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V4

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Decking Installation Guide

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1. SCOPE

1.1 INTENDED USE

This Decking Manual is designed as guide for the correct installation of ITI NZ hardwood decking species.

The ITI NZ decking shall be installed over a substrate constructed in accordance with New Zealand Standard 3604 (2011).

1.2 TIMBER SPECIES

See table below.

1.2.1 DURABILITY

The expected serviceable lifespan will depend on the timber specified. Refer to table 1.0 for expected serviceable lifespan.

Species	Above ground (Years)	In ground (Years)
Accoya	Class 1 (50 +)	Class 1 (25)
Kwila	Class 2 (15 – 25)	Class 3 (5-15)
Spotted Gum	Class1 (40 +)	Class 2 (15 – 25)
Vitex	Class 2 (15 – 25)	Class 3 (5 – 15)

Table 1.0 Timber Durability Class from MacKenzie, Colin & Wang, Chi-Hsiang & Leicester, Robert & Foliente, Greg & Nguyen, Minh. (2007). Timber Service Life Design Guide.

The expected serviceable lifespan of the timber will be greatly affected by numerous factors including location, exposure, coating, maintenance, and correct installation. The lifespans outlined above are a guide only but are what we would expect under normal conditions in NZ.

1.2.2 MAINTENANCE REQUIREMENTS

The above serviceable life assumes regular maintenance. Appearance will degrade over time unless timber is coated and both the coatings and all aspects of the decking system are maintained.

Maintenance requirements will vary, depending on the species of timber, site, location, aspect, exposure, and coating selected, but in general terms, annual cleaning of the deck should be carried out to ensure the surface is free from moss, mould, fungal and organic growths, and airborne pollutants.

This should be carried out using water and a mild detergent and soft nylon brush, ensuring all the residue is washed away. Avoid using harsh chemical-based products, and high-pressure water blasters as these may damage the surface of the timber.

Periodically relocate outdoor furniture, pots, and planters etc. to reduce the risk of water trapped on the deck surface and to ensure a more even weathering.

Re-application of the stain or oil finish, to the cleaned decking, should be carried out in accordance with the coating manufacturer's instructions.

2. HEALTH AND SAFETY

2.1 CUTTING OF TIMBER

Cutting of timber is to be done in a well ventilated area and a suitable dust mask and eye and ear protection must be worn. All the species listed in this guide are untreated but the sawdust may cause irritation and inflammation if inhaled, swallowed or pierces the skin.

Medical advice should be sought if a reaction occurs.

2.2 COATING

ITI NZ recommends that all deck timber species should be envelope coated before installation, including coating of all cut ends and areas of exposed fresh timber.

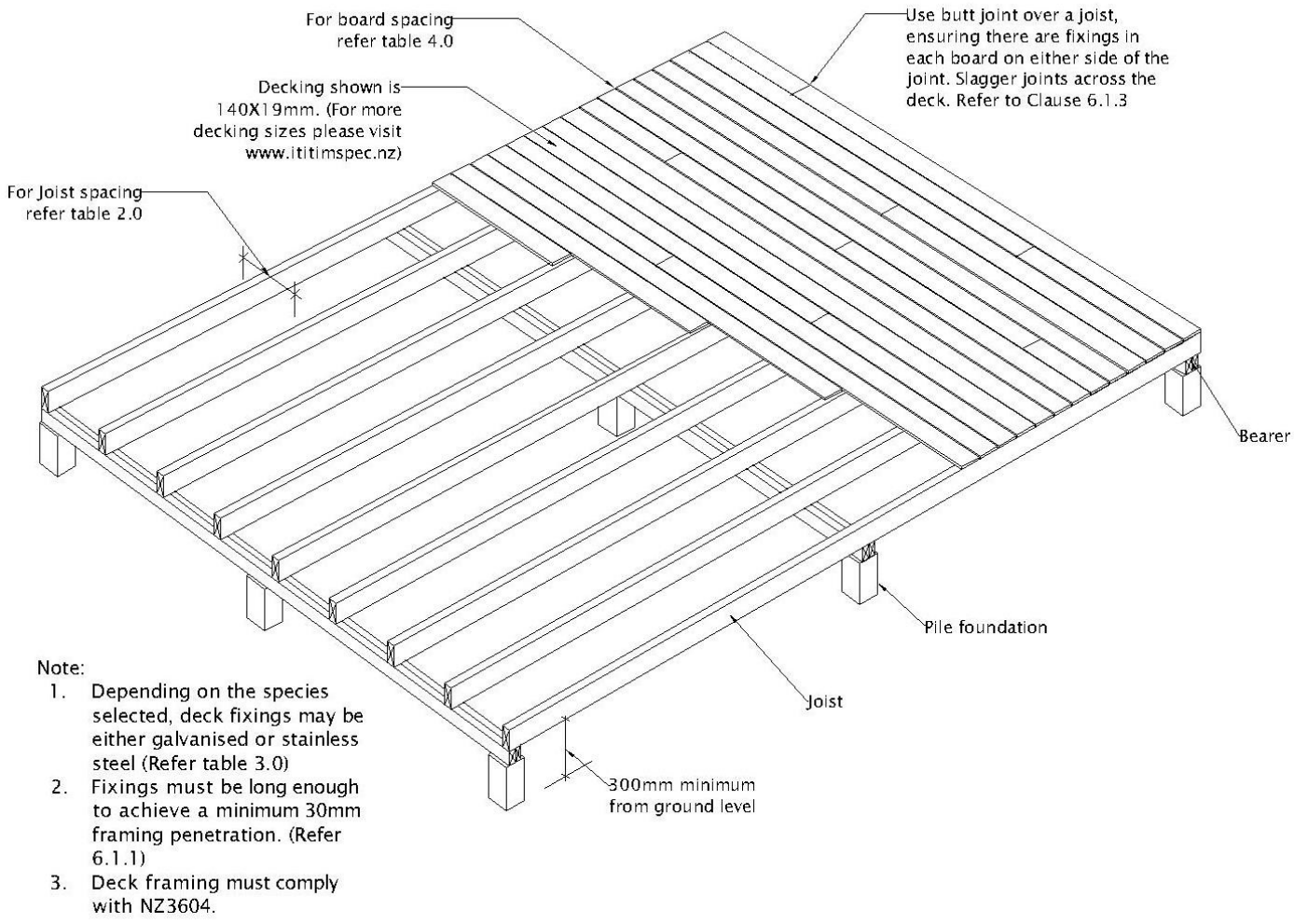
Avoid coating the top surface only, once installed, as this will likely cause movement (cupping or warping etc.) in the timber surface.

Coating or priming is to be done in a well ventilated area, refer to the coating/primer manufacturers requirements for all matters relating to health and safety. Ensure all of the coating manufacturer's requirements are be adhered to. Accoya may be used un-coated.

3. SITE PREPARATION

3.1 STRUCTURE AND FRAMING

Figure 1Decking Installation Drawing



3.1.1 NEW ZEALAND STANDARD 3604

Generally, the timber substrate and framing must comply with NZS 3604 (2011) (Timber-framed buildings), however where specific engineering design is required the framing shall be at least of equivalent stiffness as the framing provisions of NZS 3604.

3.1.2 LAYOUT

Joists or bearers must be spaced to comply with NZS 3604 (2011) (Timber-framed buildings), However this may vary depending on species and board thickness.

Refer to table 2.0 below for recommended spacing.

Species	Joist Centres 450mm	Joist Centres 600mm
Accoya	90-140 x 19mm	140 x 32mm + Larger
Kwila	42-140 x 19mm	140 x 25mm + Larger
Spotted Gum	90-134 x 22mm	134 x 22mm + Larger
Vitex	90-140 x 19mm	140 x 32mm + Larger

Table 2.0 Joist Spacing and minimum required board thickness

3.1.3 GROUND CLEARANCE

The sub framing must be constructed so that the decking boards are a minimum height of 300mm above finished ground level

3.1.4 VENTILATION

Adequate ventilation is critical within the sub-frame to prevent moisture build-up under the deck surface. The boards must be free draining, and must dry out after periods of intermittent wetting. It is also necessary to ensure the area below the deck is also free draining to prevent water pooling below deck surface. This is especially critical when installing a deck over a waterproof membrane. Allowance must also be made to allow a cross ventilating airflow to assist in drying the sub deck area.

3.1.5 HIGH RISK AREAS

High risk areas are those where a higher moisture content can be expected due to local conditions, where there may be an above average annual rainfall or ground water levels are high, or areas where moisture content remains elevated such as around swimming pools. In these cases wider gaps between boards, or the use of a narrower profile should be considered, as well as appropriate coating.

3.1.6 MOISTURE CONTENT

The moisture content of the framing must not exceed 20% at the time of fixing the decking as problems may occur later and cause excessive timber movement if framing is too wet.

All the timber species in this guide are supplied as kiln dried so will absorb (and release) moisture, and subsequently swell (and shrink) during seasonal and climatic variations.

4. PRE-INSTALLATION

4.1 ON-SITE STORAGE AND HANDLING

Care must be taken to ensure that timber and accessories are kept clean and dry, and are not damaged whilst in storage awaiting application.

Extra care is to be taken while handling timber profiles to ensure that they are not damaged.

Upon delivery, timber is to be stacked flat and level on bearers/dunnage that are a maximum of 900mm apart and at least 100mm off the ground. Timber should be either stored inside an enclosed building or covered with an additional waterproof layer and protected from the elements when stored outside.

4.2 DOCKING OUT DEFECTS

Before coating or installing boards, check for any defects that may require docking out.

Important: All docked ends of coated decking profiles will require coating with a minimum of one coat of primer or stain.

4.3 PRIMING AND SEALING (APPLIES TO STAINED OR PAINTED PROFILES ONLY)

Apply the first coat of stain or primer to all faces, ends and edges of the decking prior to installation. Remember that all docked ends will require coating or priming as noted above. Follow the coating manufacturer's directions and ensure further coats are applied as required.

Note: It is usually easier to order your decking profiles to arrive on-site pre-primed/precoated.

For more information on painting: Download painting guide from our website here:

https://ititimspec.nz/Downloads/

5. FIXINGS

5.1 DECK FIXINGS

Stainless steel twin thread decking screws are recommended for all deck fixings.

5.1.1 MATERIAL

We recommend the use of Stainless Steel (316) fixings for all species, but some exceptions are acceptable. See table below.

5.1.2 COMPATIBILITY

The table below shows the compatibility of timber species with stainless steel and galvanised steel.

Species	Stainless Steel	Galvanised Steel
Accoya	Yes	No
Kwila	Yes	Yes
Spotted Gum	Yes	No
Vitex	Yes	Yes

Table 3.0 Fixing Compatibility

6. FIXING DETAILS FOR DECKING

6.1 INSTALLATION

6.1.1 FIXING METHOD

This method is applicable to the ITI NZ supplied species as listed below.

Align profiles perpendicular to joists. Pre-drill all fixing holes, using a counter sinking drill bit that is slightly smaller than the screw shank, to reduce the risk of splitting but ensure a snug fit. Pilot holes at the end of boards should be the same diameter as the screw shank.

Fixing placement for a 90mm wide board to be 12.5mm in from each edge of profile, and for a 135mm, or wider, board, 15mm in from each edge of profile.

ITI NZ recommends using stainless steel, countersunk twin thread decking screws for all decking profiles. Fixings must be long enough to achieve a minimum 30mm framing penetration.

Using a cordless drill and driver bit, apply screws to the decking profile and finish the head of the screw just below the profile surface. Do not over-screw as this may increase the risk of splitting.

Ensure boards are fixed straight to assist with correct alignment of subsequent boards.

6.1.2 BOARD SPACING

Allow a gap between boards to ensure free draining during wet periods.

As a general guide a gap of 3 – 8mm should be allowed for between boards, but the size of gap will need to be determined by species, board width, site, location and coating.

Refer to Table 4 below.

Species	90 – 120mm profiles	130 – 140mm profiles
Accoya*	3 - 4mm	4 - 6mm
Kwila	4mm	6 – 8mm
Spotted Gum	4mm	6 – 8mm
Vitex	4mm	6 – 8mm

Table 4.0 Board Spacing

*Accoya recommended gap - for 190mm boards 8mm, and 240mm boards 10mm.

6.1.3 JOINING BOARDS

For joining boards end to end, use a butt join centered over a supporting joist, ensuring there are fixings in each board on either side of join.

Fixings may need to be on a slight angle to ensure correct penetration of the joist and ensure fixings are not too close to the end of the profile.

7. SITE CLEAN-UP

After completion the installer is to leave the site in a clean and tidy manner, including:

1. Replacing or repairing any damaged or marked items; and
2. Removing all rubbish, debris and unused items from the building site.

Any treated and/or coated timber off-cuts or rubbish are to be disposed carefully and in accordance with local council bylaw requirements.

Note: Accoya ® wood is not treated with dangerous chemicals and can be disposed of by burning, or as untreated timber at refuse sites.

8. ON-GOING MAINTENANCE

It is the building owner's responsibility to ensure that the decking system receives regular maintenance so that it continues to perform at its required level.

8.1 MAINTENANCE INTERVAL

For most areas (especially coastal, industrial, and inner-city areas) maintenance should be performed at least once every 12 months. Maintenance may be required as often as once every six months, depending on the level of pollution, dirt or organic growth in the environment.

For sheltered, inland locations, maintenance should be performed once every 12 to 18 months.

8.2 MAINTENANCE REQUIREMENTS

Regular maintenance is to include the following 5 steps:

1. Wash all exterior surfaces with low pressure water to remove dust, dirt and other contaminants;
   a. Extra attention should be given to areas that are not exposed to rain such as sheltered areas below eaves where contaminants may not be washed away;
   b. Do not direct high pressure water on any part of the timber.
   c. Do not use harsh or abrasive chemicals on deck surface.

2. Use a soft bristle nylon brush or broom with water and an appropriate cleaning agent (refer to paint manufacturer for correct cleaning agent specific to their coating system) to remove stubborn or persistent dirt and contaminants.

3. Inspect all surfaces and junctions for signs of damage, wear-and-tear, or coating breakdown. Where coating surface has broken or remedial action is required:
   a. Remove all damaged or loose coating (may involve sanding back to solid timber);
   b. Spot prime any bare timber (if repairing paint);
   c. Recoat with minimum two coats of the product originally used to initially overcoat the timber.

4. Repairing or replacing any damaged or deteriorated items:
   a. Small isolated areas of dry rot in timber can be cut out and filled then primed and coated;
   b. For larger areas of deterioration: remove and replace either the damaged section or the entire board. Prime and coat the replacements as required;

5. Where a coating is applied, periodic recoating is required to ensure the integrity of the coating is sustained. This will generally mean applying another exterior coat every 4 to 10 years (dependent on the coating used and building location) after washing and maintenance.

Note: ITI NZ recommends using only clear non-pigmented oils and stains for decking. Tinted or pigmented stains or oils may increase heat absorption and result in movement or distortion of the timber and grain raise on the face of the board.

References

1. MacKenzie, Colin & Wang, Hsiang C, & Leicester, Robert & Foliente, Greg &, Minh N. (2007). Timber Service Life Design Guide.
2. New Zealand Standard 3604 (NZS 3604). (2011).