

# LifePlus® Decking Specification

This specification should be read in conjunction with the more detailed information provided in the *LifePlus® Decking Specification Explanatory Notes (Draft)*, the *LifePlus® Decking Guide*, *LifePlus® Essentials* and *LifePlus® Installation Notes* which are available on the *LifePlus® Decking* website at [www.lifeplus.net.au](http://www.lifeplus.net.au)

➤ The decking project shall comply in all respects with the Building Code of Australia (BCA). In addition the following good practices shall be implemented.

## ➤ Structural timber

### **Structural timber in hardwood shall be:**

- **Minimum F14 stress grade** with F17 preferred for weather exposed conditions [1].

- **Durability Class 1 hardwoods to AS 5604 – 2003**, for each of the in-service conditions - above ground and in-ground [2] with sapwood treated to the appropriate hazard level.

- **If unseasoned, only low shrinkage timbers ie in the order of 6% to 8% tangential shrinkage [3].**

**Suitable hardwoods for structural timber include:** (footnotes provide additional essential information)

**For above ground<sup>1</sup>:** Spotted Gum and Blackbutt<sup>2</sup>

**For above & in-ground<sup>3</sup>:** Iron Bark, Forest Red Gum<sup>4</sup>, Grey Gum<sup>5</sup>, Grey Box (Gum-topped Box), White Mahogany, Tallowood and Gympie Messmate.

These are "standard trade names"<sup>6</sup>. Species with similar or local names shall not be substituted for those listed above without reference to the designer and confirmation by the builder of suitability of timber properties for the application.

**Note on lower hardwood stress grades:** In some areas, hardwood structural timber may only be readily available in lower stress grades and lower durability. Structural timber in F11 stress grade may be suitable, provided that it is: minimum durability class 2 (*outside above ground classification*); of low shrinkage or seasoned; well ventilated; not used in conditions of consistent high humidity and used in combination with other good building practices, particularly the sealing of cut ends and sealing of the tops of joists with a waterproof membrane to shed water away from the joist. For structural timber of durability class 2, these requirements would be necessary to satisfy the performance requirements of the BCA.

**Structural timber in softwood, shall be seasoned minimum F7 stress grade, preservative treated to H3 for above ground use or H5 for in-ground contact.**

Softwood structural timber shall be well ventilated; not used in conditions of consistent high humidity and used in combination with other good building practices, particularly the sealing of cut ends and sealing of the tops of joists with a waterproof membrane to shed water away from the joist.

### **Maximum joist spacing is 450mm centres.**

**Joist width shall be 50mm unseasoned hardwood, 42mm seasoned hardwood or 45mm seasoned softwood [7].**

➤ The area which will be under a completed deck shall be adequately graded, drained and ventilated so that the area is dry in normal conditions and dries quickly after wet weather without water pooling [10].

➤ **Decking timber is to be LifePlus® Decking** [11] in natural or classic finish as specified.

If using decking with standard moisture, in areas of low or high humidity, make suitable allowance for the corresponding shrinkage or expansion which will occur. Decking to be installed in areas of consistent extreme low or high humidity shall be ordered with an appropriate moisture content, or standard decking acclimatised to the local EMC by strip-stacking before installation [12].

➤ **LifePlus® Decking** shall be protected from damage from both moisture and excessive heat, and packed up off dry ground to allow a free airflow, while stored on site prior to installation.

➤ All bolts, screws, nails, brackets, framing anchors and other hardware shall be hot-dipped galvanized or stainless steel (depending on severity of conditions) [13]. In corrosive environments such as in coastal areas or around pools, all fixings, including connector nails, shall be stainless steel.

➤ Timber posts shall be installed on commercial quality brackets cast into engineered concrete footings or, if necessary, extended into the footings.

Timber posts extending into the footings shall be sealed below ground with CN Emulsion and set into "no-fines" concrete with a layer of "no-fines" concrete at the base, to allow water to drain, in accordance with the engineering design but a minimum of 100mm [14]. The top of the no-fines concrete shall be sealed with mortar and sloped away from the post to shed water.

➤ Seal all cut ends, checked joints and timber-to-timber interfaces in structural timber or detailed timberwork to reduce the absorption of trapped moisture, which may lead to accelerated deterioration of the timber [15].

➤ Before fixing the decking, seal the top edge of each joist [16] with either CN emulsion (may show on exposed surface over time), a primer plus finish coat or, as we strongly recommend, a waterproof membrane (such as Malthoid, a bituminous dampcourse), for a more effective seal which will also reduce water entry around the fixing and shed water from the joist.

➤ We recommend timber, rather than threaded rod, for bracing of columns, as timber braces provide a more rigid bracing effect and will not "sing" in windy conditions.

➤ We recommend using penetrating oil or stain finishes to protect decking from weathering. Apply one coat of the intended finish, as a sealer, to all surfaces, before laying.

<sup>1</sup> These species are classified in AS 5604 - 2003 as durability 1 outside above ground and durability 2 in ground contact.

<sup>2</sup> **Blackbutt** (*Eucalyptus Pilularis*) is not to be confused, or substituted, with New England Blackbutt (*Eucalyptus Andrewsii*). Blackbutt is best used under cover.

<sup>3</sup> These species are classified in AS 5604 - 2003 as durability 1 outside above ground and durability 1 in ground contact.

<sup>4</sup> **Forest Red Gum** (*Eucalyptus tereticornis*) – sometimes referred to in Queensland as "Blue Gum" - is a high durability & low shrinkage timber suitable for external use & is not to be confused, or substituted, with "Sydney Blue Gum" (*Eucalyptus saligna*), a low durability & high shrinkage timber *unsuitable* for weather exposed use

<sup>5</sup> **Grey Gum** (*Eucalyptus Propinqua*) is a high durability & low shrinkage timber suitable for external use & is not to be confused, or substituted, with "Mountain Grey Gum" (*Eucalyptus Cypellocarpa*), a low durability & high shrinkage timber *unsuitable* for external use.

<sup>6</sup> Standard Trade Names from Technical Pamphlet 1 – Building Timbers – Properties and Recommendation for their use in Queensland – published by Queensland Forest Service

If using a stain finish, be careful not to overload the surface and to brush out any excess stain.

**Apply the finish, or alternative sealer, liberally to the end grain of cut ends before laying the decking.** An exterior polyurethane will provide a more effective and longer lasting end grain seal – applied carefully so as not to coat the faces of the board.

Clear film building decking finishes may require a period of seasoning or surface preparation before applying the finish. Refer to the manufacturer's recommendations to determine if pre-treatment is suggested before laying.

Raw linseed oil, or mixtures containing raw linseed oil, shall not be used as a natural finish unless contained in a commercial product containing mould inhibitors [19].

➤ Lay the decking boards, *using spacer blocks* (not nails) to create a 3 to 5 mm gap between adjacent boards to allow for swelling and shrinking in response to changes in atmospheric moisture content, water runoff and cleaning [20].

➤ Butt joints shall be staggered so that they do not occur on adjacent boards.

**Butt ends should be cut with a slight backward undercut to assist in achieving a tight fit and to reduce water absorption into the end grain [22].**

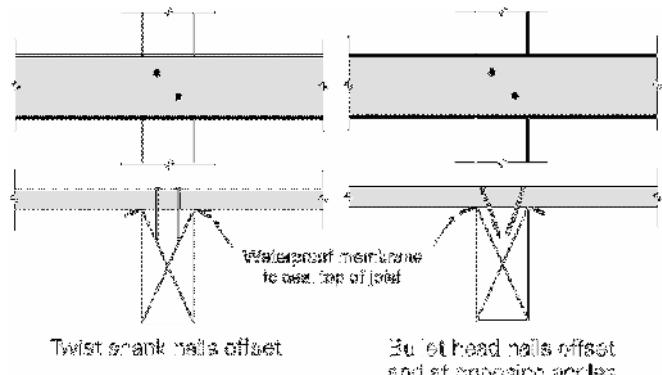
➤ In weather exposed domestic applications subject to light foot traffic [23], *LifePlus® Decking* shall be hand nailed or screwed with two fixings per board at each joist. Nails shall be domed head (DH), twist shank (TS) type in stainless steel (SS) (preferred) or hot-dipped galvanised (HDG) depending on severity of exposure conditions [24].

**For hardwood joists, use 50x2.8mm DHTS nails (as above)**

**For softwood joists, use 65x3.15mm DHTS nails (as above)**

Alternatively, use 50x10G LifePlus Decking Screws for improved hold down and corrosion and working out resistance.

**Fixings shall be placed in a formal staggered alignment.** Fix nails with 10 to 12mm stagger, minimum 12mm edge clearance. Fix screws as per recommendations. Fixings placed in a straight line are likely to split the joist. [24].



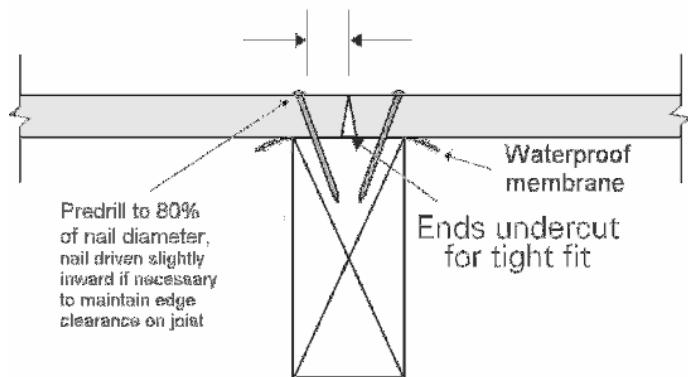
**T-Nails (50x2.2 Finishing Nails or 50x2.5 Flooring Nails), plain steel or zinc plated nails shall not be used to fix decking or in any external application [25].**

**Decking should be drilled with a small pilot hole to avoid splitting.**

Any pilot hole required in joists should be of minimum size and depth, to provide maximum hold-down force while allowing the fixing to be driven without bending the nail, damaging the nail head or shearing off the screw [26].

**Where decking boards terminate or are joined at a joist, domed head nails should be 12mm from the end of each board, with the board predrilled to 80% of the domed head nail diameter to avoid splitting.**

**Domed head nails to be 12mm from ends**



**Nails shall be driven only so that the head pulls the board down tight onto the joist. Nails shall not be punched into or below the decking surface [27].**

➤ Once the decking has been laid, apply another liberal coat of the chosen oil or stain finish to the exposed surface [28&29]. Refer to the manufacturers recommendations as to the application of a third coat.

**Clear film building decking finishes, properly prepared, applied and maintained, as a system, can give good service over a long life although are likely to be more slippery in both dry conditions and exposed conditions when the surface is wet.**

Clear film building finishes should only be used where slipping is not an issue. Applying film building finishes without attention to the whole system may result in unsatisfactory performance and reduced life.

Understand and put into practice the preparation, application and maintenance instructions provided by the manufacturer. Refer any queries to your supplier or manufacturer.

**Decking shall not be coated with any finish which leaves a slippery gloss coating on the surface.**

➤ The decking finish shall be re-applied at regular intervals and while the timber retains some water repellency [30].

In "average" conditions, protection should be expected for 9 to 12 months from oils and 12 to 18 months from stains. In severe conditions, such as around pools, recoating is likely to be necessary at shorter intervals.

Some raising of the timber grain may be experienced on the exposed face from weather exposure. Remove any raised grain by moderate hand or machine sand in affected areas.

➤ Ensure safe working practices and compliance with all Workplace Health and Safety requirements[31].

Additional and more detailed information can be found on the *LifePlus® Decking* web site at [www.lifeplus.net.au](http://www.lifeplus.net.au).

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*LifePlus® Decking* has been developed in Australia by Timber Innovations Pty Ltd, ACN 106 304 689. Australian Innovation Patent No 2003100493, Australian Patent Application No 2003204845. Australian Design Registration No 155986.

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