Close

Wood Floors and the effects of Moisture

Whilst wood is a very durable material with excellent properties for creating wood floor's, it has to be remembered that it is a natural material and if it is exposed to excessive moisture then it's structure can be affected and performance can be compromised. Manufacturing experience has proven that after harvesting, hardwood timber need's to be subjected to drying processes to prepare it for making wood flooring board's.

Moisture content of wood floor boards

As a final stage before making wood floor board's, the hardwood is kiln dried to a moisture content of between 6% and 9% and thereafter, for optimum performance, this is the moisture content that should prevail.

Too much / too little moisture content

Q. What will happen if hardwood flooring either solid or engineered is subjected to too much moisture i.e. above 9%?

A. Very simply the boards will expand, and can result in:

- The boards distorting, by cupping or bowing
- The tongue and grooved joints will expand making it difficult to install.
- The top layer of engineered board's can delaminate
- The whole laid floor could expand and either reduce the expansion joint or even worst close it completely and - if lucky the floor will lift - if unlucky damage might be caused to other elements in the building.

Q. What will happen if hardwood flooring either solid or engineered is subjected to too little Moisture i.e. less than 6%?

A. Very simply the boards will shrink and can result in:

- The boards distorting, by cupping or bowing
- The tongue and grooved joints will shrink making it difficult to install.
- The top layer of engineered board's can delaminate
- The whole laid floor could shrink and gap's will open up in the tongue and grooved joint's.

The environment affects the performance of the material's

It is therefore critical, that the person using the wood flooring material's to make a floor follow's the guidelines in BS8201:2011 and conduct's all the recommended check's to make sure that the environment is correct prior to taking any materials onto site.

DO NOT TAKE ANY WOOD FLOORING MATERIALS ONTO SITE UNTIL ALL WET TRADES HAVE BEEN COMPLETED AND RELATIVE HUMIDITY IS LESS THAN 65%

Moisture content in storage areas

BS8201:2011 states that material's should be "stored in a weathertight and dry environment with conditions that maintain the moisture content at the level recommended for laying (see 12.5.3) and as close as possible to the conditions of the finished building"

As a guideline to achieve this:

- Relative Humidity should be between 35% and 65%
- Moisture content in the substrate should be less than 2%
- The cartons should be stacked a minimum of 50mm off the substrate
- The cartons must be supported along their full length
- The cartons should be stacked a minimum of 500mm from any wall
- The cartons should not be covered with any impervious material.

Relative Humidity

The amount of moisture in the air is called Relative Humidity and is produced by conditions that exist in the immediate location. To ensure that a moisture content of 6% to 9% is maintained in wood flooring, the ideal Relative Humidity should be between 35% and 65%

Moisture content of substrates / bases

Different substrates or bases will have different moisture level's and the following are guidelines to the amount of moisture that should be present when installing wood flooring.

Please note:
All moisture tests for screed or concrete substrates should be conducted as described in BS8201:2011 "Annex A (normative) Hygrometer test for dampness of concrete, cementitious and anhydrate bases".

Cement and sand screed	Less than 2%
Calcium sulphate (Anhydrite) screed	Less than 0.5% Measured after the laitance has been removed
Power floated concrete	Less than 2%
Joists or Battens	12% to 14%
Existing wood flooring	12% to 14%
Plywood	Less than 12%
Chip board	6% to 9%
Particle boards including MDF / HDF	6% to 9%

Protection against ground moisture

Where wood flooring is installed either fully bonded or unbonded in a ground floor location provision must be made to reduce the impact of any rising moisture by installing a damp proof membrane. BS8201:2011 states that "the sole function of any adhesive is to bond the flooring to the base and it is not to be regarded as performing the function of a vapour check membrane"