

Solver Paints

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Solver Paints is the registered trademark
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PRODUCT INFORMATION

SS-128

EDGE BONDING OF TIMBER STRIP FLOORING

Also known as Edge Gluing, Panelisation, Clumping and Timber Failure.

Edge Bonding is a term that is used to describe the defect that can occur in timber tongue and groove strip floors when individual boards are glued together after the application of a clear coating. As a result of natural shrinkage of the timber due to changes in the moisture content, the boards can split apart along the grain. Alternatively, groups of boards can be joined together and wide gaps appear between 'clumps' of floor boards. This splitting is due to the tongue and groove joints in each individual board not being able to move.

Movement In Timber Strip Flooring

Timber is a completely natural product that changes in size with changes in weather conditions, particularly moisture content. When the humidity is high, timber will absorb moisture which causes it to swell and increase in size. During periods of low humidity, the timber will reduce in size as the moisture is extracted.

This movement will continue to cycle unless the timber is held in a constantly moisture controlled environment which is not possible when the timber is used in the construction of a timber floor. In the case of an uncoated timber strip floor, this constant movement is normally accommodated by the tongue and groove jointing system along the length of the boards.

The amount of movement and the rate of movement varies considerably with the species of timber. Generally softwood species such as Pinus Radiata move more rapidly than hardwoods such as Jarrah. Small variations in the moisture content of the timber can cause variation in the width of each board as the timber adjusts to the Equilibrium Moisture Content for the area in which it is being installed.

Equilibrium Moisture Content

When timber is stored or fixed in areas where the temperature and moisture content is constant, and it subsequently neither gains or loses moisture, it is then regarded as reaching its Equilibrium Moisture Content (EMC). The EMC of a location will vary according to any variation in the local conditions. When laying tongue and groove timber strip flooring, the timber must be allowed to reach the EMC of the proposed installation area prior to fixing.

The individual recommended EMC figures can be obtained from the respective State office of the Timber Development Association.

Building Considerations

With variation in building construction methods and styles throughout Australia, large variations can be encountered in regards to the ventilation of underfloor spaces which can impact on the timber flooring. Other building components can impact such as large north facing unprotected expanses of glass windows, fire places, air conditioning systems and various appliances that tend to vent warm, moist air such as clothes driers that are not vented to the outside of the house. External conditions such as dense lush moist gardens and exposed underfloor areas in houses that are built above ground without enclosure such as those found in Queensland can also contribute.

Poor general underfloor ventilation can increase the exposure of the underside of the flooring to moisture which will affect the overall movement of the timber.

Evaluation of Flooring Timber Prior to Installation

Timber tongue and groove flooring is recommended to be supplied to the worksite complying with the following:

- Moisture Content – Supplied at an average of 10% to 15%
- Cover width of the boards not to vary by more than $\pm 0.2\text{mm}$
- Tongue and Groove tolerance to be not less than 0.3mm nor greater than 0.6mm
- All flooring to be supplied to the specified grade.

A certificate from the supplier of the timber is recommended to be obtained prior to installation that covers each of the above areas for the material supplied for each individual job.

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Storage Prior to Installation

The timber should be stored on site under cover in an open stack to allow for the timber to reach its EMC prior to installation. This process is called 'Acclimatising or Equilibrating' which allows the timber to achieve a moisture content similar to that it will experience after installation. This process is particularly important where the area of installation is very dry or has air conditioning

Installation

The timber should be installed and fixed strictly in accordance with the recommendations contained in Australian Standard AS 4786.1 Timber Flooring, Installation, and the Timber Research and Development Advisory Council of Queensland (TRADAC) Technical Data Sheet No.11 – Tongue and Groove Timber Flooring.

Edge Bonding

Three factors are necessary for Edge Bonding to occur:

1. The timber has to change in dimensions, normally its width, due to changes in moisture content.
2. There are gaps between the boards due to either previous shrinkage or from insufficient cramping during installation. The gaps allow the first coat of clear to flow into the tongue and groove and subsequently stick the two surfaces together.
3. The application of a first coat of clear coating that has a high tensile strength such as any two pack polyurethane or single pack moisture cured polyurethane. As the coating dries, it can have greater tensile strength than that of the timber which can result in the boards pulling apart as they change dimensionally.

Coatings that can reduce the likelihood of this edge bonding are those that have inherently weak tensile strength such as Tung Oil and weak alkyd coatings. These products can enter the joints between the individual boards but will pull apart themselves instead of the boards splitting as they shrink.

CHANGES SINCE LAST ISSUE:



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