

# Guide to Installing Timber Strip Flooring

Solid timber strip flooring is the ideal selection to produce a beautiful and long lasting floor for all types of projects. However, correct specification, handling, installation and finishing is essential if the true potential of the timber floor is to be realized.

## Moisture & Board selection

### *Use quality boards & products.*

Product requirements & grade descriptions for strip flooring are set out in AS 2796.

### *Timber is a natural product. It varies with changes in moisture.*

As timber absorbs moisture to remain in equilibrium with its surrounding atmosphere, it expands. As it loses moisture, it shrinks. Strip flooring will always move slightly between boards as its surrounding environment changes. So, to produce a successful timber floor, the timber needs to be installed at the correct moisture content, changes in the ambient conditions controlled & any movement accommodated.

### *Large windows, heaters, and other heat sources will influence the floor.*

Any heat source will change the ambient moisture conditions & can cause localised movement of timber. This needs to be recognised & accommodated by laying the boards to minimise the impact of gaps from the major direction of view. In elevated houses, the underside of boards may need to be sealed or protected.

### *Board width: Only secret nail boards up to 85 mm cover.*

Secret nailed flooring is fixed through the tongue of specially profiled boards. As the boards are only secured with one fastener per joist, their width is limited to 85 mm cover. Any wider board must be top nailed & secured with two fasteners per joist.

## Storage & Preparation

### *Protect the timber from moisture during all stages of construction.*

Avoid exposing the timber to rain, dew or direct sunlight. Keep it away from the ground or newly laid concrete. Repair damage to pack covers immediately. Ideally, the flooring should be stored inside where it is to be laid, or in a similar environment.

### *Only install the floor in a fully weatherproofed building.*

The roof cladding should be on, the windows & external doors installed, the exterior cladding finished and wet trades complete. The storm water system must be complete or effectively directed away from the sub-floor.

*Platform construction is never appropriate for feature floors.*

### *Provide under floor ventilation to the requirements of the Building Code of Australia.*

Where conditions are damp & the potential for additional sub-soil drainage limited, install a continuous impervious plastic membrane over the ground.

### *Floor framing should be solid, level and true.*

Place a 3 m. straight edge on & across the top of joists. Plane proud joists & pack low ones.

### *Allow the timber to acclimatize to long term service conditions.*

Typically, timber supplied to AS 2796 should have a moisture content suitable for normal conditions in most locations. In air-conditioned buildings, ambient conditions are generally drier than normal conditions. In such cases, fully acclimatize the boards to these conditions or have them dried to the appropriate moisture content before delivery.

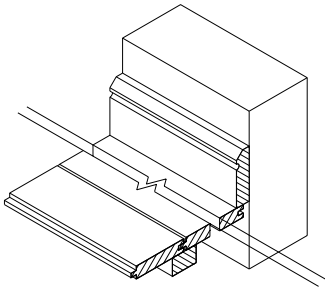
### *Concrete slabs and other substrates must be dry.*

Before installing timber flooring over concrete, supporting slabs should be dry, with a moisture content no more than 5.5%. Sealing the slab with a waterproofing compound or membrane may also be necessary. Slab surfaces should be flat, level & sound. The variation from a 3 m. straight edge should not exceed 5 mm.

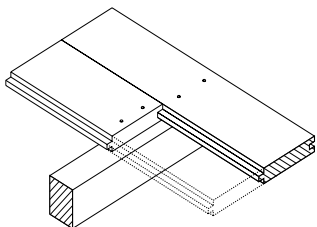
## Installation

### *Leave expansion gaps at the perimeter of floors, and in floors over 6m wide.*

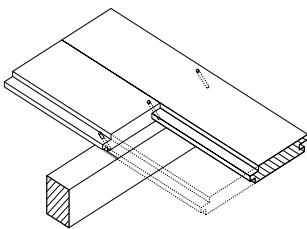
Ensure there is a min. 10mm gap between the edge of boards & any vertical barrier such as walls or steps. Floors over 6m wide also need intermediate expansion gaps. These can be located in door thresholds, in line with elements such as stairs or spaced evenly throughout the floor.



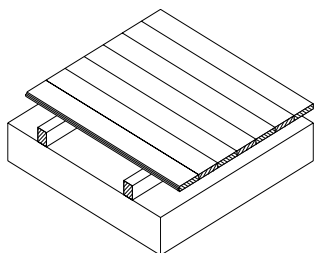
10 mm min. gaps at each wall



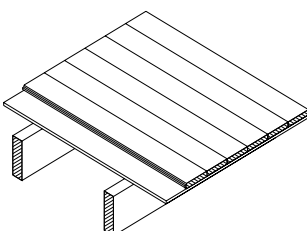
2 nails a joist over 85 mm cover



Secret nail to 85 mm cover only



Concrete slabs must be dry, and sound



Sheet substrates must be dry

### **Lay boards in straight & parallel lines.**

Boards should be at least two joist spacings long. Ensure all end joints are tightly closed & distributed evenly throughout the floor. Maintain min. 450 mm between butt joints in adjacent rows. Ensure joints in adjacent rows of end matched boards do not fall in the same joist spacing.

### **Cramp boards.**

For top nailed boards, cramp no more than 900mm width of flooring at a time, closing any gaps. There should be full contact between the boards & the floor frame or substrate. For secret nailing, cramp each board tight or use specialist fastening guns.

## **Fixing**

### **Use the correct number and length of fasteners**

AS 1684 establishes min. fastener dimensions for fixing flooring, set out below\*.

| <b>Nail sizes for T &amp; G flooring to joists</b> |                        |                           |
|----------------------------------------------------|------------------------|---------------------------|
| Nailing                                            | Softwood joists        | Hardwood & cypress joists |
| Hand driven                                        | 65 - 2.8mm bullet head | 50 - 2.8 mm bullet head   |
| Machine driven                                     | 65 - 2.5mm             | 50 - 2.5mm                |

| <b>Nail sizes for T &amp; G flooring to plywood underlay</b> |                                                                           |
|--------------------------------------------------------------|---------------------------------------------------------------------------|
| Strip flooring thickness (mm)                                | Rec. nailing (min. 15mm sub-floor)                                        |
| 19 or 20                                                     | 38 x 16 gauge chisel point staples or 38 x 2.2 mm nails at 300 mm spacing |
| 12, 19 or 20                                                 | 32 x 16 gauge chisel point staples or 30 x 2.2 mm nails at 200 mm spacing |

\* Alternative fasteners can be used for batten, joist & substrate types not listed subject to manufacturers' recommendation.

Keep the nail lines straight & punch them a minimum of 3mm below the surface of the boards. With gun nails, hand punch the nails to firmly seat the boards on the substrate. Depending on the species, end nailing at the butt joint can cause board splitting. If this occurs, pre-drill the nail holes to 80% of the nail diameter.

## **Finishing**

### **Protect the boards prior to sanding and finishing**

Plasterboard setting compounds can stain timber & silicone sealants can affect the bond of the finish. Scaffolding, ladders, & dropped tools can dent timber significantly.

### **Prepare the floor thoroughly.**

The quality of the finished timber floor depends heavily on the quality of the surface preparation. Ensure that all nails are punched adequately. The punched nail holes can then be filled with a filler compatible with the finish to be applied.

### **Employ professional sanding and finishing contractors.**

The floor needs to be sanded to a flat & level surface. Deep scratch marks should not be present or accepted. Equally, do not expect a "furniture quality" finish on site.

### **Select the coating system to suit the project.**

**Moisture curing polyurethanes** produce a clear, very hardwearing surface in a matt, satin or high gloss finish. However, they darken with age & can glue the tongue of one board into the groove of the next if applied inappropriately.

**Water-based polyurethanes** also produce a clear, hard-wearing surface. While more expensive, they are becoming more popular because they produce less fumes during application & curing & are trafficable earlier.

**Modified oil coatings** are clear varnishes, generally made from a mixture of resin & oil. Easy to apply & penetrating, these give a slightly softer look than polyurethanes but are less hard-wearing & darken with age. A surface polish is recommended to reduce maintenance.

**Oils:** Oils are penetrating finishes that are generally less hard-wearing than the modified oils or polyurethanes. They give a soft, natural appearance & require regular maintenance.

### **Follow the finish manufacturer's instructions explicitly.**

Many problems with timber floors are due to the inappropriate application of the finish. Do not thin the finish unnecessarily & only apply it to a stable & well laid floor.

Supplier Details -

For detailed information consult the publication  
"Timber Strip Floors – Fixing and Finishing"  
available at [www.timber.org.au](http://www.timber.org.au)

Prepared by:

FOREST  
&  
WOOD  
PRODUCTS

Research & Development Corporation

**NATIONAL TIMBER  
DEVELOPMENT COUNCIL**