

# Mould, occupants and house condition

Around 50% of New Zealand homes are affected by mould - an unacceptably high statistic when it is known to cause respiratory and other health issues. Having more resilient houses could improve this.

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**MANY NEW ZEALAND** homes have rather high humidity levels, creating condensation that can damage building materials and leave unsightly mould on wall and ceilings, for example. This is caused by:

- house condition, such as lack of insulation, leaks and high moisture loads
- occupant behaviour, such as a lack of heating and ventilation.

Homes are often not very resilient, so even small deviations from ideal indoor conditions can cause condensation or mould growth.

## **Homes often too cold and damp**

Bedroom temperatures measured by BRANZ in 83 homes across the country showed that 84% of the bedrooms were below 18°C between 11 pm and 9 am.

These low temperatures pose a health risk. Studies found that temperatures below 18°C can cause respiratory issues and high blood pressure as the body struggles to keep warm. These risks increase once the temperature drops below 16°C. BRANZ research has found



12°C in some houses. According to the World Health Organization (WHO), indoor temperatures should not be below 18°C.

Low temperatures also increase the risk of condensation on cold surfaces such as windows, walls and ceilings. Occupants' ventilation practices are often insufficient to remove moisture created over a day.

The consequence is moisture accumulation over time, increasing the risk of mould

growth, which is found in about half of New Zealand homes, according to the latest BRANZ House Condition Survey.

## **Mould needs moisture and nutrients**

Mould spores are everywhere - both outdoors and indoors. They only need moisture and nutrients to grow, and common building materials such as plywood, wall linings and carpets provide this. To reduce this risk,

excessive moisture should be avoided by adequate heating and ventilation.

Recent research into mould exposure in some New Zealand homes has shown that mould is normally found indoors at levels that do not affect most healthy individuals. However, some homes showed mould exposures at levels high enough to be an irritant and cause respiratory problems.

Mould is typically found in bathrooms but also in bedrooms where moisture loads can be high. This is caused by closed windows and doors restricting the air exchange and causing the moisture to condense overnight as the temperature drops.

Occupants can spend 6-8 hours a day in the bedroom so it is important to remove visible mould as soon as it is noticed.

### **Usually not toxic mould**

The infamous *Stachybotrys chartarum*, also known as black mould or toxic black mould, occurs after fungal growth on water-damaged building materials.

Black mould is slower growing than other species and needs specific nutrients - for example, wet cellulose in wood pulp products such as the paper backing of wallboards inside a leaky wall. It usually grows in cavities, such as the insides of walls, and is not visible unless the wall is opened. It is not commonly found inside New Zealand homes.

Most black-looking mould found in New Zealand homes will likely be a common type such as *Cladosporium*. This forms dark brown or black colonies.

### **Homes need to be more resilient**

Not all mould growth can be attributed to the behaviour of household occupants.

Less-resilient homes require a high level of occupant intervention to avoid mould growth. Homes that lack insulation, and have thermal bridging and water leaks are more prone to mould growth than well insulated, well ventilated, well maintained homes. Maintenance is important, and any leaks need to be fixed promptly.

Hidden water leaks sometimes reveal themselves through moist patches or stains on wall and ceiling linings or through excessive mould growth in an area. If these appear, the cause must be established and fixed.

Mould also finds favourable conditions in roof spaces and other parts of the building where moist air from the living area for example, can travel to.

We have recently been called to new homes with massive moisture and mould problems in the attic where the roof cladding had to be taken off to remediate the damage.

These problems were predominantly caused by high moisture loads in the living area and ceilings finding easy air transport paths through downlights into the attic space. This makes it even more important to keep the indoor climate at levels promoting healthy indoor conditions as remediation can be very costly.

### **Action plan for healthier indoor environment**

To recap, mould growth in the home should be avoided. Bad indoor air conditions potentially affect occupant health and the performance of the whole house. Heating, ventilating and regularly removing any mould growth are the best measures to provide comfort and maintain good indoor air quality.

Good indoor conditions start with a well maintained, resilient house that can cope with the normal day-to-day moisture load.

Keep the indoor temperature at or above 18°C and the relative humidity below 65%.

If there is mould growth in a room, remove it immediately and review the heating and ventilation habits to improve indoor air quality and avoid further growth.

Water leaks should also be dealt with immediately to avoid mould growth, particularly in cavities.

A well heated, well maintained and ventilated home has a low risk of mould developing and will provide an overall healthier indoor environment. ◀