

FLOOR INSTALLATION GUIDELINES

Points to Consider when Installing Pre-Finished Hardwood Flooring:

- * Always read manufacturers' instructions. If anything is unclear, they or your supplier will be pleased to help you.
- * Ensure site conditions are dry.
- * Ensure the sub-floor is sufficiently flat and dry.
- * Always use a moisture barrier over cementitious ground floors.
- * Use adhesive only for floors which are intended to be glued down. Use the correct adhesive as recommended by the manufacturer.
- * For floor batten constructions, ensure the battens are packed where necessary. Always fix the packing to the battens. Do not place batten ends in a line; they must be staggered throughout the floor area and laid end to end.
- * Always leave the correct expansion allowances at walls and all fixed points. Gaps may also be necessary between boards, depending on the type of system used.
- * If any of the flooring appears to be faulty, do not install it. Set it aside or cut to waste.
- * Make sure that the client has the floor maintenance instructions.

There are four main installation methods for pre-finished hardwood floors: nailing, floating and two types of gluing. Some products can be fixed by more than one method, however, only those methods recommended by the manufacturer should be used.

Procedures Common To All Installation Methods

A number of procedures are applicable to all fixing methods and these are detailed below.

(a) Setting-Out

Check the customer's preference. The position of doors and windows may be a consideration here, as may the direction of existing floor boards or joists. Solid hardwood floors expand mainly widthways. It is often advantageous to lay the boards so that the number of board widths is kept to a minimum. Expansion gaps at doorways are often necessary where hardwood is laid through rooms. It is usual to lay the boards parallel to the longest wall. For most rooms, set-out from one wall, using temporary spacers or wedges to form the expansion gap. Don't forget, the wall may not be straight and it may be necessary to scribe the board to the line of the wall. Check that you can conceal the gap with the relevant moulding.

For wider rooms (over 12m wide), or those with an irregular shape, it may be desirable to set-out the boards from the centre of the room. A 'double row' of boards can be joined with a 'false tongue' to allow the floor to be laid from the centre outwards. Lay the boards so that the tongue edge points into the room. Some manufacturers can supply special boards or clips for this purpose.

(b) Strip Pattern

For strip floors, it is important to lay the boards so that the strip pattern is as random as possible. This not only has a better appearance but also avoids weak points and stave end joints do not fall in a line. Most manufacturers will specify how close these joints can be. A random pattern will normally be achieved by using the off-cut from one row to start the next row. However, the off-cut

FLOOR INSTALLATION GUIDELINES

can be trimmed if necessary to produce a 'random stagger', the pattern should then be maintained for the rest of the row. As a guide, always ensure header joints are at least 450mm apart and stave end joints by 80mm.

(c) Expansion Allowances - Perimeter

Clear gaps are necessary at the perimeter of the floor and at all fixed points. For solid hardwood floating floor systems, cork or rubber strips are used between BOARD ENDS and walls. CORK OR RUBBER MUST NOT BE USED TO FILL THE EXPANSION GAPS AT THE SIDES OF THE FLOOR.

Wooden blocks, wedges or similar can be used to form gaps between the board edges and the walls. These are left in place until the floor has been completed.

Perimeter details are usually covered with a skirting, quadrant or scotia moulding. REMOVE EXPANSION SPACERS FIRST!

(d) Intermediate Expansion Gaps

With nail fixed solid floors, small expansion gaps will be necessary between the boards. The size and frequency of these will depend on:

- * The type and thickness of the board.
- * The anticipated site conditions heating, ventilation and humidity levels of the building when in use.

Gaps are normally formed by using appropriate spacers between boards during fixing. This may be done at every board or by using larger spacers at less frequent intervals, e.g. 0.5mm spacers between every board or 2mm spacer every four boards. Spacers MUST be made from tough, unbreakable material, e.g. PVC (available from solid board manufacturers).

NB: Intermediate gaps are only left when the floor is a SOLID BOARD and is being nailed down.

Do not forget to remove spacers before completion of the floor.

(e) Knocking Boards Together

Ensure that a wooden block is used when knocking boards together as this will protect the tongue from being damaged by hammer blows.

To close board end joints, a 'joint puller' available from the board manufacturer can be used. This is also useful for fitting the last row of boards.

(f) Adhesive

Any excess glue may squeeze-up between the joints. Wipe-off immediately with a damp cloth.

(g) Fitting the Last Row of Boards

FLOOR INSTALLATION GUIDELINES

Cut the last row of boards to fit, not forgetting to make the appropriate allowance for a clear expansion gap.

The joint puller can be used here to fit the board without damaging the wall or skirting board.

With solid "floating" floors, the last board run is the only longitudinal joint that is glued.

(h) Edge Details

A number of solutions to edge details are laid out below:

Radiator Pipes

Ensure the cut-out for the pipe is large enough to allow for the same amount of expansion as at the wall. The tapered 'wedge' cut-out behind the hole is glued back into place with PVA adhesive. Cover with a purpose-made radiator pipe cover, available from manufacturers.

Door Frames, Architraves

Use an off-cut of flooring and underlay as a guide when sawing the bottom of the door frame. The floor will then fit underneath whilst allowing for expansion.

Doorways

i) Ramps

There are two alternative methods: either the ramp is joined by a 'loose tongue' joint to join the boards together and is not fixed down to the sub-floor, or an anodised aluminium ramp is fixed to the sub-floor, and all expansion is accommodated within an invisible rebate.

(ii) Thresholds

Once again, there are alternative methods; either the threshold cover strip is fixed down to one side only. It is good practice to substitute a more solid piece of underlay in doorways to accommodate the extra amount of traffic or an anodised aluminium threshold is fixed to the sub-floor, and all expansion is accommodated within an invisible rebate.

Nail Fixed Floors

(a) Timber Sub-floors

An intermediate layer or underlay is usually necessary. Sometimes, this may also incorporate a moisture barrier; however, the main purpose is to make the floor quieter to walk on. Use only a thin underlay such as grey felt paper or a proprietary type available from the board manufacturer.

(b) Battens and Joints

FLOOR INSTALLATION GUIDELINES

No underlay is necessary. Ensure the boards you are fixing are intended for use over battens or joists and check manufacturers' recommendations for fixing centres.

(c) Nail Sizes

Choose the correct type of nail to suit the floor. The manufacturer will advise here and in many cases, will supply the correct nails.

(d) General

Use spacers to form expansion allowances between the wall and the first row of boards. There is no need for cork or rubber at the board ends - a CLEAR GAP will be necessary.

The first and last rows must be 'secret nailed'. Nails are driven in at a 45 degree angle and finished with a nail punch. Take care not to damage the surface of the board.

Many of the thicker boards can be fixed with a 'Porta-nailer' or pneumatic type machine which drives a 50mm nail, accurately positioned and at a 45 degree angle.

When nailing by hand, it is sometimes beneficial to pre-drill, especially with timber which may be prone to splitting.

Make sure the gaps which are left between the boards are appropriate to the floor system and site conditions of the building when in use.

Floating Floors

(a) Choice of Underlay

Choose a type to suit the floor and its intended use. Underlays are generally used to provide sound reduction and shock absorption to varying degrees. Some products also include a moisture barrier. Underlays intended for carpets and other floor finishes are generally not suitable for use with hardwood floors.

(b) Clip Systems (only applicable to Junckers products)

Select the correct size of Clip where necessary. Where a choice exists, the Clip size is chosen based upon levels of humidity, heating and ventilation of the building when in normal use.

Where no choice available, it is assumed that the floors will be installed in a warm, dry, stable environment (e.g. Housing).

Cut and space the first row of boards as previously described, then, turn the boards over. Hammer

FLOOR INSTALLATION GUIDELINES

the Clip into the groove on the underside of the board. One end of the Clip will have holes or 'teeth' - this is the end which is tapped-in with a hammer.

Put the board back in place so that the Clips protrude. Fit Clips into the second row of boards and offer-up to the first row. With a wooden block and hammer, tap the board home, THEN bear down on the board to locate the Clips.

Board header (end) joints must be glued with the recommended adhesive. DO NOT glue longitudinal joints (except the last row).

(i) Clip Spacings - Domestic Floors

First and last rows - 400mm, elsewhere - 700mm (13 per sqm)

(ii) Clip Spacings - Commercial and Sports Floors

First and last row - 400mm, elsewhere - 500mm (17 per sqm).

Clips between rows must be no closer than 50mm. The first clip on the first row must be 80mm from the board end.

NB: The Clip System does not use nails or screws and must not be fixed down.

Cork or rubber strips must be used at board ends/walls but at the sides of the floor, a CLEAR GAP must be left. This also applies to radiator pipes and at door frames.

(c) Setting-Out - Large Floors

Floors over 12m wide are usually laid from the centre outwards. This is also desirable for floors where there is no wall from which the floor can easily be started, or floors which are laid diagonally.

Double length Clips are available for 22mm floors laid in this way. They can also be used where changes of direction are necessary, e.g. Alcoves.

Edge Bonded Floors

These should be glued continuously along the edges and ends (Kahrs systems and Tarkett 7mm system) or in 10cm long beads with half a metre between beads (all Tarkett systems except 7mm).

Apply adhesive uniformly to the upper edge of the groove. Knock boards together using a wooden block to protect the board edges. Work along the board, closing the joints as evenly as possible. Draw the board ends together with the joint puller tool. Wipe away any excess adhesive with a damp cloth.

Blocks or wedges to form expansion gaps are usually placed at the sides and ends of the floor and these are left in place until the adhesive is dry. They are then removed prior to the edge detail being fixed.

FLOOR INSTALLATION GUIDELINES

Adhesive Bonded Floors

An alternative method of installation is glue-down to the sub-floor. This method can be beneficial in large (over 250sqm) areas, complicated areas, when the boards are installed in different directions or in pattern installations where end joints appear too close to each other.

Always use a solvent or spirit based adhesive, rather than a water based one.

FLOOR INSTALLATION GUIDELINES

FLOOR INSTALLATION GUIDELINES

FLOOR INSTALLATION GUIDELINES

Site Conditions	Relative Humidity	Label Colour	Clip Type	Clip Size
Dry, well heated constant conditions	25%-50%	Green	1 hole	129.1mm
Mostly well heated, some fluctuations	45%-65%	Yellow	2 holes	129.4mm
Intermittently/rarely heated	60%-90%	Mauve	3 holes	129.8mm

FLOOR INSTALLATION GUIDELINES

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