



WONDERFUL FLOOR®  
ECO-FRIENDLY & RENEWABLE

# **Wonderful Floor® Installation Instructions**

Version 2010

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# Wonderful Floor® Installation Instructions

## 1 Product Description

Welcome to **Wonderful Floor®** Product and Installation Guide for timber, bamboo and laminated flooring. The final result of installing depends on the use of the following guidelines.

The following should only be used as a guide and the installer should apply all Australian Standards, BCA requirements, and best practices when installing. This must include the relevant safety protocols required. This guide should not be used as the sole means of direction. We recommend that an experienced professional timber flooring contractor to install floor. It is recommended that a qualified person such as a licensed builder or carpenter installs products. It is the installer's responsibility to check all material for faults or defects prior to installation. Material which is deemed faulty by our Timber representative will be replaced free of charge. Costs associated with the replacement of any faulty boards after they have been installed will not be accepted by us. Timber flooring boards need to be mixed on the floor according to colour and feature. This is at the discretion of the installer and the end user. We do not accept any responsibility for the way the boards are laid in relation to colour and feature.

If there are any problems before or during the laying of our product, stop and do not continue laying. Contact us immediately on 02-95172413 or email to [sales@wonderfulfloor.com.au](mailto:sales@wonderfulfloor.com.au) for further advice.

### 1.1 Timber and bamboo, laminated flooring

**Wonderful Floor®** is ideal for indoor domestic and commercial applications but is not recommended for wet areas such as laundries or bathrooms or heated subfloors.

This installation guide does not apply to speciality flooring applications such as sports floors and some commercial applications. For installation of commercial and industrial floors please refer to the document from the National Association of Forest Industries (NAFI): Timber Floors -Commercial and Industrial dated 2005. This document can be sourced by visiting the NAFI website at [www.nafi.com.au](http://www.nafi.com.au).

This installation guide covers the installation of the following flooring products.

#### 1.1.1 19(18) mm Solid Strip Flooring

18mm (and thicker) solid strip flooring is structurally designed to be laid directly onto joists, battens or under-ply over concrete, or nailed to existing timber flooring. The profile is precision-milled to a variety of cover widths and is designed for a tight board-to-board fit. Tongue and groove joints on both sides and ends of the board ensure a continuous and stable surface. End matching removes the need for ends to fall directly over a joist or batten.

***Suitable subfloors***

19mm solid strip flooring is designed for any subfloor that is structurally sound, level, flat, clean and dry such as:

- Bearers and joists
- Concrete slab
- Sheet flooring such as plywood or Particle board
- Existing strip timber floors

**1.1.2 10mm Solid Strip Overlay, solid 14mm bamboo floor and 14 mm engineered & laminated floating floor**

10mm (overlay) solid strip flooring ; engineering 14mm multi-lay or 3ply (top lay 3mm) flooring and solid bamboo floor is non-structure flooring ,also laminated floor, they are designed to be installed over a solid subfloor.

***Suitable subfloors***

Any subfloor that is structurally sound, level, flat, clean and dry such as:

- Concrete slab
- Sheet flooring such as plywood or Particle board
- Existing strip timber floors

**1.2 Decking**

Decking is a solid hardwood timber or bamboo product that is designed to be laid outdoors directly onto structural bearers and joists or can be used for fencing, gates or seating. It is precision milled with round edges to a variety of widths in a smooth finish on both sides of the board.

***Suitable subfloors***

Decking is designed for bearers and joists that are structurally sound as per the Australian Standard AS1720 and the Building Code of Australia:

- Decking should be nailed or screwed directly to hardwood bearers and joists.
- When used for fencing it can be screwed into timber or steel posts.

## **2 Product Handling on Site**

The packaging around our products is designed to protect it during transport only. Upon delivery the timber flooring and decking products should be stored indoors where they can be protected from the elements. Do not store outside using a protective covering such as a tarpaulin as condensation can occur underneath, defeating the purpose of the covering.

## **3 Properties of Timber & Bamboo**

Timber and Bamboo are hygroscopic - meaning it is capable of easily absorbing and expelling moisture in response to local conditions. As timber absorbs moisture it expands and as it expels moisture it contracts. As such, factors such as relative humidity (atmospheric moisture), moisture ingress (subfloor or other), direct sunlight, air conditioning and lack of adequate ventilation can cause timber to expand or contract. Therefore, care must be taken to correctly assess the suitability of the site prior to the installation of timber or bamboo flooring, as well as to maintain a suitable environment where the timber floor has been installed.

Solid timber & bamboo floors may need to be acclimatised to their new local environment before installation. It is important to allow time for them to adapt to the above conditions.

## **4 Prior to Installation**

Before installing a timber or bamboo floor, ensure the site conditions are suitable. A floor should only be installed in a weather-proof building. The project should reach near completion before installation begins to avoid damaging the newly fitted timber or bamboo floor from heavy trade traffic. The roof should be complete, all external doors and windows installed, the exterior cladding finished and wet trades complete before a timber floor is installed. The storm water system must be complete or effectively directed away from the subfloor.

### **4.1 Acclimatisation**

Timber is a natural product that expands and contracts with seasonal changes and is affected by the moisture content of the air. The moisture content of timber is the percentage weight of water present in the timber compared to the weight of the timber with all water removed. Moisture content varies with changes in humidity and temperature in the surrounding air.

It is important to remember that small seasonal changes in timber flooring are considered normal and small gaps that open up during dry periods are not considered a defect, as gaps will close again during wetter periods. To minimise the movement of a hardwood floor caused by swelling on moisture uptake and shrinking on moisture loss, it is important to lay and fix a timber floor that is close to the average moisture content of the environment in which it is to be laid. This guide outlines the procedures required

to assess the site and acclimatise solid hardwood timber & bamboo flooring for the best results.

## **4.2 Site climate assessment**

Every site requires climate assessment prior to the installation of floor. It is important to know the long term relative humidity (RH ) for the area where the floor is to be installed. Relative humidity is the major influence determining whether solid timber & bamboo flooring will absorb moisture from the air and swell, or whether it will lose moisture and shrink. If the moisture content of the timber floor is close to the average long term relative humidity for the area then subsequent seasonal changes will be minimal. However, if the long term relative humidity for the area is significantly different to that of flooring, seasonal changes in the moisture content of the floor can create problems. Solid hardwood timber flooring is kiln dried to approximately 9 to 14% moisture content as per Australian Standard AS2796. Onsite relative humidity is measured with a Hygrometer. It is recommended that Relative Humidity (RH) and temperature levels are recorded prior to and during installation. The local site climate can be assessed using data from the Australian Bureau of Meteorology website at [www.bom.gov.au/climate/averages](http://www.bom.gov.au/climate/averages). Approximate average equilibrium moisture content (EMC) is provided for each climate in Australia. EMC is the moisture content that timber will reach under set conditions of relative humidity and temperature. Where seasonal variations are greater, seasonal movement (shrinkage and swelling) can be expected to be greater. Areas that experience high levels of seasonal variation require greater allowance for floor expansion at the time of installation. The site should also be assessed for adequate subfloor ventilation that is an important factor in reducing expansion and cupping of hardwood timber and bamboo flooring. Where humidity remains high beneath a floor, the boards will absorb the moisture and expand.

## **4.3 Important issues about subfloors**

- Air vents should always remain unobstructed
- Number of air vents and size should meet or exceed BCA requirements
- Ground level below flooring should be well drained
- The subfloor ground should be flat, level and clear of any debris. It is also recommended that the ground below the subfloor be sealed with an impervious membrane, such as 200 micron plastic or vapour barrier. The plastic should be taped continuously with a 200mm overlap. As subfloor conditions can change, this alone can greatly improve the performance of a timber floor in the future.

## **4.4 Internal micro climates**

The internal environment should also be assessed before installation. Within a dwelling, a number of climates may develop, causing areas of flooring to respond differently within the same dwelling. These include large expanses of glass, fireplaces, fridges, air conditioners, any appliances that vent warm air, the aspect of the house and two-storey construction. All of these can have an effect on the dimensional movement of the boards. When floors are exposed to direct sun through large glassed areas, protection should be considered before, during and after construction. Evaporative coolers add

moisture to the air and raise the relative humidity, resulting in moisture contents in the flooring that are higher than under ambient conditions.

The likely movement of a floor after installation should also be a consideration when assessing the site. Small differences in moisture content between boards at the time of manufacture (5% is allowed by Australian Standards) together with variable conditions within the house (such as a west-facing room compared to a south-facing) will cause further variation in board width. For this reason, it can be expected that small gaps will occur at the edges of most boards, particularly during drier months. These gap sizes may differ across the floor. In cases where shrinkage may occur after installation, wider boards such as 130mm will result in larger gaps at board edges when compared with narrower board widths (e.g. 85mm). Air conditioning that does not have a humidity control system, which is installed after a floor has been laid, may increase the size of shrinkage gaps, as it changes the relative humidity in the area. Some movement occurs after laying timber floors as the timber adjusts to the climate. Although some floor finishes may reduce moisture content changes, they will not prevent this kind of movement. In cases where greater movement is expected after installation, such as from seasonal changes, the use of wider boards or from air conditioning installed after installation, particular care should be taken to ensure that the flooring finish does not act as an adhesive by bonding a number of boards together. With subsequent shrinking, wide gaps between groups of four or five boards may occur, or boards may split.

#### **4.5 Installation moisture content and acclimatisation**

Solid hardwood timber and bamboo flooring is kiln dried to 9 to 14% moisture content as per Australian Standard AS2796. Where the average supplied moisture content of the flooring is near the expected average in-service moisture content, acclimatisation of the hardwood boards is not necessary. Where conditions are drier, such as inland areas or air conditioned buildings, or where conditions are humid, such as in coastal areas or elevated regions, flooring may need to be acclimatised on site. Acclimatisation is the process of allowing partial equalisation of the moisture content of the hardwood timber and bamboo flooring when supplied, to the moisture content of the surrounding environment in which the timber is to be installed. Note that the rate of moisture uptake varies from species to species and must be monitored on site for each individual site installation.

Acclimatisation relies on each individual board being exposed to the in-service atmosphere so packs must be opened and restacked in a way that allows air to flow freely between each board. Acclimatisation can only be effective in dry locations during dry periods or in an air conditioned building if the air conditioning is operating at the time. Acclimatisation is only complete when the moisture content of the flooring is equal to the Relative Humidity (RH) in the environment. This usually takes about 14 days for 19mm flooring, but the time may vary depending on the species used and the weather conditions. To check that the timber flooring has reached this point it should

be moisture tested with an appropriate timber moisture meter. This reading can then be compared to the Relative Humidity (RH) using Table 1.1 over the page.

#### **4.6 Inspection of the site, the subfloor surface and preparation**

1. Conduct a visual inspection for signs of moisture possibly resulting from pipe leaks, window seal leaks, bathroom/laundry overflow problems, ceilings leaks or rising damp. Any signs of moisture ingress must be remedied prior to installation.
2. The subfloor must be dry and free of contaminants including but not limited to oil, paint, grease, dust, metal shavings, saw dust.
3. The subfloor is to be fully scraped with a wide blade scraper to remove all cement render spoil, plasterboard setting residues and mortar excess at the base of walls.
4. Make sure the concrete slab is flat with no more than +/-3mm deviation in a 3 metre radius as per Australian Standard AS3600 - 2001: Concrete structures. Deviations to the surface greater than 3mm over 3m are to be filled with a self-levelling compound following manufacturers' recommendations, or ground down to conform to the aforementioned specification for flatness. Note: When installing timber flooring over battens, unevenness in the subfloor can be remedied through the use of packers or by planing down the battens.
5. A concrete subfloor should be moisture tested in accordance with AS1884 - 1985 to ensure the concrete subfloor has a moisture content (MC) of less than 5.5%. If the MC is greater than 5.5%, a moisture/vapour barrier must be applied as per the manufacturer's recommendations. It is also good practice to provide a 200 micron plastic membrane (builders plastic) as a moisture/vapour barrier prior to installation of your battens or plywood substrate. This can help minimise the risk of moisture uptake into the timber flooring from the concrete slab after installation. The plastic barrier should continue 75mm up the walls and all joints should overlap by 200mm. Joints should then be sealed with duct tape. The moisture/ vapour barrier should be installed according to manufacturers' instructions. Ensure a compatible adhesive is used with the moisture/ vapour barrier.
6. Timber substrates such as particleboard, plywood or existing timber floors should be sanded to create a clean flat surface.
7. If installing timber flooring over bearers and joists or a platform floor it is particularly important to maintain adequate sub-floor ventilation. If the area underneath the timber flooring is consistently damp (high humidity) this can adversely affect the timber flooring and lead to increased expansion and/or cupping. Subfloor ventilation should at a minimum conform to the Building Code of Australia, although in areas of high humidity or where increased exposure to moisture is apparent it is good practice to increase the surface area of the vents and/or install fans to increase air circulation under the floor. Subfloor vents should always allow for cross ventilation of the subfloor and must not be placed on only one side of a dwelling.

## 5 Installation

It is the installer's responsibility to check all material for faults or defects prior to installation. Material which is deemed faulty by our representative will be replaced free of charge. Costs associated with the replacement of any faulty boards after they have been installed will not be accepted by us. Boards need to be mixed on the floor according to colour and feature. This is at the discretion of the installer and Wonderful Floor does not accept any responsibility for the way the boards are laid in relation to colour and feature or faulty board.

### ***Expansion gaps (Control Joints)***

Expansion gaps and perimeter fixings should be planned before commencing the job. Expansion gaps are a requirement of timber flooring. Due to the hygroscopic nature of timber the flooring will expand and contract with changes in moisture content. The allowance of expansion gaps at the perimeter walls and around obstructions will allow the floor to move as required. Insufficient expansion gaps can result in buckling and deformation of the flooring. Wonderfulfloor recommends a minimum expansion gap at all perimeter walls and obstructions of 12mm. For domestic applications floor widths over 6m will require an intermediate expansion joint as per Australian Standard AS1684. Where extra allowance for expansion is required (e.g. moist locations), cramping pressure needs to be considered. Alternatively, a series of smaller expansion gaps every 800mm to 1000mm can be used to provide equivalent spacing. If cork expansion joints are used, the cork should be sanded and coated before install.

Expansion gaps can be readily increased by under cutting plasterboard walls or through the use of thicker skirting or beading. Overall, the greater the expansion allowed while installing, the better. Expansion joints are best placed at doorways or in line with internal walls. Expansion joints help to break large floors into smaller sections thereby maximising total expansion gaps.

### ***Specialty Applications***

For specialty applications, such as sports floors and some commercial applications, additional expansion gaps may be required and should be assessed on a site by site basis. For installation of commercial and industrial floors please refer to the document from the National Association of Forest Industries (NAFI): Timber Floors – Commercial and Industrial dated 2005. Visit the NAFI website at <http://www.nafi.com.au> for a copy of this document.

### ***Acoustic systems***

There are a variety of acoustic systems available on the market today. We recommend Wonderful Floor acoustic underlay. It is well suited to reducing the noise of foot traffic in multi-level apartments and exceeds the BCA requirement of Lnw+C of 62 for acoustic underlays for solid timber flooring. The product system is deemed to comply in accordance with ISO 140.6 and 140.8 as defined in AS ISO 717.2 -2004. For test result copy call us.

## **5.1 19(18) mm Solid Strip Flooring Installation**

### **5.1.1 Subfloor preparation**

Ensure subfloor preparation recommendations are followed as per in this guide.

### **5.1.2 Battens or plywood**

Battens may be used to compensate for minor fluctuations in concrete level. For secret nailing, use 19mm battens; for top nailing use battens that are at least 35mm thick. Lay battens 450mm apart on the plastic membrane at right angles to the direction of the new floor. Adjust levels with plywood or masonite packing and use masonry anchors to attach battens to the slab.

For the best result, we recommend the use of kiln dried hardwood battens to give the highest possible nail hold. An alternative method is to fix Underply plywood sheeting (recommended minimum thickness of 12mm or greater) to the concrete slab after first laying a polyethylene membrane (minimum 200 micron). For this application top nailing is not suitable.

### **5.1.3 Bearers and joists**

Existing joists should be inspected for structural soundness prior to installation of new flooring. Ensure there is sufficient subfloor ventilation and clearance between the ground and flooring. The subfloor ventilation and clearance should meet or exceed BCA requirements. Air should circulate below the new floor from all four sides of the house. The level of the floor frame must be suitable for the installation of the strip flooring, ascertaining the suitability is the responsibility of the builder or floor contractor. A number of alternative methods exist to assess the floor frame. The method most commonly used is to place a straight edge of a minimum of 3 metres on top of the joists and assess the various high and low members. The joists can be planed down if too high or packed if too low. Care must be taken to ensure that the joists are not reduced in sectional size below that required under AS1684. This same structural requirement prevails in cases where the joists are "crippled" i.e. cut through over a support to reduce the bow in the timber.

### **5.1.4 Existing timber flooring**

When laying an 18mm solid strip floor over existing timber floors make sure the existing boards are sound and not warped or cupped. Sand an even surface if necessary. If the existing boards are very uneven, remove the entire floor and lay the new boards directly over the joists.

The new Wonderful Floor 19mm solid strip floorboards may be glued using polyurethane flooring adhesive and nailed at 90° to the existing boards. To run the new floor boards in the same direction as the current floor boards, a plywood layer is required between the new and existing floor boards.

### **5.1.5 Laying the boards**

Sort the timber into two stacks: one of similar length boards and one of varying lengths. Start by laying the varying lengths, longest first, in a triangle or "rack" from

one corner. Lay the first board with its groove towards the wall and leave a 12mm expansion gap all-round the room between the floor and the wall (not the skirting, if any). This gap will be covered by the skirting. Retain the existing skirting if the new board can slide under it. If not, remove the skirting. Continue each row by laying the similar-length boards in each row, adding and cutting short lengths to finish the row (still leaving a 12mm gap). There must be at least 450mm distance between butt joints in adjacent rows. Refer Diagram 1.0 on the previous page.

#### **5.1.6 Distribute end-joints evenly**

Plain end boards must be joined on a joist. This is not necessary with end matched boards. Make sure all joints are distributed evenly and do not cluster in any one section of the floor. Push end matched boards together before using a tapping block to avoid damage to the tongues.

#### **5.1.7 Nailing the boards**

When the boards have acclimatised correctly, secret-nail them permanently to the joists or batten with a secret-nailing gun, or cramp them and top-nail (not pre-coated product) with a traditional hammer or standard nail-gun. A secret-nailing gun will “kick” the boards together at the same time as it drives the nail in at 45°. When installing over an existing floor or on a plywood base also use a polyurethane flooring adhesive as per manufacturer’s instructions. If nailing into plywood, nailing should be on every joist or at 450mm centres and alternate to the bead of polyurethane flooring adhesive, as per manufacturers’ instructions, between nail centres. If top-nailing the floor directly onto joists, attach floor-cramps to a few joists to lever the strips together evenly across the room. Floor-cramps may be hired from a reputable tool hire firm. Cramp nine or ten boards at one time - do not cramp two or three strips together as this may set up excessive strains in the floor causing over-cramping.

#### **5.1.8 Recommended nails**

As a minimum requirement for secret-nailing use 45mm-long Powernail cleats - or equivalent size, nail/staple as specified in AS1684. For machine driven top-nailing use 2.2 to 2.5mm finish-heads, 45mm long (2.5 times the timber thickness), 2 per joist. Scribe and cut the last board to the profile of the wall and tighten up by hand, or lever with a chisel.

#### **5.1.9 Framing the floor**

The finishing touches don’t forget the finishing touches on your new timber floor. You will need to cover the 12mm expansion gap left between the wall and the floorboards. This can be covered with an appropriate skirting which should be nailed to the wall and not fixed to the floor. If you install your timber flooring with existing skirting in place use a fillet mould or bead to cover the gap, fixed to the skirting and not the floor.

#### **5.1.10 Secret fixing 19(18) mm wide boards Outline**

The following procedure is for secret fixing 100-130mm solid strip flooring by using a combination of flooring cleats and full trowel adhesive to attach the hardwood

flooring to a solid sheet subfloor. This procedure should be used as a guideline for wide board secret fixing. Secret fixing wide board flooring requires skilled tradespeople, who understand the potential hazards of incorrect installation, and should not be undertaken by novice flooring installers.

#### **5.1.11 Acclimatisation**

Correct acclimatisation is critical for a successful installation. Knowledge of site conditions, both currently and in the future, are important for secret fixing wide flooring satisfactorily. For the best results secret fixing of wide boards should be undertaken where the seasonal moisture content change is limited to a 4% point swing, for example 9% - 13%. Onsite testing and research into the anticipated moisture swings should be undertaken to confirm that the site is suitable. Refer to top of this installation guide for further details on how to acclimatise timber flooring correctly.

#### **5.1.12 Subfloor**

The following subfloors are suitable for secret fixing wide board flooring:

- 15mm (or greater) plywood
- 19mm (or greater) particleboard flooring

The plywood or particleboard subfloor must have a moisture content that is within 2% of the acclimatised timber flooring being installed. Note that secret fixing wide board flooring directly to floor joists is not recommended.

#### **5.1.13 Subfloor requirements**

Plywood/particleboard on bearers and joist system as per normal installation it is important to ensure adequate cross-flow ventilation in the area below the flooring. Observe the following recommendations:

1. Air vents should always remain unobstructed.
2. The number of air vents and size should exceed BCA requirements.
3. The ground level below the flooring should be flat, well drained and clear of any debris.
4. The subfloor ground must be dry at the time of installation and should remain dry.

It is also recommended that the ground below the subfloor be covered with an impervious membrane, such as 200 micron plastic. The plastic should be taped with a 200mm overlap. As subfloor conditions can change, this alone can greatly improve the performance of a timber floor in the future.

Plywood fixed to concrete Ensure the concrete slab is flat with no more than +/- 3mm deviation in 3 metres as per Australian Standard AS3600 - 2001: Concrete structures. A self-levelling compound can be used to level any variations. The moisture content of the slab must be 5.5% or below. If the moisture content of a new slab is too high, installation of the floor will need to wait until moisture content decreases to 5.5% or less. Lay a 200 micron plastic membrane over the

whole area and continue up the walls 75mm (to be trimmed later). Overlap joins by 200mm and seal the entire join with duct tape. Plywood is then fixed on top of the plastic membrane.

#### **5.1.14 Installation procedure**

Laying the boards Sort the timber into two stacks: one of similar length boards and one of varying lengths.

Start by laying the varying lengths, longest first, in a triangle or “rack” from one corner. Lay the first board with its groove towards the wall and leave a 12mm expansion gap all-round the room between the floor and the wall (not the skirting, if any). This gap will be covered by the skirting.

Retain existing skirting if the new board can slide under it. If not, remove the skirting. Continue each row by laying the similar-length boards in each row, adding and cutting short lengths to finish the row (still leaving a 12mm gap). There must be at least 450mm distance between butt joints in adjacent rows.

1. Using a 5mm V notched trowel, fully trowel out a workable area (approximately 3-5m<sup>2</sup>) of polyurethane flooring adhesive, as per manufacturers’ instructions, onto the subfloor. A workable area is governed by the conditions that you are working in. The adhesive should not dry or “skin over” before adhesion occurs.
2. Place boards onto the adhesive with minimal disturbance to the glue.
3. Secret nail floor boards permanently to the subfloor with a Powernail secret-nailing gun (Powernail 445, 45R).
4. Use 38mm Powercleats when fixing to 15mm plywood and 44mm Powercleats for 19mm particleboard or plywood. The secret-nailing gun will “kick” the boards together at the same time as it drives the nail in at 45 degrees.
5. Secret nail at 250mm to 300mm centres into the subfloor and no further away than 50mm from an end joint.

#### *Independent testing*

*Certain testing on various different installation methods and has found the recommended method to be the most stable. Testing has shown that the recommended fixing method offers equal to / or greater restraint than the current recommendation of two top nails every 450mm. As for all fixing methods, secret nailing wide board will not suit all installation situations, particularly sites where large moisture fluctuations are expected.*

#### **5.1.15 Limitations**

Excessive swings in humidity and subsequently higher movement in moisture content will result in larger gaps or cupping in the floor.

Key points for successful secret fixing installation of wide boards:

- Secret fixing of wide board flooring should only be undertaken by a competent timber flooring installer with an understanding of the relationship between timber and its surrounding environment.
- Understand, test and record the moisture content of the subfloor, timber flooring and the area to be installed and assess the suitability of the site.
- All moisture readings and test results pertaining to the site must be recorded and permanently retained for future reference.
- Do not install a wide board floor using secret fixing if the moisture swing is expected to exceed four percentage points from the moisture content of the timber at the time of installation.
- Fully trowel polyurethane flooring adhesive, as per manufacturers' instructions, using a 5mm V-notched trowel.
- Ensure that nail centres are 250 - 300mm apart and no more than 50mm from an end.
- It is normal to expect that timber floor gapping may occur though seasonal change.

## **5.2 10mm Solid Strip Overlay**

10mm solid strip flooring is delivered in Cardboard box is recommended that the Box to be delivery to job site, box to be open up stacked inside of house, every lay have two or three board cross for acclimatisation.

### **5.2.1 Subfloor preparation**

Please ensure subfloor preparation recommendations are followed as per this guide on top.

### **5.2.2 Glue Down Application**

In all cases, the subfloor must be structurally sound, level, flat, dry and clean.

### **5.2.3 Plywood**

Plywood or particleboard is a good subfloor for 10mm solid strip flooring when it dries and free from wax dirt. The subfloor must be level sanded prior to 10mm solid strip flooring installation. This will remove any other surface irregularities, such as edge swelling at joints. Plywood sheeting should be a minimum of five ply 12mm thick.

### **5.2.4 Existing timber floor**

Timber flooring must be rough-sanded to remove any cupping or rough material. Sand to eliminate any unevenness and to remove wax or other surface finishes. It is recommended that the 10mm solid strip floor boards be laid at a 90 degree angle to the line of the subfloor boards to avoid possible subfloor movement that could affect the finished 10mm solid strip floor. If the above preparation is not practical then Plywood Underply sheeting should be laid over the existing floor boards to act as a subfloor. To run the new timber floor boards in the same direction as current timber floor boards, plywood is required between the new and existing floor boards.

### 5.2.5 Concrete slab

- The concrete must be sound and have a steel trowelled finish and be free of floating ridges. These may be removed by rubbing the floor with an emery stone or house brick.
- The concrete should be clean, dry and free of contaminants including, but not limited to, dust, wax, coatings, adhesives, curing compounds, oil or grease.
- The slab must be flat with no more than +/- 3mm deviation in a 3m radius as per Australian Standard AS3600 - 2001: Concrete structures. If deviations are greater than acceptable then the laying surface can be brought to level by using a self-levelling compound available from Timber Flooring accessory shop.
- An alternative method is to fix Plywood UnderPly sheeting to the concrete slab after first laying a polyethylene membrane (minimum 200 micron).
- 10mm solid strip flooring must not be laid on any section of a concrete floor which has moisture content of more than 5.5%. The best way to test for moisture content is to use an appropriate moisture meter.
- Concrete floors that are not suspended should have a polyethylene waterproof membrane underneath to prevent rising damp. If this is not present or there are concerns with varying moisture in the slab, you should use a moisture/vapour barrier as per the manufacturer's instructions. Ensure a compatible adhesive is used with the moisture/vapour barrier.

### 5.2.6 Installation

- Lay the boards parallel to the longest wall in the room.
- Set up a work area and a main floor area. Flick a chalk line that is 10 board widths plus 12mm from the starting wall to establish a straight line. The area between the chalk line and the starting wall is the work area.

#### ***Opposite***

- Using concrete nails or "mickey pins" nail a row of boards on this line as a holding block, with the tongue facing the starting wall. The nails may be removed after the glue has set. Pneumatically fixed 'T' nails are acceptable as alternative to 'mickey pins'.
- Leave a board thickness expansion gap (12mm) along end walls. Place 12mm blocks/wedges along one end to maintain the gap while boards are being placed and glued down.
- 10mm solid strip flooring must be fixed with a recommended polyurethane flooring adhesive, applied using a 5mm v-notched trowel. Spread only enough for 3 or 4 boards at a time.
- Once laid the boards should be in constant, firm contact with the adhesive until cured. If in doubt, nail down (using "mickey pins" or similar, which can be removed later) or apply weights. Do not remove weights or "mickey pins" until completely dry.
- Start the first row of boards with the tongue facing the starting wall and the left hand end of the board against the block/wedge on the side wall. Slot the tongue firmly into the groove on the fixed temporary board and then press the board down firmly into the adhesive.

- Working from left to right, lay the next board and continue working towards the right then measure and cut a strip to finish the first row, remembering to allow for a 12mm expansion joint.
- To minimise cutting waste try to make the off-cut from this board long enough to use elsewhere.
- As the next row is added, tap the boards gently together using a tapping block for a tight fit.
- Use of straps (dogging) can cause over cramping and affect the contact between adhesive and the boards.
- The frequency and use must ensure constant contact between the floor and the boards during the curing process of the adhesive as per the manufacturer's instructions.
- Use a pull tool to fit the last board closest to the wall.
- Start all new rows with a board at least 300mm shorter or longer than the strip used in the previous row. This will prevent end joints from clustering or aligning throughout the floor.
- Scribe the last board to fit allowing for the 12mm expansion joint along its whole length.
- Once the main floor area has been laid, remove the temporary block and lay 10mm solid strip flooring in the work area, following the procedure above.
- Clean up excess adhesive as per manufacturer's instructions.
- Following installation, vacuum thoroughly and clean the floor.

## **5.2.7 Information**

### ***5.2.7.1 Nail/staple down application***

In all cases, the subfloor must be structurally sound, level, dry and clean.

### ***5.2.7.2 Plywood***

Plywood or particleboard is a good subfloor for 10mm solid strip flooring when free from wax and dirt. The subfloor must be level sanded prior to 10mm solid strip flooring installation. This will remove any other surface irregularities, such as edge swelling at joints. Plywood sheeting should be a minimum of five ply 12mm thick. A plastic moisture barrier (minimum thickness of 200 micron) needs to be installed under the plywood. Any joins should be overlapped by 200mm and taped to ensure that no moisture ingress (entry) is possible through the barrier.

### ***5.2.7.3 Existing Timber floor***

Existing timber flooring must be rough-sanded to remove any cupping or rough material. Sand to eliminate any unevenness and to remove wax or other surface finishes. It is recommended that the 10mm solid strip floor boards be laid at a 90 degree angle to the line of the existing subfloor boards to avoid possible subfloor movement that could affect the finished floor. If the above preparation is not practical

then Plywood Underply sheeting should be laid over the existing floor boards to act as a subfloor.

#### **5.2.7.4 Installation**

- Lay the boards parallel to the longest wall in the room.
- Leave a board thickness expansion gap (12mm) alongside and end walls. Place 12mm blocks/ wedges along sides and on one end to maintain these gaps while boards are being placed and nailed or stapled.
- Recommended for areas of high humidity:
- 10mm solid strip flooring must be fixed with a polyurethane flooring adhesive as per manufacturers' instructions. Spread only enough for 3 or 4 boards at a time.
- Starting from the wall and working from left to right, lay the boards and nail with the groove to the wall.
- Continue working towards the right then start the next row, remembering to allow for a 12mm expansion joint. To minimise cutting waste try to make the off-cut from this board long enough to use elsewhere.
- All rows except those immediately adjacent to a wall should be nailed using a Powernailer model 50C, 50P or 50M. Due to the obstruction created by the wall the boards adjacent to the wall will need to be hand/top nailed and counter sunk.
- Apply a 5mm bead of recommended polyurethane flooring adhesive every 150 - 200mm, alternating between nails. Nail every 150 - 200mm and at least 50mm from each end joint.
- As the next rows are added, tap the boards gently together for a tight fit.
- Use a pull tool to fit the last board, closest to the wall.
- Start all new rows with a board at least 300mm shorter or longer than the strip used in the previous row. This will stop end joints from clustering throughout the floor.
- It is recommended that a chalk line is flicked every metre (or as required), parallel to the starting wall to ensure that the 10mm solid strip floor remains square.
- Scribe the last board to fit, allowing for a 12mm expansion joint along the whole length.
- Clean up any excess adhesive as per manufacturer's instructions.
- Following installation, vacuum thoroughly and clean the floor.

### **5.3 14mm Bamboo Floor, Engineering Floor & Laminated Floor Locking System Installation**

Due to the structure difference to solid hardwood, the Bamboo floor, engineering floor and laminated floor we recommend use floating method.

Floor preparation, job site inspection and prevention rule apply same to 10mm solid overlay floor. Existing floor to be dry, flat, free from oil or other debris, expansion allowance to be same.

Apply builder plastic moisture barrier (200 micron ) overlap the plastic about 10cm then duct tape stick both side, or 2 coat concrete moisture sealer (in concrete

floor), then apply floating floor underlay, then lay floor over the top of underlay. If product with click system, then simply click joins them together, allow perimeters 12mm gap then put the skirting on top of gap to complete the job.

If it is tongue and groove system, then apply cross link PVA glue on tongue, join both tongue and glue together, use wet cloth cleaning the excess glue off, apply skirting cover the 12mm gap between board and wall to complete the job.

### **Installation Guide Detail**

Please read this guide carefully to ensure the installation of your floor is to an appropriate standard. For compliance to our comprehensive warranty provisions these steps and important tips should be followed to ensure a satisfactory floor installation.

#### **5.3.1 Important**

It is considered the sole responsibility of the installer /owner to determine if the job site's sub floor and environmental conditions are suitable for the installation.

Final inspection of the flooring is the responsibility of the installer/owner. Any defects in the product should be notified in writing to the point of purchase reseller of the flooring before installation. Once the floor has been installed it is deemed to have been accepted by the purchaser.

#### **5.3.2 Prior to installation carefully examine the flooring for**

- ✓ Grade
- ✓ Colour and profile, note; all natural products will display colour variation and texture
- ✓ Finish and quality
- ✓ Straightness and warping
- ✓ Ensure there is adequate lighting for a proper inspection
- ✓ Any suspect or obvious out of grade products should be reported to your reseller immediately for assessment

#### **5.3.3 Pre-Installation Notes**

1. Flooring should be one of the last items installed for all commercial or domestic application. It is expected that all plaster and painting work should be completed prior to installation.
2. All work involving water e.g. plumbing in kitchen, laundry, and bathroom should be completed before bamboo flooring installation to avoid unnecessary spillage.
3. Trade education on-site is required to alert associated trades that the product being installed is pre-finished and care is required to avoid unnecessary damage to surface coatings etc.

4. Do not store bamboo, engineered hardwood floor or laminated floor (loose boards) long term directly on concrete or near outside walls.
5. Flooring is not recommended for bathroom, laundry or wet areas.
6. During installation, all bamboo cuts (sides or ends) must be sealed with a good quality sealing oil. Take special precautions and seal sides and ends near bathrooms and laundry doors, kitchen appliances windows and entries that could be subject to water ingress.
7. Surface damage or water ingress during and after installation will not be covered by warranty.

#### **5.3.4 For High Temperature and High Humidity regions including Coastal zones.**

Special care should be taken to provide adequate acclimatisation of the flooring planks prior to installation. It is recommended that the planks should be removed from the packaging and stored in the area they are to be installed in for a minimum of 5 days to allow for acclimatization.

In these types of environments, Expansion and contraction are common and the planks need to achieve some form of balance prior to installation. Methods of installation that accommodate for these types of changes are recommended in the regions with humidity levels higher than 60%.

**Note:** *Housing locations situated on elevated sites with open sub-floor spaces require special precaution. In such location, very dry wind or windblown rain and fog can result in very extreme changes to the lower surface area of the floor. Extreme shrinkage or swelling may result. Protection to the underside of the floor is required. Appropriate expansion allowances and joints of 15mm must be incorporated into the floor installation to provide a quality outcome.*

#### **5.3.5 General Installation**

Wonderful Floor® Flooring uses an ingenious patented form of tongue and groove to "Click" or "lock" the planks together. The system requires no glue or nails, Wonderful Floor® Flooring is much easier and cleaner to work with providing fuss free and easy installation.

##### **5.3.5.1 Installation tips**

- ☆ Inspect each board for defects and grade for use.
- ☆ Stack into colour range (light, medium, dark) for blending.
- ☆ Do not use Wonderful Floor® flooring in damp or wet areas.
- ☆ Do not install cabinets or walls on top of the floating floor.
- ☆ Do not attempt to knock the Flooring joint into place with one hit. Be sure to tap off all joints, even if the plank appears to be in place.
- ☆ Tapping Block should be used; otherwise you may damage the plank.
- ☆ Do not install defective planks, and make sure to check each plank prior to installation.

- ☆ For room widths greater than 6 metres, further expansion provisions will be necessary. Please refer back to guidelines from the point of purchase reseller.
- ☆ For new construction allowing the floor to float under the plaster walls is advantageous. This practice enables the floor to have more space to cater for natural expansion and contraction. Skirting should be fixed after installation.

#### **5.3.5.2 Tools recommended**

Hammer (1Lb/500g), tapping block (tested to ensure it won't damage the planks), type measure, spacer blocks/wedges (12-15mm), saw, crowbar or pinch bar with protruding edge (to be tapped on with a hammer). When sawing pieces off the planks, use a fine-toothed hand saw, jigsaw or cross-cut saw. To achieve a clean cut, saw with the face side down with a jigsaw, face side up with a hand saw or cross-cut saw.

#### **5.3.5.3 The best preparation**

The floor should preferably be installed parallel to the way the light falls. The ideal environment is a temperature of 15degree to 20 degree Celsius and relative humidity of 50-60%. Allow the Flooring to acclimatize, in the area where it is to be installed. Please leave the packs in the middle of the room, NEVER against a wall or place in a corner.

Check that:

- ✓ Doors can still open and close after installing the floor with a sub-floor (minimum of 10mm)
- ✓ Door frames may need to be adapted to install the floor under them
- ✓ Old plinths/skirting can be removed

#### **5.3.6 Sub-Floors**

The sub floor must be thoroughly clean and flat before Wonderful Floor® Flooring can be installed on it. Flatten any unevenness of more than 5mm over a 3m radius. Suitable sub floors may include concrete, particle board, wood floors and both ceramic and vinyl tiles, among others. Please consult with your professional flooring installer or supplier to determine suitability of sub-floor surface.

##### **5.3.6.1 Concrete (New Construction)**

- The moisture content of the concrete may not exceed 5.5%.
- A freshly poured coating must dry out for at least 1 week per 24mm thickness up to 40mm, and 2 weeks per 34mm thickness above 40mm with sufficient ventilation. (34mm concrete must therefore dry out for a minimum of 8 weeks).
- In the case of flooring heating, the moisture content may not exceed 1.5% (CM Method). In this case, some specific installing instructions are applicable. Please refer to the section on Radiant Heated Sub-floors.

##### **5.3.6.2 Concrete (Renovated Constructions)**

- Old concrete floor more than 3 months should be under moisture content 2.7 per cent, more than 3 years concrete floor moisture content should be under 2.2 per cent,

otherwise should apply 2 layer high quality concrete moisture barrier. In the case of sheet vinyl flooring i.e. Linoleum etc., Wonderful Floor® Flooring may be installed on the existing floor covering. Note: Regardless of existing flooring, sub-floor requirements still apply.

### **5.3.6.3 Wooden Floor**

- Wonderful Floor® Flooring may be installed over existing floor coverings such as full spread sheet vinyl; however it must be properly bonded with no loose edges or seams.
- The wooden floor must be sufficiently stable. Any loose parts must be nailed down and if necessary, a level under floor must be installed.
- The moisture content of the wood may not exceed 10%.
- It is essential that the crawl space under the wooden floor be sufficiently ventilated (minimum 15mm total ventilation opening per square metre of floor).
- Be sure to install new planks across the planks in a cross-hatch fashion.

### **5.3.7 Moisture Barrier**

#### **5.3.7.1 Concrete sub floor**

- We recommend the use of a high quality moisture barrier epoxy resin (such as Bostik concrete moisture sealer) and a polyethylene vapour barrier (or equivalent) over the entire sub-floor surface. Follow underlayment manufacturer's specific installation instructions for best results.

#### **5.3.7.2 Other sub floors (Plywood, Particle Board etc.)**

- We recommend the use of a suitable quality acoustic underlay that includes a moisture barrier. Follow underlayment manufacturer's installation instructions.

### **5.3.8 Installation**

Because the humidity of the room can vary due to differences between the seasons for example, the floor must be able to expand in all direction. This expansion can amount to 10mm per metre, so the greater the surface area, the greater the room for expansion required. The floor must be able to expand or contract on all sides. To facilitate this, an expansion gap of 12-15mm should be provided at walls. Dependent on skirting thickness the more space the better. For room widths greater than 6.0m further expansion gaps may be necessary. Please consult with your professional installer or supplier about required distance. Door entries etc. provide opportunities for expansion trims to be introduced.

A gap must also be provided around pipes or at thresholds. With large surface areas, a wider gap must be provided, for example under a double wall. Take into account the fact that the floor may move in one direction. When possible, provide expansion gaps i.e. under doors. These gaps are covered by a profile that is not fixed to the flooring but to the base floor.

### **5.3.8.1 How to use the locking system**

You can join together the planks of Wonderful Floor® flooring in two different ways:

1. The planks can be rotated to fit into one another with either the tongue into the groove, or the groove into the tongue. The easiest way to fit the Wonderful Floor® flooring is tongue into groove.

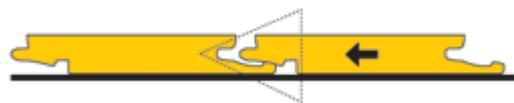
Installation instructions are based on using as much as possible of this last installation technique. Fitting the groove into the tongue is only required in a few specific situations.

Position the plank to be installed at an angle of 20 degree to 30 degree to the plank already installed (Diagram 1). Move the plank to be fitted slightly up and down at the same time exerting forward pressure. The planks will then click into place together.



**Diagram 1**

2. In some cases, the planks cannot be rotated into one another, for example along the short edge of a plank that has already been clicked into another plank along the long side, or under a door frame etc (Diagram 2). In this case, the planks can also be fitted lying flat.



**Diagram 2**

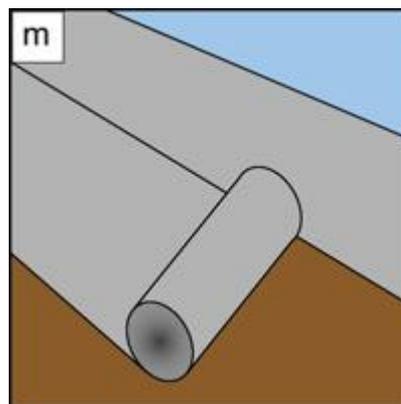
You should not expect to knock the Wonderful Floor® flooring joint into place with one hit. For the short edge, use a number of smaller taps until the planks click together completely.

For the long edge you should tap them together gradually; begin tapping lightly at the corner of a plank until the joints meet, then repeat the process some 300mm along until the entire long edge of the plank has clicked in with the other.

### 5.3.9 Step by Step Installation

#### 5.3.9.1

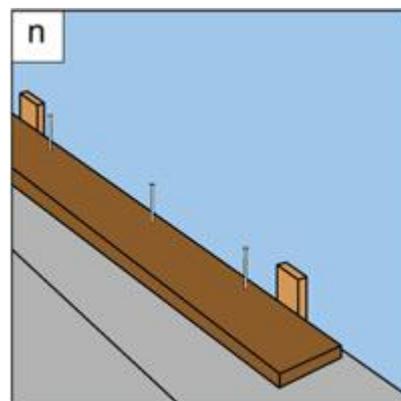
Apply builder plastic (200 mm at least) duct tape stick them together, or apply 2 coat Bostik concrete moisture sealer, lay floating floor underlay on top, then start to lay floor board on top (Diagram 3).



**Diagram 3**

#### 5.3.9.2 First Row

Start in a corner of the room with the locking strip (groove end) facing the room (Diagram 4). To ensure a perfect expansion joint, the tongues along the long edge which go against the wall should be sawn off. Using wedges as required, maintain a 12-15mm gap between the wall and the planks being installed. Install the first plank.



**Diagram 4**

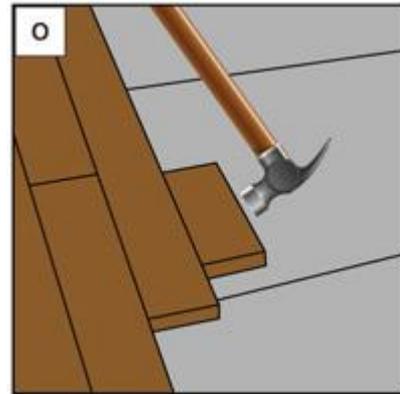
Install the second plank, pressing the end of the second floorboard in at an angle to the first one and then laying it down flat on the ground to engage the locking mechanism. Continue with this method until you are ready to install the last plank of the first row. Cut the last plank of the first row to size using a saw then install as done for the previous planks, leaving a 12-15mm gap at the end. After the first row is completed, ensure that all edges are even and parallel. Note: it is practical to fine-tune the gap between the long sides and the wall later, after the first three rows have been laid.

#### 5.3.9.3 Second Row

Start the second row beginning with (if available) the piece left over (cut off) from the first row (piece must be at least 50cm in length). If the piece is too short (or if there is no leftover piece), start with a new board, cut in half. Always ensure that the end joints are staggered at least 250mm, this is to provide strength to the combined floor. Maintaining a 12-15mm gap between the end of plank and the wall, insert the long edge of the plank into the adjacent plank of the first row. Push forward and press down at the same time to fully engage the locking mechanism. With the plank resting flat on the floor, ensure there is no gapping on any of the joints. Next, lift the end of the plank and rest it on an installation wedge so that it is not lying flat on the floor.

Insert the end of the next plank into the end of the previously installed plank, lowering the plank until it is parallel to the ground with the long edge of the plank resting on the edge of the first row's locking mechanism. Rest the end of this plank on an installation wedge so that the entire edge of the plank is at the same angle as the end of the first plank.

Slowly and evenly push the entire length (the long edge) of the second plank's locking mechanism fully into place using a tapping block (Diagram 5). Once completely inserted, remove all wedges and press the entire plank down to lock the plank. Use a hammer and a tapping block to ensure all edges are perfectly mated. Lift up the very end of the newly installed plank and place an installation wedge underneath it in preparation for installation of the next plank. Continue to install the whole row.

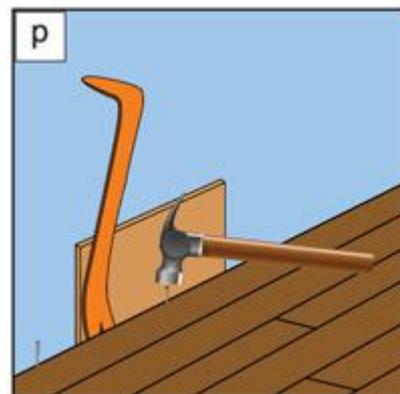


**Diagram 5**

When the entire row is completed, remove all wedges and review the row to ensure there is no gapping and that all locking mechanisms are fully engaged (all planks are perfectly flat). Note: Never hammer planks without using a tapping block or damage to plank edges will occur.

Place a weight (e.g. a pack of planks) on the completed boards to stabilize them. Continue this method to install the whole floor. Remember you can use the left-over pieces that you have from the end of each row to begin the next row (minimum of 500mm).

Always place a weight on the joints that you have just made in order to stabilize them. When you reach the final row, use a block and a pry bar to wedge the last boards tightly into position. Drill holes and face-nail boards where baseboard or baseshoe molding will cover. Set the nail heads below the surface using a hammer and nail set (Diagram 6).



**Diagram 6**

#### **5.3.9.4 Finishing**

After installing our floor, you can immediately walk on it and begin the finishing process. This is one of the major benefits of the Wonderful Floor® flooring System.

- Remove all spacer block/wedges
- Fix the skirting boards to the plastic membrane sticking up from the floor. Never fix the skirting boards to the floor itself, but allow the floor to expand and contract underneath the skirting board.
- Finish the pipes with rosettes of silicone.

In places where no profiles or skirting boards can be placed, the expansion gap must be filled with silicone. Silicone should also be inserted in the expansion at the perimeter where the Wonderful Floor® flooring may be exposed to excess moisture such as against shower stalls, bathtubs, around the toilet base, behind the toilet in front of dishwashers and sinks.

#### **5.3.9.5 Installation around Pipes or Columns**

Drill holes and saw out flooring as required to make room for any exposed structure or pipe. Note: holes around pipes or other items must be at least 20mm greater in diameter than the pipe or structure.

## **5.4 How to Install Bamboo Tongue & Groove Profile Floor**

Use secret nail method, please refer to hardwood floor tongue and groove installation, and make sure use overlay gun and short staple. Please note we recommend Horizontal and vertical bamboo floor to use this method only, we do not recommend Strand woven (compressed) bamboo floor use this method. Due to its high density, if using secret nail method install Strand woven floor, in some cases the light reflection may show nail mark on surface of floor because this material is too hard, nail may bend inside of board rather than go straight into bamboo board and subfloor timber board.

Use floating floor method to install normal tongue and groove bamboo floor, engineered floor.

### **Step by step**

1. Floor preparation same above locking system floor
2. Open one full box board, apply PVA cross link glue in the tongue or groove, make sure apply enough glue (do not spot glue on tongue only) give it about 10 minutes to cure while prepare something else.
3. When join two board tongue and groove together, if found certain board extreme out of line, not as straight as it should be, then cut this piece as two for next line to install in both ends.
4. If found board keep opening up should not be too worry about it, continue on the job until the end close to wall about 10-15mm. Use big screw driver or metal bar against the wall, pull the board tight, make sure all the gap disappears, then use 10-15mm thickness wedge, put it between floor board and wall, make sure it tight fit. Continue on to other room.

5. After finishing the job, by then the PVA glue should dry. Pulling up all the wedges, put the skirting or Scotia on, complete the job. To finish the job properly, fit 20x12 mm expansion cork every one metres distance in the gap between wall and floor board before put the skirting on.

## 5.5 Important points to remember

- Wonderful Floor recommends a professional installer to install our products.
- Read all instructions before starting and take the time to plan the job properly.
- Remember that Wonderful Floor must not be laid over a concrete slab which has a moisture content greater than 5.5%.
- Ensure that the subfloor is flat (+/- 3mm over a 3m radius as per Australian Standard AS3600 – 2001: Concrete structures.), clean and dry.
- If possible, lay boards before fixing skirting.
- Wonderful Floor is not recommended for wet areas such as laundries or bathrooms
- If there are any problems before or during the laying of a Wonderful Floor, STOP and do not continue laying. Contact us.
- Laying hardwood timber flooring requires skills in carpentry and specialist knowledge. Only those who are competent in this area should attempt to undertake a floor installation. For the best result, we recommend that a professional flooring contractor be engaged to undertake the project. With the abundance of various different primers, levelling compounds, sealers and adhesives on the market, the following points should be considered and applied.
- Always follow the manufacturer's guidelines.
- Always use compatible products. Manufacturers often have recommended "systems" that guarantee compatibility.

## 6 Decking

### 6.1 Introduction

This guide outlines the installation of timber decking onto bearers and joists. To ensure regulations are met for post sizes, stress grades, bearers and joists spans and other structural elements pertaining to building a deck refer to Australian Standards AS1684: Residential Timber-Framed Construction and AS1720: Timber Structures - Design Methods. All building codes and Australian Standards need to be adhered to when building a deck. Check with a licensed builder, architect or engineer before building a deck. Building a deck in bush-fire prone areas may require adherence to Australian Standard AS3959: Construction of Buildings in Bush Fire Prone Areas. Check with the local council about relevant regulations. Detailed plans, as well as development and building approvals may be required depending on the scope of the deck. Our Decking is seasoned to the moisture requirements of Australian Standard AS2796 (i.e. hardwood 10% to 15%). Traditional indoor tongue and groove flooring must not be used for weather exposed decks.

## 6.2 Prior to Installation

Preparation for building a deck is important. Determine the dimensions of the deck and note the position of features such as stairs, drains, and gas pipes – these will need to be marked up before any work begins. Ensure the ground is clear and weed control is undertaken prior to installing the deck. Land preparation is required by laying drainage to avoid build-up of water underneath the deck. Unobstructed air flow is required below the deck. Add vents at various locations for decks with limited ventilation.

Ensure the bearers and joists are built to the relevant Australian Standards and all council and Building Codes Australia requirements are met prior to installation.

Joist span recommendations

- ① Residential Installation - a 407mm centre to centre joist span
- ① Commercial installation - a 305mm centre to centre joist span
- ① 45° angles installation - 305mm centre to centre joist span

## 6.3 Installing Decking

Decking may be left to weather or coated and sealed. When applying coatings or sealants ensure manufacturers' instructions are followed. To compensate for expansion, decking boards must be properly spaced during installation.

For decking boards up to 86mm use a spacer approximately 3mm thick to ensure that the decking boards are spaced with 3mm gaps. Allow a minimum 5mm gap between boards for decking boards over 86mm.

When fixing joints stagger the joints so they do not sit on adjoining joists to avoid joists splitting. Make sure that all joints in the decking boards sit over a joist (Diagram 3.0). To obtain a tight fit on the joints a slight undercut will assist with the boards sitting flush (Diagram 4.0 over the page). Pre-drill nail holes (80% of nail diameter) into Joints staggered the decking board to avoid splitting. Nails must be kept 12mm from edges and ends of boards (Diagram 4.0). Nails must be driven flush with surface (not punched). Each decking board should be nailed to each joist with two nails as required by Australian Standard AS 1684 for required fixings for domestic decking. Alternatively, proprietary fixings may be used in accordance with manufacturer's instructions. Only hot dipped galvanised or stainless steel (not plain steel or zinc plated) nails should be used to fix decking to joists. Stainless steel or silicon bronze fixings are recommended for decks built within 1m of water such as pools, ponds etc. At intermediate fixings, nails should either be offset or driven at slightly opposing angles.

## 6.4 Decking Care and Maintenance

In order to keep a hardwood timber deck looking its best, it must be kept clean and well maintained. It is a good idea to inspect a hardwood timber deck at least annually to ensure that it is in good condition.

The deck must be regularly maintained as it may become discoloured or affected by moisture and weather. Inspect the deck to replace loose boards and protruding nails or screws. Any loose or damaged boards should be resecured or replaced, loose nails hammered back in or screws refixed. To clean the deck, sweep off any loose dirt or garden residue and then clean the deck with a specialised deck cleaning product. It is important to not only remove dirt, but any algae or moss that may be growing on the deck. After the cleaning has been completed, lightly sand the deck in the direction of the timber. This will remove any splinters and damage to the timber. Once cleaned, reseal the deck with a stain, oil, paint or varnish, depending on aesthetic preference. Before the decking finish is applied, ensure that drop cloths are used on areas around the deck that need protection such as plants and furniture. Drying times are dependent on the type of finish that is used so check manufacturer's recommendations before walking on the newly finished deck. More than one coat may need to be applied. Apply and re-apply decking finish as per manufacturer's recommendations. Manufacturers may recommend that the decking finish needs to be re-applied more than once a year.

After a new timber deck has been built, or an existing deck repaired, it must be thoroughly swept and cleaned to remove metal filings from drilling, nailing or other construction that may cause black spots on the hardwood deck when exposed to the elements.

If the deck has turned grey from natural weathering or is discoloured due to metal filings or other construction materials, a solution of oxalic acid crystals mixed with water, a light sanding and a new coat of decking finish may help bring it back to its natural beauty. Use with care and follow the manufacturer's instructions carefully.

All standards set by Work Safety Australia must be followed when installing a timber floor or deck. The following work practices should be used when working with timber:

- Work areas must be clean. Sawing, sanding and routing equipment should be fitted with dust extractors. Dust levels should be below standards set by Work Safety Australia for wood dust.
- When machining timber respiratory protection, gloves, clothing, hearing and eye protection should be worn.
- After handling timber, wash skin thoroughly with mild soap and regularly wash clothing.
- When using adhesives, coatings and other VO C's ensure that manufacturer's recommendations are followed.

## 7 Safe Work Practices

*When machining timber respiratory protection, gloves, clothing, hearing and eye protection should be worn.*

### 7.1 Precautions

- ① Never steam mop or wet mop indoor floor surface area after installation.
- ① Protect furniture and chair feet by means of felt or plastic caps.
- ① Avoid bringing dirt, water and sand from outside by use of a doormat.
- ① Make sure there is a minimum humidity of 35%-50% in the room, if necessary use a humidifier.
- ① Keep nails trimmed on animals.
- ① Periodically rearrange rugs and furniture to allow for even aging of the flooring.
- ① Use area rugs in high traffic areas

### 7.2 Radiant Heating Systems

- We do not recommend Wonderful Floor® flooring to be installed in radiant heating systems, because the radiant heating systems create 'dry" heat.
- The owner/installer assumes sole responsibility for the installation of flooring over the chosen radiant heating system.

### 7.3 Maintenance

- With its smooth surface, Wonderful Floor® flooring cannot retain dust or dirt.
- We recommend vacuuming or sweeping in order to remove dirt and grit prior cleaning the flooring.
- Never use wax, oil, soap or other household cleaners on your floor.
- For dry maintenance, wipe over with clean water or with wood floor cleaner. This product cleans the floor very well and leaves a satin shine. Only use a well wrung out cloth. Always wipe dry immediately after until no moisture is visible on the floor.
- Never use scouring products.
- Despite the superior moisture resistance of Wonderful Floor® flooring, remove any excess water immediately.
- Monitor the climatic conditions. In cases of extreme climatic conditions it may be necessary to increase humidity using a humidifier, or decrease humidity using an air conditioner. This is especially relevant during periods of non-habitation when there is little or no air circulation within a property. This can lead to magnified levels of relative humidity and or temperature, causing the floor boards to expand and in some cases distort. If the residence is expected to be uninhabited for extended periods, care should be taken to control the climate with the use of air conditioning and/or humidity controls.
- Timber and bamboo floors must be protected from direct sunlight with appropriate window treatments. Failure to do so may result in localised cupping and or checking of the timber, warranty will void.