

Help and advice



Sid Bourne on installing over suspended timber subfloors

Cupping: You always have to play it by air!

I AM often asked to advise on problems with installations on top of existing suspended timber subfloors. The most common problems are 'cupping' and excess movement.

As I have mentioned so often in the past, wood is hygroscopic. You must make provision for this and you can do it in several ways.

When cupping occurs, installers often confront me with comments such as: 'I never have problems with engineered wood' and 'your product must be too dry' and so on.

I always try to help people resolve problems. However, sometimes they get bold and say that they should get the product free even though it is obvious to me that they are at fault. Can you believe that?

When I ask about the use of moisture meters, a frequent response is: 'What do I want those for? I am an expert. I don't need one!' That's something I find hard to believe.

Admittedly, there are many people – in fact, the majority – who listen and take note of advice. They follow the recommendations and henceforth they have problem-free installations. In other words, they never make the same mistake twice.

So let's return to the matter of cupping. The first thing I advise is always to check outside the property; see that airbricks are clear. Also look out to see if there are sufficient airbricks for the square metres of area.

Remember that, if possible, airbricks should be on opposing walls; and where there are concrete obstructions, pipes or ducts, additional airbricks should be provided to allow for air movement.

The absence of air movement (sometimes even caused by builders' rubble) is the main cause of trapped moisture.

Secondly, check the moisture content of the floorboards. Make sure the difference is no more than 4% between properly acclimatised flooring and the subfloor. If wide planks are used the maximum difference should be 2%. If this is not the case, you should be hearing alarm bells.

The action you ought to take

includes, if possible, laying a good quality poly membrane over the ground in the void space.

You can also install a Kraft paper impregnated with bitumen over the floorboards. This will still allow the floorboards to breathe, but it will keep moisture vapours from the back of the plank.

Don't be fooled by manufacturers who falsely claim that their planks are coated on the back with lacquer, and tell you that this will stop cupping. Believe me, it will not! It simply slows down the process so cupping takes a little longer to happen.

It's important to take the necessary action to prevent moisture from getting to your new wood flooring.

The vital factors in successfully installing a solid wood flooring include simply buying a decent wood species meter, an RH and temperature meter and a hygrometer. Also, you should use

common sense, which is free.

Some meters on the market incorporate all or most of these features in one product. If you claim that you can't afford to buy these products, or simply refuse to, then my advice to you is to give up floorlaying now and find a different job.

Another tip is to ask questions about the property where you are carrying out the installation. It is amazing how much information you get if you take the trouble to ask. For example, you might be told that the River Thames runs under the house. That should give you a clue about potential problems!

Use kraft paper or similar as long as it is suitable. Nail at right angles to floorboards. A common mistake I see is nailing the same way. Make sure you pin every 150mm to 200mm.

And when installing in winter, make sure you leave adequate

expansion for the coming summer months of high humidity.

Use only the correct floor nailing machines. Make sure you take moisture readings and keep a record of these figures.

As long as you observe these simple inexpensive tips then any problems that happen will not be of your doing.

I know a lot of good guys who will not go to any job without their trusted moisture meters. They do everything I have suggested above and they never have any installer problems. So I rest my case.

As for the others who think they know better, don't come crying to me when things go wrong! **CFJ Sid Bourne is technical director at Grundorf Terhurne and has over 25 years of installation experience.**

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Alec Stacey on refurbishment

Sanding to avoid problems: Get down to the nitty gritty

REFURBISHING timber floors is usually a straightforward process; the floor is sanded and a new treatment successfully applied. However from time to time we see floors exhibiting problems of varying severity usually related to the sanding process in some way.

Before the sanding machines are even removed from the van a detailed visual assessment of the floor should be made to ensure it will be possible to achieve the client's expectations with regard to the final appearance of the floor.

With engineered timber products it is vital that the wearlayer is determined to prevent sanding through to the ply construction beneath. By removing skirting boards and thresholds it should be possible to get a good idea of how much surface timber remains.

Also, bear in mind that the thickness of the timber wearlayer can vary depending on the specific product and

manufacturer.

This is an important concern with solid timber flooring too; as soon as the surface is sanded down to the tongue of the boards the flooring may lose some of its integrity both structurally and visually.

The type of treatment, both existing and intended, may impact on the degree of sanding needed. A floor which has been oiled previously will require a rigorous sanding if a polyurethane lacquer is desired in order to produce a uniform appearance and the required level of adhesion to the timber.

Similarly, if a floor has been previously treated with a wax-based polish a heavy sanding is justified in order to remove all traces of wax which will hinder re-treatment. This can be especially problematic when dealing with floors which have prominent gaps between adjacent boards or blocks.

Sanding with coarse abrasives

is effective at removing contamination from the surface but as finer abrasives are employed for the final belt sanding more frictional heat is produced. This can melt any wax from the joints which then becomes transferred to the abrasive and then the bare timber which becomes 'polished' with the wax-coated abrasive.

Any wax that remains on the timber surface will severely compromise the adhesion of any applied varnish.

One method of coping with this scenario is to use a heavy belt sander with coarse abrasives to level the floor and remove any surface treatments, and then continue the rest of the sanding sequence using a buffing machine fitted with abrasive screens.

This will generate a lot less heat and the wax will remain in the joints allowing the timber surface to be treated safely.

Other treatments an old floor

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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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Alec Stacey

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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