

Solid timber strip flooring is the ideal selection to produce a beautiful and long lasting floor for all types of projects. Suitable structural substrates include concrete slabs, plywood and particleboard sheet floors and existing timber strip floors.

## MOISTURE CONTENT AND BOARD SELECTION

Use quality boards of the correct thickness.

Product requirements & grade descriptions for strip flooring are included in AS 2796. 12 - 14 mm thick boards need to be continuously supported on a structural substrate, such as concrete slabs, plywood & particle board sheet floors or existing timber floors. If boards are fixed directly to joists, they need to be at least 19 mm thick to span 450 mm.

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

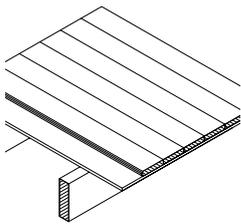
As timber absorbs moisture to remain in equilibrium with its surrounding atmosphere, it expands. As it loses moisture, it shrinks. flooring will always move slightly between boards as the ambient conditions of the surrounding environment change. So, to produce a successful timber floor, the timber needs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

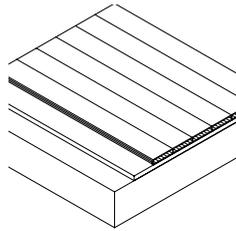
Any heat source will change the ambient conditions & can cause localised movement of timber. This needs to be recognised and accommodated. Lay boards to minimise the impact of gaps from the major direction of view or acclimatise the timber to the expected conditions.

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

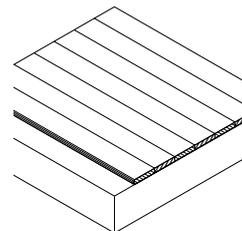
Secret nailed flooring is fixed through the tongue of specially profiled boards. As they are only secured with one fastener per fixing, their width in nail only applications is limited to 85 mm cover.



Nailed or nailed & glued to sheet/existing boards



Nailed or nailed & glued to ply on concrete



Glued to concrete

## 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 & wet trades complete.

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

The ground under wood substrates 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.

Concrete slabs and other substrates must be dry.

Before installing flooring over concrete, supporting slabs should be dry, with a moisture content no more than 5.5%. Seal the slab with a waterproofing compound or a plastic membrane under plywood if in doubt or if there is evidence of previous water penetration. Wood substrates should have a moisture content no more than 14%.

Substrates should be solid, level, true and provide a good key for gluing.

Surfaces should be flat & sound. The variation from a 3 m straight edge should not exceed 3 mm. Level uneven surfaces with a purpose-made levelling compound. Skim sand existing board or sheet floors to provide a clean flat gluing surface.

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. *Overlay flooring is not recommended for heated slabs or wet areas.*

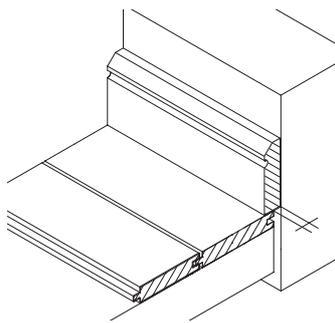
Use compatible levelling, sealing and gluing products.

Follow the manufacturer's recommendations exactly. Mixing product from different manufacturers can cause incompatibility problems, and void warranties and guarantees.

# INSTALLATION

Leave expansion gaps at the perimeter of floors & intermediate gaps 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

Use only specialist elastomeric glues.

Follow the manufacturer's recommendations. Apply the glue evenly at the recommended rates. Work with about 4-6 rows of boards at a time. *Do not use hard setting glues*

Lay boards in straight & parallel lines.

Ensure all end joints are tightly closed & distributed evenly throughout the floor. Maintain min. 450 mm between butt joints in adjacent rows. Position boards carefully so glue is not squeezed up between the boards. If laying over an existing strip floor, new boards should be laid at right angles to existing ones.

Cramp boards tight.

For sheet floors, cramp and fix each board tight. If using glue, secret nail to timber substrates. For concrete substrates, use glue and cramp about 4-6 boards at a time. Restrain with removable concrete nails & weights to avoid hollow spots where necessary until the glue cures.

Use correct number and length of fasteners for nail only applications.

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

## Nail sizes for T & G flooring to plywood substrate

Flooring thickness (mm)	Rec. nailing (min. 15mm substrate)
19 or 20	38 x 16 gauge staples or 38 x 2.2mm nails at 300mm spacing
12, 19 or 20	32 x 16 gauge staples or 30 x 2.2mm nails at 200mm spacing

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

# 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 any 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.

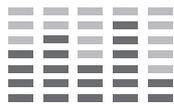
**Modified oil coatings** are clear varnishes, generally made from a mixture of resin & oil. Easy to apply & penetrating, these give a slightly softer look than polyurethanes but are less hard-wearing & darken with age. With these finishes, a surface polish is recommended to reduce maintenance in high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

centre for sustainable  
architecture with wood



CSAW

Centre for Sustainable Architecture with Wood  
University of Tasmania

email [Timber@arch.utas.edu.au](mailto:Timber@arch.utas.edu.au)

phone 03 (int+613) 6324 4470

for more information contact

<http://www.tastimber.tas.gov.au>