



## SOLID AND ENGINEERED WOOD FLOORING

### NAIL DOWN INSTALLATION

These guidelines are designed to complement the current British Standard BS8201 and any other relevant standards.

**NOTE: The final responsibility for the installation lies with the installer.**

The installer must be suitably trained and knowledgeable with wood flooring installations!

**Safety must be paramount on every installation. All electrical equipment must be PAT tested and labeled and all cutting tools such as jigsaws, circular and bench saws must have guards fitted and cutting must be carried out on a suitable bench. You must also wear suitable work wear and remove or make safe any loose items such as jewellery. Safety is your responsibility!**

Solid and Engineered Wood Flooring may be installed by nailing or screwing onto joists or existing timber sub-floors. They can also be glued down onto a timber or solid sub-floors.

**NOTE: We recommend screw fixing when installing onto Chipboard and OSB type of sub-floors. Nails have been known to work loose from the chipboard and OSB board with normal usage.**

Maximum suggested board width of 180mm for this type of installation. Wider boards may require face fixing and or glue and nails.

#### SUBFLOOR

The sub-floor must be clean, dry and flat to British Standard tolerance; maximum 3mm gap under a 2m long straight edge, at any point across the subfloor.

Timber sub-floors must be sound, test for vertical movement which should be less than 5mm and dry, tested using a spike type meter. The moisture content of the subfloor should be less than 14% and within  $\pm 2\%$  of the wood floor being installed.

All suspended wood floors must have suitable through ventilation normally delivered by air bricks in the outside walls. Any wood sub-floor that has a higher moisture level than 14% should be investigated. They must also be free of infestations such as wood-rotting fungi and wood boring insects with any loose boards being fixed securely. We recommend installing plywood of at least 6mm in thickness complying with BS EN 314-1:2004 Class 3 (formerly referred to as WBP) over all wood sub-floors and laid at right angles to the run of floorboards or sheet boarding including chipboard and OSB.

Solid sub-floors can be overlaid with plywood of at least 19mm if you wish to nail down the wood providing the sub-floor is dry. Do not drill and screw through a liquid membrane! All plywood should be fixed with screws and plugs at maximum 200mm centres. Plywood can also be fully bonded.



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**NOTE: We recommend using a Kingley bitumen paper on wood sub-floors to reduce / prevent residual moisture affecting the wood flooring. This paper can also be used under plywood on solids sub-floors when mechanically fixing.**

**Always** check the ambient room temperature and humidity which should be maintained at a constant level, ideally between 18°C (64.4°F) and 22°C (71.6°F) with a relative humidity, between 45% - 65% prior to, during and for the whole life of the wood flooring. Try to avoid extremes of low or high temperatures as this will negatively affect the stability of the wood flooring.

As above keep the room temperature constant by using the heating set at minimum 15°C (59°F) or if there are problems with the permanent heating other forms of heating such as convector heaters can be used. Do not use gas type heaters as these will generate extra moisture in the air. Infra-red type heaters do not generally warm the fabric of the room or the wood, they tend to only warm the person or item close to the heater.

Low humidity can cause the wood to shrink and high level to cause expansion. Common causes of low humidity are using the heating at too high a temperature, open fires and wood burners. High humidity is commonly caused by poor ventilation.

We recommend using a **Techno Digital Gauge** which can be purchased through Havwoods to monitor the humidity and temperature level that can be easily adjusted by either placing moisture in the room (plants that are watered regularly or receptacles of water) or ventilating the room to reduce high levels of humidity. A re/de-humidifier can also be used to control the atmosphere.

As a general rule, rooms / areas should be adequately ventilated to prevent a build of moisture in the atmosphere. Wood will naturally change its size during seasonal changes! In the summer the humidity is generally at its highest level hence the wood joints should be reasonably tight together. During the winter when heating is commonly used the humidity levels are generally lower and will produce small gaps between the joints. This occurrence is not a manufacturing or installation fault! Care must also be given to rooms that are only heating when in use with the heating switched fully off at other times. This can cause a build up of humidity if the room is closed and not ventilated immediately after usage. The build of humidity / moisture will generally increase the moisture level of the wood flooring. The next time the room used the heating can dry out the moisture in the surface of the wood causing cupping.

Acclimatise the wood flooring for at least 72 hours prior to the installation in the room where the wood is to be fitted. The wood should be stored out of direct sunlight, away from walls and radiators. Acclimatising is used to balance the wood flooring with the environment it is going to be used in. If the temperature of the wood is at an equilibrium balance (the same as the room) and the moisture level of the wood is within  $\pm 2\%$  of the wood sub-floor you can assume the wood does not require any further acclimatising.

**NOTE: Some manufacturers do not require the wood to be acclimatised and recommend installation immediately after delivery.**



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Always create an unfilled expansion gap of a minimum 12mm on areas of less than 25 m<sup>2</sup> and a minimum of 15mm on larger areas.

Areas in excess of 10 linear meters x 8m width of the boards may require extra expansion between the boards and intermediate expansion in the length. Expansion gaps can be covered using a skirting board or beading / Scotia.

In cases where these products cannot be used such as in front of a stone fireplace an alternative is placing a low density foam strip (low density meaning it can easily be crushed between your fingers) leaving it approximately 2mm below the height of the wood floor and then use a colour fill or similar to bridge over the foam.

This will allow any movement of the wood flooring to push up the filler without restricting the movement.

Threshold profiles should be installed in all doorways, arches or narrow sections that lead from one room/area to the next. These thresholds must allow for the required expansion and contraction. Door frames and architraves can be undercut to allow the wood to slide underneath, still allowing for the expansion.

**NOTE: Never undercut newel posts as these are structural sections of the stairs.**

#### Secret nailing to existing timber sub-floors:

The sub-floor should be a minimum of 18mm thick and of a suitable density to hold a 50mm floor nail when fired at 45°. Nails should be at least 2 1/2 times the thickness of the wood flooring but care should be taken with underfloor services.

**As a guide a 50mm nail driven into an 18mm thick board at 45° into an 18mm thick sub-floor would penetrate below the board by approximately 2mm.**

The wood flooring should be nailed at a distance of 200mm to 250mm and not within 50mm of the end of each board to avoid splitting the tongues.

**NOTE: Mechanical nail guns can and do tighten the boards together! If you are installing areas that require intermediate expansion or to ensure the boards are not over tight together we suggest using a pneumatic nail gun as these do not normally apply sideways pressure when the nail is driven in.**

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#### Nailing to joists and battens

The joists / battens should be structurally sound and free from any disease, insect infestation or, rot. The joists / battens must conform to BS 8201 and have a moisture content not exceeding 12% to 14%. The distance / spacing between battens and joist will be partly determined by the wood flooring being fitted and the intended loads that are expected. Heavy loading may require a thicker board and or overlay the joist / batten with a suitable plywood.

Header joins between joists / battens can be made, providing the boards on either side of the join are fully spanning the joist / batten. Ideally fit another joist / batten under the header join. Header joins should be a minimum of 300mm apart on adjoining boards.

**NOTE: On large areas we recommend starting in the middle of the area fitting a false tongue when reversing the boards in the opposite direction. This even out the movement of the boards.**

#### FIXING TO CHIPBOARD AND OSB TYPE SUB-FLOORS

Nails are not usually suitable fixings as they have been known to work loose from the chipboard and OSB during normal usage due to the board construction. Tongue screws are the best solution which can be screwed through the tongue the same as with nails. Use the same rules as above for fixing distances. Tongue screws can be driven without pre-drilling but tests must be made to ensure there is no splitting of the tongue.