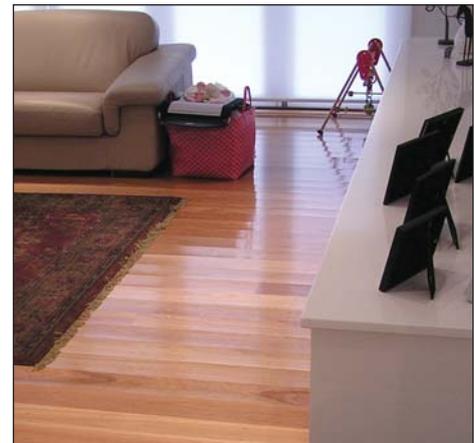


**Introduction**

Depending on where you live in Australia your climate may be one where you get periods of wet and dry, yet in other parts of the country the extended periods of wet weather have not been seen in many years. When the wet weather has been more intense than previous years we have seen expansion pressure in floors take its toll. Floors that may have performed well over the past two to four years may now peaking (raised board edges), tenting or buckling (boards lifting).

At these times of the year gaps close in floors and floors that showed no gaps become even tighter as expansion joints close. When I take a casual look at the humidity meter and see that it is 78% and think to myself, it's been up at these levels on and off for quite some weeks, my floors are going to be expanding.

So let's take a look at the conditions within our dwelling to understand what is happening with our floors.



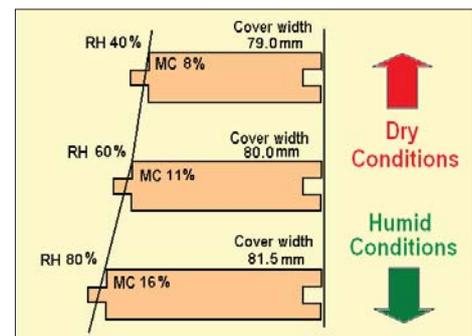
Peaking through pressure from moisture uptake in high humidity conditions.

**Relative Humidity, Moisture Content and Expansion**

The relative humidity is a measure of how moist the air is and the higher the percentage value, the more moist the air. When the relative humidity is high, moisture in the air is absorbed into the timber flooring causing the moisture content of the flooring to increase. An increase in timber flooring moisture content is accompanied by swelling. This is shown in the adjacent diagram.

Although both temperature and humidity alter throughout the day and night, a floor's response is usually relatively slow and we often only see minor changes from month to month. However during prolonged wet periods things can be different. The moisture in the air is absorbed into our timber floors, gaps close and the floor can tighten considerably.

Many of our higher density hardwoods are slow to take up moisture, but if wet, high humidity conditions remain long enough they are certain to absorb moisture and expand. However, just as they were slow to take up moisture they are slow to release moisture back to the air. Even when less rain is experienced it will take some time for moisture contents to return to normal levels. In some parts of the country this effect may linger for some months until the drier time of the year.



## The current situation

Over the past 20 or so years our flooring systems have been changing as have expectations from the public, with a perception that they can have gap free floors. What we have seen is flooring being manufactured toward the lower end of accepted moisture content range in response to owner concerns about gaps at board edges. This too is exacerbated by demand for wider board flooring where gapping is also seen by some as undesirable. In addition to this there can also be debate over the need for intermediate expansion allowance in a floor. It is then under these more extreme changes to weather patterns that some floors experience expansion related problems.

Adequate expansion allowance in a floor is a must, not an owner option. Practices such as acclimatisation, if correct conditions prevail prior to laying, as well as recognised installation practices are both important. Each floor needs to be thought about in the environment it is being laid in and laying practices chosen accordingly. Timber is a natural product that shrinks or swells depending on the weather. The floor owner needs to understand that shrinkage gaps are normal (to a degree) particularly in dry weather and may close in wet weather. The floor owner also needs to understand that wider boards are more likely to show wider shrinkage gaps than narrower boards. We find that those owners who understand timber see such gaps as being quite normal, quite acceptable and that they do not detract from their beautiful floor, they are a natural part of it.



Adequate expansion allowance is a must and fine gapping does not detract from a floor's appearance.

## Floors under pressure

As the saying goes prevention is often better than cure. Anecdotally, floors tend to be more stable after a few years of use and when a floor is under expansion pressure some owners have purchased small dehumidifiers to extract moisture from the air and reduce the pressure in the floor. Similarly, refrigerative air conditioning will also extract moisture from the air but is not as effective as a dehumidifier. Owners taking these pro-active approaches during these times have lessened or negated problems with their floors and particularly over the first few years of the floor's service.

For those floors that have expanded and more severe pressure effects are apparent in the floor, it must be recognised that the weather has played a role in this. Conditions that cause sequential flooding throughout the eastern states do not happen every year and this too needs to be recognised. As indicated above once a floor has increased in moisture content, the floor is also reluctant to lose that moisture resulting in sustained pressure in the floor that may remain for some months until the house is heated, air-conditioned or seasonally dry conditions return. It is only then that the pressure in these floors will be relieved.

If a floor has peaked due to pressure in the floor, additional expansion allowance may have already been provided. Even so, it is often best if remedial work is not completed until drier conditions when some of this pressure will be relieved. This brings the floor back into more normal conditions that it had previously experienced. At that time tidying up and reinstating the expansion allowance and re-sanding and coating usually creates a floor that remains flatter thereafter. Recovery in the floor may also warrant no remedial work but as indicated in other instances some work will be required. In instances where problems have occurred it is usually necessary for the installer, product manufacturer and owner to work together to return the floor to its natural elegance and beauty.