

Help and advice



**Peter Grant on material witnesses when measuring damp - Part 2**

# Want to be slab happy? Here's what to do

LAST month we looked at some of the issues moisture has with engineered wood products from plywood to OSB and MDF. We will now take a brief overview of the concrete slab and solid timber boards.

In general terms the wetter the concrete slab the higher the potential 'vapour pressure' (which migrates the moisture out of the slab into adjacent drier materials).

Whilst DPMs such as epoxy resins, polythene sheets etc may appear to prevent movement of moisture, but they actually only slow its transmission rate to what is hopefully an acceptable value, as measured by the ERH value.

If a DPM is placed over a very wet slab at say 90% ERH, that slab will transmit more moisture than if it was at 80% ERH – assuming all other conditions remain constant, because the vapour pressure differential will be greater.

You may note, from the information on timber below, that the ideal ERH for the concrete is about 35% to 40% for wood of 9% moisture content. As this is very difficult to achieve in practice, the best plan is to reduce the slab ERH to as low a value as possible so that it exerts the minimum vapour pressure on the membrane.

Ideally the value should be reduced to 65% or less but always below the 75% as indicated in BS standards 8201, 8203 and 5325. The lower the value, the less vapour is transmitted.

Existing slabs should be sound, dry and level, with a maximum relative humidity as described above. The slab should incorporate a damp proof membrane to prevent ingress of moisture from the ground and ideally another DPM between the site concrete and the final levelling screed. This effectively reduces the overall drying time as, in practice, only this last screed needs then to be considered.

■ **Solid timber:** Well, where do we start with this one? There are a plethora of wood species along with different techniques in their cutting from the log wood. All of this will have an influence on the type and orientation of grain in the resultant boards which in turn will



Instruments to measure dampness

govern how the timber will react physically with increasing and decreasing moisture load.

In general, quarter sawn timber will tend to be more resistant to lateral expansion and warping (cupping and crowning) than plain sawn.

The yield of quarter sawn timber is lower per log than that of plain sawn, so there may be a cost relationship here with cheaper timber perhaps being more prone to movement associated with fluctuating moisture levels.

It is worth pointing out that moisture measurements taken with a pin type moisture meter should be taken with the grain and not across it as this can sometimes lead to lower than true readings.

Another often confused aspect of solid timber flooring is that of acclimatisation. When purchased from the manufacturer or wholesaler, solid timber will have inevitably been kiln dried to a moisture content typically in the region of say 9%. This is

somewhere in the region of 35 to 40% equilibrium relative humidity (ERH).

Now consider two fitting scenarios, one a new build and the other an established dwelling. Taking the latter first, it might be reasonable to assume that internal conditions are relatively stable and logic would tell you that breaking the wood out of its packaging and stacking on batons in the room concerned for a week to 10 days might be the best plan.

Whether this is the right way forward will depend on the ERH measurements you will have taken of both the subfloor and the environment in the room. A big differential here for example could spell trouble and lead to cupping or crowning depending on which set of readings were the highest.

Looking at the new build scenario, it is quite likely that ambient air conditions will be damp and so the general advice given by manufacturers to keep the boards in their packaging until fitting may prove to be correct.

This will be doubly so if an underfloor heating system is installed and is commissioned beforehand to dry the subfloor out.

Some manufacturers provide solid timber boards which are kiln dried to lower values than the norm especially for installation over under floor heating systems.

The key with wood of any sort is to understand how it reacts and moves with moisture flow, both ways, and plan ahead according to the conditions it will be placed in when fitted and when in further service.

We are not suggesting you can plan for every eventuality and extreme, nobody can, but by taking moisture measurements and using dpm systems where appropriate, you stand the best chance of keeping it all on the straight and level. **CFJ**

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# Sanding: Get down to the nitty gritty

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may have received during its life can produce some additional 'interesting' effects. Old finger mosaic floors, comprised of tropical timber species such as teak or merbau are the main culprits from my experience.

These floors, usually laid in a bitumen-based adhesive, may have been treated with oil finishes, oleoresinous and polyurethane varnishes, along with all manner of household cleaners and floor maintenance products.

Consequently there is a high potential for chemical reactions to

occur between the various elements, including those within the timber itself, once they have a water or solvent-based medium to work within.

Although rare, I have seen a number of floors where unusual 'blooms' occur on an old floor which has just been re-finished. These are usually more numerous at the joints between pieces of the flooring and can be difficult to deal with.

Invariably the floor will require re-sanding and caution required when it comes to selecting a suitable treatment. I have seen this phenomenon with both water-

based and solvent-based finishes including barrier seals and sometimes trials are necessary to ensure the best treatment.

A frustrating process, as sometimes the contractor will be blamed for something completely unexpected and largely beyond their control. However, with the careful selection of sanding process and product, the situation will be resolved to the contractor's and customer's satisfaction. **CFJ**

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