orientation.
○ Glue	New generation polyurethane adhesive – VOC, solvent and formaldehyde free third party certified to AS/NZS1328.1. Exterior Type 1 – AS/NZS4364. Approved for Service Class 3 (exposed exterior applications).
○ Expected Dimensional Change in Structure	Width expansion approx 2%, length expansion approx 0.25%, thickness expansion approx 2.5% (from 12%MC to fibre saturation – variation will occur between boards).
○ Average Dry Density	~420 kg/m^3.
○ Fire	Suitable for buildings <10m height or >1m to boundary. For designs outside this, the system is subject to specific fire engineering design.
○ Hardness	Medium-Low (2.5kN Janka).
○ Approx. Weight	Roof pitch >18˚ ~12 kg/m^2 ('light weight cladding' NZS3604). Add approx. 30% when wet at fiber saturation point.
○ Thermal Properties	~0.095 W/(mK) (EN12667).

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○ pH (Indicative)	3.9.
○ Compatibility	Vulcan has low corrosiveness on most metals though care must be taken to separate from zinc and can be placed in contact with most building materials Normal cross linked 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. With out coating the shingles can be left to silver off or otherwise least two coats must be applied to the front face and edges with Abodo Protector or other approved proprietary paint or stain.
○ Water Collection	Not recommended for collection of potable water.
○ Patent	NZ Pat. 601245.
○ Certification Green Building Points	FSC®-certified mixed, No.: SGS-COC-004944. Greenstar – 2.5pts/Homestar – 2pts + 1 innovation pt. Red List Free.
○ Environmental Product Declaration (EPD) Registration Number	S-P-01543.

Product Handling

- Shingles and accessories must be kept clean dry, under cover and out of the weather prior to installation.
- Timber must be stored horizontally on pallets at least 100mm off the ground.
- Extra care must be taken during installation so as not to damage the factory finish of the boards.
- Wear dust mask, eye protection when cutting timber.
- Do not burn treated timber. Dispose of off-cuts in lined land fill or an approved furnace.

Installation Instructions

To be read in conjunction with the Abodo Shingles literature and full set of CAD/PDF detail drawings available at: abodo.co.nz/resources

○ Ventilated Roofs

Design must include ventilation to deal with solar-driven moisture transfer. Ventilation must be created to allow the backs of the shingles to dry out in service. This can be achieved through passive roof or wall ventilation elements to provide an air channel.

The design requirements of ventilated roof systems are influenced by factors including roof type, building design, climatic and building code requirements. Specification of the ventilation system is outside the scope of this document.

As a rule of thumb a ratio of 1:300, or 1m^2 of vent to opening area for every 300m^2 of insulated ceiling is commonly used.

BRANZ advises "The size of the ventilation is often described as a ratio between the net free opening area of the vents to the area of the insulated ceiling. While ratios ranging from 1:150 to 1:600 can be found, 1:300 seems to be a frequently specified fraction." (BRANZ, 2018).

Guidance can be found in these documents: BRANZ Bulletin 648 Timber Shingles and Shakes, BRANZ Roof Ventilation #4 Skillion roofs, BRANZ Roof Ventilation #1 Roof space ventilation.

Always seek advice from a design professional prior to specification and installation.

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Preparation

- Timber framing shall be in accordance with NZS3604 or otherwise a specific designed system in compliance with NZ building code. Roof pitch must be greater than 18˚.
- Roof rafters must be spaced according to thickness of horizontal batten used:
  - 19-25mm thick batten – rafters up to 600mm centres.
  - 32-40mm thick batten – rafters up to 900mm centres.
  - 45-50mm thick batten – rafters up to 900-1200mm centres.
- Install self-supporting, vapour permeable, micro porous, weather resistive flexible underlay.

  For highest performance use a non porous flexible underlay such as Proclima Solitex Mento. Install continuously over raters according to AS/NZS4200:2 1994 and manufacturers instructions.

  Optional add a self sealing tape between underlay and counter battens e.g. Proclima Tescon® Naideck.
- A ventilated cavity must be formed by placement of minimum 42x18mm vertical H3.1 or Vulcan timber counter-battens at max 600mm centres between rafters and horizontal timber battens.
- Horizontal timber battens must be minimum 88x18mm min H3.1 or H3.2 treated kiln dried pine or equivalent and spaced according to the shingle exposure dimensions to a maximum 140mm.
- Horizontal battens must be structurally fixed with two minimum hot dipped galvanised 90x32 flat head, ring shank nail or 90x3.15 D flat head, power driven nail to achieve 40mm fastener penetration into each stud or purlin.
- Divide roof height by exposure cover and make set out rod to aid with accurate installation of battens and shingles.
- For the first 300-400mm of roof horizontal battens must be installed with edges butted together to form a solid surface for the ‘starter course’.

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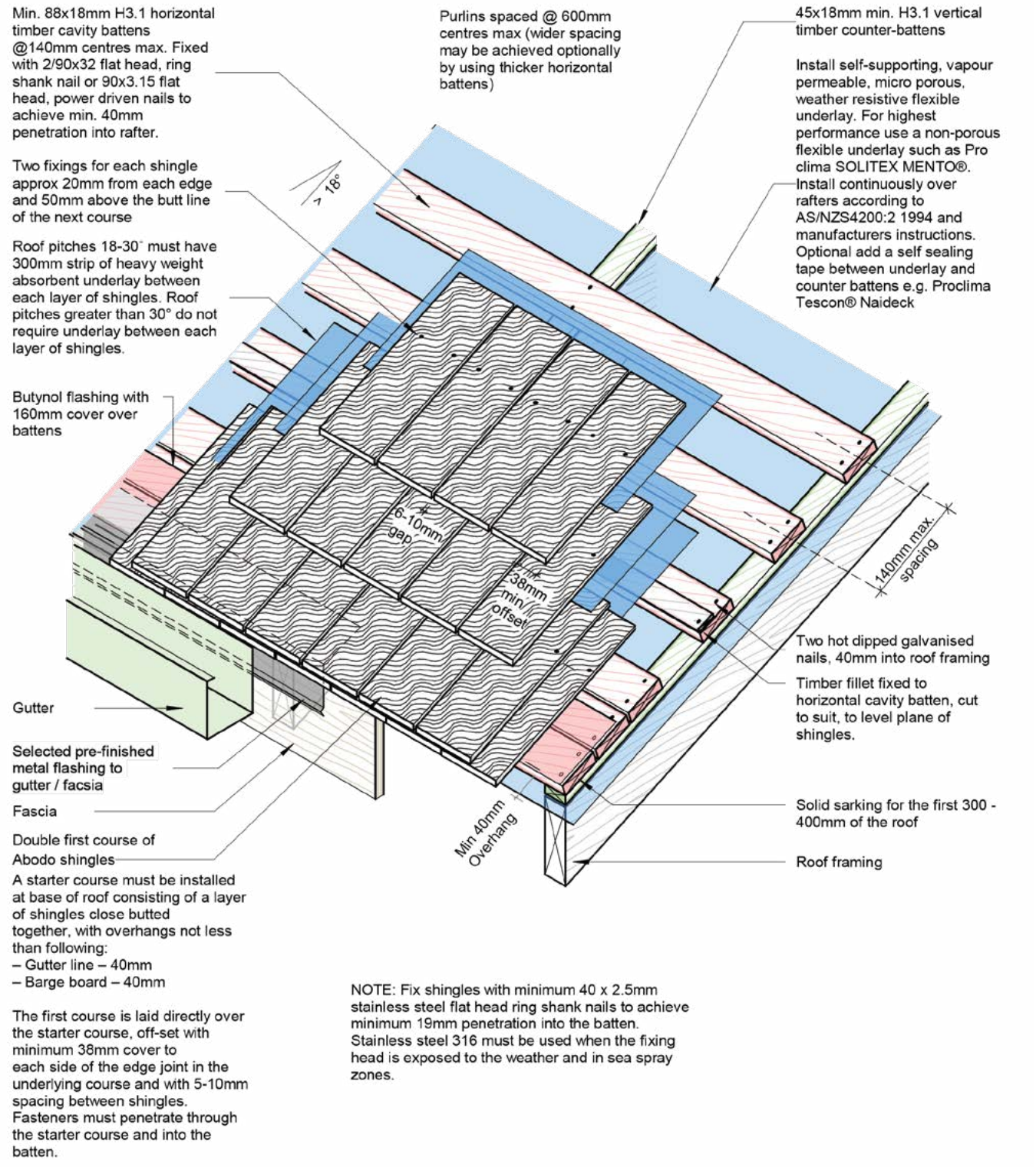
Shingle Roof Application Isometric



Fixing Overview

- Roof pitches between 18-30 deg must have a 300mm strip of heavy weight absorbent underlay between each layer of shingles.

  Roof pitches greater than 30 deg do not require underlay between each layer of shingles.
- Fix shingles to horizontal timber battens with minimum 40x2.5mm stainless-steel flat head ring shank nails or 6gx40mm self-drilling self-countersinking stainless-steel screws to achieve minimum 19mm penetration into the batten. Stainless steel 316 must be used when the fixing head is exposed to the weather and in sea spray zones.

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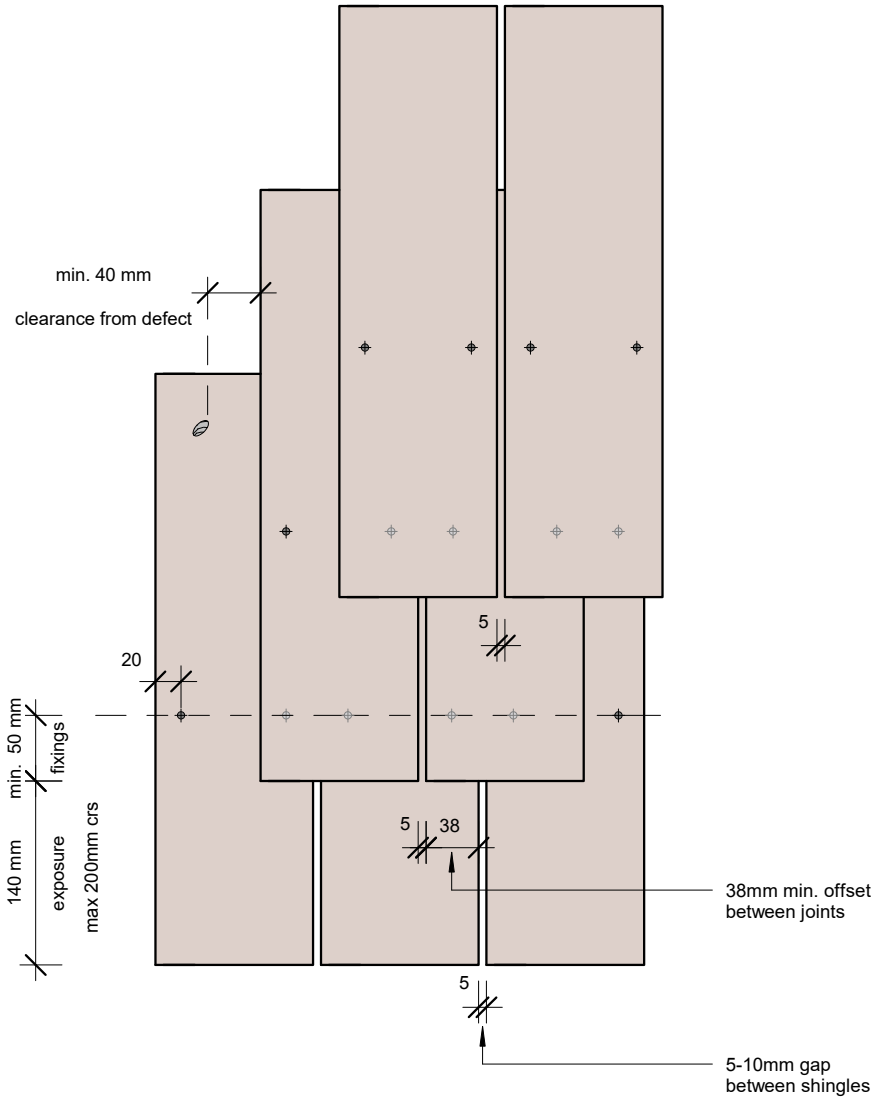
- Apply two fixings per shingle 20mm from side edges and 50mm above the exposure line. Fixings must penetrate the batten and be hand driven flush with the surface of the shingle. Do not over drive fixings.
- A starter course must be installed at base of roof consisting of a layer of shingles close butted together, with overhangs not less than following:
  - Gutter line/fascia – 40mm.
  - Barge board/gable end – 25mm.
- The first course is laid directly over the starter course, off-set with minimum 38mm cover to each side of the edge joint in the underlying course and with 5-10mm spacing between shingles. Fasteners must penetrate through the starter course and into the batten.
- The second course must maintain minimum 38mm cover to joints in the underlying course and with 5-10mm gap between edges. Fasteners must be positioned 50mm above exposure line and penetrate into the batten.
- For subsequent courses the minimum 38mm cover and 5-10mm edge gap must be maintained, ensuring that within any three courses joints are not in alignment. Shingles must be laid in a random pattern to avoid tracking of water into gaps (not more than 10% shall be in direct alignment in alternate courses). To achieve this the first shingle in each course can be cut to varying widths.

Shingle Set Out and Fixings



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Finishing of Roofing

○ Ridges and Hips	• Ridges and hips must be ventilated using a vent system to conform with specified air circulation requirements. As a rule of thumb a ratio of 1:300, or 1m^2 of vent to opening area for every 300m^2 of insulated ceiling is commonly used. • Ensure 50mm gap in underlay at the ridge to allow movement of air through of the roof space and out the vent. • Apply shingles and/or metal flashing to ridge and hip. • Interleave heavy weight, absorbent underlay between each course of shingles for roof pitches between 18-30 deg. For roof pitches over 30 deg underlay between each course can be omitted.
○ Fascia and Soffits	• The bottom edge of the roof must be ventilated in line with ridge vents but with open area slightly higher than at the ridge vent to encourage movement of air up the roof cavity. This can be achieved by inserting vents in the soffit lining, battens over mesh with gaps between board edges or construction of fascia with a cavity to allow movement of air into the roof cavity. Apply mesh or vermin strips as appropriate to close off the cavity.
○ Valleys	• Apply stainless steel, copper or butyl rubber valley flashings. Fold back flashing edge underneath singles 200mm either side of the centre. Allow minimum 125mm clearance to the edges of shingles on either side.
○ Junctions	• Apply metal flashing with minimum 150mm upstand to wall and 120mm into roof where roof meets wall. Metal flashings may also be applied on top of shingles to direct water to outside face of the shingles.
○ Gable Ends	• Gable ends are recommended to have minimum 300mm wide eaves. • Shingles must project minimum 25mm past the barge board. • Apply compressible EPDM sealant strip to top of barge board and sit shingles into this. • In exposed situations butyl soakers can be interlaced in between the shingles, turned over the barge board, and covered with a barge flashing to increase weather tightness.
○ Roof Penetrations	• Ensure penetrations are in place prior to shingles being applied. • Use butyl rubber and metal flashings to make watertight. • Ensure 25mm clearance around projection.
Coating	• Without application of a pigmented coating the shingles will lighten with exposure to the weather, eventually becoming a silver-grey colour. Clear non-pigmented coatings will also change in a similar manner. • Optionally apply at least two coats of Protector or latex paint within 60 days after installation according to manufacturer's instructions. • To maintain colour a pigmented coating must be used, however maintenance re-coats will be required periodically, so ease of access must be considered when specifying this for roof application. • Paint finishes may require application of a primer prior to topcoats depending on manufacturer's recommendations. Ensure shingles are clean and dry max 12% MC prior to coating.

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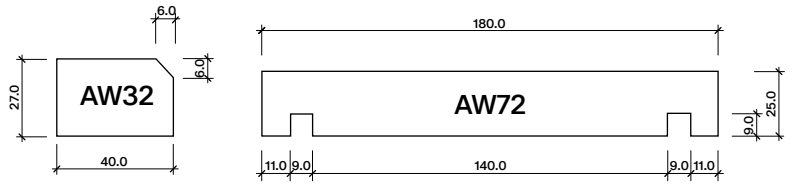
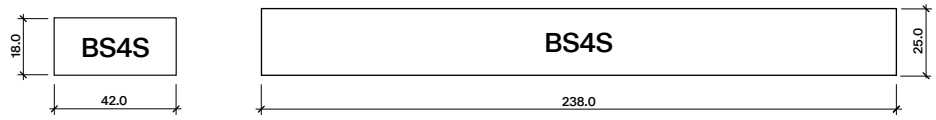
Maintenance

- Wash down every 12 months with gentle detergent, water and soft brush.
- Rinse with low pressure water only. Water blasting is not permitted.
- For heavily soiled or mouldy areas use Rejuvenator or similar timber cleaner and apply active mouldicide.
- Ensure leaves and debris are not allowed to accumulate on or around the shingles.
- Make a maintenance check every two summers. Check all shingles, junctions, flashings, mouldings and replace or remediate as required to maintain weather tightness of the system.
- Over time uncoated shingles will lighten and change to a weathered grey colour.
- If coated re-coat approximately every 2-3 years (oil finish), 5-7 years (paint finish) or as required to maintain colour and integrity of coating. Re-coat period may be longer or shorter depending on climatic conditions and/or positioning of shingles to the sun.

Exterior Mouldings

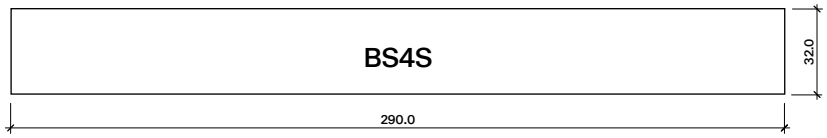


40mm Eaves Mould



42x18mm BS4S

238mm BS4S



290mm BS4S