

Timber flooring



**Getting it
right!**

David Hayward - ATFA

Great timber floors



Spotted Gum



Blackbutt

Great timber floors



Brushbox with Blackbutt dots



Grey Ironbark

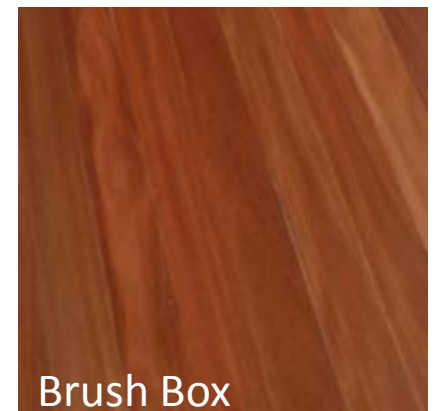
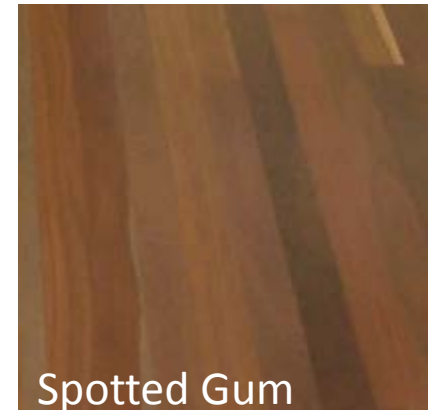
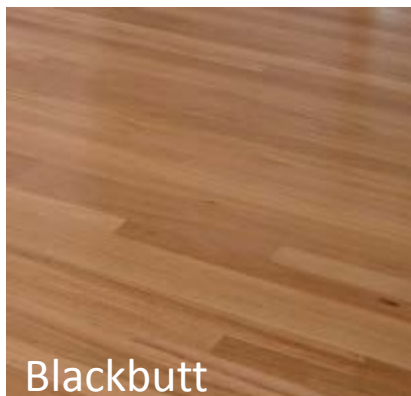
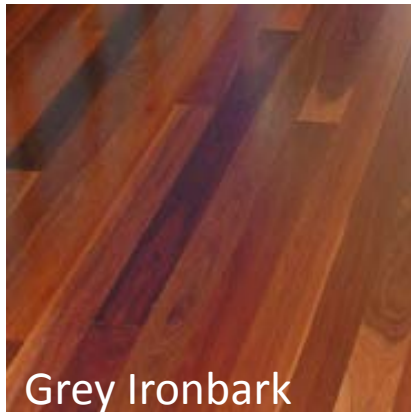
So what makes these floor work – 3 things



- 1. Knowing the characteristics of the product**
- 2. Knowing the environment you are laying in**
- 3. Laying taking these aspects into consideration**

Choosing your flooring

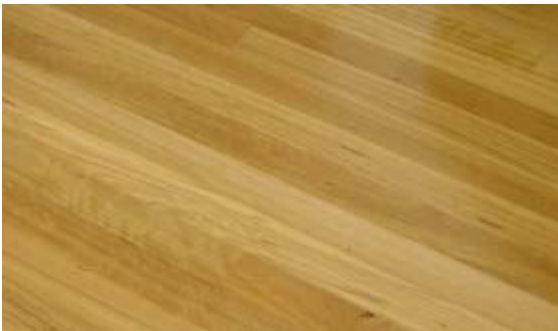
The species chosen determines the overall colour



Choosing your flooring

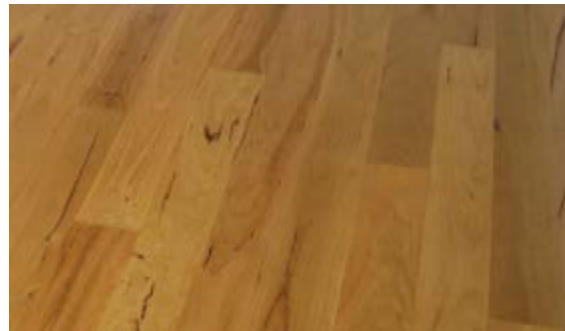
The grade determines the character of the floor

Lightly featured



AS 2796 Select Grade

Moderately featured



Medium Feature –
Standard Grade

Moderately + featured



High Feature Grade

Not all boards in a finished floor may meet the grade description and this is still acceptable (Sanding & grading errors).

Some species have more features than others and therefore some Select Grade floors have more features than others.

Choosing your flooring

atfa 'Floor Colour & Grade'
 Australian Timber Flooring Association
 Information Sheet #5 May 2008

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The choice of species influences the colour of a floor.

There are many timber species used in timber floors which provide us with a rich array of colours and grain patterns. In some species the natural colours will be fairly consistent while in others there can be blends of many colours and tones. This is particularly so where the sapwood (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 also occur. In addition to the age of the tree also has a significant effect on the colour. Timber from younger trees often being lighter in colour than more mature trees. When choosing a timber species ensure that you 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 also consider whether there is another similar coloured species or whether mixed species of similar colour are available that would be more suited to what you are looking for.
- You need to realize that photos in magazines or off computer screens are NOT going to 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 and even these cannot cover the full range of colour variations.
- 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.



A blend of colours showing light pink sapwood to red and red-trowns in the heartwood.

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atfa Hardwood Species names
 Australian Timber Flooring Association

Information Sheet #24 February 2011

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Introduction

Australia has a long tradition of common names for species, and 'towel gum' is a prime example where there is a 'towel gum' in at least three states and each is a different species. Flooring is generally sold by common name and not botanical name. However, Spotted Gum and Blackbutt are all common names of well known species. However, in other instances some older common names have been changed to newer names and one such example is where it Marra Gum is now often referred to as Ribbon Gum or New England Oak. Due to this list of species provided by Australian manufacturers contain a range of common names. This not only occurs with Australian species but also with imported species such as Pacific Jarrah that this is not Jarrah as we know from Western Australia. Species mixes that provide a similar look are also marketed under single common names. Tasmanian Oak and Victorian Ash are probably the most common example of this. Victorian Ash is essentially a mix of two species and Tasmanian Oak has these same two species but with a third one added.

It is difficult at times to follow all these different names, yet there is still one other set of names with each tree having its own botanical name and this does not generally change. Provided below in the tables in alphabetical order are listings of the common names, other common names also applied to a species or group of species (synonyms) and the botanical name. The tables are separated by growing region. At times there may be two common names for the same species that are often used and in these instances both are listed.

Australian species – Common names, synonyms and botanical names

Common Name	Synonyms	Botanical Name
Hardwood flooring species grown in Queensland and Northern NSW		
Blackbutt	Crested Blackbutt	<i>Eucalyptus nitens</i>
Brush Box		<i>Lophocystium curatellae</i>
Clarry Mangrove	Blackbutt	<i>Corymbia grandiflora</i>
Wooded Gum	Black Gum	<i>Eucalyptus grandis</i>
Forest Red Gum	Blue Gum	<i>Eucalyptus tereticornis</i>
Grey Box		<i>Eucalyptus microcarpa</i>
Grey Gum		<i>Eucalyptus grandis</i>
Jack pine		<i>Eucalyptus spectabilis</i>
Cypress Messmate		<i>Eucalyptus oblongata</i>
Marra Gum	Ribbon Gum, New England Gum	<i>Eucalyptus strictata</i>
New England Blackbutt		<i>Eucalyptus nitens</i>
New England Oak	Marra Gum, Ribbon Gum	<i>Eucalyptus strictata</i>
Red Gum		<i>Eucalyptus tereticornis</i>
Red Ironbark		<i>Eucalyptus rubra, Eucalyptus fibrosa, Eucalyptus sideroxylon</i>
Red Macadamia		<i>Eucalyptus affinis</i>
Marra Gum	Marra Gum, New England Oak	<i>Eucalyptus strictata</i>
Rose Gum	Floral Gum	<i>Eucalyptus grandis</i>
Spotted Gum		<i>Corymbia maculata, Corymbia citriodora</i>
Stringybark		<i>Eucalyptus leucomelaena subsp. strictata, Eucalyptus spiciferus subsp. latifolia</i>
Sydney Blue Gum	Blue Gum	<i>Eucalyptus tereticornis</i>
Whitebutt		<i>Eucalyptus microcarpa</i>
White Gum		<i>Corymbia grandiflora</i>
White Mangrove		<i>Eucalyptus amplexicaulis</i>

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atfa Hardwood flooring grades
 Australian Timber Flooring Association

Information Sheet #23 February 2011

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Introduction

Grading by visual means is simply a sorting process based on the size and number of features present in the boards. Boards with fewer and smaller features are sorted into one grade while those with more frequent and larger features would be sorted into another grade. Each grade has specific criteria and is given a name which may be in line with one of three grades contained in Australian Standard AS 2796 – Timber – Hardwood – Sawn and milled products or a manufacturer grade where different grading rules developed by that manufacturer have been used in grading the flooring.

The purpose of this information sheet is to outline what the AS2796 grading standard for hardwood flooring covers, explain the different types of features that may be present in each of the AS2796 grades, explain manufacturer grades that differ from the AS 2796 grades and provide guidance on ATFA manufacturer grade names and their alignment to AS 2796 grades.

AS 2796 – Timber – Hardwood – Sawn and milled products

The grading of most hardwood flooring is done around Australia Standard AS 2796 – Timber – hardwood – Sawn and milled products. Grading rules have two specific purposes. The first is to address aspects of strength and serviceability when flooring is to be laid in structural applications such as over joists. The second aspect is to determine the character (overall appearance) present in a floor through the sorting of boards depending on the features present.

AS 2796 provides for three grades and the only difference between them is the size and number of the features permitted. In all other respects, that is moisture content, tolerances and machining imperfections there is no difference between the AS 2796 grades. It is important to note that the standard does allow manufacturers to produce their own grade and still comply with the moisture content and machining requirements in Part 4 of the standard. The standard does require that such manufacturer grades be documented and the rules in the standard to ensure adequate structural capacity of the product in applications such as flooring on joists.

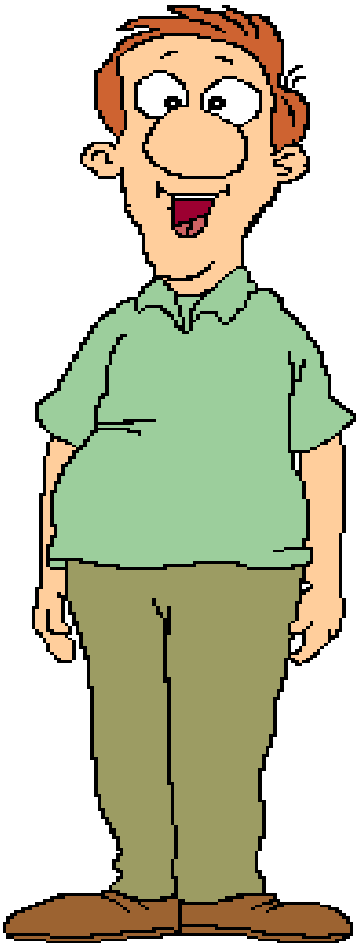
Concerning the grading rule, the appearance of the exposed surface of boards is graded differently to the unexposed surfaces of the boards. It is also important to note that colour and board length are not covered by the standard.

The grading process is rapid and generally relies on quick visual assessment where graders must assess the size and extent of a feature without relying on measurement. Due to this some inaccuracy in grading can occur that may result in a limited number of boards that are outside grade limits. The sanding of a floor can also increase the size of some features or cause features to appear that were not present prior to sanding. Consequently, some boards in a finished floor may not meet the specified grade description. When viewing a floor there is generally a clear difference between a floor that is of the sourced grade and a floor where grade limits have been exceeded in some boards. In some plants the grading process is now done automatically through scanners connected to computer systems which can make the grading process more precise. Grading may be to the AS 2796 grade description or to the manufacturer's own grade.

Grading does not cover where boards will be laid in the floor. As such it is a reasonable expectation that the installer, when laying the floor, will provide a relatively even distribution of colour and feature throughout the floor. Similarly it can be expected that board joints will be relatively evenly distributed in the floor and that groups of short boards or board ends will not be frequently clustered together. To some degree board length will influence this.

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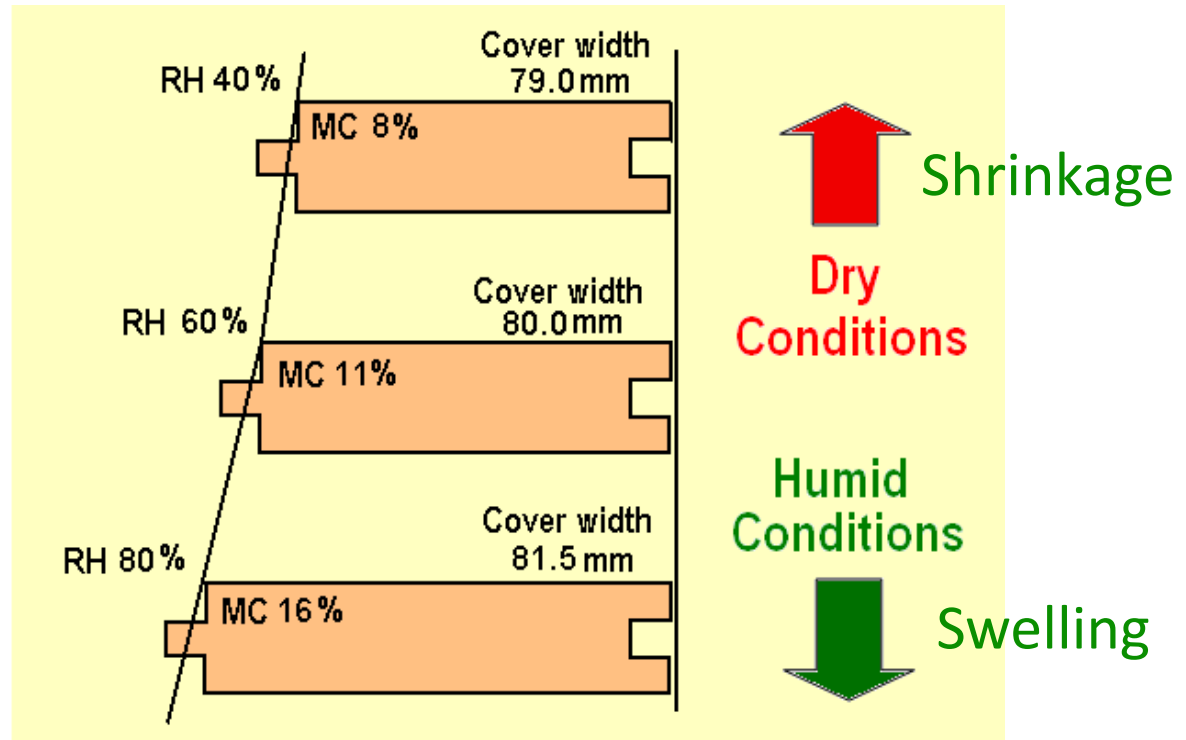
We need to understand timber movement



This is the most important concept with timber flooring

- Flooring moisture content affects expansion and shrinkage
- In high humidity, boards expand
- In low humidity, boards shrink

Influence of humidity on timber movement

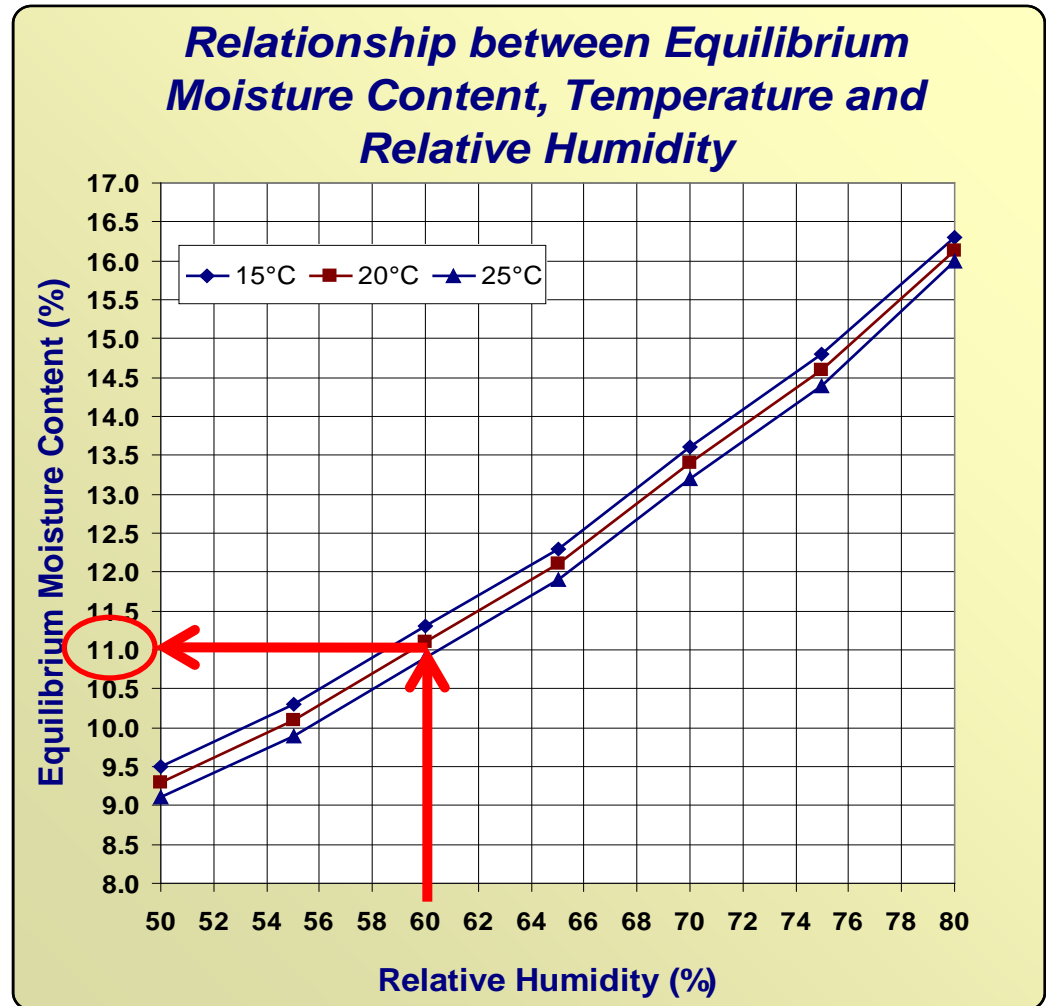


RH, Temperature and Timber Moisture Content

Timber in a room at
20°C

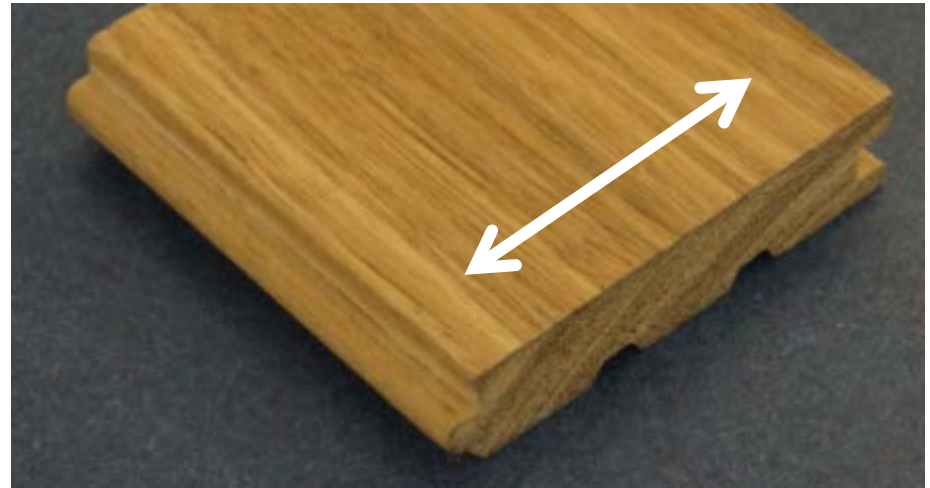
and the relative
humidity is 60%

then the timber will in
time try to reach 11%
moisture content.



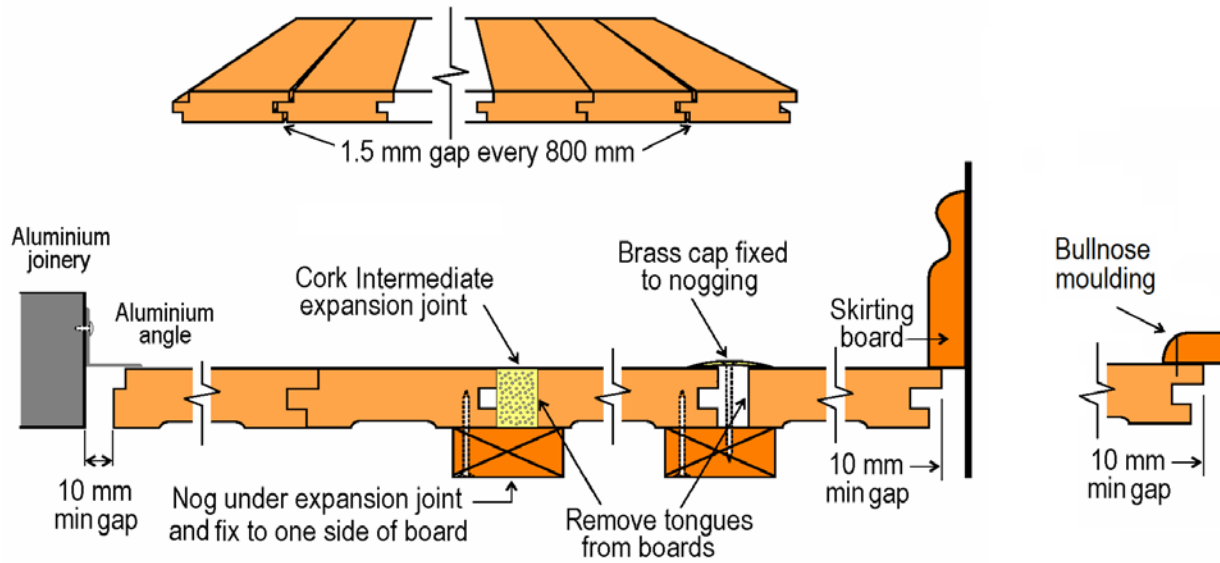
Therefore allow for natural floor movement

An 80 mm wide hardwood board will try to expand by about 0.25mm across its width for each 1% increase in moisture content.



In floors this movement is restrained to a degree by the fixing but adequate expansion must still be provided.

Expansion allowance is a **must** not an option



Shrinkage gaps are a natural part of timber floors



Minor gapping does not detract from a floor's appearance and is also acceptable.



Heating and floor to ceiling glass promote some gapping.

Knowing the environment you are laying in



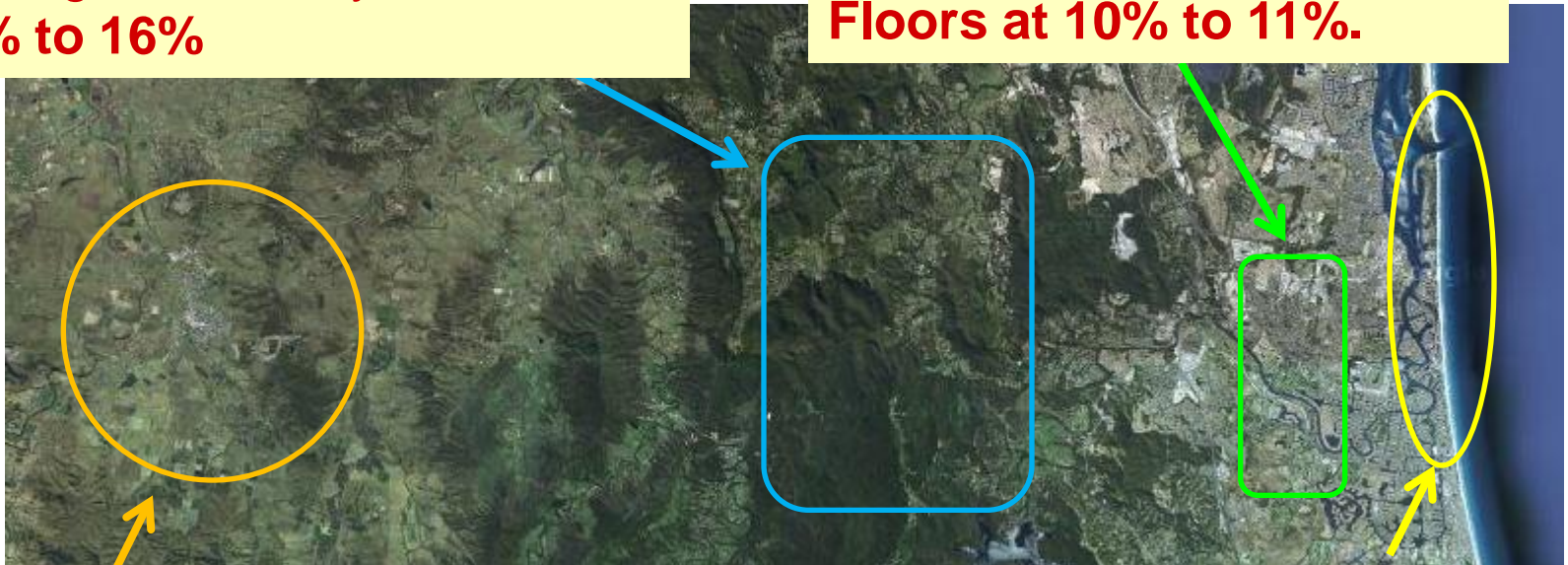
So we need to consider

- 1. Where the dwelling is located**
- 2. What we are laying on and over**

Consider the locality – Gold Coast to Beaudesert

In the mountains, there is more rain, mist, lower temperature and higher humidity. **Floors at 11% to 16%**

City suburbs. Lots of roads and closely spaced houses. Water drains away quickly. **Floors at 10% to 11%.**



West of the mountains. Periods of very dry winds as well as rainy periods **Floors at 9% to 12%**

On the foreshore. Cool sea breezes. **Floors often at 12 to 13%.**

Localities requiring greater expansion consideration



Seaside – a little moist, less variable



Green farmland - Moist



Mountains - variable



Gully - Moist



Hinterland - variable

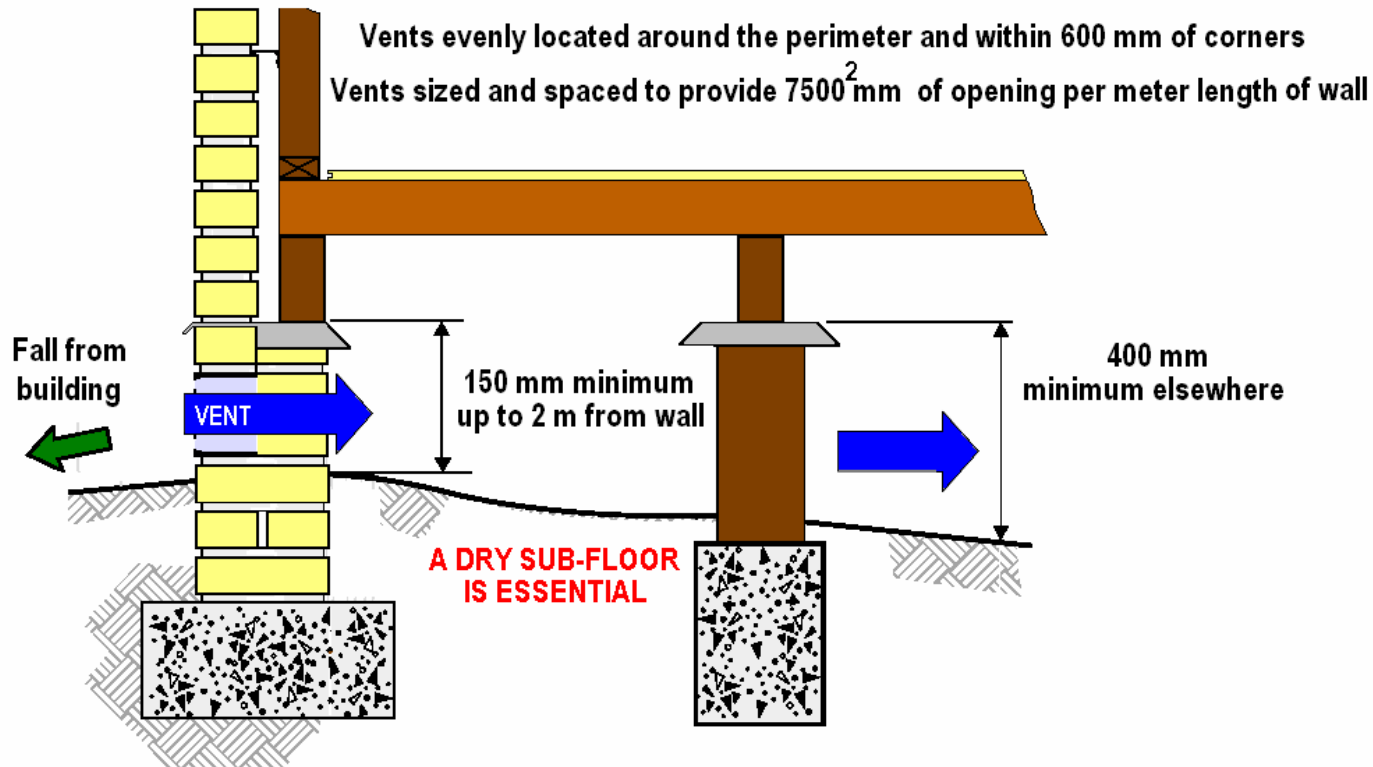
The subfloor and subfloor conditions



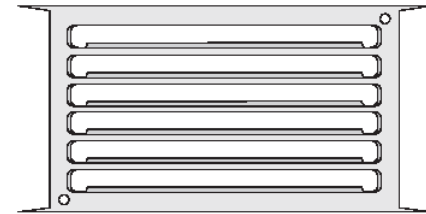
**Correct subfloor
conditions are VITAL!**

**Ensuring the subfloor is
suitable to accept a floor is
also VITAL!**

For floors with natural ground beneath



Vent spacing



700 mm spacing

For floors with natural ground beneath



**Must be
dry!**



**Must be
ventilated!**



For floors over concrete slabs

They need to be FLAT - Grinding and levelling may be necessary.

They need to be DRY - Old slabs are not necessarily dry slabs. Vapour barriers need to be considered.

When adhesive fixing they need to be CLEAN and STRONG – Otherwise delamination results.

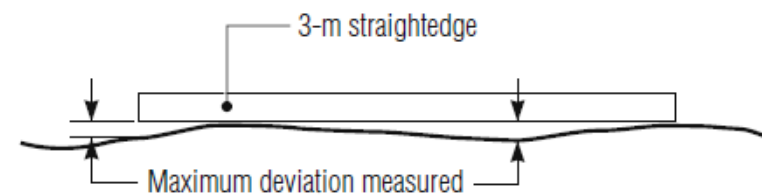
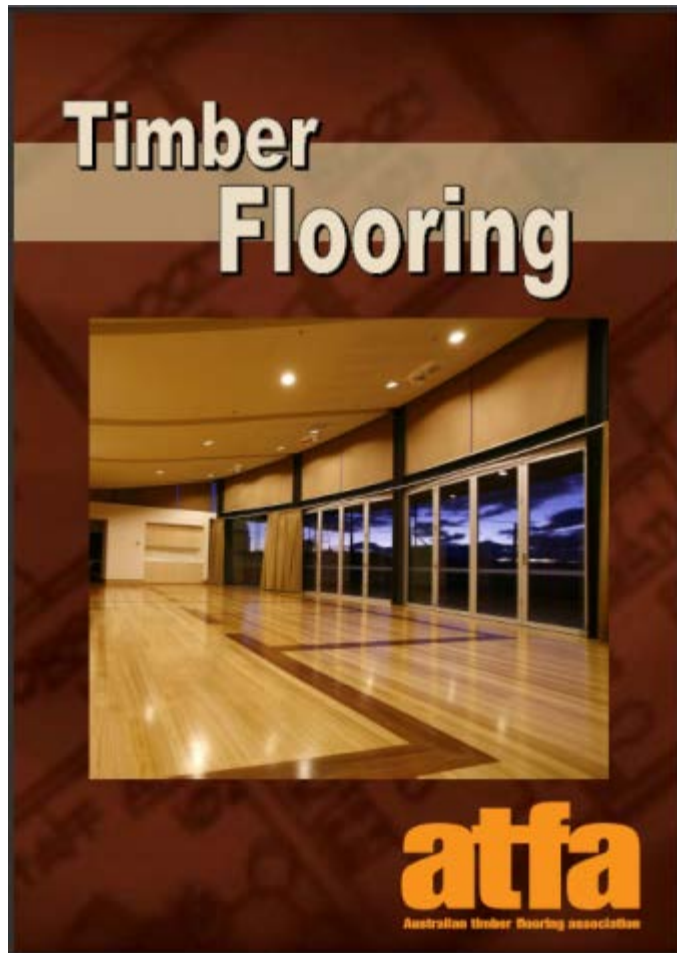


Figure 1: Testing of surface for compliance using a straightedge.

Lay to manufacturer or industry recommendations



Don't think that you know better!

There are also manufacturers with their own specific product installation recommendations.

Coatings your floors

Involving the client

Generally it is the owners choice as to what coating is applied.

The steps in coating selection:-

1. Determine the most appropriate alternatives
2. Consider the desired visual effect available from these alternatives
3. Consider the benefits and limitations and choose the coating system



Coatings and floor care

Penetrating oils and waxes. Tradition product designed to enhance the colour and grain whilst leaving the flooring with minimal surface “film build”.

The oil or wax preserves the surface and protects against moisture but it generally appears very dull and almost uncoated. Additional wax applications and buffing can provide a thin film or higher sheen.

Requires higher maintenance and can be misunderstood by specifiers and homeowners.



Coatings and floor care

Tung oil (modifieds) and hardwax oils provide a good surface cover whilst maintaining a “grainy texture” enhancing the timbers pore structure. Relatively fast dry but slow to cure. Requires moderate maintenance.

Oil Modified Urethanes provide a fuller smoother “solvent based polyurethane look” but without the potential for edge-bonding. Colour of oil modifieds change quickly and to a greater extent providing a instant ageing or warming of the floor. They cure slowly require moderate maintenance.



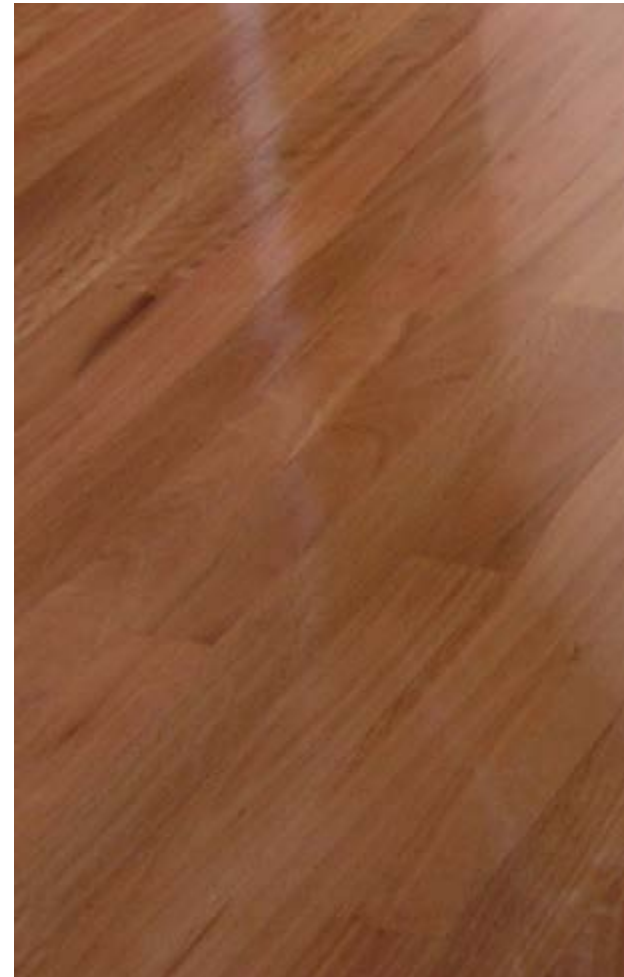
Coatings and floor care

Single pack moisture cured polyurethanes

Used in a 3 coat system to provide a fuller looking finish with a different looking gloss to two pack. Available in many gloss levels and provides a finish that is hard, durable and low maintenance. Can be prone to edge-bonding and darkens with age.

Two pack moisture cured polyurethanes

Provides a full high gloss “wet look” and being a hard durable finish it protects the floor from harsh traffic. Thinner products provide a grain enhancing finish whilst still exhibiting very high gloss. Prone to edge-bonding and darkens with age.



Coatings and floor care

Water based polyurethanes

Vary greatly in appearance and performance as the manufacturer base proliferates. Has a fuller finish appearance than Tung oil, but with more natural grain being apparent than solvent based polyurethane. Generally non-yellowing and sealers are used to enhance colour and generally prevent edge bonding. Very high gloss levels are not available. Can be prone to forming white lines at board edges.



Coatings and floor care

COATING SELECTION CHART

Timber Floor Coatings							
Property	Penetrating oil / wax & hard wax	Oil based finishes	Oil Modified Urethane	Polyurethane			
				Solventborne		Waterborne	
				1 pack	2 pack	1 pack	2 pack
Durability (Ability to resist wear)	Low-Med	Low-Med	Medium	Very High	Very High	Med-High	Med-VH
Ability to accept careful foot traffic 3 days after coating. (Ave. temperature 20°C)	Low	Low	Medium	Medium	High	Medium	High
Timber colour 'richness'	Low-High	High	High	High	High	Low-Med	Low-Med
Darkening with age	High	High	High	Low-High	Low-High	Low-Med	Low-Med
Ability to cure in cold & dry weather	Low	Low	Medium	Medium	High	Medium	High
Ability to cure in cold and damp weather	Low	Low	Low	Medium	High	Low	Low
Edge bonding resistance	High	High	Med-High	Low-Med	Low	High	Med-High
Rejection resistance	High	Medium	Medium	Low-Med	Low-Med	Medium	Medium
VOC emission at application	Low-High	High	Med-High	High	High	Low	Low-Med
Inhalation hazard when coating is applied	Low	Medium	Medium	High	Very High	Low	Medium
Odour on application	Low-Med	Medium	Medium	High	Very High	Low	Low-Med
General product cost	Med-High	Low-Med	Medium	Medium	Medium	High	Very High

Good coatings in wrong applications result in poor performance – not bad coatings

Coating choice is a balance of the benefits and limitations that best meet the needs of the individual project.

Coatings and floor care

The other consideration is maintenance

Maintenance is a **MUST** to keeping a good looking floor looking good. **ALL** floors need to be maintained. What is the owner prepared to do to keep the floor looking good.

For a good looking floor the following are **NOT** choices:-

- regular sweeping
- occasional damp mopping
- felt pads on furniture legs
- floor mats at doorways
- selective with foot ware
- prompt cleanup of spills

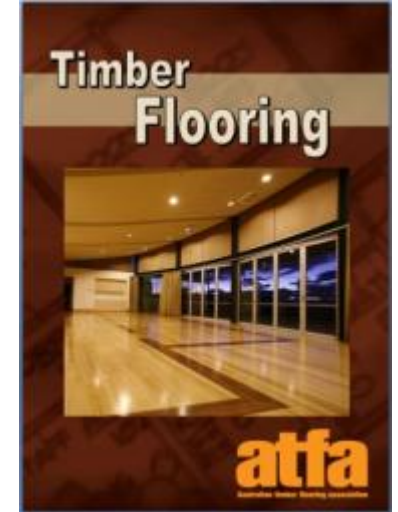
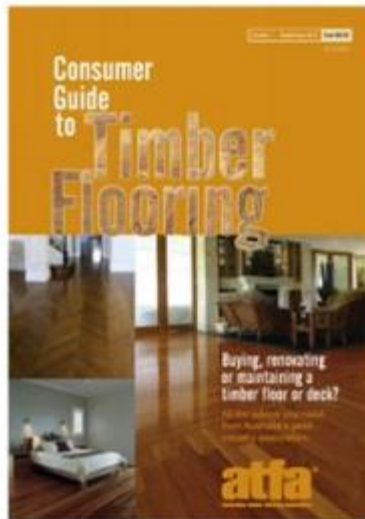


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Magazine

Consumer Guide

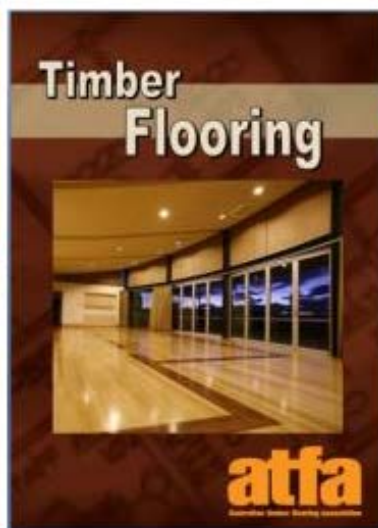
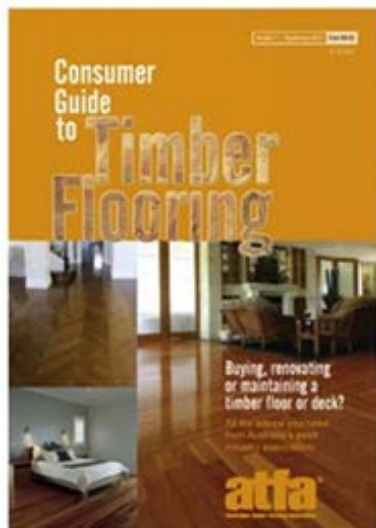
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Thank you!

