

# SITE ASSESSMENT GUIDE

Once the species of wood, grade, thickness and method of installation have been chosen, the area to be floored should be checked for the following:

- \* Site Conditions
- \* Type of Sub-Floor
- \* Sub-floor with Underfloor Heating
- \* Moisture Content of Sub-floor
- \* Flatness of Sub-floor

## Site Conditions

Weatherproof, Dry Stable Temperature and Humidity Wood is a natural product which is influenced by variations in environmental conditions. (a) Weatherproof and Dry

It is absolutely essential that the area to be floored is in a dry environment and that windows and doors are weatherproof. Heating and ventilation may be necessary.

(b) Stable Temperature and Humidity

At the time of installation, the relative humidity (RH) of the air should be within the expected RH range of the building when in use. Ideally, this should be between 35% and 65% RH. For best results, the range of relative humidity should not vary more than 30% during the life of the floor. The building should be in a 'lived-in' condition.

(c) All Wet Trades Fully Dry

For example, walls should be plastered and allowed to dry before and not after the floor is laid.

(d) All Damp Problems Solved

Exposure to dampness will cause problems to a wooden floor. This MUST be rectified prior to any installation. Sometimes, this may require advice from a damp-proofing specialist, but ask the manufacturer first, who most likely will have a solution.

(e) Storage

Lengthy storage times should be avoided. Ideally, boards should be unwrapped and fixed as soon as possible after delivery. If storage is necessary, good, dry and stable conditions are essential. In such cases, packs should be stored flat and properly supported along with their length.

Should you wish to inspect the boards after delivery but before installation, remember to re-seal the packs carefully.

(f) Acclimatisation

Because the moisture content of the pre-finished boards as supplied is correct for dry, stable conditions, acclimatisation is unnecessary. Other types of hardwood flooring which are not pre-finished may have an inconsistent moisture content and must be acclimatised by unwrapping, laying out in the area to be floored and left for about two weeks.

# SITE ASSESSMENT GUIDE

Acclimatisation of such boards is always difficult to achieve.

## (g) Protection

Unfortunately, in today's building industry, protection is often necessary. Paper, felt, hardboard or whatever method is used, the protection must be able to prohibit dirt, moisture, grit etc, coming into contact with the boards.

Floors which are unprotected can be scratched and damaged.

## Types of Sub-Floor

### (a) Existing Floorcoverings

Typical examples are vinyls, asbestos tiles, lino, some carpets, ceramics, marble, terrazzo and floor paints. Many of these can be left in place, subject to comments made later in this guide.

Usually, no treatment is required for floating floors.

### (b) Cementitious

Basically, this is screed or concrete. There is usually no need for special treatment - once again, subject to comments made later in this guide.

### (c) Wood

Examples are T & G boards, wood block, chipboard, plywood, MDF etc. Cleaning, priming, sanding etc., may be necessary before a new fully adhered floor is laid.

### (d) Polystyrene

This material is becoming more popular. Laying wood floors is usually no problem providing the density of the polystyrene used is correct and in accordance with the requirements of the board manufacturer.

Laying boards less than 10mm thick on polystyrene is not recommended although polystyrene/chipboard panels are often satisfactory.

### (e) Joists and Battens

Use thicker loadbearing boards only. Batten centres depend on the end use of the floor. Generally, this is 600mm for domestic installations. Centres for other applications will depend on the recommendations of the board manufacturer.

Manufacturers provide a specific range of battens to suit the application of the floor.

### (f) Asphalt

# SITE ASSESSMENT GUIDE

Generally does not cause problems except with fully adhered floors. Asphalt floors often require a self-levelling screed or similar as they are prone to being uneven. Make certain that the levelling screed adheres to the asphalt and that the asphalt does not permit moisture to permeate from the base. If it is not moisture resistant, it must have a suitable damp proof membrane beneath.

## Sub-Floors with Underfloor Heating

### (a) Maximum

The maximum surface temperature on the boards should be 26-27 degrees C. Pre-finished boards are generally suitable for most water or electric underfloor heating systems.

Some manufacturers of underfloor heating systems (e.g. Wirsbo) work closely with pre-finished hardwood flooring manufacturers to ensure their systems are compatible.

Most pre-finished boards are ideally suited for underfloor heating due to their low moisture content. Some thinner products however should not be used. The manufacturer will advise.

### (b) Heating Systems to be Operational

It is important that underfloor heating systems are in operation prior to the installation of a hardwood floor, especially those systems installed within screeds, and that the room temperature is between 18-22 degrees C. Commonly, the system will be switched off a day before installation and turned back on gradually after the floor has been laid.

It is recommended that the heating system runs for two weeks at half to two-thirds power to avoid moisture problems.

Do not fix the floor and then start up the heating system - this will drive the moisture into the underside of the boards.

Acceptable 'gapping' of boards during heating depends very much on the surface temperature of the boards and the type of boards being used.

## Moisture Content of Sub-Floors

Moisture is one of the most common causes of failure in wooden floors, so the points listed on pages 8 and 9 should be followed carefully.

### (a) Cementitious Bases

Maximum 5% Moisture Content or 75% Relative Humidity.

These are figures which indicate the acceptable moisture content of the sub-floor prior to the laying of pre-finished hardwood flooring. Water used in the construction of cementitious base MUST be allowed to dry out.

IT IS THE RESPONSIBILITY OF THE FLOOR LAYER TO MEASURE THE MOISTURE

# SITE ASSESSMENT GUIDE

CONTENT OF A FLOOR. IF IN DOUBT - DO NOT LAY!!!!

## (b) Residual Moisture - The Need for a Surface Membrane

Even with the above levels, there is always residual moisture trapped in the base which will never come out. However, low levels will come out in the future. Therefore, WITHOUT EXCEPTION, all hardwood floors laid on a cementitious base need a moisture membrane on the surface of the base.

Consult the board manufacturer if the floor is to be fully adhered.

## (c) Polythene Membrane on a Wet Base

It is very risky to put a moisture membrane on a wet base. Trapped moisture will build-up and vapour will pass through the membrane. It should be remembered that membranes are water resistant but NOT vapour resistant. Never install a wooden floor over a membrane if the moisture levels are above those previously mentioned.

## (d) Why Wood Needs a Dry Base

This is necessary in order to avoid uneven moisture intake by the floor. Too much moisture on the underside of the board will cause an imbalance, e.g. 'cupping', also, excessive expansion and movement and possible expensive failure of the floor.

## (e) The Two Methods of Measuring Moisture Content of a Sub-floor

By Hygrometer or electronic methods:

### (i) Hygrometer

This is one of the most reliable methods and involves measuring the humidity of the air coming out of the base, which should not exceed 75% RH. This is currently the only accepted method shown in BS8201

### (ii) Electronic

This method should only be used as a guide and involves drilling into the base and measuring the moisture content. There is always a danger of excessive moisture being found at the bottom of the base, therefore care must be taken to measure to the full depth. This should not exceed 5%.

## (f) 'Rule of Thumb' for Assessing Screed Drying Period

This only applies to screeds up to 50mm thick and states:

'One month is required to dry one inch of screed or one day to dry one millimetre of screed'.

This means that a 50mm screed usually takes about two months to dry naturally.

This rule does NOT apply to concrete or with screed thickness greater than 50mm.

# SITE ASSESSMENT GUIDE

## (g) Drying Different Types of Concrete

### (i) Concrete

Moisture can be trapped due to the constituents of the mix, how much water was used in the mix and the thickness of the concrete.

### (ii) Power Float

By its very nature, this method will take longer to dry than a rough tamped finish, due to the relatively dense sealed 'skin' which forms on the surface.

### (iii) Sand/Cement Screed

Dries fairly evenly.

The drier the environment, the quicker a cementitious base will dry. If the Relative Humidity of the air is more than 75% RH, the drying time will be longer.

## (h) Specialist Vapour Membranes

There are specialist membranes available from all PHMA manufacturer members which allow hardwood floors to be installed over wet bases. These prevent the vapour passing into the underside of the boards and in fact, vent the water vapour away.

### (i) Wooden Sub-Floors - Moisture Content of Joist and Battens

It is important that the moisture content be between 12-14%

### (j) Suspended Wooden Floors:

Void Under to be Vented as Current Building Regulations.

This is good practice, as putting a moisture membrane on a wooden sub-floor can be detrimental if not properly ventilated beneath.

## Flatness of Sub-Floors

Before installing a hardwood floor, the flatness of the base should be no more than a 3mm gap showing under a 3m straight edge. The base may be a cementitious one, chipboard or similar material, or joists and battens.

If the sub-floor is not to this flatness tolerance, it is the responsibility of the floorlayer to point this out to the client.

Problems that will occur if this flatness is not present include creaking, squeaking, uneven or excessive movement, joint failure, gaps or lack of adhesion.

The likely consequences of uneven floors also depend on the thickness of the boards. The thinner the floor finish, the flatter the sub-floor will need to be.

# SITE ASSESSMENT GUIDE

## (a) Levelling Compounds

Q. How do you get over the problem of a sub-floor which is not level?

A. Use a levelling compound.

These are mainly designed for use over cementitious or hard sub-floors but nowadays, compounds are also available for other floor finishes such as T & G boards.

Alternatively, overlay with a timber sheet sub-floor such as plywood prior to installing the hardwood floor. Remember that a 1/8 hardboard sheet will simply follow the line of the sub-floor and therefore may not be suitable.

SITE ASSESSMENT GUIDE

SITE ASSESSMENT GUIDE

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