

Close to ground timber decks

New design and construction guidance





Scope of guidance

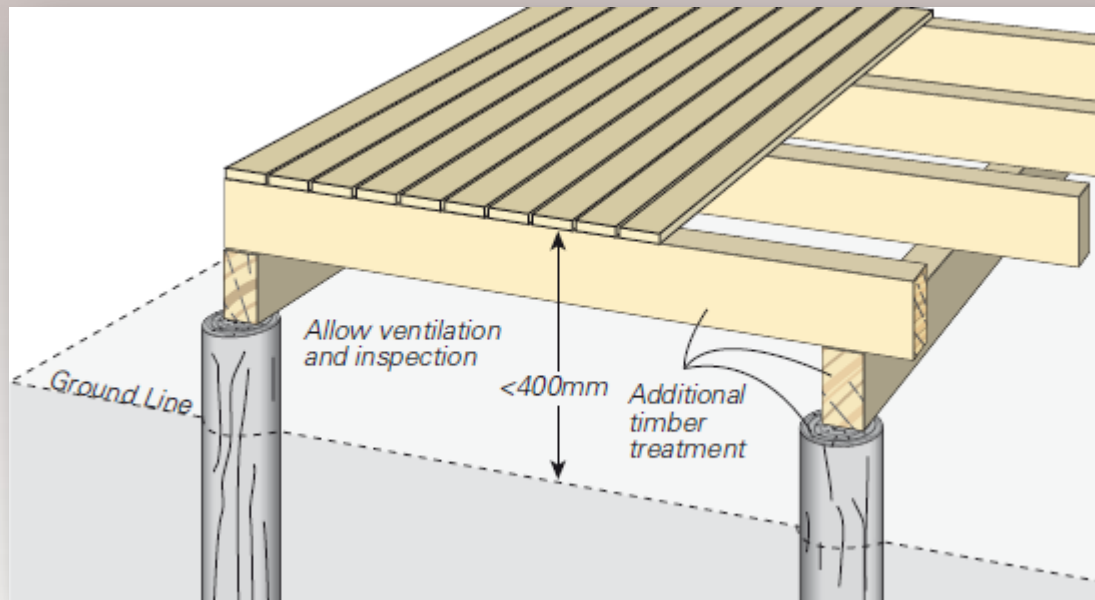
- Light domestic decks:
 - Class 1 (houses, villas)
 - Class 10 (swimming pools, garages, sheds).
- Consult a structural engineer for:
 - commercial, industrial, marine
 - support tiles, spas, vehicles / horses.





Key considerations

1. Increased ventilation
2. Excellent subsurface drainage
3. Access for termite inspection / maintenance
4. Increased timber durability / preservative treatment.
5. Width and gap of decking board
6. Pre-finishing framing and decking boards.



Increased ventilation



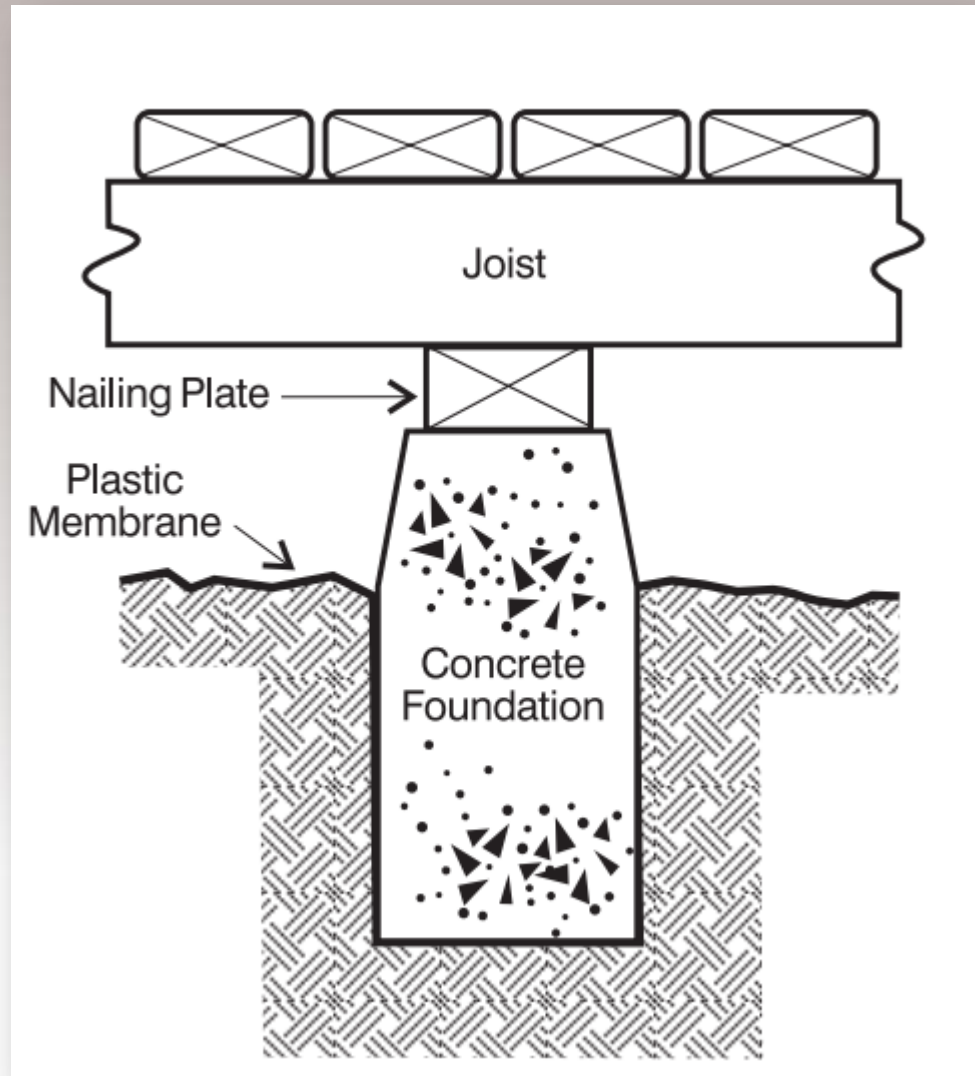
Examples



Location: Reid ACT
Timber: Spotted gum
Builder: 4 You Projects

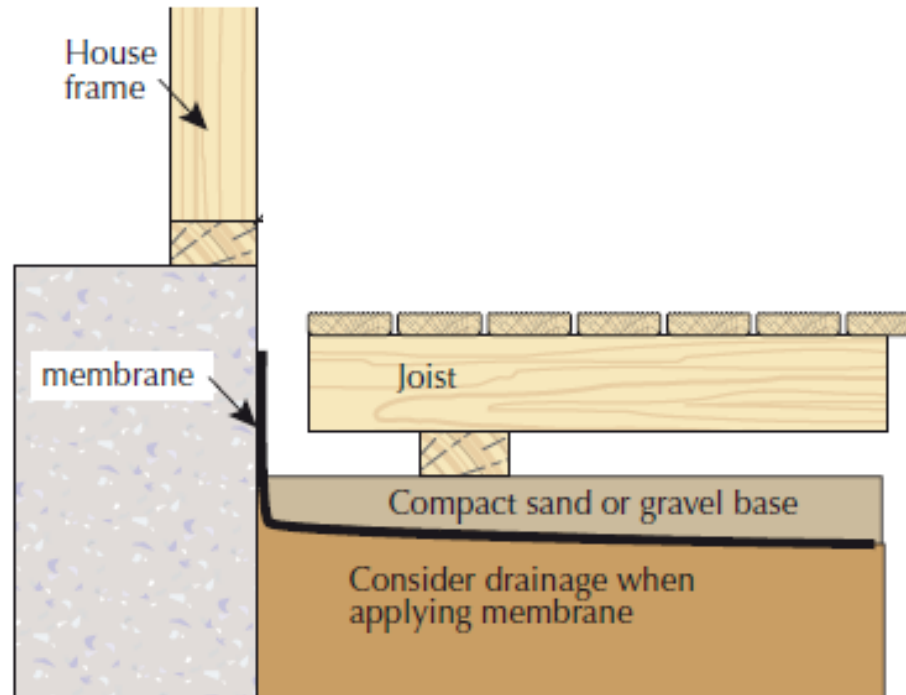
Excellent drainage: Method 1

- Concrete footings should not inhibit drainage.



Excellent drainage: Method 2

Figure 16: Bearer directly on to ground





Location: Crows Nest NSW
Timber: Blackbutt
Producer: Boral Timber

Sub space height: ~300mm
Drainage: Blue metal and ag pipe drainage
Additional ventilation: Solar powered fan

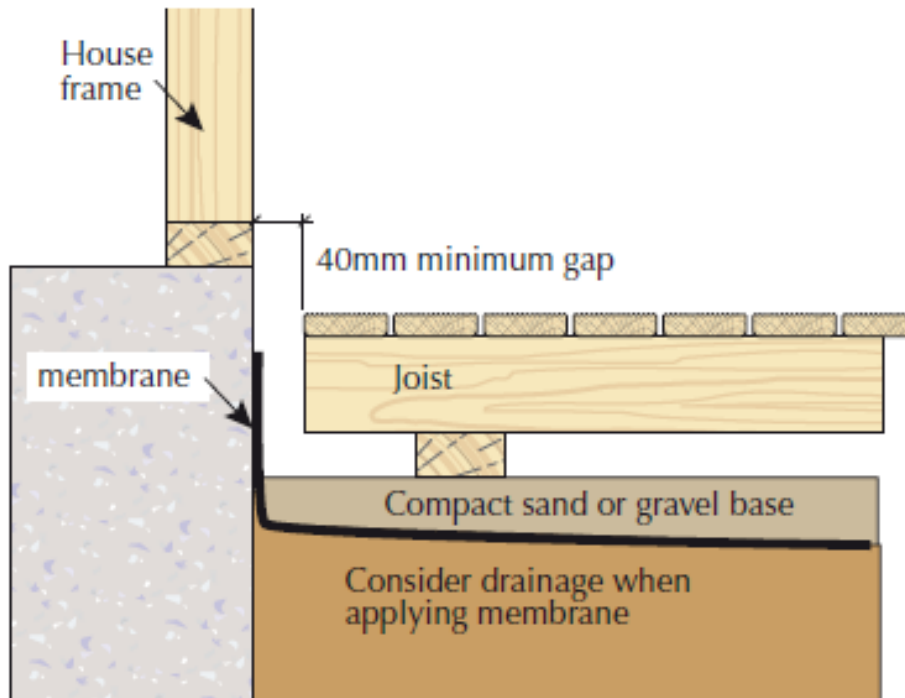
Beards would have
been better
orientated parallel
to house

Access for termite
inspection needed

Gap needed
between grass
and deck

Access for termite inspection

Figure 16: Bearer directly on to ground





Access for termite
inspection needed

Ventilation OK

Good ventilation space – now a termite larder



Good ventilation but nullified by timber storage (which will attract termites)

Timber selection: >150mm off ground

Framing

- Termite resistant and above ground durability Class 1 or 2
- Softwood treated to H3, H4 or H5.
- Note: If considering using treated LVL - need to talk to the manufacturer of each product as they do vary in their response for exterior use. All require it to be covered in an external application, never directly exposed to weather.

Decking boards

- Above ground durability Class 1 or 2 (sapwood H3 treated)
- Softwood treated to H3 or better.
- Note: no CCA treated timber.

Timber selection: <150mm off ground or on the ground

Framing





- Termite resistant and in ground durability Class 1 (i.e. ironbark, tallowwood)
- Softwood treated to H4 or H5.
- Note: If considering using treated LVL - need to talk to the manufacturer of each product as they do vary in their response for exterior use. All require it to be covered in an external application, never directly exposed to weather.

Decking boards





- Above ground durability Class 1 or 2 (sapwood H3 treated)
- Softwood treated to H3 or better
- Note: no CCA treated timber.








Timber species

| Image | Species | Common Sizes | In-ground Durability Rating | Above Ground Durability Rating | Termite Resistant | Bushfire Resistance |
|---|---------------|--------------------------------|-----------------------------|--------------------------------|-------------------|--|
|  | Blackbutt | 64 × 19 86 × 19 | 2 | 1 | Yes | Bushfire Resisting Timber |
|  | Red Ironbark | 64 × 19 86 × 19 | 1 | 1 | Yes | Bushfire Resisting Timber |
|  | Grey Ironbark | 64 × 19 86 × 19 | 1 | 1 | Yes | Density greater than 750 kg/m ³ |
|  | Spotted Gum | 64 × 19 86 × 19 136 × 32 | 2 | 1 | Yes | Bushfire Resisting Timber |

Timber species

| Image | Species | Common Sizes | In-ground Durability Rating | Above Ground Durability Rating | Termite Resistant | Bushfire Resistance |
|---|--------------|--------------------------------|-----------------------------|--------------------------------|-------------------|--|
|  | Jarrah | 65 × 19 88 × 19 | 2 | 2 | Yes | Density greater than 750 kg/m ³ |
|  | Tallowwood | 64 × 19 86 × 19 | 1 | 1 | Yes | Density greater than 750 kg/m ³ |
|  | Turpentine | 64 × 19 86 × 19 | 2 | 1 | Yes | Bushfire Resisting Timber |
|  | Treated Pine | 70 × 19 90 × 19 120 × 25 | H3 | H3 | Yes | No |

| Image | Species | Common Sizes | In-ground Durability Rating | Above Ground Durability Rating | Termite Resistant | Bushfire Resistance |
|---|----------------------|--------------------------------|-----------------------------|--------------------------------|-------------------|--|
|  | Merbau / Kwila | 70 × 19 90 × 19 140 × 25 | 3 | 1 | Yes | Bushfire Resisting Timber |
|  | Northern Box/Peliwan | 90 × 19 140 × 25 | | 1 | Yes | Density greater than 750 kg/m ³ |
|  | Red Mahogany | | 2 | 1 | Yes | Density greater than 750 kg/m ³ |
|  | River Red Gum | | 2 | 1 | Yes | Bushfire Resisting Timber |
|  | Cypress | | 2 | 1 | Yes | No |

Species - Above ground natural durability

Class 1

Blackbutt, red ironbark, grey ironbark, spotted gum, tallowwood, turpentine, merbau / kwila, northern box, red mahogany, cypress, balau, forest red gum, river red gum.

Class 2

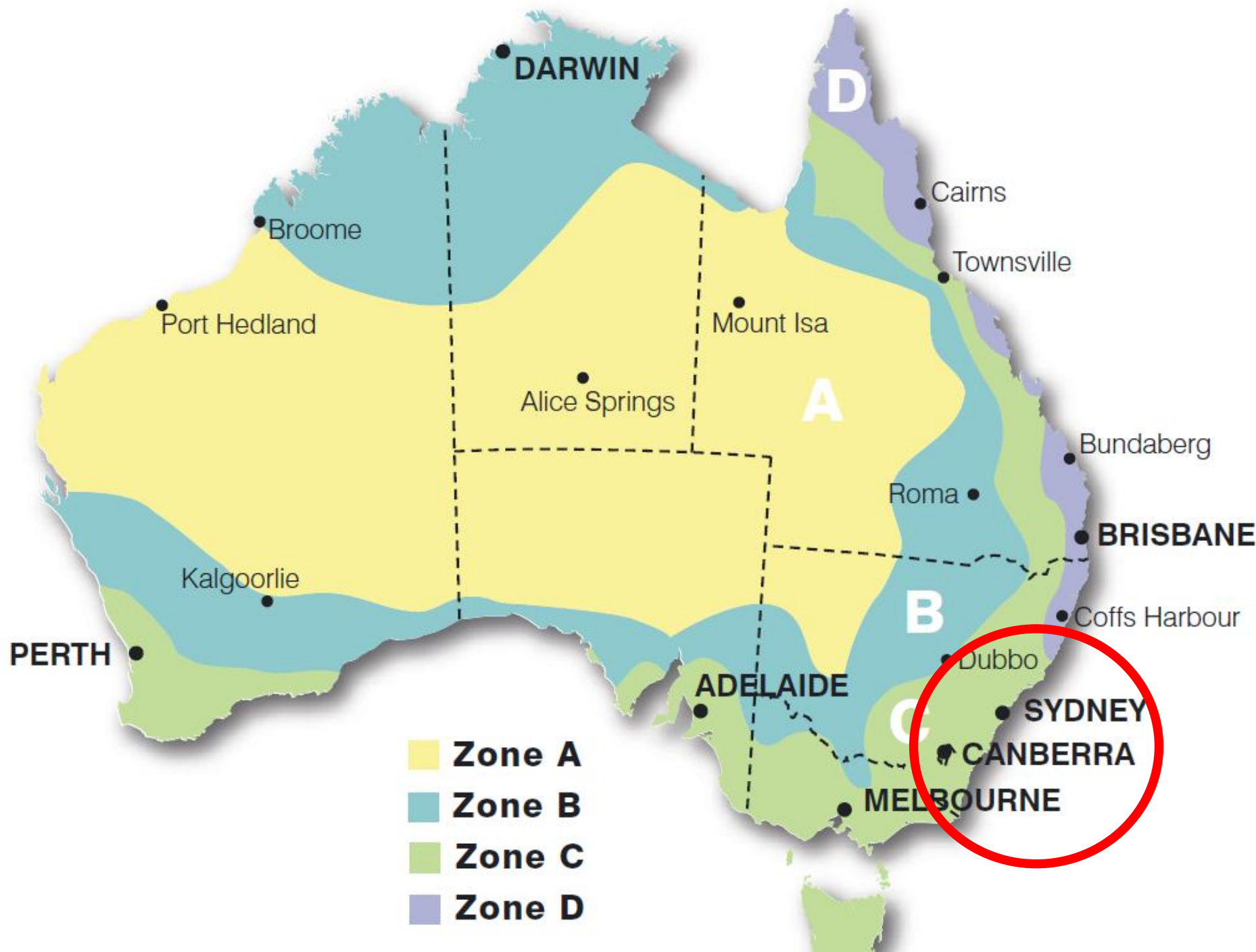
Sydney blue gum, yellow stringybark, jarrah, karri, “forest reds”, “river reds”

Class 3

Brush box

Class 4

Sapwood of any species (must be H3 treated for decking)



Domestic decks: Typical service lives

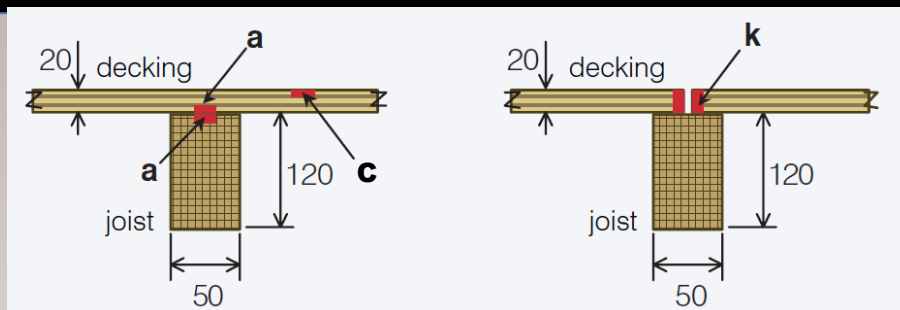


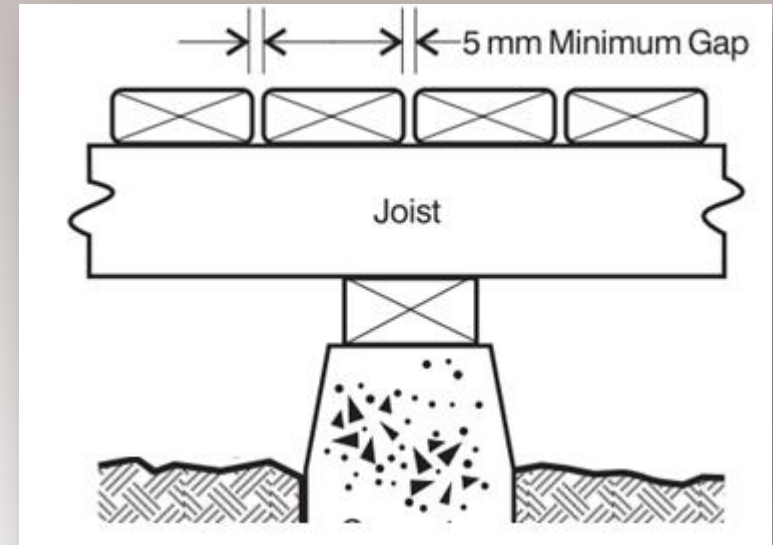
Table 5.5: Typical service life for replacement of timber in decking. (See Fig. 5.3 for location in the assembly.)

| Climate zone | Timber type | Above-ground durability class ⁽¹⁾ | Treatment ⁽²⁾ | Typical service life (years) | | |
|--------------|---------------------|--|--------------------------|------------------------------|------|----|
| | | | | a | c | k |
| C | Treated sapwood | all | H3 | 90 | >100 | 90 |
| | Untreated heartwood | 1 | — | 45 | 60 | 45 |
| | | 2 | — | 35 | 50 | 35 |
| | | 3 | — | 20 | 25 | 20 |
| | | 4 | — | 10 | 15 | 10 |
| | Untreated sapwood | all | — | 4 | 5 | 4 |

Timber decking boards: Width & gap

Decking boards

- Use minimum width board
- Minimum spacing 5mm (long term).



Finishing 1

- Preferably apply before finishing!
- Protective finish to all surfaces (including fresh cuts) of framing and each board
- Slows rate at which timber takes up / loses moisture
- Reduces movement.

Finishing 2

- Some species need a finish. E.g.

| Service exposure | Maintained Water Resistant Coating | | |
|---|------------------------------------|------------|--|
| | Essential | Preferable | Optional |
| Full sun & rain | Jarrah | Blackbutt | Ironbark Spotted Gum Tallowwood |
| Semi-protected eg. open covered verandah | Karri Brushbox | Jarrah | Blackbutt Ironbark Spotted Gum |
| Mainly protected eg occasional storm rain Mostly shaded | Bluegum Brushbox | Karri | Ironbark Spotted Gum Tallowwood Blackbutt Jarrah |

Source: Australian Architectural Hardwood

Examples



Architect: Iredale Pedersen Hook Architects

Project: Sheep House

Location: Daylesford VIC

ATDA 2008: Winner - Sustainability



Location: Nunawading VIC

Architect: Maxa Design

Photographer: Chris Neylon

Timber: Deck – Merbau, Cladding – Shadowclad,

Privacy screens – Reclaimed Hardwood

ATDA 2013: Winner – Small Budget Project



Thank you

Questions?

