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Consumer Guide to Timber Flooring



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Consumer Guide to Timber Flooring

Buying, renovating or maintaining a timber floor or deck?

All the advice you need from the peak industry association



Consumer Guide to Timber Flooring
Version 2 – April 2017

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This publication was produced for general Australasian conditions and is for the purpose of assisting consumers in their timber flooring choices, it is not a legal document and direction should be obtained from the contractor appointed to the project.

Prepared with the assistance of atfa members who provided information and photographs.

Why choose a timber floor?

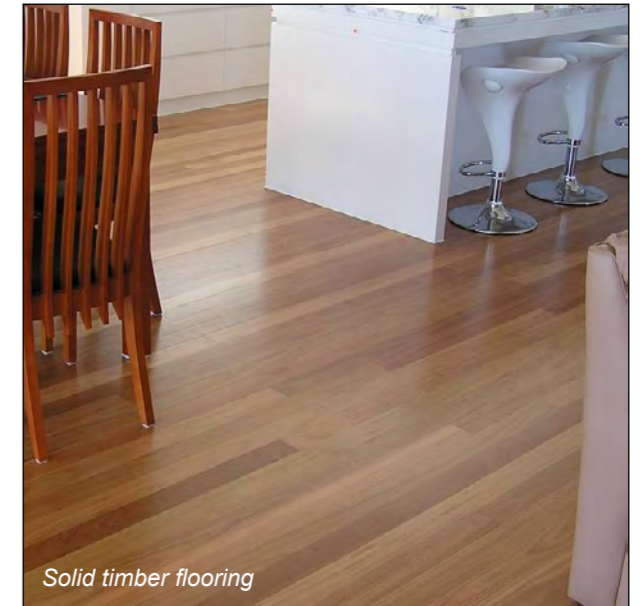
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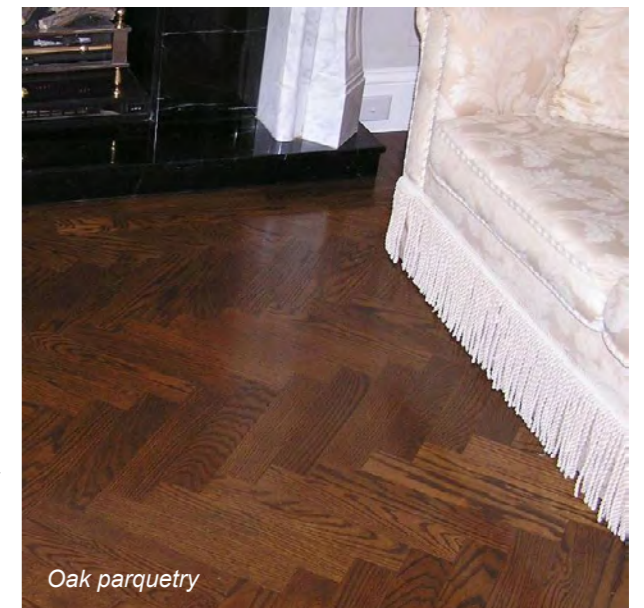
Traditional solid timber flooring is sometimes considered a more expensive option than other floor finishes. However, there are a number of other timber flooring products at different price points and which enable consumers to have multiple options when seeking out more economical timber flooring. Such products include engineered flooring and laminate flooring.

That said, solid timber flooring has many long term and intrinsic benefits which outweigh the initial additional cost and need to be carefully considered when deciding which type of flooring will best suit your needs:

- Good quality solid timber floors last for decades. A timber floor of standard thickness (19mm) can have a service life of approaching 100 years. The largest competitor to timber flooring – carpet – is regarded as having a service life of approximately 10 - 15 years due to the accumulation of stains and high wear in trafficable areas. By comparison, and often with a minimal maintenance program, solid timber floors will not only last longer but actually look better as the years go by.
- Timber floors are easier to clean than carpets. A simple brush or light vacuum keeps timber floors looking great. If household pets or children have dragged mud through the house, a damp mop removes the grime with ease. At a comparable age, carpets will typically exhibit more wear and tear, and take progressively longer to maintain.
- Timber floors are more hygienic than carpets. Nearly 100,000 dust mites can live in one square yard of carpet according to US research. Allergen producing dust mites, fleas or dust can adversely affect allergy and asthma sufferers, a problem which timber floors eliminate. Carpets can also trap unpleasant odours from domestic animals or spilt substances.
- If after a few years a timber floor has become scratched or been subject to heavy wear, a re-sand and seal can bring it back to new again – and at a lot less than the cost of new carpet.
- One of the most important advantages of a solid hardwood floor is the timeless character of timber. Carpet, linoleum, tile patterns and colours go in and out of fashion – just consider what was in vogue in the 70s and 80s. Timber has an enduring appeal that has lasted centuries and is more popular now than ever – it will run alongside personal shifts in taste and furnishings, be they classic, retro or contemporary.
- Timber floors are often considered to be an option only available to those with large budgets. Modern



Solid timber flooring



Oak parquetry

Understanding the basics - natural expansion and contraction of timber

production methods now mean that cost effective engineered timber flooring can be produced. While not solid all the way through, the face layer being timber makes these floors, at times indistinguishable to their solid counterparts, and are also available to all budgets. Use of a decorative face layer of a specific timber species also ensures much greater resource recovery of the decorative face timber.

- Stone and tile floors although as hygienic and easy to maintain as wood, do not have the same warmth and feel of timber floors. Nor do they hold the same attractiveness if it comes to resale of a home. A study by ATFA of Real Estate agents established that houses with timber floors sell more easily and at a better price compared to houses with other floor finishes.
- Despite many misconceptions, solid timber floors also carry superior environmental credentials over the rest. Timber actually stores carbon and will continue to do so for its life as a floor. Timber flooring produces *five times* less carbon emissions than ceramic tiles (source: CRC for Greenhouse Accounting).

While some timber flooring options may be more expensive upfront, they carry more additional benefits than the other options, and with minimal maintenance will look better for longer and be more economical in the long term.

Carefully weigh up the benefits of the various flooring options before you make a final choice as not only is it a big investment but it affects your family's health, the aesthetics and value of your home.

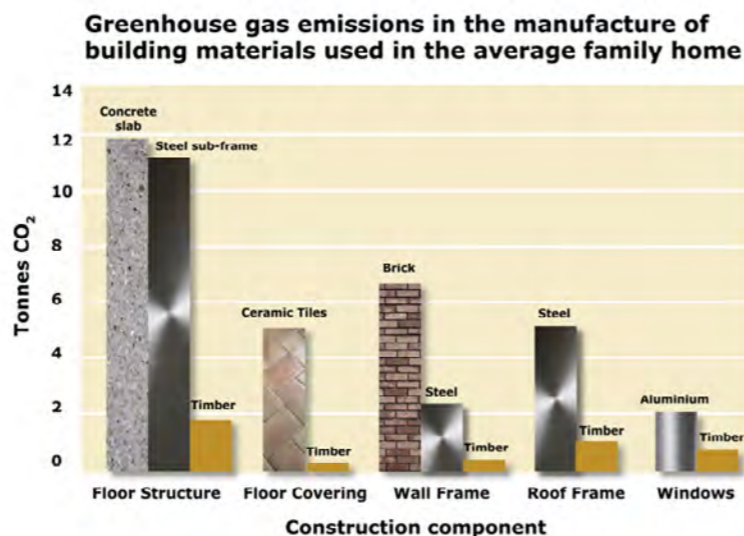
This book aims to provide you with enough knowledge to ask the right questions of your timber flooring contractor, give you ideas on the possibilities and various options available for your home, and ultimately weigh up whether a timber floor is right for you.

If at the end of reading you have additional questions, feel free to call ATFA and we'll be happy to help you further. If on the other hand, you would like to pursue getting a timber floor, visit the ATFA website and our 'Find a Member' section to secure a local contractor www.atfa.com.au.

Environmental credentials for timber flooring

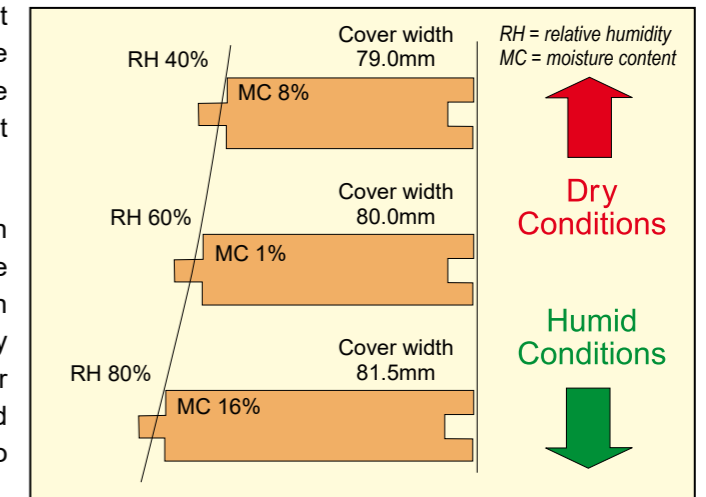
Timber floors actually sequester (store) carbon. Up to 50 per cent of the weight of dried timber is carbon that has been absorbed from the atmosphere by the tree as its growing. Lowering the amount of carbon dioxide in the atmosphere is one of the most important things we can do to reduce the damage associated with climate change.

According to the Cooperative Research Centre for Greenhouse Accounting (2007), the carbon footprint of timber subfloor framing is approximately 10 times less than a concrete slab or steel subfloor frame. Similarly, the carbon footprint of a timber floor surface is five times less than a ceramic tile floor. This is in addition to the fact that in 2005, Australian forestry was measured as being the only carbon positive industry in Australia.



Prior to discussing timber flooring products, it is important to have an understanding of the relationship between timber, humidity in the surrounding air, and the dimensional changes that occur as a result of changes in humidity.

During weather conditions of consistently high humidity, timber will absorb moisture from the surrounding air causing it to swell or increase in size. Conversely, during drier times when humidity is low, timber will shrink, reducing in size. Timber flooring, if not placed in a permanently controlled environment, will always move in response to changing environmental conditions.



Cover width variation with changing relative humidity

In solid timber flooring, gaps between individual boards will occur as the floor shrinks in dry weather.

Similarly, during either persistent wet weather or times of the year of naturally high humidity, solid timber floors will tend to be tighter at board joints and show fewer and smaller gaps.

Other flooring products such as parquetry, engineered and laminate flooring exhibit less seasonal movement than solid timber flooring products, however, even with these products, some movement is experienced and needs to be accommodated in the installation process.

Timber decks experience greater movement due to firsthand exposure to the weather. It's why decking always has gaps between the boards and why internal flooring products are not used externally.

Ultimately consumers should understand that as a natural product, timber will continue to respond to its environment throughout its life.

Because timber is a natural product and for the reasons outlined previously will react to its environment, it's critical to speak with your contractor ahead of any installation and discuss the unique conditions of your home environment. The following key questions should be considered as part of that initial conversation:

Is your home in a high humidity area?

- In areas of high humidity such as the tropics, or close to bodies of water, the atmospheric humidity in the air causes the floor to take up additional moisture. As such, care is needed to install timber flooring. This may necessitate acclimatisation depending on the product and additional expansion allowance may be needed. It is not an option to instruct an installer that you do not want expansion allowance.

Is your home situated in thick bushland, lush farmland or surrounded by dense gardens?

- As with the previous point, dense bush, gardens or even thick grasses directly around a home may attract additional moisture that could affect your floor, particularly if watering systems are being used. As such, additional care may be required to protect your floor from greater moisture uptake – just what this involves for your location needs to be discussed with your contractor.

Do you have underfloor heating?

- If your home has underfloor heating or in-slab heating, special considerations must be followed for the installation of a timber floor and it may impact on the types of timber flooring and related products that are suitable. Ensure the flooring contractor is well experienced with the installation of flooring over heated floors.

Do heating systems, refrigerative air conditioning and evaporative coolers alter the conditions in your home?

- Any of these products can have an adverse effect on your floor if they are used for extended periods. You must advise the flooring contractor of your normal usage habits when choosing your timber floor and ahead of installation as these will dictate the product's suitability and installation method.

Is your house foundation a concrete slab or joist construction with ground beneath?

- Timber floors are commonly laid in both circumstances, however, the build of your home will determine what preparation needs to occur



prior to installation of the floor. A slab may need to be protected with a plastic moisture barrier or applied moisture vapour barrier, while with joist construction, protection from ground moisture may be necessary. Note that floors must not be laid over 'wet' sub-floor conditions.

Do you have large expansive windows or skylights that face the sun for extended periods?

- If a timber floor is constantly in direct sunlight this may cause unwanted shrinkage and even some cupping with the board edges raised. All efforts should be made to protect timber floors from harsh direct sunlight using window coverings, window tinting or other shade methods.

Is your home in an area which experiences high winds?

- If your home is in an area experiencing seasonal dry winds, this may have a drying effect on your timber floor and could cause excess shrinkage. Your flooring contractor should take this into account, though be sure to advise the contractor of the issue as it may not be notable on the day they visit.

Does rain/storm water ever collect around your home or lie under it for days at a time?

- As with earlier points, if water resulting from heavy rains or storms sits around or under your home, your floor may be vulnerable to moisture uptake. Suitable precautions should be taken to counteract this with additional moisture controls and improving drainage.

Does your home have suitable ventilation and drainage?

- For floors on joists with natural ground beneath, airflow under a timber floor is essential. Normally brick homes have suitable vents around the brickwork, though ensure these have not been filled in over the years or become overgrown by garden beds. Drainage is also essential to ensure that water is not trapped around or under your home.

Key tips

Using the points above:

- Look objectively inside and outside your home at the environmental conditions that your timber floor will encounter. Write these down along with the typical weather conditions your floor will endure throughout the seasons – not just the weather you have this week. Be clear on what your expectations and usage of the floor will be.
- Provide all this information to your contractor upfront as part of your initial discussion. It will help to ensure you have a targeted conversation around your circumstances and needs, make an informed choice and ensure that installation takes into account all the likely conditions.

What you need to consider in choosing a timber floor for inside your home

Once you have ascertained the environmental conditions for the floor, you will need to consider the desired appearance of the floor. This is not as simple as picking a timber species, it involves understanding five key and interrelated points:

1. Flooring product
2. Board colour/ species of the timber
3. Grade/ feature content of the timber
4. Hardness rating of the timber
5. Selection of board width

We refer to floors as being 'fixed' or 'floating'. A fixed floor has fixings such as nails or staples and/or adhesive to individually fix each floorboard to its particular subfloor (such as plywood or particleboard). A floating floor has each board fixed to each adjacent board but no fixing of the floorboards to the subfloor. With floating floors, most floating floor products have an interlocking glueless jointing system while some, when a tongue and groove profile is present, use adhesive placed in the board joints. Boards are sequentially installed over a foam underlay to create a floor 'platform' that is able to 'float' on the underlay. Solid timber flooring must be fixed to the subfloor, laminate flooring must be floated and engineered and bamboo flooring can be either floated or fixed.

At times, flooring may also be referred to as 'structural' or 'overlay'. A structural floor can support people walking on it when fixed directly to joists or battens. Most floors today are overlay floors whereby the flooring is laid upon a structural subfloor such as particleboard or concrete. An 80 x 19mm solid timber floorboard if laid direct to battens is regarded as a structural floor but if the same boards were laid over a structural particleboard subfloor, the solid timber flooring would be regarded as an overlay floor. For structural floors, raw solid timber board thickness is a minimum of 19mm.

1. Selecting your 'flooring product'

There are several options of 'timber flooring' each of which have their own characteristics and attributes. The main options are:

- Solid strip timber flooring
- Prefinished solid strip timber flooring
- Engineered flooring
- Parquetry

There are also other related products, namely:

- Laminate flooring
- Cork
- Bamboo

The traditional products of solid strip flooring, parquetry and cork are generally supplied for sanding and coating on site. Engineered, laminate and bamboo are generally sold as being pre-finished, that is, factory pre-coated ready to be installed and needing no other coating after installation. However, these are also general rules as some more traditional products may come pre-finished and some of the other products usually prefinished can be available for site sanding and coating.

The following section provides guidance on the various flooring options, their characteristics and application.

Timber Flooring

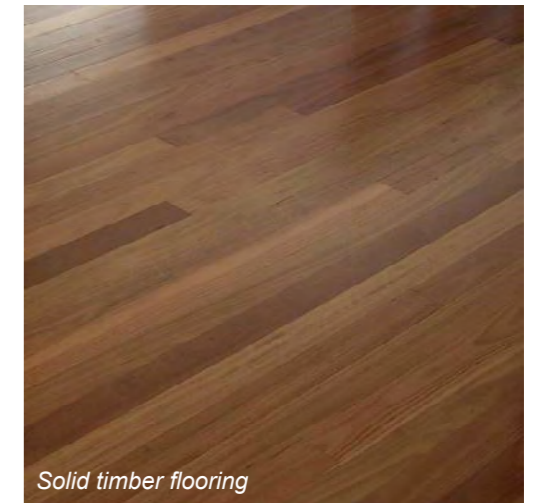
Solid strip timber flooring (sometimes referred to as 'tongue and groove') can be fixed direct to joists, to sheet subfloors of particleboard or plywood over joists, plywood or battens over concrete slabs and in some locations, direct fixing to the concrete slab is common. The traditional timber floor is renowned for its strength, durability and character. Throughout its life, solid strip timber floors can be rejuvenated to near new condition by sanding and re-finishing. It is ideal for new houses or to match existing floors in renovations and they can be top (face) nailed, or secretly fixed in combination with adhesives.

Prefinished solid strip timber flooring combines natural solid timber flooring with a factory finish. Similar to engineered products there is no sanding and finishing after installation. Boards may be square edged, arised to a fine rounded edge or bevel edged to provide a 'v' joint at board edges. Prefinished solid timber floors are usually installed as an overlay floor.

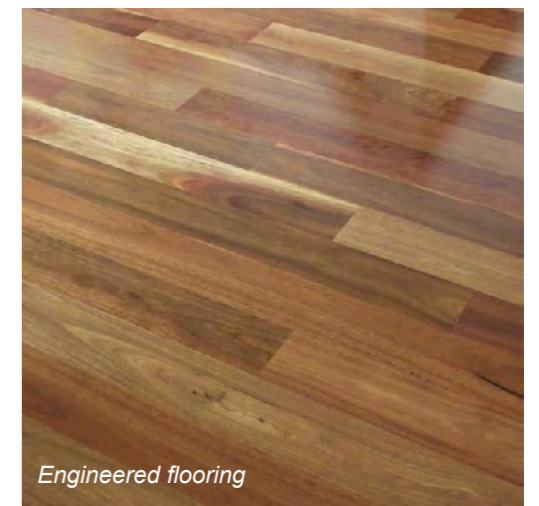
Engineered flooring is manufactured with a decorative layer of timber (called a veneer or lamella) bonded over layers beneath which is often timber. This not only provides some additional stability but also maintains all the appearance and characteristics associated with solid timber flooring. Various factory coating systems are now used with some products to highlight and colour the grain and other techniques to texture the surface for a stunning appearance.

Most engineered flooring is pre-finished although some are designed to be sanded and finished after installation. Engineered floors may be laid as floating floors, glued to a sub-floor as an overlay and in some cases fixed as a structural floor on battens. Pre-finished engineered floors are ready to walk on once installed.

Parquetry comes in two forms, block parquetry and the less common mosaic parquetry sheet. Parquetry provides many options of combining block orientation, size and species to transform floors into an outstanding feature. They can be laid to various sub-floors and similar to solid strip timber floors, they can easily be rejuvenated throughout their life.



Solid timber flooring



Engineered flooring



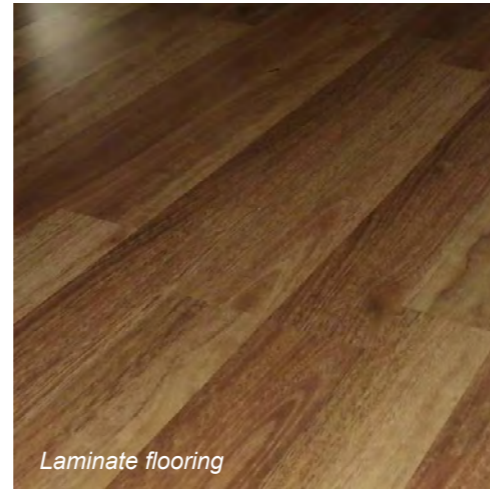
Parquetry in a herringbone pattern

Related Products

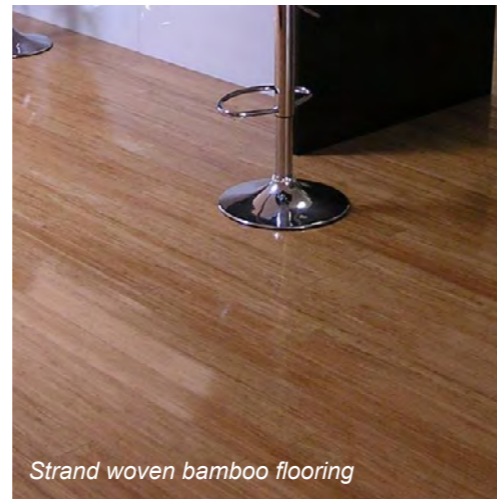
Laminate flooring typically consists of a timber look finish comprising high density fibreboard, topped with a faux timber-look paper. Over this, a hard wearing melamine layer is applied. Laminate floors can be laid over most surfaces utilising an underlay and in most instances can be as quick to lay as a floating floor. With this flooring both the number of timber patterns used and longer board lengths are now available. Many products also have a textured surface which can follow and highlight the 'grain' structure.

Cork tiles provide a different look to timber boards or parquetry by utilising natural cork in tile form which is then adhered directly to a sub-floor or flat underlay. Cork is lightly sanded and finished to provide a natural looking, highly durable surface that is also soft underfoot.

Bamboo is a grass, not a timber, but like timber it is manufactured in board form and shares similar characteristics to solid timber. Some flooring is manufactured to provide a more even appearance, other products incorporate a blend of contrasting colour. Coloured and textured surfaces are also available. Most flooring is strand woven which means that bamboo is cut into strands which are then bonded together with adhesive prior to being cut and machined into floor boards. There is also bamboo flooring made by gluing small sections of bamboo together and this creates a different appearance with both vertical and horizontal laminated product. In most instances, bamboo flooring products are pre-finished. Most flooring is floated on a foam underlay although some is adhesive fixed.



Laminate flooring



Strand woven bamboo flooring

2. Selecting your board colour/ species of timber

This aspect becomes more important when choosing a solid or prefinished solid timber floor that will be site sanded and coated, or with engineered flooring where the appearance is to correspond to that of a solid timber floor. With products such as laminate, bamboo and more customised prefinished engineered products, the colours or blend of colours will be more representative of the showroom samples. The following information relates more to when a product has a natural timber face.

The choice of species influences the colour of a floor

The many timber species used in timber floors provide you with a rich array of colours and grain patterns to choose from. In some species, the natural colours will be fairly consistent while others can involve a blend of several colours and tones. This is particularly the case where the sapwood (the outer layer of timber beneath the bark) is often much lighter in colour than the heartwood. Even within a single species and within individual trees, large colour variations of the heartwood can occur. In addition, the age of the tree has a significant bearing on the colour with timber from younger trees often being lighter in colour than more mature trees.

When choosing a timber species you therefore need to consider the following:

- Are you looking for a timber species or a timber colour? If you are more concerned with colour then ensure that you are accepting of the colour variations that may occur in that species. You may instead wish to consider another similar coloured species which is more consistent or whether mixed species of similar colour are available and would be more suited to the look you are seeking.
- Photos in magazines or off computer screens will not give you a realistic representation of species colour. Even a sample flooring board provides just one representation of the colour in that species. Due to this, larger panels in showrooms should be viewed although even these are unlikely to be able to cover the full range of potential colour variation. It's also important to recognise that both the timber and the coating will age and as this occurs, will also affect the colour and appearance of a floor.
- If you like the colours in a species from one supplier, should you expect that the colours in that species will be the same from another supplier? No, there is no assurance that this will be the case due to differences in growing region and tree age.



Colour variation in Spotted Gum

It is important to remember that when choosing a timber floor, no matter how large the showroom sample is that you have seen, it is only indicative of the species colour and natural variation that may be expected. Remember, you are choosing a natural product where each tree is unique and forms an intrinsic part of its beauty and character.

Australia and New Zealand are blessed with many colour variations and characteristics in their timbers, however, depending on preservation, harvesting schedules and milling, not all types are always available - be sure to check with your timber flooring professional to find out what's available and the price variations.

Australian species you can choose from for solid, prefinished, parquetry and engineered timber floors may include:

Victoria, Southern NSW and Tasmania

Blackwood – light golden to deep brown, moderately hard

Messmate – pale straw to light brown, moderate to hard

Tasmanian Oak – a species mix of pale straw to light brown, moderate to hard

Victorian Ash – a species mix of pale pink to yellow brown, moderate to hard

Yellow Stringybark – even yellow brown, hard

Manna Gum – pale straw pinks, moderately hard

Queensland and Northern NSW

Blackbutt – golden yellow to pale brown, very hard

Brush box – even mid red-brown, hard

Grey Ironbark – dark brown or dark red brown, very hard

Red Ironbark – dark brown or dark red brown, very hard

Rose Gum – straw pink to light red-brown, hard

Spotted Gum – brown to dark brown, very hard

Sydney Blue Gum – straw pink to light red-brown, hard

Tallowood – greyish yellow to olive green, hard



Medium feature grade Blackbutt

Western Australia

Jarraah – rich reddish browns to soft salmon pinks, hard

Karri – rich reddish browns to pale pinks, hard

Marri – pale brown with lighter sapwood, hard

New Zealand species traditionally used in flooring that may be available and particularly as recycled product.

New Zealand

Kauri – pale sapwood, heartwood pale to reddish brown

Matai – white sapwood, straw brown to orange heartwood

Red Beech – light brown sapwood, light to medium red brown heartwood

Rimu – pale brown sapwood, red to yellow brown heartwood

Tawa – white sapwood, pale to very dark brown heartwood

3. Selecting the grade/ feature content of the timber

Solid timber flooring, some prefinished solid timber flooring and some engineered flooring, are available in a number of different 'grades'. Grading is a process of sorting the boards according to how much 'feature' is present. Natural features include the likes of gum veins, which add character to the flooring. The grade description provides the permitted limits. Grading is not applicable to other products such as bamboo and laminate. The following information is therefore more related to when a product has a natural timber face.

So in addition to the species or species mix influencing the colour of the timber, your choice of 'grade' will also influence the character of a floor.

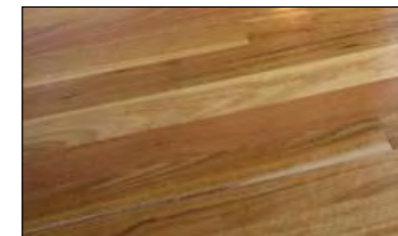
Grading rules do not cover colour or colour variation but significantly influence the appearance of timber, with some grades including more of the character of the tree's history with larger gum veins, knots and other features present. In other grades, the cleaner natural lines and figure of the timber will dominate with fewer and smaller features present.

When deciding on a timber grade ensure that you consider the following:

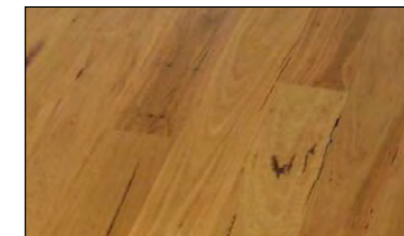
- All trees contain natural features such as gum veins, knots and past borer activity. For many species, these features add to the character and charm of the floor so when choosing a grade, you are simply deciding on how much feature you desire.
- The grade has no influence on a floor's fitness for purpose in terms of its manufactured moisture content range or machining tolerance. These aspects are the same for each grade.
- All grades permit some feature and even though it may be named 'Select Grade' some gum veins, knots and past borer activity are permitted.
- How the boards are mixed into the floor both in terms of colour and feature is up to the installer, so if you have any specific views on this, make sure you discuss these with your installer prior to installation.
- Because different features tend to dominate different species, two floors of the same grade may appear quite different.
- There are grade names associated with Australian Standards grading rules. In other instances, flooring manufacturers may have their own grades and grade names. Because a manufacturer's grade of timber may not be exactly the same as that in an Australian Standard, be *absolutely sure* from the outset what grade you are getting.

If choosing an alternative species from the one originally considered, not only will the overall colour differ but the dominant type of feature may also change. It is important to work closely with your supplier and installer so that they are absolutely clear about the look that you are trying to achieve.

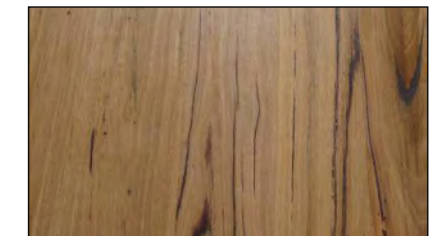
Solid timber Australian Standard Hardwood Grades (AS 2976)



Blackbutt – Select Grade



Blackbutt – Medium Feature/
Standard Grade



Blackbutt – High Feature Grade

Select Grade — Contains features of a limited number and size. The features may include gum veins, past borer activity and small knots. The effect in a floor is that the features are observable but do not dominate the overall appearance.

Medium Feature / Standard Grade — The number, type and size of features present is greater than for Select Grade and the effect on the character of the floor is in many instances, much more dominant. Gum veins that are present may extend across the face of the board, greater natural discolouration may also be present. Knots and past borer activity can be more pronounced. Such features add to the character of the floor. It should, however, be noted that the features present and resulting character is very much dependent on the species chosen.

High Feature Grade — Boards with a high degree of feature are permitted in this grade and this can add significant character to the floor creating a more rustic look. The number and size of features included are greater than for Medium Feature/ Standard Grade but again, the choice of species will have an overriding influence on the character present.

Solid timber Australian Standard Softwood Grades (AS 4785 and AS1810 for Cypress)

— The standard AS 4785 includes a range of softwoods, although some softwoods have their own industry grading rules. Cypress, although a softwood, differs in nature to many of the other softwoods and has its own grading standard. Cypress flooring has a predominance of knots whereas in other softwoods both knotty and clearer grades can generally be obtained.

4. Considering the hardness of timber flooring

Hardness indicates the resistance of timber species to indentation. Damage to timber floors may occur due to continual movement of furniture, heavy foot traffic and in particular, “stiletto-heel” type pressure. The selection of a hard timber species ensures improved resistance to indentation and abrasion. Soft timber species, if used in feature floors, can be expected to indent.

Floor finishes will not significantly improve the hardness of timber flooring. In some species, the hardness of younger growth material can also be much lower than mature timber of the same species, but this varies from species to species.

Softwood floors are more prone to indentation as are moderately dense hardwoods. The higher density hardwoods are less prone to indentation. If using timbers that are less hard, soft footwear will prevent damage from foot traffic.

The Janka hardness rating is used to measure the hardness of a timber. The lower the hardness rating, the softer the timber. Most commercially available flooring species range from around 3 to 15.

Hardness figures are often published in data relating to flooring and either specific Janka hardness figures are stated or hardness is categorized based on the Janka values. The classification used in the Australian Hardwood and Cypress Manual is as follows:

Janka Rating	Hardness category
< 5.5	Soft
5.5 to 7	Moderate
7 to 10	Hard
> 10	Very hard



High traffic stiletto heel indentation of a moderately hard timber

The following products fall into these categories:

Very hard	Hard	Moderately Hard	Soft
Spotted Gum	Brushbox	Messmate	Radiata Pine
Red Ironbark	Tallowwood	Mountain and Alpine Ash	Araucaria (Hoop)
Grey Ironbark	Stringybark	Tasmanian Oak	Kauri
Blackbutt	River Red Gum	Victorian Ash	White Baltic
New England Blackbutt	Rose/Flooded Gum	Shining Gum	Western Yellow Pine
Forest Red Gum	Sydney Blue Gum	Manna/Ribbon Gum	Rimu
Turpentine	Southern Blue Gum	Myrtle	Teak
White Mahogany	Jarrah	Blackwood	
Gympie Messmate	Karri	Cypress	
Grey Box	Marri	American White Oak	
Forest Red Gum	Kwila/ Merbau	European Oak	
Wandoo	Northern Box	European Ash	
Brazilian Cherry	Kempas	Maple (Rock/ Sugar)	
Jatoba		Hevea	

As such, when considering the hardness of flooring we are usually referring to tests undertaken on solid timber flooring species. For products that are not solid timber, the following needs to be considered.

Engineered flooring generally has a solid timber face lamella of approximately 3mm or greater in thickness on the upper exposed surface, and the hardness of the product quoted relates to that face lamella species. As such, the hardness categories in the table above apply. There are however, some products where the upper lamella is much thinner and in such instances, the core timber will influence the hardness.

As indicated, Bamboo flooring is available as a laminated product (vertical and horizontal) as well as a strand woven product. In terms of the categories above, the laminated products would be regarded as hard and the strand woven product as very hard.

Laminated flooring is constructed with a melamine and décor paper over a hardboard core. With these products, there is usually an ‘Abrasion Class’, which relates to their overall wearability and suitability from domestic through to commercial applications.

5. Choosing the board width

In recent years, wider profile boards have increased in popularity, although with solid timber flooring the standard width of 80 to 85mm still remains popular. With solid timber floors, many methods of board fixing have been developed and range from traditional top nail fixing to secret nailing and adhesive fixing. Importantly, the greater the width of the board, the greater the pressure on fixings (whether nail or adhesive) and the fixing method needed can influence the overall appearance. Use of shorter, wider boards can also affect the appearance.

Solid timber flooring

Solid timber board widths over 85mm and up to 180mm can be secretly fixed (nailed through the board edge) but this usually applies to thinner overlay material. Boards of 19mm or greater in thickness and of widths of 130mm or greater are generally top nailed.

Parquetry can be provided in a range of sizes and many patterns can be developed. Sizes range from the smaller finger parquetry, through to blocks and wider longer sections.

Protecting the timber flooring prior to installation

With engineered flooring, the lamella usually covers the face of the board although some products contain two and three strips of lamella side by side and multiple shorter lengths butted together. This then gives the appearance in the floor of narrower or wider boards. Board widths with a single strip lamella up to about 180 mm wide can be achieved.

Board widths of related products

When considering products such as laminate flooring, the appearance of board width is often similar to that of engineered flooring as outlined above. Similarly, the appearance of two or three strip engineered flooring is available along with the coloured and textured surface of engineered. Bamboo flooring is generally available in product widths of around 90mm and 130mm. Actual sizes differ between manufacturers.

Selecting and purchasing the timber flooring is one aspect, the other critical considerations are its transport, delivery, onsite storage and the need (or not) for acclimatisation prior to installation which should be assessed by your floor installer.

Prefinished solid timber flooring, laminate flooring, cork, engineered flooring and bamboo are usually supplied packed in boxes for convenient carrying and in some instances the acclimatisation process is simply onsite storage for a period so that the product can become accustomed to inside conditions.

For solid timber flooring, where the product is delivered in packs with a plastic cover to top, sides and ends, the following points should be taken into account:

Transport

Where possible, try to ensure your flooring is delivered in dry conditions as it is important that the flooring product does not get wet.

Delivery

When delivered to your site, flooring must be stored in dry undercover storage.

Storage

If your flooring needs to be kept on site for any length of time (more than two days for example), it needs to be in a well-ventilated area and possible effects of slab moisture or moist conditions beneath must be avoided (a hot garage or shed with no ventilation or insulation is not suitable).

Acclimatisation

The need to acclimatise internal flooring will be decided by the floor installer. The installer will consider the product being used, the manufactured moisture content of the flooring, where the floor is being installed, any current or future heating or cooling systems and most importantly, the current weather conditions. If the flooring is to be acclimatised, then it needs to be stacked in layers that enable air movement past both surfaces of each board. Periods of two weeks are common but can be longer.

Pack Variation

Packs of timber flooring and related products will often contain a range of lengths from short to long and depending on the species, may also contain considerable colour variation. Your flooring contractor will blend in the varying lengths as well as any colour variations into the overall floor. If you have any specific views on this, then it is important to talk to your installer prior to installation as people's opinions vary considerably.



In considering the installation of an internal timber floor, you should also be aware of the different options available - the method that best suits your use and preferences, your budget and the property's construction.

Your flooring contractor may discuss the following options:

Fixed floors:

- Direct to joists or over a structural subfloor of plywood or particleboard
- Direct to plywood or on battens over concrete slabs
- Direct stick to concrete slabs

Floating floors:

- Floated as an underlay product

General aspects with fixing solid timber floors

This flooring comes in mixed lengths with structural 19mm thick flooring no shorter than 900mm so they can be supported by two joists. Thinner overlay flooring may be supplied with some shorter lengths down to about 400mm. Flooring is generally end-matched, meaning that there is a tongue and groove joint across the ends of the boards similar to the edges. This enables the boards to be joined at any point on the floor.

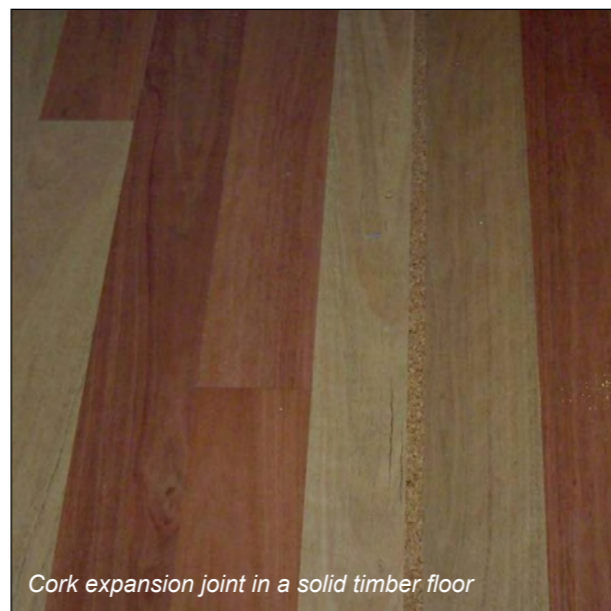
Where there is natural ground under the joists and an enclosed subfloor space, suitable ventilation is necessary and the ground beneath must be dry. If ventilation is limited, or ground conditions are moist, plastic sheeting can also be used as a ground moisture barrier, with sealed drainage beneath taking away any seepage if occurring.

With all solid timber floors, expansion allowance is required at the perimeter of the floor and with wider floors, intermediate expansion allowance is also required (generally for floors wider than 6m).

Fixing options of solid timber floors direct to joists or over a structural subfloor

In older dwellings, solid timber floors were always fixed directly to the joists and although this method still occurs, it is much less popular although with some renovations and the like, it can still be an appropriate method. In these cases the floor becomes part of the building structure and it is necessary that the floor comply with *AS 1684 – Residential timber framed construction*, as a structural floor. The standard permits boards up to 85mm wide to be top nailed or secretly fixed, however boards wider than 85mm must be top nailed. Installation also uses adhesive on the joist in combination with nailing. In some states, because it is considered part of the building structure, it requires the installer to be licensed.

Most new floors on joists are laid on a structural subfloor of plywood or particleboard. This enables thinner, solid timber flooring to be used. Subfloors provide a better laying environment and an extra layer of protection from



Cork expansion joint in a solid timber floor

external conditions beneath the floor. The plywood or particleboard is glued and either nailed or screwed to the joists. Installation of the flooring product is then with beads or a full bed of adhesive and either secretly fixed or top nailed depending on product width, desired look and flooring manufacturer's requirements.

At times, new timber floors will be installed over a pre-existing timber floor. As previously outlined, timber floors move naturally in response to changes in the climate. If an old floor moves this can exacerbate any movement of the new floor installed over the top. Additional care is therefore required and at times a slip layer of thin plywood fixed into the old floor may be necessary. Any issues such as squeaks must be eliminated from the old floor, flatness needs to be checked and the old floor rough sanded prior to the new floor being laid.

When laying over a structural subfloor on joists, expansion allowance is again required around the perimeter of the floor and with wider floors (usually exceeding 6 metres), intermediate expansion allowance is also required.

Fixing options of solid timber floors to plywood or on battens over concrete slabs

When floors are laid over concrete slabs in most states it is common to install a subfloor of plywood or timber battens spaced up to about 450mm apart. Floors laid on battens are higher than when laid on plywood and requirements for minimum floor to ceiling height needs to be considered. Plywood thickness is either 12 or 15mm and thinner overlay flooring can be used. Battens on the other hand would be a minimum of 19mm thick if higher density hardwood is used and if the batten is a lower density timber, such as pine, then the batten is 35mm thick. Note that with battens, 19mm thick structural flooring is to be used. Floors laid on plywood provide a solid feel under foot, whereas when laid on battens there is a softer feel underfoot similar to floors laid on joists.

When using either battens or plywood, mechanical fixings such as spikes are required to firmly fix them to the concrete slab and it is recommended that 200 µm (0.2mm) thick plastic sheet moisture vapour barrier be laid, or a moisture vapour barrier be applied to the concrete slab.

Flooring product is laid using adhesive and nails. Flooring is often secretly fixed due to minimal subfloor thickness, however, with thicker battens top nailing is also used and particularly with wider boards.

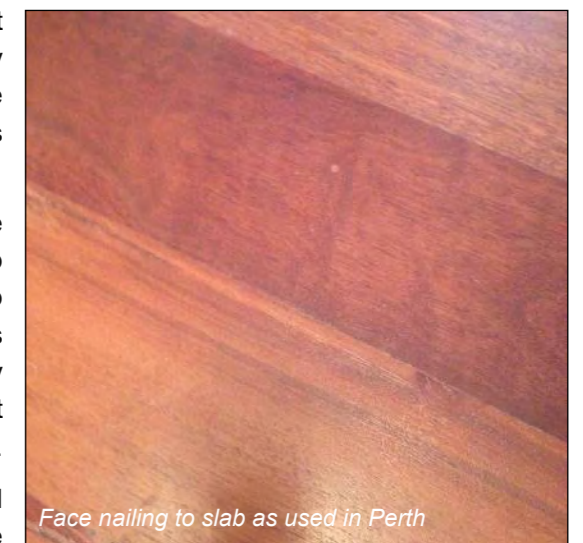
Expansion allowance is required around the perimeter of the floor and with wider floors, usually exceeding six metres, intermediate expansion allowance is also required and often provided with cork expansion joints.

Direct adhesive fixing of solid timber floors to concrete slabs

This method has been used for many years with parquetry. In Perth and Adelaide, due to their climate, solid overlay timber flooring is more often directly adhesive fixed to slabs. However, in other Australian states where the climate differs and where floors experience warm humid conditions, this practice is less common. In New Zealand with internal heating used over a greater proportion of the year, the drier internal climate also facilitates direct adhesive fixed floors and particularly with medium density timbers. Due to greater requirements in assessing the concrete slab and suitability of the site, this method of installation is more difficult and should be done by professional installers.

The direct fix method requires the concrete slab to be relatively flat as unevenness (highs and lows) in the slab can prevent adequate adhesion. The requirements for slab flatness is greater than if a plywood or batten subfloor is used so concrete grinding and levelling are often necessary to make sure the slab is sufficiently flat and clean. Note that greater slab preparation is a cost that needs to be considered.

An applied moisture vapour barrier is commonly used, and some installers will require it for all jobs while others will use



Face nailing to slab as used in Perth

it only when slab assessment dictates. A moisture barrier offers good insurance against the moisture vapour from concrete slabs, which if too high, can cause problems for the timber floor. Be aware that an applied moisture barrier is not totally waterproof, rather it prevents vapour transmission, which is ultimately what will react with the timber.

The flooring product is then laid using a full bed adhesive and may be weighted, temporarily nailed or permanently nailed to the slab to assist in good bonding of the boards to the slab. In Perth, it is usual practice to face nail into the concrete slab with concrete nails where deemed necessary as evident in the photo by the lighter coloured spot in the darker board.

Direct adhesive fixing of engineered flooring and bamboo to concrete slabs

Although engineered and bamboo floors are often laid as floating floors, they are also directly adhesive fixed to concrete slabs. In the past, bamboo floors were more commonly adhered to concrete slabs, however the practice is much less common due to the sensitivity of the product to slab moisture, and difficulties in being able to consistently address moisture uptake. Consequently, many suppliers will only permit their bamboo flooring to be floated. This however, is not the case with engineered flooring and adhesive fixing to slabs is an appropriate method providing the slab subfloor is prepared as outlined above for solid timber floors. Due to the more stable nature of solid timber floors, fixing is usually by a full trowel bed of adhesive.

Direct adhesive fixing of parquetry to concrete slabs and other timber sheet subfloors

In terms of subfloor preparation for parquetry, it is no different to that required for solid timber floors laid direct to a slab or a timber, plywood or particleboard subfloor and often a plywood underlay is used over existing timber floors. Parquetry is laid with a full trowel bed of flooring adhesive and although expansion allowance is required at the perimeter of the floor, there is often less need for intermediate expansion allowance. This is due to the smaller piece size and the patterns where blocks are often not edge to edge throughout.

Fixing options of prefinished solid timber floors

You may think that prefinished solid flooring would have the same fixing options as raw solid flooring. However, this is not the case as the likes of top nailing throughout is not an option. Also, any minor variations that often occur with raw boards cannot be sanded out prior to coating. The preference is therefore to secretly fix prefinished solid timber flooring and this may be with a combination of mechanical and adhesive fixing, mechanical only at close spacings or a full bed of adhesive. Mechanical fixings are more closely spaced than joist spacing and therefore the flooring is fixed into timber, plywood or particleboard subfloors. If laying over a concrete slab, a plywood subfloor should be included. As a prefinished board, it will be more sensitive to moisture from beneath and greater care is needed when laying over a subfloor space that has natural ground beneath. The usual expansion allowance is required at the perimeter of the floor. Incorporating intermediate expansion allowance into the floor also differs in that cork joints are no longer suitable (as they are sanded to floor height) and therefore where necessary, small gaps to board edges at regular intervals are included.

Floating floor installation

As indicated, both engineered and bamboo floors are floated and this is the case for all laminate floors. Floating floors are installed very differently from the methods above as they are not physically secured to the surface below, instead they are laid over an underlay and left to 'float'. This method involves foam or other appropriate underlay that provides a softer feeling underfoot as the surface flexes. Floating floors are beneficial where people seek minimal time out of the property during installation as the product installed is usually prefinished (either engineered, bamboo or laminate).

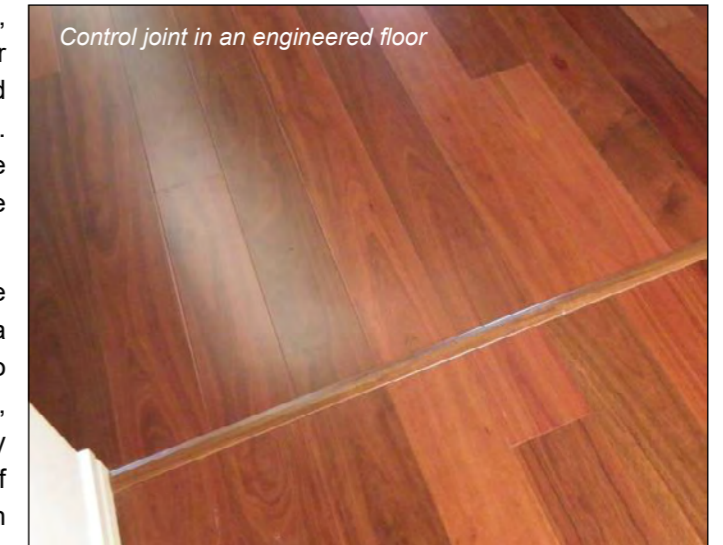
Floating floors can be installed over a variety of different subfloors. In new construction, floors are often laid over concrete slabs and the flatness of the concrete slab beneath is essential for a well performing floor. If there is too much movement with a floating floor, damage to the jointing system may occur, boards may unlock and the floor may squeak excessively. As such, concrete grinding or levelling may initially be required.

Again, care is necessary from potential slab moisture. Many foam underlays contain a moisture vapour retarding layer although with some products it is not considered to be sufficiently thick enough to be fully effective. If slab moisture has been assessed to be low (by moisture meter or other appropriate means) and the underlay has at least a 150µm thick vapour barrier, this should suffice. However, where this criteria is not met it is recommended that a 200 µm thick plastic sheet moisture vapour barrier be laid over the concrete slab below the foam underlay.

When installing over particleboard, plywood or an existing timber floor, these can usually be easily levelled by rough sanding. At times, floating floors will be laid over old tiled floors or the like and providing the surface is sufficiently flat, this usually presents no problems.

Installation of the flooring product is then simple, with boards laid in place and 'clicked' together for glueless jointing systems or with adhesive applied at board joints (depending on brand and system). The skirting boards or beading to the edge of the floor covers a necessary expansion gap at the edges and the floor is successfully floating.

However, with floors of a more complicated shape or where the floor width is wider, there can be a need to compartmentalise the floor in order to separate it into a number of smaller floor areas, each 'floating' individually. This is achieved by inserting expansion trims which are also used if the length or width of the floor is too great. With some products, this may be needed for floors wider than 6m and longer than 8m, however requirements differ from product to product. Note that where expansion and control joints are required, they are not an option as they are necessary for the floor to perform throughout seasonal weather changes.



Adhesives are now used extensively with timber flooring products and may range from PVA type adhesives used in the tongue and groove joint of some engineered products when floated, through to the polyurethane and polymer adhesives used with the fixing of floors to a subfloor. A full bed of adhesive is used with products such as parquet, engineered flooring and prefinished solid, bamboo and cork.

Solid flooring may rely solely on mechanical fixing or a combination of mechanical fixing and adhesives. The adhesive may be beaded beneath boards or a full bed may be applied depending on the installation method used. Polyurethane adhesives can contain solvents, however solvent free products are now readily available. Polymer adhesives often claim to have no VOC emissions. Hence with use of adhesives always check whether any safety precautions are necessary.

Due to the fact that timber flooring is now often laid over a supporting structural subfloor of plywood or particleboard (rather than nailed directly to timber joists) or over a concrete subfloor, adhesives are now used much more extensively with timber flooring products than in earlier days.

General rules that installers should follow when using adhesives to install timber flooring

- Ensure surfaces are not contaminated with materials that may block or reduce adhesion. In particular ensure that surfaces are dust free and that the adhesive “wets” well onto the surfaces.
- When using polyurethane or polymer adhesives from pails, ensure the lid is kept on the container to stop skinning and ensure that boards are placed on the trowelled adhesive before the adhesive surface has formed a skin.
- Always use the trowel recommended by the adhesive manufacturer, ensure that it is not worn down and that it is kept upright when trowelling to ensure the correct depth of adhesive is applied.
- If using a two-part adhesive, ensure that it is properly mixed and that the mix is both spread and boards placed in it before the mix has passed its pot life.
- When installing overlay tongue and groove flooring with adhesives, do not walk on installed boards until the adhesive has cured (overnight). If newly laid boards are walked on this will squeeze down the adhesive and cause hollow spots and/or poor adhesive bonding of the boards to the subfloor.
- In Western Australia, the practice of immediately “tapping out” during installation and then nailing down any hollow sounding spots in each newly laid section of flooring, reduces the risk of hollow spots remaining after installation is complete. However, if “tapping out” and nailing is delayed until after the adhesive has skinned then the process is ineffective.

During the installation process

Regardless of product, it will mean spending some time out of the home. If only part of your home is having solid or raw engineered timber flooring installed, it's still best to take some time out as the noise, dust and odour of products can be of concern for some.

It is also recommended that floor installation occur after all the ‘wet’ trades or those that may cause possible damage have completed their work. This also avoids contamination of the flooring which creates potential problems for the coating process later.

During the sanding and finishing process

During this process it will be necessary to be out of the home as you may inadvertently add to the possibility of contaminants affecting a freshly coated floor. When solvent based coatings are being used, these are quite strong smelling and known to make some people feel unwell.

The need to be away from the home for a finite period does not apply to factory prefinished products of laminate, bamboo, engineered and prefinished solid flooring that are designed to minimise time away from the home.

For solid strip timber flooring, parquet, cork and engineered products that are not factory coated, it is essential that the contractor be left to undertake the process without disruption or additional trades introducing unwanted dust particles to the area.

During this process entry to the dwelling should ONLY occur with the consent of the floor sander and finisher.

Operator Protocols

ATFA has established a set of protocols (recommended guidelines and duty of care) when using coatings and adhesives. These apply regardless of whether the product is solvent or water based because some water and oil based products still contain, until cured, harmful Volatile Organic Compounds (VOCs). The operator(s) is the one most susceptible to the odours and emissions of VOCs.

Protocols

- Operators should inform clients of the nature of solvent based products, that they release organic compounds into the air and will release strong unpleasant odours. Similarly, operators should ascertain if any householders have any allergy issues or protective conditions (such as pregnancy), which may necessitate the use of a water based or very low VOC products.
- Operators should advise clients to remove food stuffs (including in cupboards, pantries, fridges and/or freezers) from the vicinity of the gluing or coating work as well as any pets, fish, birds and the like.
- Operators should recommend occupants of the coated space find alternate accommodation for a period of time prior to commencement and (depending on the coating type used, ventilation of the home and sensitivity of the home occupants) after completion of the coating operation. This also aids the hardening of the coated surface.
- In the case of floor installation where solvent based adhesives are applied, the first two points above apply, however when the floor is fully enclosed over the adhesive and odours are not recognisable, occupancy is again viable in most cases. Some variables apply in this regard such as, the thickness

Coating choice

of the timber being installed and that some solvents cannot be smelt but are still present. Regardless, it is advisable that people with chemical sensitivities should remain out of the environment for a longer period of time.

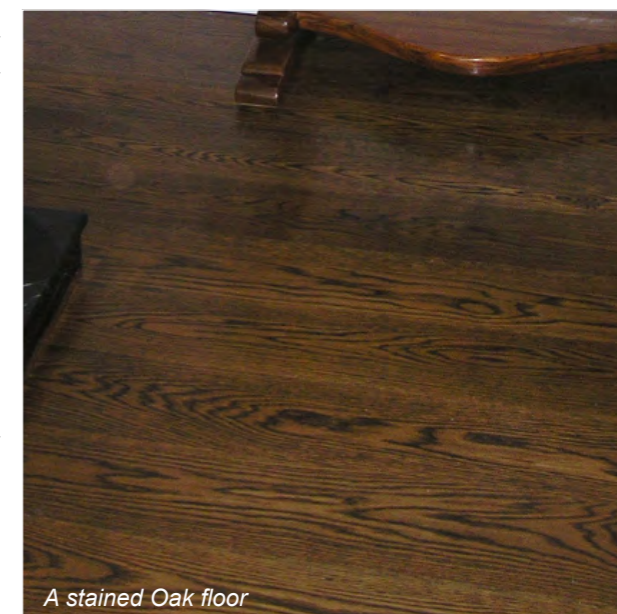
- Operators should work in a well-ventilated area when using adhesives by opening doors, windows and the like.
- Where practical, operators should also ventilate the working area when coating, noting that this is not practical when applying final coats due to dust attraction.
- Operators should utilise respirator masks at all times when anywhere in the vicinity of the gluing or coating area and during the process of application. Organic respirator cartridges should be replaced daily and while isocyanates can breach the effect of the cartridge long before they can be smelt, obviously if they can be smelt before the day is up, replace the cartridges immediately. While wearing masks can become uncomfortable and hot, they are important for the health and safety of the operator. Note: respirator cartridges are not 100% effective, for full protection use full air respiration systems.
- Operators should utilise full length clothing and enclosed footwear, VOCs may be transmittable through the skin. Again, in some circumstances (warmer climates for example) this may feel uncomfortable for a period of time.
- Operators should not eat or drink near the gluing or coating surfaces.
- The public and operators alike should avail themselves of the ATFA Coatings information sheet available at www.atfa.com.au.

The timber floor coating is a crucial component of the timber floor whether the floor be in-situ coated or prefinished coated. In the not too distant past the sanding and finishing of a timber floor was a relatively straight forward task with a three coat system of gloss polyurethane being used in most instances. This coating methodology still dominates in the Australasian market, however such a system and for that matter all coatings are not without their issues. Due in part to this, a resurgence in other technologies particularly with the advent of metalised polishes and emerging new waterborne technologies, the choices of coating have greatly diversified.

A search on the internet quickly reveals that a wide range of coatings are now available and that many manufacturers are able to supply a full range of coating types. You will find brand names that are quite familiar to you and others that you probably have not heard of. As such your choice of coating is much greater now than in the past and while this should be seen as a positive, it can also be somewhat bewildering to those with limited knowledge about coatings and coating types.

In addition to this contractors are unlikely to be familiar with all the options available and will tend to favour the range of coatings they more frequently use and have sound knowledge of and experience with. Due to this, today's reputable coating contractors are constantly involved in updating their knowledge to keep abreast of the frequent changes in this developing industry.

For this reason the ATFA plays an important role in providing not only training but also an avenue for networking and providing up to date information to their members. Most contractors will have the skills to use any coating type, however each coating will have its specifics and due to this some time in research and support from the product supplier may be necessary and is important. This is particularly so if the chosen coating system to be used differs from that more commonly used or recoating over an existing finish system is being requested. When choice is available for any product there is also varying quality and price differences between products. This too is true for floor finishes and due to the nature of some coating systems there can be a significant variation in overall project costs depending on the option chosen. Similarly those products of lower quality can be more prone to problems at time of application or in ongoing performance.



A stained Oak floor

In this section we are specifically concerned with the regular levels of confusion and potential disappointment expressed by flooring contractors, architects, building managers, and the general public alike, regarding issues that often stem from coating selection. This aspect should not be treated lightly. Although the process of preparing and coating a floor is relatively "inexpensive", especially when compared to the purchase and installation costs of timber flooring, an unsuitable coating choice can result in expectations not being realised with short lived enjoyment of a new or rejuvenated timber floor. For the consumer, appearance, durability and cost are generally the key factors.

A poor choice of coating will ultimately result in disappointment and often additional expense in extra work necessitating possible re-sanding or recoating. It cannot be over emphasised that choosing the right coating for your requirements will greatly reduce the likelihood of any potential problem down the track.

As the owner, specifier or recipient of a new floor, the most important fact to be recognised when considering the coating type is 'does it fit' your project? All floor coating types are suitable for specific applications. The difficulty lies in balancing up the attributes of each coating type to ensure that you select one that is going to be highly suitable. Good coatings in wrong applications result in poor performance – not bad coatings!

For the contractor the most important information is provided by the product manufacturer. This information needs to be followed, enquired about, even debated, but never ignored. Coatings can be complex and you can be sure significant time has been spent in research and development before the product enters the market. The product information is what enables the contractor to both apply coatings correctly and advise clients accurately as to the suitability of a coating system for a particular project (appearance, durability, cost, application considerations and environmental considerations).

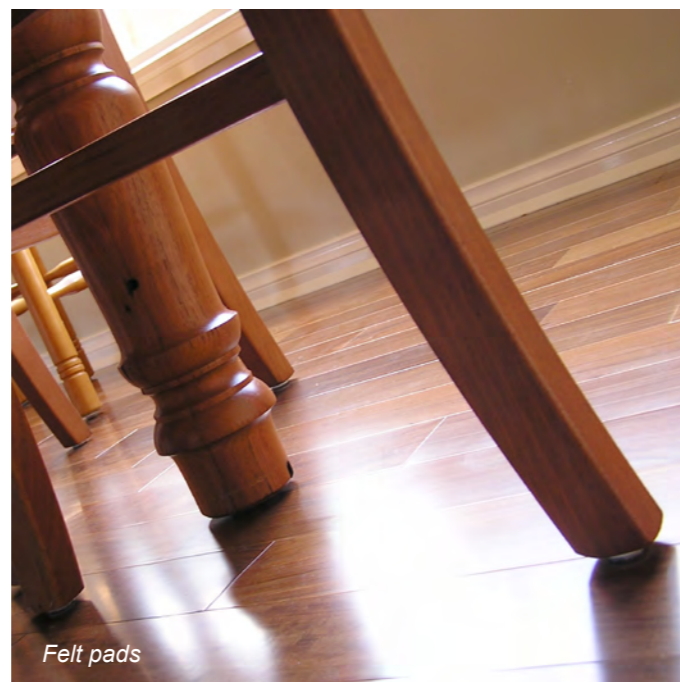
When researching products always consider the variety of timber floor coating technologies available, each will have its benefits and limitations and that the balance of these will differ from project to project. It is also necessary to ensure that coating decisions relative to your requirements are made based on accurate and complete information.

It is generally the owner's choice as to what coating or coating type is applied to the floor and the contractor is often called upon for advice. So what steps are involved in selecting a coating system that needs to be considered by both the recipient of the floor and the contractor for a particular project?

- Firstly, a selection of suitable floor coating type alternatives should be developed that are most appropriate to the project.
- Considering the broad coating groups, the visual effects they provide should be considered and ones selected that fit preferences.
- The benefits and limitations of this 'control group' should then be assessed for the type that will best meet the requirements of the project.

From this, particular manufacturer products within that group can be assessed and an informed choice made. However the basis for selection does not end there! Of equal or greater importance is what the recipient of the floor is prepared to do to keep the floor looking good! No matter what angle you take, 'MAINTENANCE' is the key aspect that ensures the ongoing appearance of a floor. It must be stressed that all coated timber floors will require some level of activity to keep them clean and to prolong their original aesthetic qualities for as long as possible. This includes:–

- Regular sweeping,
- Dust catching mats at external doorways,
- Prompt cleaning of spills,
- Occasional mopping with a recommended cleaning product,
- Felt pads on chair legs and other moving furniture,
- Sealing paved/concrete area's abutting entrances,
- Regular monitoring of wear to plan for any remedial coating requirements,
- Not wearing street shoes on the floor where possible and avoiding leather soled shoes and stilettos as damage is accelerated by the combination of dust, grit, and aggressive foot traffic.



Felt pads

These tasks are not debatable. They can be regarded a minimum requirement of owning a timber floor. However, the frequency that these tasks are carried out, as well as additional maintenance activities, is what sets different floor coating technologies apart. Put simply a lot depends on what the recipient of the floor is prepared to do 'for their floor'. Aspects such as traffic type and level of traffic, flooring environment (e.g. residential or commercial etc.) is what will greatly influence the coating decision.

If as an owner or specifier you are unable to determine a suitable coating using these considerations, then an industry professional should be consulted to assist. Though remember, although a contractor or similar professional can assist with technical information, the owner, or person specifying on behalf of the owner, should be the one choosing the finish, as they are the ones also determining the acceptable degree of ongoing maintenance.

Assuming as an owner that you have made your choice and ultimately the prolonging of the 'original' appearance of your floor is the ideal, maintenance is accepted as reality. Start with this understanding and it is more likely that you will be satisfied with your floor coating choice.

Coatings are made to protect and beautify timber flooring, but from day one the various degrees of foot traffic will begin the deterioration process that can only be managed and replenished by the "owner" or caretaker of the floor. If that happens to be you, then it is important that you make your coating choice carefully, as it is your floor.

Floor finishes – types and characteristics

The coating system that is ultimately chosen for a site sanded and coated floor will depend on a variety of considerations. In some instances the coating system will be specified and this is generally the case for commercial projects. However, with domestic floors it is often the client that requests a specific coating type or the client is expecting the contractor to provide information from which they can make an informed decision. If a coating is specified, it is still necessary that the contractor considers the consequences of using that coating and informs client about any reservations with regards to the advantages and disadvantages of the proposed coating system.

Aspects relating to coatings that may need to be considered and conveyed to the client include issues such as potential health hazards and the potential of the coating to taint food if not removed from an existing dwelling. However, other important aspects also relate to the likes of floor maintenance as it is recognised that some coating types require more frequent maintenance than others. For the chosen coating type the owner must also be prepared to undertake the required maintenance. Another aspect to consider is the yellowing of the coating with age and to note that both the timber and the coating can result in tone variation with time. With domestic floors on stairs there is also a National Construction Code (formerly BCA) requirement for step treads to be slip resistant and this can be achieved with the correct coating but only with low sheen levels.

Timber floor finishes (coatings) can be grouped into five main categories.

Timber floor finishes (coatings) can be grouped into 5 main categories:

1. Penetrating oils and waxes. This includes sub-categories of
 - Penetrating oils including air curing and burnish curing
 - Penetrating waxes including oil / wax blends
 - Film forming hard wax oil technology with or without external cross-linker



Lack of care results in extensive scratching

1. Curing oils (air curing and chemical cross-linked) and Alkyds.
2. Acid-catalysed two component
3. Oil modified Urethanes
4. Polyurethane, including:
 - Solvent based moisture cure single pack
 - Two component solvent based
 - Waterborne single pack
 - Waterborne two pack
 - Acrylic Urethane blends or copolymers

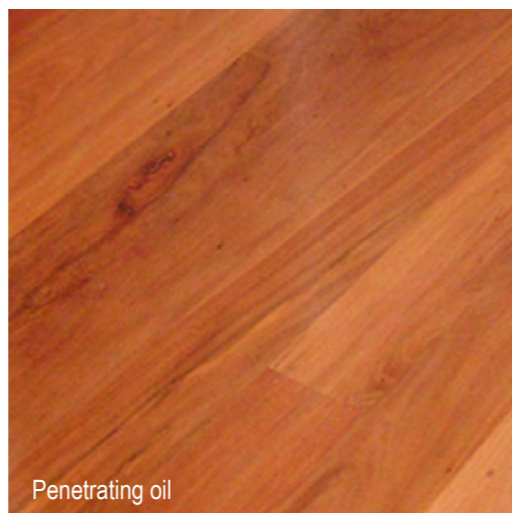
Provided below is a description of each of these categories with information about their properties, benefits and disadvantages.

Penetrating oils and waxes

Products in this category can have the lowest Volatile Organic Compound (VOC) levels although some individual products can also have a high VOC. These materials are based on sustainable natural oils and have extensive use, mainly in Europe. Routine maintenance may be higher than other categories. An advantage is the ease of repairing worn areas.

With periodic application of a rejuvenation coating the floor may never have to be re-sanded back to bare timber in its lifetime. Hard wax oils are film forming and can have good durability. They may be one component or two component with an isocyanate cross-linker. Ease of application and timber colour enhancement are key properties.

They can be 'asthma friendly' due to being low VOC and the particular types of VOC components used.



Penetrating oil

Curing oils and alkyds

Curing oils are natural vegetable oil blends that harden (cure) by reacting with oxygen in the air. Curing is enhanced by incorporation of metal 'dryers' such as cobalt and zinc that speed the slow hardening reaction with oxygen in the air. Contractors must take care as contaminated rags and sanding dust can spontaneously catch fire (these should be moved outside the building and damped down). These are film forming and are one of the earliest types of floor coatings. Good colour enhancement of the timber is a feature but some types may be very slow when curing in cold weather. Buff burnishing of the oil into the surface can allow floors to be used soon after they have been coated. On-going maintenance is higher than for other types of coatings.

Alkyds are based on reacting vegetable curing oils with a synthetic resin. This creates products with improved film build and gloss properties. As with the curing oils they can be slow when curing in colder weather. Colour enhancement of timber is a key property as is ease of application. Alkyds are generally spirit or turpentine based with intermediate VOC levels.

Urethane modified oils

Also commonly referred to as oil modified urethanes (OMUs), these are formed from the reaction of an oil with a urethane to form a copolymer which is then dissolved in solvents. Properties vary depending on the ratio of oil to urethane. The greater the oil ratio, the more flexible, and lower durability or wear resistance.

Conversely the higher the urethane content, the harder the film and greater the wear resistance. Use of these products has increased as they are more resistant to edge bonding than the moisture cure urethanes. They optimise timber colour enhancement and wear resistance performance is considered intermediate between the curing oils and polyurethanes, as are maintenance and refurbishment requirements. VOC levels are on the higher side. However, some water-based urethane modified oils are also available with low VOC levels.

The water-based products provide reduced timber colour enhancement and may not have the durability of the solvent based products.

Acid catalysed coatings

The principal use of this class of coatings is in furniture coating, although some use occurs with timber floors. Advantages are that it is fast drying and initial cure such that multiple coats can be applied in the one day but full curing takes some days. They produce a richer, darker colour in the coated timber and their rejection resistance is good. The main disadvantage is their very strong odour. Their high VOCs are mainly ethanol (ethyl alcohol).

Polyurethane – solvent-based

This class may be a 1 pack moisture cure (MC) polyurethane where cure is achieved by a reaction of isocyanate with moisture in the air, or a 2 pack that utilises a polyol component and a polyisocyanate component which react together when the two are mixed.

The solvent-based polyurethanes are the toughest and most hard wearing and have the highest gloss levels of all the timber floor coatings classes. Disadvantages can be increased risk of edge bonding, high VOC and the need for particular care when using them due to the fact that the isocyanate components of both types (and many water-borne cross linkers) are respiratory sensitisers.

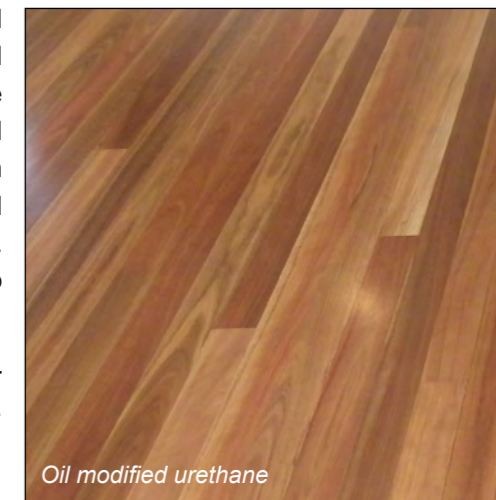
Polyurethane – water-based

Water-based polyurethanes have the most diverse range of sub-categories. The polymer bases used include:

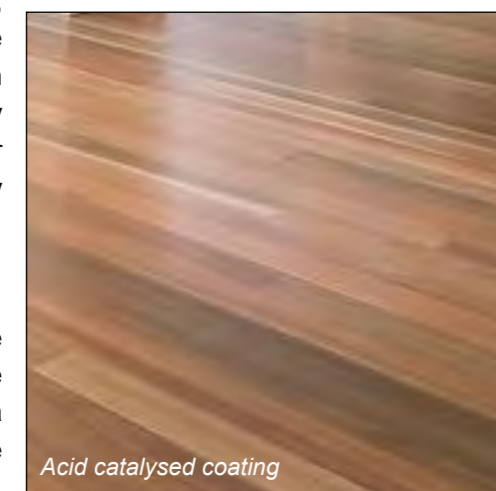
- acrylic / polyurethane blends
- co-polymer acrylic-urethane
- 100% polyurethane

Additionally, each group may be available in a 1 pack or a 2 pack. A few 1 packs still feature a polyaziridine crosslinker which is a class 2 carcinogen and care when using it is advised. Most 2 packs use a polyisocyanate hardener which also requires care in use.

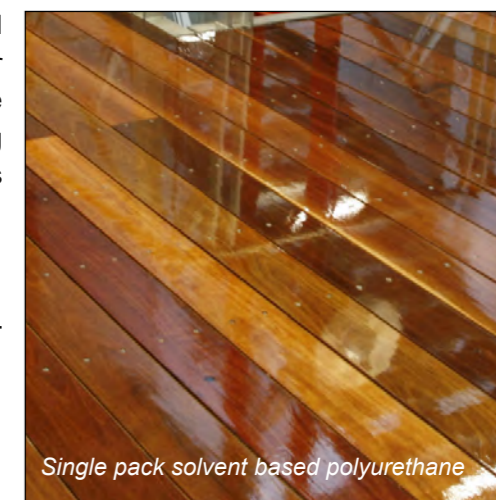
On-floor performance (wear resistance or durability) can vary markedly within this class and as a result greater care is required in selection of a particular finish. Two pack types are generally superior to 1 pack in this regard. The Taber (wear resistance) test is a meaningful comparison test for wear resistance within this class. Key advantages are low solvent fumes (low VOCs) when they are being applied and water clean-up of tools.



Oil modified urethane



Acid catalysed coating



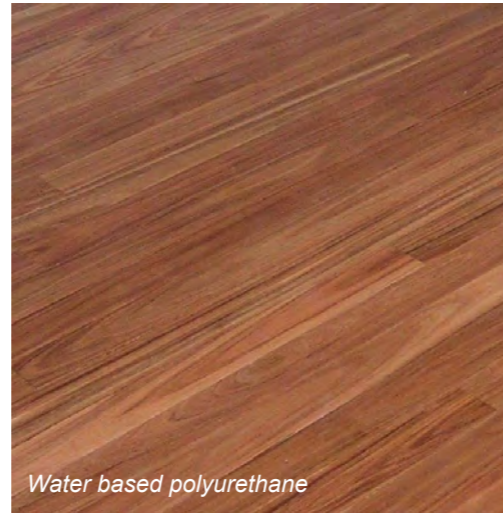
Single pack solvent based polyurethane

This leads to them being promoted as being less hazardous (toxic). One pack types are less hazardous to use than 2 packs as they do not use a hazardous hardener. They also have good edge bonding resistance.

Disadvantages may include increased tendency for application marks and some products can develop 'tram lining' (white stretch effect) at board edges as the floorboards expand and contract.

Quick reference guide

The following table is presented as a guide only. Performance of different coatings within the same class can vary markedly. Consult your coatings supplier for objective data on the product you may intend to use. Claims provided in writing by the supplier are always preferable.



Water based polyurethane

Technology and Property	Penetrating oil	Hard wax oil 1 and 2 component	Oil alkyd (e.g. Tung Oil)	Oil modified urethane	Acid catalysed coating	Solventborne moisture cured 1 pack polyurethane	Solventborne 2 pack polyurethane	Waterborne 1 pack polyurethane	Waterborne 2 pack polyurethane
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Technical Properties

	Low - Med	Med	Low	Med	Med - High	High	High	Med	Med - High
Durability									
Typical expected years to requiring a refurbishment coat in a more severe wear situation	1 - 2	1 - 6	3	4	4 - 5	6	6	4 - 6	5 - 6
Maintenance requirement - Care daily, weekly, monthly	Low - High	Low - High	Med	Medium	Low	Low	Low	Low	Low
Repairability of localised damage	Good	Good	Difficult	Difficult	Difficult	Very difficult	Very difficult	Difficult	Difficult
Earliest 'with care' use time @ 25°C	5 days	2 days	3 days	3 days	3 days	2 days	1 day	1 day	1 day
Earliest re-occupancy time @ 25°C	7 days	7 days	5 days	5 days	5 days	3 days	2 days	4 days	3 days
Ability to cure in cold and dry weather (non-burnished)	Low	Low	Medium	Medium	Good	Good	Good	Fair	Medium
Ability to cure in cold and damp weather (non-burnished)	Low	Low	Low	Low - Medium	Low - Medium	Medium	Good	Low	Medium
Rejection resistance (From surface tension)	Good	Good	V. Good	Good	V. Good	Fair	Fair	V. Good	V. Good
Edge Bonding resistance	V. Good	V. Good	V. Good	V. Good	Good	Poor	Poor	V. Good	Good
Timber colour impact	Darkens	Yellow / honey	Darkens	Darkens	Darkens	Yellow / honey	Yellow / honey	Natural / pale honey	Natural / pale honey
Tram lining	Nil	Nil	Nil	Low	Nil	Low	Low	High	Medium
Application marks resistance	High	Medium	High	Medium	High	High	High	Poor to Medium	Medium
U.V. yellowing resistance	Poor	Fair	Poor	Poor	Poor	Poor	Poor	Fair to Good	Good
Surface scuff resistance	Poor	Good	Poor	Poor	Good	Very Good	Very Good	Poor to Good	Good to v. good
Dust pimples from electrostatic attraction of dust to the coating	Low	Low	Low	Low	Low	Medium	High	Low	Low
Quilting resistance	V. Good	V. Good	V. Good	V. Good	V. Good	Poor	Medium	V. Good	V. Good
Grain raise effect on apply	Low	Low	Low	Low	Nil	Low	Low	Medium	Medium
External use	No	No	No	No	No	No	No	No	No

Technology and Property	Penetrating oil	Hard wax oil 1 and 2 component	Oil alkyd (e.g. Tung Oil)	Oil modified urethane	Acid catalysed coating	Solventborne moisture cured 1 pack polyurethane	Solventborne 2 pack polyurethane	Waterborne 1 pack polyurethane	Waterborne 2 pack polyurethane
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Safety, Health and Welfare (consulting the manufacturer's MSDS / SDS is essential)

Odour – short term	Noticeable	Low	Medium	Medium	V. High	V. High	V. High	Low	Low - Medium
V.O.C. – solvent content – grams per litre	0 – 800	0 - 480	600 - 700	600 – 700	440 - 450	300 - 600	500 –550	35 – 190	85 - 190
Breathing equipment needed in use per MSDS	Cartridge type	Cartridge type	Cartridge type	Cartridge type	Cartridge type with daily change	Cartridge type with daily change	Cartridge type with daily change	No	Cartridge type
May contain a listed or suspect carcinogen	No	Suspect white spirits in some	Suspect white spirits	Suspect white spirits	Yes - Ethanol Class 2	Yes – TDI Class 2	Yes – TDI Class 2	No	Maybe if Part B is Polyaziridine - Class 2
Asthma and respiratory warning	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Flammability	Low - High	Low - High	Low	Low	High	V. High	V. High	Nil	Nil

Caring for your timber floor

As timber floors have grown in popularity, so have products and ideas about how to clean a timber floor. There are TV hosts telling viewers to use vinegar mixed with water for a “green” wood floor cleaner, commercials selling mops that use hot steam to sanitize a floor. Contractors recommending the use of methylated spirits mixed with warm water to mop the floor. Stores selling floor cleaners with added wax “to restore your floors original lustre”. It’s no wonder that consumers get confused about what they should do to clean their timber floors ... and no wonder that flooring contractors come across some real disasters when they visit the homes of complaining customers.

Just as timber species vary in colour and hardness so too the finishes and coatings that can be used on timber floors. Coatings and floor finishes vary in the way that they require to be maintained and vary in what type of maintenance products should be used. For example, solvent based polyurethane is a different looking and wearing finish than an oil finish. Cleaning products used also differ significantly. The same can also be said for Pre-finished timber floors, bamboo and laminates. Flooring products vary considerably in the construction and make up so do their recommended cleaning requirements. One cleaning product/method does not suit all. Contractors need to educate themselves as to what the manufactures are recommending and why they are recommending it.

Timber floors vary in ease of maintenance depending on the type of coating used and the severity of wear on the floor. Floors always greatly benefit from regular care. In doing so, the life of the floor finish and floor are greatly enhanced. However at some stage the floor will need to be rejuvenated and this usually requires film building coatings to be buffed back and the floor re-coated. Some of the Oiled and Waxed floors will benefit from the more frequent application of such products as oil refreshers, maintenance oil, maintenance paste, maintenance wax or metalized polish, which all provide additional wear layers to the surface. It is important that appropriate maintenance advice be passed on to customers as it assists in ensuring ongoing customer satisfaction.

A Newly Finished Floor

Although a floor may be walked on after initial curing/hardening of the coating, some precautions are necessary with a newly finished floor until the coating system has fully hardened and this may take several days to several weeks depending on the coating option taken and the weather conditions at the time of application. Use of the floor before the full cure has been realised can result in increased tendency for scuffing and scratching. It is recommended that rugs are not laid until after the floor finish has fully hardened. Additionally rugs with rubber backings should never be used as these may tend to stain or otherwise affect the applied coatings. While light furniture can be replaced and used during this period, it should be ensured that furniture protection felt pads are attached to the feet of tables and chairs etc. and furniture such as chairs should be lifted and not slid across the floor.

Similarly, it should also be ensured that heavy items such as fridges are moved carefully into position and at no time should they be dragged over either newly finished or fully cured floors. Consideration should also be given to chairs with castors as they can indent softer timbers and also cause premature wear of the coatings they are in contact with. Again these should not be used until the finish has hardened. (Note that barrel type castors are less likely to damage a floor than ball castors.) Avoid walking on your wood floors with cleats, sports shoes and high heels. A 60kg woman walking in high heels can have an impact of 1 tonne per square inch. An exposed heel nail can exert up to 4 tonne per square inch. This kind of impact can dent any floor surface. Timber floors are generally easy to maintain and greatly benefit from sensible use and regular care.

Ongoing Care and Maintenance

Ingress of Grit and Direct Sunlight

There are some things that are enemies to timber floor finishes and one of these is sand or grit that can be brought into the house with footwear. These small particles act like sandpaper resulting in scratches in the floor. Mats placed both outside and inside external doors provide a simple and effective means of significantly reducing grit from entering the house. Similarly, in high wear areas, carpet runners and rugs can be effective and can also add to the décor of the house. The kitchen floor generally experiences high wear and therefore a floor rug in this area can be particularly beneficial.



Door mats significantly reduce grit being walked in

Another aspect that should be considered is the amount of direct sunlight that is reaching the floor. Direct intense sunlight can contribute to gapping and possible cupping of boards (board edges higher than the centre of the board). It will also cause the colour of both boards and finish to change with time. Some floor finishes are more prone to darken with age and direct sunlight accelerates this process. Filtered sunlight through curtains or blinds provides an effective means of slowing the colour change processes and is also effective in controlling the gap width between and possible cupping of floor boards. In some instances it may be decided that window coverings will not be used, and if the sunlight has not been controlled by patio roofs or awnings then floors rugs can be used.



Severe steam mop damage

Steam mops

Everyone has seen the commercials showing steam cleaners magically sanitising, disinfecting, deodorising, and cleaning a timber floor. The manufacturers even advertise for use on timber floors, but that doesn’t mean that timber flooring manufacturers or finish manufacturers think steam mops are appropriate for a timber floor; in fact, some have begun to specifically mention steam mops in their list of ‘don’ts’. Steam mops can cause peeling of finish, whitening of the finish and a cloudy finish. Unless the timber flooring or finish manufacturer says it’s OK, it’s safest to assume steam cleaning is not appropriate on a timber floor.

Maintenance Plan

Establishing a regular cleaning program will greatly assist in keeping floors in pristine condition. There are many aspects that affect how often the floor requires cleaning and these include the degree of grit present (particularly from children and pets), the types of exterior and interior matting used, the level of foot

Coating or product type	CLEANING PROCESS			
	Brand specific cleaner that matches the coating	Other cleaning methodologies	Steam mops	Wet mopping
1 and 2 pack solvent based polyurethanes	yes	Follow the advice provided by the coating manufacturer for your product. Note: use of domestic detergent, vinegar, methylated spirits or commercially available floor cleaners may damage your floor – consult the coating manufacturer of your product first.	no	no
1 and 2 pack water based polyurethanes	yes		no	no
Hard wax oils	yes		no	no
Penetrating oils	yes		no	no
Oil modified urethanes	yes		no	no
Pre-finished Engineered, Solid and Bamboo with UV cure	yes		no	no
Laminate products	yes		no	no

As coating properties can vary within a group it is always advisable to evaluate any cleaning products or techniques on a less conspicuous part of the floor surface prior to use.

traffic, type of footwear and general conditions of the area outside the house. Spills should be mopped up when they occur and any leaks must be attended to immediately. Failure to attend to leaking pipe work can result in severe problems with a floor particularly when laid over sheet flooring or directly adhered to a concrete slab. Scuff marks or stubborn stains may be removed with light rubbing using a wood floor cleaner. As some cleaners can attack certain types of coating, where possible use the cleaning regime specified by the floor coating manufacturer – alternatively always test rub an isolated area of floor to verify compatibility of the cleaner with the coating.

For regular cleaning of domestic floors an antistatic mop provides an effective means of collecting dust and grit. Continual walking on a dirty floor will quickly damage the finish. If a vacuum cleaner is used then the condition of the brushes should be regularly checked.

If they have worn thin, contact of the metal head on the floor can result in scratching. Also, do not use hard head vacuum cleaners as they will invariably cause fine scratches on the floor.

On a fortnightly to monthly basis floors can also benefit from damp mopping. Providing the mop is only damp and the finish is in good condition, mopping carried out correctly will not affect either the finish or the timber. Damp mopping provides an effective deep clean and should be undertaken with a neutral pH wood floor cleaner or product recommended by the finish manufacturer.

Harsh detergents or abrasive cleaners are to be avoided. After wetting the mop it should be wrung out until it is moist before mopping. Using clean water, a final mopping with a mop wrung out till it is 'dry' may be used to further remove excess moisture on the boards. Periodically the protective pads on furniture legs should also be checked to ensure that they are clean of grit or in need of replacement.

When is re-coating a floor necessary?

Timber floors are subject to different wear patterns and it is in areas of higher wear that there will initially be signs that the floor requires re-coating. It is important to ensure that excessive wear does not occur before re-coating the floor is considered. If wear has been excessive then a total re-sand and re-finish will be required. The finish should be inspected in the high wear areas and if a few drops of water bead on the surface then the finish is still intact and may require cleaning rather than recoating.

If however, after a few minutes the water begins to soak in and the timber colour darkens, then the finish is partially worn and recoating should be undertaken. It is important that the details of the original coating system can be made available to the sander and finisher to ensure compatibility between coats.

Maintenance mantras

These guidelines apply to any Timber floor. Following them will help your floor look good for longer between recoating and re-sanding:

- Anti-static mop, sweep and/or vacuum (soft head) the floor as often as possible.
- Never, ever wet-mop a floor.
- Only use cleaners that are recommended by timber floor coating manufacturers or timber floor manufacturers.



- DON'T use: ammonia-based cleaners, wax-based products (unless coating is oil or wax), detergents, bleach, polishes, abrasive cleaning soaps, steel wool or abrasive cloths, turps or kerosene.
- Use walk off, walk on mats and area rugs at all doorways (keep door mats clean).
- Put floor protectors on the bottom of all furniture and anything else that is hard and will make contact and might rub on the timber floor. (Lift and do not slide chairs.)
- Wipe up all spills immediately. Many beverages will stain most finishes if left on the floor.
- Keep pet nails trimmed. Know that dogs running through the house will scratch any finish.
- Consider using carpet runners/area rugs in high-traffic areas.
- Keep your home at normal living conditions for your area—no extremes of humidity or temperature.
- Protect your floor from direct sunlight. Prolonged exposure to sunlight can soften the tone of different species of timber to varying degrees and accelerate the darkening from oxidation and aging of timber and the coating.
- DON'T wear shoes with stiletto heels on your timber floor. Remove shoes at the door to avoid potentially dragging in sharp objects in your shoe treads.
- Rearrange your rugs and furniture periodically to allow the flooring colour to age evenly.

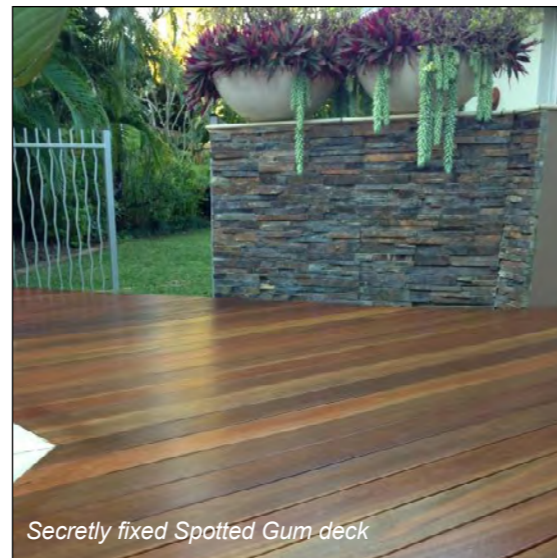


Decking boards are designed for external floors and do not have the tongue and groove edges of internal floorboards. Boards are laid with small gaps between to permit the boards to shrink and swell freely under the sun and rain. Many Australian and some imported hardwoods are used as well as preservative treated pines.

A wide range of species are available for external use and some are termite resistant which is also important. Some hardwoods are not durable and not for external use. Hardwoods and softwoods that are used externally have had their sapwood treated with preservative to ensure long term durability.

The hardwoods below are more commonly available for decking:

- Belian
- Blackbutt
- Forest Red Gum
- Grey Gum
- Grey Ironbark
- Gympie Messmate
- Kwila (Merbau)
- Red Ironbark
- Red Mahogany
- Spotted Gum
- Tallowwood
- Turpentine
- White Mahogany
- Yellow Balau



Installation of decking

Decking installation is generally direct to joists with the boards usually nailed or screwed into place. However, more recently other systems have been introduced which enable the secret fixing of boards. Decking boards come in mixed length packs with smaller lengths no shorter than 900mm so that they can be supported by two joists and board ends are butt-joined over the joists.

Installation of the decking is then by two nails or screws through the top of the boards at each joist crossing. Some of the newer secret fixing systems utilise adhesive on the joists prior to board fixing. The distance between the centre of joists is normally up to 450mm.

If decks are close to the ground then materials need to be of higher durability and boards need to be spaced a little further apart to accommodate the reduced ventilation. In such instances, it is also necessary to have good drainage and to ensure that there is no likelihood of water pooling beneath the deck.

Coating decking

Decks perform significantly better when finishes are applied to provide protection from the weather and thereby reduce the effects of exposure to sun and rain and the overall effects of weathering. It is therefore advised that all decks should have a finish applied. The finish also assists in reducing swelling and shrinking that can lead to a higher degree of distortion and surface splits (known as checking). Consequently, good finish systems will add to the service life of the deck.

Preparation

Finish manufacturers generally indicate that the deck should be left for 4 to 6 weeks prior to applying the finish. With some timbers, a longer period is suggested to allow the tannins to wash out and oils to leach from the decking prior to the finish being applied. Kwila or Merbau are tannin rich and Spotted Gum has oils that can affect finishes. Depending upon the condition of the deck at that time, it may first be necessary to clean the deck and this is also part of some finishing systems. Proprietary deck cleaning products (including Integrain Reviva and Cabots Deck Clean) are generally available from hardware stores that stock deck finishing products. These products should be used in accordance with the manufacturer's instructions.

Prior to applying the finish, a water repellent preservative can be used as a base coat. The product has various waxes and resins dissolved in a light organic solvent that inhibit decay. With a consistency of mineral turpentine, it will soak into the timber and particularly the cut ends. This enhances the durability of the deck and being a water repellent, the decking is less susceptible to swelling and shrinkage from rain wetting. Compatibility with other finishes needs to be checked and other finishes should generally not be applied over the product within two weeks of application. If the deck is to be painted then oil based primers are generally used and this also adds to the durability of the deck.

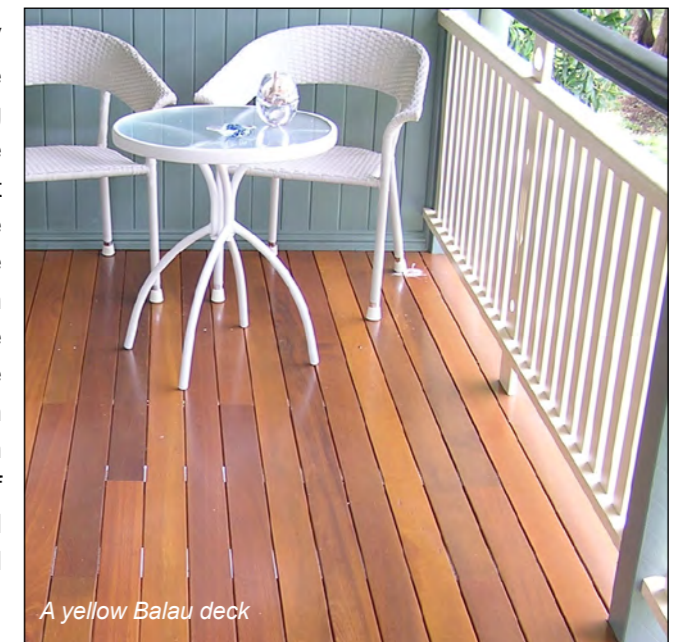
It is also recommended that the tops of joists be primed or capped with rubber products specifically made to protect from adverse conditions.

Finish options

Commonly available finishes include decking oils, water-based film finishes, stains and paints. When choosing colours it is important to remember that dark colours absorb heat, not only making the deck very hot to walk on but also making the boards prone to cupping through more rapid loss of moisture from the top board surface. Due to this, light coloured paints and stains are recommended.

Decking oils are predominantly used. They are a penetrating finish that soak into the decking and provide a natural look to the timber with both the texture and grain showing. Oils may be solvent or water-based and some, in addition to penetrating, provide a protective coating. They are easy to apply and reapply only requiring the deck to be cleaned off prior to reapplication. However, traditional solvent-based products are generally not long lasting and after initial application, additional coats may be required six months later and then at yearly intervals. Conversely, water-based systems are typically more durable and require less frequent maintenance. Solvent-based systems will usually darken with time.

Transparent water-based film finishes with UV inhibitors are also available and these maintain the natural timber look that is often desired. Decking stains either solvent or water-based are also available and these can be considered as very thin paints that contain a pigment or colour that can tone in with the colour of the timber or provide a distinct colour to the timber. To provide a longer lasting finish, paints can be used. In this instance, oil-based primers should be used for both oil and water-based paint systems. The oil-based primer enhances the durability. Although a painted surface will provide the best protection against weathering the colour, grain and texture of the timber will be obscured. The paints that are used are specific for decks in order to cater for the added traffic and light colours should be used.



To increase the slip resistance, some manufacturers produce additives that can be added to decking oils and stains. Although these additives increase the surface roughness they should not appreciably affect the durability of the finish.

Application of the finish

Application techniques will vary depending on the product. However, as some products are more specific regarding the method, it is necessary to ensure manufacturer instructions are followed. Products will generally be applied with a roller or an applicator to enable the deck to be coated quickly and with an even finish. Brushes are used for more difficult to reach areas such as board edges and ends.

Maintaining your deck

Regular maintenance

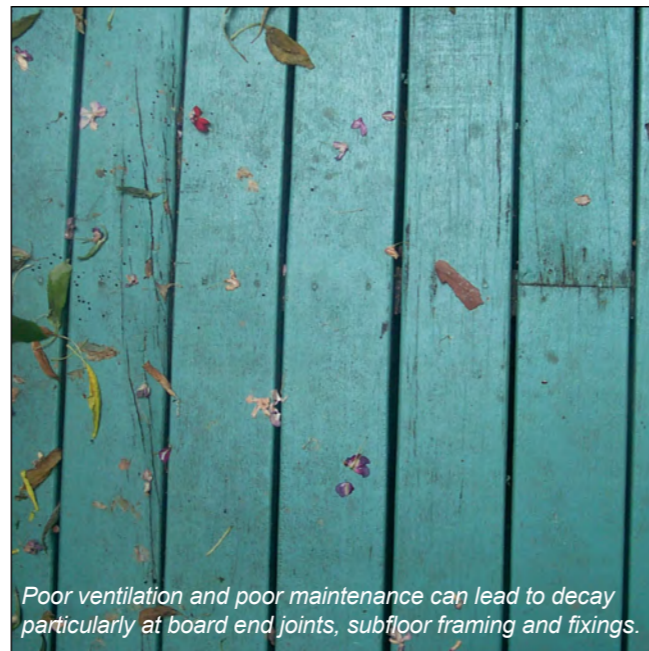
Weather exposure often means harsh conditions for timber decks so in order to achieve lasting long-term performance, effective and regular maintenance is necessary. The frequency of maintenance will vary depending on many factors including the degree of exposure, location of the deck and the finish system that has been applied.

Decks should be kept clean and regular sweeping or use of blowers is preferable to hosing the deck down because decks benefit from being dry whenever possible. Vegetation around the area needs to be kept in check and if needs be, cut back to ensure there is adequate ventilation beneath the deck. Although there is no reason not to have pot plants on a deck, they should be elevated off the surface of the deck with pot stands and feet so that the base of the pot is not in contact with the deck. Similarly, saucers should be used under pots, and plants should not be overwatered causing the saucer to overflow. Where posts are in stirrups, any debris beneath the post needs to be cleared.

Safety checks

At least once a year, the condition of the deck, the deck structure and fixings must be checked. However, at any point in time there can be movement of board fixings and boards within the deck especially with a change in season, therefore regular routine checks of the decking are also necessary.

The likes of any protruding nails or screws should be attended to as soon as they are seen, as should any damaged boards. The structure, particularly with elevated decks, should be checked for soundness and that fixings are not corroding. As above, ventilation beneath the deck needs to be checked and reinstated when necessary, which may include clearing undergrowth from the deck perimeter and clearing the gaps at board edges.



Poor ventilation and poor maintenance can lead to decay particularly at board end joints, subfloor framing and fixings.

When it comes to having your new internal timber floor installed or your existing floor sanded and polished, we recommend that you look for an ATFA member first. Whether it's a strip timber floor, parquet, engineered, laminate or a cork floor we strongly advise that it is installed and/or sanded and finished by an ATFA member.

ATFA members are part of the national peak association in Australasia which sets benchmarks for its members and expects the highest level of quality.

The benefits of using an ATFA member business are many and include:

ATFA members are bound by a Code of Professional Conduct and Ethics (see the back page);

- Members are scrutinised prior to their approval as a member of the Association;
- Members have a dedication to the industry and an interest in serving clients well;
- ATFA members are dedicated to training people for the future;
- ATFA members are dedicated to improving business arrangements and recognition as a quality service to the community;
- Members are supplied with the latest industry guidelines for installation, sanding and finishing;
- Members participate in a range of training and industry networking activities;
- Members are able to participate in continuing professional development to increase through levels of expertise;
- ATFA members have access to professional contracts which provide you with peace of mind;
- Members receive regular industry news and technical advice;
- As the consumer, you have access to the ATFA website to find out about timber floor performance and expectations;
- Using an ATFA business provides the consumer with direct access to the Association's professional staff and an informative website;
- When something goes wrong you have access to ATFA Accredited Floor Inspectors;
- ATFA members have access to national hotlines for those complex issues when advice is necessary; and
- ATFA members benefit directly from ongoing research and development conducted by ATFA and its partners.

As a member of ATFA, the member agrees to uphold the Code of Professional Conduct and Ethics, including the following conditions:

- Conducts business with customers and provide products and services with honesty, integrity, fairness, value and competence;
- Promotes the merits of the products used and the services provided without degrading competitors;
- Ensures that all the products and services provided are delivered as advertised and that all claims made are genuine;
- Provides all the facts about the materials used so that the truth about products and services may be fully understood;
- Ensures that the standard of product or service delivered to the customer is provided as promised and in accordance with industry practice and in a manner which shall enhance the reputation of the industry;
- Abides by all Governmental legislation, regulations, codes, standards and by-laws;
- Supports the ATFA and its goals and purposes towards advancing the Timber Flooring Industry;
- Ensures compliance with this Code by all other members of the organisation, to the extent that this Code applies to them;
- Abides by this Code of Professional Conduct and Ethics and recognise the ATFA as the authority in all matters relating to the interpretation and enforcement of this Code, within prevailing legal limits; and
- Avoids any action which may bring the ATFA and its members into disrepute.

Finding an ATFA member in your area is as simple as going to the ATFA website www.atfa.com.au and accessing the 'Find a Member' section from the home page.

In finalising arrangements with a contractor insist on a contract or written agreement and be sure to specify the products and installation method in detail.

Consumer Guide to Timber Flooring



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Australasian timber flooring association
Local professionals, world-class standards

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