ECE Flooring

HOW TO FIT MULTI-PLY ENGINEERED BOARDS

We strongly recommend that the installation of multi-ply floors is carried out by trained wood floor fitters.

Multi-ply flooring can be secret nailed to existing wooden subfloors or to subfloors of wood based panel products. They can be fully bonded to existing structural subfloors or can be floated in the same way as a three layer engineered floor.

1. **Site Conditions**
   The building must be weather-tight, the heating system operable, and all wet trades (plastering, painting etc.) must have been completed. Hardwood flooring is kiln dried to moisture content (MC) of 9% to 11% prior to despatch. The MC of the sub-floor, room temperature and relative humidity (RH) should be checked on site as advised in BS8201 to ensure that the room conditions at time of installation are as close as possible to the expected in-service conditions – this usually means a room temperature of 18°C to 20°C and a RH of 50% to 65% (60% maximum for planks wider than 175mm). Once these conditions are achieved, the delivery of the materials to site should be as close to the installation date as possible with the exception of installation over underfloor heating systems in which case please refer to UF01 "How To Fit Engineered Wood Floors On Underfloor Heating Systems" Contact your supplier for further advice.
   Keep a record of moisture content and room condition measurements that exist at the time of installation.

2. **Sub-floors**
   Measure the moisture content of the sub-floor. Target MC should be 12% to 14% for wooden sub-floors; 3.5% (or 35% to 40% RH using the slab humidity test method as described in BS8201) for cementicious sub-floors. For anhydrite screeds the moisture content must be 0.5% or lower. It is good practice to fit a damp proof membrane (DPM) over cementicious sub-floors; this could take the form of heavy duty polythene (200 microns minimum thickness) or a liquid DPM. Any joints in polythene DPM must be overlapped by 200mm and be taped with polythene adhesive tape, take the DPM up the side walls by 25mm minimum. If using a liquid DPM then the base of the walls should also be sealed to avoid ingress of moisture at the edges of the wooden floor. Use a breathable building paper on top of wooden sub-floors (any joints to be overlapped by minimum 100mm) e.g. bitumen impregnated craft paper. Contact your supplier for further advice. A combined foam/film underlay can be used for floated applications.

   Ensure that the sub-floor is hard, free from dust, and level; according to BS8204-1 2003 the height deviation must be no more than 3mm measured over a 2m distance using a straight edge. Use a suitable levelling compound if necessary. De-nib the sub-floor to remove any sharp irregularities that could cause the new planks to pivot; even a 3mm nib could cause rocking. For wooden sub-floors make sure that all nail or screw heads are flush with the surface; for uneven wooden sub-floors fit 6mm (minimum) wood panels (plywood or similar)

to provide a level surface, ensure joints between panels do not coincide with existing joints in the sub-floor.

Voids below wooden sub-floors must be adequately ventilated and where possible a DPM should be fitted at ground level; air bricks should be clear and the ventilation path should be clear of obstructions. In this case the new hardwood floor will have to be isolated from the wooden subfloor with some form of moisture barrier.

Clean the sub-floor and remove any contaminants such as mortar, plaster and mastic droppings.

3. **Expansion provision**
   It is essential that an expansion gap of at least 15mm or 2 mm per metre of span, whichever is greater, is left around the perimeter of the room, any obstructions such as columns, radiator pipes, door casings, hearths etc. and in doorways between rooms. The approximate rate of expansion can be calculated; in larger rooms, above 10m x 8m, it may be necessary to provide additional expansion provision. Contact your supplier for advice. Expansion gaps can be covered with a variety of solid wood profiles or skirting, it is essential that any covers used do not impede or restrict the natural movement of the boards that will occur throughout the life of the floor e.g. do not force the skirting down on top of the boards, leave a 1-2mm gap below the skirting and above the boards. Do not nail or glue covers to the boards.

4. **Installation - General**
   Take the boards out of the packs immediately before installation; draw from at least 3 packs to ensure a good colour/grade mix and to avoid banding. Carefully check each board for defects, liability will not be accepted for defective boards once they have been fitted. Decide on which direction to run the planks; usually with the light-fall from windows or along the length of the longest wall.
   Determine the centre-line of the room, measure the distance from the centre-line to the side wall, subtract the width of the expansion gap and divide the result by the width of a plank, this will tell you how many rows will be required to cover half of the floor. If your first and last rows are less than a full plank width, centre the rows so that the first and last rows are of roughly equal width; avoid having a residual plank width of less than 50mm.

   Start with the tongue of the first row facing into the room then proceed with the rest of the floor, try and stagger header joints in adjoining rows by at least 200 mm and keep the length of the end planks in a row greater than 200mm.

   Layout the first row of flooring end to end with the groove toward the wall but DO NOT fix yet. Remember that not all walls are straight and square. Use a chalk line, level and blocks or wedges to help you get this first row completely straight. Cut planks where needed to ensure the floor is straight even if the walls are not.
   Remember: Take more time with the first row as it is the foundation for the rest of the floor. Don't forget to randomise hardwood across this first row to provide a natural looking floor; draw planks from at least 3 different packs to avoid colour or pattern “banding”.
   Once you are satisfied with the fit of the first row, take apart and stack in the order they will be re-installed (the last board to be installed should be on the bottom of the stack).

Fitting Methods

Multi-ply flooring can be mechanically fixed to the sub-floor by means of glue or nails/screws. It can also be glued together and floated on an appropriate underlay.

Floating

Multi-ply flooring has a tongue and groove connection that requires glue in all four sides. It is important to select the correct underlay for your application, these can range from simple 3mm foam to high density acoustic underlays with or without an integral DPM, please consult your supplier. Use D3 type PVA wood glue in the tongue and groove. Do not walk on the floor until the glue has cured, usually 24 hours. In this type of installation the new wood floor is not fixed to the sub-floor but is held in position by its own weight i.e. it is said to be floating.

Re-install the first row, applying a thin bead of adhesive along the bottom of the groove in the header joints. Then continue with subsequent rows, applying a bead of adhesive along the bottom of the groove in the boards to be installed on both the long edges and the header joints. Squeeze hardwood boards together so they fit tightly, use installation clamps to ensure a tight fit of the first three rows (leave clamped together for one hour before proceeding with the remainder of the floor). Use wedges to maintain the expansion gaps during installation – remember to remove the wedges after completing the installation. Immediately wipe away any adhesive that seeps from the joint with a damp cloth.

CAUTION: Too much adhesive may interfere with the way the boards fit together keeping them from fitting tightly together.

Continue working your way across the floor and placing spacers along the walls all around the perimeter. Use a tapping block to firmly locate the tongues and grooves (it is a tapping block NOT a hammer block).

The last row should be installed using an installation bar or a crowbar.

Nailing

Secret nail to wooden subfloor at an angle of 45^{o} obliquely through the shoulder of the tongue, use lost-head nails punched below the surface. Nail length should be 2.5 times the thickness of the planks. Use a specialist nailing device such as a Portanailer. The first and last rows should always be face nailed to prevent boards opening up in use. Leave a 0.5mm gap between each row of planks, use spacers to maintain this gap but remember to remove these after completion of the installation. If fixing to battens or joists apply nails at each intersection. If nailing to plywood fixed directly to joists the plywood should be minimum 19mm thick. Nail the boards at 200mm centres. If nailing directly to existing floorboards the new boards must be fitted across the run of the existing boards or at 45^{o} to them otherwise gapping could occur in your new floor.



4.1 Stick down

Use a permanently elastic glue system, there is a wide range of glues available including Solvent Based (single or two-component) or the more user friendly M S Polymer type. When sticking to cementicious sub-floors use a matched liquid DPM from the same manufacturer of the chosen glue; mixing products could result in compatibility issues which, in the event of problems, could make it difficult to apportion blame. The glue should be spread out using a notched trowel to the glue manufacturer's specification. Only spread as much glue as you can cover within the curing time of the glue, usually about 30 minutes; always follow the glue manufacturer's instructions. If in doubt contact your supplier for advice.



5. General

Wood is a natural product, each plank is unique and, depending on grade, may have knots, sapwood and colour variation. Natural defects can be cut out and the resultant cut boards can be used at the end of rows. Even in engineered flooring products the size can vary slightly – this is a typical characteristic and not a cause for complaint. A professional installer would normally add an additional 5% of flooring to allow for wastage for defects and off-cuts.

All furniture should be fitted with felt pads to protect the surface of your new floor; if you need to move heavy furniture first place the item on top of soft pile up-turned carpet (make sure it is clean and free from grit) to carefully drag across the floor. Fit entrance mats adjacent to external doors. If you intend to put rugs on your new wood floor please make sure that the backing is non-abrasive, no liability will be accepted for any damage caused in this manner. Wood flooring can be damaged by dropping sharp or heavy objects, by walking on your floor in high heels, or by dragging heavy or sharp objects across it. Clean the floor using non-abrasive, lint-free, damp cloths (never use wet cloth or soak your floor); ask your supplier for a suitable cleaning agent – this will depend on the type of surface chosen. Solid wood flooring should not be fitted in bathrooms, wet rooms, saunas, or in basements/cellars.