

Solid timber strip flooring is ideal for a beautiful and long lasting floor. Correct specification, handling, installation and finishing is essential if the true potential of the timber floor is to be realized.

## MOISTURE CONTENT AND BOARD SELECTION

Use quality boards and products.

Product requirements & grade descriptions for strip flooring are set out in AS 2796. Boards fixed directly to joists need to be a min. of 19 mm thick to span 450 mm.

Timber is a natural product. Its size varies with changes in moisture.

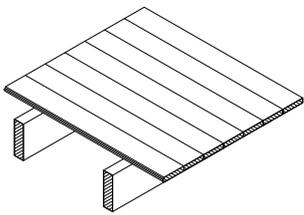
As timber absorbs moisture to remain in equilibrium with its surrounding atmosphere, it expands. As it loses moisture, it shrinks. Strip flooring will always move slightly between boards as the ambient conditions of the surrounding environment change. So, to produce a successful timber floor, the timber 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.

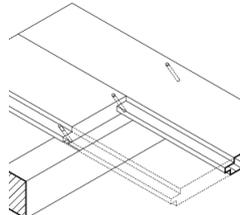
Any heat source will change the ambient conditions & can cause localised movement of timber. This needs to be recognised & accommodated. Lay boards to minimise the impact of gaps from the major direction of view or acclimatise the timber to the expected long term service conditions. In elevated houses, the underside of boards can be sealed or protected.

Board width for nail only applications: Only secret nail boards up to 85 mm cover width.

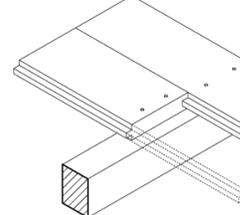
Secret nailed flooring is fixed through the tongue of specially profiled boards. As they are only secured with one fastener per joist, their width is limited to 85 mm cover. Boards over 85 mm cover must be top nailed & secured with two fasteners per joist.



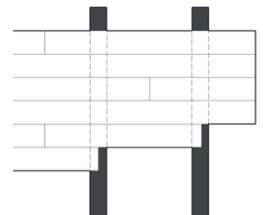
Strip flooring on joists



Secret nail to 85 mm cover only



2 nails a joist over 85mm cover



End-match boards

## STORAGE AND 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. 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 strip floors*

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

The ground should be dry and sub-floor well ventilated. Where conditions are damp & the potential for additional sub-soil drainage limited, install a continuous impervious plastic membrane over the ground. Tape the joints.

Floor framing should be solid, level, true and preferably seasoned.

Place a 3 m straight edge along & across the joists. Variation should not exceed 3 mm. Plane proud joists & pack low ones.

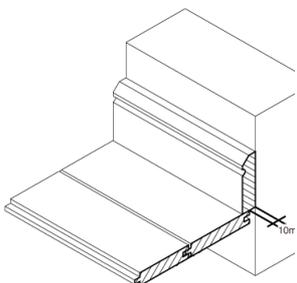
The moisture content of the timber at time of laying is very important.

Typically, timber supplied to AS 2796 should have a moisture content suitable for normal temperature and humidity conditions in most locations. Where conditions vary considerably from normal, such as in air-conditioned buildings, seek specialist advice.

## 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. Wide floors need intermediate expansion gaps at least every 6m across the boards. These can be located in door thresholds, in line with elements such as stairs or occur evenly throughout the floor as a series of smaller gaps at a rate of 10mm for each 6 m.



10 mm min gaps at each wall

Lay boards in straight and parallel lines.

Board 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 800mm 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.

AS1684 establishes min. fastener dimensions for fixing flooring, set out below\*

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

| Nail sizes for T & G flooring to plywood substrate |   |
|--|---|
| Strip Flooring thickness (mm)                      | Rec. nailing (min. 15mm substrate)                                      |
| 19 or 20   | 38 x 16 gauge chisel point staples or 38 x 2.2mm nails at 300mm spacing |
| 12, 19 or 20                                       | 32 x 16 gauge chisel point staples or 30 x 2.2mm nails at 200mm spacing |

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

Keep the nail lines straight, skew consecutive nails in opposing directions. 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.

If glue is used, it must be additional to the correct nailing. Only use specialist elastomeric glues.

Gluing the flooring to the joists is generally not necessary but if it is glued, the flooring still needs to be fully nailed. *Do not use hard setting glues.*

# FINISHING

Protect the boards prior to sanding and finishing.

Plasterboard setting compounds can stain timber. Silicone sealants and glues 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. Fill the nail holes 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 & 2 pack polyurethanes** produce a clear, very hard wearing surface in a matt, satin or high gloss finish. However, they darken with age. If applied to a poorly laid or unstable floor, they can also glue the tongue of one board into the groove of the next, causing problems later.

**Water-based polyurethanes** can produce a clear, hard wearing surface in a matt, satin or gloss finish. While more expensive, they produce less fumes during application and curing, and are trafficable earlier. They can also glue boards in an unstable floor together.

**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. With these finishes, a surface polish is recommended to reduce maintenance in high traffic areas.

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

Follow the finish manufacturer's instructions exactly.

Many problems with timber floors are due to inappropriate application of the finish. Do not thin the finish unnecessarily. Only apply polyurethane or two part coatings to tight, well-laid floors at the correct moisture content.

These coatings can glue boards together, causing 'clumping', 'slabbing' or other problems later.

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