



# Hardwood Floor Installation Guide



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### STEP1 - BEFORE YOUR FLOORING ARRIVES

#### **RELATIVE HUMIDITY MUST BE CORRECT**

The Relative Humidity(RH) which is a measurement of how much moisture is present in the air. The correct RH of a room's atmosphere, for wood flooring to be installed, falls between 45-65% with an ambient temperature between 18 to 24°C. If necessary employ a dehumidifier to maintain suitable conditions.

**NOTE:** Wood Floors are generally not suitable for bathrooms where there is regular running water or an accumulation of water vapour.

#### **WET TRADES & DECORATING SHOULD BE DRY**

All wet trades such as concreting, screening and plastering should be completed and the building should be thoroughly dried out. Wood is a hygroscopic material and will absorb any excessive moisture which can cause problems.

**NOTE:** Plaster may take several months to dry satisfactorily and concrete screeds depending on thickness may take considerably longer. As a rule of thumb drying time for cement and water based screed is one day per millimetre for the first 50 mm and unto 2.5 days for each subsequent millimetre.

**IMPORTANT:** As with all screeds please consult the manufacturer for precise drying times and accelerated drying with heat should be avoided as this may weaken the screed.

Decorating should be completed where possible, and paint should be completely dry as this can also add moisture to the room. Any sanding should be done before the floor is laid as fine dust can permeate into the wood and can be impossible to remove without damaging the surface.



#### **ROOM TEMPERATURE MUST BE JUST RIGHT**

Room Temperature will have an effect on relative humidity and should be stable before your flooring is delivered to site. Heating including underfloor heating should be fully tested and working for at least two weeks before the flooring is laid. Room temperature should be between 18 to 24°C.

#### **DIRECT HEAT SOURCES MUST BE INSULATED**

Flooring must not be exposed to excess heat such as from hot water pipes below floors.

### STEP 2 - PREPARING THE SUBFLOOR

#### **SUBFLOOR PREPARATION**

The subfloor is key to a successful installation and will help ensure your floor performs to its very best. The subfloor is likely to be either wooden or a cement based screed.

Sweep and vacuum to remove any dust and debris,

Any decorators dust should be removed as this can be very abrasive and hard if not impossible to remove from the surface of a floor without drastic sanding and resealing.

Existing floor coverings should be removed, this includes carpets, underlays, parquet blocks, ceramic tiles and any adhesive residues should be removed. It is important to do this so the subfloor can be verified as stable.

#### **SUBFLOORS SHOULD BE LEVEL**

The subfloor must be free from excessive undulation and flat to within 3 millimetres over 2 lineal metres across the whole floor area. This means a maximum 3 mm gap under a 2 m long straight edge, at any point across the subfloor.

Failure to keep to these tolerances may result in squeaking or deflection which may produce undue stresses on the joints, cause gaps between flooring elements and with fully bonded floors may result in inadequate contact between flooring and adhesive.

#### **SUBFLOORS SHOULD BE STRUCTURALLY SOUND**

Wood Flooring should only be laid on a subfloor which is structurally sound and free from movement. To prevent movement wooden subfloors must be of load bearing strength and free from deflection under loading.

Suspended wooden subfloors should typically consist of a suitable board of 22 mm thickness on joist or battens at 600 mm centres or 18 mm thickness on 400 mm centres. For other types of suspended floor please check with the manufacturer.

#### **MOISTURE CONTENT OF WOODEN SUBFLOORS**

Wooden sub-floors should contain no more than 11% moisture content and must not be more than 2% higher in moisture than the Wood Flooring.

When installing wood flooring at ground floor level (or below) above a ventilated cavity (e.g. floorboards suspended on joist), it is essential that a purpose made moisture barrier building paper is installed over the sub-floor before flooring can be installed.

The moisture barrier must taken up the walls by 30 mm at the perimeter, and all joints overlapped by a minimum 200 mm and taped with a water proof jointing tape.



### STEP 2 - PREPARING THE SUBFLOOR Cont'd

#### MOISTURE CONDITION OF CONCRETE SUB-FLOORS

Concrete slabs and sand-cement screeds must be sound, dry, free of laitance and other substances which may impair adhesion (e.g. Bitumen adhesive residues etc). Mineral based sub-floors must be less than 75% equilibrium relative humidity and less than 65% relative humidity for glue down of engineered flooring. Anhydrite screeds must be less than 0.3% actual moisture content. Sub-floors at ground level or below must contain an effective damp proof membrane to protect flooring from ground water in compliance with British Standards. If there is any doubt that the sub-floor meets the required standard for moisture or the sub-floor does not have an effective integral damp proof membrane, a suitable surface applied damp proof membrane must be installed.

### STEP 3 - ONCE YOUR FLOOR ARRIVES

#### ACCLIMATISATION

Acclimatising is used to balance the wood flooring with the environment it is going to be used in.

Once you are satisfied that the correct preparations have been made, your floor can be delivered and as part of your guarantee conditions, it is essential to acclimatise your flooring prior to installation. Your floor should be kept in it's sealed, unopened boxes and should only be laid flat, ideally in the room in which it is to be installed or as close to typical living conditions as possible.

**Important Note:** Do not store packs outside or anywhere with different ambient conditions to the rooms where it is to be installed.

If your flooring is not correctly acclimatised planks can warp and bow and become difficult or impossible to install.

Engineered wood floors should acclimatise for at least 3 days and solid floors should have at least 7 days.

Note: A certain amount of bowing in engineered floors is common and if the bowing is no more than 25 mm then these boards can be installed and will lay flat with a random staggered laying pattern.



### STEP 4 - PLANNING THE INSTALLATION

#### TYPE OF INSTALLATION

Engineered floors can be installed as floating floors over Wood's Good underlay or fully bonded using Wood's Good Flexible MS adhesives.

18 -20 mm floors may be fixed to wooden subfloors using secret nails.

#### DIRECTION OF FLOOR

Where practical install floor parallel to the longest walls so that the direction of greatest potential expansion (i.e. across the width and grain) does not coincide with the direction of greatest dimension of the floor, especially in large areas.

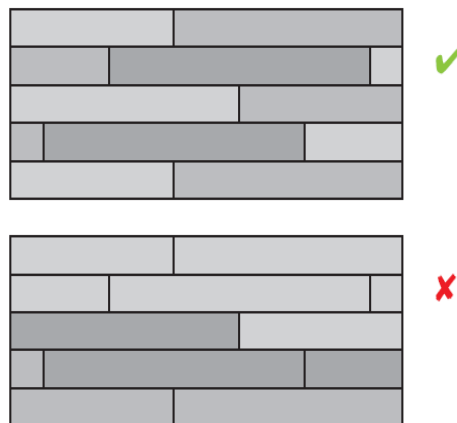
Before you install the first row measure the width of the room and divide this measurement by the width of the board, this will give you the number of rows of boards. This is useful as the last row should not be less than 60mm. If it is then the first down should be rip cut along the length to make the last row wider.

#### RANDOMISED INSTALLATION

To achieve the desired mix of colours, shades and other characteristics in the final floor, and to avoid clusters of characteristics such as knots, the contents of multiple packs should be mixed during installation.

Avoid Grouping similar colours and grain pattern by mixing the planks before installation areas of dark and light planks can look patchy and out of place.

**NOTE: The installer is the last line of quality control. DO NOT INSTALL BOARDS WITH OBVIOUS DEFECTS.**



#### WHEN YOU ARE READY TO LAY - CHECK FOR DEFECTS

Check each board before it is installed for possible damage or defects, this is important as installed defects are the responsibility of the installer as the installer is the last line of quality control.

#### THE INSTALLER IS THE LAST LINE OF QUALITY CONTROL

Samples must be taken as a guide only and colour/shade and other characteristics will vary. Before installation commences rack out a small section of boards for the client approval. The installer is the last line of quality control. The flooring product may include up to 3-5% of boards which do not meet the normal tolerances or grade and considered normal.

#### WASTAGE

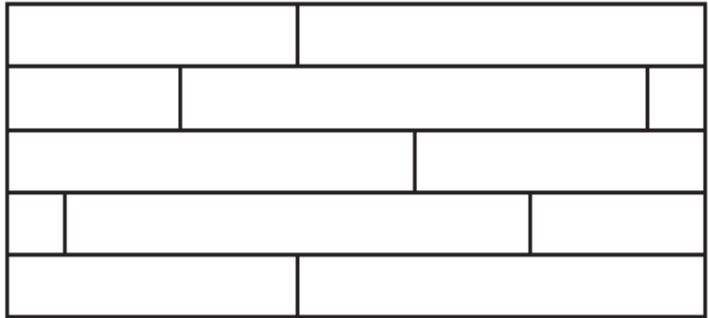
Wood flooring should always be over ordered by 10% of the actual area required. This allows for wastage material which may include boards with natural blemishes or filled knots that are within the grading tolerance but are not your taste. It is also good practise to keep at least a pack of flooring stored in case flooring from the same batch is required for any unforeseen repair work.

**LAYING PATTERN**

For installation of flooring planks which run in the same direction, header-joints must be staggered by a minimum of two board widths apart. It is also important to even patterns across the floor as this can cause dimensional weaknesses as the floor expands and contracts.

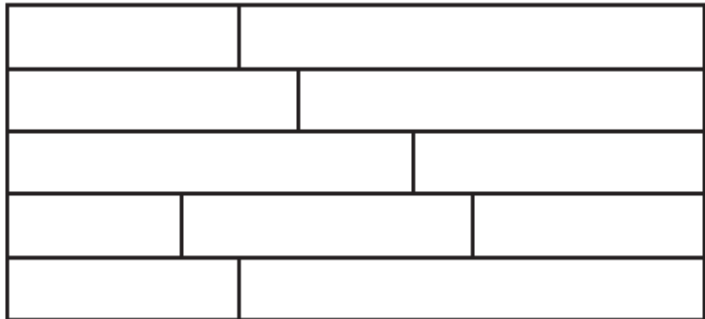
**CORRECT STAGGERED LAYING PATTERN**

Header joints should be staggered by length equivalent to at least two boards width. This random stagger will stabilise the floor and limit any dimensional movement as the wood naturally expands and contracts.



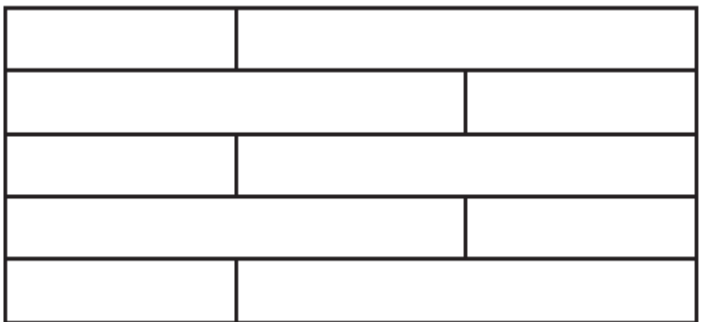
**INCORRECT PATTERN  
HEADER JOINTS ARE TOO CLOSE**

The header joints are too close in this pattern and will cause a line of weakness in the floor which could open up as the floor expands and contracts.



**INCORRECT PATTERN  
HEADER JOINTS LINED UP  
ACROSS THE FLOOR**

Avoid this type of 'H' pattern where header joints line up as it will lead to weak points in the floor where parallel boards may warp and cause an accumulation of excessive movement



### STEP 5 - FLOATING INSTALLATION

Engineered wood flooring may be installed as a floating floor, which means that the boards are joined together and loose laid over the subfloor,, instead of being fully bonded with adhesive or secret nailed.

This is achieved firstly by laying a 3mm or thicker purpose made underlay at 90° to the planned direction of the flooring, then laying the flooring and bonding the interlocking boards at the tongue and groove joints with a D3 grade moisture resistance PVAC adhesive.

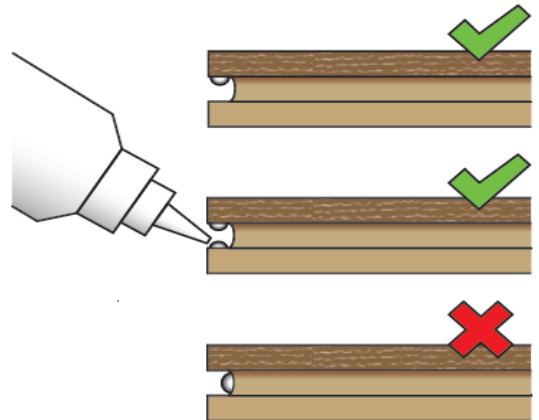
#### PVAC ADHESIVE APPLICATION

When bonding tongue & groove parquet PVAC adhesive should be applied evenly with a continuous bead, along the top of the grooved joint.

The following panel (tongue) should be firmly pressed in to the groove to ensure a tight fit, a wooden block can be used to assist and to prevent damage to the tongue. If extra strength is required PVAC adhesive should be applied evenly to both top and bottom of the groove.

Do not inject adhesive into the base of the of the groove (e.g. as the groove edge of the boards face upward vertically) as this may prevent the tongue and groove joints from closing. (See Illustration).

NOTE: Its is strongly recommended that both header and length joints be bonded with PVAC and NEVER spot glue, to avoid weakness and potential gapping as the floor naturally expands and contracts.



#### UNDERLAY & DAMP PROOFING

It is strongly recommended that a purpose made impermeable moisture barrier is used below floating wood floors. The moisture membrane may be used in the form of 1000 gauge polythene damp proof membrane for concrete which is laid over the sub-floor before the underlay, then flooring is laid. Alternatively an underlay which incorporates a moisture resistant barrier may be used. In either case the moisture membrane is taken vertically up the wall and trimmed off above the finished level of the wood floor surface. All moisture barriers must be taped at the joints with a purpose made jointing tape. Polythene damp proof membranes are overlapped by 200 mm or greater before joints are taped.

#### IMPORTANT NOTE PROVISION FOR EXPANSION

Wood flooring is affected by seasonal climactic changes and will expand and contract, so it is important to allow room for this expansion. Expansion spaces of minimum 12mm for floors less than 25m<sup>2</sup> or minimum 15 mm for larger areas must be left wherever the floors meets obstructions including all walls, door frames, thresholds, structural support, fireplaces etc. These expansion gaps can be covered using the skirting, or edge trim (e.g. Scotia, Quadrant). It is recommended that an expansion break is always employed where rooms join. T- Bar threshold strips can be used for this purpose. Alternatively where wood floors meet other floor coverings a suitable Reducer threshold strip may be used.

### STEP 5 - FLOATING INSTALLATION Cont'd

#### **FLOATED INSTALLATION/ IMPORTANT NOTES**

1. L-shaped halls are better suited to fully bonded installation than floating.
2. If installing as a floating floor in L-shaped areas, in commercial use or over under floor heating ensure that the joints are double bonded with adhesive applied to the upper and lower portion of the groove.
3. Where necessary use flooring straps to achieve closed joints.
4. Flooring must not be exposed to artificial heat sources such as from heated pipes at shallow depth below screeds, or suspended pipes below

### STEP 6 - FULLY BONDED INSTALLATION

Engineered wood flooring may be installed direct to concrete or sand-cement screed sub-floors, or to suitable wood based sub-floors (e.g. Plywood, OSB) by fully-bonding with a purpose made permanently flexible adhesive (e.g. 1 component Polyurethane or SMP). Wood's Good MS and MS Plus floor adhesive is fully tested with all Maples & Birch Hardwood Flooring products and is recommended.

The adhesive is applied to the sub-floor only using a V-notched trowel, which creates ridges of adhesive which the flooring is bedded into when laid. Always use the trowel type which is recommended by the manufacturer of the flooring adhesive for the type of wood flooring being installed and replace worn trowels.

#### **FULLY BONDING/ IMPORTANT NOTES**

1. When installing flooring uplift occasional boards after placement and examine the residues of adhesive on the underside of the board to ensure the board is making full with the bed of adhesive.
2. For UFH hot water system embedded into concrete full bond is recommended as it improves the TOG rating.
3. Previous floor coverings and the adhesive residues used to adhere floor coverings to sub-floors must be removed before bonding of wood flooring.
4. Ensure screeds are of adequate cohesion strength of before installation.
5. Avoid accelerated drying of new screeds as this can lead to poor cohesive strength, especially over under floor heating.
6. Always check the recommendations of the applicable adhesive manufacturer, esp. regarding other sub-floors. e.g. asphalt, anhydrite etc.
7. Some chipboard products have a moisture resistant treatment which can seriously impair adhesion. A layer of plywood may be laid over and securely fixed to the chipboard before installation may commence.
8. Any residues of MS type adhesives which come into contact with the face of the board must be removed whilst wet, as cured residues are not removable.
9. Concrete slabs if fully bonding down engineered flooring must be <65% relative humidity. Testing of subfloors must comply with BS8201 Code of practice for wood based products & BS 8204 Screeds, bases and in situ flooring.





### STEP 6 – FIXED INSTALLATION (SOLID WOOD)

#### **Nailed/Screwed Down**

Solid wood floors can be secret nailed or screwed onto joists or battens as a load-bearing floor which is known as mechanical fixing, this method can also be used for solid wood flooring onto an existing timber floor, or any sound sub-floor which is thick enough to adequately take a nail or screw (e.g. building grade chipboard).

Secret nailing involves the use of a special nail gun as seen in picture (right) which is used to drive a nail through the side of the tongue seen in diagram (right).

If the floor is to be nailed or screwed down there has to be something under the new floor that is capable of taking a nail or screw such as joists or battens (when using 20mm flooring), or a chipboard sub-floor or existing floorboards.

When fitting over existing floorboards, we normally recommend running the new floorboards 90 degrees perpendicular to the old floor. If this is not possible, perhaps due to the aesthetics of the room, the existing floor can be overlaid with plywood.

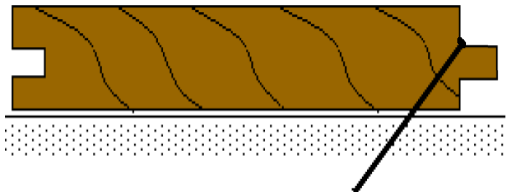
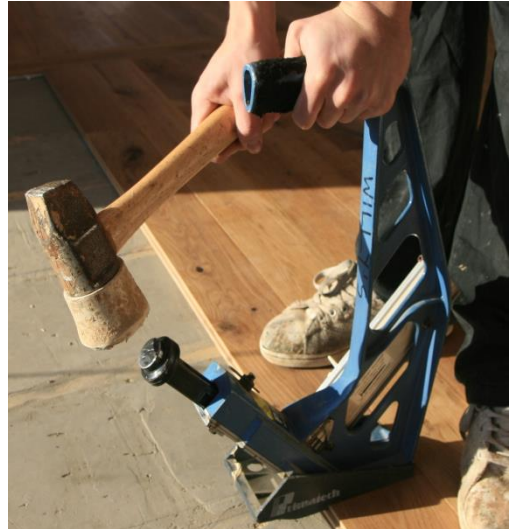
#### **Glue Down**

Using a quality MS polymer adhesive this method is suitable for fixing both solid and engineered wood flooring, usually when fitting onto a concrete sub-floor.

The concrete base must be level and fully dry and primed with a continuous liquid damp-proof membrane before install. It is essential that the liquid DPM/Primer and adhesive are compatible and advise that both of same brand/type.

A reputable fitter should be able to provide a damp meter for this purpose. If you are installing the floor yourself, we would recommend that you seek professional advice to ascertain the sub-floor moisture level.

The sub-floor must be level to a 5mm in a 3m span and should be sound, smooth and clean. It must be free of dust, dirt, wax, loose paint, all curing compounds, chemicals or any other foreign substances that might interfere with a good bond



### IMPORTANT NOTE: PROVISION FOR EXPANSION

Even fully bonded wood flooring is affected by seasonal climactic changes and will expand and contract, so it is important to allow room for this expansion.

Expansion spaces of minimum 12mm for floors less than 25m<sup>2</sup> or minimum 15 mm for larger areas must be left wherever the floors meets obstructions including all walls, door frames, thresholds, structural support, fireplaces etc.

These expansion gaps can be covered using the skirting, or edge trim (e.g. Scotia, Quadrant).

It is recommended that an expansion break is always employed where rooms join. T- Bar threshold strips can be used for this purpose. Alternatively where wood floors meet other floor coverings a suitable Reducer threshold strip may be used.



### USING UNDERFLOOR HEATING

All *Maples & Birch* of the engineered floors can be used with underfloor heating but we recommend reading detailed installation guides before you install with underfloor heating.

**IMPORTANT NOTE:** The flooring installer should ensure that all services (not only heating services) running beneath the floor have been tested fully by the services installer before laying starts. Underfloor heating beneath wood flooring presents special problems because of the wide range of temperature to which the flooring is subjected.

**NOTE: Installation should be fully bonded when possible to insure optimum heat transfer.**

The following information will help you get the most from your heating whilst keeping your wood floor in good condition.

**Do not** allow humidity below 45% RH, or above 65% RH. (A small domestic humidification unit can be employed to avoid low humidity during the winter heating cycle if necessary. **Do not** allow the floor temperature to exceed 27°C, (including under rugs).

**Avoid** thick insulating rugs. (Note: as this will lead to high floor temperatures). **Do not** commission the UFH for 48 hours after the installation is complete. This gives the adhesive time to fully cure and allows the floor to generally settle. **Do not** turn the system straight up to maximum. Gradually increase the temperature 1oc per day until you reach your optimum operating temperature. And never exceed 27°C at the surface temperature.

We strongly recommend a dual thermostat system is used to monitor the surface temperature and the ambient temperature of the room.

**Do not** turn the heating on or off suddenly. Throughout the life of the flooring avoid any rapid or big temperature changes as fluctuating the heat within the product runs the risk of drying out the timber. This can result in dimensional changes causing the floor to split and crack.

Where underfloor heating is involved, particular attention should be paid to ensure that the top surface temperature of the wood flooring should not exceed 27 °CD is claimer & further information

This information is not intended to be exhaustive, or a how to guide for the novice, but will serve as a guide only to the experienced installer. Further information is available in request.

