

# SECTION 3

## DECKING



## DECKING

Kwila Decking and Screening

Boral Decking

Modwood Decking

Trex Decking

James Hardie - HardieDeck™

TQ TDS 4 - Residential Timber Decks

TQ TDS 13 - Residential Timber Decks close to or on the Ground

# Kwila Decking and Screening



Kwila is a Durability Class 1 above ground specie, which is both stable and dense for our harsh Australian conditions.

## 3.1 Kwila Decking and Screening

SIZE	DESCRIPTION	GRADE
Unit = LM		
IMPORTED SPECIES		
90 x 19	Reeded Reverse Face	Kwila Standard & Better
140 x 19	Reeded Reverse Face	Kwila Standard & Better
140 x 25	Reeded Reverse Face	Kwila Standard & Better

## 3.2 Kwila Screening

SIZE	DESCRIPTION	GRADE
Unit = LM		
IMPORTED SPECIES		
70 x 19	0.9, 1.2, 1.8 and 2.4	

Shaded area indicates stocked item.

**NOTE:** Pricing of imported species may vary considerably due to foreign currency exchange rates. Finlayson DNA certified Merbau decking is the only Merbau decking independently certified as legally sourced. Merbau decking is durability class one above ground and is the only imported decking Finlayson's recommend for a hassle free, long life.



Spotted Gum is a Durability Class 1 above ground specie, which is both stable and dense for our harsh Australian conditions.

### 3.3 Spotted Gum Decking

SIZE	DESCRIPTION	GRADE
Unit = LM		
AUSTRALIAN SPECIES		
42 x 19	Pencil Round	Standard and Better
64 x 19	Pencil Round	Standard and Better
86 x 19	Pencil Round	Standard and Better
136 x 19	Pencil Round	Standard and Better

### 3.4 Spotted Gum Screening

SIZE	DESCRIPTION	GRADE
Unit = LM		
AUSTRALIAN SPECIES		
42 x 19	1.8, 2.4, 3.0 and 3.6	
64 x 19	1.8, 2.4, 3.0 and 3.6	
86 x 19	1.8, 2.4, 3.0 and 3.6	

**NOTE:** Finlayson's Spotted Gum decking is durability class one above ground and is one of only two native specie decking Finlayson's recommend for a hassle free, long life. Choose a tried and tested Australian specie in spotted gum as cheaper up front alternatives can cost more in the long run.

# Iron Bark | Blackbutt Decking and Rosewood Screening



## 3.5 Iron Bark | Blackbutt Decking

SIZE	DESCRIPTION	GRADE
Unit = LM		
86 x 19	Pencil Round Iron Bark	Standard and Better
86 x 19	Pencil Round Blackbutt	Standard and Better

Iron Bark and Black butt are Durability Class 1 above ground species, which is both stable, dense and very hard –perfect for our harsh Australian conditions.

Shaded area indicates stocked item.

## 3.6 Rosewood Screening

SIZE	DESCRIPTION	LENGTH
Unit = LM		
19 x 19	Square Edge	1.8, 2.4, 3.0
42 x 19	Pencil Round	1.8, 2.4, 3.0
65 x 19	Pencil Round	1.8, 2.4, 3.0
86 x 19	Pencil Round	1.8, 2.4, 3.0
30 x 30	Pencil Round	1.8, 2.4, 3.0
40 x 30	Pencil Round	1.8, 2.4, 3.0
85 x 30	Pencil Round	1.8, 2.4, 3.0
40 x 40	Pencil Round	1.8, 2.4, 3.0
65 x 40	Pencil Round	1.8, 2.4, 3.0
85 x 40	Pencil Round	1.8, 2.4, 3.0



## ModWood Colour Range

### BLACK BEAN



BRUSHED



SMOOTH

### JARRAH



BRUSHED

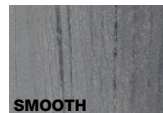


SMOOTH

### SILVER GUM

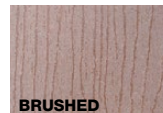


BRUSHED



SMOOTH

### SAHARA



BRUSHED



SMOOTH

## 3.7 ModWood Decking

	Decking	Decking Wide	Flame Shield®	Marina Board	Mini Board Screening**
<b>Dimensions</b>	88 x 23mm	137 x 23mm	137 x 23mm	137 x 32mm****	68 x 17mm
<b>PRICE L/M</b>	<b>\$11.35</b>	<b>\$18.40</b>	<b>\$20.56</b>	<b>\$27.32</b>	<b>\$6.90</b>
Minimum ground clearance	300	300	300	300	150
Joist/support centres (max distance)	450***	450	450	600	800**
Minimum end-gap (butt joint)	2	2	2	2	2
Minimum gap - side by side	4	4	4	6	8
Minimum distance from edge of board for fixing	20	20	20	20	20
Minimum end-gap to solid structure	6	6	4	6	6
Screws (pre-drill and countersink)	yes	yes	yes	yes	yes
Dome-head nails (pre-drill)	yes	yes	yes	yes	yes
Nail gun acceptability	yes*	yes*	yes*	no	yes*
Zig-zag fixing acceptability - not suitable for nailguns	yes	no	no	no	no
Standard length - approx. 10 to 15mm over length	5.4	5.4	5.4	4.2	4.8
Weight (per lineal metre) kgs	2.3	3.7	3.7	5.0	1.4

■ Residential 
 ■ Commercial 
 ■ Heavy Duty Commercial

\* Use only dome-head nails from "coil-nail" gun. Pre-drill and hand nail when within 50 mm of end of board. Nail gun is not our preferred fixing method.

\*\* Refer to website for fixing instructions.

\*\*\* 400 mm centres for Commercial applications. In all cases, when screwing down do not overdrive screws. Fix with low to medium torque. Do not punch nail-heads under surface of board. Fixing too close to the end of the board will cause splitting. Do not fix within 15 mm of end of board.

# Decking Fasteners and Accessories

## 3.8 Fastners and Accessories

CODE	DESCRIPTION	QUANTITY
<b>NAIL BULLET HEAD NAIL GALVANISED</b>		
016422	500gm NAIL BULLET HEAD Galvanised 50 x 2.8	180
032347	1Kg NAIL BULLET HEAD Galvanised 50 x 2.8	360
020467	2Kg NAIL BULLET HEAD Galvanised 50 x 2.8	720
020450	5Kg NAIL BULLET HEAD Galvanised 50 x 2.8	1800
017740	500 gm Nail Timberdeck Galvanised 50 x 2.8	175
032538	1Kg Nail Timberdeck Galvanised 50 x 2.8	350
080362	2Kg Nail Timberdeck Galvanised 50 x 2.8	700
080355	5Kg Nail Timberdeck Galvanised 50 x 2.8	1750
031876	500gm Nail Timberdeck Stainless Steel 50 x 2.8	190
033139	1Kg Nail Timberdeck Stainless Steel 50 x 2.8	380
031869	2Kg Nail Timberdeck Stainless Steel 50 x 2.8	760
<b>STAINLESS STEEL DECKING SCREWS</b>		
052309	8GX50mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	500
052323	8GX65mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	500
046605	10GX50mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	500
052330	10GX65mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	500
258077	12GX50mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	500
258114	12GX65mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	500
840483	10GX50mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	1000
840497	10GX65mm S'S DECK SCREW S'DRILL CSK SQ.DRIVE	1000
<b>TORX DECKING SCREWS</b>		
663512	DECKING SCREWS A2 S/S 5.5 x 50MM (500) TORX	500
663511	DECKING SCREWS A2 S/S 5.5 x 50MM (1000) TORX	1000
663517	DECKING SCREWS A2 S/S 5.5 x 60MM (500) TORX	500
663516	DECKING SCREWS A2 S/S 5.5 x 60MM (1000) TORX	1000
517550	DECKING SCREW S/S V/TAGE 5.5 x 50MM (500) TORX	500
517551	DECKING SCREW S/S V/TAGE 5.5 x 50MM (1000) TORX	1000
517560	DECKING SCREW S/S V/TAGE 5.5 x 60MM (500) TORX	500
517561	DECKING SCREW S/S V/TAGE 5.5 x 60MM (1000) TORX	1000
TORX20	DRIVER BIT TORX20 50MM	EACH

## 3.9 Deck Protector

CODE	DESCRIPTION
<b>DECK PROTECTADECK</b>	
000990	DECK PROTECTADECK for joists 25m x 45mm (8)
3001010	DECK PROTECTADECK for bearers 90mm x 12m
3001089	DECK PROTECTADECK for joists 15m x 70mm

Boral Timber welcomes Trex, the world's #1 composite decking product to our Decking range.

This premium line combines second-to-none performance with the beauty of exotic wood, resulting in long-lasting colours inspired by nature.

**Why Choose Trex decking?**

- Deep wood grain pattern
- Fade, stain, scratch and mold resistant
- Will not warp, rot or splinter
- Termite resistant- Low maintenance
- Made from 95% recycled material
- 25 year warranty\*

# Trex Transcend® Decking

The Timber alternative composite decking

Island Mist



# TREX® DECKING



Trex became the world's #1 decking brand by engineering what's next in outdoor living. Today's homeowners love Trex composite boards because they resemble wood, but act nothing like it. That's because our proprietary shell prevents ageing, fading, staining, rotting and warping.

Even better, our high-performance decks don't require any maintenance beyond occasional soap-and-water cleanings; that means no sanding, staining or painting...ever.

All this, plus we care about the environment, as our decking is made out of 95% recycled material. Trex Decking comes with a 25yr limited residential warranty including fade and stain.



*Trex Deck Lighting now available*

**25 Year Limited Warranty  
Including Fade & Stain.  
95% Recycled Material.**



**The World's #1 Decking Brand**



# THE "Modern Outdoor Room" DECK

NEW  
HardieDeck™  
FIXING  
SYSTEM

## A winning combination of durability and enduring style

HardieDeck™ decking is made from James Hardie's premium fibre cement. It creates a clean look to connect a stylish interior environment with the outdoors, without risking damage from the elements. Smooth, wide boards with clean lines and freedom of colour choice makes this cement decking a stunning outdoor floor.



Durability



Fire  
Resistant



Weather  
Resistant



Resistant to  
Termite Damage

Discover more at [hardiedeck.com.au](http://hardiedeck.com.au)

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ALL PRICES INCLUDE GST. Ask in store about our Price Guarantee.

 **JamesHardie™**

 **Finlayson's**

# TDS 4 - Residential Timber Decks

## TECHNICAL DATA SHEET ISSUED BY TIMBER QUEENSLAND

# RESIDENTIAL TIMBER DECKS

RECOMMENDED PRACTICE // MARCH 2014

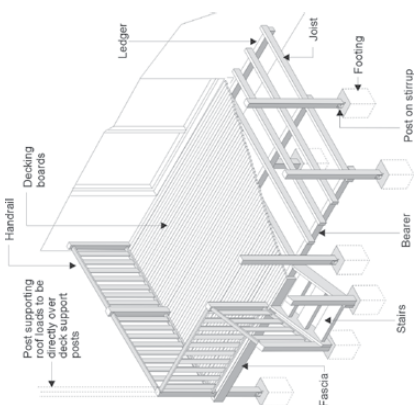


This data sheet contains TQ's recommendations for residential timber decks, verandahs, patios etc which are exposed to the weather. It covers the most common timber species and deck sizes. Footing sizes and deck bracing shall be designed in accordance with the Building Code of Australia (BCA) regulatory requirements. For alternative sizes, spans and stress grades refer to AS 1684 Residential timber framed construction. For commercial and industrial decks, refer to Technical Data Sheet 7. For decks close to the ground (i.e. framing less than 400 mm above ground), refer to Technical Data Sheet 13. For timber handrails and balustrades, refer Technical Data Sheet 23.

TABLE 1 - SPECIES SELECTION

Species	Posts in Ground	Post and Framing Above Ground	Decking
PRESERVATIVE TREATED PINE ROUNDS (Carribean, Hoop, Radiata, Slash)	✓ H5 Treatment	✓ H3 Treatment	✓ H3 Treatment (See Note 1)
MIXED OPEN FOREST HARDWOODS (QLD, Nthn, NSW)	✗	✓	✓
BALAU Yellow	✗	✓	✓
BELIAN	(See Note 2)	✓	✓
BLACKBUTT	✗	✓	✓
CYPRESS	✗	✓	✓
GUM Forest Red	(See Note 2)	✓	✓
GUM Grey	(See Note 2)	✓	✓
GUM Spotted	✗	✓	✓
IRONBARK Red or Grey	(See Note 2)	✓	✓
KWILA (MERBAU)	✗	✓	✓
MAHOGANY Red	✗	✓	✓
MAHOGANY White	(See Note 2)	✓	✓
MESSMATE Gympie	(See Note 2)	✓	✓
TALLOWOOD	(See Note 2)	✓	✓
TURPENTINE	(See Note 2)	✓	✓

Note:  
1. CCA treated timber shall not be used for domestic decking boards.  
2. This species may be suitable for use in ground in other geographic regions. Refer to Construction Timbers in Queensland for suitability. www.cdfq.gov.au



### TIMBER SELECTION

Posts in contact with the ground shall be either preservative treated pine or in-ground Durability Class 1 hardwood, with any sapwood preservative treated. Refer to 'Construction Timbers in Queensland' for suitability www.cdfq.gov.au.

Decking and deck framing above ground shall be either cypress, preservative treated pine or Above Ground Durability Class 1 hardwood. Hardwood decking boards and deck framing containing sapwood must be preservative treated.

Preservative treatment for posts in the ground and framing on the ground, shall be to hazard level H5. Preservative treatment for framing more than 150 mm above ground shall be H3.

Cypress framing may contain limited amounts of sapwood (max. 25% width of face or edge) provided the sapwood does not occur at joints or fixing points.

Cypress decking shall be Grade No. 1 in accordance with AS 1810. Sapwood in cypress decking boards shall face downward and be milled products.

Decking boards shall be seasoned to the requirements of the applicable Australian Standard (i.e. Hardwood 10% to 18%, Softwood 10% to 15%).

Note: TQ recommends a maximum MC of 15% for residential decking.

TABLE 2 - TIMBER POSTS<sup>(1)</sup> SUPPORTING ROOF AND/OR FLOOR LOADS

Floor Area Supported (m <sup>2</sup> )	5					10					15									
	Roof Load Area (m <sup>2</sup> )					Maximum Post Height (mm)					Roof Load Area (m <sup>2</sup> )					Maximum Post Height (mm)				
	0	5	10	20	30	0	5	10	20	30	0	5	10	20	30	0	5	10	20	30
Sheet Roof	2000	1900	1700	1500	1400	1300	1200	1000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Unseasoned Cypress, F5	3600	3300	3100	2700	2500	2400	2300	2200	2000	1800	1800	1700	1500	1400	1300	1200	1100	1000	900	800
Tile Roof	3600	3300	3100	2700	2500	2400	2300	2200	2000	1800	1800	1700	1500	1400	1300	1200	1100	1000	900	800
Seasoned Treated Pine, F7	2400	2200	2100	1900	1700	1600	1500	1400	1300	1200	1100	1000	900	800	700	600	500	400	300	200
Tile Roof	2400	2200	2100	1900	1700	1600	1500	1400	1300	1200	1100	1000	900	800	700	600	500	400	300	200
Unseasoned Hardwood, F14	2900	2600	2500	2200	2000	1900	1800	1700	1600	1500	1400	1300	1200	1100	1000	900	800	700	600	500
Tile Roof	2900	2600	2500	2200	2000	1900	1800	1700	1600	1500	1400	1300	1200	1100	1000	900	800	700	600	500
Treated Pine Rounds F8	4800	4200	3800	2900	2600	2500	2300	2200	2000	1800	1700	1600	1500	1400	1300	1200	1100	1000	900	800
Tile Roof	4800	4200	3800	2900	2600	2500	2300	2200	2000	1800	1700	1600	1500	1400	1300	1200	1100	1000	900	800

Notes: 1) Suitable for wind classifications up to N3/C2. i) D = member depth, B = member breadth, NS = not suitable. ii) The above table was based on a maximum Sheet Roof Mass of 40 (kg/m<sup>2</sup>), The Roof Mass of 50 (kg/m<sup>2</sup>), Total Upper Floor Mass of 50 (kg/m<sup>2</sup>), Floor Live Load of 1.5 (kPa).

TABLE 3 - BEARERS

Member Size (mm)	Floor Load Width (mm) (Length of joists supported)									
	Single Span					Continuous Span				
	1800	2400	3000	3600	4200	1800	2400	3000	3600	4200
Unseasoned Cypress, F5	1000	NS	NS	NS	NS	1000	NS	NS	NS	NS
Seasoned Treated Pine, F7	1300	1100	1000	900	800	1300	1100	1000	900	800
Unseasoned Hardwood, F14	1600	1400	1300	1200	1100	1600	1400	1300	1200	1100
Tile Roof	1600	1400	1300	1200	1100	1600	1400	1300	1200	1100
Unseasoned Cypress, F5	1950	1800	1650	1500	1350	1950	1800	1650	1500	1350
Seasoned Treated Pine, F7	1800	1600	1400	1300	1200	1800	1600	1400	1300	1200
Unseasoned Hardwood, F14	2200	1900	1700	1550	1400	2200	1900	1700	1550	1400
Tile Roof	2200	1900	1700	1550	1400	2200	1900	1700	1550	1400
Unseasoned Cypress, F5	2600	2200	2000	1800	1600	2600	2200	2000	1800	1600
Seasoned Treated Pine, F7	3000	2600	2400	2200	2000	3000	2600	2400	2200	2000
Unseasoned Hardwood, F14	3400	2900	2600	2400	2200	3400	2900	2600	2400	2200
Tile Roof	3400	2900	2600	2400	2200	3400	2900	2600	2400	2200

Notes: 1. Beams to support floor loads only. Posts supporting roof to be directly over deck supports.  
2. Maximum cantilever may be 25% of allowable span provided the actual backspan is at least twice the actual cantilever.  
3. For other stress grades and sizes refer to AS 1684 Residential timber-framed construction.  
4. For other stress grades and sizes refer to AS 1684 Residential timber-framed construction.

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**TABLE 4 - FLOOR JOISTS (450 MM SPACING)**

	Maximum Floor Joist Span (mm)	
	Member Size (mm)	Continuous
Unseasoned Cypress, F5	100 x 50	1700
	125 x 50	2200
	150 x 50	2600
	175 x 50	3000
	200 x 50	3500
Seasoned Treated Pine, F7	100 x 45	1700
	120 x 45	2200
	140 x 45	2600
	190 x 45	3600
	240 x 45	4500
Unseasoned Hardwood, F14	100 x 50	2500
	125 x 50	3200
	150 x 50	3800
	175 x 50	4500
	200 x 50	5100

- Notes:**
- Joists to support floor loads only. Posts supporting roof to be directly over deck supports.
  - Maximum cantilever can be 25% of allowable span provided the actual backspan is at least twice the actual cantilever.
  - Sizes greater than 200 mm deep and >6000 mm long may not be readily available.
  - 45/50 mm wide joists are recommended where decking boards are nail fixed to top joists. 35/38 mm wide joists are suitable where side of joist proprietary fixings (e.g. Dekkik) are used.
  - For other stress grades and sizes refer to AS 1684 Residential timber-framed construction.

**TERMITE PROTECTION**

Physical and/or chemical termite management systems must be provided to protect the deck and to ensure termites do not bypass protection systems to adjacent structures. Termite management systems must be designed so that they can be readily inspected and maintained. Where adequate termite management systems are not provided to decks, they shall be completely isolated from any adjacent structure.

**MEMBER DESIGN**

Tables 2, 3 and 4 list sizes for posts, bearers and joists, for common member spacings and commonly used timber stress grades.

The following tolerances apply:

- Unseasoned Cypress + 2 mm - 4 mm
- Seasoned Pine + 2 mm - 0 mm
- Unseasoned Hardwood + 3 mm - 3 mm.

The sizes for bearers and joists do not allow for roof loads (i.e. posts supporting roof to be continuous to the ground or be positioned directly over deck supports) and are suitable for a maximum decking mass of 20 kg/m<sup>2</sup>.

Where heavier decking systems are used such as tiles over fibre cement, specific design is required.

For alternative sizes, spans and stress grades or for members supporting roof loads, refer to AS 1684 Residential timber-framed construction.

**FIXINGS**

Post stirrups shall be hot dipped galvanised. Bolts, screws and nails shall be hot dipped galvanised or stainless steel (not zinc plated).

Proprietary connectors (joist hangers, framing anchors, etc), in fully weather exposed situations, shall be either hot dipped galvanised, stainless steel or with a fused, baked epoxy coating or other protection in accordance with manufacturer's recommendations.

**Notes:**

- Standard galvanised connectors (Z 275 class) are only recommended when weather protected (i.e. under roof).
- In corrosive environments (i.e. close to the coast, swimming pools, etc), higher levels of protection are required.
- The above recommendations apply to treated timber which remains dry in service. Proprietary connectors used with CCA, ACO or copper azole treated timber, which remains moist (i.e. over 20% for extended periods), shall be either stainless steel or with a fused or baked epoxy coating (not standard or hot dipped galvanised).

**ATTACHING DECKS TO HOUSE**

Ledgers shall be a minimum 90 x 45 mm treated pine, hardwood or cypress, fixed to house framing (studs, joists or bearers) with 12 mm dia. hot dipped galvanised bolts or coach screws at 600 mm maximum spacing. Ledgers may be fixed with masonry anchors to structural brick or block walls in accordance with manufacturer's instructions.

*Note: Brick veneer or other single skin brick walls may not be structurally adequate and require additional piers or freestanding posts with decks independently braced.*

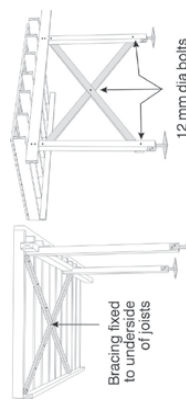
**BRACING**

Decks shall be braced to prevent lateral movement and shall be designed in accordance with the BCA and regulatory requirements. Where timber braces are used they shall be double diagonal 100 x 38 mm hardwood or 90 x 45 mm treated pine, halved at the crossing.

Decks attached to the house shall have double diagonal bracing either:

- fixed to the underside of joists with each brace fixed to each joist with 75 mm No. 14 Type 17 batten screws or two 75 x 3.15 mm nails, or
- for decks greater than 1800 mm high, fixed between a pair of posts, parallel to the wall, with the ends of braces bolted to posts with 12 mm dia. bolts.

Freestanding decks greater than 1800 mm high shall be braced in both directions with double diagonal braces between at least two pairs of posts at right angles. Freestanding decks less than 1800 mm may have posts embedded in the ground to provide lateral bracing.

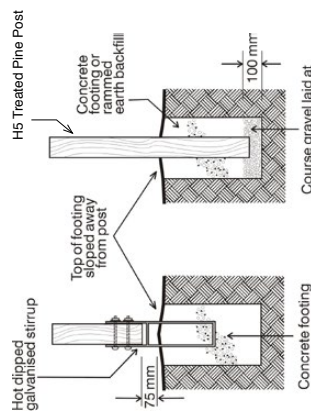


**INSTALLING POSTS**

Footings for decks etc shall be in accordance with the BCA regulatory requirements. Timber posts should preferably be fixed to hot dipped galvanised steel stirrups set in concrete. A minimum clearance of 75 mm shall be provided between the top of the concrete footing and the bottom of the post as a termite inspection zone.

Holes for embedded posts shall be filled with 100 mm depth of

course gravel (to allow water to drain) before backfilling with concrete or rammed earth. Top of backfill to be sloped away from posts to shed water. Termite management systems to be embedded posts shall be provided by stainless steel mesh (Termimesh) socks or caps or by chemical treatment to the surrounding ground.



**INSTALLING BEARERS**

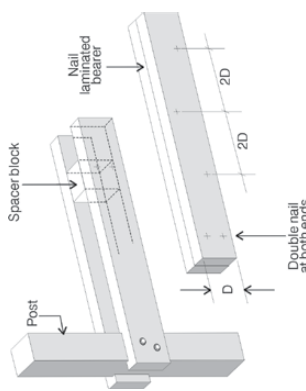
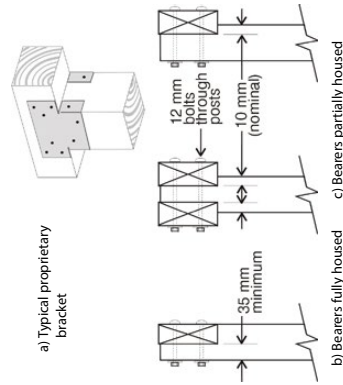
Bearers shall be adequately fixed to posts.

Either:

- Where bearers sit on top of posts, fixed with proprietary post caps or brackets in accordance with manufacturer's instructions, or
- With bearers housed into posts and bolted with two 12 mm dia. bolts. (Minimum 35 mm of post to remain after housing), or
- For double bearers, partially housed (10 mm) into side of posts and bolted with two 12 mm dia. bolts.
- Where posts continue up to support handrails, refer to Technical Data Sheet 23 for sizes and limitations on housing.

*Note: Housed joints shall be coated with water repellent preservatives or oil based primer*

Seasoned double bearers may be either spaced or nail-laminated together with staggered nails at a spacing equal to twice the bearer depth. Unseasoned double bearers shall be spaced. Where double bearers are spaced, solid timber spacing blocks shall be provided and bolted between the bearers at mid-span.



**INSTALLING JOISTS**

Joists shall be fixed on top of bearers or ledgers at 450 mm maximum spacing with either two 75 mm x 3.15 mm skew nails or proprietary framing anchors or brackets.

Alternatively, joists may be installed in line with bearers and/or ledgers and fixed with proprietary joist hangers in accordance with manufacturer's recommendations.

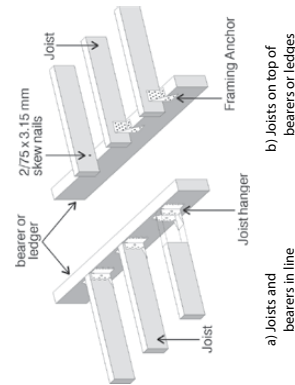
Where joists are face fixed to bearers or ledgers with joist hangers in addition to nails, one screw in each leg of the hanger shall be provided into the face of the bearer or ledger.

*Note: Nails for proprietary connectors to be hot dipped galvanised*

Sizes shown in Table 4 list only 45 mm and 50 mm wide joists although 35/38 mm wide joists may be structurally adequate. Joists 45/50 mm wide are recommended because they are less prone to splitting and provide better bearing and fixing for decking boards at joints and ends. Joists 35/38 mm wide may be suitable for use where decking is fixed to sides of joists with proprietary fixings (Refer AS 1684 for larger range of joist sizes).

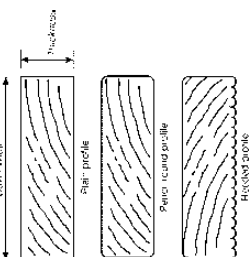
Where depth of joist is greater than four times the width, solid blocking shall be provided between joists at each support. For joists spans over 3 m, additional herringbone strutting or solid blocking should be provided in evenly spaced rows as follows:-

- For spans over 3.0 m to 4.2 m - one row
- For spans over 4.2 m - two rows equally spaced.



## DECKING

Decking boards are available plain (square edged), with pencil round or arised edges, or with one reeded or ribbed surface. Tongue and grooved flooring must not be used for weather exposed decks.



Standard cover widths are:-

Cypress	68 mm
Treated Pine	70 mm or 90 mm
Hardwood	63 mm, 86 mm or 135mm

Narrow boards are recommended as they shed water more readily and are therefore less prone to cupping and twisting.

Reeded or ribbed decking may be fixed with reeded face down or up (owner's choice), however where fixed with reeded face up (as a "non-slip" surface), decking must be regularly maintained as build up of dirt and mould in grooves can make surfaces more slippery and accelerate decay.

Decking boards shall be seasoned to the requirements of the applicable Australian Standard (i.e. hardwood 10% to 18%, softwood 10% to 15%).

Note: TQ recommends a maximum MC of 15% for residential decking.

## TABLE 5 - DECKING

Species	Min. Grade	Thickness (mm)	Max. Joist Spacing (mm)	Nailing Requirements (see Note #)
Hardwood	Standard Grade (AS 2796)	19	500	50 x 2.8 Galv. Bullet Head
		25	650	65 x 2.8 Galv. Bullet Head
Cypress*	Standard Grade (AS 1810)	21	450	50 x 2.8 Galv. Bullet Head
Treated Pine (H3) (AS 1782)	Standard Grade	22	450	50 x 2.8 Galv. Flat Head

Notes:  
\* Cypress containing sawwood should not be used closer than 250mm from ground. Refer recommendations in AS 1810.

# Where joists are treated softwood, nails shall be deformed ring shank, or alternatively screws.

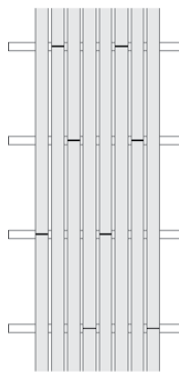
Recent comparative laboratory withdrawal tests carried out by Timber Queensland on a wide range of commercially available machine driven nails indicated a large variation in machine nail withdrawal resistance. Installers of decking should ensure that machine nails used have equal or better withdrawal resistance than the hand nails given above. Installers should obtain comparative withdrawal information from nail suppliers or conduct comparative trials (pinch bar) on test material before using a particular machine nail.

## INSTALLING DECKING

The topsurface of joists and all surfaces of decking boards should have a coat of water repellent preservative or oil based primer plus one coat of the selected finish (paint or stain) applied before fixing decking (refer Finishes). Table 5 lists the required fixings for domestic decking.

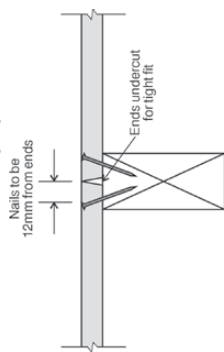
Hardwood and Cypress decking up to 90 mm width shall be spaced with 3 mm (min) gaps. Softwood decking shall have 5 mm gaps.

Butt joints shall be staggered (i.e. not on adjoining boards).



Joints staggered

A slight back-cut will assist in obtaining a tight fit at butt ends.



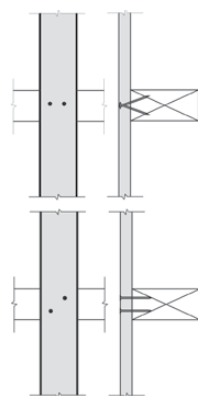
Each board shall be fixed at every joist crossing with two nails as required by Table 5. Alternatively, proprietary fixings may be used in accordance with manufacturer's instructions.

Nails shall be hot dipped galvanised or stainless steel (not zinc plated). Within 1 metre of swimming pools, stainless steel or silicon bronze fixings are recommended.

Nails shall be kept 12 mm from edges and ends of boards. Nail holes at butt joints shall be predrilled (80% nail diameter) to avoid splitting.

Nails shall be driven flush with surface (not punched).

At intermediate fixings nails shall either be offset or driven at slightly opposing angles.



## HANDRAILS AND BALUSTRADES

Decks more than one metre above ground require a handrail or balustrade. Refer to TDS 23 for Timber Handrails and Balustrades.

## FINISHING

All decks shall have a finish applied as protection against the weathering effects of sun and rain.

Note: Untreated timber exposed to the weather will fade to a silver-grey colour and could distort and develop splitting and surface checking.

One coat of a water repellent preservative or an oil based primer plus one coat of the selected finish shall be applied to the top surface of joists and to all surfaces of decking (including cut ends) prior to fixing. Additional coats shall be applied (to manufacturer's instructions) to the top surface of decking after construction.

The following finish types are available:

### Clear Finishes/Water Repellent Preservatives (WRP)

These are generally water repellent materials (waxes, resins, etc.) in a light organic solvent base. They often contain chemicals which inhibit decay. These finishes provide protection against moisture and are recommended as a priming coat for other coatings. The compatibility of WRP with other coatings should however be checked. Generally, two weeks is required between application of WRP and other finishes.

Clear finishes provide minimal protection against the UV effects from the sun. When used on their own they require reapplication at about six monthly intervals.

Note: Clear polyurethane finishes can breakdown under UV exposure and are not recommended for external use.

### Paints

Opaque paint finishes provide the best protection against weathering, however they obscure the natural colour and grain of the timber. Pale colours are recommended. Normal paints cannot withstand the wear from foot traffic, therefore only special decking paints should be used, strictly in accordance with manufacturer's recommendations.

Note: Oil-based primers are recommended for both oil-based and water-based paint finishes.

Recoating is necessary every five to seven years, depending upon exposure. Additional preparation (sanding, repriming etc.) is frequently necessary.

### Decking Oils/Decking Stains

Decking oils and stains are available which provide a relatively natural, semi-transparent, protective finish. Solvent (Oil) or water based stains are available often with mould inhibiting additives. Decking stains with light coloured pigments are recommended as they absorb less heat and only slightly change the natural colour of the timber.

Reapplication is generally necessary every two to five years depending upon the amount of pigment included, and the degree of exposure. Apart from cleaning, no additional surface preparation is generally required.

## MAINTENANCE

Frequent wetting of decks should be avoided (sweep or clean, don't hose). Adequate ventilation should be provided to allow rapid drying after rain or watering. Pot plants should be on trays and prevented from overflowing. Shrubs which permanently shade the deck and creepers on rails etc. should be avoided.

Reapplication of finishes will be required at regular intervals, depending on finish type and degree of exposure. Before recoating all decks shall be thoroughly cleaned and debris removed from between boards. For some finishes, decks may also require sanding. Recoating shall be carried out in accordance with the manufacturer's recommendations.

## SAFE WORKING

Working with timber produces dust particles. Protection of the eyes, nose and mouth when sanding, sawing and planing is highly recommended. Refer to tool manufacturers for safe working recommendations for particular items of equipment.

## DISPOSAL OF OFFCUTS AND WASTE

For any treated timber, do not burn offcuts or sawdust. Preservative treated offcuts and sawdust should be disposed of by approved local authority methods.

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## TECHNICAL DATA SHEET ISSUED BY TIMBER QUEENSLAND RESIDENTIAL TIMBER DECKS CLOSE TO OR ON THE GROUND

RECOMMENDED PRACTICE // FEBRUARY 2014



When designing and building timber decks where timber is less than 400 mm from or on the ground, considerations must be given to the following to ensure good long term performance:

- adequate ventilation • surface drainage • correct timber species selection
- access for future maintenance and termite control.

### TIMBER SELECTION

Where framing timbers are more than 150 mm above the ground timber should be termite resistant. Above Ground Durability Class 1 or better (with sawpood H3 treated) e.g. blackbutt, spotted gum, ironbark, cypress, forest red gum, Gympie messmate, or H3 or better preservative treated softwoods.

For lower decks or those on the ground, framing timber should be In-ground Durability Class 1 (sawpood treated to H5) or H5 preservative treated softwood.

Decking boards should be Above Ground Durability Class 1 (sawpood treated to H3), or H3 preservative treated softwood. Commonly available timber suitable for this purpose include - turpentine, spotted gum, ironbark, forest red gum, white mahogany, tallwood, blackbutt, cypress, merbau (kwila), balau and preservative treated pine. These timbers are termite resistant.

Note: CCA treated decking boards shall not be used in residential applications.

### TIMBER SIZES

For sizes of bearers, joists and allowable joist spacings refer to Tables 1 - 3. Other grades and sizes can be used in accordance with AS1684 - Residential Timber Framed Construction.

Note: Tongue and Groove flooring should not be used in weather exposed situations.

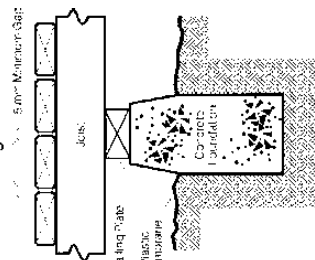
Where decks are built close to the ground, a considerable moisture gradient can occur through the thickness of decking boards which can result in cupping. For this reason it is recommended that the maximum width of standard thickness (19 - 22 mm) decking be limited to 100 mm (nominal). For other decking, the width should not exceed 4 times its thickness.

### BEFORE CONSTRUCTION

The ground beneath the deck should be graded away from adjacent buildings and the deck so that water does not pond. In some cases agricultural drainage pipes may be needed to ensure water is removed from under the deck.

It would also be good practice to lay down a plastic membrane under the deck, covered with gravel or sand to keep it in place. This will help keep soil moisture from affecting the timber, as well as preventing any vegetation growth.

Figure 1



### TERMITE MANAGEMENT

Only termite resistant timbers should be used for these decks. However, protection of the dwelling to which the deck adjoins must also be considered. This could be achieved by leaving an appropriate gap for inspection (refer figure 2). It may be necessary to provide a removable panel, to inspect physical management systems (e.g. metal caps) or to retreat where a chemical perimeter treatment to Australian Standard AS 3660.1 has been used on the dwelling.

### FINISHING BEFORE FIXING

For maximum serviceability and protection against weathering, timber decking should be properly finished and maintained. Before fixing, the following should be applied:

#### (i) For Oil Based Stain Finishes

- Give all faces and edges of decking and top edge of deck joists one coat of water repellent preservative such as:
  - \* 10% copper naphthenate in a light organic solvent.
  - \* 20% zinc naphthenate in a light organic solvent and,

- The first coat of stain should be applied all round to decking and to top edge of deck joists before laying.

Note: Some stains may not be compatible with water repellent preservatives. Seek stair manufacturer's advice before applying finish.

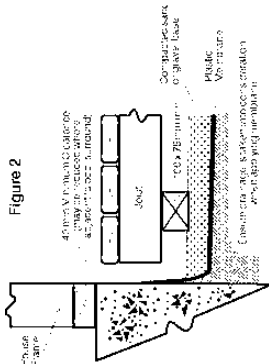
#### (ii) For Acrylic Stains and Paint Finishes

All faces and edges of decking and top edge of deck joists should be primed with a good quality wood primer, followed by one coat of the selected decking paint (as per the manufacturer's specifications). Note: Pale colours are best, dark colours can accelerate degrade and decay.

#### (iii) End Sealing

All cut ends should be sealed with preservative, stain or primer, depending on the final coating, prior to being fixed in position.

Figure 2



### CONSTRUCTION

A number of methods are suitable depending on the design. For very low decks, "bearer less construction" could be used, i.e. joists are supported on a nailing plate on concrete beam walls (refer Figure 1). This method is acceptable as long as the concrete does not inhibit drainage. Likewise, timber bearers could be laid directly on a well drained gravel/sand or concrete base as long as they are of minimum in-ground Durability Class 1 or H5 treated softwood, and again do not inhibit the drainage of water. A panelised decking system could be used to allow for easy maintenance and inspection. Due to the proximity to the ground, ventilation is very important. For this reason, the perimeter of the deck should be kept open.

For decking, a minimum spacing between boards of 5 mm is recommended.

### FIXINGS

Albolts, screws, nails, brackets, framing anchors and other hardware should be hot dipped galvanized or stainless steel. Electroplated fasteners are not suitable due to early breakdown of the plating.

For recommended minimum nail size for fixing the decking refer to Table 1. Each board (over 68 mm wide) should be fixed at every joist crossing with two nails. Nails should be located at least 12 mm from board edges. The ends of boards should be predrilled prior to nailing to avoid splitting. Adjacent nails should be driven at slightly opposing angles. When bullet head nails are used with hardwood or cypress decking, they should be driven flush with the surface. Do not punch and fill.

Special Note:  
Fixings within 1 metre of pool surround should be stainless steel or monel metal.

### FINISHING AFTER INSTALLATION

Timber serviceability is enhanced by the application of a suitable finish, whether the surface be sawn or dressed. The finish may take the form of a clear external decking finish, a pigmented oil based stain, or a good quality paint system. The use of the finish should be in accordance with the finish manufacturer's recommendations. The retention of the timber's original colour cannot be guaranteed with the use of a clear finish.

### MAINTENANCE

The long term performance of timber decking in weather exposed situations is dependent on regular and effective maintenance. The frequency of maintenance will depend on the type of finish and the degree of exposure to the weather.

Before recoating, the decking should be thoroughly cleaned and the gaps between boards, particularly over joists, cleared of debris. Recoating should be carried out in accordance with the finish manufacturer's specifications.

The over-watering of pot plants standing on timber decks should be avoided. It is recommended that pots be placed in drip trays standing on small cleats. Where possible decks should be broom/blower cleaned rather than cleaned by hosing.

TABLE 1 - DECKING

Species	Min. Grade	Thickness (mm)	Max. Joist Spacing (mm)	Nailing Requirements (see Note #)
Hardwood	Standard Grade (AS2796)	19	500	50 x 2.8 Galv Bullet Head
	F17 (AS2382)	25	650	65 x 2.8 Galv Bullet Head
Cypress*	Standard Grade (AS1810)	32	800	65 x 2.8 Galv Bullet Head
	F5 (AS2858)	21	450	50 x 2.8 Galv Flat Head
Treated Pine (H3)	Standard Grade (AS1782)	34	700	65 x 2.8 Galv Bullet Head
	F7 (AS2858)	22	450	50 x 2.8 Galv Flat Head
Treated Pine (H3)	Standard Grade (AS1782)	35	750	65 x 3.15 Galv Flat Head or 75 mm Batten Screw
	F7 (AS2858)	45	950	75 x 3.15 Galv Flat Head or 75 mm Batten Screw

Notes:  
\* Cypress containing sawpood should not be used closer than 250 mm from ground. Refer recommendations in AS 1810.

# Where joists are treated softwood, nails shall be deformed ring, shank or alternatively screws.

Recent comparative laboratory withdrawal tests carried out by Timber Queensland on a wide range of commercially available machine driven nails indicated a large variation in machine nail withdrawal resistance. Installers of decking should ensure that machine nails used have equal or better withdrawal resistance than the hand nails given above. Installers should obtain comparative withdrawal information from nail suppliers or conduct comparative trials (pinch bar) on test material before using a particular machine nail.



# TDS 13 - Timber Decks Close to the Ground



TABLE 2 - BEARERS

Species	Stress Grade	Spacing of Bearers to (m)	Size of Bearers (mm) for spans of		
			1.2 m	1.5 m	1.8 m
Cypress*	F5	1.8	100 x 75	125 x 75	125 x 75
Treated Pine (H5)	F7	1.8	90 x 70	120 x 70	120 x 70
Hardwood	F14	1.8	75 x 75	125 x 75	125 x 75

Note: Bearers lying directly on ground: 75 x 100 (on flat), in-ground durability class 1 on F5 treated softwood.  
\* Limit Spavwood

TABLE 3 - JOISTS

Species	Stress Grade	Spacing of Joists to (mm)	Size of Joists (mm) for spans of		
			1.2 m	1.5 m	1.8 m
Cypress*	F5	450	100 x 50	100 x 50	125 x 50
Treated Pine (H5)	F7	450	90 x 45	120 x 45	120 x 45
Hardwood	F14	450	75 x 50	100 x 50	100 x 50

\* Limit Spavwood

#### SAFE WORKING

Working with timber produces dust particles. Protection of the eyes, nose and mouth when sanding, sawing and planing is highly recommended. Refer to tool manufacturers for safe working recommendations for particular items of equipment.

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