



Australasian timber flooring association

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Specification for Engineered, Laminate and Bamboo Installation

Covering:

- Installation as floated floors
- Installation of Engineered and Bamboo flooring by direct adhesive fixing
- Site sanding and coating of raw engineered flooring

ATFA reference materials:

- ATFA Engineered Flooring – Industry Standard (2018)
- ATFA Laminate Flooring – Industry Standard (2015)
- ATFA Bamboo Flooring – Industry Standard (2018)
- Solid Timber Flooring – Industry Standard (2016)
- ATFA QA Records and checklists as applicable

1.0 General

1.1 Description

This specification covers the installation of the following products:

- Engineered flooring by direct adhesive fixing and as a floated floor
- Bamboo flooring by direct adhesive fixing and as a floated floor
- Laminate flooring as a floated floor

Included in the specification are product requirements, site evaluation, tolerance and building requirements, as well as details relating to the execution of the works. Note that the sanding and coating of raw engineered flooring, if specified, is covered in section 3.6.

1.2 Responsibilities

It is required to provide the flooring system to the subfloor as documented and as follows:

- As applicable, adequately fixed to the subfloor or appropriately floated
- Performing with adequate accommodation for shrinkage or expansion movement
- Of the appearance expected of the flooring and flooring system installed
- For raw engineered flooring, sanded flat and smooth, and coated

1.3 Interpretation

Engineered flooring

Flooring manufactured with a decorative layer of timber (called a veneer or lamella) often bonded over timber layers beneath. This provides some additional stability and maintains the appearance of solid timber flooring. Most engineered flooring is pre-finished although some is sanded and finished after installation. Engineered floors are generally installed as floating floors or adhesive fixed to a subfloor. Products are available with both glueless jointing systems and tongue and groove joints. Glueless floated pre-finished engineered floors are ready to walk on once installed.

Laminate flooring

This flooring typically consists of a timber look finish on a high-density fibreboard core. Over this, a hard-wearing melamine layer is bonded. Laminate floors are always installed as floating floors and can be installed over most surfaces utilising a foam underlay. All current products have a glueless jointing system and are ready to walk on once installed.

Bamboo flooring

Bamboo is a grass, not timber, but like timber it is manufactured in board form and shares some characteristics to solid timber. Most flooring is strand woven from cut strands of bamboo bonded together with adhesive, prior to being cut and machined into floorboards. There is also flooring from pieces of bamboo vertically and horizontally laminated together and some engineered flooring that provides additional stability when adhesive fixing to slabs. Most products are pre-finished, most have glueless jointing systems and most are recommended for installation as floated floors.

Moisture content

The moisture content of these products are not in the same range as for solid timber and the movement (shrinkage or swelling) to changes in moisture content is also different. As such in terms of moisture content these products are not comparable to solid timber. Engineered flooring is often manufactured at an average moisture content of about 9%, laminate 8% and strand woven bamboo 7%.

Feature and Grade

Features are the natural characteristics of the wood including gum veins, past borer activity and knots present in the flooring. For bamboo and laminate flooring this is not applicable. For engineered flooring, the grade, or the amount of feature permitted, is provided for some products only (more often flooring with Australian hardwood and Oak lamellas).

Subfloor

The subfloor is the structural element that the flooring is fixed to. It includes concrete slabs and sheet flooring of plywood and particleboard over which the flooring is installed. With floated floors other surfaces such as ceramic tiles, when certain criteria are met, can be the subfloor.

Overlay flooring

Each of these products are usually installed as overlay floors meaning that they need to be installed over a continuous structural subfloor (e.g. particleboard to joists or a concrete slab). But note that some thicker engineered flooring can be installed to battens or joists.

Underlay

Underlay is a non-structural layer between the flooring and a continuous subfloor. It is often a foam for floating floors but also includes acoustic sound absorbing products and other products.

Acoustic underlay

An underlay designed to provide a floor system with the required acoustic sound performance and is particularly important in multi-level apartments.

1.4 Reference materials

Practices, unless otherwise specified are to conform to the Australasian Timber Flooring Association (ATFA) industry standards and manufacturer instructions for Engineered Flooring (2018), Laminate Flooring (2015) and Bamboo Flooring (2018). Note that product specific manufacturer instructions, where appropriate and applicable, take precedence and instructions for the same product type do vary between manufacturers. This is due to differences in board size, board construction and installation method. Sanding and coating requirements for raw engineered flooring are generally to AS 4786.2 Timber Flooring - Sanding and finishing and updated practices as outlined in ATFA Solid Timber Flooring Industry Standard.

1.5 Flooring quality assurance

Due to the nature of these products being more highly processed quality control aspects at manufacture should negate the need for detailed product checking on site, however boards that have obvious damage at the time of laying are not to be installed, as indicated in manufacturer instructions. Products should come with appropriate manufacturer backing in terms of warranties, installation instructions and manufacturing standards that the product conforms to. If this information is not provided with a product, the flooring could be of lower quality and this should be taken up with the supplier as such aspects are generally outside the control of the installer.

1.6 Working conditions

At the time of floor installation:

- The space is to be fully enclosed, weathertight and secure.
- Wet trades work is to be mostly completed.
- The building should be as close as possible to expected in-service conditions.
- With the sanding and coating of raw engineered flooring, access is to be limited at the discretion of the flooring contractor.

1.7 Tolerances and building requirements

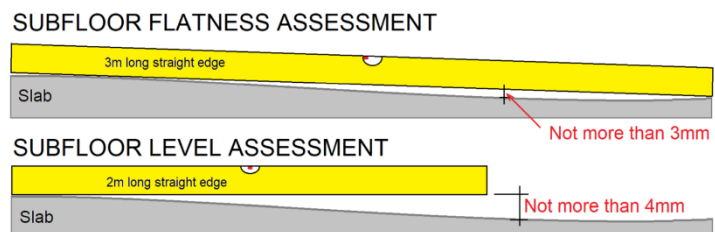
Subfloor flatness – Flatness relates to undulations in the surface. Slab subfloors are to be made flat through grinding and adding levelling compound to achieve a flat surface required for the flooring system and products used. If not specified, slab flatness is not to exceed 3mm beneath a 3m straight edge. For floors installed direct to new sheet, batten or joist subfloors, the flatness is not to exceed 3mm under a 1.5 m straight edge.

Subfloor level – Level relates to the slope of the subfloor. The levelness of the subfloor in new buildings provided to a flooring contractor should not to exceed 4mm in 2m. If exceeded, then documented agreement needs to be reached on the laying of the floor over an out of level subfloor.

Flooring moisture content – With these products it is not expected that the flooring moisture content will be checked at installation as onsite means of testing are not sufficiently accurate and these products differ in nature to solid timber flooring. However, refer to section 1.3 for guidance on product moisture content.

Concrete moisture assessment - A 'dry' slab is signified by impedance moisture meter readings of up to 2.0% and in-slab relative humidity (RH) up to 75%. Where floors have been covered by previous floor coverings values are often up to 3.5% and 80% in-slab RH. Higher readings require investigation as to possible moisture sources and may require more than the slab moisture protection outlined in this specification.

Fire rating – Where required, the flooring system is to comply with the Critical Radiant Flux and Smoke Development requirements of the National Construction Code (NCC) Spec C1.10 when



tested to AS ISO 9239.1 - Reaction to fire tests for floor coverings - Determination of the burning behaviour using a radiant heat source.

Slip resistance – Where required, the coated floor must comply with the slip resistance requirements of the NCC as outlined in AS 4663 – Slip resistance measurement of existing pedestrian surfaces and in line with AS handbook requirements.

2.0 Products and inspection

2.1 Products used in the installation

Flooring

Flooring product details -

Board width and thickness -

Grade (if applicable)

Percentage of oversupply to cover wastage -

Expansion joint and control joint trim details

Coating system for raw engineered boards is as follows

Sealer.....

Top coats.....

Other system (e.g. oil)

The coating system applied should be to the coating manufacturer's instructions.

Slab moisture vapour protection – Slab moisture vapour protection for adhesive fixed floors shall be provided by an applied moisture vapour retarding barrier to the manufacturers' requirements. Note, additional applications may be needed with strand woven bamboo depending on the slab moisture assessment, due to its sensitivity to moisture from beneath. No mixed system that voids a warranty shall be used. For floated floors, if there are any concerns with slab moisture or if the underlay moisture vapour retarding layer is less than 150µm (or equivalent) then a 200µm plastic moisture vapour barrier shall be used. Note all flooring, adhesive fixed and floating, is to be provided with slab moisture vapour protection.

Levelling compound – Levelling compound shall be compatible with other products used (e.g. primers) and be mixed and applied to the manufacturer's instructions. Note that exposed primer may be incompatible with the adhesive. When the flooring is direct adhesive fixed to the slab the levelling compound must have sufficient tensile strength for this fixing method. No mixed system that voids a warranty shall be used.

Adhesives – Where adhesive fixed to the subfloor, a polyurethane or polymer timber flooring adhesive is to be used that is compatible with the timber product and/or any underlay or moisture vapour barrier as applicable. No mixed system that voids a warranty shall be used.

Adhesive used in the jointing system of some engineered floors, if not specified by the flooring manufacturer, is to be cross linked PVA.

Acoustic underlay – When acoustic underlay is to be installed, it shall be installed to the installation requirements of both the underlay and flooring product manufacturer. Acoustic performance, when the flooring system is installed correctly, is not the flooring contractor's responsibility.

The acoustic underlay to be installed is:

2.2 Inspection and records

Notice for inspection

This is to be provided at the following stages:

- Subfloor (concrete, sheet or timber) and any subfloor space to consider the contractor's assessment prior to floor installation.
- Delivered flooring prior to installation to confirm the product supplied and quality aspects of the product.
- Expansion allowance at the floor perimeter and vertical surfaces before fitting skirting and additionally with floated floors, that they have been appropriately compartmentalised.

- Completed floor in a state where slip resistance testing or acoustic testing can be undertaken if required.

QA records – Records are to be maintained and provided throughout all stages of the project including both measurement and testing results as well as the products used. This is to be in accordance with 'ATFA QA Records and Checklists' for the applicable flooring systems or an approved alternative.

3.0 Execution

3.1 Floor system

The floor system shall be generally as outlined in ATFA industry standards and to the details provided on the drawings. Indicate the general system below.

Floated engineered floor Floated laminate floor Floated bamboo floor

Adhesive fixed engineered floor Adhesive and/or mechanically fixed engineered floor

Adhesive fixed bamboo floor

Alternate system – as specified on drawing and/or accompanying documentation

3.2 Handling and storage

Transportation and storage practices – The flooring is to be transported to site and stored prior to laying in such a manner that flooring is not adversely affected. Note that some flooring products require an 'acclimatisation' period often meaning that the product is stored in its boxes for a period before laying. Requirements for individual products should be checked.

3.3 Locality and site evaluation

Locality – The locality shall be assessed for expected seasonal relative humidity levels and variations, with consideration also given to the expected average in-service floor moisture content in that locality. In dry locations floating floors can experience higher levels of shrinkage and in humid localities higher levels of expansion.

Building external environment – The localised building environment shall be assessed for its expected effect on in-service conditions (e.g. moist gully).

Building internal environment – The potential effects of heating and cooling systems and influences from the large glassed windows are to be assessed.

Installation environment – The internal environment at the time of laying is to be suitable for installation (building enclosed and weathertight, intense sunlight screened, wet trades mainly complete etc.) and meeting any requirements for the product. Movement allowance (expansion and shrinkage) can vary in installation instructions depending on expected internal conditions (for example in humid environments greater expansion allowance is needed).

Acclimatisation, expansion allowance and control joints – If necessary, ensure provision has been made for appropriate 'acclimatisation' (note that the meaning generally differs to that for solid timber flooring). Also ensure that appropriate expansion allowance, and for floated floors that compartmentalisation, has also been appropriately considered.

3.4 Subfloor assessment and preparation

Subfloors – All subfloors are to be assessed for those aspects that could affect the installation and ongoing performance and appearance of the floor. Any areas of concern require addressing by the relevant party before proceeding.

Slab subfloors – Slabs shall be sufficiently dry and flat prior to floor installation. For flooring incorporating adhesive fixing or when an applied moisture vapour retarding barrier is used, the slab must have sufficient integrity and cleanliness. Refer section 1.7.

Slab flatness – Where the required slab tolerances are not present, the slab shall be made sufficiently flat through grinding and/or use of a suitable levelling compound, to meet the requirements of the flooring system specified. Refer section 1.7.

Slab moisture vapour protection – Slab moisture vapour protection, as applicable to the flooring system, shall be provided by either a 200 µm polyethylene plastic barrier, an applied moisture

vapour barrier or the moisture vapour retarding layer in the underlay for floating floors. Note that after assessment, a 200 µm polyethylene plastic barrier may be necessary in addition to the floating floor underlay and should be brought up to at least height of the floor at floor edges and joints overlapped 200mm and taped with a water-resistant tape.

Timber and sheet subfloors – Timber and sheet subfloors need to be sufficiently dry, flat, level and clean, as applicable to suite the flooring system used. Refer section 1.7.

Floors over enclosed subfloor spaces – Floors installed over subfloor spaces require the ground beneath to be dry and to remain dry after floor installation. If such conditions are not likely, further assessment and measures, can be necessary and implemented before floor installation.

Ventilation of enclosed subfloor spaces – Ventilation requirements need to meet National Construction Code (NCC) requirements.

Other subfloors – Floated floors may be installed over other subfloors (e.g. ceramic tiles). Suitable subfloors and their preparation need to be in line with the flooring manufacturers instructions and this specification regarding subfloor tolerances and moisture protection.

3.5 Subfloor, underlay and flooring installation

Installation shall be to manufacturer instructions and ATFA industry standards listed in section 1.4 of this specification.

Acoustic Underlays – It needs to be ensured with floating floors that the underlay is acceptable to the flooring manufacturer when not supplied with the flooring by the manufacturer. Installation of an acoustic underlay shall be to the requirements accepted by the acoustic underlay manufacturer, flooring manufacturer and in line with recognised practices for acoustic floor installation.

Allowance for expansion and compartmentalisation – With adhesive fixed floors due allowance for expansion shall be provided and is dependent on the product and installation environment. This includes some floors requiring intermediate expansion allowance. Expansion allowance shall be provided in accordance with the manufacturers recommendations or the default values as provided in the ATFA industry standards, if manufacturer information is not available.

General floor installation practice and ongoing care–

The specifics of laying the floor are to follow manufacturer installation instructions for the flooring product used but is also to be in line with industry accepted practices as outlined in ATFA industry standards. Note that in addition to these instructions, that provide the specifics of board installation, the following is also to be catered for:

- Parties are in agreement that the product is suitable for the installation environment and intended in-service environment.
- The flooring is to be checked for obvious manufacturing imperfections at the time of laying and any such boards not be installed.
- Laying direction is generally in the direction of hallways or longer walls. Care is needed with non-parallel walls, with tapered boards being wider where possible. Parties need to be in agreement over these laying aspects.
- Expansion allowance requirements, and additionally for floated floors, the degree of compartmentalisation needed (segmenting the floor into a number of smaller areas separated by control joints), will depend on the product, building design and in-service environment. As applicable this may require clarification as to location of the expansion and control joints and be agreed upon.
- Some products are provided as set length or nested lengths. Some products are short boards, but other products can be longer length. How joints appear in the floor is to be agreed on between parties. A look more like solid timber flooring will have wider separation between joints and no fixed pattern. With short boards such a look may not be achievable.
- Appropriate information is to be provided in terms of floor care and maintenance.

3.6 Sanding and coating of raw engineered flooring

Where the floor requires sanding and coating to complete, it shall be as outlined in ATFA Solid Timber Flooring Industry Standard and to AS 4786.2 Timber Flooring - Sanding and finishing.

Access to the floor – During the process of sanding and coating and through to adequate curing, access to the work area will be restricted or denied at the discretion of the flooring contractor. The flooring contractor is to inform parties.

Assessing the floor prior to sanding – Prior to sanding the condition of the floor is to be assessed to ensure that it is in a condition suitable for sanding.

Preparation for sanding – Preparation is to include where applicable, filing of nail holes, cleaning, dust minimisation and protection.

Sanding – The sanding process, generally finish sanding, is to provide a surface suitable for the specified coating system to be applied over and conducive to minimal coating and appearance imperfections.

Coating – The specified coating system is to be applied with due care to achieve the expected appearance in line with the specified system.

Completion – When the floor is completed, the acceptability of the final appearance will be assessed. A commercially acceptable floor is to be achieved. This is a floor that presents well but which may contain some sanding and coating imperfections.

Ongoing care – Appropriate information is to be provided in terms of floor care and maintenance.