

FLOORING GUIDE



TOTTON TIMBER CO LTD

MAYNARD ROAD – TOTTON – SOUTHAMPTON – SO40 3DB

TEL: 02380 860077

**www.tottontimber.com
sales@tottontimber.com**

Solid Timber Flooring – Information and Advice

Moisture Content and Deformation

As wood is a moisture absorbent material its moisture level varies with air humidity and temperature. For example:

- a. 50% air humidity and 20°C temperature average Oak floor will have 9% moisture content.
- b. 30% humidity and 25°C temperature the same Oak floor will have 5% moisture content.

As air humidity changes so does the dimension of the wood. Typically, a 60mm Oak plank will become 0.15mm wider with every 1% change in its moisture content. In other words, every 1% increase in Oak moisture will lead to 0.25% increase in width. The rate of increase in length will be about 10 times less, hence every 1% increase in Oak moisture would normally only lead to 0.025% extra in length.

Solid Hardwood Flooring and Under Floor Heating

There are no hard and fast rules about the suitability of under floor heating systems and timber flooring. It depends on many factors, i.e. timber thickness and width, U value, room geometry, air circulation etc. plus the design of a suitable heating system and the methods of laying and fixing the timber floor. It is advisable to speak to your architect, heating engineer and heating supplier about the compatibility of your heating system with solid wood flooring.

The key to suitability will be the moisture content of the timber and the site conditions. If these things can't be guaranteed then it may be worth considering an engineered floor, which is much more stable in varying conditions than solid timber and may not require site conditions.

Site Conditions

Site conditions are extremely important and make all the difference to a timber floor as indicated above. The overall fabric (walls & floors) of a building should be thoroughly dry (so there are no visible signs of moisture or condensation when heating is on) before bringing in any timber.

The sub-floor should be checked for correct moisture content and newly laid screed floors should have a drying out time of one month per one inch of screed thickness (or to the relevant BS standards). The floor should be smooth and level, European standards are maximum 2mm rise over 1000mm of floor.

If required use a self-levelling compound, where you should allow plenty of drying time before fitting the flooring to solve variations greater than this. It is recommended that a damp-proof membrane be used on top of the screed, to stop any moisture that may still be in the concrete seeping into the oak flooring which could cause expansion.

For a new build project all wet trades must be completed and dry (ideally to 5% moisture content) before you even think of having the flooring delivered.

For retrospective fit of flooring in older properties consideration must be given to moisture in cavities and in external walls.

In upper floors there should be no moisture ingress at points of contact with external walls so use expansion gaps to avoid contact.

At ground floor level where soil or hardcore is exposed or where contact with block or brickwork occurs measures must be taken to ensure there is a sufficient moisture barrier in place (it can also be a good opportunity to insulate) and that the Damp Proof Membrane is intact before laying as well as lapped and taped with aluminium jointing tape or similar. Timber will absorb moisture (see Moisture content and Deformation) and expand in these circumstances if the moisture is not prevented from rising or touching the timber. Even ventilated cavities can result in timber expansion because of increased humidity.

Main considerations

Any under floor concrete slabs should not exceed 4% moisture content (Concrete may take at least one month per 25mm thickness of slab). Concrete sub floors must be clean, dry and flat. A self-levelling compound can be used to correct any errors, but again, ensuring that it is completely dry before laying a timber floor.

Existing timber flooring, plywood or MDF floors should be in good structural condition, level, dry and free from rot or fungus.

New timber joists, battens and supporting timbers should be kiln dried to 15% and under. At the time of laying: ambient conditions should be within the temperature range of 15° to 20° with a relative humidity of 40-60%.

Unfinished timber should be acclimatised in the room where it is to be laid, at the conditions expected for use, for at least two weeks if not longer. This means stacking the flooring and making sure that any packaging is removed with the end grain exposed. Pre finished flooring need only be acclimatised for 48 hours.

Expansion gaps should be left around the perimeter of the floor (approx 10-15mm) these are usually located by skirting boards.

Seasonal variations and the changes in levels of heating and ventilation may result in changes in humidity causing the timber to expand and contract. Small gaps may appear during winter when the heating is turned up but these will close up again during the summer months.

Floor Laying Guidelines

The method of laying a timber floor is determined by a few key issues; the existing conditions which are likely to be either over joists or concrete slabs, building regulations which will examine floor to ceiling height and climate and stability. An additional consideration should be given to noise, both creaking (wood against wood) and noise transfer at this point and any insulation should be fitted before fixing.

Over Joists:

These will be at ground floor level or as a suspended floor and will either be exposed or have an existing floor (sheet material or floor boards) laid over them. If at ground floor level then a moisture proof barrier must be in place before laying to prevent moisture uptake from open earth or hardcore in cavities and Damp Proof Membrane must be intact in external walls (see Site Conditions), even if an existing floor is in place. If the timber is going over an existing timber flooring please remember to locate cables, water pipes etc. before fixing floor down and especially before nailing.

We would suggest boards be fixed using either the secret nailing method or a full adhesive system. Secret nailing uses a gun and 50mm long serrated T nails which are fixed at 45° angles through the base of the tongue. This method can be used for laying directly onto joists or onto existing floorboards, plywood or other sheet timbers.

If the flooring is fitted directly over joists then it should be at 90° to the joists and nailed at each joist. If it is fitted onto an existing floor then it should also be laid at 90° to any sheets or boards and nailed at 300mm centres.

If boards are wider than 160mm it is advisable to use an additional method of fixing of fixing of the faces of boards such as screw and pellet fixed to or adhesive (see our Sika brochure for more information) both of which will fix the face more firmly to the joists or the existing floor.

Adhesive systems vary from one supplier to another. We stock SIKA and BONA Adhesives — please ask for advice when using these methods of fixing.

Over Concrete Slab:

The concrete should be a dry, clean, level surface (see Site Conditions) containing a damp proof membrane or some kind of moisture barrier.

Then the timber floor can be laid either directly onto the concrete, onto a sheet timber floor fixed (screwed or glued) to the concrete or onto battens fixed (screwed or glued) to the concrete with whichever adhesive system is preferred.

However, secret nailing can only be used to fix the timber floor to sheet timber floor fixed to the concrete or to battens fixed to the concrete and then using the same method as for over joists.

The same considerations should be given as before to boards over 160mm wide.

Finishing:

Unfinished boards generally need a light sanding to remove any irregularities in thickness and then the boards will be ready to accept any finish that is required. We stock various forms of floor finishes, please ask for details.