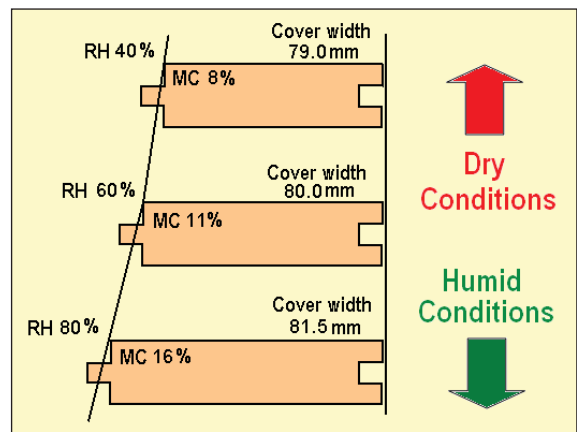


Introduction

The laying of a timber floor and when it is subsequently sanded and polished is often dictated by the building schedule and due to this the effects of seasonally hot and dry weather conditions are at times not duly considered. This situation is further exacerbated if during these times the house is unoccupied and locked up for an extended period. This information sheet explains what happens under these conditions and how problems may be alleviated.

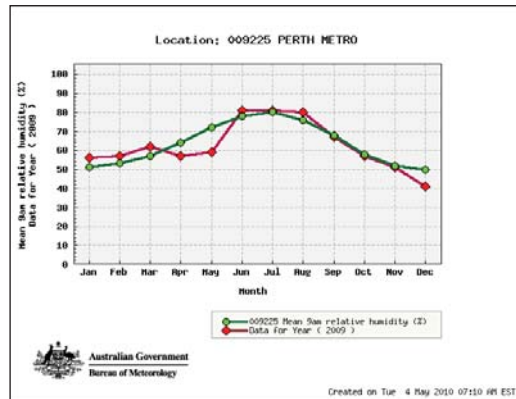
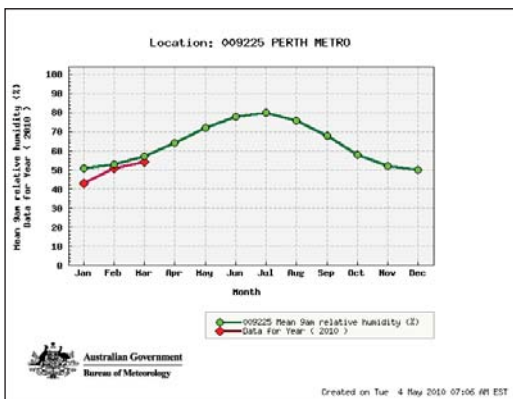
Why shrinkage gaps occur

The diagram shows the relationship between the air relative humidity, board moisture content and board width. As conditions become drier due to lower air relative humidity, moisture is released from the boards, board moisture contents reduce and the boards shrink. This is a natural process. The consequences of this are that gaps will appear at board edges and greater shrinkage may occur at the exposed upper surface resulting in boards cupping. Temperature has two effects. Firstly, high temperatures within a house will lower the relative humidity making the air drier and secondly high floor temperatures make it easier for the moisture in timber flooring to be released to the air.



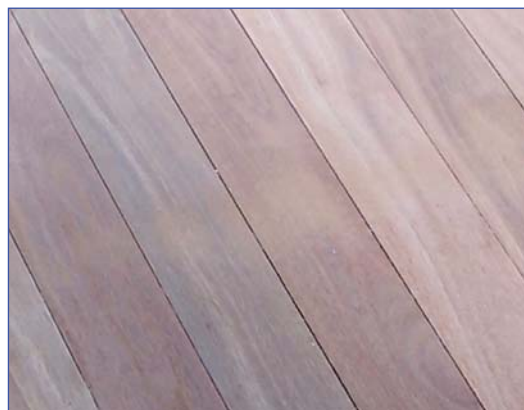
Very dry conditions

Many states experience very dry conditions and this is often around Christmas and it is at these times that houses under construction can be locked up for a period of three to four weeks while the builder takes an earned break. If a timber floor has been laid prior to this and weather conditions become very dry then a high degree of shrinkage, cupping and at times checking (surface splits) can result. Weather data shows these conditions as indicated in the adjacent 9am relative humidity graphs below for Perth during the Christmas period of 2009 to 2010 (red line).



Source
www.bom.gov.au

In Perth during this December and January period the average 9am external relative humidity was 40%. This equates to timber moisture contents of about 7.5% and in a closed up dwelling with higher internal temperatures the conditions can equate to timber moisture contents as low as 4%. This has a drastic effect on timber flooring in an unoccupied dwelling and even if the floor has been coated the effect is still very severe.



Affected floors show consistent gapping present throughout.

The differences between dwellings that have been occupied and those that are not occupied also needs some explanation. Firstly, when a dwelling is lived in there are many sources that add moisture to the air including pots boiling on the stove, pot plants, bathroom showers or evaporative coolers.

Furnishings and many other items in the house also take in some moisture and this tends to moderate the fluctuations in relative humidity during dry periods. Due to this although low humidities do occur that cause floor's in existing dwellings to shrink, those extremely low relative humidity conditions of an unoccupied locked up dwelling do not generally occur.

What can be done?

Prevention is always better than cure

Certainly, if a timber floor is laid in November and it is not intended to finish the floor until February, and it is known that the dwelling will be locked up for a hot period over Christmas, then delaying the installation of the floor to late January may be an option. However, if this cannot be achieved it is imperative that the measures are taken to prevent high floor temperatures and very high room temperatures. With regard to this, temporary coverings on windows where the floors will receive high sun exposure should be undertaken. It is also necessary to provide ventilation through the dwelling during the period that it is closed. With due care for the floor, buckets of water placed throughout the dwelling will result in the water evaporating and adding moisture to the air and alleviate to some degree the reduction in relative humidities. Alternatively, some have had success by placing clear plastic over the floor which prevents severe moisture loss from the boards. With such an approach care is necessary and particularly that slab or sub-floor is not providing an additional source of moisture from beneath which could cause sweating. This however should only be considered by those skilled and knowledgeable in the laying of floors.

What if I have no choice but to try a cure

If returning to a floor after a dry period when the house has been locked up and there are concerns with the condition of the floor then it is necessary to bring the floor back closer to its expected in-service conditions prior to sanding and finishing. Again, raising the humidity in the dwelling will bring about some recovery to the floor with some species being more responsive than others. In addition to the above, daily or more frequent damp (not wet) mopping may assist as may mist spraying the rooms. In more severe instances, and where the only other option being considered is floor replacement, others have found that by mist spraying and then laying clear plastic over the floor, the floor has recovered well. Such an approach does require careful monitoring and again should only be considered by those experienced with timber floors and willing to replace the floor if these measures are unsuccessful. If the floor has already been sanded and coated then means to raise the relative humidity in the dwelling and damp mopping can be effective. Note however, that with coated floors practices also need to comply with those of the coating manufacturer. It should however be noted that if the floor is coated and cupping is induced then even with the measures above, some residual cupping may remain. Once it was known that the floor is stable, re-sanding would be required to remove the cupping.