ECE Flooring

HOW TO FIT ENGINEERED WOOD FLOORS ON UNDERFLOOR HEATING SYSTEMS

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

1. **Site Conditions**
   The building must be weather-tight, the heating system operable, and all wet trades (plastering, painting etc.) must have been completed.
   Water-borne UFH systems should be run at 1/2 to 2/3 of the maximum power for two weeks followed by maximum power for 2–7 days prior to installation of the flooring. The room should be ventilated briefly every day during this period. Inspect the sub-floor for cracks; these must be repaired before installing the floor.

2. **Sub-floors**
   The heating pipes are usually laid beneath a screed 30mm to 75mm deep, this screed must be allowed to dry thoroughly, the moisture content of cementicious sub-floors should be <1.5%MC and <0.3%MC for anhydrite sub-floors. The pipes must evenly cover the whole of the area where engineered wood flooring is to be fitted; hot or cold spots can cause distortion. Measure the moisture content of the sub-floor prior to installation. Install a vapour membrane and underlay directly over the dry screed for floating installation or use a matched liquid DPM and permanently elastic adhesive for glued installations. Please contact your supplier for advice regarding anhydrite sub-floors.

3. **Acclimatisation**

   The aim is to achieve Equilibrium Moisture Content (EMC) prior to installation; the new floor should be in harmony with its surroundings. Hardwood flooring is kiln dried to moisture content (MC) of 9% to 11% prior to despatch, however, it is recommended that the MC should be reduced to below 8% to 9% prior to installation on under-floor heating systems (UFH); the MC, room temperature and relative humidity (RH) should be checked on site to determine the EMC, see BS8201. Room conditions during acclimatisation should be 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 40% to 65%.
   Stack the packs of flooring horizontally, in the centre of the room where the installation is to take place. Use wooden spacers (approximately 20mm thick and long enough to span the full width of a pack) to separate the packs and allow air circulation between them – use at least two to three spacers per running metre so that the weight is evenly distributed; ensure the packs are not in direct contact with the sub-floor. Do not fully open the packs; you may cut the ends of the packs open.

Turn off the UFH whilst the engineered wood floor is being laid, this prevents moisture being driven into the underside of the boards. After completion of the installation turn the UFH on gradually over several days e.g. +2-3^{o}C per day; sudden temperature changes can cause irreversible distortion of the flooring.
Contact your supplier for further advice.

Keep a record of moisture content and room condition measurements that exist at the time of installation.

UFH systems are developing at a rapid pace with new technologies being introduced**; it is essential that you check with both your flooring supplier and the UFH manufacturer that your chosen UFH is suitable for engineered wood flooring, no liability will be accepted in the event of failure if this is not done**. *"The top surface temperature of the wood floorcovering should not exceed 27°C for engineered boards, otherwise excessive gapping between boards may occur. This temperature equates to an average power output of approximately 100W/m2."* *TRADA – A Professionals Guide to Installation.* This can generally be achieved with a manifold temperature of <45^{o}C.

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.

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

4. **Expansion provision**
   It is essential that an expansion gap of at least 15mm or 2 mm per metre of span is left around the perimeter of the room and around any obstructions such as columns, door casings, hearths etc. and in doorways between rooms. The approximate rate of expansion or contraction can be calculated. In larger rooms, above 12m 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 1-2mm gap below the skirting on top of the boards. Do not nail or glue covers to the boards.

5. **Installation**
   Only 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. Centre the rows of planks so that the perimeter rows are no smaller than 50mm width. Cut the first row of planks to size and shape to follow the wall whilst maintaining the required expansion gap along the edge and at the ends. 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 200mm and keep the length of the

end planks in a row greater than 200mm, avoid regular “brick bond” patterns, wood flooring should look random**.**

6. Fitting methods

Engineered wood flooring can be “floated” or can be mechanically fixed to the sub-floor by means of permanently elastic glue.

6.1 Floating

Engineered wood flooring can be either a click/lock system or tongue and groove (T&G) system; T&G boards require glue in the header and longitudinal joints when fitted.
It is important to select the correct underlay for your application, use a low Tog (approx. 0.35Tog) that is perforated to allow even heat transfer e.g. QuickTherm™. 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.

1. 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.

2. Lay out the first row of flooring end to end with the groove toward the wall but DO NOT glue 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.

3. 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).
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”.

4. Re-install the first row, applying a thin bead of adhesive along the bottom of the groove in the header joints of T&G Boards. Then continue with subsequent rows, applying a bead of adhesive along the bottom of the groove of 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. For click floors simply glue and click the boards together taking care not to force them down – use a tapping block, or off-cut, to gently locate the click system (it is a tapping block NOT a hammer block). You may find it easier to fit the short ends together first and then click the entire row to the next row (this is usually a two man job).

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

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

6.2 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 from different manufacturers 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 as recommended by 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. DO NOT GLUE THE BOARDS TOGETHER. If in doubt contact your supplier for advice. If you have an anhydrite sub-floor you **must** contact your supplier for advice.



7. General

Wood is a natural product, each plank is unique and, depending on grade, may have knots, sapwood and colour variation. 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. Do not use big heavy rugs; these cause an excessive temperature build-up in the wood floor that can lead to distortion, cracking, and delaminating. Low tog rugs are available. 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. Engineered wood flooring should not be fitted in bathrooms, wet rooms, saunas, or in basements/cellars.

Certain types of electrical UFH can be used with engineered wood flooring, however, it is the responsibility of the UFH manufacturer to guarantee the compatibility; this is due to the wide variety of systems and controls that are available some of which allow operating temperatures that would cause distortion in wood flooring. Please check with both your UFH supplier and your flooring supplier.

IF IN DOUBT PLEASE ASK YOUR SUPPLIER