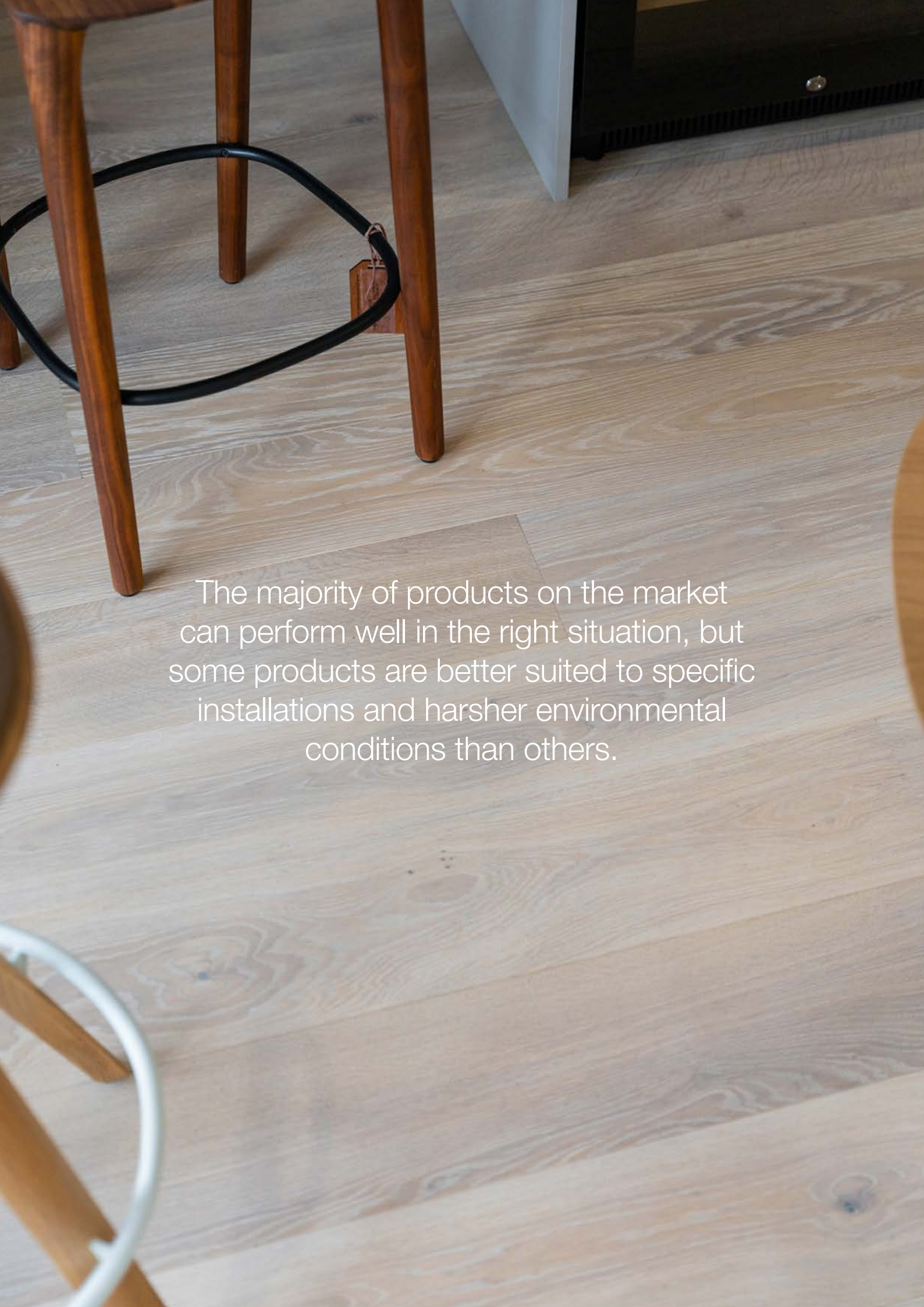


Engineered Timber Flooring Selection & Specification

Key Factors Affecting Quality of Products



The majority of products on the market can perform well in the right situation, but some products are better suited to specific installations and harsher environmental conditions than others.



WHY CHOOSE ENGINEERED TIMBER FLOORING?

Engineered timber floors are made by adhering several layers of wood together to form a single floor board. Although the wood is referred to as "engineered," it is not artificial. The boards are made up of a layer of solid natural wood on top of layers of pine, ply or other types of wood underneath.

Engineered timber flooring is growing in popularity in commercial and residential projects. This is because of the inherent dimensional stability, dependability, improved sustainability and versatility of the product. These properties offer several advantages over traditional solid timber flooring, for example:

- due to the product's multi-layer construction, it is less prone to warping or movement;
- faster and more cost-effective installation;
- multiple installation options including floating or glue-down;
- minimal acclimatisation times;
- easy maintenance and repair.

Selecting a high-quality product

As with any market, there are many different engineered timber flooring products currently available, and as a result, product performance and lifespans can vary. There are higher quality options out there that last longer, perform better in difficult conditions, are fit for purpose, and will not cause maintenance issues in the future.

It is crucial for architects, designers, and specifiers to understand how to distinguish between the good and the great when it comes to the "quality" of engineered timber products. The majority of products on the market can perform well in the right situation, but some products are better suited to specific installations and harsher environmental conditions than others.

In this whitepaper, we discuss the key factors in this selection process as follows:

- how the engineered timber board is constructed;
- quality of the manufacturer;
- timber species and hardness;
- colour consistency;
- wear properties of the floor finish; and
- after-sales service and technical support.

CONSTRUCTION OF THE ENGINEERED TIMBER BOARD

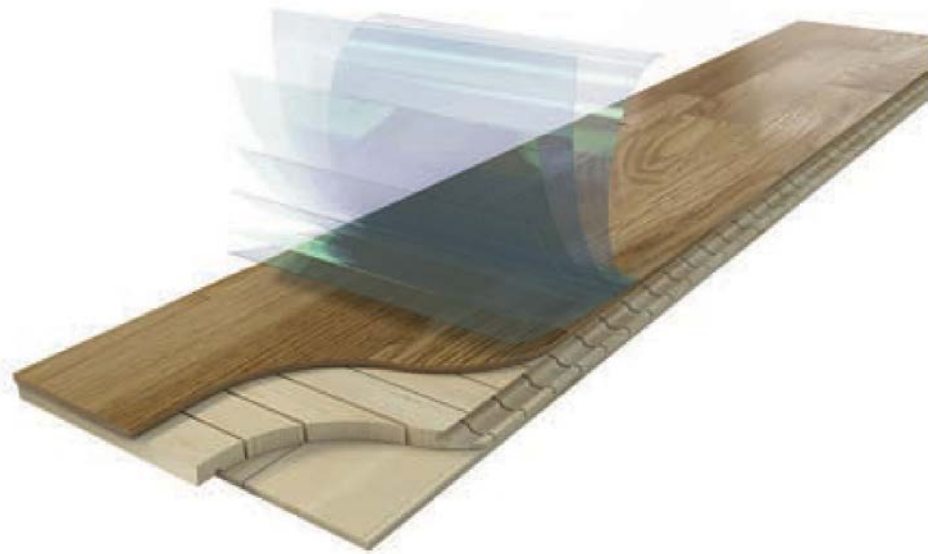
Engineered board construction varies significantly between products and suppliers. Common types of board construction include multi-layer, three-layer and single-layer boards, and boards with an HDF or MDF core. Variations in the lamella and plywood base result in different performance outcomes.

Leading products are constructed using a base of Birch Ply (best for stability), Eucalyptus, or a cross-layered construction (with three or more layers), which is stronger and more stable than poplar or spruce ply. Poplar plywood is one of the more affordable options; however, it is also more prone to movement due to its susceptibility to environmental changes.

In general, the more layers you have in the construction, the more stable the product. The more stable the product, the less issues you are likely to have with movement in the floor, which can lead to the floor losing its well finished appearance.

Thickness of the lamella (also known as the ‘wear layer’) also varies from product to product. While the thickness of the wear layer is not directly correlated to quality, a thicker wear layer will allow more sanding without running the risk of penetrating the base. In reality, the number of people that sand back their boards is minimal, which has led to an increase in the number of suppliers using thinner lamellas (thus requiring fewer natural resources) to combat an increasingly tight timber supply and move towards improved sustainability.

The adhesive used in the construction of the engineered timber is also an important consideration. Higher quality products use glues that are low in Volatile Organic Compounds (VOC)s. Lower VOC content is better for the environment and healthier for the people around that product due to less harmful substances being released into the air. In Australia, engineered timber should have product datasheets available with details stating that the adhesive contains the appropriate VOC content level.



QUALITY OF THE MANUFACTURER

The quality of the manufacturer can impact the quality of the product. Due diligence is required when selecting an engineered timber floor to ensure that the manufacturer uses the best materials and manufacturing technology, has the highest quality assurance process in place, and a good reputation in the market.

Factors to consider when reviewing the quality of a manufacturer include their standards on how the product is dried (if the core or backing layer is not dried sufficiently,

it can impact the stability of the board); the consistency in the quality and specifications of the product; and whether the manufacturer tests and monitors the impact of its products on human health.

The provenance of the manufacturer is also an important consideration. Engineered timber products that are manufactured in high-quality European factories are held to tighter and higher product and environmental standards than in other countries and are thus highly sought after.



TIMBER SPECIES AND HARDNESS

The Janka rating, used by the flooring industry to compare the hardness of wood species, is frequently seen as being directly correlated with flooring quality. Hardness of timber measures the board’s resistance to indentation. The harder the timber, the more resistant it is to denting.

The Janka test results are usually expressed in newtons (N) or kilonewtons (kN) in Australia. The test measures the force required to push a steel ball with an 11.18 mm diameter into the wood fibre by half of the ball's diameter. According to the scale, the wood is softer the closer the Janka rating is to zero, while a higher rating corresponds to a harder wood. A medium density wood will have a Janka rating between 4 and 8, whereas a high-density wood will have a rating of 8+.

It should be noted that the hardness quoted for engineered flooring refers to the type of wood used in the face lamella. A wide variety of timber species, including both Australian and overseas species, can be used as the face lamella. A high-quality engineered wood floor needs

a stable and hard lamella to ensure quality and longevity of use.

Maple, European Oak, American Oak, and Australian species such as Blackbutt, Spotted Gum and Ash are examples of wood species found in engineered products with an appropriate hardness rating. European Oak has gained more popularity due to not only its moderate hardness but also the ability for many staining and surface treatment options, as well as its versatility and performance qualities, which enable wider boards.

The hardness of the timber is only one factor in the product’s overall durability and lifespan, as other properties such as scratch resistance, stability and reparability are also relevant. A floor that is too high on the Janka scale could be more prone to cracking. So, while hardness should be considered, it is a combination of all these factors that should be assessed when selecting a floor that is fit for purpose.

TIMBER GRADE

When it comes to appearance grading, “grade” refers to the size and number of features that are present in the boards. These features may include gum veins, knots and other. As engineered timber can be sourced from many different countries, each with their own grading rules and standards, local manufacturers may provide their own grading definitions. For example, Australian supplier Havwoods’ range includes “Prime Grade”, which has few, if any, knots while “Rustic Grade” allows

for a virtually limitless number of knots and some colour variation that do not impact quality but result in a significantly different look.

It is important for specifiers to note that grade is not a reflection of an engineered timber product’s quality; it is a way to characterise what to expect from the appearance of timber, which may be relevant to the type of application you are specifying for.

COLOUR CONSISTENCY

The face lamella of engineered timber is a natural material and therefore species-specific colour variations should be expected. However, a lower quality product will

display unnatural variation in colour, for example, due to inconsistent application of a finish.

WEAR PROPERTIES OF THE FLOOR FINISH

Depending on how much traffic the floor sees, all timber floors will eventually begin to show signs of wear whether engineered or solid. The tougher the coating system, the longer until the floor shows wear.

Most engineered timber flooring is prefinished in the factory, the benefit of which can be that more layers of coating can be applied compared to applying a post-application finish onsite.

There are several factors to consider to ensure a very high standard of finish:

- **Type of finish:** Oil offers excellent scratch resistance and a deep, natural finish, but is better suited for residential and low traffic areas. Lacquer, on the other hand, acts like a plastic film over the floor's surface, resulting in a smooth appearance and increased durability, and is recommended for high-traffic areas.

- **How the finish is applied:** For lacquered boards, it is important to consider how many coats have been applied. More coats of lacquer done correctly will provide additional protection to the timber board. For oiled boards, subsequent applications of oil can enhance tones, and pigmented oils can be used to further deepen the colouration if required.

- **Air drying vs. UV curing:** A UV-cured oil or lacquer treatment is applied at the factory and rapidly 'cured' under UV lamps, creating a consistent, harder wearing finish on the surface.

- **Maintenance:** An oiled floor needs replenishing frequently and requires much more maintenance than a lacquered floor. An oiled floor has excellent scratch resistance and is easier to repair than a lacquered floor, despite being less resilient to wear and foot traffic.

AFTER-SALES SERVICE AND TECHNICAL SUPPORT

Outside of quality of the product, having a company that supports you after the sale or with installation enquiries will help you deliver a beautiful, long-lasting floor. Havwoods, for example, provide extensive post-installation support. Their expert staff have years of

experience working in the timber installation field and can support customers throughout the entire process. The company also provides a range of useful documents, including technical installation and maintenance guides.



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FIND THE HIGHEST QUALITY FLOORING WITH HAVWOODS

Engineered timber flooring is an increasingly specified flooring solution. Favoured by designers for aesthetic appeal, and industry trade for breadth of application and ease of installation, engineered timber floor boards create the perfect talking point in both commercial and residential spaces.

With close to 50 years' experience in sourcing the very finest engineered timber flooring, cladding and cabinetry panels, Havwoods' passion for ensuring you receive high-quality wood products that are both fit for purpose and fit for budget has made them the leading supplier for residential, commercial, high-volume retail and hospitality projects across Australia and around the world.

Havwoods prides themselves on providing the best quality engineered timber floors for their clients and customers. Their engineered timber flooring products are primarily manufactured in European oak timber mills that have some of the most stringent quality controls and sustainability programs in the world.

With more than 200 products sourced from around the world, and every resource made available to assist with the selection, purchase, and installation of your floor, Havwoods is committed to driving innovation, outstanding product performance and superior customer service.

All information provided correct as of August 2023